Fox Court

Biodiversity Report and Ecological Management Plan

Clare Real Estate (14 Gray's Inn Road) Ltd

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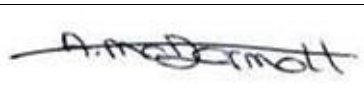
Reviewed and Approved by:	Anna McDermott	Signed:	

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1.0 Introduction

1.1 Background

Aven Ecology Ltd was commissioned in February 2023 by Clare Real Estate (14 Gray's Inn Road) Ltd (The Applicant) to carry out a Preliminary Ecological Appraisal[1] (PEA) at Fox Court, 14 Gray's Inn Road, London WC1X 8HN, hereafter referred to as the 'Site'. The purpose of the survey was to determine the potential ecological impacts of the proposals for the refurbishment of the office building complex at the Site. The PEA was required to inform a Planning Application to be submitted to the London Borough of Camden ("LBC") for the proposals. The PEA was also required to inform a BREEAM Bespoke/Refurbishment Fit-out (2014) Assessment of the proposals against Credit Criteria in the Land-Use and Ecology Category. Aven Ecology was subsequently commissioned to undertake a Bat Survey (based on recommendations arising from the PEA), which was completed in August 2023 and is reported separately[2].

1.2 Site Location and Description

The Site is located within the Holborn & Covent Garden Ward within the London Borough of Camden (LBC) (OS grid reference TQ31148170). It is a 9-storey purpose built office building (14,287 sqm GIA of Class E office floorspace), in a U-shape with an external courtyard space to the north of the building. The building is finished predominantly in red brick with glazing and cladding to the Grays Inn Road frontage. It is of no architectural merit.

To the south is the recently completed 150 High Holborn office and residential development. To the west, beyond Grays Inn Road, is an 8-storey building with retail at ground floor and residential above that turns the corner onto High Holborn and the office buildings surrounding Grays Inn South Square. To the north is a predominantly residential area comprising 6 storey buildings fronting Grays Inn Road, a 4 storey building facing Brookes Market and 2 storey buildings in Brookes Court, which also includes the Holborn Mosque. To the east, on the other side of Brook Street, is the Waterhouse Square office complex.

In terms of planning designations, the site lies within the Central Activities Zone (CAZ), the London View Management Framework (LVMF) protected vista from Primrose Hill to St Paul's Cathedral and the background areas of the views from Blackheath Point and Greenwich Park.

In terms of heritage assets, the site lies between two conservation areas, Bloomsbury Conservation Area on the west side of Grays Inn Road and Hatton Garden Conservation Area to the east of Brook Street. Waterhouse Square (The Prudential Insurance Building) is Grade II* listed and Church of St Alban the Martyr (Grade II*) and its associated Clergy and Railings (Grade II) to the north of the site are listed. Within the Grays Inn complex to the west are a number of listed buildings including The Hall (Grade I), The Chapel (Grade II) and Statue of Francis Bacon (Grade II), all set within the Grade II* Grays Inn Registered Park and Garden.

[1] Fox Court, London Refurbishment. Preliminary Ecological Appraisal, Aven Ecology, October 2023
[2] Fox Court, London Refurbishment. Bat Survey, Aven Ecology, October 2023

The surrounding area comprises a mix of office buildings, residential buildings, schools, and retail/commercial buildings; these are interspersed with patchworks of amenity and open space, including gardens and parks, including amenity grassland, street trees, and shrubs.

1.3 Development Proposals

The planning application seeks planning permission for the following description of development: 'Demolition of existing facades, retaining existing reinforced concrete frame and basement structures; refurbishment and reconfiguration of the existing office (Use Class E) building for continued office use including extensions with new facades to the west elevation fronting Grays Inn Road (9 storeys), to the northern courtyard elevation facing Brookes Court (9 storeys), to the existing 5 storey north-east wing fronting Brook Street (3 storeys) and to the south elevation (8 storeys); external alterations, provision of rooftop amenity terraces, landscaping and associated works'

The proposed development falls within one red line area and specifically comprises of the following components:

- Retrofit and extension of the existing office building to provide additional office accommodation, with an uplift of 8,579sqm GIA (9,652sqm GEA).
- Existing reinforced concrete frame to be retained, along with ground floor slab and basement structure.
- Extensions to west, north and south sides of the building with new facades.
- Provision of a central atrium space between the existing structure and the northern extension for internal circulation and rooftop amenity spaces for tenants, including urban greening.
- Provision of cycle parking and servicing at basement level, provision of plant space at roof and basement levels.

