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Twickenham Film Studios, Twickenham

Preliminary Ecological Appraisal

November 2023

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0. Executive Summary

This report has been prepared at the request of Twickenham Properties LLP (Client). It relates to the proposed re-development works at Twickenham Film Studios, The Barons, St. Margarets, Twickenham, Greater London, TW1 2AW (Central OS Grid Reference: TQ 16944 74344). This survey effort involved both a desktop study and field survey being undertaken.

The proposed works will see the implementation of the phase one groundworks of the Twickenham Film Studios development project. Phase one will include improvements to the south-east boundary wall (specifically the stripping back of the pebbledash render and the application of micro-cement and paint) and low impact resurfacing and landscaping. Please see **Appendix A** for more details.

Greenspace Information for Greater London (GIGL) was commissioned to carry out an ecological data search of all protected species and sites recorded within a 2km radius of the site. No records lay on the proposed re-development site itself, although a number of records are present in close proximity. Please see **Section 3** for a review of the records revealed.

The preliminary ecological appraisal survey revealed multiple habitats on site. The phase 1 habitat map, habitat codes and target notes for the site are located within **Appendix D**. The following habitats were recorded on site (in habitat code order):

- **A3.3** – Mixed Scattered Trees
- **J1.3 –** Short Ephemeral
- **J1.4** – Introduced Shrub
- **J2.4** – Fence
- **J2.5** – Wall
- **J3.6** – Buildings
- **J4** – Hard Standing Ground

Designated Sites:
No designated sites that were revealed by the ecological data search provided by GIGL fell on the proposed re-development site itself. In fact, the site is located within an Area of Deficiency in Access to Nature, which is an urban area located more than 1km walking distance from a Site of Importance for Nature Conservation (Metropolitan or Borough tier). However, Local tier SINCs were present within 1km. Overall, the proposed re-development will have no impact upon any local designated sites as the works are due to remain within the site boundary.

Habitats:
Priority Habitats: No habitats of conservation concern were located on the site itself. Therefore, the proposed scheme of works will not impact upon any rare or valuable habitats.

Species:

Bats: Due to the suitable foraging and commuting habitat found on the site, no artificial lighting is preferred on the exterior of the new buildings. If artificial lighting is necessary, a sensitive lighting scheme is required to ensure that no impacts occur on foraging and commuting individuals. This will involve downward pointing lights and motion-sensor lights (please see **Appendix G** for more information on bats and artificial lighting). The site can also be enhanced for bats post-development (please see **Section 5.4**).

Birds: Due to the presence of suitable bird breeding habitat within the site, all works should be undertaken outside of the bird breeding season (March to August). If vegetation, including the two manna ash (Fraxinus ornus) trees off-site, and/or structures are required to be removed during the bird breeding season, then a further inspection by a suitably qualified ecologist is required no more than twenty-four hours before these are to be removed. This is to ensure that no active nest site is illegally destroyed, due to the protection afforded to all active bird nests under the Wildlife and Countryside Act 1981. If an active nest is found by a site inspection, an exclusion zone around the nest will be necessary, where no vegetation removal can take place, to preserve this feature until the chicks have fledged the nest.

Hedgehogs (Erinaceus europaeus): If shrub, dense vegetation, or the piles of construction materials (including tubing) are cleared between the 1st of November and the 31st of March, then an inspection by a suitably qualified ecologist is required to ensure no hibernating hedgehogs are present on site. It is recommended that precautionary measures are incorporated if construction is undertaken at other times of the year. This will be to create provisions for hedgehogs to escape from all trenches dug into the ground, by creating slopes or providing ramps at the end of each working day. Additionally, any pipework left on site that is greater than 150mm in diameter will need to be planked off. Should this information be strictly adhered to, then the development works will not negatively impact on the local mammal populations.

Site Enhancements:

For the proposed site enhancements, please see **Section 5.4** of this report.

Biodiversity Net Gain:

Biodiversity Net Gain needs to be ensured within the scheme of works and this will be devised utilising the latest DEFRA metric. A feasibility report will be required to determine if a net gain is possible on site.

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1. Introduction

1.1 Report Rationale

This report has been prepared at the request of Twickenham Properties LLP (Client). It relates to the proposed re-development works at Twickenham Film Studios, The Barons, St Margarets, Twickenham, Greater London, TW1 2AW (Central OS Grid Reference: TQ 16944 74344).

The main purpose of this assessment is to identify the broad habitats (as stated in the JNCC Phase 1 Handbook) and the flora species present within the survey area, with any further evidence of protected species usage and/or features of potential ecological interest also included.

The scope of this report is limited to identifying whether the phase one groundworks of the Twickenham Film Studios development project will have an adverse impact on ecology. The impact of subsequent phases of the proposed works is outside of the scope of this report. A previous report, considering all phases of the proposed works, was conducted by Elite Ecology in 2021 ('Twickenham Film Studios, Twickenham – Elite Ecology Preliminary Ecological Assessment & Bat Activity Survey Report [September 2021]').

