Greengage

Charlie Ratchford Resource Centre, Vacant Land at Crogsland Road, Galliford Try Partnerships
Ecological Enhancement Plan and BREEAM 2014 Ecology Assessment, April 2019

QA

Charlie Ratchford Resource Centre, Vacant Land at Crogsland Road – Ecological Enhancement Plan and BREEAM Assessment

Issue/Revision:	Draft	Final
Date:	February 2019	April 2019
Comments:		
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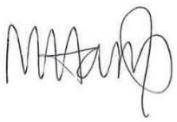
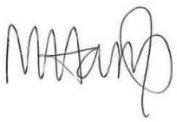
Signature:		
File Reference:	551015mvNov18FV01_EEP.docx	551015mv24Apr19FV03_EEP_BREEAM

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1.0 EXECUTIVE SUMMARY

1.1 Greengage Environmental Ltd were commissioned by Galliford Try Partnerships to produce an Ecological Enhancement Plan (hereafter 'EEP') to discharge planning conditions relating to the development of an area of vacant land off Crogsland Road in the London Borough of Camden.

1.2 Also included within this report is a review of the available Land Use and Ecology Credits under BREEAM New Construction 2014 now that detailed designs have evolved.

1.3 A BREEAM-compliant Preliminary Ecological Appraisal and a BS5837 Tree Survey were completed by Greengage in 2014, in order to support a planning application. The ecological surveys identified the site as having low ecological value overall and found the site to have low potential to support foraging bats and notable invertebrates, and moderate potential to support nesting birds.

1.4 A number of opportunities for enhancement measures were also identified, including the provision of:

- wildlife-friendly landscaping;
- a biodiverse roof;
- integrated bat and bird boxes;
- invertebrate features such as log piles and solitary bee house; and
- an individual hedgehog house.

1.5 The consented scheme comprises the redevelopment of a vacant site on Crogsland Road by the erection of a 6-storey building comprising a day centre on the ground floor and 38 extra-care residential flats on the upper floors, plus roof terraces, communal gardens and minibus parking subject to a number of planning conditions.

1.6 Ecological enhancements that will be incorporated into the scheme are outlined along with their respective biodiversity benefits and relevance to the site. These enhancements aim to provide net gains in biodiversity for the site and the local area.

BREEAM Ecology

1.1 The enhancement recommendations were used to assess the availability of Land Use and Ecology credits under *BREEAM New Construction 2014*. At this stage, the proposals stand to gain:

- **Two credits** for LE02 – Ecological value of site and protection of ecological features;
- **Two credits** for LE03 – Mitigating ecological impact;
- **Two credits** for LE04 – Enhancing site Ecology; and
- **Two credits** for LE05 – Long-term impact on biodiversity.

1.2 To confirm the awarding of credits, a Suitably Qualified Ecologist must return to site to conduct a Post-Construction Review, ensuring all ecological enhancements are included to the required specification.

2.0 INTRODUCTION

2.1 Greengage Environmental Ltd were commissioned by Galliford Try Partnerships to produce an Ecological Enhancement Plan (hereafter 'EEP') for the proposed development of the vacant land located off Crogsland Road in Camden.

2.2 Specifically, this document addresses conditions 17 and 19 of planning consent (ref. 2015/0921/P) which state:

Condition 17

"Prior to first occupation of the development, a plan showing details of bird and bat boxes and hedgehog and bee houses, their locations, types and indication of species to be accommodated, shall be submitted to and approved in writing by the local planning authority. The features shall be installed in accordance with the approved plans prior to the occupation of the development and thereafter retained.

"Reason: In order to secure appropriate features to conserve and enhance wildlife habitats and biodiversity measures within the development, in accordance with the requirements of policy CS15 of the London Borough of Camden Local Development Framework Core Strategy".

Condition 19

"Prior to the first occupation of the building, a plan (showing details of the green roof including species, planting density, substrate and a section at scale 1:20 showing that adequate depth is available in terms of the construction and long term viability of the green roof) and a programme for a scheme of maintenance shall be submitted to and approved in writing by the local planning authority. The green roof shall be fully provided in accordance with the approved details prior to first occupation and thereafter retained and maintained in accordance with the approved scheme of maintenance.

"Reason: To ensure that the green roof is suitably designed and maintained in accordance with the requirements of policies CS13, CS14, CS15 and CS16 of the London Borough of Camden Local Development Framework Core Strategy and policies DP22, DP23, DP24 and DP32 of the London Borough of Camden Local Development Framework Development Policies".

2.3 This report therefore includes details relating to:

- Ecological enhancements including a biodiverse roof, bat boxes, bird boxes, invertebrate features and wildlife-friendly landscaping; and
- The locations of these structures;

2.4 Works described in this report will be carried out at specific times throughout the installation process supervised by a suitably qualified ecologist. Otherwise installation works will be undertaken by a specialist contractor with reference to this strategy.

BREEAM ECOLOGY

2.5 Also included within this document is a review of the availability of Land Use and Ecology credits (LE02-LE05) to inform the Design Stage assessment under *BREEAM New Construction 2014*.

OBJECTIVES

2.6 The objectives of this EEP are:

- To detail measures that will enhance the site habitats for a number of ecological receptors and achieve net gains in biodiversity at the site and local area as a result of development; and
- To provide the specifications for and a 1:20 cross section drawing of an appropriate biodiverse roof that includes invertebrate habitat features such as log piles, rope coils, and sandy piles;
- To provide specifications and locations of bird and bat boxes and hedgehog and bee houses across the site; and
- Assess the development for eligibility of credits under BREEAM LE02-LE05 in light of the baseline assessment and enhancements described above.