The proposed development has evolved through pre-application and wider stakeholder consultation process, which has included collaborative discussions with the Council and a number of other key stakeholders. The proposed development provides the opportunity to regenerate this important site through the sustainable retrofitting of the existing poor-quality office building to provide a highly sustainable and modern office building which reflects commercial demand in the area and seeks to support LBC's aspirations to provide a range of business premises within the Borough.

1.4 Aims and Objectives

The aims of the ecological input were to:

- Provide further biodiversity protection and enhancement recommendations, including long-term management measures, to inform assessment of credit attainment under the Land Use and Ecology category of BREEAM: Bespoke/New Construction 2014.
    - LE02: Ecological Value of Site and Protection of Ecological Features
    - LE04.1: Enhancing Site Ecology (Ecologists Report and Recommendations)
    - LE05: Long Term Impact on Biodiversity

The objectives to achieve the above aims were the:

- Production of detailed biodiversity protection and enhancement measures to be implemented during site clearance, construction and five years post-construction.
- Production of a Five-Year Ecological Management Plan.

1.5 Quality Assurance

All surveys are led by Ecologists who are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) at the appropriate level. By joining the CIEEM staff sign up to a professional code of conduct.

The surveys and reporting were led/undertaken by Dr Kevin Hume MCIEEM and Anna McDermott MCIEEM. Kevin and Anna have worked in the ecology consultancy sector for more than 15 years and are registered users of the Natural England Class Licence (Level 2) in respect of bats. As Full Members of the Chartered Institute of Ecology and Environmental Management (CIEEM), Kevin and Anna have signed up to their professional code of conduct. Kevin and Anna both hold degrees in ecology/ecology-related subjects:

- Kevin: BSc(Hons) Zoology and PhD Ecology and Evolutionary Biology, Queen's University Belfast;
- Anna: BSc(Hons) Biology, University of Sheffield

Their 15 years+ of experience includes acting in an advisory capacity to provide recommendations for ecological protection, enhancement, and mitigation measures. This includes ecological impact assessments; Preliminary Ecological Appraisals (PEA); Phase 2 habitat and fauna surveys; and habitat creation, as well as protected species licensing and onsite Ecological Clerk of Works roles. For the purposes of BREEAM therefore (reported separately), Kevin and Anna both meet the requirements of 'Suitable Qualified Ecologists' (SQE).

Ecological surveys and reporting – including recommendations for ecological protection, enhancement, and management – were undertaken with reference to the Chartered Institute of Environmental Assessment's Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017) and BS 42020: 2013.

2.0 LE02: Ecological Value and Protection of Ecological Features

2.1.1 Overview

The PEA undertaken by 'Suitably Qualified Ecologists' confirmed that vegetated habitats within the Site were restricted to ornamental (largely non-native) shrub and tree planting, set within a small area (<5%) of raised planters in the courtyard. While the age of the trees is unknown, none of them exceeded 100mm in diameter. No Designated Sites for Biodiversity Conservation or Priority Habitats were located on/near the Site. The Site and its zone of influence were therefore categorised as being 'Low' Ecological Value.

In terms of presence of 'Ecological Features', the survey identified the potential (albeit 'Low') for the Site to support roosting bats and/or nesting birds; it should be noted that it would be very unusual for any building complex to have zero/negligible potential to support roosting bats/nesting birds. Bats and their roosts, as well as nesting birds, are protected under UK/EU Legislation, as set out in the PEA. Recommendations for the protection/safeguard of bats and nesting birds are therefore set out in detail in the PEA and are summarised below.

It is considered that Credit attainment under LE02 is achievable provided that these recommendations (devised in accordance with BS 42020: 2013) are implemented accordingly and at the appropriate stages before and during site clearance/construction.

2.1.2 Bats

Further surveys during the active season for bats (May-August/September) to confirm the presence/likely absence of bat roosts were recommended in the PEA, and completed in August 2023. Prior to completion of the bat survey, it was recommended that: no intrusive works to the structures identified as having potential to support bat roosts should be undertaken until a survey confirms the likely absence of roosting bats. This includes any removal of/intrusion into, the fabric of the plantroom walls or parapet/roof voids.

Upon completion of the Bat Survey, the recommendations were updated in the September Bat Survey Report[2]. As a precautionary measure, due to the residual risk of potentially undetectable pipistrelles occasionally roosting on Site, it is recommended the contractors working on Site should be made aware of the very low risk of a bat being present within the areas identified as supporting potential bat roosting features within the PEA.

If a bat or evidence of a bat roost is found, all works should stop and an ecologist should be contacted immediately. If this situation arises, a licence from Natural England would be required before works can proceed. The survey carried out in 2023 would contribute to any licence application potentially required.

