



## Preliminary Ecological Appraisal (Extended Phase 1 Habitat Survey)

Preliminary Ecological Assessment within bounds of site and pertaining to the proposed development, identifying species and habitats, including preliminary Bat scoping survey

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British Museum,  
Gt Russell Street, Bloomsbury,  
London WC1B 3DD

Ref No: 221127

|                  |  |
|------------------|--|
| Client:          | Mr William Horton<br>British Museum,<br>Gt Russell Street,<br>Bloomsbury,<br>London WC1B 3DD |
| Date instructed: | November 2022 & October 2023   |
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## Document Control

|                  | Project Information  |
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| Client           | British Museum   |
| Project Type     | Preliminary Ecological Appraisal                               |
| Project Name     | SWEC & ISS Project, British Museum                             |
| Project Location | British Museum, Gt Russell Street, Bloomsbury, London WC1B 3DD |

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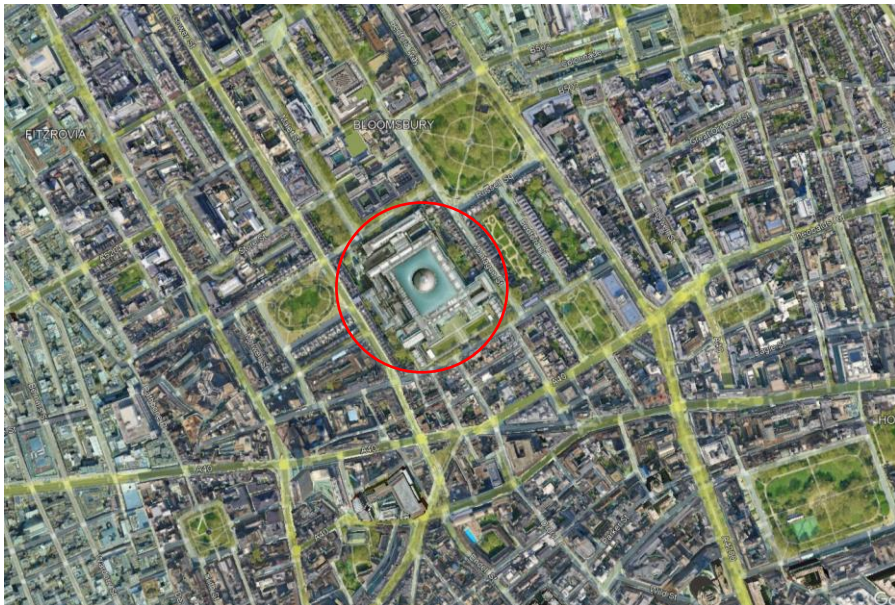
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| Purpose of Report   |   |                     | Site Boundary   |                                  |                          |
|---|---|---------------------|---|----------------------------------|--------------------------|
| <p>The Preliminary Ecological Appraisal Report (PEAR) was written to identify ecological constraints to the proposed project and make recommendations for further surveys, where required, to inform a detailed impact assessment. Where no further surveys are required, the report makes recommendations for avoidance measures or proportional mitigation and compensation measures required to avoid potential impacts from the proposals.</p> <p>Enhancement measures are outlined to meet the aims and objectives set out within national policies for biodiversity net gain.</p> |   |                     |  |                                  |                          |
| Method  |   |                     |   |                                  |                          |
| <p>The report is written in accordance with CIEEM's Guidelines for Preliminary Ecological Appraisal and includes</p> <ul style="list-style-type: none"><li>• A Desk Study:</li><li>• Habitat survey</li><li>• Preliminary habitat suitability assessments for notable and protected species</li></ul>   |   |                     |   |                                  |                          |
| Important Ecological Features   | Avoidance of Impacts through Design or Precautionary Method of Working (PMoW) | Mitigation Required | Compensation Required   | Enhancement Measures Recommended | Further Surveys Required |
| Birds   | •   |                     |   | •                                | •                        |
| Bats  | •   |                     |   | •                                |                          |

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## 1 Introduction

- 1.1.1 Writtle Forest Consultancy Ltd has been instructed by British Museum (the Client) in October 2022 to undertake a Preliminary Ecological Appraisal (PEA) of British Museum, Gt Russell Street, Bloomsbury, London WC1B 3DD (the Site) [Ordnance Survey (OS) grid reference TQ 299 834].
- 1.1.2 The Site is 0.84 ha and comprises a dense built structured environment, comprising primarily concrete, glass and stone structures. The site has an established row of London Planes to the front of the site (south) within Great Russell Street. The immediate neighbours to the east and west, have gardens that back on to the property, some of which have established trees within. There are pockets of green space to the west and north east of the site.
- 1.1.3 The development areas cover approx. 540m<sup>2</sup> (SWEC area) and 240m<sup>2</sup> (ISS area) within this boundary. These boundaries are presented in Figure 1.

