

The



Ecology Consultancy



Kings College Hall, Kidderpore Avenue

SINC Management and Education Plan

Report for Mount Anvil

Author	Rosie Whicheloe BA MSc MCIEEM/ Julie Brownbridge BSc/ Georgina Knibbs MSc BSc GradCIEEM		
Job No.	4559.3		
	Date	Checked by	Approved by
Initial	06.05.2016	Wendy McFarlane MA MSc MCIEEM	Ben Kimpton Dip(Hort) BSc MSc MCIEEM
Revision	10.05.2016	Wendy McFarlane MA MSc MCIEEM	
Review			

The Ecology Consultancy, Tempus Warf, 33a Bermondsey Wall West, London, SE16 4TQ
T. 020 7378 1914 E. enquiries@ecologyconsultancy.co.uk W. www.ecologyconsultancy.co.uk

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1 Introduction

BACKGROUND

- 1.1 The Ecology Consultancy was commissioned by Mount Anvil to provide a Site Management and Education Plan for the development of Kings College Hall Site of Importance for Nature Conservation (SINC), Kidderpore Avenue, London Borough of Camden.
- 1.2 The Plan is required to comply with the Section 106 agreement (see paragraph 2.6), relating to the permitted development at the site (ref. 2015/3936/P).
- 1.3 This outline report follows on from the following ecological works previously carried out at the site by The Ecology Consultancy and the wider consultant project team;
 - Preliminary Ecological Appraisal and Preliminary Bat Roost Assessment (The Ecology Consultancy, 2014a);
 - Presence / Likely Absence Bat Survey (The Ecology Consultancy, 2014b);
 - Stage 1 Arboricultural Report (Crown Consultants, 2014);
 - Addendum Report – Additional Biodiversity Enhancements (Scott Brownrigg, The Ecology Consultancy, Mount Anvil, Kings College London, 2016).
 - Bat Method Statement (The Ecology Consultancy, 2016)

LOCATION

- 1.4 The approximate centre of the development site is at Ordnance Survey Grid Reference TQ 25353 85862 and it covers approximately 1.2 hectares (ha). The site is located in West Hampstead and bounded to the south west by Kidderpore Avenue. West Hampstead underground station is located approximately 1.1 kilometres (km) to the south and the A41 Finchley Road is located approximately 90 metres (m) to the west, running parallel to Kidderpore Avenue. The local area is dominated by residential development with green open spaces including Hampstead Cemetery approximately 230m to the west and Hampstead Heath approximately 570m to the north east.

DESCRIPTION OF DEVELOPMENT

- 1.5 The proposed development at the site involves demolition of the Queen Mother's Hall and the Lord Cameron and Rosalind Franklin buildings. The former student halls of residence will be replaced with 156 residential units in the form of three blocks of flats (4-storey and 5-storey), eight houses to the northern boundary and three houses between The Chapel and Queen Mother's Hall.

- 1.6 The existing Summer house is to be relocated and refurbished; and other retained buildings refurbished. A 2-storey basement will be excavated in the western part of the site and a 1-storey basement excavated under the replacement buildings for Lord Cameron and Rosalind Franklin buildings. The lower ground floor of Bay House is to be lowered. The new development includes provision of 97 car parking spaces, cycle parking and refuse/recycling facilities.
- 1.7 The development necessitates the removal of some trees and has a slightly larger building footprint. Extensive ecological landscaping works across the site seek to more than compensate for any habitat loss.

SCOPE OF THIS REPORT

- 1.8 The first sections of the report provide detail on the baseline conditions at the site and set out aims for a management scheme which will fulfill the requirements of the S106 Agreement. Details of mitigation relating to the protection of SINC habitats during the construction phase of the development are provided in Section 5. Sections 6 and 7 of the report provide a more detailed description of each compartment of the site, along with ecological and landscaping objectives and management prescriptions. Section 8 sets out objectives and proposals for encouraging community and educational involvement in the site; including guidance on selection of a management contractor who can work in partnership with local people.
- 1.9 Detailed landscaping plans for each compartment are currently in preparation by Mount Anvil's landscape architects and will incorporate the ecological guidance set out in this report. Management and monitoring prescriptions will be finalised following sign-off of planting plans.
- 1.10 The contents of this document are briefly outlined below:
- planning context (Section 2);
 - aims, objectives, phasing of works and timescales (Section 3);
 - overview of baseline conditions (Section 4);
 - protected species mitigation (Section 5);
 - existing and enhanced landscape planting in different compartments of the site (Section 6);
 - generic management prescriptions for each habitat (Section 7); and
 - plans for community and educational use (Section 8).

2 Planning Context

LOCAL PLAN POLICY

- 2.1 It is considered that policy A3 Biodiversity in the London Borough of Camden Local Plan (Submission Draft 2016) is relevant to the site.

Policy A3 Biodiversity

- 2.2 The Council will protect and enhance sites of nature conservation and biodiversity. We will:
- a. designate and protect nature conservation sites and safeguard protected and priority habitats and species;*
 - b. grant permission for development unless it would directly or indirectly result in the loss or harm to a designated nature conservation site or adversely affect the status or population of priority habitats and species;*
 - c. seek the protection of other features with nature conservation value, including gardens, wherever possible;*
 - d. assess developments against their ability to realise benefits for biodiversity through the layout, design and materials used in the built structure and landscaping elements of a proposed development, proportionate to the scale of development proposed;*
 - e. secure improvements to green corridors, particularly where a development scheme is adjacent to an existing corridor;*
 - f. seek to improve opportunities to experience nature, in particular where such opportunities are lacking;*
 - g. require the demolition and construction phase of development, including the movement of works vehicles, to be planned to avoid disturbance to habitats and species and ecologically sensitive areas, and the spread of invasive species;*
 - h. secure management plans, where appropriate, to ensure that nature conservation objectives are met; and*
 - i. work with The Royal Parks, The City of London Corporation, the London Wildlife Trust, friends of park groups and local nature conservation groups to protect and improve open spaces and nature conservation in Camden.*

SITE OF NATURE CONSERVATION IMPORTANCE

- 2.3 The site partly comprises the non-statutory designated site 'Kings College Hampstead Campus', a Site of Borough Grade II Importance for Nature Conservation. The 2003

citation states:

- 2.4 *"The site has a good range of mature trees including both native and non-native species. In places these are almost dense enough to form woodland. Species include silver birch (Betula pendula), hornbeam (Carpinus betulus), holly (Ilex aquifolium), rowan (Sorbus aucuparia), yew (Taxus buccata), walnut (Juglans regia), purple cherry-plum (Prunus cerasifera var. pissardii) and laburnum (Laburnum anagyroides). There is dense planted shrubbery composed largely of cotoneaster (Cotoneaster sp.), spotted laurel (Aucuba japonica), rhododendron (Rhododendron ponticum), elder (Sambucus nigra), hawthorn (Crataegus monogyna) and buddleia (Buddleja davidii). Beneath the trees and shrubs, and at the northern edge of the central garden area are well-established patches of tall herbs and neutral grassland. Many of the species (particularly in the former category) are insect-attracting e.g. cow parsley (Anthriscus sylvestris), green alkanet (Pentaglottis sempervirens), Canadian goldenrod (Solidago canadensis) and common nettle (Urtica dioica). To the east of the main area of woodland is a small quadrangle. This contains several large trees, including some particularly fine walnuts. Beneath the trees is grass with small areas of shrubbery. This adds to the bird habitats on the site."*

SECTION 106 AGREEMENT

- 2.5 The planning permission was granted in January 2016 subject to conditions and a Section 106 Agreement, which states:

"SINC MANAGEMENT AND EDUCATION PLAN

The SINC Management and Education Plan will include (but not limited to) the following:

- a) Protection of existing biodiversity;*
- b) Provision of additional woodland species, bird boxes and bug hotels to enhance biodiversity;*
- c) The use and appropriate management of native, naturalised and appropriate wildlife friendly species across the site including the ornamental planting to the central courtyard, to provide structural and species diversity and to food and provide shelter for wildlife;*
- d) The use of the western courtyard (to the east of the Pavilion Buildings between the Chapel and Queen Mother Buildings) as a biodiverse landscaped area with minimal pedestrian access and a pond measuring 6sqm;*
- e) A rain water harvesting system;*
- f) Engagement of local residents and the wider community through practical nature conservation with the aim to help develop a sustainable volunteer workforce environmental stewardship of the site and foster community cohesion;*

- g) details of the effective management and maintenance of the SINC to ensure the SINC is properly maintained and opened for controlled public access;*
- h) SINC information packs to be provided to all residents within the Development to inform them of the value and importance of the SINC and the wildlife it supports and opportunities to get involved with its conservation;*
- i) liaising with the Green Gym to establish whether it would be feasible for the Green Gym to use the site and to provide a tool storage container in the locality of the Summerhouse or other location to be agreed with the Council unless it can be demonstrated to the Council's satisfaction that this is not feasible;*
- j) identifying means of ensuring the provision of information to the Council and provision of a mechanism for review and update as required from time to time including an annual biodiversity survey, with data to be submitted to the Council and Greenspace Information for Greater London;”*

3 Overview

Aims

- 3.1 The aims below outline the focus of the management and education plan for the Kings College Hall site. They take into consideration the aims set out in the Addendum Report – Additional Biodiversity Enhancements (Fabrik, 2016) and the Section 106 agreement (Camden Borough Council, 2016) and are guided by Kings College Hampstead Campus Site of Borough Importance for Nature Conservation citation (2003) and Camden Biodiversity Action Plan (2013). They form the basis for more detailed objectives defined for each habitat compartment in Section 6 of this report.
- 3.2 The aims of the site management and educational plan are:
- To manage the mosaic of trees, planted shrubbery and grassland to maintain and enhance their wildlife and educational value.
 - To create new habitat features that will further enhance the site for birds, invertebrates and amphibians and help to meet objectives for Camden (and London) BAP habitats and species¹.
 - To develop a sustainable volunteer workforce and environmental stewardship of the site.
 - To create a visually pleasing environment with a focus on wildlife-friendly, nectar-rich planting, that engenders a sense of care, wellbeing and community cohesion.
 - To develop an annual monitoring regime that identifies successes and failures in meeting objectives outlined in this document.
 - To complement nearby habitat (e.g. in Hampstead Heath, Westbere Copse Local Nature Reserve, Hampstead Cemetery), by creating habitat that could be used by wildlife recorded at these sites, such as hedgehog and slow worm.
- 3.3 Mount Anvil’s landscape design proposals will incorporate these aims and can be summarised as:
- The retention of high value existing trees.
 - The strengthening of existing green infrastructure, retaining the site’s value as an ecological “stepping stone” to other wooded greenspace in the area.
 - Further enhancement of biodiversity value through native tree and shrub planting.

¹ Relevant priority habitats and species include stag beetle, bats, house sparrow, common blue butterfly, perennial wildflower meadow, hedgehog, swifts

- To make distinctive, memorable and unique spaces that positively contribute to the character, appearance and setting of the listed buildings.
- To rationalise and improve connectivity through the site.
- To provide a series of public spaces that provide a clear and legible route that is easy to navigate.

Responsibilities

3.4 Mount Anvil will be responsible for undertaking the habitat creation works as part of the redevelopment of the site. The managing agent will be responsible for managing the landscape and ecology of the site for at least ten years post completion. The Section 106 agreement requires the following;

- *Mount Anvil will appoint a person ("Liaison Officer") responsible for liaising with and supporting the owners and or occupiers of the residences and businesses in the locality; and*
- *At the earliest stage post completion and as a result of community engagement by the "Liaison Officer" that an element of responsibility for the environmental stewardship of the site will be given to volunteers (comprising people who live in the new homes and local community).*
- *Mount Anvil will be responsible for the long term maintenance and monitoring of the site, appointing a suitably qualified contractor to undertake the management tasks. These management tasks will be funded by the service charge collected from residents.*

Timescales

3.5 This management plan comprises outline prescriptions for five outdoor compartments. The prescriptions will be implemented at the end of the construction phase when the final residents move in. The managing agent are committed to following this plan for ten years. An annual biodiversity survey is to be undertaken by residents under supervision of the consultant ecologist and/or landscape architect, and will inform an annual review of the management plan. This is to allow for any changes to the proposed management schedule in light of changing conditions affecting the habitats, residents or local community and/or changes in best practice methodology. Any changes to the management schedule, and renewal or amendment of the maintenance contract, will be reviewed with Camden Borough Council prior to their adoption and implementation.

4 Baseline Conditions

Site overview

- 4.1 The site comprised ten buildings primarily used as halls of residence for Kings College University students, set within landscaped grounds. The grounds comprised hardstanding areas of car parking and pathways, lawns, areas of planted shrubbery and a number of mature trees.

