

CAMBRIDGE NORTH PHASE 2: BIODIVERSITY NET GAIN ASSESSMENT



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| CAMBRIDGE NORTH PHASE 2: BNG ASSESSMENT | |
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1 INTRODUCTION

Purpose and scope of this report

- 1.1 RPS was commissioned by Brookgate to undertake a Biodiversity Net Gain (BNG) assessment of to cover the whole of the Cambridge North Phase 2 area as shown in the Phase 1 habitat Survey Map.
- 1.2 The Site is located wholly within the Chesterton Station Interchange (CSI) area. The CSI area was subject to a successful application for the Cambridge North Station which was approved in 2016 (permission S/3102/15/FL issued by South Cambridgeshire District Council and permission 15/2317/FUL issued by Cambridge City Council).
- 1.3 This report provides:
 - Assessment of baseline ecological value and ecological value of the application site postdevelopment;
 - A summary of habitat enhancement and creation proposals; and
 - Results of the net gain assessment.

Biodiversity Net Gain definition and methods

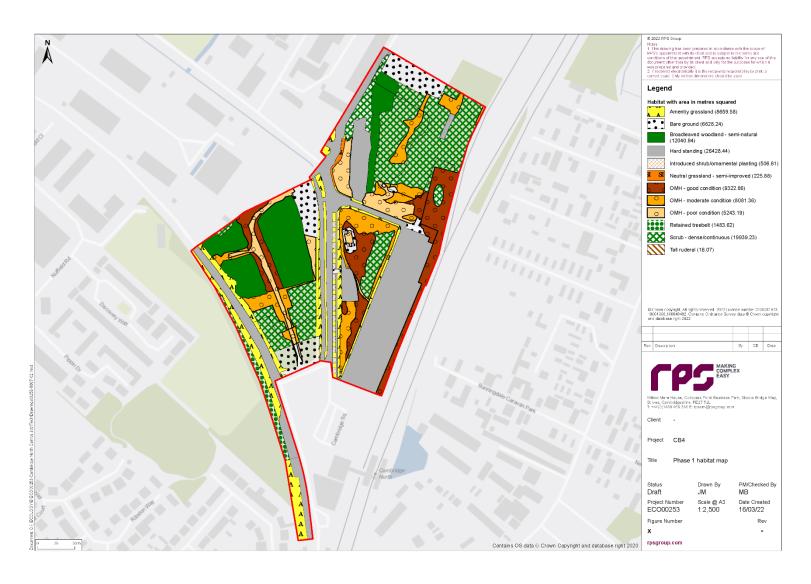
- 1.4 Biodiversity Net Gain is defined in Baker *et al* (2019)¹ as:
 - "Development that leaves biodiversity in a better state than before"
- 1.5 The requirement for developments to seek to achieve BNG arises from the National Planning Policy Framework (NPPF, 2021), which states in Para. 174 that:
 - "Planning policies and decisions should contribute to and enhance the natural and local environment by ... minimising impacts on and providing net gains for biodiversity."
- 1.6 An accepted method of assessing BNG is through the use of biodiversity calculators to assess the biodiversity value of habitats pre- and post-development based on habitat type, distinctiveness and condition.
- 1.7 A biodiversity index is derived for the baseline and for the proposed development, and BNG is considered to be achieved where an increase in value is delivered (on or offsite), and where habitats of a higher value are not replaced exclusively with habitats of a lower value.
- 1.8 This assessment was undertaken using the Defra biodiversity metric version 3.1 which was made available in April 2022. The metric and associated documents were downloaded from http://publications.naturalengland.org.uk/publication/6049804846366720

Phase 1 habitat map

1.9 The Phase 1 habitat survey map is provided in Figure 1. Refer to RPS (2022) for full survey information.

Baker, J., Hoskin, R. & Butterworth, T. (2019). Biodiversity Net Gain - good practice principles for development. Ciria, London.

Figure 1. Phase 1 survey map



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2 BIODIVERSITY NET GAIN ASSESSMENT

- 2.1 The baseline for assessment of BNG used the Phase 1 habitat map for the Site produced for the Ecological Appraisal (Figure 1 and RPS, 2022, ECO00253 CB4 Phase 2 Survey Report). Refer to this report for details of the baseline habitats present on site.
- 2.2 Habitats on the proposed development site are taken from the ECO00253 CB4 Phase 2 Survey Report.
- 2.3 Numbers in the tables in this section are copied from those generated by the Defra metric. Note that the spreadsheet rounds figures of credits to 2 decimal places which occasionally generates apparent minor discrepancies due to rounding errors when numbers are placed into tables.