Figure 1 – The Site's Boundaries

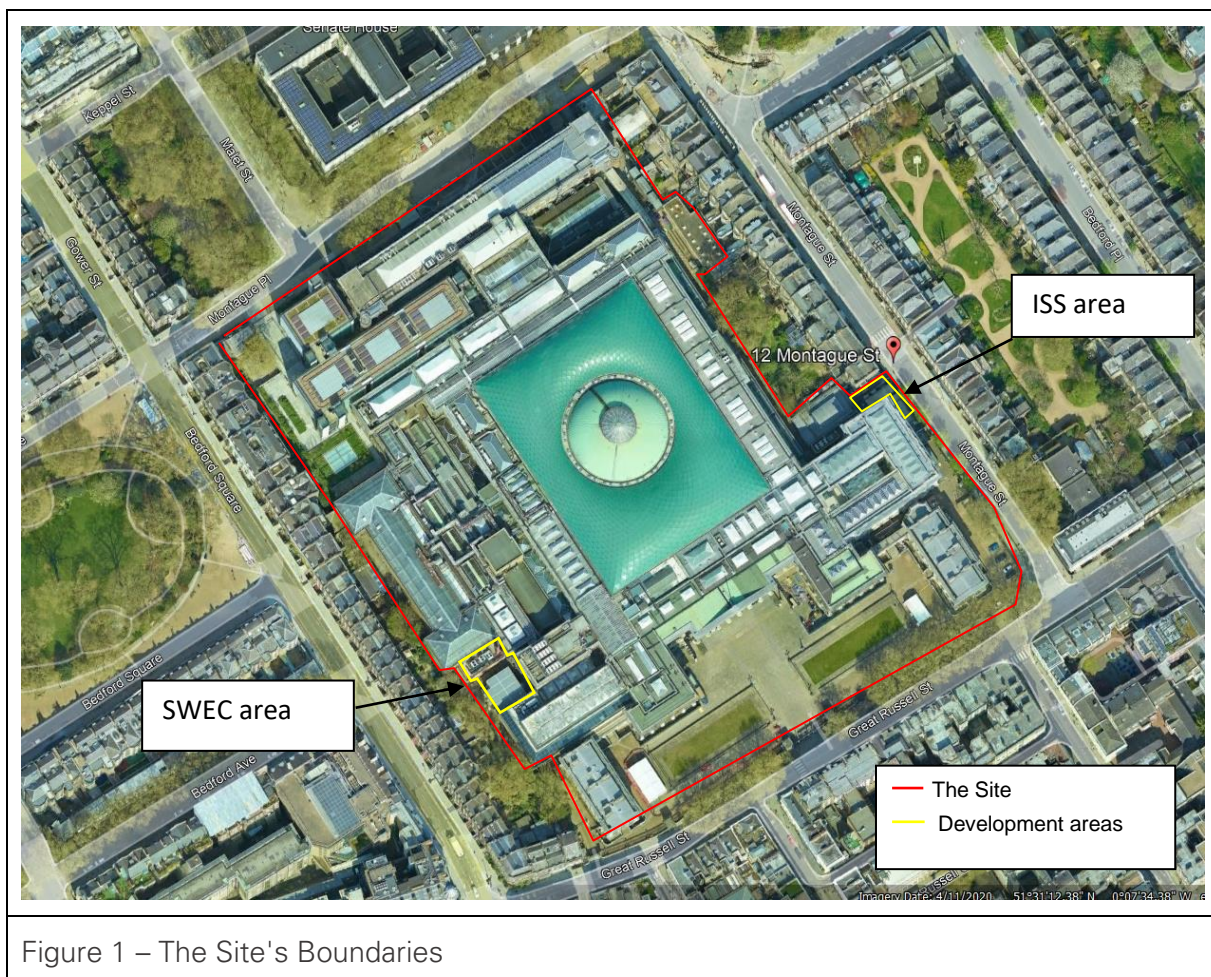


Figure 1 – The Site's Boundaries

- 1.1.4 The Client is submitting planning for the demolition of existing Energy Centre to internal West Road. Removal of temporary buildings to the south of the existing energy centre on the internal West Road and to the north and east of the White Wing facing Montague Street. Erection of new energy centre incorporating maintenance support accommodation to internal West Road, new substation off Montague Street, all together with associated internal and external works, service runs, erection of plant, landscaping, and temporary works associated with construction.
- 1.1.5 The PEA survey was undertaken on the 30<sup>th</sup> of November 2022. The SWEC site was reviewed along with a consideration of the ISS site as of the 10<sup>th</sup> October 2023. Please note that no aspect or consideration of the SWEC site had changed from the first visit.

## **1.2 Purpose of the Report**

- 1.2.1 This report has been written in accordance with the Chartered Institute for Ecological and Environmental Management's (CIEEM) guidelines for PEA and aims to:
- Identify key ecological constraints to the proposed development.
  - Identify any requirements for further surveys and set out the time frame in which they can be completed.
  - Inform the Client on where any significant ecological effects can be avoided or minimised where possible in line with legal and policy implications.
  - Make recommendations for enhancement where there are opportunities for the project to achieve a net gain in biodiversity in accordance with local and national policies.
- 1.2.2 All relevant planning policies and legislation are presented in **Appendix 1**.

## 2 Methodology

### 2.1 Study Area

- 2.1.1 The 'Study Area' is the area in which data has been collected in order to complete this assessment. This includes the habitats within the Site boundary, guideline search areas for species and the 'standard' desk study area which is based on the size and type of the proposed development, but which typically ranges from 500 m to 2 km.
- 2.1.2 The area used for the desk study is given in section 2.2, and search areas for each species considered within the survey, are presented in **Appendix 2**.

### 2.2 Desk Study

- 2.2.1 The local biological records centre (Greenspace Information for Greater London - GiGL) was contacted for records on local, national and internationally designated wildlife conservation sites, notable habitats and protected species within 2 km of the Site boundaries.
- 2.2.2 Information regarding the location of Protected Species Licences (PSL) granted by Natural England within 1 km of the Site has been obtained using the tools within the Multi-Agency Geographical Information Centre (MAGIC)  
<https://magic.defra.gov.uk/MagicMap.aspx> [Accessed 29/12/2022]
- 2.2.3 Aerial mapping has been used to provide the context of surrounding habitats.
- 2.2.4 This level of desk study is considered to be proportionate to the proposed development for which potential impacts are likely to be confined within the Site's boundaries.

## 2.3 Habitat Surveys

### 2.3.1 Habitat Survey

- 2.3.1.1 The habitats have been classified and mapped in accordance with the UK habitat classification system (Butcher et al (2020). The UK Habitat Classification User Manual 1.1 at <http://www.ukhab.org>).
- 2.3.1.2 The classifications used within this system are those used within the biodiversity metric 3.0 published by Natural England (Panks et al.,(2021). Biodiversity Metric 3.0: auditing and accounting for biodiversity value. User guide Natural England)
- 2.3.1.3 The habitat survey has been carried out within the Site's boundaries.

## 2.4 Suitable Habitat Assessments for Notable and Protected Species

- 2.4.1 In addition to the Phase 1 habitat survey, initial assessments have been undertaken to identify if the Site's habitats are suitable to support Species of Principal Importance (SPI) or other notable or legally protected species.
- 2.4.2 During the survey the surveyor has searched for and recorded suitable features within the habitats which can be used for breeding, foraging and/or create links to suitable habitats within the wider landscape for wildlife, in particular:
  - Terrestrial Invertebrate
  - Great Crested Newt (GCN) (*Triturus cristatus*)
  - Reptiles
  - Nesting bird and/or other notable or protected bird species
  - Bats
  - Water vole (*Arvicola amphibius*)
  - Otter (*Lutra lutra*)
  - Dormouse (*Muscardinus avellanarius*)
  - Badger (*Meles meles*)
  - Hedgehog (*Erinaceus europaeus*)
- 2.4.3 Although evidence of the presence of protected or notable species may be found during the initial survey (i.e. droppings, species in situ, nest, dens, or feeding remains, etc.), it is not guaranteed. Therefore, further surveys are recommended where suitable habitats are identified, and there is a requirement to establish the presence or likely absence of such species in order to complete an impact assessment.
- 2.4.4 In some cases, a worst-case scenario will be established to identify potential impacts from the proposed development where there are suitable habitats to support protected or notable species.
- 2.4.5 The field survey for all species was carried out within the Site's boundaries, and this area has been extended beyond the boundaries for great crested newt, badger, water vole and otter when there is likely to be an impact to them from the proposed development and where access outside the Site boundaries was available.



2.4.6 Details of the methodologies of initial surveys undertaken and habitat requirements for each of the species listed are presented in **Appendix 2** and summarised in Table 1 below.

Table 1 – Summary of Habitats and Survey Areas

| Ecological Feature       | Legal Status  | Typical Suitable Habitats <sup>a</sup>  | Survey Area <sup>b</sup>                            |
|--------------------------|---|---|---|
| Terrestrial invertebrate | <ul style="list-style-type: none"> <li>Approximately 400 species are SPI</li> </ul>           | <ul style="list-style-type: none"> <li>Grassland</li> <li>Woodland Rides</li> <li>Woodland Edges</li> <li>Ponds</li> <li>Riverbanks</li> <li>Hedgerows</li> </ul>   | Within the Sites boundaries.                        |
| Great crested newt       | <ul style="list-style-type: none"> <li>EPS</li> <li>WCA 1981 Sch 2</li> </ul>                 | <ul style="list-style-type: none"> <li>Ponds</li> <li>Rough grassland</li> <li>Scrub</li> <li>Hedgerows</li> <li>Woodland</li> <li>Rubble or Stockpiles</li> </ul>  | Within the Sites boundaries and up to 500 m beyond. |
| Reptiles                 | <ul style="list-style-type: none"> <li>WCA 1981 Sch 2 and Sch 5</li> </ul>                    | <ul style="list-style-type: none"> <li>Rough grassland</li> <li>Woodland edges</li> <li>Embankments</li> <li>Scrub</li> <li>Hedgerows</li> <li>Heathland</li> </ul>   | Within the Sites boundaries.                        |
| Birds                    | <ul style="list-style-type: none"> <li>WCA 1981 Sch 5 and some are listed in Sch 1</li> </ul> | <ul style="list-style-type: none"> <li>Buildings</li> <li>Brownfield sites</li> <li>Trees</li> <li>Woodland</li> <li>Grassland</li> <li>Amenity and residential open space</li> <li>Rivers</li> <li>Estuaries</li> <li>Costal</li> <li>Heathland</li> <li>Arable</li> <li>Pasture</li> </ul>                  | Within the Sites boundaries.                        |
| Bats                     | <ul style="list-style-type: none"> <li>EPS</li> <li>WCA 1981 Sch 2</li> </ul>                 | <p><b>Roosting</b></p> <ul style="list-style-type: none"> <li>Built structures</li> <li>Trees</li> </ul> <p><b>Foraging and Commuting</b></p> <ul style="list-style-type: none"> <li>Woodland</li> <li>Hedgerows</li> <li>Pasture</li> <li>Grassland</li> <li>Arable</li> <li>Rivers, streams, and</li> </ul> | Within the Sites boundaries.                        |

