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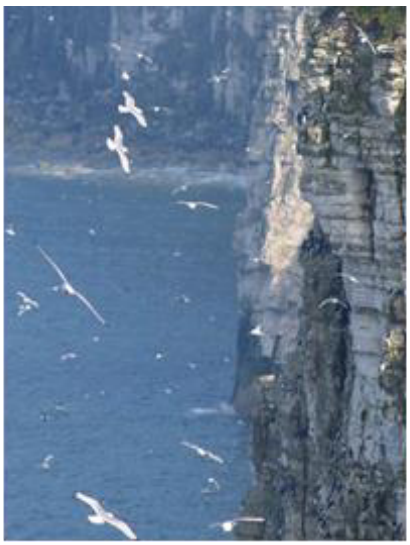


Ecological Enhancement Plan

Oriel: St Pancras London

For

Bouygues Construction

Project No.: BOU003-001/001/001/001

September 2022

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001	09/09/2022	Laura Meer	Grace Cousins	Fernando Scherner
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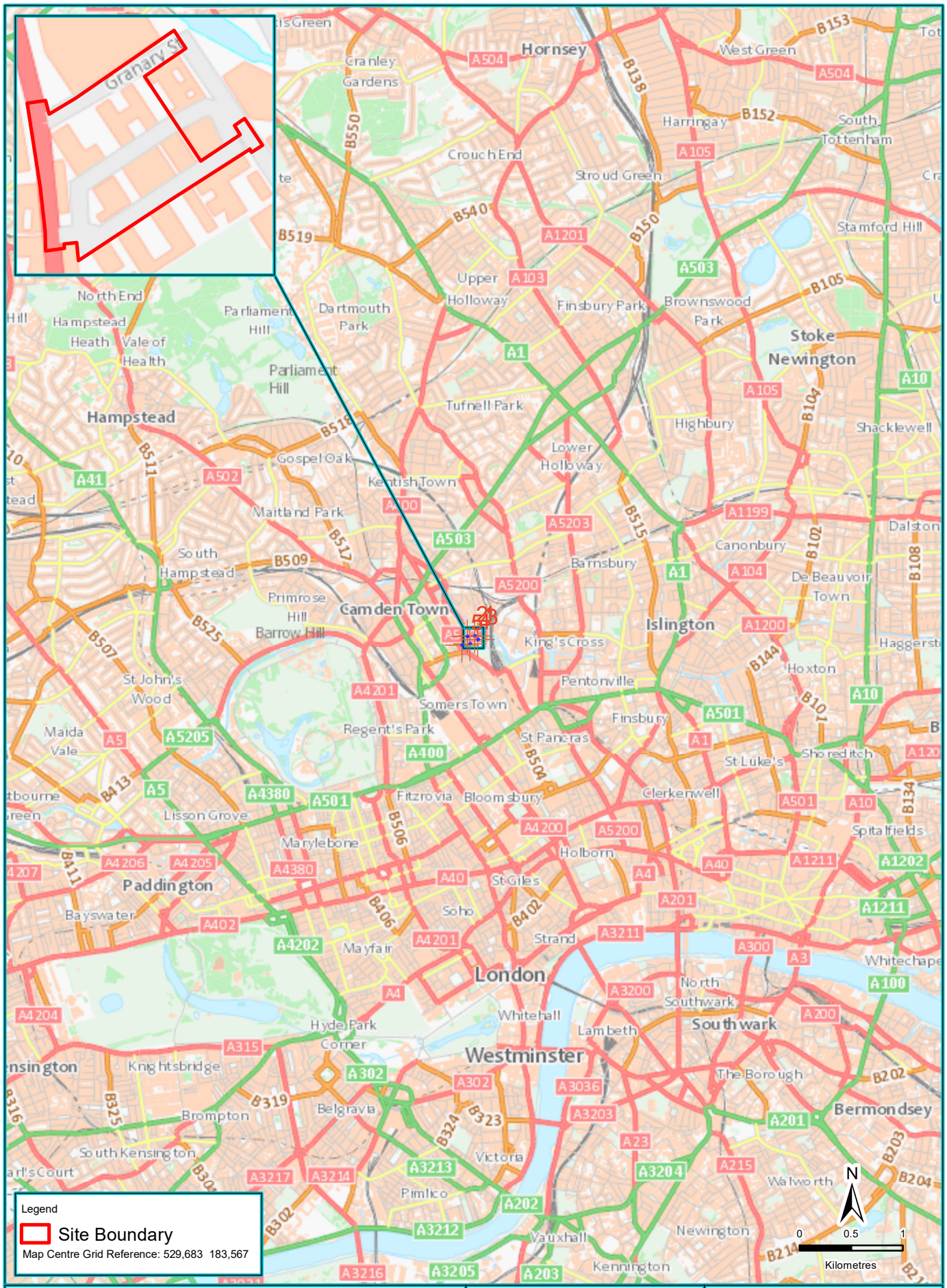
Contents



Client: Bouygues Construction		Drawing Ref: BOU003-001/401214/1	
Figure Number: 1		Scale at A3: 1:50,000	
Figure Title: Site Location		Drawn: SC	Checked: AS
		Date: 02/09/2022	Date: 02/09/2022

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Legend

Recommended Ecological Enhancements

- Bat Box
- Bee Brick
- Bird Box
- Bug Hotel
- Log Pile

Proposed Hardworks

- Planter
- Ground Level Planter
- Building
- Hardstanding - Roof
- Hardstanding - Ground Level
- No Changes
- Site Boundary

Map Centre Grid Reference: 529,679 183,640

Drawing Ref	BOU003-001/401215/1
Scale at A3	1:700
Drawn: SC	Checked: AS
Date: 16/09/2022	Date: 16/09/2022
Client	Bouygues Construction
Figure Number	2
Figure Title	Ecological Enhancement Recommendations

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1. Introduction

1.1 Development Background

1.1.1 Bouygues Construction have been awarded the enabling works by Oriel[1] for a new hospital building at St Pancras Hospital.

1.1.2 The proposals described above are hereafter referred to collectively as the works.

1.1.3 The development comprises the north and western part of the existing St Pancras Hospital site and is located between St Pancras Way and Granary Street in the London Borough of Camden (grid reference: TQ 29641 83636). The site currently consists of buildings, hard standing, car parks and soft landscaping surrounded by a heavily urbanised area. The area affected by the development is hereafter referred to as the site (see Figure 1).

1.1.4 Planning permission (planning application reference number 2020/4825/P) has been granted, with conditions set.

1.1.5 In regard to ecology, Condition 18 (A) states:

1.1.6 *"Prior to commencement of demolition works (other than site preparation and investigation), an ecological enhancement plan shall be submitted to and approved in writing by the local planning authority. Details shall include a methods statement for the demolition of buildings and removal of vegetation that have are potentially suitable as bird or bat habitat*."

1.1.7 Condition 18 (B):

1.1.8 "*Prior to commencement of above ground construction, further details shall be submitted to include specification and locations of the biodiversity enhancements on the proposed buildings (including bird and bat boxes) appropriate to the development's location, scale and design*."

1.1.9 This report discharges both condition 18 (A) and (B).

1.2 Ecology Background

1.2.1 AECOM completed a Preliminary Ecological Appraisal (PEA) of the site in 2019. The site was then extended and an additional PEA of the full site was completed in August 2020. The main findings were that the site may offer roost potential to bats and that nesting birds may be using trees and introduced shrubs on site. The report also noted that the Schedule 9 invasive species Virginia creeper (*Parthenocissus quinquefolia*) is present on site (AECOM, 2020).

1.2.2 Bat surveys of all buildings that contained roost potential were completed in 2019 by AECOM, with no bats seen emerging or re-entering any of the buildings.

