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ECOLOGICAL CONSULTANTS

Landscape and Habitat Management Plan

7a, 7b and 7c Bayham Street, Camden Town, London

ISSUE RECORD

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CONTENTS PAGE

LIST OF TABLES AND FIGURES

1 INTRODUCTION

1.1 Development Proposals

Meridian Project Management Ltd. is redeveloping land at 7a-7c Bayham Street in Camden Town, London. The redevelopment will include the demolition of the three existing buildings on site, followed by the construction of a hotel and office space at Camden Lifestyle. A blue roof incorporating approximately 80m^2 of sedum substrate has been included in the proposed building plans (1783-DMA-SS-RF-DR-A-100 105).

The site is being assessed under BREEAM 2014 for sustainability and environmental performance and therefore requires a Landscape and Habitat Management Plan (LHMP) for the created habitats and ecological enhancements proposed for the site, in order to satisfy BREEAM Section LE05.

1.2 Pre-Existing Survey Work

A Preliminary Ecological Appraisal and Preliminary Bat Roost Assessment was undertaken by Peak Ecology Ltd (Project ref: MerPe01) at the site on 18th June 2020. Subsequent nocturnal bat activity surveys were undertaken on the 14th July 2020, which confirmed the likely absence of roosting bats within the buildings on site.

Peak Ecology Ltd. was also appointed to provide an ecologist to meet the Suitably Qualified Ecologist (SQE) criteria to carry out an assessment of the site based on the BREEAM UK New Construction and Non-domestic Buildings 2014 assessment guidelines. The extent of each habitat type within the site boundary was assessed by Peak Ecology Ltd prior to the commencement of works on site, and recommendations for credit assessments under the BREEAM criteria provided within the BREEAM Assessment – Land Use and Ecology report (MerPe01.1).

2 AIMS OF THE MANAGEMENT PLAN

In line with the recommendations within LE05, this Landscape and Habitat Management Plan covers a period of five years after the completion of site works, as well as the time spent creating habitats on site. After five years, the plan should be reviewed and updated, by a process of discussions between those responsible for its implementation and the ecologist.

The management plan aims to provide details of the following:

1. Establishment of habitats;
2. Provisions for ongoing management of all habitats at the site; and
3. A timetable for the implementation of any works.

3 HABITAT ENHANCEMENTS

3.1 Proposed Habitat Enhancement

This plan has been produced for the implementation of the proposed habitats on site as well as the habitat enhancements. The latter of which were recommended in accordance with guidance as set out in the National Planning Policy Framework (2021) and detailed within Section 5.3 of the Preliminary Ecological Appraisal and Preliminary Bat Roost Assessment (Peak Ecology, 2020). In summary, these included:

1. Inclusion of green or brown roofs and the development of a 'wildlife friendly' planting scheme across the site.
2. Integration of suitable bird boxes, targeted at species most likely to use them.
3. Provision of a variety of invertebrate refugia into soft landscaped areas, including partially buried log piles, bug hotels, bumblebee boxes, wildlife paving stones, butterfly hibernation boxes and general nesting aids.
4. Install bat boxes on the proposed buildings as an enhancement measure, improving roosting opportunities for bats.
5. Use native species within soft landscaped areas, however, if native species are not practical it is recommended that species with known benefit to wildlife are considered as an alternative.
6. It is important that any new fencing or walls installed as part of the development do not create a barrier to dispersal for wildlife. In addition, abstaining from the use of pesticides and relaxing the management of habitats, such as hedgerows can increase the resources provided to wildlife.

At the time of writing the Preliminary Ecological Appraisal and Preliminary Bat Roost Assessment (Peak Ecology, 2020) a finalised site plan was not available. A review of the final design makes it clear that Enhancements 5 and 6, as detailed above, are no longer relevant and these should not be taken forwards as part of the development. In addition, a nocturnal bat activity survey carried out on site found that no bats emerged from the building and no bats were recorded foraging or commuting through the site or within the surrounding landscape. As such, it is considered disproportionate to incorporate bat boxes within the building as it is highly unlikely that these would be utilised and therefore Enhancement 4 should not be taken forwards.

Based on the final design and details within the various ecological reports including this plan the enhancements that are being incorporated into the development will contribute to the biodiversity of the wider area and therefore, under the NPPF the responsibility to enhance biodiversity is still being met.

4 ESTABLISHMENT AND MANAGEMENT OF HABITATS

Soft landscaping within the site will include the creation of a Bauder Blue Roof system which incorporates a section of approximately 80m^2 of sedum green roof onto the blue roof drainage cell system.