Habitats

- 2.4 The extent, distinctiveness and condition of the baseline habitats on site are summarised in Table 3.1.
- 2.5 Areas of enhanced and new habitats proposed for the Site post-redevelopment and the biodiversity value as derived from the Defra calculation tool are provided in Table 3.2.
- 2.6 The assessment indicates the baseline value of the site is 48.86 units, 41.16 of which are lost.
- 2.7 Habitat creation proposed on site provides +68.87 units.
- 2.8 Habitat enhancement on site provided +12.63 units.
- 2.9 Post-development units on site are therefore **81.50 units.** This is a net change of **+32.64 habitat biodiversity units**, which is an on-site gain of **69.54%.**
- 2.10 There is a small amount of off-site enhancement also proposed, consisting of enhancements to the roof planting on the adjacent hotel (Novotel) and office (OCS). This adds a further +1.34 units which is small but important to enrich the rooftop habitats, particularly for invertebrates but also potentially to assist in supporting black redstarts, that could breed on the rooftops once constructed.
- 2.11 The total on-site and off-site net change is therefore +32.64 units or a 69.54% increase.

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Table 3.1: Baseline assessment of biodiversity value

| Habitat type | Area (ha) | | iveness ore | Condition | on score | _ | significance ore | Value (biodiversity units) ¹ | Area of habitat retained | Area of habitat enhanced | Baseline value of retained habitats | Baseline value of enhanced habitats | Area of habitat lost (ha) | Value of habitats lost |
|--|-----------|--------|----------------|----------------|----------|------|---------------------|---|--------------------------------|--------------------------------|--|--|---------------------------------|------------------------------|
| Modified Grassland | 0.8448 | Low | 2 | Poor | 1 | High | 1.15 | 1.94 | 0 | 0 | 0.00 | 0.00 | 0.84 | 1.94 |
| Modified Grassland | 0.0196 | Low | 2 | Fairly Good | 2.5 | High | 1.15 | 0.110 | 0 | 0.0196 | 0.00 | 0.11 | 0.00 | 0.00 |
| Modified Grassland | 0.0015 | Low | 2 | Poor | 1 | High | 1.15 | 0.00 | 0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| Artificial unvegetated, unsealed surface | 0.5437 | V. Low | 0 | N/A | 0 | High | 1.15 | 0.00 | 0 | 0 | 0.00 | 0.00 | 0.54 | 0.00 |
| Artificial unvegetated, unsealed surface | 0.1391 | V. Low | 0 | N/A | 0 | High | 1.15 | 0.00 | 0 | 0 | 0.00 | 0.00 | 0.14 | 0.00 |
| Other Woodland; Broadleaved | 0.9632 | Medium | 4 | Poor | 1 | High | 1.15 | 4.43 | 0 | 0 | 0.00 | 0.00 | 0.96 | 4.43 |