| Ecological Feature  | Legal Status  | Typical Suitable Habitats <sup>a</sup>  | Survey Area <sup>b</sup>                             |
|---|---|---|--|
|   |   | ponds   |  |
| Water vole  | <ul style="list-style-type: none"> <li>WCA 1981 Sch 2</li> </ul>                          | <ul style="list-style-type: none"> <li>Rivers</li> <li>Streams</li> <li>Ditches</li> <li>Ponds</li> <li>Lakes</li> </ul>                              | Within the Site's boundaries and up to 50 m beyond.  |
| Otter   | <ul style="list-style-type: none"> <li>EPS</li> <li>WCA 1981 Sections 9 and 11</li> </ul> | <ul style="list-style-type: none"> <li>Clean rivers</li> </ul>  | Within the Site's boundaries and up to 50 m beyond.  |
| Dormouse  | <ul style="list-style-type: none"> <li>EPS</li> <li>WCA 1981 Sch 5</li> </ul>             | <ul style="list-style-type: none"> <li>Hedgerows connections with to and woodlands and foraging resources</li> </ul>                                  | Within the Site's boundaries and up to 1 km beyond.  |
| Badger  | <ul style="list-style-type: none"> <li>Protection of Badgers Act 1992</li> </ul>          | <ul style="list-style-type: none"> <li>Embankments</li> <li>Woodlands</li> <li>Grassland</li> <li>Hedgerows</li> <li>Scrub</li> <li>Arable</li> </ul> | Within the Site's boundaries and up to 30 m beyond   |
| Hedgehog  | <ul style="list-style-type: none"> <li>SPI</li> </ul>                                     | <ul style="list-style-type: none"> <li>Grassland</li> <li>Gardens</li> <li>Woodland</li> <li>Pasture</li> <li>Arable</li> </ul>                       | Within the Site's boundaries and up to 500 m beyond. |
| <p>Notes:</p> <p>a – These are a list of the typical habitats these fauna are known to use, the surveyor has also checked for evidence of the species within the Site, and so there may be incidents when the animals are found in different habitats to those listed.</p> <p>b – The search for the areas beyond the Site's boundaries have only been conducted where suitable habitats are present for the species within the Site and where access is available.</p> <p>SPI – Species of Principal Importance</p> <p>EPS – European Protected Species</p> <p>WCA – the Wildlife and Countryside Act 1981</p> |   |   |  |

## **2.5 Preliminary Ecological Assessment**

- 2.5.1 Data from the survey will be analysed to provide recommendations for further surveys, avoidance measures, mitigation and/or compensation required for the ecological constraints identified within the Study Area.
- 2.5.2 Under the National Planning Policy Framework (NPPF) (DLUHC (2023), National Planning Policy Framework, HM Government) and the 25-year environmental plan, (Defra (2019), A Green Future: Our 25 Year Plan to Improve the Environment, HM Government), ( see **Appendix 1**) the government has set out policies and aims to deliver a net gain in biodiversity through improved green infrastructure and increased opportunities for wildlife. In accordance with these policies, enhancement measures are recommended for inclusion in the proposed development.

## **2.6 Limitations to the Surveys**

- 2.6.1 Any ecology assessment must be considered as a 'snapshot' of the site conditions at the time of the survey. Ecological constraints will change over time, and therefore the findings of this report are valid for a period of one year, after which the report should be reviewed to assess whether the survey should be updated.
- 2.6.2 No constraints were such that they affect the overall conclusions and recommendations made herein.

### 3 Baseline Ecological Conditions

#### 3.1 Desk Study

- 3.1.1 No European or national statutory designated sites for wildlife conservation are located within 1 km of the Site.
- 3.1.2 There is one Local Nature Reserve (LNR), an urban wild space containing a range of habitat examples created on former vacant land.

| Site Name                 | Designation | Distance and Location from the site | Habitat and Species included in the designation  |
|---------------------------|-------------|-------------------------------------|--|
| Camley Street Nature Park | LNR         | 1.6km north                         | a range of habitat examples educational resource |

- 3.1.3 Natural England has granted 1 Protected Species Licence for Bats within 1 km of the Site. The licence was granted in 2015 for the destruction of a resting place and is located 0.75 km north west of the Site.
- 3.1.4 There are 35 Sites of Importance for Nature Conservation (SINCs) as recognised by the Greater London Authority and London borough councils as important wildlife sites within 2km radius of the site.

#### 3.2 Habitats

- 3.2.1 The Site is located within the centre of London. The surrounding habitats are limited to small green spaces generally disconnected from each other and surrounded by the built environment.

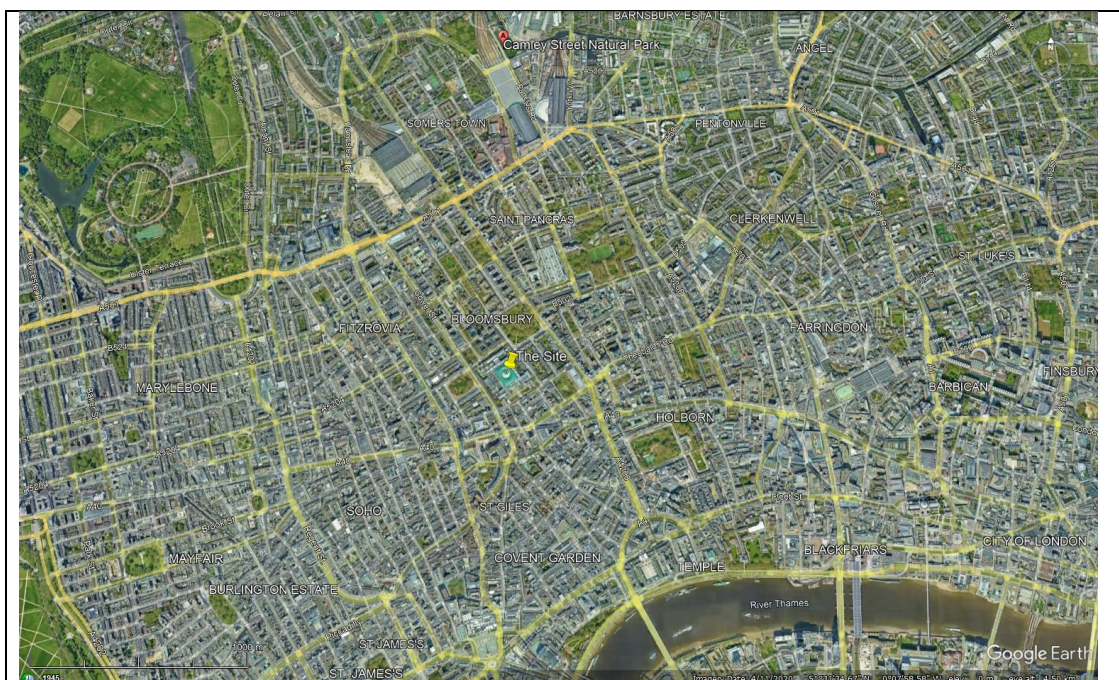


Fig. 2: Landscape context of site

- 3.2.2 The areas to be developed are 1) SWEC, to the west of the site, adjacent to neighbouring rear gardens. It consists of a three storey pre-fabricated building (assumed), primarily used for office space as well as a brick structure of similar height, housing various electrical and heating systems. 2) ISS, an area of 2 number porta cabins which are to be removed to allow the installation of an electricity sub-station.
- 3.2.3 There are a number of mature trees to the rear gardens of neighbouring properties abutting the British Museum site. These form a relatively linear row of trees to the west of the site (near to the SWEC area) within the rear gardens of third party properties. These comprise mature London Plane trees and Sycamore, as well as smaller semi-mature trees such as Cherry.
- 3.2.4 There are several council owned street trees nearby to the ISS area to be developed for an electric sub -station, Field Maple. There are a number of larger Plane trees further from the area of development within the front gardens areas of houses in Montague Street and a further London Plane within the grounds of the British Museum. None are of a distance to be affected by the proposed works
- 3.2.5 Immediately beyond the site there are tree lined streets to the north and south comprising primarily of London Plane trees.
- 3.2.6 To the immediate north east of the site is situated Russell Square Gardens, comprising of mature established trees and garden.
- 3.2.7 To the immediate west of the site is situated Bedford Square Gardens, comprising of mature established trees and garden.
- 3.2.8 Photographs of the site are presented in the Appendices.