2.1.3 Nesting Birds

To avoid killing/injury of nesting birds and/or damage/destruction of their nests, it is recommended that the proposed renovation works are scheduled to commence outside of the bird nesting season (which typically runs from March to August inclusive). Should scheduling of works outside the bird

nesting season prove infeasible, additional precautionary measures should be implemented, including:

- Pre-works check for active nests;
- Implementation of a 10m exclusion zone for works around any active nests until all young have fledged and the nest becomes inactive (a greater exclusion zone may be recommended in the unlikely event of breeding/nesting black redstarts being present).

2.1.4 Non-native Invasive Species

No non-native invasive species were recorded on site. Introduction and/or spread of non-native invasive plant species should be avoided during site-preparation, construction, and post-construction. The use of non-native invasive species should be avoided in any soft-landscaping proposals.

3.0 LE04.1: Enhancing Site Ecology

3.1 Overview

Given the relatively Low Ecological Value of the Site, the proposed Landscape Plan offers opportunities for substantial Biodiversity Gains. In addition to the proposed planting of around 30 new trees, there will be approximately 1065m^2 (ca. 31%) of planting, including extensive and intensive green roofs and terraced flower-planting.

The PEA outlined further recommendations for the enhancement of biodiversity (devised in accordance with BS 42020: 2013, Section 11.1). These target species/species groups likely to thrive in a highly urban and brightly lit environment, and of a type listed in the Local Biodiversity Action Plan:

- Native plant species;
- Common/widespread bat species;
- Common nesting birds;
- Invertebrates, including butterflies and bumblebees.

An ecologically sensitive lighting and landscaping plan/planting scheme should be implemented on site, designed to encourage the use of biodiversity features. Inclusion within any new landscaped/planted areas of non-cultivar native flowering species appropriate to the area would provide greater foraging opportunities for a range of invertebrate species, including butterflies and bumblebees.

Indicative locations of the recommended Biodiversity Enhancement features are shown in Appendix 1. These have been agreed through ongoing liaison with the Architects to ensure they are both appropriate ecologically, and feasible within the design/operational parameters of the scheme. It is anticipated that these will be incorporated into the final Architectural drawings. Indicative specifications for the Biodiversity Enhancement Features are provided in Tables 1-5, Appendix 2. Management recommendations of the new landscape, habitats and biodiversity features for the first five years post-installation is set out in Appendix 3, implementation of which

should be undertaken by suitably qualified landscape contractors. Final specification and siting of the boxes should be confirmed with the Ecologist prior to installation.

It is considered that Credit attainment under LE4.1 is achievable provided that these recommendations are implemented accordingly and at the appropriate stages before and during site clearance/construction.

3.2 Native Species/Wildlife-Friendly Planting

The landscape proposals include a mix of intensive and extensive green roofs, as well as terraced planters. A native species/wildlife-friendly planting scheme should include:

- Native (non-cultivar) plant species with functioning nectaries to provide a food source for invertebrates and birds;
- A shrub mix that produces berries (ideally with a range of flowering/fruiting periods so as to provide foraging opportunities throughout the year, and particularly during the winter);
- Sedums (if used) should account for no more than 30% of the species composition.

Non-native plant species, particularly those known to be invasive, should be avoided. An indicative planting list is provided in Table 1, Appendix 2. Native/wildlife-friendly planting mixes, designed to thrive on green roofs, are widely available in seed-mix and/or plug-planting formats from a range of nurseries; BugLife has produced guidance on design of Green/Biodiverse roofs for the benefit of invertebrates[3]; Flora Locale has produced guidance on sourcing seed mixes[4]. Management recommendations for the landscaped areas are set out in Appendix 3. Implementation of these recommendations should be undertaken by suitably qualified landscape contractors.

3.3 Bat Boxes

It is proposed that bat roosting features (x6), suitable for the widespread/common crevice-dwelling bat species (such as pipistrelles *Pipistrelle* spp.) confirmed/considered likely to occur in this area, are installed on the refurbished building complex.

It is intended that these features provide a self-contained roosting area for bats (within the bat box) without providing access for bats to the interior of the building. Typically, integral bat bricks are recommended for installation within the block/brickwork of the building's external walls. External-fitting bat boxes are typically recommended only where significant design constraints render integral boxes infeasible. Where external-fitting bat boxes are selected for installation, these should be of a robust and long-lasting specification, as opposed to the more ornamental and short-lived models.