| Other Woodland; Broadleaved | 0.1484 | Medium | 4 | Fairly Poor | 1.5 | High | 1.15 | 1.02 | 0 | 0.1484 | 0.00 | 1.02 | 0.00 | 0.00 |
| Other Woodland; Broadleaved | 0.0368 | Medium | 4 | Poor | 1 | High | 1.15 | 0.17 | 0 | 0.0238 | 0.00 | 0.11 | 0.01 | 0.06 |
| Other Woodland; Broadleaved | 0.204 | Medium | 4 | Poor | 1 | High | 1.15 | 0.94 | 0 | 0 | 0.00 | 0.00 | 0.20 | 0.94 |
| Developed Land; Sealed Surface | 2.2625 | V. Low | 0 | N/A | 0 | High | 1.15 | 0.00 | 0 | 0 | 0.00 | 0.00 | 2.26 | 0.00 |
| Developed Land; Sealed Surface | 0.2555 | V. Low | 0 | N/A | 0 | High | 1.15 | 0.00 | 0 | 0.2375 | 0.00 | 0.02 | 0.00 | 0.00 |
| Developed Land; Sealed Surface | 0.1248 | V. Low | 0 | N/A | 0 | High | 1.15 | 0.00 | 0 | 0 | 0.00 | 0.00 | 0.12 | 0.00 |
| Introduced Shrub | 0.0507 | Low | 2 | Poor | 1 | High | 1.15 | 0.12 | 0 | 0 | 0.00 | 0.00 | 0.05 | 0.12 |
| Introduced Shrub | 0.0016 | Low | 2 | Poor | 1 | High | 1.15 | 0.00 | 0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other Neutral Grassland | 0.0104 | Medium | 4 | Poor | 1 | High | 1.15 | 0.05 | 0 | 0 | 0.00 | 0.00 | 0.01 | 0.05 |
| Other Neutral Grassland | 0.0102 | Medium | 4 | Poor | 1 | High | 1.15 | 0.05 | 0 | 0.0102 | 0.00 | 0.05 | 0.00 | 0.00 |
| Open Mosaic Habitats on Previously Developed Land | 0.7659 | High | 6 | Fairly Good | 2.5 | High | 1.15 | 13.21 | 0 | 0 | 0.00 | 0.00 | 0.77 | 13.21 |
| Open Mosaic Habitats on Previously Developed Land | 0.1664 | High | 6 | Fairly Good | 2.5 | High | 1.15 | 2.87 | 0 | 0.1664 | 0.00 | 2.87 | 0.00 | 0.00 |
| Open Mosaic Habitats on Previously Developed Land | 0.5901 | High | 6 | Moderate | 2 | High | 1.15 | 8.14 | 0 | 0 | 0.00 | 0.00 | 0.59 | 8.14 |
| Open Mosaic Habitats on Previously Developed Land | 0.218 | High | 6 | Moderate | 2 | High | 1.15 | 3.01 | 0 | 0.202 | 0.00 | 2.79 | 0.02 | 0.22 |
| Open Mosaic Habitats on Previously Developed Land | 0.4773 | High | 6 | Poor | 1 | High | 1.15 | 3.29 | 0 | 0 | 0.00 | 0.00 | 0.48 | 3.29 |
| Open Mosaic Habitats on Previously Developed Land | 0.0301 | High | 6 | Poor | 1 | High | 1.15 | 0.21 | 0 | 0.0301 | 0.00 | 0.21 | 0.00 | 0.00 |
| Open Mosaic Habitats on Previously Developed Land | 0.0169 | High | 6 | Poor | 1 | High | 1.15 | 0.12 | 0 | 0 | 0 | 0 | 0 | 0.12 |
| Mixed Scrub | 0.7353 | Medium | 4 | Poor | 1 | High | 1.15 | 3.38 | 0 | 0 | 0.00 | 0.00 | 0.74 | 3.38 |
| Mixed Scrub | 1.0433 | Medium | 4 | Poor | 1 | High | 1.15 | 4.80 | 0 | 0.1173 | 0.00 | 0.54 | 0.93 | 4.26 |
| Mixed Scrub | 0.2153 | Medium | 4 | Poor | 1 | High | 1.15 | 0.99 | 0 | 0 | 0.00 | 0.00 | 0.22 | 0.99 |
| Total | 9.88 | | | | | | | 48.86 | 0 | 0.96 | 0.00 | 7.7 | 8.92 | 41.16 |