### **3.3 Species**

- 3.3.1 Species for which there are potentially suitable habitats (including foraging areas) within the study area (see section 2.1) are discussed in this section and include:

- Nesting birds
- Bats

- 3.3.2 Species for which suitable habitats are not present within the study area have been scoped out and are not discussed further in this report.

#### **3.3.2 Nesting Birds**

- 3.3.3 The baseline data search returned 1000+ records of birds made up of 64 species.
- 3.3.4 Of these records, 6 species are likely to use the habitats connected with the Site for nesting, e.g. Greenfinch (*Chloris chloris*), House sparrow (*Passer domesticus*), and Starling (*Sturnus vulgaris*).
- 3.3.5 The trees within the Site are suitable for use by nesting birds as may be some of the buildings.





- 3.3.6 A collapsed nest was found assumed to be pigeons. within the fire escape stairwell of the SWEC brick built energy building, along with remnants of hatched eggs in Nov 2022.
- 3.3.7 As of October 2023 there were signs of potential roosting in the stairwell, but there were no signs of nests or nesting habits.
- 3.3.8 There were no signs of nests or roosting habits within the ISS area to be developed.
- 3.3.9 All wild birds in England and Wales, including pigeons, are “protected” under the Wildlife and Countryside Act 1981 (as amended). Under this Act, it is an offence to kill, injure or take any wild bird; take, damage or destroy the nest of any wild bird (while that nest is in use or being built); and take or destroy an egg of any wild bird.
- 3.3.10 Netting was evident at various areas of the fire escape stairwell of the SWEC brick built building. The assumed pigeon droppings discovered were not recent. Whilst it is possible this the netting has been breached, no birds were present at the time of the survey.
- 3.3.11 No nests were noted in trees immediately adjacent to the site.
- 3.3.12 The potential value of the nesting is considered to be relevant at a site level, with respect to the immediate surrounding trees. However, there were no signs that birds were utilising any aspect of the buildings to be demolished.



### **3.3.3 Bats**

- 3.3.13 The baseline data search returned 455 records of bats made up of 6 species. The most recent records being from 2020, 500m to the west of the Site, (*Pipistrellus sp.*)
- 3.3.14 A summary of preliminary roost appraisal of the buildings is presented in Table 2.
- 3.3.15 The buildings to be demolished both on SWEC and ISS areas are categorised as of low suitability to support roosting bats.
- 3.3.16 As of the SWEC site, there was access to the roof space of the brick built structure. This was occupied with various heating and cooling apparatus. The area did not showing any signs of suitable habitat for bats. There was pigeon netting erected to deter roosting birds from the area of the fire escape.
- 3.3.17 The side of the brick building was serviced by a fire escape. This was closely surrounded by brick built infrastructure. This showed no signs of Bat activity.
- 3.3.18 The roof of the 3 storey pre-fabricated building could be viewed from the roof of the brick built structure. This was a flat roof that offered no potential habitat for Bats.
- 3.3.19 The cladding to the pre-fabricated building revealed no signs of potential ingress and was generally secure, with no warp or deterioration to allow potential ingress.
- 3.3.20 None of the utility pipes or infrastructure appeared appropriate or utilized as roost or resting area for bats.


- 3.3.21 The fabricated building was generally utilized and appeared secure and air and water tight.
- 3.3.22 The brick built structure had open slats to the doors, behind the slats was mesh grill, approx. 1cm wide. None of these slatted areas showed signs of scratches that maybe attributed with regular bat ingress to the areas. Generally the surfaces were covered with dirt and grime, conditions not showing or associated with Bat ingress.
- 3.3.23 Some of the areas/ rooms were not accessible due to the electric generators stored posing a safety issue for ingress. However, there did not appear to be any suitable points of ingress that exhibited signs of bat activity, i.e. no droppings, scratch marks or other features discoverable which would indicate the presence of bats.
- 3.3.24 The surrounding environment as of the SWEC site does not offer particularly good forage or habitat.
- 3.3.25 The two porta cabin buildings to be demolished are temporary buildings. They are flat roofed and appear constructed of ply wood. It is understood they house general painting materials for the up keep of the building.
- 3.3.26 The buildings were erected on frames above the ground and there was cladding around the base of the buildings. One area was damaged and inspection revealed no signs of use by bats and that the area was not suited to bat activity.
- 3.3.27 There did not appear to be any signs of potential ingress to the temporary porta cabins such that could be utilised by Bats.
- 3.3.28 In accordance with the survey guidance, the buildings are categorised as of low suitability to support hibernating and non-breeding summer roosts.
- 3.3.29 There are approximately 20 trees bordering the site. None of these trees appeared to offer suitable bat habitat from a ground level inspection.
- 3.3.30 Habitats on the Site were of low suitability to support foraging and commuting bats. The linear planting of trees was surrounded by buildings and did not connect to green space or further linear tree planting in the area.
- 3.3.31 The Site is considered to have little importance on a local level for bats.

Table 2 – Structures Onsite


| ID                                       | Description  | Suit-ability | Photograph   |
|--|--|--------------|--|
| SWEC<br>Main brick<br>built<br>structure | <ul style="list-style-type: none"> <li>The building has open slats to the doors and ventilation areas. Behind the slats is a mesh grill, approx. 1cm wide</li> <li>The roof is flat and is occupied with various cooling and heating apparatus.</li> <li>There is a painted aluminium slat wall on top of the roof that conceals the various equipment.</li> <li>To the east of the build is a fire escape stair way. This was evidently used by roosting pigeons.</li> <li>There are some areas of disused, lagged pipes. None of which appear to be areas utilised by bats.</li> </ul> | Low          |   |

| ID                                      | Description   | Suit-ability | Photograph   |
|---|---|--------------|--|
|   |   |              |   |
| <p>SWEC<br/>Pre-fabricated building</p> | <ul style="list-style-type: none"> <li>• The building is clad all over with plastic.</li> <li>• The build has a flat roof, with plastic soffitt surround.</li> <li>• The facias and soffits were all tight with no signs of degradation or potential areas of ingress for Bats.</li> <li>• There are large areas of pipework to the east. None of these areas appeared to be utilised by bats.</li> </ul> | <p>Low</p>   |  |



| ID | Description | Suit-ability | Photograph   |
|----|-------------|--------------|--|
|    |             |              |  <p>The top photograph shows a rooftop installation of solar panels on a flat roof. The panels are arranged in a grid pattern. In the background, there are trees with autumn foliage and a construction crane. The bottom photograph is a low-angle shot looking up at a building facade, showing a complex network of black pipes and conduits running vertically alongside a brick wall and a metal structure.</p> |



| ID                                 | Description   | Suit-ability | Photograph  |
|------------------------------------|---|--------------|---|
| ISS<br>2 number<br>Porta<br>cabins | <p>The two porta cabin buildings to be demolished are flat roofed and appear constructed of ply wood.</p> <p>The buildings are erected on frames above the ground with cladding around the base of the buildings.</p> <p>There did not appear to be any signs of potential ingress to the temporary porta cabins such that could be utilised by Bats.</p> | Low          |  |



## 4 Ecological Constraints and Opportunities

### 4.1 Impact assessment

- 4.1.1 The proposed development will mean the demolition of the brick built structures as detailed below. There will be no loss of trees.



