1.5.5 ECOLOGY REPORT

THE ENVIRONMENT PARTNERSHIP

KENT STREET

BIRMINGHAM

ECOLOGICAL MITIGATION AND ENHANCEMENT STRATEGY

Document Title	Ecological Mitigation and Enhancement Strategy
Prepared for	High Street Residential
Prepared by	TEP - Market Harborough
Document Ref	7695.002

Author	Kate Morley
Date	July 2020
Checked	Andrew Nyul
Approved	Andrew Nyul

Amendment History					
Version	Date	Modified by	Check / Approved by	Reason(s) issue	Status

CONTENTS PAGE

1.0 Introduction 1
2.0 Bat and Bird Box Scheme 3
3.0 Sensitive Lighting Strategy 7
4.0 Hedgehog Reasonable Avoidance Measures Method Statement (RAMMS) 9
5.0 Biodiverse Roof Design 10
6.0 Additional Enhancements 11

TABLES PAGE

Table 1: Bat and Bird Box Supplier Information 5
Table 2: Bat and Bird Box Descriptions 5

DRAWINGS

G7695.001 Bat and Bird Box Scheme

1.0 Introduction

1.1 The Environment Partnership (TEP) was commissioned by High Street Residential in May 2019 to produce an Ecological Enhancement Strategy to discharge ecological planning conditions outlined in the draft decision notice (planning application 2017/09343/PA) for the proposed mixed use development, including residential dwellings, at Kent Street, Birmingham.

1.2 This report is submitted to discharge conditions 4, 5, 10 and 28, as outlined below:

1.3 "Condition 4 - Ecological Enhancement Strategy

Requires the prior submission of a scheme for ecological / biodiversity / enhancement measures on a phased basis. Prior to any works above ground floor slab level on each phase of the development, an Ecological Enhancement Strategy for that phase shall be submitted to and approved in writing by the Local Planning Authority. The development shall thereafter be implemented in accordance with the approved details.

Reason: In order to safeguard the nature conservation value of the site in accordance with Policy TP8 of the Birmingham Development Plan 2017, the National Planning Policy Framework and the Nature Conservation Strategy for Birmingham SPG."

1.4 "Condition 5 - Bat and Bird Box Scheme

Requires the prior submission of details of bird/bat boxes (phased) Prior to any works above ground floor slab level on each phase of the development details of the number, design, location and post-development monitoring arrangements of bat and bird boxes to be provided as part that phase shall be submitted to and approved in writing by the Local Planning Authority. The bird and bat boxes shall be installed in accordance with the approved details and thereafter maintained.

Reason: To enhance the nature conservation interest of the site in accordance with Policy TP8 of the Birmingham Development Plan 2017, the National Planning Policy Framework and the Nature Conservation Strategy for Birmingham SPG."

1.5 Condition 10 - Details of Green/Brown Roofs

Requires the prior submission of details of green / brown roofs (phased): Prior to any works above ground floor slab level on each phase of the development a scheme for the provision of green and / or brown roofs on the flat roofs on that phase, including identified biodiversity benefits, shall be submitted to and approved in writing by the Local Planning Authority. Each phase of the development shall be implemented in accordance with the approved details and thereafter maintained.

Reason: To improve the landscape character and biodiversity of the area in accordance with Policies PG3, TP7 and TP8 of the Birmingham Development Plan 2017, saved Paragraph 3.14 of the Birmingham Unitary Development Plan 2005, the National Planning Policy Framework and the Nature Conservation strategy for Birmingham SPG."

1.6 Condition 28 - Preliminary Ecological Appraisal and Bat Report Recommendations

Requires the development to be carried out in accordance with the Ecological Appraisal and Bat Assessment. The development shall be implemented in accordance with recommendations R1-R2 in the Preliminary Ecological Appraisal report (Middlemarch Environmental, October 2017; ref. RT-MME-125524-01 Rev A) and recommendations R1-R3 in the Preliminary Bat Roost Assessment report (Middlemarch Environmental, October 2017; ref. RT-MME-125524-02 Rev A) unless otherwise agreed in writing by the Local Planning Authority.