^{1:} Calculated as: area x distinctiveness x condition x connectivity

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Table 3.2: Assessment of biodiversity value of post-construction habitat creation

| Proposed habitat | Area (ha) | Distinctive | ness score | Conditio | on score | Time to target condition (years) | Temporal multiplier | Difficulty of creation / enhancement | Difficulty multiplier | Habitat units delivered ¹ |
|---|-----------|-------------|------------|-------------|----------|----------------------------------|------------------------|--------------------------------------|--------------------------|--------------------------------------|
| Pond | 0.0218 | High | 6 | Good | 3 | 5 | 0.837 | Medium | 0.67 | 0.25 |
| Pond | 0.1489 | High | 6 | Good | 3 | 5 | 0.837 | Medium | 0.67 | 0.35 |
| Open Mosaic Habitats on Previously Developed Land | 0.1425 | High | 6 | Good | 3 | 10 | 0.700 | Medium | 0.67 | 1.38 |
| Open Mosaic Habitats on Previously Developed Land | 0.9977 | High | 6 | Fairly Good | 2.5 | 7 | 0.779 | Medium | 0.67 | 8.99 |
| Open Mosaic Habitats on Previously Developed Land | 0.639 | High | 6 | Good | 3 | 10 | 0.700 | Medium | 0.67 | 0.62 |
| Open Mosaic Habitats on Previously Developed Land | 0.3085 | High | 6 | Good | 3 | 10 | 0.700 | Medium | 0.67 | 3.00 |
| Open Mosaic Habitats on Previously Developed Land | 0.1509 | High | 6 | Fairly Good | 2.5 | 7 | 0.799 | Medium | 0.67 | 1.36 |
| Open Mosaic Habitats on Previously Developed Land | 0.4527 | High | 6 | Good | 3 | 10 | 0.700 | Medium | 0.67 | 4.40 |
| Open Mosaic Habitats on Previously Developed Land | 0.1989 | High | 6 | Fairly Good | 2.5 | 7 | 0.799 | Medium | 0.67 | 1.79 |
| Other Neutral Grassland (Flower Rich Grassland) | 0.0723 | Medium | 4 | Fairly Good | 2.5 | 7 | 0.799 | Low | 1 | 0.65 |
| Other Neutral Grassland (Flower Rich Grassland) | 0.0905 | Medium | 4 | Fairly Good | 2.5 | 7 | 0.799 | Low | 1 | 0.81 |
| Ground Based Green Wall | 0.0269 | Low | 2 | Good | 3 | 5 | 0.837 | Medium | 0.67 | 0.10 |
| Urban Trees² | 11.1344 | Medium | 4 | Moderate | 2 | 27 | 0.382 | Low | 1 | 39.15 |
| Intensive Green Roof | 0.0395 | Low | 2 | Fairly Good | 2.5 | 4 | 0.867 | Low | 1 | 0.20 |
| Intensive Green Roof | 0.2593 | Low | 2 | Moderate | 2 | 3 | 0.899 | Low | 1 | 1.07 |
| Reedbeds | 0.0307 | High | 6 | Moderate | 2 | 7 | 0.779 | Medium | 0.67 | 0.19 |
| Allotments | 0.0537 | Low | 2 | Moderate | 2 | 1 | 0.965 | Low | 1 | 0.24 |
| Developed Land Sealed Surface | 4.9592 | V. Low | 0 | N/A | 0 | 0 | 1 | Low | 1 | 0.00 |
| Modified grassland | 0.193 | Low | 2 | Good | 3 | 7 | 0.779 | Low | 1 | 1.04 |
| Allotments | 0.74 | Low | 2 | Moderate | 2 | 1 | 0.965 | Low | 1 | 3.28 |
| Artificial unvegetated, unsealed surface | 0.02 | V. Low | 0 | N/A | 0 | 0 | 1 | Low | 1 | 0.00 |
| Total | 20.09 | | | | | | | | | 69.87 |
| Site Area (Excluding area of Urban trees and Green walls) | 8.92 | | | | | | | | | |

 $[\]textbf{1} \colon \textbf{Calculated as: area } x \text{ distinctiveness } x \text{ condition } x \text{ time } x \text{ difficulty}$

^{2:} Areas for urban street trees are calculated using the 'urban tree helper' tool provided with the Defra metric. This provides an 'area equivalent' to enable the value of street trees to be included in the total site value calculation, but as this is not a direct measurement of actual habitat area, it does not get included in the total site area. The urban tree score for the site post-development is based on estimates from landscape design drawings.

| TT 1 | . 1 1 | | | | | |
|-----------|---------------|-------------|-----------------|------------|-----------------|--------|
| Urb | an tree helpe | r | | | | |
| Tree size | Num | ber of tree | s and area (ha) |) for each | condition state | |
| 1166 2126 | Poor | Area | Moderate | Area | Good | Area |
| Small | | 0.0000 | 159 | 0.6470 | | 0.0000 |
| Medium | 3 | 0.1099 | 109 | 3.9921 | | 0.0000 |
| Large | | 0.0000 | 85 | 6.4953 | | 0.0000 |
| Total | 3 | 0.1099 | 353 | 11.1344 | 0 | 0.0000 |

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Table 3.3: Assessment of biodiversity value of post-construction habitat enhancement