4.1 Green/Blue Roof

The current proposals show the installation of a Bauder Blue Roof system across the entire roof of the proposed building. The aim of using a blue roof is to support a source-controlled sustainable drainage system, which provides an environmentally friendly benefit to the reduction in storm water runoff speeds. This control system can be particularly beneficial within an urban setting where the level of impermeable surfaces is significantly higher than those of a rural environment.

Although the areas of blue roof provided environmental enhancements for the site it is unlikely that they will enhance the ecological value of the site. The incorporation of an area of green roof planting over the blue roof drainage system will allow for improved filtration of the stored water and also increase in habitat creation. The following LHMP provides the recommendations for the management of the green roof section.

4.1.1 *Green Roof Establishment*

A pre-cultivated geotextile sedum blanket will be used in the green roof area. The pre-seeded blankets that will be used will either be the Bauder XF300 Sedum Blanket or the SB Substrate Sedum Blanket. The blanket will be pre-seeded with a mix of between 13 to 17 sedum species, to ensure a variety of different leaf types and flowers selected to be as shade and drought tolerant as possible. The sedum blanket will be laid on loose substrate at a depth of 80mm, providing an adequate root zone for plant growth.

Ideally the sedum blankets will be planted with wildflower plug plants, specifically chosen to be drought tolerant and hardy to conditions typically associated with sedum green roofs. Recommendations for wildflower planting have been provided within the invertebrate and bird sections of this LHMP.

4.1.2 *Green Roof Management*

Once established, sedum roofs require a low level of maintenance, due to the drought tolerant nature of the plants. Annual access may be required to remove invasive/unwanted species, such as tree saplings, woody shrubs, and perennial grasses.

In areas where sedum growth or wildflower plug planting has not been successful, these areas should be subject to replanting, either through plug planting or sections of replacement sedum blanket. If required, the use of a slow-release organic fertiliser may be used to promote sedum growth. This should only be applied in the autumn months, so it may be beneficial to undertake any maintenance at this time of year.

5 PROTECTED AND NOTABLE SPECIES

Habitats covered by this plan include:

- In line with NPPF (2021) recommendations, enhancement of the site for nesting birds, including placement of bird boxes for appropriate species such as house sparrow, starling, house martin, black redstart and tit species.
- Enhancement of the site in line with NPPF (2021) recommendations for and improved invertebrate assemblage, including provision of a variety of invertebrate refugia into soft landscaped areas. These enhancements may include partially buried log piles, bug hotels, bumblebee boxes, wildlife paving stones, butterfly hibernation boxes and general nesting aids.

5.1 Invertebrates

5.1.1 *Enhancement*

Invertebrates will favour a mosaic of habitat types, with areas of bare ground providing as important a habitat structure as vegetated habitats. Bare ground is used by a wide range of invertebrates (such as; bees, wasps, ants, beetles and butterflies) for nesting, basking and hunting. The pebble substrate on the top of the blue roof will provide extensive open areas of bare ground for invertebrates surrounding areas of green roof planting. The green roof could be further enhanced for invertebrates by creating a south facing slope contoured from sand-like soils to allow easy burrowing for egg laying. Patches of bare ground, overlain with small grade pebble/shingle could also be created between the sedum planting. Increasing structural diversity on site within the planting, by including wildflower plug plants would also increase the nectar source available.

Log piles can be ideal habitats for invertebrates. If it is possible to include log piles within the green roof area, small holes of varying sizes should be drilled into these to provide egg laying opportunities for a wide variety of invertebrates. A variation of log sizes should ideally be used with log diameters varying up to 25-30cm. These should be sited so that the logs are in direct contact with the green roof area to enhance humidity within the log pile. A proportion of the substrate material should be removed to allow for the log piles to be sunk into the ground, further enhancing humid conditions within the log piles. Ideally log piles will be located away from any shaded area and be subject to direct sunlight for as much of the day as possible.

Additional enhancements could be made for invertebrates in the form of bee hotels. These should be sited in full sun orientated in a south to south-easterly direction. They will need to be elevated approximately 1m above the level of the green roof.

Suitable products and designs for home built and shop bought bee hotels can be found on the RSPB and NHBS websites:
https://www.rspb.org.uk/get-involved/activities/nature-on-your-doorstep/garden-activities/buildabeebandb/
https://www.nhbs.com/solitary-bee-hotel

5.1.2 *Maintenance*

The maintenance to be undertaken on the green roof, detailed in section 3.1.2 would ensure the ongoing maintenance of the planting within the green roof areas for invertebrates.