1.2.3 AECOM also completed an Arboricultural Impact Assessment - AIA (AECOM 2020). They reported that thirteen trees are to be removed to facilitate the development; this includes one false acacia (*Robinia pseudoacacia*) tree which is subject to a Tree Protection Order (TPO). The Outline Arboricultural Method Statement (Appendix G within the AIA) should be followed,

[1] Oriel is a joint venture between Moorfields Eye Hospital NHS Foundation Trust, UCL Institute of Ophthalmology and Moorfields Eye Charity.

1.3 The Brief and Objectives

1.3.1 Bouygues Construction commissioned Thomson Environmental Consultants on the 17th August 2022 to produce an Ecological Enhancement Plan (EEP) report and a Precautionary Working Method Statement (PWMS) to adhere to Condition 18 of the planning application. The EEP report will cover how the site can be enhanced for biodiversity/ nature conservation. The PWMS will cover the demolition of buildings and removal of vegetation that may be suitable for nesting birds or bats.

2. Key Policy, Strategy and Legislative Considerations

2.1 Overview

2.1.1 This section provides an overview of policy and strategies relevant to the development.

2.2 The Camden Biodiversity Action Plan (2013 – 2018)

2.2.1 The built environment includes buildings, developments, streets, public realm and infrastructure. The main opportunities for providing biodiversity enhancements in the built environment are:

- living roofs and walls;
- installation of artificial nesting and roosting sites;
- sustainable drainage systems (SuDS); and
- biodiversity enhancing landscaping.

2.3 The Camden Local Plan (2017)

2.3.1 In Policy A3 of the Camden Local Plan (2017) it states the council will protect and enhance sites of nature conservation and biodiversity:

- A. *designate and protect nature conservation sites and safeguard protected and 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;*

  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;*

2.4 The Mayor's Biodiversity Strategy (2002)

2.4.1 Policy 1 states:

- Protection, management and enhancement of London's biodiversity. This will be implemented through a no net loss of important wildlife habitat, and a net gain in habitat through enhancement and habitat creation.

2.5 The London Plan (March 2021)

2.5.1 The London Plan is a formal development plan document that all local planning authorities must take into account when approving planning applications. Policy G6 states that boroughs, in developing Development Plans, should:

- *B. (4). Seek opportunities to create other habitats, or features such as artificial nest sites, that are of particular relevance and benefit in an urban context;*

- *D. Developments proposals should manage impacts on biodiversity and aim to secure net biodiversity gain. This should be informed by the best available ecological information and addressed from the start of the development process;*

2.6 National Planning Policy Framework (July 2021)

2.6.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied.

2.6.2 Paragraph 174 of the NPPF: *'Planning policies and decisions should contribute to and enhance the natural and local environment by:*

- *a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soil; and*
- *d) minimising impacts on and providing net gains for biodiversity, including establishing coherent ecological networks that are more resilient to current and future pressures;"*

2.6.3 Paragraph 175: *"plans should b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*."

2.7 The Environment Act (2021)

2.7.1 The Environment Act received royal assent and became law on 9th November 2021 and provides a framework to improve and protect the natural environment. This will be overseen by the new Office for Environmental Protection.

2.7.2 One of the provisions of the Act is the mandatory requirement for new developments to provide a 10% net gain in biodiversity. Both onsite and offsite enhancements will need to also be maintained for a period of at least 30 years following completion of a development.

2.7.3 The requirements of the Act do not have legal effect at the time of writing this Biodiversity Strategy, however it is anticipated they are to become legal requirements from November 2023.

2.8 Bats

2.8.1 All bat species are protected by the Conservation of Habitats and Species Regulations 2017 as amended. The Regulations make it an offence, with very few exceptions, to:

- Deliberately capture, injure or kill a bat;
- Deliberately disturb a bat in such a way as to be likely:
    i. to impair its ability to survive, to breed or reproduce, or to rear or nurture its young; or
    ii. to impair its ability to hibernate or migrate; or
    iii. to affect significantly the local distribution or abundance of the species to which they belong.
- Damage or destroy a breeding site or resting place of a bat; or

- Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead bat, or any part of, or anything derived from a bat.

2.8.2 In addition to the protection given to bats under the Conservation of Habitats and Species Regulations 2017 as amended already described, bats are also partially protected in England under the Wildlife and Countryside Act 1981 (as amended), which adds the following offences (with certain exceptions):

- Disturbance while it is occupying a structure or place which it uses for shelter or protection; or
- Obstructing access to any structure or place used for shelter or protection.

2.8.3 Further information on bat biology and protection can be found in Appendix 1.

2.9 Nesting Birds

2.9.1 All birds are protected under the Wildlife and Countryside Act (WCA) 1981 (as amended), which 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 that nest is in use or being built; and intentionally take or destroy the nest or eggs of any wild bird (see Appendix 2 for further information on breeding bird protection).

3. Recommended Ecological Enhancements

3.1.1 The ecological enhancements recommended below all benefit local wildlife and are easy to implement and maintain.

3.1.2 The enhancements should be implemented once the new building is complete, to avoid possible damage, dust and noise pollution during the construction phase.

3.2 Planting

3.2.1 The current planting schedule (ORL-ACM-XX-XX-DR-A-90950 v002 received via email on 15/08/2022) contains a mixture of native and non-native trees, shrubs and plants, see Appendix 3. Ideally plants should be native and benefit biodiversity by offering a food source, such as berries for birds and pollen for invertebrates. Additionally, trees which mature quickly, but stay a relatively manageable size, and create features such as deadwood, cavities and loose bark which are suitable for invertebrates and bats also offer extra biodiversity value.

Trees

3.2.2 Native flowering trees which benefit pollinators are recommended, such as:

- Goat willow (*Salix caprea*)
- Rowan (*Sorbus aucuparia*)
- Alder (*Albus glutinosa*)
- Hazel (*Croylus avellana*)
- Crab apple (*Malus sylvestris*)
- Pear tree (*Pyrus communis*)
- Wild cherry (*Prunus avium*)
- Damson (*Prunus domestica subsp. Insititia*)

3.2.3 All planting on site should be native species preferably of local provenance where practicable. Any trees or shrubs should preferably have been seeded and grown in the UK.

3.2.4 There should be little to no evidence of an adverse impact to tree health by anthropogenic activities such as vandalism or herbicide use. The pruning regime should aim to retain at least 75% of the expected canopy for the age range and height of the tree. The overall aim should be for trees to reach maturity and possibly become veteran trees.

3.2.5 Tree management should be undertaken by suitably qualified personnel only, who are aware of the legal protection of species which may utilise trees for nesting, including birds and bats.

3.2.6 The following general principles should be followed in respect of new planting:

- All planting and establishment works are to be carried out by an approved landscape contractor in accordance with good horticultural practice or the current British Standard with reference to:
  - BS 4428: Code of practice for general landscape operations;

- BS 7370: Grounds maintenance; and
- BS 8545: Trees: from nursery to independence in the landscape – recommendations.

- Three broad aftercare and establishment periods for new planting are identified below, these are not mutually exclusive and a programme of monitoring will be necessary to ensure the landscape objectives are met:
  - Short term (1-5 years). The initial establishment period will require more frequent maintenance operations. Replacement planting and remedial works will be carried out and planting sundries maintained in good condition;
  - Medium term (5-10 years). As the planting establishes during this period, less frequent maintenance will be required. Initial thinning may be necessary to ensure planting thrives without competition; and
  - Long term (10-25 + years). As the planting matures, continual monitoring will inform a rolling maintenance programme, to ensure that effective maintenance is carried out at the appropriate time to meet health and safety requirements.

3.2.7 AECOM also completed an Arboricultural Impact Assessment - AIA (AECOM 2020). They reported that thirteen trees are to be removed to facilitate the development; this includes one false acacia (*Robinia pseudoacacia*) tree which is subject to a Tree Protection Order (TPO). The Outline Arboricultural Method Statement (Appendix G within the AIA) should be followed at all times.