SINC habitats

- 4.2 The site included a wide range of native and non-native tree species, including some mature specimens such as a maidenhair tree *Ginkgo biloba*, purple cherry-plum, Turkey oak *Quercus cerris*, lime *Tilia* sp., ash *Fraxinus excelsior*, a large, triple-stemmed hornbeam, walnut, cherry *Prunus* sp., Indian bean tree *Catalpa bignonioides*, four mature silver birch and beech *Fagus sylvatica*.
- 4.3 A group of mature and semi-mature trees located to the south-east was sufficiently dense to form a small patch of semi-natural broadleaved woodland. Species included cherry, silver birch, goat willow *Salix caprea*, hazel *Corylus avellana* and pedunculate oak *Quercus robur*. The understorey was dominated by common nettle and cow parsley. The buildings and boundary walls were bordered by mature or large introduced shrub species.
- 4.4 Amenity grassland characterised the lawns, dominated by perennial rye-grass *Lolium perenne*.
- 4.5 Planted shrubbery dominated by mature, introduced shrubs was present around boundaries to the site. The buildings provided separation between the west, central and eastern gardens.
- 4.6 An area of native scrub dominated the north-east corner of the site and comprised elder and hazel with nettle, cow parsley and green alkanet.

Bats

- 4.7 A range of bat surveys have been carried out at the site including an external building inspection, ground-level tree assessment and dusk/dawn bat emergence/re-entry surveys. No bat roosts were confirmed within the site, albeit there is potential for roosting bats to be present. Of the buildings with bat roosting potential, Lord Cameron

Hall and Queen Mother's Hall are to be demolished, the Summerhouse is to be dismantled and relocated, and Lady Chapman Hall, Skeel Library and Chapel are to be extended. Two ivy-covered trees (T23 and T30 in the Crown Consultants arboricultural report) with low bat roosting potential are to be felled.

- 4.8 Details of bat mitigation required during the construction phase of the development is provided in Section 5 of this report. Details of proposed compensation and enhancement of the site for this species is provided in the Outline Management Prescriptions and Generic Management Prescriptions sections of this report (Sections 6 and 7).

Breeding Birds

- 4.9 The survey conducted for the Preliminary Ecological Appraisal in 2014 identified the presence of at least two active bird nests on the buildings in the site. The scattered trees, woodland, scrub and introduced shrub are likely to provide high potential for breeding birds and opportunities for foraging birds.
- 4.10 Details of mitigation relating to breeding birds during the construction phase of the development is provided in Section 5 of this report. Details of proposed mitigation and enhancement of the site for this species is provided in the Outline Management Prescriptions and Generic Management Prescriptions sections of this report (Sections 6 and 7).

5 Protected Species Mitigation

5.1 This section summarises the ecological mitigation required to avoid offences relating to protected and/or notable species. This is most relevant during the construction and landscaping phases.

5.2 As outlined in the baseline conditions, previous surveys have identified the presence or potential presence of protected species within the site. Any ecological pre-commencement works, including vegetation clearance or habitat creation works have the potential to impact on SINC habitats and protected species, including breeding birds and roosting bats. As such, appropriate mitigation and working practices to minimise the impacts are required and are outlined below.

BATS

Legislation

5.3 All species of bat are fully protected under the Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate disturbance of bat species as
 - a) To impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young;
 - (ii) to hibernate or migrate.³
 - b) To affect significantly the local distribution or abundance of the species.
- Damage or destruction of a breeding site or resting place. Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

5.4 Bats are also protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (all bats).
- Intentional or reckless obstruction of access to any place of shelter or protection.
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Potential Impacts

5.5 The demolition of Lord Cameron Hall and Queen Mother's Hall, the relocation of the

Summerhouse, the extension of Lady Chapman building, Skeel Library and the Chapel and the removal of existing trees (T23, T26 and T30 in Crown Consultants' 2014 arboricultural report) have the potential to impact on roosting bats, should they be utilising these buildings or trees for roosting at the time of works.

Measures to minimise impacts

- 5.6 A stringent precautionary approach should be employed, as set out in detail in the Bat Method Statement (The Ecology Consultancy, 2016). In summary, this sets out the requirement for updated internal building inspections, tool-box talk, soft strip of roof structures and other features of potential to support roosting bats in the buildings, climbed tree inspections and soft tree felling procedures and requirements for a sensitive lighting scheme. For further details please refer to the Bat Method Statement.

BREEDING BIRDS

Legislation

- 5.7 With certain exceptions, all birds, their nests and eggs are protected under Sections 1 to 8 of the Wildlife and Countryside Act 1981 (as amended). Among other things, this makes it an offence to:
- Intentionally kill, injure or take any wild bird;
 - Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built;
 - Intentionally take or destroy an egg of any wild bird; and
 - Sell, offer or expose for sale, have in your possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.
- 5.8 Certain species of bird, for example redwing, receive additional special protection under Schedule 1 of the Act and Annex 1 of the European Community Directive on the Conservation of Wild Birds (2009/147/EC). This affords them protection against:
- intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young;
 - Intentional or reckless disturbance of dependent young of such a bird.

Potential Impacts

- 5.9 It is likely that vegetation clearance will be undertaken in those areas that have the potential to support breeding birds during the bird nesting season (March to August

inclusive).

Measures to minimise impacts

- 5.10 Any vegetation clearance should be done outside the bird nesting season which is normally considered to span the months March to August inclusive, to avoid any potential offences relating to nesting birds (Newton et al., 2004). Where this is not possible, a search for nesting birds up to 48 hours prior to vegetation clearance taking place must be undertaken by an experienced ecologist. If any nests are found, they must be protected by an exclusion zone. Works may then proceed up to, but not within, this exclusion zone, until such time as an ecologist confirms the young have fledged the nest.
- 5.11 Toolbox talks will be given to relevant site operators to highlight the above legislation and procedures should they discover any birds or nests not identified by the ecology survey. If nesting birds are found at any time during clearance works, work must stop immediately and an ecologist be consulted immediately.

6 Management compartments – existing vegetation and proposed landscaping

6.1 The site has been compartmentalised in accordance with the Landscape Design Statement (Fabrik, 2015). Figure 1, at Appendix 1, maps each compartment in the site.

LOWER WESTERN GARDEN

Detailed description

6.2 A new building on the southern edge of this site will result in the loss of a small patch of semi-natural broadleaved woodland, described in 2.1. Approximately half of a large area of scrub in the north-west corner of the site, behind the Chapel, will remain post-construction. The species composition is dominated by elder and hazel with an understorey of bramble *Rubus fruticosus* agg., nettle, cow parsley and green alkanet. There are also many self-sown seedlings of ash and sycamore *Acer pseudoplanatus*.