| Proposed habitat | Area (ha) | Distinctive | ness score | Conditio | on score | Time to target condition (years) | Temporal multiplier | Difficulty of creation / enhancement | Difficulty multiplier | Habitat units delivered ¹ |
|--|-----------|-------------|------------|-------------|----------|----------------------------------|------------------------|--------------------------------------|--------------------------|---|
| Other Woodland; Broadleaved | 0.1484 | Medium | 4 | Fairly Good | 2.5 | 10 | 0.700 | Low | 1 | 1.50 |
| Other Woodland; Broadleaved | 0.0368 | Medium | 4 | Fairly Good | 2.5 | 15 | 0.586 | Low | 1 | 0.21 |
| Mixed Scrub | 1.0433 | High | 6 | Good | 3 | 10 | 0.700 | Medium | 0.67 | 1.43 |
| Other Neutral Grassland | 0.0102 | High | 6 | Good | 2.5 | 10 | 0.700 | Medium | 0.67 | 0.12 |
| Developed Land; Sealed Surface | 0.2555 | High | 6 | Moderate | 2 | 4 | 0.867 | | | 1.90 |
| Modified Grassland | 0.0196 | High | 6 | Good | 3 | 10 | 0.700 | Medium | 0.67 | 0.25 |
| Open Mosaic Habitats on Previously Developed Land | 0.1664 | High | 6 | Good | 3 | 3 | 0.899 | Medium | 0.67 | 3.22 |
| Open Mosaic Habitats on Previously Developed Land | 0.218 | High | 6 | Good | 3 | 4 | 0.867 | Medium | 0.67 | 3.60 |
| Open Mosaic Habitats on Previously Developed Land | 0.0301 | High | 6 | Good | 3 | 10 | 0.700 | Medium | 0.67 | 0.40 |
| Total | 0.96 | | | | | | | | | 12.63 |

Table 3.3: Assessment of biodiversity value of post-construction hedgerow creation

| Proposed habitat | Length (km) | Distinctive | Distinctiveness score | | Condition score | | Temporal multiplier | Difficulty of creation / enhancement | Difficulty multiplier | Habitat units delivered ¹ |
|------------------------------|----------------|-------------|-----------------------|------|-----------------|----|------------------------|--------------------------------------|--------------------------|---|
| Native Species Rich Hedgerow | 0.0253 | Medium | 4 | Good | 3 | 12 | 0.652 | Low | 1 | 0.23 |
| Hedge Ornamental Non-native | 00384 | Very Low | 1 | Poor | 1 | 1 | 0.965 | Low | 1 | 0.04 |
| Total | 0.06 | | | | | | | | | 0.27 |

3 DESCRIPTION OF PROPOSED HABITATS WITH BIODIVERSITY BENEFITS AND OUTLINE MANAGEMENT

Flower Rich Grassland

- 3.1 The species rich planting specification will include native flowering plants that are of high value to pollinators. The species will represent a range of flower types from flat daisy-type white and yellow composites that benefit species and groups with short tongues to trefoils and labiates that are favoured by certain solitary bee species and long-tongued bumblebees.
- 3.2 Where longer grassland is planted Emorsgate EL1 meadow mixture for clay soils or similar will be used as a reference to inform seed specification.
- 3.3 Yellow rattle (*Rhinanthus minor*) will be included in grassland seed mixes, where this is appropriate. This is a key strategic species to help maintain the longevity of the flower-rich dominance of the sward. Since yellow rattle is a hemi-parasite on grasses it will suppress their dominance and promote broad-leaved flowers.
- 3.4 The grassland species mix could include:
 - Short hawkbits Leontodon spp
 - Rough hawkbit Leontodon hispidus
 - Tall hawkweeds Hieracium spp
 - Common cat's-ear Hypochoeris radicata
 - Ox-eye daisy Leucanthemum vulgare
 - Red clover Trifolium pretense
 - Meadow vetchling Lathyrus pratensis
 - Common bird's-foot trefoil Lotus corniculatus
 - Wild carrot Daucus carota
 - Tufted vetch Vicia cracca
 - Common fleabane Pulicaria dysentarica
 - Hemp-agrimony Eupatorium cannabinum
 - St.John's-wort *Hypericum spp*
 - Yellow rattle Rhinanthus minor
- 3.5 The grasslands will be sown by specialist commercial operators and lightly rolled to garner seed to soil contact. This will then be left and allowed to establish. Monitoring will be undertaken to assess the establishment of the sward and spot spraying may be included to inhibit pernicious weed species. Once established the grassland will be managed to sympathetically culture strong populations of invertebrates and not to diminish the flowering potential of the grassland resource. This will be done by not cutting the entire grassland resource in a single event (such as with traditional hay meadow management) but will seek to manage the resource to allow the plants to flower into late summer and it is proposed to only cut half of the resource each September. An ecological management plan will detail the cutting regime, including variations depending upon grassland establishment success rate and growth.

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3.6 Some short-mown flower-rich 'modified' grassland will be provided for amenity purposes within the wild park but which will have the potential to flower through mown rest periods such as 'No Mow May'.