Shrubs and Plants

3.2.8 Introduced shrub constitutes tall, medium or low phanerophytes. Instead of planting introduced shrub, native species should be used which will enhance biodiversity.

3.2.9 Any areas assigned for native shrub and whip planting should include a selection of large to small shrubs (ranging between 1m and 6m high at maturity), such as :

- Dogwood (*Cornus sanguinea*)
- Juniper (*Junierus communis*)
- Spindle (*Euonymus europaeus*)
- Broom (*Cytisus scoparius*)
- Field rose (*Rosa arvensis*)
- Gorse (*Ulex europaeus*)
- Burnett rose (*Rosa pimpinellifolia*)
- Dwarf willow (*Salix herbacea*)
- Creeping willow (*Salix crepens*)

3.2.10 Areas assigned for ornamental planting should include species which benefit an array of invertebrates, such as:

- Evening primrose (*Oenothera biennis*)
- Honeysuckle (*Lonicera periclymenum*)
- Foxglove (*Digitalis purpurea*)
- Lavender (*Lavandula angustifolia*)
- Sweet rocket (*Hesperis matronalis*)
- Common knapweed (*Centaurea nigra*)

3.2.11 Non-native shrubs should be avoided as they generally offer less of a food source for native wildlife.

3.2.12 Additionally, climbing plants should be native where possible, such as:

- Honeysuckle (*Lonicera periclymenum*)
- Common hop (*Humulus lupulus*)
- Old man's beard (*Clematis vitalba*)

3.3 Bats

3.3.1 All species of bats found in London are listed on the London Priority Species List (LPSL). An overview of the biology and the legal protection regarding bats is given in Appendix 1.

3.3.2 Three bat boxes will be installed onto the building within the level 6 roof terrace. They will be attached to the wall of the elevator shaft, see Figure 2 for recommend locations. The bat boxes should be suitable for pipistrelle bats and other small bat species (e.g. Schwegler 1FF Bat Box, 2F Bat Box, N27 Bat Box).

3.3.3 Two other bat boxes will be installed onto the trees in the roof garden, for recommended locations of the bat boxes see Figure 2. The two bat boxes installed onto the trees should be Schegler 2FN bat boxes, as they are suitable for noctule (*Nyctalus noctule*) which are a species of bat which were recorded within the area during the bat surveys in 2019.

3.3.4 The façade material is not considered appropriate for the installation of hanging bat or bird boxes, which is why all the boxes are concentrated on the roof garden. Also, bat boxes installed at street level should be avoided as noise, light and air pollution will be much high at this level.

3.3.5 The bat boxes must be placed at least 4m above the ground and be positioned away from any light sources and out of reach of predators such as cats.

3.3.6 Bat boxes can be installed by anyone. However, once the boxes are installed, an ecologist would need to be contacted for advice before any bat box checks, cleaning or removal is undertaken.

3.3.7 The impacts of lighting on bats and other light-sensitive wildlife both within and directly adjacent to site can be minimised using lights which lack ultraviolet elements, emit light in a warn white spectrum (ideally less than 2700 kelvin) and have luminaries with peak wavelengths of higher than 550nm (Institute of Lighting Professionals, 2018). LED luminaries should be used where possible, and lighting should point in a downwards direction with hoods or cowls pointing downwards to avoid unnecessary light spill. Consideration should also be given to dimming or turning off lighting when not required

3.4 Birds

3.4.1 Two house sparrow (*Passer domesticus*) terraces, such as Schwegler 1SP, should be installed onto the wall of the elevator shaft, recommended location given in Figure 2. A single house sparrow terrace unit has multiple nest compartments as they live in colonies. Otherwise, multiple boxes must be installed.

3.4.2 These boxes also benefit great tits (*Parus major*) and blue tits (*Cyanistes caeruleus*).

3.4.3 Additionally, one black redstart box should be installed onto the northern aspect of the brown roof, where climbers are located, recommended location given in Figure 2. Brown roofs are particularly beneficial to black redstarts and can provide feeding habitat for this species.

3.4.4 General recommendations for the positioning of bird boxes are given as follows:

- Boxes should be sited to provide shelter from wind, rain and strong sunlight, with an orientation from north through east to south-east;
- Boxes should be positioned between 5m and 10m from the ground to deter predators;
- Boxes on trees should ideally be secured with strapping to avoid damage to the tree;
- Boxes should be placed in areas where disturbance is likely to be minimal, and not too close to bird feeders or other boxes (apart from those designed for colonial species); and
- Boxes are best put up between August and February as most birds will not be nesting at this time.

3.4.5 Bird boxes are required to be checked and cleared over the winter to ensure they are ready for use again in spring. This can be carried out by anyone and is not required to be done by an ecologist, providing it is completed outside of March to September.

3.4.6 Simple bird feeding stations can also be created in appropriate areas throughout the brown roof following guidance provided by the Royal Society for the Protection of Birds (RSPB, 2021). These should be sited away from areas known to attract predators and can include bird tables, either hanging or pole mounted, nut/seed feeders and water baths.

3.4.7 Different species may be attracted depending on the type of food offered. Seeds and nuts are likely to attract species such as house sparrow (*Passer domesticus*), blue tit (*Cyanistes caerules*), greenfinch (*Chloris chloris*) and chaffinch (*Fringilla coelebs*). Offering insect food such as mealworms can attract robin (*Erithacus rubecula*), blackbird and tit species. Furthermore, providing bird baths will offer additional bathing and drinking opportunities for birds.

3.4.8 Bird feeding stations should be maintained following the RSPB (2021) advice. Bird feeding stations and bird baths should be regularly cleaned and water in bird bathing facilities regularly changed to reduce the potential of birds to catch or spread disease, or to prevent contamination by rodents.

3.5 Invertebrates

3.5.1 One invertebrate hotel will be added to the roof garden (recommended location given in Figure 2). Invertebrate hotels can easily be built (See Buglife – Build a Bug Hotel). Recycled material

such as rocks, bricks, rubble and pallets could be used. Material should be piled high, and partially filled with substrate, then affixed down, using roofing felt or wire mesh, to support the structure and prevent members of the public from disturbing it.

3.5.2 To further enhance the site for wildlife, seven bee bricks will be incorporated into the planter areas on the brown roof (recommended locations given in Figure 2). Bee Bricks should be placed in a warm sunny spot on a south-facing wall at a minimum height of 1m, with no vegetation obstructing the holes. It is highly recommended that bee-friendly plants should be located nearby so that the bees using the bricks have food, otherwise it is unlikely that the brick will be used.

3.5.3 General advice for invertebrate hotels and bee bricks:

- Boxes should be sited to provide shelter from wind, rain and strong sunlight, with an orientation from south to southeast;
- Boxes can be near vegetation, but their entrances should not be obscured or shaded;
- Boxes should be positioned at least 1m above ground level;
- Boxes should be installed in a stable, fixed position that will not sway in the wind or be easily knocked or dislodged. If secured to a tree, strapping should be used to avoid damage to the tree;
- Boxes should be placed in areas where disturbance is likely to be minimal, *i.e.* away from public footpaths, and not too close to bird feeders or other boxes (apart from bee boxes designed for colonial species); and
- Boxes are best put up between August and February as most birds will not be nesting at this time.

3.5.4 Furthermore, two log piles, sheltered by foliage, will be added to the roof garden which will also provide suitable refuge and habitat for saprophytic invertebrates.

3.6 Invasive Plants

3.6.1 The removal of the recorded Schedule 9 plant species, Virginia creeper, detailed in Section 4.3, will in turn help to enhance the site.