Fig.3. Buildings to be demolished outlined in red. SWEC top, ISS below

- 4.1.2 The impact assessment is based on the habitats which will be lost as part of the proposed development.
- 4.1.3 It is considered that there will be no loss or significant direct impact on the site or the surrounding area consequent to the proposed development.
- 4.1.4 The habitats and species identified in section 3.3, which could potentially be impacted by the proposed development include:
- Nesting Birds
  - Bats
- 4.1.5 The species for which precautionary methods of works during construction would be proportional, regarding the risk of impact from the proposed development, to protect them from death, injury or harm include nesting birds.
- 4.1.6 A further visual assessment for nesting birds will need to be undertaken prior to commencement of works to establish that there are no nesting birds. It should be noted that Pigeons can breed all year round.
- 4.1.7 The species for which impacts are unlikely, due to the scale of the works or lack of suitable habitats within the Site include:
- Bats
  - Terrestrial invertebrates
  - Dormouse
  - Great crested newts
  - Reptiles
  - Badger
  - Hedgehog
- 4.1.8 As such, these species are not discussed further in the report.
- 4.1.9 In addition, enhancement opportunities are presented for the following species based on the opportunities provided by the proposed development.
- Nesting birds
  - Bats

## **4.2 Nesting Birds**

- 4.2.1 It appears that since the inspection in November 2022 that no birds are utilising the area of the SWEC building stairwell.
- 4.2.2 Whilst there are droppings suggesting that the area may be used for roosting, these droppings are old. It is probable that the netting is appropriate to prevent birds gaining access into the area.
- 4.2.3 However, it is proposed as a precautionary measure to undertake a further survey of the areas prior to commencement of works, if the works are undertaken during




bird nesting season, (which is generally taken to run from March to September inclusive<sup>1</sup>).

- 4.2.4 Prior to the commencement of works (within 4 to 6 weeks), the fire escape stair well should be re-inspected to ensure that no birds have gained ingress to the area and have used the site for nesting.
- 4.2.5 If nesting is encountered, there is a risk of delay since an 'exclusion zone' may need to be set up around nests until young have fledged.
- 4.2.6 Following the application of nesting bird checks and compensation, the proposed development will have a minimal impact on nesting birds.

#### 4.2.2 Enhancement opportunities

- 4.2.7 Three bird boxes should be included within the final design of the development. Two of these boxes should be suitable for use by house sparrow (*Passer domesticus*).
- 4.2.8 The third box should be suitable for other garden birds such as a Robins and Wagtails.
- 4.2.9 It would not be appropriate to provide a nest box specifically for pigeons, primarily because of the quantity of droppings and debris arising from the birds. Within the confined space of the areas of the proposed development this would not be appropriate.
- 4.2.10 The boxes maybe be integrated into the facades of the new build and built from long-lasting materials such as woodcrete. Examples of the type of boxes which can be used are presented in Table 3.

Table 3 – Examples of Bird Boxes

| Description of Box  | Example Dimensions   | Example Image  |
|---|--|--|
| <p>A single-chambered box manufactured from WoodStone® with an entrance hole which is suitable for passerine birds such as tits, sparrows, nuthatches, and flycatchers.</p> <p>The box can be integrated or attached to brickwork or attached to trees.</p> | <p>Width: 200 mm</p> <p>Height: 310 mm</p> <p>Length: 200 mm</p> <p>Weight: 6.9 kg</p> |  <p>Photo Courtesy of Vivara pro</p> |

<sup>1</sup> This is a general guide only. Different species may nest at different times, and prevailing weather conditions may limit or expand the breeding season. Some species, such as pigeons and owls, can breed throughout the year in suitable conditions.

|   |  |   |
|---|--|---|
| <p>A double-chambered box manufactured from WoodStone® (a mix of concrete and FSC wood fibres) which provides two nesting chambers which provide a thermally stable environment.</p> <p>The box can be integrated into the brickwork or attached onto the façade.</p> | <p>Width: 290 mm<br/>Height: 210 mm<br/>Depth: 160 mm<br/>Weight: 7.5 kg</p>                                 |  <p>Photo Courtesy of Vivara pro</p>  |
| <p>WoodStone Build-in Open Nest Box is designed for use in new builds.</p> <p>The nest box is intended to be built into walls to provide nesting cavities.</p>  | <p>Width: 220 mm<br/>Height: 180 mm<br/>Depth: 180 mm<br/>Entrance Hole Height: 290 mm<br/>Weight: 4.4kg</p> |  <p>Photo Courtesy of CJ Wildlife</p> |

4.2.11 The sparrow terraces should be located on or within a façade close to vegetation and at a minimum of 2 m above the ground.

4.2.12 All Bird boxes should ideally be located away from windows or doors to prevent droppings causing future conflict.

### 4.3 Bats

4.3.1 No further survey is recommended to be carried out prior to the commencement of works to ascertain if the areas are utilized for temporary roost or resting.

4.3.2 It is recommended that lighting for the development is designed in accordance with the guidance set out in the Institute for Lighting Professionals' (ILP) note on bats and artificial lighting. This includes advice such as:

- Using luminaires that lack UV elements when manufactured.
- Using LED luminaires where possible.
- Adopting a warm white spectrum (ideally <2700 kelvin).
- Using luminaires which feature a peak wavelength higher than 550 nm.
- Setting any external security lighting on motion detectors and short (1 min) timers.
- Recessing internal luminaires where installed in proximity to windows to reduce glare and light spill.

4.3.3 It is also recommended that the boundary vegetation is not lit by external lighting so that a dark corridor is maintained around the Site.




4.3.4 Following the application of sensitive lighting design, the proposed development is likely to have a negligible impact on foraging and commuting bats.

#### 4.3.2 Enhancement opportunities

4.3.5 At least 1 box should be integrated into the new build. Examples of the type of boxes which can be used are presented in Table 4.

Table 4 – Examples of Bat Boxes

| Description of Box   | Example Dimensions  | Example Image   |
|--|---|---|
| <p>A single chamber box with a specially designed internal panel or feature which allows bats to hang upside down in the roost.</p> <p>It is recommended that boxes have open bottoms to allow droppings to fall out and not build up in the cavity.</p> <p>The box will provide a space within the façade for bats to roost but will prevent them from accessing the cavity walls.</p> <p>Boxes can have bespoke facings which allow them to match the wall in which they are integrated, including timber.</p> | <p>Width: 215 mm</p> <p>Height: 440 mm</p> <p>Depth: 102 mm</p> <p>Weight: 9 kg</p> |  <p>Photo courtesy of Habibat</p> |

4.3.6 The bat box should be located within a south facing façade, close to vegetation and a minimum of 3 metres from the ground. The box should not be directly lit or impacted by light spill from windows.

4.3.7 Bat boxes should ideally be located away from windows or doors to prevent droppings causing future conflict.

## 5 Conclusions

- 5.1.1 On the 10<sup>th</sup> October 2023 Writtle Forest Consultancy Ltd completed a PEA at the area referred to as SWEC (South West Energy Centre) and the ISS area (containing 2 number temporary pre-fabricated Porta-Cabins) at the British Museum.
- 5.1.2 With respect to the SWEC area of buildings this was a follow up survey from a survey undertaken on 30<sup>th</sup> of November 2022.
- 5.1.3 The survey identified two structures in the SWEC area, one constructed of brick and associated with energy apparatus and the other assumed pre-fabricated and used as offices.
- 5.1.4 The survey of the ISS area identified two number porta cabins used as storage areas for paint materials.
- 5.1.5 Both areas are set within the grounds of the British Museum within a heavily urbanised area of London.
- 5.1.6 Enhancement opportunities have been recommended in accordance with national policies for biodiversity net gain (See Appendix 1).