Open Mosaic Habitat

- 3.7 Open mosaic habitat will be retained and restored wherever feasible on site. The open mosaic will be restored using on-site materials and seedbank wherever possible. The newly created open mosaics will include features such as south-facing bunds and banks to increase the microclimate for thermophilic invertebrates. There will be depressions included that, on windy days, will provide sheltering warm spots for basking invertebrates, which will be useful for species in early spring.
- 3.8 These depressions may partially fill with rainwater, which will provide a temporary feature that may benefit aquatic species. The open mosaic will be left to regenerate naturally when possible as there is likely to be a viable seedbank within retained materials. Where possible, the newly developing early successional vegetation will be situated close to scrub fringe and flowering grassland.
- 3.9 Monitoring of the restored bare ground colonisation will be undertaken to ensure the direction of botanical colonisation is a positive contribution to the overall invertebrate mitigation. Where it does not meet the priorities of invertebrate mitigation, namely flower-rich and diverse patchy swards, further work will be undertaken to steer the mosaics towards this though processes that may include turf stripping or disturbance.

Urban Trees, Shrub and Scrub

- 3.10 Scrub along the western boundary will be retained and enhanced as far as is possible, in order to preserve a significant scrub edge habitat on site for many of the invertebrates recorded. Enhancements will include potential supplementary planting to add variety to the scrub fringe woody species diversity and management to increase variation along the boundary, including remodelling of the fringe to include scalloped edges and deadwood.
- 3.11 The existing screening will be enhanced and strengthened with additional native tree and understorey planting.
- 3.12 Tree planting will include oaks *Quercus spp*, rowan *Sorbus aucuparia*, wych elm *Ulmus glabra* and alder *Alnus glutinosa* and poplars *Populus spp*.
- 3.13 Orchard tree species, plum (*Prunus domestica*) and apple (*Malus domestica*) will be planted in the southern planting area, orchard trees are beneficial to invertebrates including spring blossom and autumnal fruits, and in time deadwood.

Brown and Green Roofs

- The open mosaic habitat roofs will be designed to be a mix of flower-rich swards comprising 'bee-friendly' native plants; log piles/ deadwood habitats, sandy "bee beaches" and vertical exposures / micro-habitat banks. The roofs will have some micro-variation in levels with some occasional south-facing sloped areas. These areas will also have nest boxes and chick shelters (half-pipe or similar for ground-nesting bird chicks to hide to avoid crow, gull and raptor predation); and medium sized shallow water bowls/dishes to provide ephemeral open water habitats.
- 3.15 The roof design will also look to incorporate material from the remaining open mosaic habitats, reusing the substrate and therefore the existing seedbank in patches on the roofs. The roof areas will as well as having plug planting also naturally regenerate from the remaining viable seedbank of species from the original OMH priority habitat re-used from the site. The aim of this is to allow some of the typical plant species of the site to re-establish.

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3.16 Brown and Green roof planting will be the highest quality Open Mosaic Habitat planting but will be classified as fairly good condition due to being at height.

Allotments

3.17 Wildlife friendly allotments will be created on the roof top areas alongside the green and brown roofs and in the northeast beyond the wild park.

Bee Beaches

- The creation of a series of "bee beaches" will be included in the overall matrix of the invertebrate habitat, including on the rooftop biodiverse green roofs. The bee beaches will be made from partially compacted builders sand or another appropriate relatively fine sand. The material will be at least 60cm in depth and each beach will be a minimum of 5m x 5m in area (of varying shapes). The northern side of each beach will be produced into a small cliff of 50cm in height across the extent of the northern edge of the beach therefore creating a south-facing sandy exposure.
- 3.19 These bee beaches should be monitored alongside other components of the site to ensure they are developing in a way that will produce favourable results. Once a bunker has lost its optimal state and succeeded to a vegetation dominant state (that being greater than 80% vegetation cover), half of the feature will be scraped off to initiate succession again. The remaining half will be scraped off in the following year during May-July.