The survey effort involved both a desktop study and field survey being undertaken. The field survey was carried out on the 15th of November 2023 by **Mr. Lewis Simpson:** Natural England GCN Licence Number: 2023-11542-CL08-GCN, BSc (Hons), Assistant Ecologist and **Mr. Matthew Nixon:** BSc (Hons), Assistant Ecologist.

1.2 Site Description and Works

The site is situated within the urban setting of the suburban district of Twickenham in the county of Greater London, approximately 15.9km to the south-west of central London.

The site measures approximately 1ha and contains several habitats. These consist of buildings, hard standing ground, introduced shrub, mixed scattered trees, and short ephemeral. The habitats on site have the potential to support several protected species. Photographs of the site are found within **Appendix E**.

Within the wider landscape, further habitats are present. These come in the form of amenity grassland, arable land, buildings (and their associated gardens/yards), hedgerows, mixed scattered trees, standing water, running water (the river Thames), and woodland. This shows that the habitats in the area surrounding the site have the potential to support protected species.

The proposed works will see the implementation of the phase one groundworks of the Twickenham Film Studios development project. Phase one will include improvements to the south-east boundary wall (specifically the stripping back of the pebbledash render and the application of micro-cement and paint) and low impact resurfacing and landscaping. These works will result in both the permanent and temporary loss and/or alteration of some of the habitats located in the proposed re-development site.

Figure 1: An aerial map showing the boundary of the site at Twickenham Film Studios, Twickenham (as shown by the red outline).

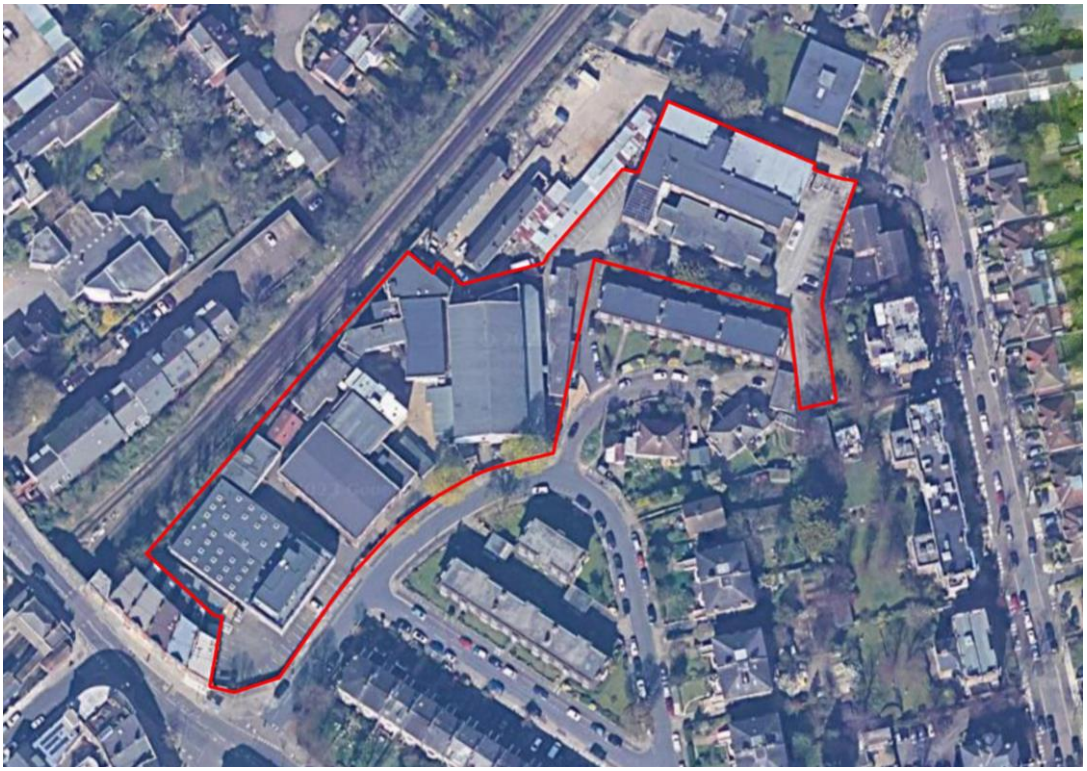


Figure 2: An aerial map showing the site at Twickenham Film Studios, Twickenham (as shown by the yellow star) in relation to some of the local landscape.