4. Precautionary Method of Works

4.1 Bats

4.1.1 Previous bat surveys were conducted in 2019 (AECOM 2020). These internal and external surveys assessed three buildings (Jules Thorn, Ash House and the Bloomsbury Building) as having low suitability and one building (Estates and Facilities Building) as having moderate suitability to support roosting bats based on potential access/egress features for bats that were observed. Subsequent dusk emergence and dawn re-entry surveys were completed during May to September 2019. The surveys were conducted under optimal weather conditions and surveyors were positioned within view of the Potential Roost Features (PRFs). No bats were recorded emerging from or returning to the buildings and very limited bat activity was recorded around the buildings in general.

4.1.2 The bat survey report (AECOM 2020) states that the report is only valid for 1 year. As the surveys were completed three years ago there is a chance bats could now be roosting within the buildings. It is worth noting that bats are nomadic and can move around and switch roosts overnight. It is recommended that the emergence/ return to roost surveys conducted in 2019 are redone if the demolition works have not commenced by 1st May 2023. If the surveys were to be redone this would have to take place between May – September, with at least one survey between May – August.

4.1.3 If the surveys cannot be redone, then this PWMS is in place in the event that a bat is discovered during the demolition works. The following precautionary measures should be followed during the bat hibernation season (December –February inclusive), before destruction works commence to limit the chance of an offence being committed:

- A toolbox talk should be delivered to the contractors to make them aware that the buildings have potential to support roosting bats, and that all works must stop if a bat is found, and an ecologist contacted immediately. The toolbox talk should cover bat protection and legislations, as well as identification, and biology. Contractors should sign the toolbox talk after it has been delivered to show their understanding and compliance.
- If any bats are found works must stop and an ecologist be contacted immediately. The materials surrounding the bat should be put back in place, being careful not to harm the bat or disturb it. A European Protected Species Licence will be required from Natural England before any works can begin again in the buffer area.

4.1.4 If the demolition works are to commence during the active bat season (March – November inclusive), then this PWMS is in place in the event that a bat is discovered during the demolition works. The following precautionary measures should be followed before destruction works commence to limit the chance of an offence being committed:

- An Ecological Clerk of Works (ECoW) should be present when any work on the four buildings that have roost potential is taking place. The ECoW is only needed when works are being conducted close to access and egress points which have been noted as potential roost features in the Bat Survey Report (AECOM 2020). Ladders, or a Mobile Elevated Work Platform (MEWP) may be required for the ECoW to access and assess if the roost feature contains any roosting bats. The ECoW may need to also access roof spaces which could be accessible to bats.

- If any bats are found during the above inspections, all works must stop and a suitable buffer implemented to reduce disturbance. A European Protected Species Licence will be required from Natural England before any works can begin again in the buffer area.
- A toolbox talk should be delivered to the contractors to make them aware that the buildings have potential to support roosting bats, and that all works must stop if a bat is found, and the ECoW contacted. The toolbox talk should cover bat protection and legislations, as well as identification, and biology. Contractors should sign the toolbox talk after it has been delivered to show their understanding and compliance.

4.2 Nesting Birds

4.2.1 The site offers suitable habitat and structures to support common nesting birds. To avoid committing an offence in regard to nesting birds, it is recommended the enabling works take place outside the breeding bird season. The breeding bird season is between March to August inclusive.

4.2.2 If works have to take place within the breeding bird season, then an ECoW will be required to attend site before any vegetation or structure is impacted by the works

4.2.3 The ECoW will firstly observe the works area for a suitable period (observation will be a minimum of 30 minutes) prior to the works commencing in order to observe bird behaviour and activity.

4.2.4 They will then conduct a thorough visual search to assess the potential nesting areas for active nests. This will be followed by a hand search of the vegetation/structure to detect any active nests.

4.2.5 If vegetation is very dense, the ECoW will undertake the search in layers: i.e. checking as much as is visibly possible (~1-2m inside the vegetation), this vegetation should then be cleared using hand tools only, and followed by a check of the next accessible 1-2m layer, and so on.

4.2.6 If any bird nests are discovered during the works, either by the ECoW or by the works delivery team, then the following steps should be taken:

- Work around the nest should halt until it can be assessed as to whether it is active or not;
- To determine nest activity, the nest should first be inspected for the presence of eggs or chicks;
- If no eggs or chicks are present, machinery should be moved away from the potential nest, and works should cease for 30 minutes to allow disturbance to return to baseline levels;
- Following this, the nest area should be observed for an additional 30 minutes (binoculars should be used if necessary) to ensure that no birds are bringing material to the nest suggesting it is still under construction or is in active use;
- Should an active nest be found, then a buffer (typically 5m) will be erected around the nest within which no works can take place, in order to protect the nest from damage or destruction;
- If the ECoW determines the nest to be inactive, the vegetation clearance work can proceed; and the nest carefully removed;
- The location of any nests identified will be recorded, and photographs taken.

4.2.7 The works delivery team should remain vigilant throughout the duration of the works and notify the ECoW if any nesting birds are found.

4.3 Invasive Non-Native Species

4.3.1 The PEA (AECOM 2020) identified Virginia creeper (*Parthenocissus quinquefolia*) growing on the north-east boundary wall of the site by Ash House. Virginia creeper is listed on Schedule 9 of the WCA, which makes it an offence to plant, or otherwise cause to grow listed species in the wild.

4.3.2 Three other invasive non-native plants identified on site which are listed in the London Invasive Species Initiative list of species of concern are:

- False acacia (*Robinia pseudoacacia*)
- Cherry laurel (*Prunus laurocerasus*)
- Butterfly bush (*Buddleia davidii*)

4.3.3 If these species are transported off-site, there is a duty of care with regards to the disposal of any part of the plant that may facilitate its establishment and spread in the wild.

4.3.4 If works will affect any areas where these invasive species are found then the following biosecurity steps should be taken:

- An on-site boot and wheel wash will be installed for use when operatives/plant enter/exit the site;
- For Virginia Creeper , and preferably for the other three invasive species, any contaminated soil removed from site or disposed of, this will be done by a registered operator and disposed of at a suitably licensed waste disposal facility.

4.3.5 Virginia Creeper can be treated by pulling the vine from the structure it is clinging onto, then painting diluted glyphosate onto the vine. Dilution instructions on the product label should be followed and a Control Of Substances Hazardous to Health (COSHH) assessment should also be completed. Personal Protective Equipment should be worn during this process as sap from Virginia creeper and glyphosate can cause skin irritation.

5. References

AECOM (October 2020) Preliminary Ecological Appraisal Report, Oriel

AECOM (October 2020) Bat Survey Report, Oriel

AECOM (October 2020) Arboricultural Impact Assessment Report, Oriel

London Borough of Camden (2013) Biodiversity Action Plan 2013-2018 https://www.camden.gov.uk/documents/20142/15817034/CD8.4+Biodiversity+Action+Plan+2013-18.pdf/8c85d9d5-107b-7fa2-8164-eaea203f0a19

London Borough of Camden (2017) Local Plan https://www.camden.gov.uk/documents/20142/4820180/Local+Plan.pdf/ce6e992a-91f9-3a60-720c-70290fab78a6

Mayor of London (2002) Biodiversity Strategy https://docslib.org/doc/2030866/mayors-biodiversity-strategy

6. Appendix 1: British Bats

6.1 Introduction

6.1.1 A summary of the biology of British bats and the legislation and policy that protects them is provided below.

6.2 Biology

6.2.1 There are 18 British species of bats, belonging to two families; the horseshoe bats (*Rhinolophidae*) and vesper bats (*Vespertilionidae*). Of the 18 species, two species are horseshoe bats and belong to the genus *Rhinolophus*, The remaining 16 species are vesper bats and are sub-divided between six genera; *Myotis, Eptesicus, Nyctalus, Pipistrellus, Plecotus* and *Barbastella*. Whilst there are many differences in the biology of the different species, all share certain characteristics and these are described below.