## Appendix 1 Legislation and Policy

Many active pieces of legislation are aimed at protecting wildlife and habitats within the UK. These are summarised in Table 5

Table 5 – Summary of Primary Legislation in the UK

| Legislation or Species                                    | Description   |
|---|---|
| The Wildlife and Countryside Act (WCA) 1981               | <p>The WCA is the primary piece of legislation relating to nature conservation in Great Britain. The Act is supplemented by provisions in the CRoW Act 2000 and the NERC Act 2006. It provides for the notification and confirmation of Sites of Special Scientific Interest by Natural England. It also sets out, in schedules, important and invasive species which are legally protected or require active management.</p> <p>The WCA consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the conservation of wild birds (Birds Directive) in Great Britain (NB Council Directive 79/409/EEC has now been replaced by Directive 2009/147/EC of the European Parliament and of the Council of 30th November 2009 on the conservation of wild birds (codified version)).</p>   |
| The Conservation of Habitats and Species Regulations 2017 | <p>The Conservation of Habitats and Species Regulations 2017 consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales. The Regulations came into force on 30th November 2017 and extend to England and Wales (including the adjacent territorial sea) and, to a limited extent, in Scotland (reserved matters) and Northern Ireland (excepted matters).</p> <p>The draft Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 were laid before Parliament on 28th January 2019. The draft Regulations ensure that the habitat and species protection and standards derived from EU law will continue to apply after the UK has left the European Union. This draft came into force on the exit day (31st January 2020).</p> |
| The Countryside and Rights of Way (CRoW) Act 2000         | <p>The CRoW applies to England and Wales only, received Royal Assent on 30th November 2000, with the provisions it contains being brought into force in incremental steps over subsequent years. Containing five Parts and 16 Schedules, the Act provides for public access on foot to certain types of land, amends the law relating to public rights of way, increases measures for the management and protection for Sites of Special Scientific Interest (SSSI) and strengthens wildlife enforcement legislation, and provides for better management of Areas of Outstanding Natural Beauty (AONB). The Act is compliant with the provisions of the European Convention on Human Rights, requiring consultation where the rights of the individual may be affected by these measures.</p>   |
| Natural Environment & Rural Communities                   | <p>The NERC places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.</p> <p>The NERC Act requires the Secretary of State to publish a list of habitats and</p>   |

| Legislation or Species | Description  |
|------------------------|--|
| (NERC) Act 2006        | <p>species which are of principal importance for the conservation of biodiversity in England. The list replaces the UK Biodiversity Action Plans (UKBAP) and has been drawn up in consultation with Natural England, as required by the Act.</p> <p>The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.</p> <p>Fifty-six habitats of principal importance (HPI) are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. Of most relevance to the Site, they include ponds, open mosaic habitats on previously developed land and lowland heathland.</p> <p>There are 943 species of principal importance (SPI) included on the S41 list. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework.</p> |
| Non-native species     | <p>Certain non-native plants and animals are recognised as invasive. The WCA makes it an offence to:</p> <ul style="list-style-type: none"> <li>• Release or allow to escape into the wild any animal which is not ordinarily resident in Great Britain and is not a regular visitor to Great Britain in a wild state or is listed in Schedule 9 to the Act.</li> <li>• Plant or otherwise cause to grow in the wild any plant listed in Schedule 9 to the Act.</li> <li>• Sell, offer, or expose for sale, or possess or transport for the purposes of sale, non-native species that are listed in Schedule 9.</li> </ul> <p>Species control agreements and orders can be made by environmental authorities to ensure that landowners take action on invasive non-native species. The NERC Act allows the Secretary of State to issue or approve codes of practice on invasive species. The codes alone cannot be used to prosecute but must be taken into account by a court in any case in which they appear to the court to be relevant.</p>   |
| Great Crested Newts    | <p>Great crested newts are protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 making them a protected species. The Regulations state that:</p> <p>(1) A person who—</p> <ul style="list-style-type: none"> <li>(a) deliberately captures, injures, or kills any wild animal of a European protected species</li> <li>(b) deliberately disturbs wild animals of any such species</li> <li>(c) deliberately takes or destroys the eggs of such an animal</li> <li>(d) damages or destroys a breeding site or resting place of such an animal is guilty of an offence.</li> </ul> <p>(2) For the purposes of paragraph (1)(b), disturbance of animals includes, in particular, any disturbance which is likely—</p> <ul style="list-style-type: none"> <li>(a) to impair their ability— <ul style="list-style-type: none"> <li>(i) to survive, to breed or reproduce, or to rear or nurture their young, or</li> </ul> </li> </ul>   |

| Legislation or Species | Description  |
|------------------------|--|
|                        | <p>(ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate, or</p> <p>(b) to affect significantly the local distribution or abundance of the species to which they belong.</p> <p>Offences under the Habitats Regulations can be licensed by Natural England for a number of purposes, including 'imperative reasons of overriding public interest', which can include development. Licences can only be issued where full survey data is available, where there is no satisfactory alternative and where the action authorised will not adversely affect the favourable conservation status of the species involved.</p>   |
| Reptiles               | <p>All UK native reptile species are protected by law. The Wildlife &amp; Countryside Act 1981 (and later amendments) provides the legal framework for this protection which makes it an offence to intentionally (or recklessly, in Scottish law) kill or injure a reptile.</p> <p>Sand lizard and smooth snake and their places of shelter have the greatest level of legal protection under Schedule 2 of the Conservation of Habitats and Species Regulations.</p>   |
| Nesting Birds          | <p>All wild bird nests are protected under The Wildlife and Countryside Act 1981 (as amended), making it an offence to:</p> <ul style="list-style-type: none"> <li>• Intentionally kill, injure, or take any wild bird or their eggs or nests (with certain exceptions). •</li> <li>• Disturb any bird species listed under Schedule 1 to the Act, or it's dependent young while it is nesting.</li> <li>• Nests of the golden eagle, white-tailed eagle and osprey are protected year-round.</li> </ul>   |
| Bats                   | <p>All species of bat in Britain are protected species under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, and the Wildlife and Countryside Act 1981, as amended by the Countryside &amp; Rights of Way Act 2000. These pieces of legislation combine to give substantial protection to bats and their habitats, making it an offence to:</p> <ul style="list-style-type: none"> <li>• Deliberately capture, injure, or kill a bat. • Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats.</li> <li>• Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time).</li> <li>• Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat. • Intentionally or recklessly obstruct access to a bat roost.</li> </ul> <p>The Natural Environment &amp; Rural Communities (NERC) Act 2006 places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.</p> |
| Water vole             | <p>The water vole is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 and is a priority conservation species making it an offence to:</p> <ul style="list-style-type: none"> <li>• intentionally capture, kill, or injure water voles</li> <li>• damage, destroy or block access to their places of shelter or protection (on purpose or by not taking enough care)</li> <li>• disturb them in a place of shelter or protection (on purpose or by not taking enough care)</li> </ul>  |



| Legislation or Species | Description  |
|------------------------|--|
|                        | <ul style="list-style-type: none"> <li>possess, sell, control or transport live or dead water voles or parts of them (not water voles bred in captivity)</li> </ul>  |
| Otters                 | <p>The Eurasian otter is the only native UK otter species. It's a protected species under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and is also protected under sections 9 and 11 of the Wildlife and Countryside Act 1981 making it an offence to:</p> <ul style="list-style-type: none"> <li>capture, kill, disturb, or injure otters (on purpose or by not taking enough care)</li> <li>damage or destroy a breeding or resting place (deliberately or by not taking enough care)</li> <li>obstruct access to their resting or sheltering places (deliberately or by not taking enough care)</li> <li>possess, sell, control or transport live or dead otters, or parts of otters</li> </ul>        |
| Hazel Dormice          | <p>Hazel dormice, their breeding sites and resting places are fully protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and under Schedule 5 of the Wildlife and Countryside Act 1981 making it an offence to:</p> <ul style="list-style-type: none"> <li>deliberately capture, injure, or kill hazel dormice</li> <li>damage or destroy a dormouse resting place or breeding site</li> <li>deliberately or recklessly disturb a hazel dormouse while it's in a structure or place of shelter or protection</li> <li>block access to structures or places of shelter or protection</li> <li>possess, sell, control or transport live or dead hazel dormice, or parts of hazel dormice</li> </ul> |
| Badgers                | <p>Badgers are protected, and so are the setts (burrows) they live in. Under the Protection of Badgers Act 1992, in England and Wales (the law is different in Scotland) it is an offence to:</p> <ul style="list-style-type: none"> <li>Wilfully kill, injure, or take a badger (or attempt to do so).</li> <li>Cruelly ill-treat a badger.</li> <li>Dig for a badger.</li> <li>Intentionally or recklessly damage or destroy a badger sett or obstruct access to it.</li> <li>Cause a dog to enter a badger sett.</li> <li>Disturb a badger when it is occupying a sett.</li> </ul>  |
| Hedgehogs              | <p>Hedgehogs are protected, in England, Scotland and Wales, under the Wildlife and Countryside Act 1981, Schedule 6 and in Northern Ireland under the Wildlife (NI) Order 1985, Schedules 6&amp;7. This means they are protected from being killed or taken by certain methods under Section 11(1) of the Wildlife and Countryside Act 1981.</p> <p>Hedgehogs are also Species of Principal Importance (SPI) included on the S41 list (See NERC above).</p>  |