Reason: In order to secure the satisfactory development of the application site in accordance with Policy PG3 of the Birmingham Development Plan 2017 and the National Planning Policy Framework."

Site Context

1.7 The site is located off Kent Street, Birmingham, and is centred on grid reference SP 0701 8599. The site is dominated by hardstanding, currently used for car parking, with a large multi-use building within the north west corner of the site, and a small substation building within the southeast of the site. A small area of scrub is present alongside the multi-use building.

1.8 Under proposals the site will be developed into a mixed use development. This shall include residential apartment blocks, and a central 'hub,' with uses include a gym and fitness studios, meeting rooms, lounges and chill out areas, dining room and kitchen, a BBQ area linked to the roof terrace, a games area, multipurpose function rooms, storage areas, and ancillary rooms. Soft landscaping within the scheme design shall include ornamental shrub and grass planting, hedgerow planting, lawns, new tree planting, climber planting and green roofs.

1.9 Development proposals for the site are show in in drawing 193-LYR-XX-ZZ-SKE-L-1001 Landscape GA.

2.0 Bat and Bird Box Scheme

2.1 The large multi-use building within the north west corner of the site was assessed as having negligible bat roost potential by Middlemarch Environmental in June 2017 (see Middlemarch Environmental Preliminary Bat Roost Assessment report). The building was re-assessed to have low bat roost potential on a precautionary basis by TEP in June 2019 (TEP Ref: 7595.001, Bat Assessment Report). The building will be demolished under the development. Installation of bat boxes will create long-lasting roosting opportunities for bats within the site, and compensate for the loss of potential bat roost habitat.

2.2 The two buildings and small area of scrub within the site provide limited habitat on site for nesting birds. All potential nesting bird habitat will be removed under the proposals. Installation of bird boxes will increase the availability of nesting sites for birds on site, and compensate for the loss of potential nesting bird habitat.

2.3 Appropriate siting of bat and bird boxes is important to increase the likelihood of uptake and to make them more attractive to bats and birds; further details are provided below. Bat and bird box types are also recommended below.

2.4 The proposed positions of the bat and bird boxes are shown in drawing G7695.001 Bat and Bird Box Scheme. Bat and bird box supplier information is provided in Table 1. Descriptions of bat and bird boxes are provided in Table 2.

2.5 Installation of bat and bird boxes will address recommendation R1 within the Middlemarch Environmental Preliminary Ecological Appraisal report, and recommendation R3 within the Middlemarch Environmental Bat Roost Assessment report.

Bat Boxes

2.6 Four woodcrete bat boxes shall be installed in order to enhance bat roosting opportunities at the site and compensate for the loss of existing potential roost sites within buildings.

2.7 A desktop study undertaken by Middlemarch Environmental (Middlemarch Environmental Ref: RT-MME-125524-01 Rev A, Preliminary Ecological Appraisal) identified records of common pipistrelle *Pipistrellus pipistrellus* within 1km of the site.

2.8 The bat boxes installed shall be suitable for nursery or summer roosting for small crevice dwelling bat species, including common pipistrelle, which is known to be present within the surrounding area.

2.9 Built-in bat roosting tubes shall be incorporated into the fabric of the residential apartment blocks.

2.10 The bat tube specification is as follows:

- 6 x Schwegler 1FR Bat Tube

2.11 The Schwegler 1FR bat tube is suitable for crevice dwelling bats, such as common pipistrelle. The bat tube is designed to meet the characteristic behavioural requirements of the types of bats that inhabit buildings.

Installation

2.12 The Schwegler 1FR bat tube must be incorporated into the masonry of the external wall of a building, either flush to the wall, or beneath a rendered surface so that only the entrance hole is visible. The tube can be painted to match the building with air permeable paint if required.

2.13 The bat tubes must be installed on buildings at a height of 3 to 5 meters, facing towards semi-natural habitats, in locations where they receive full or partial sunlight.