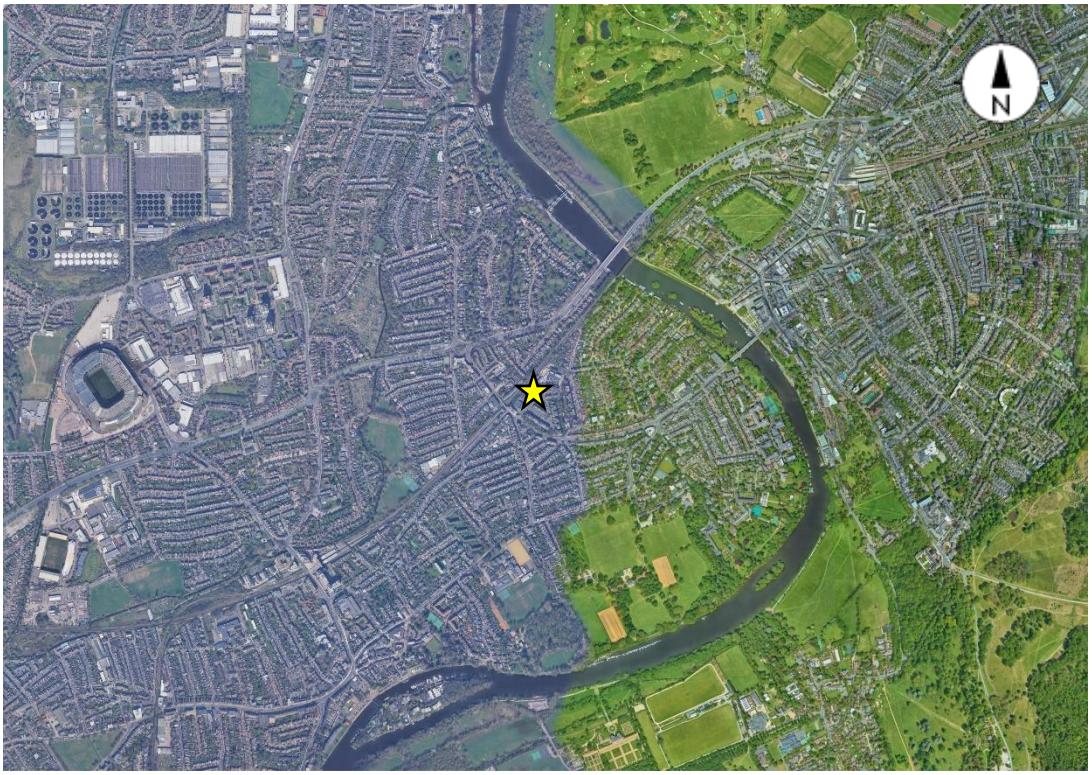
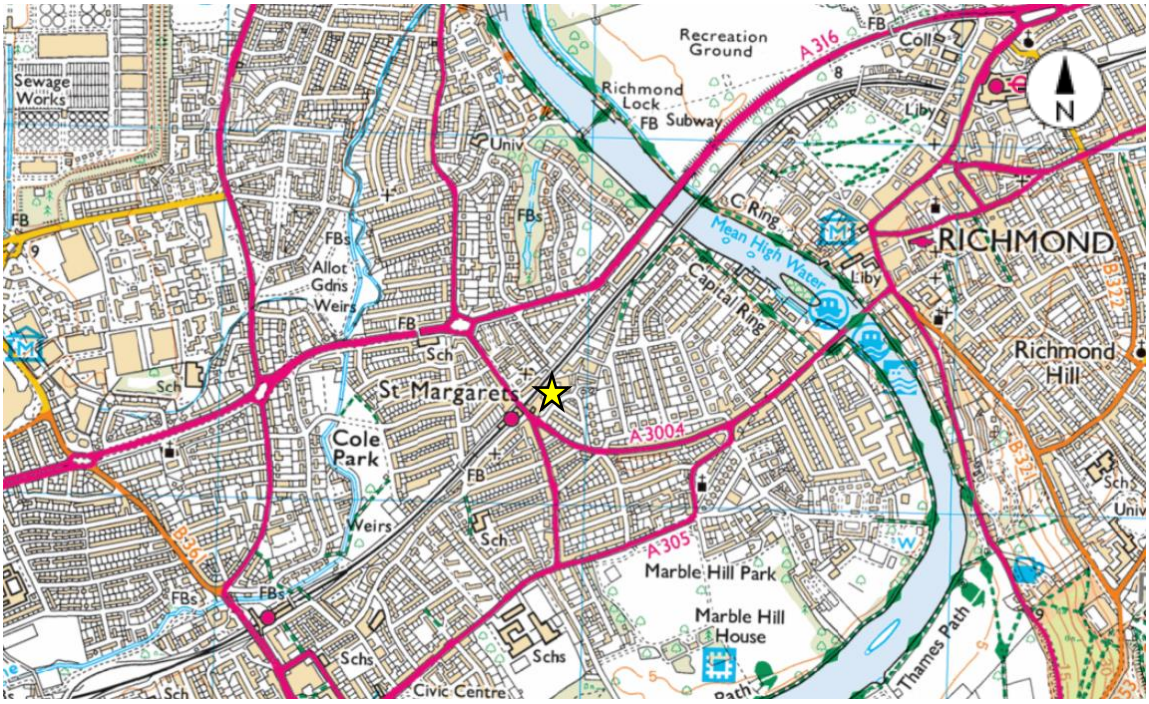


Figure 3: An OS map obtained from Bing showing the location of Butterfields, Nether Heyford (as shown by the yellow star).