Roosting

6.2.2 Bat species utilise roost sites of varying character; some preferring tree roosts whilst others are thought to be almost entirely dependent on built structures. Most bats will have a number of available roosting sites within their range, which they move between throughout the year. They are generally faithful to their roosts and a colony of bats may use the same roost site(s) year after year.

6.2.3 Bats hibernate during the winter and will often gather to hibernate communally, remaining in the same hibernation roost from November to February/March. Hibernation roost sites typically have a constant low temperature and high humidity levels. Sites include caves, mines, thick walled buildings and hollow trees. With the arrival of spring, the ambient temperature and day length increase and bats begin to leave their hibernation roosts, either moving immediately to summer roost sites or occasionally, to a transitional roost.

6.2.4 By June, breeding females will begin to congregate in maternity roost sites where they will give birth to and nurture their young. Male bats are also occasionally found roosting in maternity roosts but during this period they mostly roost alone. Maternity roost sites include hollowed out trees, buildings and bridges. Male bats may use similar sites but also cracks and crevices in trees, under loose tiles or even amongst dense ivy growth during the summer period. Similar sites may be used by bats for brief periods during the night when they are resting or feeding on recently caught prey. In autumn, male bats establish mating roosts and are visited by females. A variety of roost sites may be used until the bats return to their hibernation roosts.

Foraging

6.2.5 All British bat species feed on invertebrates, with flies, beetles, moths and other insects making up much of their diet. Areas with an abundance of insect prey, such as woodlands, scrub, wetlands, river corridors and flower rich grasslands are therefore favoured foraging sites for bats. Habitats such as intensively farmed arable land, and amenity grassland support a much lower invertebrate abundance and are therefore less favoured foraging habitats for bats.

Commuting

6.2.6 Bats favour roost sites in close proximity to suitable foraging habitat, however, given variation in prey availability, land-use change, and competition with other bats, for at least part of the year bats must commute between their roosts and foraging habitat.

6.2.7 Commuting routes tend to follow linear features in the landscape such as hedgerows, woodland edges, rivers and other watercourses, particularly when crossing areas of less favourable habitat. The distance that bats commute between roost sites and foraging areas is dependent on local geography and also the species of bat. Some species will travel up to 18km, though shorter distances are more typical.

6.3 Site Designation

6.3.1 All bat roosts in the UK receive protection under the following legislation:

- Conservation of Habitats and Species Regulations 2017 as amended (which replaces the Conservation (Habitats &c) Regulations 1994 as amended)
- Wildlife and Countryside Act 1981, as amended;
- The Countryside and Rights of Way Act 2000 (which amends the Wildlife and Countryside Act); and
- Natural Environment and Rural Communities Act 2006 (which amends the Wildlife and Countryside Act).

6.3.2 This is described in more detail under 'Species Protection' below. In addition, the most important sites for certain bat species in the UK receive further statutory protection through designation of Special Areas of Conservation (SACs) and/or Sites of Special Scientific Interest (SSSIs).

6.3.3 Four UK bat species, the greater and lesser horseshoe, barbastelle and Bechstein's bats, are included on Annex II of the European Community Directive of the Conservation of Natural Habitats and of Wild Fauna and Flora, referred to as the Habitats Directive. The Habitats Directive was transposed into UK law by the Conservation of Habitats and Species Regulations 2017 as amended. The Habitat Regulations, amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, now form stand-alone legislation for England and Wales, independent of the Directive. This legislation requires that areas are designated as Special Areas of Conservation (SACs) to protect populations of these 4 bat species. These sites for part of the National site network and are considered to be of international importance for the bat populations they support.

6.3.4 Sites designated under the Wildlife and Countryside Act 1981 (WCA) are known as Sites of Special Scientific Interest (SSSIs). SSSIs received further protection under the Countryside and Rights of Way Act 2000 (CRoW) and the Natural Environment and Rural Communities (NERC) Act 2006.

6.3.5 Some SSSIs are designated for the population(s) of bats that they support. The criteria for selecting SSSIs on the basis of their bat populations are provided in Guidelines for the Selection of Biological SSSIs (NCC, 1989):

- Greater horseshoe bat – all main breeding roosts and all winter roosts with 50 or more adult bats;
- Lesser horseshoe bat - all main breeding roosts containing 100 or more adult bats and all winter roosts containing 50 or more bats;
- Barbastelle, Bechstein's and grey long-eared bats – any traditional breeding roosts;
- Natterer's, Daubenton's, whiskered, Brandt's, serotine, noctule and Leisler's bats – only exceptionally large breeding roosts or those with a long history of use; and
- Mixed Roost sites – all hibernacula containing four or more species and more than 50 individuals or three species and 100 or more individuals or two species and 150 or more individuals, though these criteria may be lower in some parts of the UK.

6.3.6 Sites that qualify as SSSIs for the bat populations they support are considered to be of at least national importance.

6.3.7 Sites designated for nature conservation at the county level may also include bat populations as part of the site qualifying criteria, although the criteria used may vary from county to county. Such sites are protected through the planning system and there is generally a presumption against development that affects such sites in local authority development plans.

Planning Policy

6.3.8 The National Planning Policy Framework (NPPF) 2019, gives further direction with respect to biodiversity conservation and land use change / development. The NPPF encourages local planning authorities to identify, conserve and restore, ecological networks, which should benefit bats, and it also states that planning permission should be refused if significant harm to biodiversity cannot be avoided, mitigated or compensated. In addition, the Government Circular 06/05, which relates to biodiversity conservation, states that all protected species, such as bats, are a material consideration for the planning authority when considering proposed developments.

6.4 Species Protection

Legislation

6.4.1 All bat species are protected by the Conservation of Habitats and Species Regulations 2017 as amended. The Regulations make it an offence, with very few exceptions, to:

- Deliberately capture, injure or kill a bat;
- Deliberately disturb a bat in such a way as to be likely:
  - iv. to impair its ability to survive, to breed or reproduce, or to rear or nurture its young; or
  - v. to impair its ability to hibernate or migrate; or
  - vi. to affect significantly the local distribution or abundance of the species to which they belong.

- Damage or destroy a breeding site or resting place of a bat; or
- Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead bat, or any part of, or anything derived from a bat.

6.4.2 In addition to the protection given to bats under the Conservation of Habitats and Species Regulations 2017 as amended already described, bats are also partially protected in England under the Wildlife and Countryside Act 1981 (as amended), which adds the following offences (with certain exceptions):

- Disturbance while it is occupying a structure or place which it uses for shelter or protection; or
- Obstructing access to any structure or place used for shelter or protection.

6.4.3 A roost is any structure or place used by bats for shelter or protection. As bats tend to re-use the same roosts year after year, the roost is protected whether bats are present or not, at the time.

6.4.4 In this context of the legislation, 'damage' would include such operations as treatment of wood with toxic preservatives or use of rodenticides near roosting bats while 'disturbance' includes any work in or affecting a bat roost.

6.4.5 If proposed actions, such as redevelopment of an existing building may lead to an offence under the above legislation, appropriate mitigation which seeks to avoid these impacts should be devised and implemented under licence from Natural England to allow the activity to proceed legally.

6.4.6 In addition to the above legislation, all bats are protected under the Bonn Convention, within which the Agreement on the Conservation of Bats in Europe (1991) or EUROBAT, establishes a mechanism for international collaboration to conserve bats and their habitats, including foraging habitats. All European bat species are covered under Appendix II of the Conservation of Migratory Species of Wild Animals (CMS).