Ready-made and bespoke bat boxes may be purchased and incorporated into the fabric of the building. These are often available in a range of materials and finishes in order to match/complement those of the building, or can be adapted as such during installation (use air permeable paint). Photographs/diagrams and descriptions of commercially available bat boxes are

[3] https://cdn.buglife.org.uk/2019/07/Creating-Green-Roofs-for-Invertebrates_Best-practice-guidance.pdf
[4] https://cieem.net/resource/buying-native-flora/

provided as a guide in Table 2, Appendix 2. Indicative proposed locations of these are provided in Appendix 1.

3.4 Bird Nesting Boxes

It is recommended that a range of bird nesting boxes/bricks (x6) are installed on the new building, on a range of elevations. Species targeted should include swift *Apus apus*, starling *Sturnus vulgaris* and house sparrow *Passer domesticus*. As per the bat boxes (above), integral bird boxes (where feasible within the scheme) are typically favoured over external-fitting bird boxes. Like bat boxes/bricks, ready-made and bespoke bird boxes/bricks may be purchased and installed directly. These are often available in a range of materials and finishes in order to match/complement those of the building. Photographs and descriptions of commercially available bird bricks are provided in Table 3, Appendix 2. The proposed locations of these are provided in Appendix 1.

3.5 Invertebrates

In addition to a native species/wildlife-friendly planting scheme, invertebrate diversity would be encouraged by the inclusion of 'Insect/Bug Hotels/Bricks'. Bug hotels may be purchased from suppliers or self-constructed. Self-constructed bug-hotels may be made using materials that arise from site clearance/construction activities, and which may otherwise require disposal offsite (brash/logs, 'clean' rubble, etc); redeployment of this material therefore offers further sustainability benefits. Inclusion of unvegetated gravel patches provides habitat diversity for invertebrates; gravel patches also provide potential foraging habitat for the black redstart (a vulnerable species of bird, with populations associated with industrial habitats in the nearby Thames area). Indicative locations for these are included in Appendix 1.

3.6 Lighting Scheme

Artificial lighting can have a detrimental effect on bats, which are a nocturnal species group, by causing disturbance to their roosting, foraging and commuting behaviours. The success any proposed enhancement measures in respect of bats will therefore depend on a sympathetic lighting strategy. The Site is located in a highly urban area and as such will already be subject to higher levels of artificial light intrusion. The lighting scheme should seek to design out the potential impacts of any new artificial lighting on any bats that may use the Site and its surrounds. In particular, any increase in artificial light intrusion into potential bat roosting, foraging and commuting habitats should be avoided/minimised, including:

- The new-planting areas associated with green/biodiverse roofs (potential foraging/commuting habitats);
- The proposed integrated bat boxes.

To minimise artificial light intrusion, and its associated impacts on bats, it is important to consider the guidance issued by the Institute of Lighting Professionals/Bat Conservations Trust[5] during and after construction, which recommends a stepwise process:

[5] Guidance Note 08/18: Bats and Artificial Lighting in the UK, Bat Conservation Trust/Institute of Lighting Professionals, 2018

- Step 1: Determine whether bats could be present on site (completed as part of Preliminary Ecological Appraisal)
- Step 2: Determine the presence of – or potential for – roosts, commuting habitat, or foraging habitat and evaluate their importance (completed as part of bat survey undertaken in August 2023, and reported in September 2023[2])
- Step 3: Avoid lighting on key habitat features altogether (recommended for proposed bat boxes and new green roofs)
- Step 4: Apply mitigation measure to lighting to agreed limits in other sensitive locations – lighting design considerations
- Step 5: Demonstrate compliance with illuminance limits and buffers.

The published guidance sets out detailed recommendations in respect of Step 4 for the mitigation/reduction of potential lighting impacts; those of greatest relevance to the proposals include:

- Design/implementation of dark buffers/illuminance limits, and zonation to avoid/minimise artificial lightspill on key habitat features;
- Appropriate luminaire specification to reduce/eliminate artificial lightspilll particularly of the lighting components most disturbing to bats (i.e. UV/blue-light/peak wavelengths lower the 550nm should be avoided); use of recessed/directional luminaires, or baffles/louvres/cowls to eliminate upward/backward lightspill;
- Screening (including the use of vegetation) of key habitats from lightspill;
- Glazing treatments to reduce lightspilll through windows from internal lighting;
- Dimming/part night-lighting to avoid light disturbance during the most sensitive times for bats (i.e. the 1-2 hour period after sunset and before sunrise).