Maintenance

2.14 The Schwegler 1FR bat tube is self-cleaning as droppings fall out of the entrance ramp. No maintenance is required.

Bird Boxes

2.15 Four bird boxes must be incorporated into the design in order to increase nesting opportunities for birds on site and compensate for the loss of existing potential nest sites in buildings and scrub.

2.16 Bird boxes will be suitable for small birds such as robin, blackbird *Turdus merula*, tit *Paridae* species, house sparrow *Passer domesticus* and swallow *Hirundo rustica*.

2.17 Built-in nest boxes shall be incorporated into the fabric of the residential apartment blocks.

2.18 The next box specification is as follows:

- 4 x Schwegler Brick Nest Box Type 24
- 2 x Schwegler Brick Nest Box Type 25

2.19 The Type 24 nest box is suitable for small bird species, including great tit *Parus major*, blue tit *Cyanistes caeruleus*, marsh tit *Poecile palustris*, coal tit *Periparus ater*, crested tit *Lophophanes cristatus*, redstart *Phoenicurus phoenicurus*, nuthatch *Sitta europaea*, tree sparrow *Passer montanus* and house sparrow *Passer domesticus*.

2.20 The Type 25 nest box is ideal for attracting swifts *Apus apus*.

Installation

2.21 The Schwegler Brick Nest Boxes must be incorporated into the external wall of the building. The boxes may be installed flush with the wall, or can be rendered or covered so that only the entrance hole is visible. The box dimensions correspond to those of standard, commercially available bricks used in modern European construction. The dimensions allow for a 1cm layer of mortar, enabling the nesting blocks to be inserted into any wall without the need to cut adjoining bricks.

2.22 The nest boxes must be installed on the building at a height of 3 to 5 meters, facing towards semi-natural habitats.

Maintenance

2.23 The Schwegler nest boxes have a removable entrance hole for easy cleaning and inspection. If accessible, the boxes should be cleaned annually in the winter to remove the remains of the nest form the previous season. If the box is installed in an inaccessible location, the removable entrance hole insert should be secured with silicon to prevent it falling out.

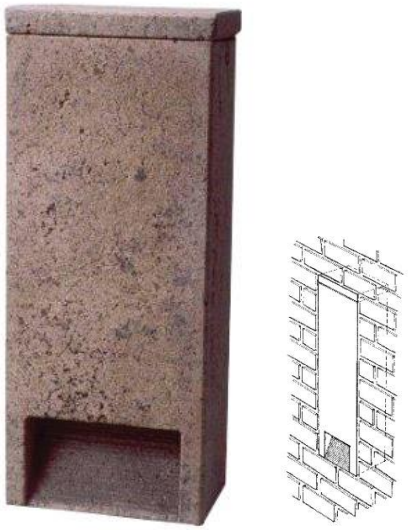
Substitutions

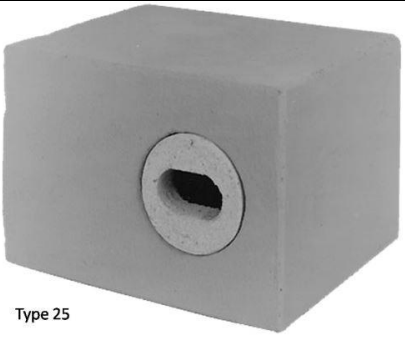
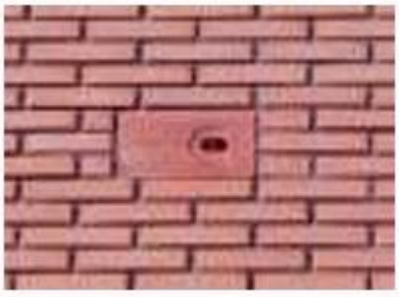
2.24 Should the recommended bird/bat boxes not be available, similar products are likely to be available from alternative suppliers. Any substitutions should be agreed with the Local Planning Authority.