2. Survey Methodology

2.1 Desktop Survey

A variety of resources were independently consulted to assess the known local records within the nearby area and the importance of the site within the local landscape from an ecological perspective. The resources used were the Local Records Centre, www.naturalengland.org.uk, www.ordnancesurvey.co.uk, Google Maps, Google Earth, and Bing Maps. A search of other relevant nature conservation information was made through the use of the Multi-Agency Geographic Information for the Countryside (MAGIC) database.

The local records centre was contacted to provide data on all protected species and sites within 2km of the proposed development site. Greenspace Information for Greater London (GIGL) was the relevant local record centre for this project.

2.2 Field Survey

A Preliminary Ecological Appraisal (previously referred to as an Extended Phase 1 Habitat Survey) was carried out using the method outlined in the JNCC Handbook for *Phase 1 Habitat Survey: a technique for environmental audit (2010)*. This method aims to map and describe the broad habitat types and notable features present on the surveyed site.

As part of the field survey, the floral species will be identified and noted down. This will consider the dominant, abundant, frequent, occasional, and rare (DAFOR) species within each habitat on the survey site. The impacts of the proposed development scheme will be assessed by this report.

Each habitat will be assessed for the presence and/or the potential presence of protected species. The impacts of the proposed scheme of works on all potential protected species on site will be assessed. From this, either remedial action or recommended phase 2 presence/absence surveys will be devised.

Some of the classification codes and colours listed within the JNCC handbook may have been slightly modified for this project.

Habitat Surveys can be carried out at any time of the year, with the optimal time period falling between the months of April through until September. This survey was carried out in November 2023, which is outside the optimal time period for flora surveys. Elite Ecology feels confident that this report reflects an accurate representation of the site's suitability for protected species to be present.

All sites surveyed by Elite Ecology will be run against the relevant Local Wildlife Site Criteria to assess whether or not they meet the required standards.

3. Desktop Survey Results

3.1 Statutory Sites

The ecological data received from GIGL revealed six statutory protected sites (e.g., LNR, SSSI, SPA, SAC or Ramsar) within the 2km radius of the site. Two of these were Sites of Special Scientific Interest (SSSI), two were Local Nature Reserves (LNR), one was a Special Area of Conservation (SAC), and one was a National Nature Reserve (NNR). These were as follows:

Site Name	Designation	Approx. Distance (m)	Heading
Ham Lands	LNR	1,076	SW
Isleworth Ait	LNR	1,060	N
Richmond Park	SAC	1,613	SE
Richmond Park	NNR	1,613	SE
Richmond Park	SSSI	1,613	SE
Syon Park	SSSI	1,744	NE

3.2 Non-statutory Sites

The ecological data received from GIGL confirmed the presence of forty non-statutory protected sites within 2km of the site. These were in the form of twenty-three Sites of Importance for Nature Conservation (SINC) and seventeen Proposed Sights of Importance for Nature Conservation (PSINC). There are three tiers of SINC: sites of Metropolitan Importance, sites of Borough Importance (borough I and borough II) and sites of Local Importance, which have also been recorded. The sites were as follows:

Site Ref	Site Name	Designation	Approx. Distance (m)	Heading
pM076	Crane Corridor	PSINC (Metropolitan)	993	SW
HoBI07	Duke of Northumberland's River at Isleworth	SINC (Borough I)	527	NW
HoBI15	Duke of Northumberland's River at Woodlands	SINC (Borough I)	1,926	NW
RiBI04	Duke of Northumberland's River north of Kneller Road	SINC (Borough I)	1,747	SW
pRiB04	Duke of Northumberland's River north of Kneller Road	PSINC (Borough)	1,747	SW
RiBII04	Duke of Northumberland's River south of Kneller Road	SINC (Borough II)	1,747	SW
pRiB08	Duke of Northumberland's River south of Kneller Road	PSINC (Borough)	1,747	SW
RiL06	East Sheen and Richmond Cemeteries and Pesthouse Common	SINC (Local)	1,833	E
pRiL06	East Sheen and Richmond Cemeteries and Pesthouse Common	PSINC (Local)	1,833	E
M083	Ham Lands	SINC (Metropolitan)	1,076	SW
pM083	Ham Lands	PSINC (Metropolitan)	1,076	SW
RiL02	Marble Hill Park and Orleans House Gardens	SINC (Local)	450	SE
pRiL02	Marble Hill Park and Orleans House Gardens	PSINC (Local)	450	SE
HoBI06	Mogden Sewage Works	SINC (Borough I)	1,201	NW
RiL25	Moor Mead Recreation Ground	SINC (Local)	417	W
pRiL25	Moormead Recreation Ground	PSINC (Local)	417	W