3.0 SITE CONTEXT AND STATUS

SITE LOCATION AND DESCRIPTION

3.1 The assessment site covers an area of approximately 0.198 hectares (ha) and is centred on National Grid Reference TQ282845, OS Co-ordinates 528233, 184504.

3.2 The site is set in an urban environment with residential housing extending to the north, east and west. Commercial buildings associated with Chalk Farm Road sit to the south with the railway line beyond. Haverstock School directly borders the site to the west. Green space in the in the vicinity of the site is predominately restricted to soft landscaping and private gardens associated with the residential housing. In the wider area there are more significant expanse of green space such as Primrose Hill 650m to the southwest and Regents Park 840m to the south. The Regents Canal runs 480m to the southeast.

PROPOSED DEVELOPMENT

3.3 Planning consent has been granted for redevelopment of the vacant site by the erection of a 6-storey building comprising a day centre (Class D1) on the ground floor and 38 extra-care residential flats (Class C3) on the upper floors, plus roof terraces, communal gardens and minibus parking.

4.0 BASELINE ECOLOGICAL CONDITIONS

OVERVIEW

4.1 The PEA was undertaken on the 9th of July 2014 following guidance in the Chartered Institute of Ecological and Environmental Management (CIEEM) (2013) Guidelines for Preliminary Ecological Appraisal[1] and the Joint Nature Conservation Committee (JNCC) (2010) Handbook for Phase 1 Habitat Survey[2], in accordance with BS44040:2013: Biodiversity[2]. The overall assessment consisted of:

- Site-specific biological information gained from statutory and non-statutory consultation; and
- A site walkover and ecological survey.

4.1 Details on the ecological value of the site are included within the Preliminary Ecological Appraisal Report[3]. An overview of the findings from the ecological surveys are presented in this section.

4.2 Data records for the area were provided by the Greenspace Information for Greater London (GiGL) records centre and the Multi-Agency Geographic Information for the Countryside (MAGIC) dataset. This formed the context in which the scope of technical surveys was determined, and the background to the species and habitats found within the study area.

BASELINE CONDITIONS

Designated Sites

4.3 Consultation with the local environmental records centre (GiGL) confirmed that the site is not protected by any statutory or non-statutory designated areas for nature conservation.

4.4 Three Local Nature Reserves (LNRs) were identified along with 19 Sites of Importance for Nature Conservation (SINCs) within a 2km radius of the site.

4.5 Due to the scale and nature of the proposals and the relative locations of these local designated sites, there are no effects predicted upon the conservation status of any protected areas with respect to the development. As such, no mitigation or compensation is necessary in this respect.

Habitats

4.6 The PEA carried out at this site by Greengage in 2014 found the habitats presented across the assessment site predominantly comprised bare ground (J4) and stands of semi-mature scattered trees (A.3) in accordance with the Joint Nature Conservation Committee (JNCC) Phase 1 Habitat categories.

4.7 An updated evaluation of the site's ecology in 2019 found that the site's habitats still comprise a majority of bare ground (J4), hardstanding (J3.6), and amenity grassland (J1.2). A full site habitat map can be seen at Figure 1.

Species

Bats

4.8 One dawn survey and one emergence/activity dusk survey[4] were carried out to determine presence/absence of roosting bats on site and assess its value to foraging bats.

4.9 During the survey visits, no roosting behaviour was observed. Activity was found to be very low, with one common pipistrelle (*Pipistrellus pipistrellus*) bat detected foraging for one minute in the area of scattered trees on site.

Nesting Birds

4.10 Bird nesting potential was noted in the trees and patches of introduced shrub present on the western border of the site.

Invertebrates

4.11 The site is lacking in suitable habitat for notable invertebrates.

Other Notable/Protected Species Potential

4.12 No significant value was detected on site for any notable species owing to the lack of natural habitats.

5.0 MITIGATION STRATEGY

BATS

5.1 The site was considered to have negligible potential to support roosting bats; therefore, no formal mitigation is required for legislative compliance.

5.2 The areas of ruderal vegetation, scrub, and scattered trees provide some suitable foraging habitat. A survey carried out by Greengage found low levels of foraging by a single common pipistrelle. Although much of this habitat will be lost as a result of the development, proposals include extensive landscaping including biodiverse living roofs which will provide better-quality compensatory habitat post-development. Full details of landscaping plans can be found in Appendix 1.

NESTING BIRDS

5.3 All clearance of vegetation on site will be conducted outside of the main bird nesting season (March to August inclusive), where possible. Where this is not possible, prior to the clearance of vegetation, a nesting bird check by a suitably qualified ecologist will be undertaken to confirm the absence of active nests.

6.0 ECOLOGICAL ENHANCEMENTS

6.1 This section provides an overview of the additional ecological enhancements being implemented on site including the provision of a living roof, wildlife-friendly landscaping, bird nest boxes, bat boxes, a hedgehog box, and invertebrate features.