Table 1: Bat and Bird Box Supplier Information

Bat and Bird Box Type	Available From	Telephone Number	Email Address	Website
All bat and bird boxes	NHBS, 1-6 The Stables, Ford Road, Totnes, Devon, TQ9 5LE	Tel: 01803 865913	customer.services @nhbs.com	www.nhbs.com

Table 2: Bat and Bird Box Descriptions

Bat and Bird Box Descriptions	
Bat Boxes	
Schwegler 1FR Bat Tube Designed to be incorporated into the masonry on the external walls of buildings, either flush or beneath a rendered surface. The box provides a roosting space for bats that typically inhabit buildings. No cleaning or maintenance is required. Material: Schwegler woodcrete with integrated wooden panel Dimensions: 15 cm height x 9 cm width x 2 cm depth Weight: 9.8kg	
Bird Boxes	

Bat and Bird Box Descriptions	
Schwegler Brick Nest Box Type 24 Designed to be incorporated into the masonry on the external walls of buildings, either flush or beneath a rendered surface. Has a removable entrance hole for cleaning and inspection. Material: Schwegler woodcrete Dimensions: 23.5 cm height x 18 cm width x 18 cm depth Weight: 7.3kg	 Type 24
Schwegler Brick Nest Box Type 25 Designed to be installed on the external walls of buildings, either flush or beneath a rendered surface. Has a removable entrance hole for cleaning and inspection. Material: Schwegler woodcrete Dimensions: 18 cm height x 26.5 cm width x 22 cm depth Weight: 8.8kg	 Type 25 

3.0 Sensitive Lighting Strategy

3.1 A sensitive lighting strategy will be implemented at the site during construction, and a minimum of 20 years post-construction. The Sensitive Lighting Strategy will address recommendation R2 within the Middlemarch Environmental Preliminary Bat Roost Assessment report

3.2 The site is currently well-lit with street lights and security lighting, and therefore provides sub-optimal habitat for foraging bats. There are no semi-natural habitats immediately adjacent to the site which provide opportunities for foraging and commuting bats.

3.3 Implementation of the sensitive lighting strategy will benefit bats and other nocturnal or crepuscular species.

3.4 Any lighting on site, either temporary or permanent, will be kept to a minimum during construction and post-construction to ensure there is no net increase in light levels at the site.

3.5 The Strategy will address four key design principles:

- Use of unnecessary lighting will be avoided.
- Spatial spread of lighting – the horizontal and vertical spread of artificial light will be minimised, and take into account both primary and reflected light sources. Directional lighting can be achieved by angle and orientation of beam, use of a cowl, louvre or other light shield, or a combination of these. Direct lighting on to proposed bat boxes will be avoided.
- Timing and duration of lighting – timers and bespoke dimming regimes will be used to ensure that luminaires are reduced at times of predicted low use. These can be set to change with the seasons and therefore reflect the shifting time of dusk and dawn throughout the year. Motion sensors provide further control to ensure that areas are illuminated only when required.
- Intensity and colour of lighting – light intensity will be as low as possible whilst meeting the objectives of the intended function. The colour of lighting will need to take into account the sensitivity of the ecological receptors on site. Light sources selected should emit zero ultra-violet light wherever possible. Interim guidance from the Bat Conservation Trust (2009 & 2014) recommends that white and blue spectrum light should be avoided or, where white lights are required, these should be of warm/neutral colour and have a peak wavelength above 550 nanometers. Narrow spectrum light sources should be used (to lower the range of species affected by lighting).

3.6 The Sensitive Lighting Strategy is of particular relevance to construction between spring and autumn when bats are active, and when working hours fall within an hour of dusk or dawn and artificial lighting is required.

3.7 The lighting scheme for the site is shown in drawing 079-LYR-XX-ZZ-DWG-L-7001. Lighting for the site includes bollard lights, which will be spread around the courtyard, light-up lights in the southern section of the courtyard, and lighting columns along Henstead Street.

3.8 The bollard lights and light-up lights are LED, and therefore emit little to no UV light. The bollard lights will be spread throughout the courtyard and will illuminate the ground surface in the courtyard. The light-up lights will be placed in the courtyard adjacent to shrubs.