## Policy

### National Planning Policy Framework (NPPF) (2023)

Chapter 15 of the National Planning Policy Framework (NPPF) aims at conserving and enhancing the natural environment and states that planning policies and decisions should contribute to and enhance the natural and local environment. In terms of biodiversity, this should be achieved by:

- protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils,
- recognising the intrinsic character and beauty of the countryside, and wider benefits from natural capital and ecosystem services, and
- minimising impacts on and providing net gains for biodiversity by establishing coherent ecological networks that are more resilient to current and future pressures.

The NPPF states that to protect and enhance biodiversity, [local] plans should:

- identify and safeguard components of wildlife-rich habitats and wider ecological networks, and
- promote the conservation and enhancement of priority habitats and ecological networks and the protection and recovery of priority species.

The NPPF states that when determining planning applications, local planning authorities should refuse applications which:

- cause significant harm to biodiversity which cannot be avoided, adequately mitigated or as a last resort, compensated for,
- plan to develop on land within or outside of a Site of Special Scientific Interest (SSSI) and which is likely to have an adverse effect on it (either individually or in combination with other developments) and/or
- result in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) unless there are wholly exceptional reasons and where a suitable compensation strategy exists.

The local planning authority should support developments whose primary objective is to conserve or enhance biodiversity, especially where this can secure measurable net gains in biodiversity.

### HM Government – 25 Year Environment Plan

The 25-year plan to improve the environment sets out what the government intends to do to increase biodiversity, reduce climate change and secure ecosystem services. It aims to deliver cleaner air and water, protect threatened species, and provide richer wildlife habitats.

## Appendix 2 Preliminary Species Survey Methodologies

### Terrestrial Invertebrates

There are approximately 400 species of terrestrial invertebrate which are Species of Principal Importance within the UK (see Table 5).

Ecological ranges and requirements can vary greatly for different invertebrates from a micro to macro scale. Habitats need to provide resources to support the entire lifecycle within a species' range, e.g. some butterflies require a matrix of grasses and flowers for developing larvae and nectar-filled flowers to feed the adults. A diverse variety of terrestrial invertebrates are found in areas that contain ecotones. These are defined as "a region of transition between two biological communities," i.e. a woodland edge, where a grassland meets a hedgerow or other mosaics of habitats. Other indicators for potentially important invertebrate sites include those with less common habitats, such as heathland or dead wood.

The preliminary survey will identify if there are suitable matrices of habitats, ecological ecotones and/or connectivity to suitable habitats within the wider landscape to support a diverse range of terrestrial invertebrates.

The survey was carried out within the Sites boundaries.

### Great Crested Newts (GCN)

Great Crested Newts (GCN) *Triturus cristatus* require aquatic habitats for breeding and terrestrial habitats for foraging, sheltering and hibernation. Breeding occurs in the spring (typically between March and June) with much of the newt's lifecycle spent within the terrestrial habitats. Juvenile newts normally take 2 to 4 years to reach sexual maturity and so spend most of their time in terrestrial habitats.

GCN are known to travel up to 500 m from breeding ponds and require terrestrial habitats which allow them to shelter from excessive heat, dryness, and predators whilst foraging for prey species. GCN hibernate during the winter months underground or under a structure that protects against frost, flooding, and predators; typically logs, vegetation piles, rocks/stone, etc. Optimal habitats generally include grassland, scrub, woodland, hedgerows, and waste-ground with some green connections to ponds, within approximately 500 m.

Natural England provides a risk matrix that uses the distance of ponds from a site and the area of a proposed development site to determine if an offence is likely. The distance bands used in the matrix are:

- Pond Onsite
- Land within 100 m from ponds
- Land within 100-250 m from ponds
- Land >250 m from ponds

Aerial and OS mapping will be used to identify the presence and location of ponds within 500 m of the Site. Natural England's risk matrix will then be used to identify if an offence is likely and in what distance to the Site. For the purpose of this exercise, all ponds identified are assumed to be breeding ponds.

Any ponds within the distance bands in which an offence is likely, and for which there is access, will be subject to a Habitat Suitability Index (HSI) assessment.

The assessment involves putting parameters about the pond's habitats (size of the pond, percentage of vegetation cover, water quality, etc. into a calculator to get an HSI value. The calculated HSI for a pond provides a score between 0 and 1. The pond's HSI can then be compared to the ranges of pond suitability, as shown in Table 6. An inference can then be made between the HSI of the pond and the likelihood of great crested newt presence.

Table 6 – Habitat Suitability Scores

| HSI Score | Classification |
|-----------|----------------|
| <0.5      | Poor           |
| 0.5-0.59  | Below Average  |
| 0.6-0.69  | Average        |
| 0.7-0.79  | Good           |
| >0.8      | Excellent      |

## Reptiles

There are four relatively widespread native species of reptiles in Britain, namely adder *Vipera berus*, grass snake *Natrix natrix*, slow worm *Anguis fragilis*, and common lizard *Zootoca vivipara*. All of these species are protected from intentional killing or injury (but their habitat is not specially protected).

These species can be found in a broad range of habitats including grassland, open woodland, grassy scrub and, in the case of grass snakes, wetland. Reptiles require open areas to bask, sheltered areas to hide from excessive heat and predators and protected areas for hibernation. A typical habitat considered suitable for reptiles will be comprised of a matrix of structures that allow for some or all the reptile's requirements, i.e. grassland with patches of scrub.

The habitats within the Site's boundaries were assessed for their suitability to support reptiles.

## Nesting Birds

All birds and their active nests are protected in the UK (including feral pigeon). Some species are included on Schedule 1 of the WCA 1981 and are afforded greater protection.

Birds will create nests in a variety of habitats depending on the species. Most require sheltered areas such as vegetation or voids and crevices within man-made structures. Others will nest on flat surfaces, whilst some prefer specific habitats such as barn swallow *Hirundo rustica* or barn owl *Tyto alba*.

The habitats within the Site's boundaries were investigated for the presence of active or old nests. An appraisal was also made of the suitability of habitats to support nesting birds and which species or group are most likely to be found within the Sites habitats.



## Bats

A preliminary survey for bats identifies if there are habitats and/or structures present within the Site which have suitable features that can be used for roosting, foraging and/or commuting bats. An assessment was made as to whether a development will directly or indirectly impact a roost.

### Preliminary Roost Appraisal

A Preliminary Roost Appraisal (PRA) for bats was undertaken in accordance with the Bat Conservation Trust's bat survey guidelines. The PRA was undertaken on all buildings and trees within the Sites boundaries.

The PRA identified the type and number features within the structures which are suitable for use by roosting bats. A suitable feature will be a sheltered void or crevice in which individual bats can roost or in which several bats can gather. The structures have been categorised in accordance with the criteria set out within the guidelines and recreated in Table 7 for reference.