RiBII12	Petersham Lodge Wood and Ham House Meadows	SINC (Borough II)	1,079	SE
pRiB16	Petersham Lodge Wood and Ham House Meadows	PSINC (Borough)	1,079	SE
RiBII06	Petersham Meadows	SINC (Borough II)	1,165	SE
pRiB10	Petersham Meadows	PSINC (Borough)	1,165	SE
M082	Richmond Park and associated areas	SINC (Metropolitan)	1,613	SE
pM082	Richmond Park and Associated Areas	PSINC (Metropolitan)	1,613	SE
HoBII07	River Crane at St Margarets	SINC (Borough II)	1,565	NW
pRiB20	River Crane at St Margarets	PSINC (Borough)	1,565	NW
RiBII18	River Crane at St Margaret's (Richmond side)	SINC (Borough II)	420	SW
M031	River Thames and tidal tributaries	SINC (Metropolitan)	425	NE
pM031	River Thames and tidal tributaries	PSINC (Metropolitan)	425	NE
RiBI01	Royal Mid-Surrey Golf Course	SINC (Borough I)	743	NE
pRiB01	Royal Mid-Surrey Golf Course	PSINC (Borough)	743	NE
RiB22	St Margarets Residential Grounds	SINC (Borough)	229	N
HoBI13	Syon Park	SINC (Borough I)	1,744	NE
RiL05	Terrace Field and Terrace Garden	SINC (Local)	1,050	SE
pRiB26	Terrace Field and Terrace Garden	PSINC (Borough)	1,050	SE
RiBII10	The Copse, Holly Hedge Field and Ham Avenues	SINC (Borough II)	1,152	SE
pRiB17	The Copse, Holly Hedge Field and Ham Avenues	PSINC (Borough)	1,152	SE
M080	Tide Meadow at Syon Park	SINC (Metropolitan)	1,744	NE
RiL10	Twickenham Junction Rough	SINC (Local)	1,183	SW
pRiB29	Twickenham Junction Rough	PSINC (Borough)	1,183	SW
RiL17	Twickenham Road Meadow	SINC (Local)	536	NE
pRiL17	Twickenham Road Meadow	PSINC (Local)	536	NE

3.3 Woodland Sites

The information provided by GIGL provided no data on woodland sites within the 2km search radius.

3.4 Regionally Important Geological Sites (RIGS)

The information provided by GIGL revealed one RIGS within the 2km search radius. This was a Recommended RIGS and was as follows:

Site Ref	Site Name	Designation	Approx. Distance (m)	Heading
GLA48	Thames Foreshore, Isleworth	Recommended RIGS	1,598	N

3.5 Species Records

3.5.1 Amphibians

Within the ecological data search provided by GIGL, two amphibian species were revealed within 2km of the survey site. These were common frog (*Rana temporaria*) and common toad (*Bufo bufo*). The closest record was of common frog located approximately 65m to the north-west of the site centroid.

3.5.2 Birds

Within the ecological data set received by GIGL, seventy-five bird species were revealed, of which one was an Invasive Non-Native Species (INNS). The closest record to the site was of song thrush (*Turdus philomelos*), recorded approximately 65m to the north-west of the site centroid.

The INNS records were of ring-necked parakeet (*Psittacula krameri*) and the closest record of this species was located approximately 1,226 to the south-west of the site centroid.

A table with the collated bird species recorded can be found within **Appendix B**.

3.5.3 Crustaceans

Within the ecological data set received by GIGL, one crustacean species was revealed within 2km of the site centroid. This was Chinese mitten crab (*Eriocheir sinensis*), an Invasive Non-Native Species (INNS), the closest record of which was located approximately 1,362 to the south-west of the site centroid.

3.5.4 Fish

Within the ecological data set received by GIGL, two fish were revealed within 2km of the site centroid, one of which was an Invasive Non-Native Species (INNS). These were European eel (*Anguilla Anguilla*) and goldfish (*Carassius auratus*). The closest record was of European eel located approximately 973m to the south of the site centroid.

The closest record of the INNS goldfish was located approximately 1,820m to the south-east of the site centroid.

3.5.5 Flora

Within the ecological data search provided by GIGL, fifty-four floral species have been revealed, of which thirty-one were of Invasive Non-Native Species (INNS). The closest of the floral species was large-leaved lime (*Tilia platyphyllos*), located approximately 233m to the north-west of the site centroid.

The closest INNS record is of Canadian waterweed (*Elodea canadensis*), located approximately 433m to the south-east of the site centroid.

A table with the collated flora species recorded can be found within **Appendix B**.

3.5.6 **Fungi**

Within the ecological data search provided by GIGL, two fungi species were revealed within 2km of the site centroid. These were boletus declivitatum (*Boletus declivitatum*) and zoned rosette (*Podoscypha multizonata*). The closest record to the site was of zoned rosette located approximately 1,931m to the east.