LIVING ROOF

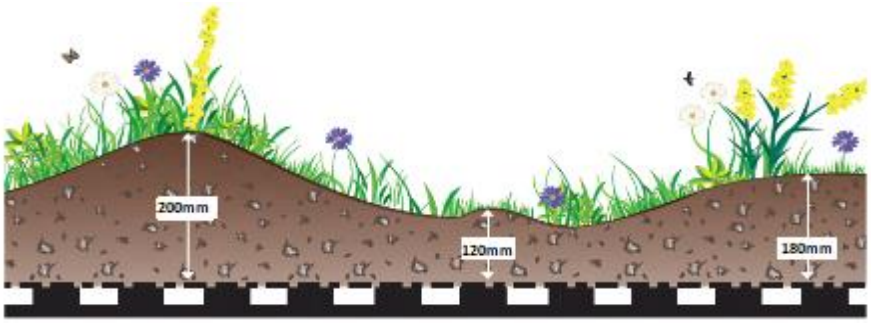
6.2 This section addresses the general specifications and principles that will be applied to the living roof at the site.

6.3 The living roof will take the form of a biodiverse roof. Approximately 533m^2 of living roof area will be provided on site.

Biodiverse Roof Substrate Specification

6.4 To maximise diversity in micro-climate across the roof, the substrate depth will be undulating, varying between 120mm and 200mm (see Figure 6.1). This variation will result in differences in exposure, shading, diurnal temperatures, humidity and water content giving rise to localised diversity in species composition[5].

Figure 6.1 Cross section of a biodiverse roof showing change in substrate depth

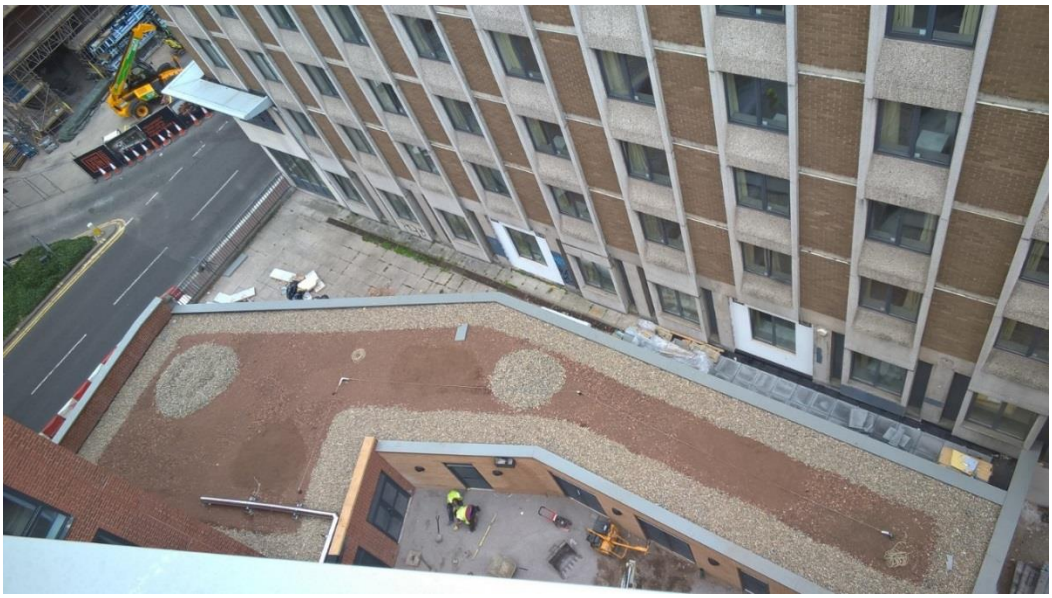


6.5 Substrates evolve as part of their normal function, with generally a steady increase in organic content over the lifespan of the roof.

6.6 Natural colonisation can be an unpredictable process that relies on a source of propagules in the local vicinity.

6.7 A 1:10 cross-section of planned biodiverse roof for this site in Appendix 2.

Figure 6.2 An example of a biodiverse substrate-based roof before seeding



6.8 To support rapid establishment and promote a more predictable mix of species of biodiversity benefit the decision has been taken to supplement the biodiverse roof with specially chosen wildflower species. The roof will be seeded with Bauder's Flora 3[6] mix, which contains 49 species and is specifically designed to be compatible with roofs in urban environments. The Flora 3 seed mix includes:

- UK Native British Provenance Seed Mix comprising 49 Species;
  - 31 species of which eight are annuals
  - 8 grasses/sedge
  - 2 sedum species
  - 35 of the wildflowers are classed as 'RHS Perfect for Pollinators'
  - 12 Butterfly and moth larval food plants
- Shade tolerant species;
- Low growing to medium height for structural diversity; and
- Mix percentages; 65% perennial wildflowers, 20% annuals & 15% grasses.

BIODIVERSE ROOF ENHANCEMENT FEATURES

6.9 A range of additional ecological features have been specified for inclusion on the living roofs.

Invertebrate Sandy Piles

6.10 Bare ground is important for a range of insects which use open areas for nesting, predation and basking. Sandy piles provide warm, dry conditions that favour warmth-

loving invertebrates and facilitate burrowing. Sandy piles should have open south-facing bare slopes to provide nesting sites for burrowing solitary bees and wasps. Sandy piles should be replaced if they become vegetated or heavily overshadowed.