6.4.7 The Hedgerow Regulations 1997 provide for the conservation of 'important' hedgerows and their constituent trees. The presence of a protected species such as bats is included in the assessment of whether a hedgerow is considered 'important' and applications to remove such hedgerows must be made to the planning authority.

6.5 UK Post-2010 Biodiversity Framework and Species of Principal Importance

6.5.1 Published by the Joint Nature Conservation Committee (JNCC) and the Department for Environment, Food and Rural Affairs (Defra) in July 2012, the UK Post-2010 Biodiversity Framework identifies UK-scale activities and priority works that are required to deliver the EU Biodiversity Strategy. Following a process of devolution, the framework is underpinned by country level strategies which are now largely responsible for continuing the work carried out under the former UK Biodiversity Action Plans (UK BAP). JNCC guidance dictates that UK BAP background information on priority species and habitats still remains relevant and it now forms the basis of country specific priority lists, which for England, are specified under Section 41 of the Natural Environment and Rural Communities Act 2006 (the NERC Act). Targets for England's biodiversity strategy 'Biodiversity 2020': A strategy for England's wildlife and ecosystem services, are informed by this list.

6.5.2 Seven species of bats (Barbastelle, Bechstein's, greater and lesser horseshoe, brown long-eared, noctule and soprano pipistrelle) have been adopted as Species of Principal Importance for the Conservation of Biodiversity in England. This places a duty on all government departments to have regard for the conservation of these species and on the Secretary of State to further, or promote others to further, the conservation of these species. Furthermore, the NPPF states that local planning authorities should promote the protection and recovery of priority species populations linked to national and local targets, which presumably means those listed under the Section 41 of the NERC Act, the former UK BAP and on Local or Regional priorities species lists.

6.6 References

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6.6.2 Entwistle, A. C., Harris, S., Hutson, A., Racey, P., Walsh, A., Gibson, S., Hepburn, I., and Johnston, J. (2002) Habitat management for bats: A guide for land managers, land owners and their advisors. JNCC, Peterborough.

6.6.3 Her Majesty's Stationery Office (HMSO) (2017). The Conservation of Habitats and Species Regulations 2017 as amended. https://www.legislation.gov.uk/uksi/2017/1012/contents/made

6.6.4 Her Majesty's Stationery Office (HMSO) (2019) Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

6.6.5 Her Majesty's Stationery Office (HMSO) (1981). Wildlife and Countryside Act 1981. Chapter 69. https://www.legislation.gov.uk/ukpga/1981/69

6.6.6 Her Majesty's Stationery Office (HMSO) (2006). Natural Environment and Rural Communities Act 2006. https://www.legislation.gov.uk/ukpga/2006/16/introduction

6.6.7 Highways Agency (1999 et seq) Design Manual for Roads and Bridges, Volume 10 Environmental Design and Management,Section 3 The Good Roads Guide- Nature Conservation, Part 6 Nature Conservation Management Advice in Relation to Bats.

6.6.8 Hundt L (2012). Bat Surveys: Good Practice Guidelines, 2nd Edition. Bat Conservation Trust, London.

6.6.9 JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). (2012). UK Post-2010 Biodiversity Framework. Available from: http://jncc.defra.gov.uk/page-6189.

6.6.10 Mitchell-Jones, A.J. & McLeish, A.P. (1999). Bat Workers' Manual (2nd Edition). Joint Nature Conservancy Committee, Peterborough

6.6.11 NCC (1989) Guidelines for Selection of Biological SSSIs. Nature Conservancy Council, Peterborough

6.6.12 Office of the Deputy Prime Minister (2005) Planning Policy Statement 9; Biodiversity and Geological Conservation.

6.6.13 Russ, J. (1999). The Bats of Britain and Ireland. Alana Ecology, Shropshire.

7. Appendix 2: Breeding Birds

7.1 Introduction

7.1.1 A summary of the biology of breeding birds, the legislation and policy that protects them and other mechanisms of highlighting species of conservation concern is provided below.

7.2 Biology

7.2.1 There are around 250 species of bird which breed (or have bred in the recent past) in the UK (Gibbons et al, 1993; Mead, 2000). Many of these are resident birds, which are present all year round. However, they are joined in summer by migrants, which have spent the winter further south. Migrant species may also be seen passing through a site or region in spring and autumn, on their way to their breeding and wintering grounds. The different species breed in nearly all habitats, from bare ground through to woodland and therefore, bird's nests may be found almost anywhere. The breeding season for the majority of species extends from March through to July, though some species may nest earlier and later in the year (Snow and Perrins, 1998).

7.3 Site Protection

7.3.1 The most important sites for breeding birds in the UK receive statutory protection under the following legislation:

- The Ramsar Convention;
- The Conservation of Habitats and Species Regulations 2017 as amended;
- Wildlife and Countryside Act 1981, as amended;
- The Countryside and Rights of Way Act 2000 (which amends the Wildlife and Countryside Act); and
- The Natural Environment and Rural Communities Act 2006 (which also amends the Wildlife and Countryside Act).

7.3.2 Ramsar sites are protected under the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat. Whilst many of these sites are important mainly as habitat for wintering birds, some are at least partly designated for the breeding birds that they support.

7.3.3 Sites protected under Conservation of Habitats and Species Regulations 2017 as amended (which replaces the Conservation (Habitats &c) Regulations 1994 as amended) for the birds they support are known as Special Protection Areas (SPAs). The Habitat Regulations, amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, now form stand-alone legislation for England and Wales, independent of the Directive. SPAs are part of the National site network which are selected to conserve the habitat of certain species of bird that are listed under the EC Council Directive on the Conservation of Wild Birds, known as the Birds Directive.

7.3.4 Sites designated under the Wildlife and Countryside Act 1981 (WCA) are known as Sites of Special Scientific Interest (SSSIs). SSSIs received further protection under the Countryside and

Rights of Way Act 2000 (CRoW) and the Natural Environment and Rural Communities (NERC) Act 2006.

7.3.5 Some SSSIs are designated for their assemblage of breeding birds. The criteria for selecting SSSIs on the basis of their breeding bird assemblage are provided in Guidelines for the Selection of Biological SSSIs (Nature Conservancy Council, 1989). The types of sites which may designated as a SSSI for breeding birds include the following:

- Localities which support more than 1% of the total British breeding population of any native species, including large aggregations of numerous species and small numbers of very rare species;
- Seabird colonies comprising more than 10,000 breeding pairs;
- The largest colony of colonial seabird species, herons or sand martin within a given area, but with at least 10 pairs;
- Localities which support an exceptionally good range of bird species characteristic of the habitat concerned;
- Localities consisting of semi-natural habitats where at least 70 breeding species have been recorded in recent years; and
- Localities which support rare species or which are otherwise unusual.

7.3.6 Sites designated for nature conservation at the county level may also include breeding bird populations as part of the site qualifying criteria, although the criteria used may vary from county to county. Such sites are protected through the planning system and there is generally a presumption against development that affects such sites in local authority development plans.

Planning Policy

7.3.7 The National Planning Policy Framework (NPPF) 2019 gives further direction with respect to biodiversity conservation and land use change / development. The NPPF encourages local planning authorities to identify, conserve and restore, ecological networks, which should benefit amphibians, and it also states that planning permission should be refused if significant harm to biodiversity cannot be avoided, mitigated or compensated. In addition, the Government Circular 06/05, which relates to biodiversity conservation, states that all protected species such as breeding birds, are a material consideration for the planning authority when considering proposed developments.

7.4 Species Protection

Legislation

7.4.1 Both within and outside of designated sites, all wild birds, their eggs and their nests are protected under the WCA. This makes it an offence, with certain exceptions to intentionally:

- Kill, injure or take any species of wild bird;
- Take, damage or destroy their nest while that nest is in use or being built; or
- Take or destroy their eggs.