3.5.7 **Invertebrates**

Within the ecological data search provided by GIGL, sixty-eight invertebrate species were revealed within a 2km radius of the site. The closest record to the site was of stag beetle (*Lucanus cervus*), which was located approximately 62m to the north-east of the site centroid.

A table with the collated invertebrate species recorded can be found within **Appendix B**.

3.5.8 **Mammals**

Bats

Within the ecological data search provided by GIGL, nine bat species were revealed within the 2km search radius.

The UKBAP species recorded in the search were brown long-eared (*Pecotus auritus),* noctule (*Nyctalus noctula*), and soprano pipistrelle (*Pipistrellus pygmaeus*) bats.

The non-UKBAP species recorded in the search were common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*), Leisler's (*Nyctalus leisleri*), Nathusius' pipistrelle (*Pipistrellus nathusii*), and serotine (*Eptesicus serotinus*) bats.

Also recorded were unidentified bats (*Chiroptera* spp. and *Vespertilionidae* spp.), unidentified long-eared (*Plecotus* sp.), unidentified myotis (*Myotis* spp.), unidentified nyctalus (*Nyctalus* spp.), unidentified pipistrelle (*Pipistrellus* spp.) and unidentified whiskered/Brandt's (*Myotis mystacinus/brandtii*) bats.

The closest record to the survey site was of an unidentified bat (*Vespertilionidae* sp.), located approximately 65m to the north-west of the site centroid.

Other Mammals

The ecological data search provided by GIGL revealed nine other mammal species within the 2km search radius, of which two were Invasive Non-Native Species (INNS). These came in the form of American mink (*Neovison vison*), Chinese muntjac (*Muntiacus reevesi*), common porpoise (*Phocoena phocoena*), Eurasian badger (*Meles meles*), European water vole (*Arvicola amphibius*), grey seal (*Halichoerus grypus*), harbour seal (*Phoca vitulina*), hazel dormouse (*Muscardinus avellanarius*), and west European hedgehog (*Erinaceus europaeus*). The closest record was of west European hedgehog located approximately 65m to the north-west of the site centroid.

The closest INNS record was of American mink, which was located approximately 1,006m to the south-east of the site centroid.

3.5.9 **Mollusc**

Within the ecological data search provided by GIGL, one mollusc species was revealed within 2km of the site centroid. This was perforatella rubiginosa (*Perforatella rubiginosa*) and the singular record was located approximately 1,447m to the north of the site centroid.

3.5.10 **Reptiles**

Within the ecological data search provided by GIGL, four reptile species have been identified within 2km of the survey site, of which one was an Invasive Non-Native Species (INNS). These were common lizard (*Zootoca vivpara*), grass snake (*Natrix helvetica*), slow-worm (*Anguis fragilis*), and red-eared terrapin (*Trachemys scripta subsp. elegans*). The closest record to the site was of common lizard located approximately 255m to the west of the site centroid.

The closest record of the INNS red-eared terrapin was located approximately 1,820m to the south-east of the site centroid.

4. Field Survey

4.1 Habitats

The preliminary ecological appraisal survey revealed multiple habitats on site. The phase 1 habitat map, habitat codes and target notes for the site are located within **Appendix D**. The following habitats were recorded on site and in the surrounding area (in habitat code order):

On Site:

4.1.1 A3.3 - Scattered Mixed Trees

Mixed scattered trees can be found predominantly along the southern and eastern borders on site, growing over an understory of short ephemeral and hard standing ground. The most frequently observed species were Lawson cypress (*Chamaecyparis lawsoniana*) and wild cherry (*Prunus avium*), with occasional instances of horse chestnut (*Aesculus hippocastanum*). Rare occurrences of black locust (*Robinia pseudoacacia*), blackthorn (*Prunus spinosa*), common lime (*Tilia x europaea*), and silk-tassel (*Garrya elliptica*) were also recorded. Based on the planning documents provided, there are no plans to remove any of these trees during works.

Scattered trees can be found immediately off-site along the north-western boundary as screening for the adjacent railway track. Two sycamore (*Acer pseudoplatanus*) trees in this location were observed to be covered in ivy (*Hedera helix*) and assessed to have a low potential to support roosting bats. Under the proposed works, all of these trees are to remain. However, as they form a linear feature and provide a potential commuting, foraging, and roosting habitat for bats, some provisions must be made pertaining to artificial lighting (please see **Section 5.3** for details).

Additionally, there are two manna ash (*Fraxinus ornus*) trees outside the site boundary to the south-west. This location is proposed to become a new entrance to the site and both of these trees are planned for removal, although it is not clear whether this will take place during the phase one groundworks. These are medium-sized trees with no understory, a busy road and artificial lighting in close proximity. No historic bird's nests or potential roosting features were observed within these trees during the survey. These are therefore assessed to have **low** potential to support protected species and nesting bird precautions must be taken during removal (please see **Section 5.3** for details).