6.11 The piles will be compacted to form a sand castle effect, with sides angled to 30 degrees and cover an area of approximately 1m^2; position in a sunny area with the broadest area facing south, preferably sheltered from the wind. Some of the sandy piles may change shape or decrease in size over time due to prolonged exposure to the wind, so to reduce this happening to all the piles and to increase diversity of the hibernacula, some of the piles will be covered with stones of approximately 10-15 cm in size loosely placed over the mound ensuring gaps are available for burrowing invertebrates – the south facing slope will still remain relatively bare.

6.12 At least three sandy piles will be provided on the living roof. Proposed locations are shown in the plans in Appendix 2.

Figure 6.3 Log and sand piles on a biodiverse roof

Log piles

6.13 Deadwood from broadleaved trees such as oak and beech, and from fruiting trees such as apple and pear where possible will be used, at least 100mm in diameter with the bark still on. Logs in contact with the substrate will remain damp underneath, which is vital for many invertebrates such as woodlice. Logs should be placed both vertically and horizontally in clusters; vertical standing wood will be incorporated by submerging the logs into the full depth of the substrate, ideally in the deeper sections, again using a range of diameters and lengths.

6.14 At least three log piles will be provided. Proposed locations are shown in the drawings in Appendix 2.

Rope Coils

6.15 Rope made from natural fibres should be used such as Manila rope which is suitable for general outdoor use. Manila rope is made from the leaves of the plant *Musa textilis* and

will last up to 10 years, reducing maintenance requirements. The rope should be coiled in a spiral shape to cover an area of 1m^2; the rope should be coiled loosely to ensure suitable gaps are created for invertebrates. Pegs will need to be used to harness the rope to the roof and ensure that it cannot blow away.

6.16 At least three rope coils will be provided. Proposed locations are shown in Appendix 2.

Figure 6.4 Rope coils and stone circles amongst vegetation on a biodiverse roof in its first summer of growth

Insect Hotel

6.17 One bee house or "insect hotel" will be installed on the living roof.

6.18 These typically comprise a box of tubes, with one end facing outwards, to be placed on buildings or amongst landscaping and provide nesting opportunities for bees. Placement close to living roofs will provide foraging habitat.

6.19 Care will be taken to select a suitable make and model of bug hotel. Plastic, varnish, paint and other artificial materials will be avoided in favour of natural, untreated wood, reeds, bamboo, or clay. Drilled holes and tubes should be smooth and free of splinters. Access holes should not be overly large and the structure should be sturdy, with a solid back and shelter from rain. Designs incorporating pine cones, snail shells, and untidy bundles of twigs will be avoided as they have poor durability.

6.20 A frontage of mesh or wire will prevent disturbance by birds. As part of garden maintenance, the insect hotel will be checked, cleaned, and any broken parts replaced annually in early autumn.

6.21 A proposed location is shown on the plan in Appendix 2.

Figure 6.5 A well designed and positioned insect hotel in full sun, surrounded by appropriate foraging habitat.

WILDLIFE-FRIENDLY LANDSCAPING

6.22 In addition to the living roof, the development will incorporate wildlife friendly-landscaping.

6.23 All areas of soft landscaping incorporated into the proposals are to feature species known to be of value to local BAP priority species and pollinators.

6.24 Guidance regarding planting palette selection for various ecological receptors is available and has been provided to the landscaping team. Guidance for bats is produced by the Bat Conservation Trust[7] and Royal Horticultural Society/Wildlife Trusts partnership[8]. Guidance relating to pollinators is provided by the Royal Horticultural Society's Perfect for Pollinators documents[9,10].

Horticultural good practice

6.25 The landscaped areas will require maintenance once established. The use of pesticides (herbicides, insecticides, fungicides and slug pellets) will be discouraged to prevent changes to the food chain, particularly on invertebrates, birds and/or mammals.

BIRD BOXES

6.26 Bird boxes are to be included at the proposed development as habitat enhancement for locally important species.

6.27 The development will incorporate five sparrow terraces and five swift boxes on the north elevation of the new building, integrated into the building fabric for permanence. Proposed locations are shown at Appendix 3.

6.28 Four generalist boxes will also be installed on existing semi-mature trees. These boxes will be a mix of 28mm and 32mm access boxes, hung at least 5 metres above ground. Two will be positioned facing north and two will face east. Proposed locations are shown at Appendix 3.

Figure 6.6 Bird boxes to be included: Habibat swift box (above) and sparrow terrace (below) integrated into the building fabric[11]