4.0 LE05: Long Term Impact on Biodiversity

4.1 Overview

In addition to the measures set out above for Biodiversity Protection (including due regard for species protected under UK/EU Legislation) and Biodiversity Enhancement, ongoing Management of the Site during construction and operation are vital to ensuring the long-term delivery of the opportunities for Biodiversity Gains offered by the proposals.

4.2 Biodiversity Protection and Enhancement (UK/EU Legislation)

Criterion 1 for the LE05 Credit is that a Suitable Qualified Ecologist is appointed early enough in the project development (and before commencement of works on Site) to advise on compliance with UK/EU legislation on the protection and enhancement of Biodiversity. It is considered that implementation of the Biodiversity Protection/Enhancement measures set out in the PEA (and in Sections 2.0/3.0 above) will achieve this criterion.

4.3 Biodiversity Management

Criterion 2 for the LE05 Credit is that a Management Plan, covering at least the first five years post-construction is produced and provided to the Owner/Occupants/Maintenance Team for the Site. A Five-Year Ecological Management Plan (devised in accordance with BS 42020: 2013, Section 11.1) is provided Appendix 3, setting out the key management objectives for each habitat type/biodiversity feature. It is considered that implementation of this Management Plan will achieve the Criterion. It is anticipated that, in accordance with BS 42020: 2013, Section 11.1(g)&(i), final details of the "Body or organization personnel responsible for implementation of the plan" and the "Funding resources and mechanisms to ensure sustainable long-term delivery of the proposed management" would be confirmed by the Applicant at the appropriate stage.

4.4 Additional Measures

Criterion 3 for the LE05 Credit is the adoption of additional measures – as considered appropriate to the Site by the SQE – for the long-term protection, enhancement, and management of biodiversity within the Site. Of the five Additional Measures set out in the BREEAM Manual (replicated in Table 3 below), two are considered appropriate for implementation for a project of this scale and at a Site with such a relatively low level of baseline ecological interest. It is considered that implementation of these Additional Measures by the Principal Contractor will achieve the Criterion.

Table 1: Additional Measures relating to LE05 (from BREEAM Manual)

1	*The principal contractor nominates a Biodiversity Champion with the authority to influence site activities and ensure that detrimental impacts on site biodiversity are minimised in line with the recommendations of a Suitably Qualified Ecologist.*
2	*The principal contractor trains the site workforce on how to protect site ecology during the project. Specific training must be carried out for the entire site workforce to ensure they are aware of how to avoid damaging site ecology during operations on-site. Training should be based on the findings and recommendations for protection of ecological features highlighted within a report prepared by a Suitably Qualified Ecologist.*
3	**The principal contractor records actions taken to protect biodiversity and monitor their effectiveness throughout key stages of the refurbishment or fit-out process. The requirement commits the principal contractor to make such records available where publicly requested.**
4	*Where a new ecologically valuable habitat appropriate to the local area is created. This includes a habitat that supports nationally, regionally or locally important biodiversity, and/or which is nationally, regionally or locally important itself; including any UK Biodiversity Action Plan (UK BAP) priority habitats, Local Biodiversity Action Plan (LBAP) habitats, those protected within statutory sites (e.g. SSSIs), or those within non-statutory sites identified in local plans. Local biodiversity expertise should be sought during the Preparation and Brief (RIBA Stage 1 or equivalent) to help identify species of local biodiversity importance on-site and ensure that the proposals support local priorities.*
5	**Where flora and/or fauna habitats exist on-site, the contractor programmes site works to minimise disturbance to wildlife. For example, site preparation, ground works, and soft landscape works have been, or will be, scheduled at an appropriate time of year to minimise disturbance to wildlife. Timing of works may have a significant impact on, for example, breeding birds, flowering plants, seed germination, amphibians etc. Actions such as phased clearance of vegetation may help to mitigate ecological impacts. This additional requirement will be achieved where a clear plan has been produced detailing how activities will be timed to avoid any impact on site biodiversity in line with the recommendations of a Suitably Qualified Ecologist.**
Additional Measures considered by SQE to be Appropriate/Essential: 3 & 5 above	

5.0 References

Aven Ecology (October 2023), Fox Court, London. Bat Survey Report.

Aven Ecology (October 2023), Fox Court, London. Preliminary Ecological Appraisal Report.

British Standards Institute (2013) Biodiversity — Code of practice for planning and development BS 42020: 2013

Bat Conservation Trust (2008) Bats and Lighting in the UK. Bats and the Built Environment Series.