Butterfly and Beetle Banks

- 3.20 Butterfly banks are bunded materials sown, or planted, with key butterfly larvae foodplants. The material used in the construction of the bunds can vary dependent upon the targeted species or geographical location. At this site the material will bias calcareous deposits as this will produce the richest flora and benefit the widest range of butterfly species indicative of brownfield sites and calcareous grasslands of the surrounding area. The bunds will comprise of chalky or limestone deposits. A mix of material from a fine grade to coarse deposits will be included.
- 3.21 Large flat slabs of chalks (greater than 30cm in diameter) or if these cannot be sourced bricks and other rock surfaces will also be positioned on the surface of the bunds. These are important as they suppress plants and therefore help retain open ground.
- 3.22 The butterfly banks will be positioned in sheltered places in full sun. To increase their value they will be constructed in a sinuous shape to help impede wind across the features and can be situated as two parallel banks. These parallel arrangements are optimal as they can produce their own microclimate. The feature will be optimised further through the creation of some vertical, southerly-facing exposures cut into the bunds to promote their use to nesting bees and wasps.
- 3.23 Beetle banks will be created using varied grade material. The material, where possible will be sourced from on site as this material is likely to contain invertebrate species of some value. The material will also possess an existing seedbank. The banks will be situated in sunny situations and also in semi-shaded situations to provide homes and shelter for species from different assemblage types with specific ecological requirements, such as those that prefer dry, arid conditions typical of calcareous parched grasslands and brownfields to those that prefer damp, humid and/or cooler shaded situations such as wood edge species.

Ponds, Open Water, Swales and Rain Gardens

3.24 Ponds, swales, open water and rain gardens will be incorporated into the landscape design and will provide valuable habitats for wildlife on site. The rain gardens and other wetland areas will be planted with suitable native marginal and wet ground loving plants that will benefit invertebrates.

- 3.25 Swale and Attenuation Pond will retain water all year round, however, 80% of the driest area will be planted as Open Mosaic Habitat.
- 3.26 Some rain gardens on site will mimic Open Mosaic Habitat for about 75% of the driest areas.

Ground Based Green Wall

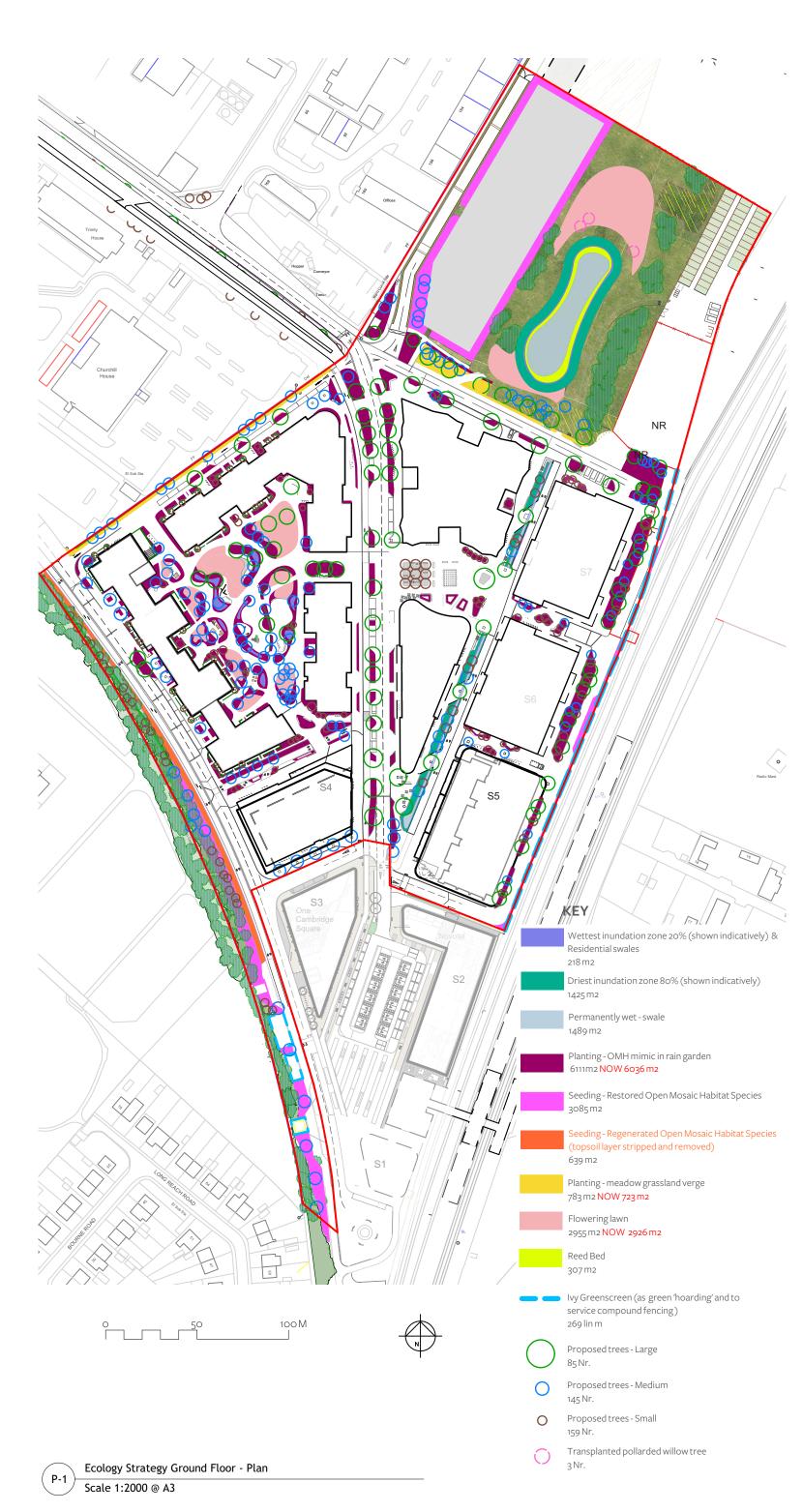
3.27 This ground based green wall will comprise an Ivy Greenscreen (as green 'hoarding' and also to service compound fencing).