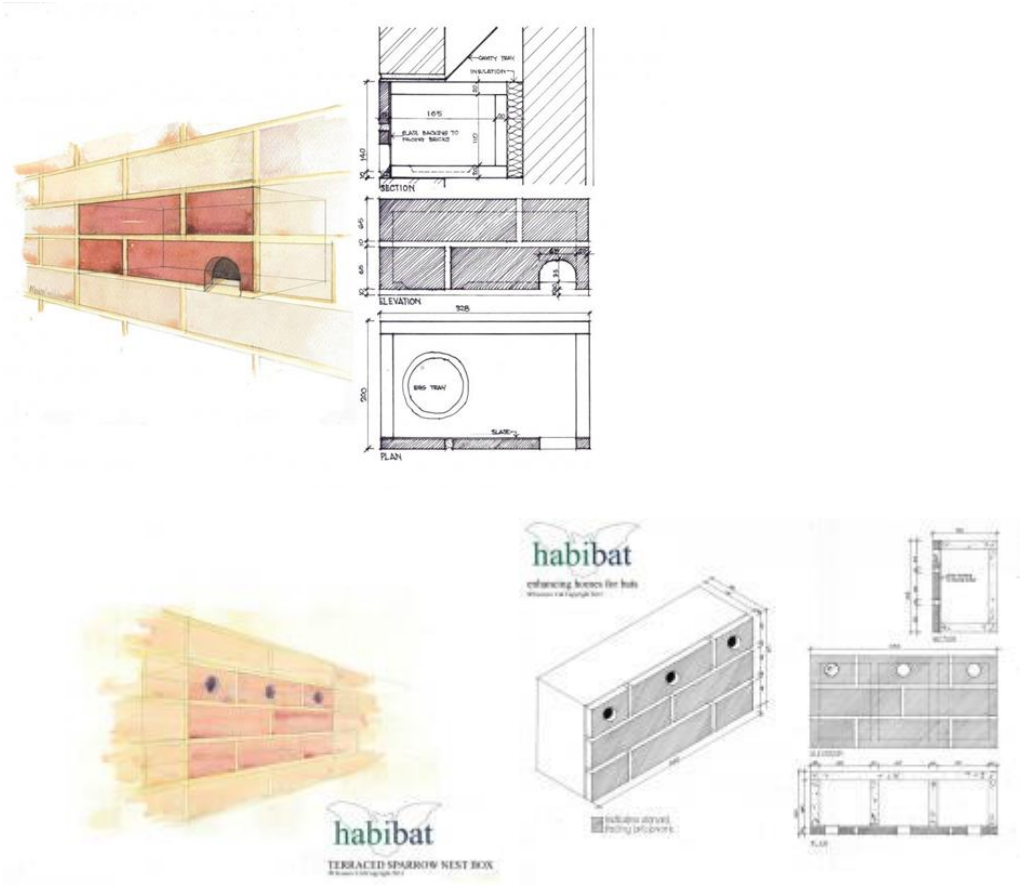


Figure 6.7 Schwegler 32mm hole nest box[12]

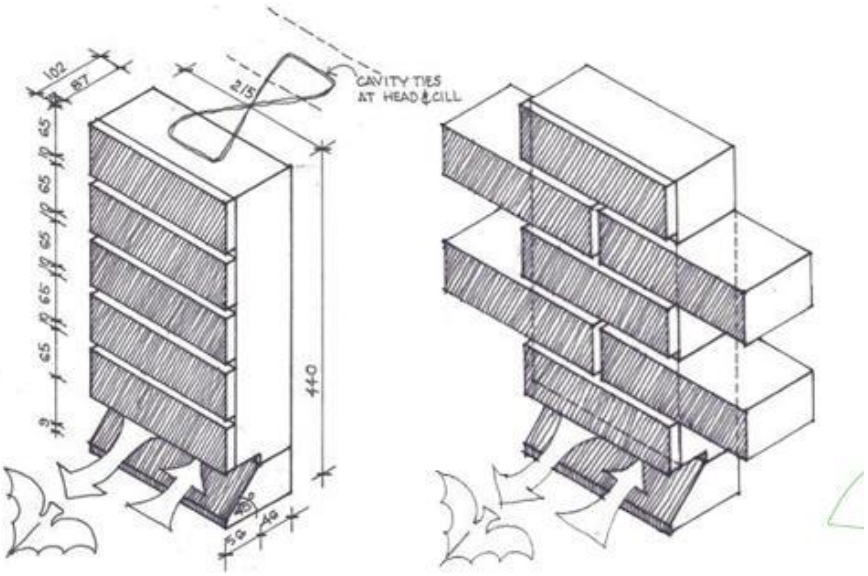
BAT BOXES

6.29 Bat boxes incorporated into the development will enhance the site for roosting bats. The inclusion of the living roof and wildlife-friendly landscaping strategy will stand to provide foraging habitat and may act to encourage bats to the site; boxes will be located accordingly.

6.30 Given the urban location, levels of light pollution are likely to be high. However, with smarter lighting regimes it is possible to reduce the effects of lighting without reducing the levels of light provided. The placement of the bat boxes will be informed as much as possible by the likely light pollution it will be subject to in that position.

6.31 Nine bat boxes will be incorporated into the fabric on the south and west elevations. The 'Habibat' box can be designed to suit the requirements of the development, with custom facades. The proposed bat box locations are found at Appendix 3.

Figure 6.8 Habibat boxes to be integrated into the building fabric.



HEDGEHOGS AND OTHER SMALL MAMMALS

6.32 In order to allow migration of hedgehogs and small mammals, small gaps will be created in any fencing and walls to allow hedgehogs to pass through. These should be 13cm by 13cm, cut out of the bottom of fences or a brick removed from the bottom of a wall. Alternatively, small channels may be dug out from underneath walls to allow hedgehogs access to gardens.

6.33 One hedgehog nest box is to be provided on site within the landscaped area on the south, adjacent to the communal garden. It must be placed out of direct sunlight and

under the cover of thick vegetation in a suitably sheltered location. The hedgehog house proposed location is shown at Appendix 2.

Figure 6.9 Example of a suitable hedgehog house[13]

7.0 BREEAM ECOLOGY 2014

7.1 The development has been assessed for eligibility of credits under *BREEAM New Construction 2014*, taking into consideration the installation and management of enhancement measures described in the EEP above.