Table 7 – Bat Roost Suitability Categories

| Suitability Categorisation | Description of Roosting habitat  |
|----------------------------|--|
| Negligible                 | Negligible habitat features onsite likely to be used roosting bats.  |
| Low                        | <p>A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions, and/or suitable surrounding habitat to be used regularly or by larger numbers of bats (i.e. unlikely be suitable for maternity or hibernation).</p> <p>A tree of sufficient size and age to contain PRFs but none seen from the ground or features seen with only very limited roosting potential.</p> |
| Moderate                   | A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat, but unlikely to support a roost of high conservation status.  |
| High                       | A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat. Likely to be used as maternity or hibernation roosts.   |

Evidence such as bats in situ, droppings, and staining from urine or oils from the bat's fur, has also be searched for during the preliminary survey. However, bats can roost in areas inaccessible during a preliminary survey such as between roof tiles of lining and so this evidence may not always be found.

The number of further surveys and timings (if required) are based on the categorisation of the suitability of a structure to support roosting bats.

## Foraging and Commuting

In accordance with the guidelines, the Site's habitats were evaluated for the suitability to be used for foraging and commuting bats. The categorisations are based on the criteria set out in the guidance and recreated in Table 8.

Table 8 – Bat Foraging and Commuting Suitability Categories

| Suitability Categorisation | Commuting and Foraging Habitats   |
|----------------------------|---|
| Negligible                 | Negligible habitat features onsite likely to be used by commuting or foraging bats.   |
| Low                        | <p>Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by another habitat.</p> <p>Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.</p>   |
| Moderate                   | <p>Continuous habitat connected with the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland, or water.</p>   |
| High                       | <p>Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge.</p> <p>High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses, and grazed parkland. Site is close to and connected to known roosts.</p> |

The preliminary bat surveys were carried out within the Sites boundaries, except in instances where neighbouring structures will be adversely affected by the proposed development. In which case, these structures were also assessed where access was possible.

## Water vole and Otters

Water voles and otters require riverine habitats to support breeding, foraging, and sheltering.

The water vole lives along rivers, streams, and ditches, around ponds and lakes, and in marshes, reedbeds and areas of wet moorland. The otter requires clean rivers, with an abundant source of food and plenty of vegetation to hide their secluded holts.

Evidence of water vole will be investigated and include the presence of burrows along the banks, feeding remains and droppings. The survey area included the length of the suitable habitat within the Site's boundaries and up to 50 m outside of the boundaries if access was possible.

Evidence of otter will include the presence of holts, footprints, or spraints. The survey area included the length of the river within the Site's boundaries and up to 50 m beyond if access was available.

## **Dormice**

Dormice live in deciduous woodland, hedgerows, and dense scrub, and spends most of the spring and summer up in the branches, rarely coming down to the ground. It eats buds, hazelnuts, berries, and insects. Hazel dormice build nests out of grasses, stripped honeysuckle bark and fresh hazel leaves, in which the female will give birth to up to seven young. They hibernate during the winter months, either on the ground (under logs, leaves, in grass tussocks and at the base of trees) or just beneath the ground where the temperature is more constant.

The habitats within the Site's boundaries and connectivity to suitable habitats in the wider landscape have been evaluated to determine the suitability of the Site to support dormice.

## **Badgers**

Badgers are found across the UK, with the highest numbers in southern England. The ideal badger habitat is a mixture of woodland and open country.

The species lives in a network of underground burrows and tunnels known as a sett. Each badger territory will include a main sett and several smaller outlying setts. The main sett is the group's headquarters, where they spend most of their time and rear their young. Outlying setts are smaller and provide a safe place to retreat to if needed when badgers are out foraging. Setts tend to be located in the shelter of woodland, with the badgers emerging at night to forage in fields and meadows.

Though not as common as urban foxes, badgers can also survive in towns and cities, providing there is suitable cover in which to dig their setts and nearby gardens and parks where they can hunt for food.

The presence of setts has been investigated during the survey within the Site and up to 30 m from the Site's boundaries (where access was available). In addition, evidence of badgers has been searched for including foraging holes, latrines, scratch posts and hairs.

## **Hedgehogs**

Hedgehogs are known to travel around one mile every night through parks and garden foraging for food and looking for mates. Grassland, hedgerows, and shrub are considered to provide suitable foraging habitat. Compost, log piles, and hedgerows are suitable for nesting and hibernating hedgehogs.

The habitats within the Site's boundaries and connectivity to suitable habitats in the wider landscape have been assessed for their suitability to support hedgehogs.



## Appendix 3 Photographs

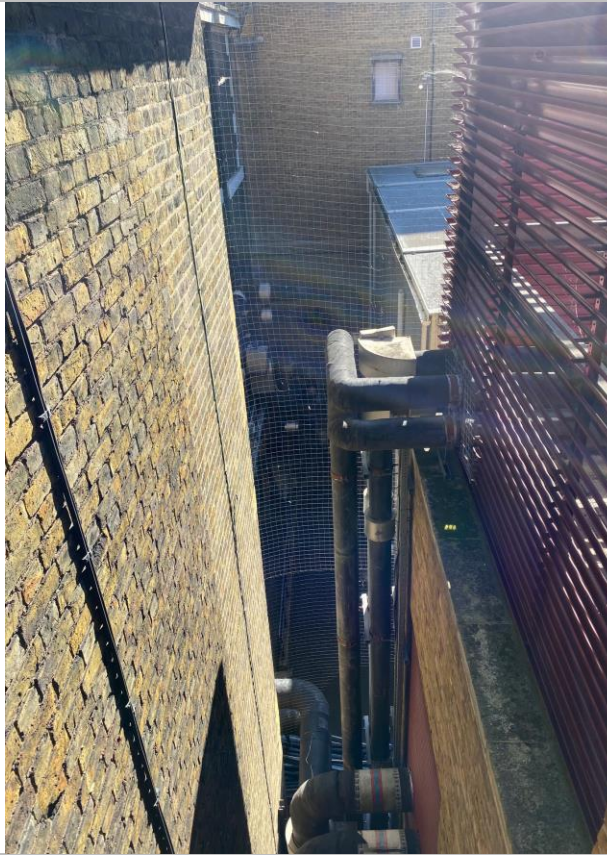


Photo 1 – Showing netting in place across fire well escape, east of the brick built energy building



Photo 2 – Showing netting in place at top of fire well escape of the brick built energy building



Photo 3 – Showing area of old pigeon roost

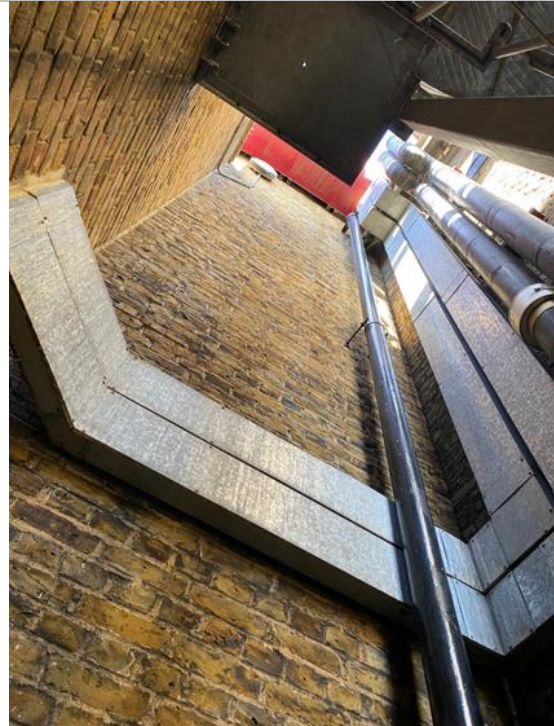


Photo 4 – Overview of fire escape well looking upward





Photo 5 – Over view of pre -fabricated office area



Photo 6 – Over view of brick building housing energy apparatus



Photo 7 – Porta cabins viewed from west to east



Photo 8 – Side of Porta cabin used for storage of desks etc