3.9 All bat boxes will be installed on buildings within the north of the courtyard, at a height of 3 - 5 meters. There will therefore be no direct lighting on to the bat boxes on the buildings, or on to their immediate flight lines.

3.10 Lighting columns are proposed along Henstead Street. The lighting columns will be 6m in height. The lighting columns are LED, and have no photo-biological risks in relation to blue light or UV radiation. The angle of the light can be adjusted to achieve directional lighting. The light columns have also been designed to ensure no upwards dispersion of the light. No bat boxes have been proposed along Henstead Street, and therefore no suitable bat roosting habitat will be illuminated by the lights.

4.0 Hedgehog Reasonable Avoidance Measures Method Statement (RAMMS)

4.1 A Reasonable Avoidance Measures Method Statement (RAMMS) must be implemented during site clearance to ensure no harm to terrestrial mammals which may be present on site, including hedgehog.

4.2 The RAMMS will address recommendation R2 within the Middlemarch Environmental Preliminary Ecological Appraisal report.

4.3 There is potential for hedgehog to be present within the shrub which grows adjacent to the main building on site.

4.4 The RAMMS will comprise the following measures, which must be followed by all site operatives, including sub-contractors, at all times during the works:

- All workers must be made aware of the potential presence of mammals, including hedgehog on site.
- A hand search of the shrub on site must be undertaken by the site operatives or sub-constrictors prior to shrub clearance. Shrub should be strimmed in a single direction only to allow chance for any mammals present to escape.
- Excavations should be boarded or otherwise suitably covered at night. Where this is not practicable, a ramp will be provided (at an angle of no more than 45°) to allow any animal that may become trapped to escape.
- Pipes stored on site with an outside diameter of greater than 120mm much be capped at the end of the working day to prevent animals entering/becoming trapped. Pipes should be stored vertically if caps are not available.

5.0 Biodiverse Roof Design

5.1 Biodiverse roofs provide a natural habitat to support a variety of wildlife, and are not intended to be trafficked by humans.

5.2 A biodiverse roof will be created on the flat roof of each of the apartment blocks. The roofs will enhance foraging habitats on site for bats and birds, and enhance foraging habitat and refugia opportunities for invertebrates.

5.3 The biodiverse roofs will be constructed using the Bauder BioSOLAR design. This green roof design includes solar panels, which are set at around 300m above the level of the substrate, which allows liberal growing room for the vegetation below. Bauder biodiverse roofs are the only roofs to be approved by Buglife (the invertebrate charity).

5.4 Bauder Flora 3 Seed Mix will be used. The seed mix is a native, biodiverse seed mix, developed to maximise diversity of vegetation on green roofs. The seed mix comprises 39 species, including 31 species of wildflowers, eight annuals, eight sedges and grasses, and two sedums. This seed mix has been endorsed by Buglife, and carries the RHS Perfect for Pollinators mark.

5.5 The green roof specifications are shown in drawing 2205-GHA-01-XX-DR-A(27)0150. The roofs will include a 120mm wildflower seed and biodiverse substrate, 40mm Bauder DSE 40 drainage layer, Baulder protection mat and 140mm rigid insulation, and PCC slabs. An un-vegetated gravel margin will be present around the edge of each roof and each roof access point.

5.6 One or more of the following additional habitats should be placed on each roof to further enhance the habitat for wildlife:

- Dead wood - Dead wood could be laid on the roof to provide perches for birds and refugia for invertebrates.
- Log piles - Log piles could be created to provide perches for birds and refugia for invertebrates. Piles should be no more than 350mm high. Logs should be no more than 600m in length.
- Piles of clean bricks - Brick piles could be created to provide habitat for invertebrates. Bricks may be complete or fragmented.
- Piles of stones - Piles of stones, cobbles or rocks could be created to provide habitat for invertebrates. Piles should be no more than 350mm high. Round stones should be no bigger than a fist. Flat stones should be no bigger than a plate.
- Sand and sand mounds - Sand beds or sound mounds could be created to provide habitat for invertebrates, including bees.