7.4.2 Some species of bird that are of high nature conservation priority or are otherwise in greater need of legal protection are included on Schedule 1 of the WCA. For these species, it is also an offence to intentionally or recklessly disturb the adults while they are in and around their nest, or intentionally or recklessly disturb their dependent young. Species listed on Schedule 1 of the WCA include kingfisher, red kite and greenshank. In addition, golden eagle, white-tailed eagle and osprey receive further protection still in that their nests are protected all year round, even when not in use.

7.5 UK Post-2010 Biodiversity Framework and Species of Principal Importance

7.5.1 Published by the Joint Nature Conservation Committee (JNCC) and the Department for Environment, Food and Rural Affairs (Defra) in July 2012, the UK Post-2010 Biodiversity Framework identifies UK-scale activities and priority works that are required to deliver the EU Biodiversity Strategy. Following a process of devolution, the framework is underpinned by country level strategies which are now largely responsible for continuing the work carried out under the former UK Biodiversity Action Plans (UK BAP). JNCC guidance dictates that UK BAP background information on priority species and habitats still remains relevant and it now forms the basis of country specific priority lists, which for England, are specified under Section 41 of the NERC Act 2006. Targets for England's biodiversity strategy 'Biodiversity 2020': A strategy for England's wildlife and ecosystem services, are informed by this list.

7.5.2 There are currently 59 priority bird species in the UK, with 49 of these occurring in England. Examples of breeding bird species that are priorities in the UK include house sparrow, herring gull, dunnock, reed bunting, linnet, bullfinch and song thrush. In addition, species of breeding bird may appear as priority species on Local or Regional priority species lists.

7.5.3 The priority species of UK birds that occur in England have been adopted as Species of Principal Importance for the Conservation of Biodiversity in England. This places a duty on all government departments to have regard for the conservation of these species and on the Secretary of State to further, or promote others to further, the conservation of these species. Furthermore, the NPPF states that local planning authorities should promote the protection and recovery of priority species populations linked to national and local targets, which presumably means those listed under the Section 41 of the NERC Act, the former UK BAP and on Local or Regional priorities species lists.

7.6 Red and Amber List Species

7.6.1 The leading governmental and non-governmental conservation organisations have reviewed the status of 247 bird species that regularly occur in the UK. Those species of high or medium conservation concern are given 'Red List' (52 species) and 'Amber List' (126 species) status, respectively (Eaton, M.A. et al, 2009). The potential reasons for inclusion on the Red List for breeding birds are:

- Greater than 50% decline in the UK breeding population in the 25 years preceding 2009 or since the first BoCC review in 1969 ("longer term");
- Greater than 50% decline in the UK non-breeding population in the 25 years preceding 2009 or over the longer term;
- Greater than 50% contraction of UK breeding range in the 25 years preceding 2002;

- A historical population decline in the UK during 1800 to 1995 without substantial recovery; or
- On the IUCN list of globally threatened species

7.6.2 The Red List includes several common and widespread species, including house sparrow, starling, skylark, bullfinch and song thrush.

7.6.3 For species on the Amber List potential reasons for inclusion for breeding birds are:

- A moderate (25-49%) decline in the UK breeding population over the 25 years preceding 2009 or over the longer term;
- A moderate (25-49%) contraction of the UK breeding range over the 25 years preceding 2009 or over the longer term;
- Species with unfavourable conservation status in Europe;
- A five-year mean of 1-300 breeding pairs in the UK;
- Greater than or equal to 50% of the UK breeding population in 10 or fewer sites, but not otherwise rare breeders; or
- Greater than or equal to 20% of European breeding population in the UK

7.6.4 Examples of species on the Amber List are dunnock, kestrel, snipe and mistle thrush.

7.6.5 Red and Amber List species are not necessarily the same as Schedule 1 species, priority species or Species of Principal Importance. Red and Amber List species do not receive any specific additional legal protection over and above the basic provisions of the WCA, unless they are also included on Schedule 1 or listed under Section 41 of the NERC Act.

7.7 Red Data Book Species

7.7.1 A further system for identifying threatened bird species is the IUCN threat categories, with lists of threatened species published in Red Data Books. For birds, species accounts are provided in Batten et al (1990).

7.7.2 Red Data Book species do not receive any specific additional legal protection over and above the basic provisions of the WCA, unless they are also included on Schedule 1 or listed under Section 41 of the NERC Act.

7.8 References

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7.8.2 Brown, A & Grice, P (2005) Birds in England. Christopher Helm.

7.8.3 Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 102, pp296-341.

7.8.4 Gibbons D. W., Reed J. B. and Chapman, R. A. (1993) The New Atlas of Breeding Birds in Britain and Ireland 1988 - 1991. T & AD Poyser, London.

7.8.5 Gregory RD, Wilkinson NI, Noble DG, Robinson J A, Brown A F, Hughes J, Proctor DA, Gibbons DW and Galbraith CA (2002) Population status of birds in the UK - Birds of conservation concern: 2002-2007 British Birds 95 410 – 450.

7.8.6 Her Majesty's Stationery Office (HMSO) (2017) The Conservation of Habitats and Species Regulations 2017 as amended.

7.8.7 Her Majesty's Stationery Office (HMSO) (2019) Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

7.8.8 HM Government (2006) Natural Environment and Rural Communities Act.

7.8.9 JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). (2012). UK Post-2010 Biodiversity Framework. Available from: http://jncc.defra.gov.uk/page-6189

7.8.10 Mead, C. (2000) The State of the Nation's Birds.

7.8.11 NCC (1989) Guidelines for Selection of Biological SSSIs. Nature Conservancy Council, Peterborough.

7.8.12 National Planning Policy Framework (2019)

7.8.13 Snow, D.W. & Perrins, C. M, (1998). The Birds of the Western Paleartic, Concise Edition Volumes I and II. Oxford University Press.

Thomson environmental consultants

8. Appendix 3: Current Planting Schedule

Trees

		Qty	Form	Age / Condition	Girth	Clear Stem	Height	Roots	Notes
PUBLIC REALM									
T1	Acer campestre	1	Std	4 x transplanted	25-30 cm	2.0m	min. 450cm	Rootball	Well formed crown
T2	Amelanchier lamarckii	1	Multi stem	3 x transplanted			min. 200-250cm	Rootball	Multi stem, 3 stems
T3	Corylus colurna	3	Std	4 x transplanted	25-30 cm	2.0m	min. 450cm	Rootball	Well formed crown
T4	Gleditsia triacanthos	9	Std	4 x transplanted	30-35 cm	2.0m	min. 600-650cm	Rootball	Well formed crown
T5	Prunus avium 'Plena'	2	Std	4 x transplanted	30-35 cm	2.0m	min. 600-650cm	Rootball	Well formed crown
T6	Tilia cordata 'Rancho'	4	Std	4 x transplanted	25-30 cm	2.0m	min. 450cm	Rootball	Well formed crown

ROOF TERRACE									
T7	Elaeagnus angustifolia	4	Multi stem	3 x transplanted			min. 200-250cm	Rootball	Multi stem, 3 stems
T8	Prunus x gondouinii 'Schnee'	2	Std	4 x transplanted	30-35 cm	2.0m	min. 600-650cm	Rootball	Well formed crown
T9	Rhus typhina	5	Multi stem	3 x transplanted			min. 200-250cm	Rootball	Multi stem, 3 stems

Shrubs

		Qty	Designation	Root Type
PUBLIC REALM				
B4	Lonicera caerulea var. Kamtschatica Anja E	26	Container Grown	5 Litre Pot