Bat Conservation Trust website: http://www.bats.org.uk/publications_detail.php/231/encouraging_bats

Buckley Gray Yeoman (15/11/2022) Fox Court - Design Update

Buckley Gray Yeoman (07/09/2023) Fox Court – Stage 2 Report

BugLife: Creating Green Roofs-for Invertebrates Best-practice Guidance, 2019 https://cdn.buglife.org.uk/2019/07/Creating-Green-Roofs-for-Invertebrates_Best-practice-guidance.pdf

Building Research Establishment (2014) BREEAM UK: Non-Domestic Buildings Refurbishment and Fit-Out Technical Manual 2014

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal Second Edition

CIEEM/Flora Locale: Buying Native Flora https://cieem.net/resource/buying-native-flora/

Royal Society for the Protection of Birds website: http://www.rspb.org.uk/makeahomeforwildlife/advice/gardening/planting/index.aspx

Appendices

Appendix 1 – Indicative Locations for Biodiversity Enhancements

Landscape Plan marked-up to show indicative agreed locations of Biodiversity Enhancement Measures (not to scale)

(Drawing from Grant Associates, FCP667-GRA-01-DR-L-1012)

Appendix 2 –Indicative Specifications for Biodiversity Enhancements*

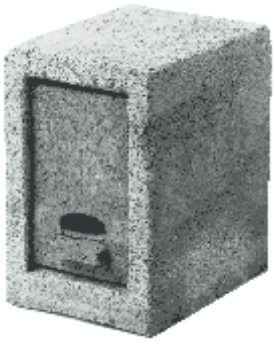
*Note: the below represent examples of commercially available biodiversity enhancement features (bat boxes; bird boxes; insect boxes) meeting the requirements of the specification as set out in this document and is intended for reference purposes only; this does not represent an endorsement of a specific brand/manufacturer by Aven Ecology Ltd; nor does it commit the client/developer to the use of a particular brand/model/supplier.

Table 1: Indicative native species/wildlife-friendly planting list for landscaping

Vernacular Name	Scientific Name
Small Tree/Shrub planting	
Pear	*Pyrus communis*
Apple	*Malus sylvestris*
Hawthorn	*Crataegus monogyna*
Guelder Rose	*Viburnum opulus*
Dog rose	*Rosa canina*
Herb planting	
Knapweed (common)	*Centaurea nigra*
Yarrow	*Achillea millefolium*
Ox-eye daisy	*Leucanthemum vulgare*
Mallow	*Malva sylvestris*
Bladder campion	*Silene vulgaris*
White campion	*Silene latifolia*
Night flowering catch-fly	*Silene. noctiflora)*
Centaury	*Centaurium erythraea*
Common bird's- foot trefoil	*Lotus corniculatus*
Mouse-ear hawkweed	*Pilosella officinarum*
Common knapweed	*Centaurea nigra*
Ox-eye Daisy	*Leucanthemum vulgare*
Cowslip	*Primula veris*
Yellow toadflax	*Linaria vulgaris*
Scented mayweed	*Matricaria recutita*
Ribwort plantain	*Plantago lanceolata*
Field scabious	*Knautia arvensis*
White dead nettle	*Lamium album*
Red clover	*Trifolium pratense)*
Perforate St. John's-wort	*Hypericum perforatum*
Viper's bugloss	*Echium vulgare*

The above list is intended to provide guidance on the species to be considered for inclusion in the planting scheme in order to apply the principles of native-species/wildlife-friendly landscaping, and is not intended to be restrictive/exclusive. Examples of small native trees/shrubs are suggested for inclusion within the roof terraces; however, it is understood that the final Landscape Strategy will need to balance planting choices with management feasibility in what will be the formal landscaping of an office development.

Table 2: Specifications of typical commercially available bat boxes

Make and description	Photograph / Diagram
Manufacturer: Habibat Model: Habibat Access Box 001 - Bespoke Size/dimensions: 215 mm x 440 mm x 102 mm Material: Concrete plus facing product Integrated.	 Source: http://www.habibat.co.uk/category/bat-boxes/habibat-001-bespoke
Manufacturer: Schwegler Model: Brick Box Type 27 Size/dimensions: 265 mm x 180 mm x 240 mm Integrated.	  Source: http://www.schwegler-natur.de/index.php?main=produkte&sub=fledermaus&psub=sommerquartiere
Manufacturer: CJ Wildlife Model: Beaumaris Woodstone Height: 39cm Width: 29cm Depth: 6cm Weight: 4.4kg External-fitting	 Source: https://www.nhbs.com/beaumaris-woodstone-bat-box?bkfno=231796