Dead Wood Habitat

- 3.28 Where there are trunks or tree limbs left from any scrub clearance from the construction work, these will be retained to provide nesting locations for stem-nesting bees and wasps. A range of timber sizes will be used to benefit specialised saproxylic species. Where possible, stumps will also be left in situ and not cut flush or ground out so that they rot in situ, again benefiting invertebrates associated with deadwood.
- The timber should be positioned across the site including the eastern and western boundaries where there is more shelter and locations with a westerly aspect and exposed to the warmer afternoon sun. Most should be exposed to full sun for most of the day and will be situated in the retained areas of habitats and near to other key invertebrate features such as flower-rich foraging, scrub and bunds. The timbers used at the site will be lying down or stacked to replicate standing deadwood, which is the desired positioning to prevent the material becoming damp and rotting. Clusters of deadwood will be favoured over individual pieces of material scattered of the site.
- 3.30 Where tree or scrub clearance is being undertaken as part of restoration of OMH, efforts will be made to retain some as standing deadwood though ring barking, regardless of tree or scrub species. These will be allowed to rot in situ and provide a resource for beetles that prefer dying trees with fungal rot features rather than "dead" wood. Where standing deadwood is being retained, clean cuts will not be made where possible that neatens up the feature, but a jagged and shattered appearance will be created. This replicates natural snapping and breakage of limbs and trunks. The purpose of this is to enable water to penetrate the timber and allow access points for fungi and the formation of rot, unlike a clean cut that can scar over and inhibit the rate of decay.
- 3.31 Existing log piles & hibernacula will not be touched unless necessary to enhance the diversity of invertebrates identified.

Landscape Proposals

3.32 The Landscape proposals for ground level and rooftop are provided in Figure 2.



NOTES

DO NOT SCALE FROM THIS DRAWING TO BE READ IN COLOUR

Contractors, sub-contractors and suppliers are to verify any critical dimensions on site prior to commencing work, fabrication or construction of any elements.

Any discrepancies or errors must be brought to the attention of Robert Myers Associates. All structural elements are shown indicatively. For

all elements of structure, refer to structural engineers' and specialist

sub-contractor/fabricators' design, detail and specification.

The drawings are to be read in conjunction with all relevant landscape architect, consultant and specialist drawings.

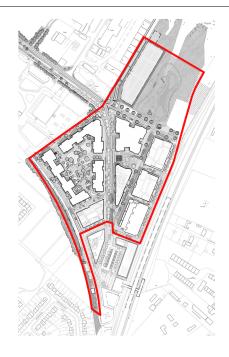
This drawing is to be read specifically in conjunction with:

630_01(MP)003 Ecology Strategy Roof;

630_01(MP)008 Tree Strategy;

630_01(MP)009 Planting Strategy (West); and 630_01(MP)010 Planting Strategy (East).

LOCATION PLAN SCALE: NTS

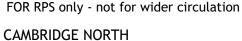


PURPOSE OF ISSUE

| Rev: | Date: | Drawing Status: |
|------|----------|-----------------|
| P2 | 11.10.22 | FOR PLANNING |

REVISIONS

| Rev: | Date: | Description: |
|------|----------|-------------------|
| P2 | 11.10.22 | Updates to layout |



Client: Brookgate

Drawing: Ecology Strategy Ground Floor

Project No: 630_01

Drawing No: 630_01(MP)002

Scale: 1:2000 @A3 Date: April 2022

Checked: JB PM Checked: RM

Rev:

Drawn: EH

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P2

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