Overall, the trees on site have a **moderate** potential to support protected species and should be retained.

4.1.2 **J1.4 – Short Ephemeral**

This habitat can be found growing at the edges of the car parks around **Block H**. The abundant plant species were greater celandine (*Chelidonium majus*) and green alkanet (*Pentaglottis sempervirens*), followed by frequent occurrences of bristly oxtongue (*Helminthotheca echioides*) and horseweed (*Erigeron canadensis*). Species such as common nettle (*Urtica dioica*), perennial rye-grass (*Lolium perenne*), and spear thistle (*Cirsium vulgare*) were occasionally present, with rare instances of bramble (*Rubus fruticosus*), calendula (*Calendula officinalis*) and orange ball tree (*Buddleja globosa*). The vegetation within this habitat is very short and the patches are narrow, with few areas that might offer continuous cover for small mammals and herptiles. Furthermore, these patches are mostly surrounded by hard standing ground and are blocked from neighbouring gardens by intact close-board fences or brick walls. However, some burrowing species may be able to travel to the site from the gardens in the south, and a rabbit burrow was observed at this location. This habitat may be impacted by the landscaping and resurfacing within the proposed phase one groundworks. Overall, the potential for this habitat to support protected species is **low**.

4.1.3 **J1.4 – Introduced Shrub**

Introduced shrub can be found in small patches along the south-west elevation of **Block H**. Species include lavender (*Lavandula angustifolia*) and rose (*Rosa* sp.). Plants such as lavender are beneficial to bat species, example of other flora species that are beneficial have been provided in **Section 5.4**. This habitat is not expected to be impacted during the proposed phase one groundworks. Overall, due to the very small size of these patches and their isolation from other vegetation, this habitat has **negligible** potential to support protected species.

4.1.4 **J2.4 – Fence**

Fencing runs for approximately 173m along the north-western boundary, 53m along the south-western boundary, and is present in the form of gates dotted along the south-eastern and northern boundaries. To the north-west, the fencing which borders the railway embankment is of a wooden lap-panel construction with barbed wire attached to the top. This fence is in good condition and the base is protected from burrowing species by raised hard standing ground. The embankment appears to sit below the ground-floor of the site in this location, creating a further obstacle. Some of the north-west fencing borders a car park and this is also of a lap-panel construction, but appears to be in worse condition, with at least one broken panel. Protected species may therefore still be able to commute to the site from the railway embankment via this car park, although the condition of any obstacles within the car park is unknown. The fence to the south-west borders residential gardens and is of a wooden close-board construction, with cement posts and a cement base. Although in good condition, a rabbit burrow was found next to this fence and so it is likely that species are able to traverse this boundary. The gates in the south-eastern and northern boundary include large gaps in their design and will not present an obstacle to protected species. Overall, the fencing does not present a major obstacle to species commuting to the site, although may inhibit species commuting from the vegetated railway embankment to the north-west. The fence itself has no ecological value.

4.1.5 **J2.5 – Wall**

Approximately 307m of wall encloses the southern and eastern boundaries of the site. The wall in the southern part of the site, running past **Blocks B**, **C,** and **F**, is tall (~2.5m), covered in pebbledash render, and topped with stone coping. The render is flaking away in some locations, but no cracks or gaps were observed which could support protected species. Ivy (*Hedera helix*) was found growing along a stretch of this wall but was assessed to be too disturbed to support nesting birds. This wall does not present an obstacle to protected species due to the presence of regular gates, which have large gaps underneath. The wall in the northern part of the site, around **Block H**, is made from exposed brick. This wall is not as tall in places (~1.5m), particularly around the car parks. Some mortar has begun to crumble from between the bricks, but no cracks or gaps were observed which could support protected species. The walls have no ecological value.