6.3 Dense patches of scrub also currently occupy the south-west boundary and an area to the south of the Chapel. Species include holly, spotted laurel, cherry laurel, rhododendron, hawthorn, *Weigela* and flowering currant *Ribes sanguineum*. By the south side of the Chapel are two fig *Ficus caria*.

6.4 Mature trees dotted among the scrub include ash, beech, lime and Turkey oak. There are also an immature laburnum, semi-mature hawthorn, cherry and Lawson cypress *Chamaecyparis lawsoniana*, and immature and semi-mature limes.

6.5 Approximately one third of the vegetated area, between the existing buildings (Chapel and Queen Mother's Hall), comprises semi-improved amenity grassland.

Construction and landscaping proposals

6.6 "Pavilions" with biodiverse green roofs are to be sited in the middle, eastern portion of this area, between the Chapel and the new building which will replace the Queen Mother's Hall. These have been specified by the landscape architects as "low nutrient" (Emorsgate green roof seed mix rather than *Sedum*) with substrate depth varying from 80mm to 150mm to provide invertebrate microhabitat along with different substrate types, deadwood and rubble piles to further diversify the microhabitat. Management specifications for the green roof are provided by the landscape architects.

6.7 The landscape architects propose that the remaining open area is developed as a secluded nature area, with minimal pedestrian access, creation of a 6m² wildlife pond and wildflower meadow; a yew hedge along the western boundary with the adjacent vicarage, and “Arts and Crafts style, organic” path surfaces of natural stone with pebble or tile detail. The Summerhouse “folly” is also to be relocated into this area. Fabrik (January 2016) propose that it is used for habitat interpretation boards and as an Arts and Biodiversity Education Resource. They recommend replacement of non-native and potentially invasive shrub species such as laurels, rhododendron, *Cotoneaster*, with native species.

6.8 Loss of some trees and woodland is to be compensated by planting of semi-mature trees and “multi-stemmed trees” that flower and fruit.

Management objectives to enhance biodiversity and any landscaping implications

6.9 The following management objectives have been identified:

- To manage this compartment as a secluded nature area, suitable for educational use and quiet enjoyment of nature by residents.
- To enrich remaining grassland with woodland edge species plug planting and manage as “shady summer meadow”.
- To preserve and improve the layered structure of the woodland habitat.
- To create additional wetland habitat in the form of a pond.
- To manage regrowth of spotted laurel and monitor for any reappearance of giant hogweed *Heracleum mantagazzianum* which formerly occurred in this area.

6.10 The intention to develop this area as a wildlife sanctuary “with minimal pedestrian access” may require that it is fenced off and access restricted to keyholders such as school groups and interested residents. Such an access strategy will also address any safety concerns of resident parents of young children.

6.11 Generic prescriptions for woodland edge, meadow and pond management are set out in Section 7 Generic Habitat Management Prescriptions.

CENTRAL COURTYARD

Detailed description

- 6.12 This is mainly an area of amenity grassland dominated by perennial rye-grass *Lolium perenne*, abundant self-heal *Prunella vulgaris*, frequent daisy *Bellis perennis*, dandelion *Taraxacum* sp., white clover *Trifolium repens*, and occasional Yorkshire fog *Holcus lanatus* and creeping buttercup *Ranunculus repens*.
- 6.13 A linear flowerbed borders the northern edge of the lawn and features a rich assemblage of mainly non-native flowers and shrubs. Species include dogwood *Cornus sanguinea*, Japanese barberry *Berberis thunbergii*, lavender *Lavendula* sp., *Weigela*, *Geranium* sp., pendulous sedge *Carex pendula*, Christmas berry *Photinia x fraseri* 'Red Robin', California poppy *Eschscholzia californica*, Darwin's barberry *Berberis darwinii*, lungwort *Pulmonaria officinalis*, great mullein *Verbascum thapsus*, knotweed *Persicaria microcephala* 'Red Dragon', purple sage *Salvia officinalis*, Russian sage *Perovskia atriplicifolia*, *Penstemon* sp., Montbretia *Crococsmia x crocosmiiflora* 'Lucifer', catmint *Nepeta* sp., hedge bindweed *Calystegia sepium* and Canadian goldenrod. Although most of these species are non-native, they all have some wildlife value and should be retained if possible, with the exception of bindweed, which can be invasive.
- 6.14 There is a young monkey puzzle *Araucaria araucana* to the south of the Central Courtyard, an immature birch *Betula* sp. and goat willow. To the west of the Courtyard, amongst introduced shrubs are a Turkey oak, four mature silver birch and two semi-mature rowan.

Construction and landscaping proposals

- 6.15 The landscaping intention is to maintain the flat lawn in deference to the formal setting associated with historic Kidderpore Hall, but also to introduce additional trees and shrubs around the west and south-east edges.

Management objectives to enhance biodiversity and any landscaping implications

- 6.16 The following management objectives have been identified:
- To manage as "spring meadow" (daisy lawn) grassland habitat.
 - To manage and improve the shrub and herbaceous borders as woodland edge habitat.

EASTERN QUADRANGLE

Detailed description

- 6.17 A number of mature trees are situated within and around the edge of the quadrangle, including a large, triple-stemmed hornbeam, several walnut, cherry and an Indian bean tree. Less mature trees include a hawthorn and a *Magnolia*.
- 6.18 Lawn areas in the quadrangle are dominated by perennial rye-grass with occasional annual meadow-grass *Poa annua* and daisy.

Construction and landscaping proposals

- 6.19 The landscaping intention is to retain the significant mature trees and to enhance the “collegiate feel” with extra planting and a mown central lawn.

Management objectives to enhance biodiversity and any landscaping implications

- 6.20 The following management objectives have been identified:
- To maintain this area as woodland edge habitat under planted with shrubbery and featuring a central, glade-like lawn which can be managed as spring meadow.

AVENUE FRONTAGE

Detailed description

- 6.21 The southern boundary of the site, adjoining Kidderpore Avenue, is lined with the following specimen trees: a mature maidenhair tree, purple-leaved plum, Turkey oak, lime, ash, semi-mature *Magnolia* sp. and spindle *Euonymus europeaus*. There is also a line of semi-mature holly bordering the westernmost existing building.
- 6.22 The amenity grassland in this compartment consists of patches of moss, abundant perennial rye-grass and occasional daisy, annual meadow-grass, red fescue *Festuca rubra* and common bent *Agrostis capillaris*.