As logs will naturally decay over time, new logs should be added to the piles when required. The decayed material should be left on site forming part of the substrate of the green roof.
The bee hotels will need minimal maintenance but will require cleaning out once a year. This should be undertaken on any empty tubes between October to February. Any tubes/holes that have mud or leaves capping the entrance should be left until spring, when all eggs have had time to hatch.

5.2 Birds

5.2.1 *Enhancement*

The detailed structure of the green roof as outlined in the planting and invertebrate sections above would also provide, once established, suitable foraging habitat for black redstart. Black redstart is a priority species under the London Biodiversity Action Plan and is a red list species on the Bird of Conservation Concern (BoCC) (Eaton et. al. 2015). In addition, they are protected under the Wildlife and Countryside Act (1981) and London is noted to be one of the most important locations for this rarely occurring species. The vegetation structure and mosaic of habitats that is to be planted on the green roof area is considered suitable to support the invertebrate assemblage on which species such as black redstart may forage.

Ideally the south facing mound recommended for invertebrates would be built up to a maximum height of 500mm. These contoured areas should be profiled with a gentle slope of approximately 17° (1:3) facing south westerly winds, and a steeper slope of 30° (1:1.5) facing the opposite direction. Each contoured area should either be allowed to naturally colonise with species or, preferably, planted with a seed mix based on the following species:

Table 1: Suitable species for planting

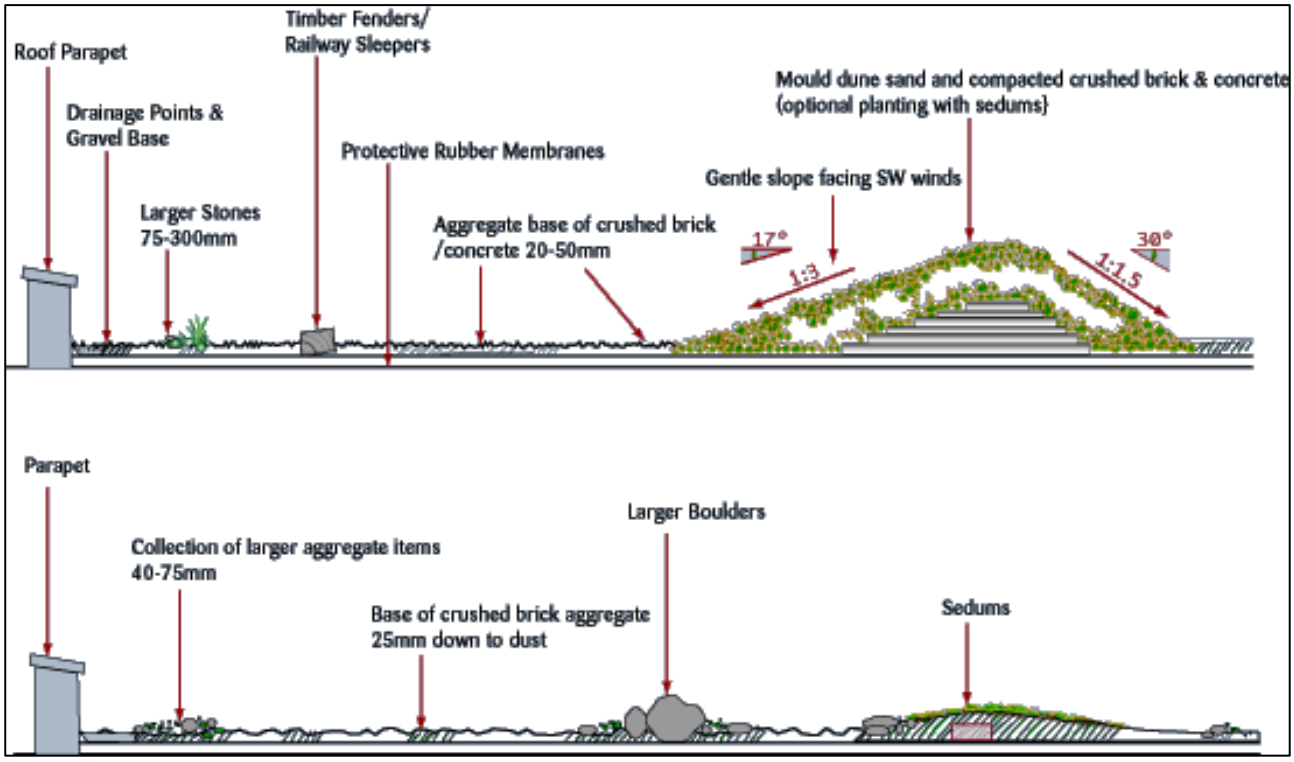
Common Plant Name	Scientific Name
St John's Wort	*Hypericum perforatum*
Yellow-wort	*Blackstonia perfoliata*
Common Centaury	*Centaurium erythaea*
Kidney Vetch	*Anthyllis vulneraria*
Common Bird's-foot-trefoil	*Lotus corniculatus*
Black Medick	*Medicago lupulina*
Dove's-foot Crane's-bill	*Geranium molle*
Common Eyebright	*Euphrasia nemorosa*
Betony	*Stachys officinalis*
Devil's-bit Scabious	*Succisa pratensis*
Ribwort Plantain	*Lantago lanceolata*
Selfheal	*Prunella vulgaris*