7.2 The development is eligible for **8 credits** under LE02 - LE05 as described below.

LE02 – ECOLOGICAL VALUE OF SITE AND PROTECTION OF ECOLOGICAL FEATURES

Suitably Qualified Ecologist

7.3 Compliance with these credits is demonstrated by having a suitably qualified ecologist verifying the land as being of low ecological value, through a site-specific ecological survey and associated ecological report.

7.4 Greengage employs '*Suitably Qualified Ecologists'*, the necessary requirement for LE02, to establish the ecological value of the site. A *'Suitably Qualified Ecologist'* (SQE) is defined as:

- 'An individual with a degree or equivalent qualification in ecology or a related subject;
- They should be a practicing ecologist with a minimum of three years' experience; and
- Is covered by a professional code of conduct and subject to peer review.'

7.5 Specifically, James Bumphrey, who carried out the initial site survey has a bachelor's degree in Environmental Sciences (BSc Hons), a Master's degree in Environmental Consultancy, a Natural England Great Crested Newt Licence and is a Graduate member of CIEEM.

7.6 Maddy Vierbuchen, who prepared this report, is an experienced field biologist with a BSc in Zoology, an MSc in Evolutionary and Behavioural Ecology, and three years' experience working in the commercial ecology sector.

7.7 Mike Harris, who reviewed this report, has a degree in Environmental Biology (Hons), is a Chartered Environmentalist (CEnv), a full member of CIEEM and holds both great crested newt and dormouse Natural England licences. Mike has over 17 years' experience in ecological survey and assessment.

7.8 Mike Harris is considered Suitably Qualified Ecologists (SQE) under the BREEAM definition.

7.9 This report was reviewed and verified by Mike Harris who confirms in writing (see the QA sheet at the front of this report) that the report:

- Represents sound industry practice;
- Reports and recommends correctly, truthfully and objectively;
- Is appropriate given the local site conditions and scope of works proposed; and
- Avoids invalid, biased and exaggerated statements.

Awarding of Credits: Protection of Ecological Features

7.10 With regards to LE02, the site features no notable habitats. The area of scattered trees on site consists of a small stand of silver birch (*Betula pendula*) with patchy understory vegetation of amenity grassland. It is therefore not considered to be of significant ecological value and its partial loss can be adequately mitigated through the incorporation of new trees in landscaping proposals, as described below and shown in Appendix 1.

7.11 The remainder of the vacant site comprises derelict land comprising bare ground and hardstanding, with a line of introduced shrub adjacent to the western border.

Figure 7.1 Small stand of silver birch on amenity grassland.

7.12 Overall, the site is considered to be of low ecological value. Therefore, the proposals is be eligible for the first of the two credits available under LE02.

7.13 Assuming the recommendations regarding seasonal clearance of vegetation are implemented, the proposals are also eligible for the second credit under LE02.

7.14 The proposals are therefore eligible for a total of **2 credits** under LE02.

LE03 – MINIMISING IMPACT ON SITE ECOLOGY

7.15 BREEAM calculates the change in ecological value by comparing the diversity of plant species pre- and post-construction. The ecological value of the site is expressed as an area weighted average of plant species for the land types present on the site. Using the BREEAM assessment calculator, the pre-construction habitat type is compared with post-construction and the total change in species diversity is calculated.

7.16 Appendix 4 shows the BREEAM calculator results which are relevant for credits under *BREEAM New Construction 2014* (LE 03 and LE 04).

7.17 With regards to Mitigating Ecological Impact credits are awarded as follows:

- 1 credit: 'Where evidence provided demonstrates that the change in the sites existing ecological value, as a result of development, is minimal.'
- 2 credits: 'Where evidence provided demonstrates there is no negative change in the sites existing ecological value as a result of development.

Awarding of Credits: Minimising Ecological Impacts

7.18 Appendix 4 shows the BREEAM calculator results which are relevant for credits under *BREEAM New Construction 2014* (LE03 and LE04).

7.19 The site is mostly derelict land, dominated by hardstanding and bare ground of negligible ecological value. A stand of scattered trees in the southern portion of the site is to be partially retained in accordance with an Arboricultural Method Statement produced for the site (Greengage 2018[14]). Five individual trees and two tree groups are to be removed.

7.20 Given the current status of the site, the calculations for number of species carried out with the BRE guidelines for average species richness of derelict land.

7.21 While five trees and two tree groups of category B and C are to be removed as approved under planning condition 8, fifteen new trees are to be planted on site as part of landscaping proposals.

7.22 Two credits can be obtained whereby there is an increase in plant species equal to or greater than zero (i.e. no negative change). Based on the calculations detailed in Appendix 4, the development as proposed will result in an increase of 3.76 species per ha and should therefore be awarded the full **2 credits**.

7.23 The SQE should return to site on or just after practical completion to confirm the exact number of plant species incorporated and to reconfirm the credits under *BREEAM New Construction 2014* (LE 03 and LE 04).

LE04 – ENHANCING SITE ECOLOGY

7.24 With regards to Enhancing Site Ecology, credits are awarded as follows:

- 1 credit: Where the applicant has appointed an SQE at an early stage, the SQE has laid out appropriate recommendations for the enhancement of the site's ecology based on a site visit by the SQE, and the recommendations have been or will be implemented in the final design and build.
- 1 credit: Where the criteria of the first credit are met and the SQE confirms that the recommendations made will result in an increase in ecological value of the site by six plant species or greater, as calculated by the BREEAM 2014 LE03/LE04 Calculator.