Management objectives to enhance biodiversity and any landscaping implications

- 6.23 The following management objectives have been identified:
- To manage this area as woodland edge habitat (tree, shrub and grassland mosaic)

EASTERN BOUNDARY

Detailed description

- 6.24 Four semi-mature holly trees and a single semi-mature elder line the south-eastern boundary, whilst off-site, adjacent to the eastern boundary is a mature London plane

Platanus x hispanica and a semi-mature Leyland cypress *Cuprocyparis leylandii*. A mature sycamore is also located off site, adjacent to the north-eastern corner of the site.

- 6.25 Tall ruderal vegetation grows around the margins of the existing car park in the north-eastern corner of the site. Abundant species include common nettle, ground elder *Aegopodium podagraria*, ivy, docks *Rumex* spp. and bramble. Frequent species include green alkanet, herb Robert *Geranium robertianum*, creeping thistle *Cirsium arvense*, Canadian fleabane *Conyza canadensis*, dandelion *Taraxacum* agg, prickly lettuce *Lactuca serriola*, hedge mustard *Sisymbrium officinale*, and willowherbs *Epilobium* spp. Occasional species include yellow corydalis *Pseudofumaria lutea*, buddleia, sow-thistle *Sonchus* sp., common mallow *Malva sylvestris*, wood avens *Geum urbanum* and self-seeded saplings of sycamore, holly and ash.

Construction and landscaping proposals

- 6.26 Construction work will necessitate the removal of 29 trees of which 23 are C category. They will be replaced with new tree planting.

Management objectives to enhance biodiversity and landscaping implications

- 6.27 The following management objectives have been identified:
- To manage this area as woodland edge habitat (tree & shrub mosaic)
- 6.28 The ruderal vegetation is composed mainly of self-sown species which most people view as weeds. There is therefore no need to retain it in the landscaping plan as nectar-rich, ornamental species could be of equivalent wildlife value.

7 Habitat management prescriptions

7.1 Across the different compartments in the site, the habitats will be managed in a way that will maximise the value to biodiversity and create a semi-natural feel. Appendix 2 includes a management schedule for each of the habitat areas, as described below.

7.2 **BIODIVERSE ROOFS**

7.3 The biodiverse roof should be installed following the best practice guidance produced by the Green Roof Organisation (2011) and Buglife (Gedge et al. 2012). The Green Roof Directory, produced by Livingroofs.org provides a comprehensive online directory of green roof professionals, suppliers and installers, such as Green Infrastructure Consultancy <http://greeninfrastructureconsultancy.com/> Further information regarding maintenance and management should also be supplied by the specialist contractor.

7.4 Planting should be inspected regularly for the first three months, watering plugs and seeds for the first four to six weeks until established (and in summer months if required). Health of seedlings should be monitored and additional sowing may be required if plants fail to establish.

7.5 The green roofs should be inspected annually in the autumn. The roofs should not be accessed for maintenance within the period March-August inclusive to avoid disturbance to breeding birds. The following tasks will be carried out as necessary:

- re-sowing if the number of wildflowers falls below an average of eight species per m² or perennial grasses account for greater than 50% of the vegetation cover;
- removal of perennial grasses from the roof if they account for greater than 25% or more of the vegetation cover;
- inspection of drainage outlets to ensure water drains freely from the roof, unblocking as required; and,
- removal by hand of any aggressive or competitive species such as Buddleia Buddleja davidii or fleabane Conyza spp. which may have established when they account for 10% or more of the vegetation cover on the green roofs.

“WOODLAND EDGE” HABITAT: TREE, SHRUB AND GLADE MOSAIC

7.6 A mosaic of mature and semi-mature trees with shrubby understorey borders much of the site, and interweaves with amenity grassland areas. Objectives are:

- To retain as much of this “woodland edge” habitat as possible; and to conduct new planting to compensate for that which is lost.
- To focus on the retention or formation of a layered vegetation structure, managing the shrub understorey to keep it thick and dense enough to provide cover and nesting habitat for birds.
- To gradually manipulate the shrub species composition to;
 - prevent invasion by species of low wildlife value such as spotted laurel, rhododendron, and to
 - preserve and retain shrub species, (including non-natives), of good wildlife value.
- To pre-emptively remove ash and sycamore seedlings to prevent them dominating the shrub layer in future years.

7.7 House sparrow, a London BAP priority species, particularly favours such dense, shrubby areas. The presence of mature tree cover next to grassland may also tempt attractive bird species such as song thrush and green woodpecker.

7.8 Recorded species of benefit to wildlife which should be retained if possible include; holly, Japanese barberry, ivy, dogwood, Mexican orange blossom, hornbeam, elder, hazel, bramble, *Hebe* sp, tree mallow *Lavatera arborea*, butterfly bush, *Viburnum* sp. and Oregon grape *Mahonia aquifolium*.

POND

7.9 The pond profile will be sculpted according to the landscape architect’s specifications to maximise wildlife value by including:

- A shelf for establishment of marginal, aquatic plants;
- areas of shallow water depth to encourage amphibians, along with
- deeper areas for overwintering amphibians and to provide for free-floating oxygenating plants and those which root at greater depth.
- Areas of denser vegetation need to adjoin the pond to provide cover for amphibians.

7.10 Where possible, the pond should be created in late summer/early winter, to allow it to naturally fill throughout the winter. The pond should be planted in early spring with native plant species of local provenance (sourced from the local area) where possible.

7.11 Future management will need to focus on regular control of pond vegetation so that it does not take over. A detailed specification will be included in the landscaping management plan.

SHADY SUMMER MEADOW

7.12 The Biodiversity Enhancements Addendum Report (Fabrik, 2016) specifies that existing species-poor amenity grassland in the Western Lower Garden will be “cultivated and seeded with shade tolerant wildflowers characteristic of native woodland ground flora”.

7.13 This shade-tolerant grassland will need to be cut once a year in September to prevent succession to scrub. The cutting frequency may need to be increased if invasion of tree seedlings becomes an issue; or possibly decreased if the level of shade stunts growth of grass species. From a wildlife perspective, it would be better to cut some areas only once every two years, e.g. to cater for pupae of Skipper butterflies which overwinter in grass stalks.

7.14 Depending on the extent of this meadow area, it may be necessary to cut access paths in the sward more regularly, which will give the area a more cared for (and safer) appearance.