Make and description	Photograph / Diagram
Manufacturer: Schwegler 1WQ Wall-Mounted Bat Shelter (pair) Dimensions: * Height: 350mm * Width: 250mm * Depth: 20-30mm * Weight: 2.5kg Material: The box is made in special weather-resistant, air-permeable and rot-proof Schwegler light-concrete. All metal parts are rust-resistant. External-fitting	 Source: https://www.nhbs.com/1wq-schwegler-summer-winter-bat-roost
Manufacturer: Schwegler 1WQ Schwegler Summer & Winter Bat Roost Dimensions: * Height: 580mm * Width: 380mm * Depth: 120mm * Weight: 22kg Material: The box is made in special weather-resistant, air-permeable and rot-proof Schwegler light-concrete. All metal parts are rust-resistant. External-fitting	 Source: https://www.nhbs.com/1wq-schwegler-summer-winter-bat-roost

Table 3: Specifications of typical commercially available bird nesting bricks

Make and description	**Photograph / Diagram**
Manufacturer: Bird Brick Houses Model: Swift box Integrated	 Source: https://www.nhbs.com/no-16-schwegler-swift-box
Manufacturer: Bird Brick Houses Model: Starling box External-fitting	 Source: https://www.nhbs.com/vivara-pro-woodstone-starling-nest-box
Manufacturer: Schwegler Model: 1SP Sparrow Terrace External-fitting	 Source: https://www.nhbs.com/1sp-schwegler-sparrow-terrace

Table 4: Specifications of typical commercially available insect boxes

Make and description	Photograph / Diagram
Model: Bug Box Height: 140mm Width: 215mm Depth: 70mm Weight: 2.83kg approx	 Source: https://www.nhbs.com/search?q=invertebrate+hotel&qtview=208603
Manufacturer: Schwegler Model: Clay and Reed Insect Nest Dimensions: 290 x 225 x 205 mm Weight: 5.7 kg Material: Schwegler woodcrete, clay, and reeds	 Source: https://www.nhbs.com/schwegler-clay-and-reed-insect-nest?bkfno=193069
Manufacturer: Schwegler Model: Bee Block Dimensions: 290 x 225 x 205 mm Weight: 5.7 kg Material: Schwegler woodcrete, clay, and reeds	 Source: https://www.nhbs.com/bees-block

Appendix 3 – Five-Year Ecological Management Plan

Five-Year Ecological Management Plan

Habitats/Features	Management Aims	Management Objectives	Roles/ Responsibilities	Year of Implementation					
				0	1	2	3	4	5
Green Roofs	To enhance the Site in terms of foraging/shelter opportunities for invertebrates, as well as birds and bats To ensure that new green roofs and planting are successfully established	Install a mix of plant species (native species and/or species of wildlife value) offering nectar-producing flowers and/or fruits, nuts and berries. Where a requirement for nutrient enrichment of soil is identified, use sustainable substrate (locally-sourced compost) and avoid peat-containing compost. Ensure that installation of green roofs and planting are undertaken by suitably qualified Landscape Contractors and in accordance with the suppliers' specifications. Installation/planting should be in accordance with the GRO Green Roof Code 2014 and BS 4428:1989 'Code of Practice for General Landscape Operations (excluding hard surfaces)'. Ensure soil conditions match the conditions for growth recommended by the supplier in terms of pH, nutrient content and sand/clay composition – adjust where necessary. Undertake preparation of the ground during periods of mild weather. Maintain the integrity and health of the soil by avoiding the compaction associated with working with very wet soils; keep piles of topsoil and subsoil separate.	Developer/Principal Contractor through appointment of Suitably Qualified Landscape Contractor/Green Roof Specialist	x					

Five-Year Ecological Management Plan

Habitats/Features	Management Aims	Management Objectives	Roles/ Responsibilities	Year of Implementation					
				0	1	2	3	4	5
	To ensure that new planting is successfully maintained in good health and safe condition	Ensure management and monitoring is undertaken by suitably experienced/qualified Landscape Contractors. Maintain soil around base of newly planted areas free of weeds to reduce competition. Ensure adequate watering of newly planted areas, particularly during first growing season. Monitor condition planting in terms of disease/pests and safety.	Developer/Principal Contractor through appointment of Suitably Qualified Landscape Contractor/Green Roof Specialist		x		x		x
Planters	To ensure that planting is successfully established	Plant in early spring (or in accordance with the suppliers' recommendations) to allow a full growing season to establish.	Developer/Principal Contractor through appointment of Suitably Qualified Landscape Contractor	x					
	To ensure that planting is successfully maintained in good health and safe condition	Maintain soil around base of newly planted trees free of weeds to reduce competition. Monitor condition of planting in terms of disease/pests. As required/recommended undertake pruning, treatment and/or removal works to maintain the health and vitality of the planting. Replace any planted areas lost in the first five years.	Developer/Principal Contractor through appointment of Suitably Qualified Landscape Contractor		x		x		x