7.25 With regards to LE04 Enhancing Site Ecology, if the recommendations made in the EEP above are incorporated into the scheme, the proposed development is eligible for the first credit available under LE04.

7.26 A second credit is available under LE04 if the proposed planting/landscaping results in a weighted increase of six plant species or greater. Assuming the aforementioned areas of living roof are installed using a floral mix comprising at least 49 species, this will result in a 6.18 weighted species increase, meaning the second credit will be achieved.

7.27 Therefore, the proposals are considered eligible for **2 credits** under LE04 – Enhancing Site Ecology.

LE05 – LONG TERM IMPACT ON BIODIVERSITY

7.28 There is a maximum number of two credits available under LE05 Long-Term Impact on Biodiversity. The full two credits can be awarded where evidence is provided to demonstrate that the client has committed to achieving the mandatory requirements and at least four of the additional requirements. Alternatively, one credit can be awarded where evidence is provided to demonstrate that the client has committed to achieving the mandatory requirements and at least two of the additional requirements.

7.29 A summary of each requirement and an explanation of how they will be met (if applicable) are given below.

Mandatory requirements

7.30 The mandatory requirements for LE05 are summarised as follows:

- Appointment of 'suitably qualified ecologist' who confirms that all relevant legislations relating to the protection and enhancement of ecology has been complied with during the design and construction process - **Met**;
- Where a landscape and habitat management plan appropriate to the site is produced covering at least the first five years after the project completion – **Met**; and
- Where measures to improve the site's long-term biodiversity are adopted - **Met**.

7.31 All relevant legislation relating to nature conservation and development is given in Appendix 5. A management plan covering the first five years after completion is given in Table 7.1. The management plan contains detail proportional to the scale of habitat creation on site. Ecological enhancements outlined in the previous chapters satisfy mandatory requirement 3.

Additional requirements

7.32 The number of additional requirements needed to be met for the second credit is proportional to the number of additional requirements that are applicable to the proposals. Table 7.1 below provides commentary on the applicability of the additional requirements.

Table 7.1 Applicability of additional measures required for LE05

Ref	Additional Measure	Applicable	Comments
1	Nomination of a Biodiversity Champion to ensure detrimental impacts to biodiversity are minimised	N	No negative impacts on biodiversity predicted. Tree loss to be adequately mitigated.
2	Principal contractor trains the site workforce on how to protect site ecology	N	No ecological features in need of protection
3	Principal contractor records and monitors effectiveness of actions taken to protect biodiversity	N	No ecological features in need of protection
4	New ecologically valuable habitat is created	Y	Provision of living roof, bird and bat boxes create valuable habitat for LBAP species. Greengage, the suitably qualified ecologists, has provided input into design
5	Contractor programmes site works to minimise disturbance to wildlife	Y	Trees removed outside of bird breeding season (completed in winter 2019)

7.33 As only one additional measure is applicable, it must be met for the second credit for LE05 to be available.

Management

7.34 A mandatory requirement for the achievement of credits under LE05 is that "a landscape and habitat management plan appropriate to the site is produced covering at least the first five years after the project completion."

7.35 Accordingly, a management plan for the enhancement measures to be installed on site has been produced.

7.36 A suitably qualified ecologist (SQE) will oversee the installation of the enhancement features and provide guidance for their maintenance.

7.37 Living roofs are dynamic, and the species composition is anticipated to change over time, due to plant selection resulting from the prevailing climatic conditions, natural colonisation, and succession. As a result, some of the actions within the first 5 years will be dependent upon rate of growth or success of initial planting/sowing and enhancements. In general, where measures have not been stated it is due to a non-intervention policy once the features have been established.

7.38 This plan will also be iterative in the medium to long-term, adapting in a staged process to the changing species' compositions. Suggestions can be made to alter the enhancement measures or supplement the planting regime as necessary. Primarily, this will include actions to maintain the ecological objectives for the habitat strategy, which are:

- Optimise biodiversity measured by the range of wildlife benefiting plant species, lichens, mosses and fungi, and invertebrate, bat and bird species using the landscaped areas, enhancement features and living roof;
- Encourage invertebrates through diverse range of floral species and suitable invertebrate niche habitats;

7.39 Indicators of success will include the successful establishment of a wide variety of plant species and natural colonisation of floral species in the bare areas on the roofs.

7.40 Table 7.2 summarises management actions for the first 5 years. Assuming that practical completion of the site is undertaken by autumn 2020, Year 1 spring will be spring 2021.

Table 7.2 Table Showing Key Stages of the 5 Year Management Plan

Year and Season	Action	Comments
Year 1 – Spring	-	-
Year 1 – Summer	Annual site inspection to check enhancement measures are intact and in use by target species (survey to be undertaken between May and August)	Survey for signs that invertebrates are inhabiting enhancement features and other fauna are using the site for foraging, roosting, nesting or perching
Year 1 - Autumn	Re-plant or supplement planting if necessary Weed out competitive species if necessary Clear debris from bug hotels and hedgehog box, replace any broken parts. Clear debris and old nest material from tree-mounted bird boxes.	Feedback from site inspection will inform any necessary changes to habitat management measures
Year 1 – Winter	Check if any litter needs removing and dispose where necessary	Provide summary report to client and LPA