7.15 Meadow management in this location is probably a task suited to Green Gym or Friends Group volunteers.

SPRING MEADOW OR DAISY LAWN

7.16 The existing amenity grassland areas in the Central Courtyard and Eastern Quadrangle will continue to be managed as formal lawn areas, in keeping with the historic setting. However, if the commencement of mowing in early spring can be deferred a few weeks (until mid to late May dependent on weather conditions), this will allow the daisies and self-heal flowers already present in the sward to provide an attractive flowering period, without allowing the grass to become too long for mowing.

7.17 The sward can also be enriched with plugs of other wild flowers which will survive regular mowing, such as cowslip *Primula veris*, bird’s foot trefoil *Lotus corniculatus* (also a food plant for the Common Blue butterfly), common sorrel *Rumex acetosa*, lady’s bedstraw *Galium verum*. Minimum cutting height should be 5cm.

HABITAT CREATION PROJECTS

7.18 The Section 106 agreement and Biodiversity Enhancements Addendum Report (Fabrik, 2016) also specify inclusion of other features to benefit and attract wildlife. These will include:

- At least 2 stag beetle loggeries, built by stacking deadwood and located in the western lower garden and/or the biodiverse roofs.
- At least 1 bug hotel, built as a standalone feature or affixed to a tree or wall and utilising a range of materials such as bamboo canes, fir cones, untreated wood with drilled holes and twigs.
- At least two bird boxes, affixed to retained mature trees in the western lower garden and eastern quadrangle. Boxes should be at least 3m above the ground to avoid cat predation and unobstructed by vegetation.
- At least 4 bat boxes affixed to retained mature trees in the western lower garden or the walls of the buildings to the north of the western lower garden. Bat boxes should be located at least 3m above the ground facing a south-westerly, southerly or south-easterly direction with a clear approach for bats. The bat boxes will not be lit directly by artificial lighting.
- At least 2 hedgehog houses, located beneath the yew hedgerow or in long grassland in the western lower garden.
- At least two swift bricks built into the new structures of the new buildings in the north west of the site. Swift bricks should be located at the top of the walls beneath the eaves of the buildings.

7.19 All of these features need to be specified in the landscaping proposals. As these are rewarding projects to be achieved by school or resident groups, it may be possible to facilitate some practical involvement by such groups during the construction phase (see Section 8 Plan for Community and Educational Use).

7.20 As the construction work will require some tree removal and shrub clearance, the contract needs to specify the retention of one of the felled trees and brash from the shrubs on site for use in creation of the stag beeting loggeries and the bug hotels.

GENERAL SITE MANAGEMENT TASKS & SUSTAINABLE HORTICULTURAL PRACTICE

7.21 A maintenance contract will be put in place soon after completion of the development. As it is a Section 106 stipulation to closely involve the community in the site's management, it will be important to ensure the appointed contractor has appropriate

personal aptitude, and is suitably qualified, to manage both retained wildlife habitat and more formal landscaped areas. Equally the maintenance contract will need to be tailored to suit the varied site conditions and management aims and objectives, in order to fulfil the ten year plan and long term stewardship of the site. Without such a contract in place a drop in quality and standards can slip, even where volunteers and maintenance staff are involved.

Contractor skills and personal qualities

7.22 The following skills and personal qualities will be important for the appointed maintenance contractor:

- Consultation between parties, maintaining good relationships, and nurturing a passion for the grounds, in staff and residents, is important.
- Grounds staff will be in a unique position to meaningfully consult with residents about site management. Contractors can potentially stimulate volunteering and raise community spirit, thus helping to realise well-being benefits for residents.
- The grounds maintenance contract needs to be about managing and improving wildlife habitat value and not just about maintenance. This requires relevant, specialist knowledge.
- The grounds maintenance contract must be reviewed by an ecologist to ensure it is written appropriately for the site, and is versatile enough, rather than stipulating practices that could be detrimental to wildlife.

Maintenance contract format and contents:

7.23 The following considerations should be made when writing the maintenance contract for the site:

- Contract should be worded to focus on ‘outcomes’ rather than ‘inputs’, giving the flexibility required to develop and improve habitats on site.
- This management and education plan must be appended to the grounds maintenance contract.
- Information should be provided in the form of pictorial depictions of grounds:
 - for benchmarking, and to accessibly indicate the current standard and quality to be aspired to;
 - so residents and landlords can understand what’s stipulated;
 - to be a clear guide to contractors.

Sustainable horticulture

7.24 Adherence to the following practices will ensure sustainable horticulture. This is outlined in greater detail in the Landscape and Maintenance and Management Plan (April 2016, Fabrik):

- Source planting stock from companies who have adopted the Flora Locale Code of Practice.
- Use peat-free compost and organic plant feed (if needed).
- Use drought tolerant species and/or water-retaining mulches as much as possible.
- Do not use pesticides and use alternative measures if necessary.
- Use established rainwater harvesting techniques to collect rainwater from the development's roofs and store it for irrigation.

8 Plan for community and educational use

OBJECTIVES

8.1 The following objectives have been identified for the community and educational use of the site:

- Through the Community Working Group, to establish links during the construction stage with relevant community groups and educational establishments, to engage their commitment to being involved in managing and using the site.
- To form a sub-Working Group who can plan engagement events and publicity material ready for the arrival of new residents.
- Post-construction, to form a Friends Group who will be supported by the managing agent to lead on management and improvement of the new open space.

CONSTRUCTION STAGE

8.2 Contact relevant parties via the Liaison Officer appointed to the Community Working Group, to become involved in the site, such as:

- Local residents, business representatives and faith establishments.
- Environmental education centre staff at Camley Street and Hampstead Heath who may be able to help facilitate educational use and involvement in the site by the two local schools and Hampstead School of Art.
- The Conservation Volunteers who may be able to catalyse a Green Gym group for the site.
- Children's Centre, (if there is one in close proximity), who may be able to use the site as a Forest School.
- Heath Hands (the volunteer group who are very numerous and active at Hampstead Heath).

8.3 A community tool store will be created in readiness for practical community involvement.

MOVING IN STAGE

8.4 At the moving-in stage, the following measures are recommended:

- Prepare a flyer or information pack for new residents about their special open space, including a summary of the SINC citation, a list of the Camden BAP species targetted by the enhancements, information on the planned welcome events (see

below) and details on the managing agents and volunteer groups involved in the creation and ongoing management of the site.