Ideally the substrate of a black redstart roof will comprise a mix of aggregate. Sections of pebbles (20-40mm) and small boulders (200-400mm) should be added to the roofs either on the edge of the green roof area or within the sedum planting.

Consideration should be given to incorporating a small depression the green roof around which the small boulders could be placed to allow the retention of a shallow pool of rain water. This would create further suitable habitats for invertebrates and therefore more foraging opportunities for black redstart.

Figure 1 provides two examples of black redstart roof designs.

Figure 1:Cross section of example black redstart roof



Source: www.blackredstart.org.uk

Variations on the above recommendations can be provided should there be structural restrictions on the implementation of the proposed enhancements outlined above.

In accordance with NPPF recommendations provided within the Preliminary Ecological Appraisal and Preliminary Bat Roost Assessment (Peak Ecology, 2020) bird boxes should be incorporated into the design of the new building. Several options for nest boxes could be used for the enhancement of the site as detailed below:

Table 2: Recommended bird box enhancement

Black Redstart Ideally a minimum of two boxes should be included within the brickwork of the new building around the area of the green roof. The boxes should be located at different heights and ideally at either end of the green roof to allow sufficient space between the boxes for individual territories.	

The boxes should be located away from areas of regular disturbance, such as doors or walkways, positioned in a sheltered spot away from prevailing winds.	Sourced from www.nhbs.com
Sparrow terrace House sparrows are social and favour nesting in colonies; therefore, a terrace should be provided to allow for multiple nesting pairs. This should be sited on the wall of the building between 1.5 to 5.5m above ground level, or above the green roof area as it is unlikely that predators will persist on the roof of the building. They should ideally be located on the north eastern elevation of the building, to avoid direct sunlight and provide opportunities for the young to use the garden habitats to the east of the site for foraging opportunities.	 Sourced from: www.rspb.org.uk
Starling The starling nest box has a larger entrance hole (45mm) than that of the house sparrow box. Although a terrace is not required several boxes should be installed to support colonies of starlings. These should be located at a minimum of 1.5m above the level of the green roof. Located to avoid direct sunlight a north, north eastern or north western direction should be favoured.	 Sourced from: www.nhbs.com

It is recommended that a minimum of two of these nest box enhancements are implemented on site.

5.2.2 *Management*

Once established a roof created for black redstart will need very little, if any, maintenance. If recommendations provided in Section 3.1.2 for the maintenance of the green roof are adhered to then this would be sufficient in the upkeep of the roof for black redstart. Black redstart typically breed between mid-April and the end of July. Any form of disturbance around the nest boxes during this time should be reduced to a minimum if possible.

All nest boxes should also be cleaned out once a year, removing any previous nesting material or debris from inside. This should be undertaken outside of the bird breeding season, between September and January (inclusive), unless it can be confirmed that nesting birds are not present.

6 SUMMARY TIMETABLE

Table 3 below shows a calendar for the timing of works to be carried out over a five-year period.

Table 3: Calendar of timing for works

Works		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Establishment of green roof (Year 1)	Installation of sedum matting	x	x	x With watering						x With watering		x	x
	Contouring and habitat creation	x	x	x	x	x	x	x	x	x	x	x	x
	Seeding of contoured mounds			x	x	x							
Raking substrate, replanting and weed removal										x	x	x	
Bee hotel cleaning –	Uninhabited tubes	x	x								x	x	x
	Inhabited tubes			x	x								
Nest box cleaning		x								x	x	x	x

Note - x denotes months in which works may be carried out

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