Year and Season	Action	Comments
Year 2 – Spring/Summer	Annual site inspection to check enhancement measures are intact and in use by target species (survey to be undertaken between May and August)	Survey for signs that invertebrates are inhabiting enhancement features and other fauna are using the site for foraging, roosting, nesting or perching
Year 2 – Autumn	Re-plant or supplement planting if necessary Weed out competitive species if necessary Clear debris from bug hotels and hedgehog box, replace any broken parts. Clear debris and old nest material from tree-mounted bird boxes.	Feedback from site inspection will inform any necessary changes to habitat management measures
Year 2 – Winter	Check if any litter needs removing and dispose where necessary	Provide summary report to client and LPA
Year 3 – Spring	-	-
Year 3 – Summer	Annual site inspection to check enhancement measures are intact and in use by target species (survey to be undertaken between May and August)	Survey for signs that invertebrates are inhabiting enhancement features and other fauna are using the site for foraging, roosting, nesting or perching
Year 3 – Autumn	Re-plant or supplement planting if necessary Weed out competitive species if necessary Clear debris from bug hotels and hedgehog box, replace any broken parts. Clear debris and old nest material from tree-mounted bird boxes.	Feedback from site inspection will inform any necessary changes to habitat management measures
Year 3 – Winter	Check if any litter needs removing and dispose where necessary	Provide summary report to client and LPA
Year 4 – Spring	-	-

Year and Season	Action	Comments
Year 4 – Autumn	Re – plant or supplement planting if necessary Weed out competitive species if necessary Clear debris from bug hotels and hedgehog box, replace any broken parts. Clear debris and old nest material from tree-mounted bird boxes.	Check the enhancement measures are intact, such as the rope coils nailed down, sand piles remaining, etc. Feedback from site visit will inform any necessary changes to habitat management measures.
Year 4 – Winter	-	Provide summary report to client and LPA
Year 5 – Spring	-	-
Year 5 - Summer	Annual site inspection to check enhancement measures are intact and in use by target species (survey to be undertaken between May and August)	Survey for signs that invertebrates are inhabiting enhancement features and other fauna are using the site for foraging, roosting, nesting or perching
Year 5 – Autumn	Re – plant or supplement planting if necessary Weed out competitive species if necessary Clear debris from bug hotels and hedgehog box, replace any broken parts. Clear debris and old nest material from tree-mounted bird boxes. Dispose of unhatched eggs.	Feedback from site inspection will inform any necessary changes to habitat management measures.
Year 5 – Winter	Check if any litter needs removing and dispose where necessary	Provide summary report to client and LPA

7.41 Table 7.2 outlines the necessary responsibilities and key objectives for the next 5 years. Should the Management Plan need to be extended beyond 5 years, it will be done so in appropriate stages, considered to be 5 – 10 years, 10 – 15 and up to 25 years. Hence, the Management Plan is iterative and feedback from site management will inform and develop the Plan, which will be amended and updated accordingly to maintain the objectives.

Awarding of credits: Long-term impact on biodiversity

7.42 Should the ecological enhancements outlined in the previous chapter be included within the design, and the Habitat Management Plan included in Table 7.2 be adopted and adhered to, all the mandatory requirements are met and the proposals are eligible for the first credit under LE05.

7.43 Providing new ecologically valuable habitat is created in the form of a biodiverse roof and incorporation of habitat features into the scheme, the second credit can be awarded for LE05 – Long-Term Impact on Biodiversity. Therefore, the proposals are eligible for the maximum **2 credits** under LE05.

8.0 SUMMARY & CONCLUSIONS

8.1 Greengage Environmental Ltd was commissioned by Galliford Try Partnerships to prepare an Ecology Enhancement Plan to discharge planning conditions for vacant land at Crogsland Road in the London Borough of Camden.

8.2 The site was also assessed for eligible ecology credits under *BREEAM New Construction 2014*.

8.3 The report aimed to describe the ecological value of the site and its potential to support notable and/or protected species and assess the availability of land use and ecology credits likely to be achieved under *BREEAM New Construction 2014.*

8.4 This report includes details relating to:

- Ecological enhancements including a living roof, wildlife-friendly landscaping, bat boxes and bird boxes, invertebrate features and a hedgehog house;
- Advice for installation and maintenance of these measures.

8.5 Management recommendations are included for a 5-year period which will inform maintenance of these ecological features.

8.6 Overall, this EEP ensures that there will be net gains in biodiversity at the site and for the local area as a result of the development and that the effects of the development upon ecological receptors of note are adequately monitored following construction to confirm the predicted outcomes.

8.7 An assessment of the number of available land use and ecology credits is given. Providing the recommendations outlined in this report are followed, the scheme should be eligible for **8** credits under LE02 – LE05.

8.8 To allow the credits to be awarded, an SQE should return to site during installation of the ecological enhancements and upon practical completion to conduct a post-construction review and confirm enhancement measures have been incorporated to the required specification.

FIGURE 1 – PHASE 1 HABITAT MAP

CHARLIE RATCHFORD CENTRE

- Site Boundary
- Trees
- J1.2 - Amenity grassland
- J1.4 - Introduced shrub
- J3.6 - Hardstanding
- J4 - Bare ground

0 10 20 30 40 50 m

Greengage

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Fig 1.0 Site Plan and Habitat Map

Project Number 551015
April 2019
1 to 400 at A3
Map Data: Google Satellite