- Arrange at least two biodiversity-themed welcome events, (e.g. evening bat walk, weekend picnic and guided walk, exhibition in Summerhouse), which aim to provide a fun introduction to the attractions of the site, but which also ask people to sign up to forming and joining a Friends group.
- Invite all new residents and other local people and schools to make suggestions on a new name for the open space.

THE POST-CONSTRUCTION FUTURE

8.5 Although it is desired that the future open space management is resident-led, it is not feasible for all required management and maintenance work to be conducted by residents on a voluntary basis. It is recommended that any horticultural staff are employed as “Community Gardeners”, and have “community liaison and working with community groups” included in their job description (as described in greater detail in paragraph 7.17).

8.6 The formation of a constituted Friends Group should be supported. Ideally, the Community Working Group Liaison Officer will be retained post-construction to facilitate this task. The Friends Group will wish to set their own priorities and projects but suggestions for early projects for their consideration include:

- Designing a Tree Trail and labels for trees to interpret the interesting array of species present.
- Work with school groups and adult working parties to install some popular habitat features such as hedgehog houses, bug hotels and stag beetle loggeries.
- Training in wildlife surveying by London Wildlife Trust so the Friends are able to undertake the Annual Biodiversity Survey required by the Council as part of the Section 106 Agreement.
- A possible project to grow fruiting trees and shrubs for the benefit of residents and wildlife (a Community Orchard). The current fig trees growing by the Chapel could form a nucleus.
- A specific project to engage those new residents who have private gardens, and who may be more “green fingered” and interested in helping than others.

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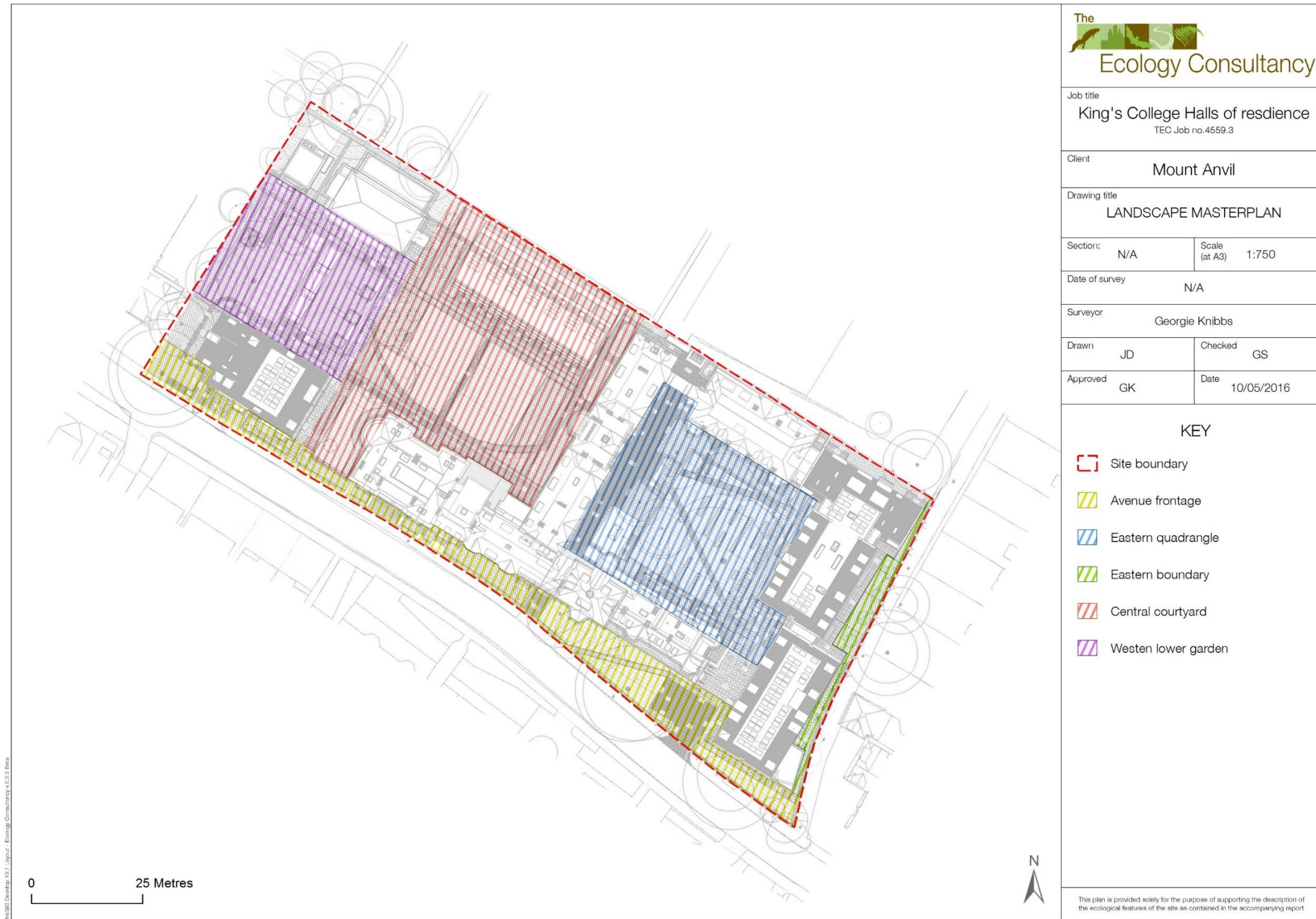
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Appendix 1: SINC Compartment Plan

FIGURE 1: SINC COMPARTMENT PLAN



Appendix 2: Management schedule

Management tasks	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Y1-2	Y3-4	Y5-6	Y7-8	Y9-10
Biodiverse roof (further information to be provide by specialist contractor)									
Install biodiverse green roofs	✓								
Watering of seeds/plugs on biodiverse green roofs	✓	✓	✓						
Maintenance of green roofs	✓			✓	✓	✓	✓	✓	✓
“Woodland edge” habitat: tree, shrub and glade mosaic									
Erection of protection fencing around retained woodland/trees/shrubs	Throughout								
Vegetation clearance to avoid bird nesting season	✓			✓	✓	✓	✓		
Prepare soil, plant, stake, protect and mulch trees, large shrubs and formal hedging	✓			✓		✓	✓		
Maintain a 1m weed free ring around the base of each newly planted tree by hand weeding operations	As required								
Remove any self-seeded or suckering material (e.g. sycamore saplings) in autumn				✓			✓		
Check stakes and ties for looseness, breaks or decay and adjust, re-fix or replace defective items (each monthly maintenance visit i.e. 12 per year)	As required						✓		
Remove stakes and ties between 3-5 years or when specimens are established and firm on their root system							✓		
Water new planting and continue as necessary to ensure good establishment/health	As required								
Annual inspection of trees, outside of bird nesting period and following severe weather conditions				✓		✓			
Ensure trees remain firmly bedded after disturbance and re-firm as necessary	As required						✓		
Replacement planting of any dead or failing trees/shrubs planted in year 1. Replace in accordance with original specification unless instructed otherwise.	✓			✓			✓		
Removal of any dead, dying or dangerous trees/limbs. Trees should first be assessed for bat potential by quitably qualified ecologist. All works are to be carried out in accordance with BS5837:2005 Trees in Relation To Construction. Deadwood to be retained on site for habitat creation projects.				✓	✓				
Pond									