6.0 Additional Enhancements

Measures for Hedgehogs

6.1 Gaps will be left under fences to allow for connectivity for hedgehogs between the site and the wider area.

Planting Schedule

6.2 Ornamental shrubs, grasses and perennials, scattered trees, and hedgerow shall be planted on site. The planting includes a mix of native and ornamental species.

6.3 Native species to be planted within the scheme include yew *Taxus baccata*, hornbeam *Carpinus betulus,* hazel *Corylus avellana,* great woodrush *Luzula sylvaticam*, and common polypody *Polypodium vulgare*.

6.4 Wildlife friendly species to be planted include cornelian cherry *Cornus mas*, astilbe 'fiery red' *Astilbe arendsii 'fiery red'*, purple coneflower *Echinacea purpurea*, catmint 'blue dragon' *Nepeta 'blue dragon'*, Russian sage *Perovskia 'blue spire'*, Mexican bush sage *Salvia leucantha* and mystic spires blue *Salvia 'mystic spires blue'.* These species are listed on the RHS Perfect for Pollinators list.

6.5 Planting of trees, shrubs and hedgerow will enhance habitat on site for nesting and foraging birds, enhance habitat for foraging bats, and enhance foraging and refuge opportunities on site for hedgehog. Inclusion of RHS Perfect for Pollinators species will also enhance foraging habitat on site for invertebrates.

DRAWINGS

G7695.001 Bat and Bird Box Scheme

406910

407010

407110

285997

KEY

Site boundary

Proposed Masterplan

- Lawn
- Semi mature hedge
- Ornamental shrub and grass planting
- Natural stone tactile paving
- Self-binding gravel
- Macadam footway
- Large format concrete slab
- Composite decking
- Concrete block paving
- Concrete block paving detail band

Bat Boxes

- Schwegler 1FR bat tube (x6)

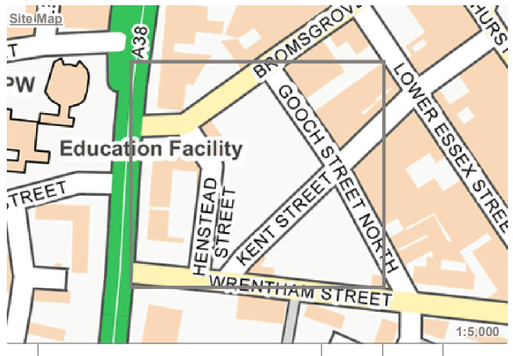
Bird Boxes

- Schwegler brick nest boxes type 24 (x4)
- Schwegler brick nest boxes type 25 (x2)

Metres

0 10 20 40

Based on 193-LYR-XX-ZZ-SKE-L-1001 masterplan (draft) provided by client.



Rev	Description	Drawn	Approved	Date

THE ENVIRONMENT PARTNERSHIP

Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
Kent Street, Birmingham

Title
Bat and Bird Box Scheme

Drawing Number
G7695.001

Drawn	Checked	Approved	Scale	Date
MK	AP	KM	1:700 @ A3	15/07/2020

THE ENVIRONMENT PARTNERSHIP

HEAD OFFICE

Genesis Centre,
Birchwood Science Park,
Warrington
WA3 7BH

Tel: 01925 844004
E-mail: tep@tep.uk.com

MARKET HARBOROUGH

No. 1 The Chambers,
Bowden Business Village,
Market Harborough,
Leicestershire,
LE16 7SA

Tel: 01858 383120
E-mail: mh@tep.uk.com

GATESHEAD

Office 26, Gateshead
International Business
Centre,
Mulgrave Terrace,
Gateshead
NE8 1AN

Tel: 0191 605 3340
E-mail: gateshead@tep.uk.com

LONDON

8 Trinity Street,
London,
SE1 1DB

Tel: 020 3096 6050
E-mail: london@tep.uk.com

CORNWALL

4 Park Noweth,
Churchtown,
Cury,
Helston
Cornwall
TR12 7BW

Tel: 01326 240081
E-mail: cornwall@tep.uk.com