Five-Year Ecological Management Plan

Habitats/Features	Management Aims	Management Objectives	Roles/ Responsibilities	Year of Implementation					
				0	1	2	3	4	5
	To enhance the Site in terms of foraging/shelter opportunities for invertebrates, as well as birds and bats	Install a mix of plant species (native species and/or species of wildlife value) offering nectar-producing flowers and/or fruits, nuts and berries. Where a requirement for nutrient enrichment of soil is identified, use sustainable substrate (locally-sourced compost) and avoid peat-containing compost.		x					
		Maintain suitability for foraging/sheltering invertebrates through ecologically sensitive horticultural practices, including elimination of the use of chemical pesticides/herbicides/fertilisers. Replace any plants that die in first five years.			x		x		x
Bat boxes	To enhance bat roosting opportunities within the Site	Install 6 bat roosting boxes of a type suitable for pipistrelle species on the new building complex in accordance with the manufacturer's instructions and advice from the SQE.	Developer/Principal Contractor through appointment of Contractor (with advice from appointed Ecologist)	x					
		Monitor bat boxes to confirm ongoing suitability and condition	Developer/Principal Contractor through appointment of Ecologist/ Batworker		x			x	

Five-Year Ecological Management Plan

Habitats/Features	Management Aims	Management Objectives	Roles/ Responsibilities	Year of Implementation					
				0	1	2	3	4	5
		Maintain the boxes in accordance with the manufacturer's instructions Avoid disturbance/obstruction/ removal (including dust/pollution, noise/vibration and light intrusion) of bat boxes once installed, otherwise seek advice from a bat-worker.	Developer/Principal Contractor through appointment of Contractor (with advice from appointed Ecologist)		x			x	
Bird boxes/Sparrow Terrace	To enhance bird nesting opportunities within the Site	Install 6 bird-nesting boxes/sparrow terraces on the new building complex in accordance with the manufacturer's instructions and advice from the SQE.	Developer/Principal Contractor through appointment of Contractor (with advice from appointed Ecologist)	x					
		Monitor bird boxes to confirm ongoing suitability and condition	Developer/Principal Contractor through appointment of Ecologist/ Batworker		x			x	
		Maintain the boxes in accordance with the manufacturer's instructions Avoid disturbance/obstruction/ removal (including dust/pollution, noise/vibration and light intrusion) of bird boxes once installed, otherwise seek advice from an ecologist.	Developer/Principal Contractor through appointment of Contractor (with advice from appointed Ecologist)		x			x	

Five-Year Ecological Management Plan

Habitats/Features	Management Aims	Management Objectives	Roles/ Responsibilities	Year of Implementation					
				0	1	2	3	4	5
Insect Boxes/Bug Hotels/Gravel Patches	To enhance diversity of microhabitat/microclimate; provide additional foraging/shelter opportunities for invertebrates; additional foraging opportunities for birds, including black redstart	Install 4 insect boxes on the elevations of the new building complex, and 2 bug hotels on the green roofs, in accordance with the manufacturer's instructions and advice from the SQE.	Developer/Principal Contractor through appointment of Contractor (with advice from appointed Ecologist)	x					
		Monitor insect boxes/bug hotels to confirm ongoing suitability and condition	Developer/Principal Contractor through appointment of Ecologist		x			x	
		Maintain the boxes in accordance with the manufacturer's instructions Avoid disturbance/obstruction/ removal of boxes once installed (including dust/pollution, noise/vibration and light intrusion),	Developer/Principal Contractor through appointment of Contractor (with advice from appointed Ecologist)		x			x	

Five-Year Ecological Management Plan

Habitats/Features	Management Aims	Management Objectives	Roles/ Responsibilities	Year of Implementation					
				0	1	2	3	4	5
Protected Species (particularly bats and nesting birds)	To ensure that protected species potentially attracted to shelter/foraging within the new building complex are adequately safeguarded during its operation	Maintain an awareness among key personnel within the building's estates/management team of the potential for protected species to use the building complex, including its structure and vegetated/landscaped areas. Ensure that potential impacts on these (including legal implications) are considered in the course of commissioning, authorising, and/or implementing any maintenance works on the building/landscaped areas.	Site Owners/ Managers/ Estates Team/ Commissioners/ Contractors (with advice from appointed Ecologist where necessary	x	x	x	x	x	x