Management tasks	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Y1-2	Y3-4	Y5-6	Y7-8	Y9-10
Biodiverse roof (further information to be provide by specialist contractor)									
Install biodiverse green roofs	✓								
Watering of seeds/plugs on biodiverse green roofs	✓	✓	✓						
Maintenance of green roofs	✓			✓	✓	✓	✓	✓	✓
Create the pond in autumn and allow pond to fill naturally with rainwater				✓					
Plant pond margins in early spring and avoid use of fertilisers which could cause nutrification of the pond water. Ongoing removal of marginal weeds outside of amphibian breeding season (March – July).	✓		✓				✓	✓	✓
Top-up water levels in summer months following long periods of dry weather if required. Use water butts to collect rainwater, do not top-up with tap water.			✓		✓	✓	✓	✓	✓
Ongoing monitoring of aquatic vegetation, and removal of any Schedule 9 plants or native plants if the pond becomes choked. Removal of excess of aquatic vegetation outside of amphibian breeding season (March-June)			✓		✓	✓	✓	✓	✓
Shady summer meadow									
Prepare soil and sow woodland wildflower seed in spring and or autumn		✓							
Following spring sowing, cut any growth to 4-7cm in autumn (Sept) to prevent grasses and annuals from out competing perennial species, remove all arisings to compost bins. Cut majority of western lower garden once per year, in September			✓		✓	✓	✓	✓	✓
Monitoring of establishment of wildflower grassland and over-sow mix as required	As required								
Cut pathways up to four times per year to give a safe, accessible feel		✓	✓	✓	✓	✓	✓	✓	✓
Cut edges and 0.5m buffers around trees once every other year, in autumn, to give opportunities to overwintering invertebrates			✓			✓		✓	
Control undesirable herbaceous and woody material via hand weeding. Use of herbicides to be minimized, but may require spot spraying of any pernicious weeds during establishment	As required						✓		
Spring meadow / daisy lawn									
Plug planting of spring bulbs in autumn			✓	✓					
First cut of the year in late May, with weekly mowing throughout the summer months (Jun-Aug) and fortnightly mowing during autumn (Sep-Nov)		✓	✓	✓	✓	✓	✓	✓	✓

Management tasks	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Y1-2	Y3-4	Y5-6	Y7-8	Y9-10
Biodiverse roof (further information to be provide by specialist contractor)									
Install biodiverse green roofs	✓								
Watering of seeds/plugs on biodiverse green roofs	✓	✓	✓						
Maintenance of green roofs	✓			✓	✓	✓	✓	✓	✓
Control undesirable herbaceous and woody material via hand weeding. Herbicides to be minimised. Avoid areas of bulb planting	As required						✓		
Allow foliage to die back naturally once flowering has ended. Do not remove foliage when green. Do not mow grassed areas containing bulbs until foliage has browned	As required						✓		
General site management and sustainable horticulture									
Incorporate organic matter into soil during planting of herbs and shrubs and mulch surface		✓	✓			✓			
Water new planting and continue as necessary to ensure good establishment/health. Use rainwater havesting techniques	As required								
Improve soil with composted material and re-mulch (every two years)	✓			✓		✓		✓	
Application of granular fertiliser (15:15:15) in spring, preferably organic		✓					✓		
Monitor for Schedule 9 non-native pests, such as harlequin ladybirds, and non-native plants annd remove using bio-control measures and hand-weeding if required. Seek advice from suitably qualified ecologist as appropriate	As required								
Stag beetle loggeries and bug hotels									
Create two logs piles and one bug hotel from felled timber and brash from vegetation removal	✓			✓	✓	✓			
Check and replace rotting timber in log piles and monitor structural security of bug hotel.	As required.								
Artificial bird nesting boxes									
Install bird boxes				✓					
Post installation check of bird boxes (by ecologist/ornithologist)				✓	✓				
Clean out bird boxes (excluding swift) every 2 years				✓			✓		✓
Check fixings on bird boxes				✓			✓		✓

Management tasks	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Y1-2	Y3-4	Y5-6	Y7-8	Y9-10
Biodiverse roof (further information to be provide by specialist contractor)									
Install biodiverse green roofs	✓								
Watering of seeds/plugs on biodiverse green roofs	✓	✓	✓						
Maintenance of green roofs	✓			✓	✓	✓	✓	✓	✓
Repair and replace bird boxes				✓	As required				
Monitor use of bird boxes (can be carried out by site occupants)	Throughout								
Reposition unused boxes and/or buy further boxes if successfully used and as part of next phase of development				✓			✓		
Artificial bat roosting boxes									
Install bat boxes/roost				✓					
Post installation check of bat boxes (by ecologist)				✓					
Clean out bat boxes annually (April and/or October). A licenced Bat Work may be required if bats are present						✓	✓		
Check fixings on bat boxes				✓			✓		
Repair and replace bat boxes (Oct)				✓			✓		
Monitor use every two years with emergence surveys (Jul-Sep)			✓				✓		
Reposition unused boxes and/or buy further boxes if successfully used and as part of next phase of development				✓			✓		



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London - Tempus Wharf, 33a Bermondsey Wall West, London, SE16 4TQ T. 020 7378 1914 W. www.ecologyconsultancy.co.uk

■ **Sussex** - The Old Dairy, Barcombe Mills Road, Lewes, East Sussex BN8 5FF T. 01273 813739

■ **Norfolk** - Thorpe House, 79 Thorpe Road, Norwich NR1 1UA T. 01603 628408

■ **Scotland** - Suite 10, 3 Coates Place, Edinburgh EH3 7AA T. 0131 225 8610