ROOF TERRACE				
B1	Erica carnea	22	Container Grown	3 Litre Pot
B2	Fargesia murielae	6	Container Grown	5 Litre Pot
B3	Hippophae rhamnoides	4	Container Grown	5 Litre Pot
B4	Lonicera caerulea var. Kamtschatica Anja E	6	Container Grown	5 Litre Pot
B5	Prunus x gondouinii 'Schnee'	4	Container Grown	5 Litre Pot
B6	Ribes nigrum 'Polar'	10	Container Grown	3 Litre Pot
B7	Ribes rubrum	10	Container Grown	3 Litre Pot
B8	Syringa Josikaea E	10	Container Grown	3 Litre Pot
K1	Actinidia kolomikta	7	Container Grown	2 Litre Pot
K2	Clematis armandii	9	Container Grown	2 Litre Pot
K3	Clematis vitalba	8	Container Grown	2 Litre Pot
K4	Humulus lupus	7	Container Grown	2 Litre Pot
K5	Lonicera periclymenum	8	Container Grown	2 Litre Pot
K6	Passiflora spp.	8	Container Grown	2 Litre Pot

Planting mixes

		Designation	Root Type	Total plants / sq.m	QTY	% Mix in Area	Notes	Total Area SqM
PUBLIC REALM MIX								**66.5**
P1	Actaea racemosa 'Cordifolia'	Container Grown	2 Litre Pot	4	27	10%		
P2	Agastashe 'Blue Fortune'	Container Grown	2 Litre Pot	4	27	10%		
P3	Aster amellus	Container Grown	2 Litre Pot	4	27	10%		
P9	Epimedium x rubrum	Container Grown	2 Litre Pot	4	27	10%		
P10	Fragaria vesca var. semperflorens	Container Grown	2 Litre Pot	4	27	10%		
P11	Geranium phaeum 'Album'	Container Grown	2 Litre Pot	4	27	10%		
P12	Geranium phaeum 'Samobor'	Container Grown	2 Litre Pot	4	27	10%		
G1	Calamagrostis x acutiflora 'Karl Foerster'	Container Grown	3 Litre Pot	5	33	10%		
G2	Deschampsia cespitosa 'Goldschleier'	Container Grown	3 Litre Pot	4	27	10%		
G3	Hakonechloa macra	Container Grown	3 Litre Pot	4	27	10%		
G4	Miscanthus sinensis 'Kleine Fontäne'	Container Grown	3 Litre Pot	4	27	10%		
L1	Allium caeruleum		Bulb	3	34	17%	Hand Sown	
L2	Allium 'Mont blanc'		Bulb	3	34	17%	Hand Sown	
L3	Crocus speciosus 'Artabir'		Bulb	3	34	17%	Hand Sown	
L4	Crocus tommasinianus		Bulb	3	34	17%	Hand Sown	

L5	Scilla bifolia 'Alba'		Bulb	3	32	16%	Hand Sown	
L6	Scilla bifolia		Bulb	3	32	16%	Hand Sown	

ROOF TERRACE MIX								**488**
P1	Actaea racemosa 'Cordifolia'	Container Grown	2 Litre Pot	4	64	3%		
P2	Agastashe 'Blue Fortune'	Container Grown	2 Litre Pot	4	64	3%		
P3	Aster amellus	Container Grown	2 Litre Pot	4	64	3%		
P4	Astrantia major 'Shaggy'	Container Grown	2 Litre Pot	4	62	3%		
P5	Bistorta amplexicaulis 'Speciosa'	Container Grown	2 Litre Pot	4	62	3%		
P6	Calamintha nepeta	Container Grown	2 Litre Pot	4	62	3%		
P7	Echinacea purpurea 'Magnus'	Container Grown	2 Litre Pot	4	62	3%		
P8	Echinacea purpurea 'Rubinstern'	Container Grown	2 Litre Pot	4	62	3%		
P9	Epimedium x rubrum	Container Grown	2 Litre Pot	4	62	3%		
P10	Fragaria vesca var. semperflorens	Container Grown	2 Litre Pot	4	62	3%		
P11	Geranium phaeum 'Album'	Container Grown	2 Litre Pot	4	62	3%		
P12	Geranium phaeum 'Samobor'	Container Grown	2 Litre Pot	4	62	3%		
P13	Helianthemum nummularium	Container Grown	2 Litre Pot	4	62	3%		
P14	Hyssopus officinalis	Container Grown	2 Litre Pot	4	62	3%		
P15	Knautia macedonica	Container Grown	2 Litre Pot	4	62	3%		

P16	Lavandula angustifolia	Container Grown	2 Litre Pot	4	62	3%		
P17	Phlox paniculata 'Alma Jansson'	Container Grown	2 Litre Pot	4	62	3%		
P18	Salvia rosmarinus	Container Grown	2 Litre Pot	4	62	3%		
P19	Salvia nemorosa 'Caradonna'	Container Grown	2 Litre Pot	4	62	3%		
P20	Sanguisorba officinalis 'tanna'	Container Grown	2 Litre Pot	4	62	3%		
P21	Sedum telephium 'Matrona'	Container Grown	2 Litre Pot	4	62	3%		
P22	Stachys byzantina 'Big ears'	Container Grown	2 Litre Pot	4	62	3%		
P23	Thymus vulgaris	Container Grown	2 Litre Pot	4	62	3%		
P24	Thymus vulgaris 'Compactus'	Container Grown	2 Litre Pot	4	62	3%		
G1	Calamagrostis x acutiflora 'Karl Foerster'	Container Grown	3 Litre Pot	5	78	3%		
G2	Carex morrowi 'Ice Dance'	Container Grown	3 Litre Pot	4	62	3%		
G3	Deschampsia cespitosa 'Goldschleier'	Container Grown	3 Litre Pot	4	62	3%		
G4	Hakonechloa macra	Container Grown	3 Litre Pot	4	62	3%		
G5	Miscanthus sinensis 'Kleine Fontäne'	Container Grown	3 Litre Pot	4	62	3%		
G6	Miscanthus sinensis 'Yaku-jima'	Container Grown	3 Litre Pot	4	62	3%		
G7	Panicum virgatum 'Heavy Metal'	Container Grown	3 Litre Pot	4	62	3%		
L1	Allium caeruleum		Bulb	3	249	17%	Hand Sown	
L2	Allium 'Mont blanc'		Bulb	3	249	17%	Hand Sown	

L3	Crocus speciosus 'Artabir'		Bulb	3	249	17%	Hand Sown	
L4	Crocus tommasinianus		Bulb	3	249	17%	Hand Sown	
L5	Scilla bifolia 'Alba'		Bulb	3	234	16%	Hand Sown	
L6	Scilla bifolia		Bulb	3	234	16%	Hand Sown	

BROWN/GREEN ROOF SEED MIX								**153.5**
R1	Agrimonia eupatoria	Seed				4%		
R2	Agrostis capillaris	Seed				4%		
R3	Ajuga reptans	Seed				4%		
R4	Calendula Cyanus	Seed				4%		
R5	Campanula glomerata	Seed				4%		
R6	Centaurea cyanus	Seed				4%		
R7	Centaurea nigra	Seed				4%		
R8	Cynosurus cristatus	Seed				4%		
R9	Erysimum sp.	Seed				4%		
R10	Festuca rubra	Seed				4%		
R11	Gallium verum	Seed				4%		
R12	Leontodon hispidus	Seed				4%		
R13	Liastris spicata	Seed				4%		
R14	Linaria maroccana	Seed				4%		
R15	Linaria purpurea	Seed				4%		
R16	Lotus corniculatus	Seed				4%		
R17	Lunaria annua	Seed				4%		

R18	Myosotis arvensis	Seed				4%		
R19	Origanum vulgare	Seed				4%		
R20	Poa nemoralis	Seed				4%		
R21	Poa pratensis	Seed				4%		
R22	Poa trivialis	Seed				4%		
R23	Prunella vulgaris	Seed				4%		
R24	Stachys officinalis	Seed				4%		
R25	Vicia cracca	Seed				4%		