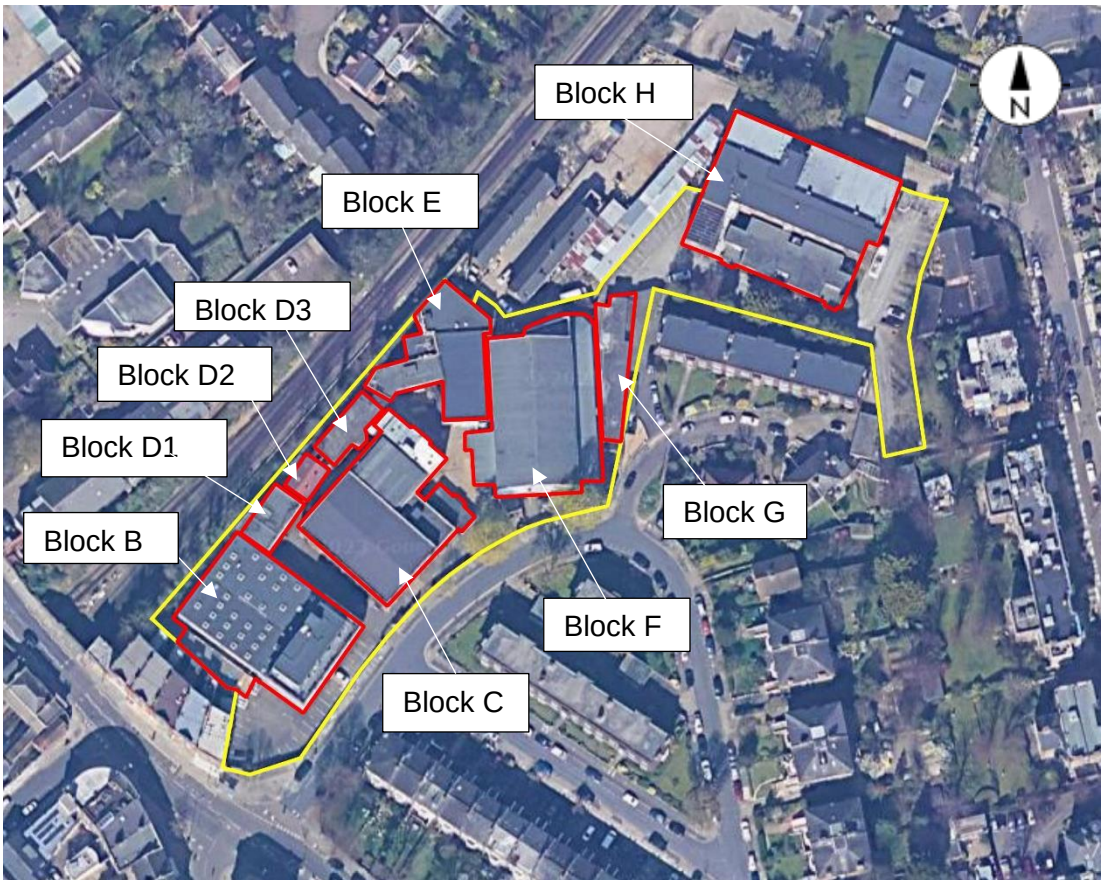
4.1.6 **J3.6 – Buildings**

The buildings within the survey site consist of seven blocks: **Blocks B**, **C**, **D**, **E**, **F**, **G**, and **H** (see **Figure 4**). Because the buildings within **Block D** are almost completely detached from one another, these will be referred to as **D1**, **D2**, and **D3** hereafter (please see **Figure 5** for details).

None of the buildings on site will be impacted by the phase one groundworks and a previous assessment of these structures confirmed that these did not support roosting bats or nesting birds ('Twickenham Film Studios, Twickenham – Elite Ecology Preliminary Ecological Assessment & Bat Activity Survey Report [September 2021]'). An external inspection was conducted of the buildings on site. Internal inspections were not conducted, as these were outside the scope of this report.

Figure 4: An aerial photograph of the current structures at Twickenham Film Studios (as shown by the red outline) taken from the pre-application document.

Figure 5: An aerial view showing the site boundary (yellow line) and the outlines (red lines) of the surveyed buildings. The building references referred to throughout this report are also illustrated.



Block B

The surveyed structure covers approximately 1,157m^2 and consists of two attached buildings: a three-storey office building and a two-storey workshop.

Both buildings have flat roofs which are covered in felt with little roosting potential for bats. The office roof is rimmed by a low, crenulated wall topped with metal coping. A small brick structure sits on top of the office building, with a flat roof and whitewashed walls, both observed to be intact. The workshop roof is covered in skylights and daylight is known to permeate the interior due to the lack of a roof void.

The office walls are constructed of poured concrete with pebbledash cladding, which was observed to be in good condition, while the walls of the workshop are covered in corrugated metal sheeting. Doors and windows were made of wood and metal, and all found to be intact. No evidence of bird nests or gaps which could be utilised by roosting bats were observed on the exterior of either building. **Block B** was therefore assessed to have a **negligible** potential for supporting birds and bats.

Block C

This block covers approximately 1,042m^2 and consists of four attached buildings of varying heights. The block supports a mix of pitched and flat sections of roof, constructed with felt and a metal clad, with no skylights. Due to the use of felt and metal, there are no opportunities for roosting bats in the roof. However, a gap under the lead flashing was observed at the top of the south-west elevation of the studios, which could potentially be utilised by roosting bat species.

The walls of all of the buildings are constructed of solid brick and are mostly in good condition, with a few cracks. The walls of the attached single-storey ancillary building are pebble-dashed and painted. Doors and windows are of a uPVC construction and were all found to be intact. Artificial lighting and air vents are present throughout the structure. No evidence of bird nests was observed. **Block C** therefore has a **low** potential for supporting bats and **negligible** potential for supporting birds.

Block D (D1, D2, & D3)

This block covers approximately 332m^2 and consists of three buildings. These buildings are mostly detached, with **D1** and **D2** connected by a metal walkway on the first floor. **D3** is not attached to the other two buildings, but it is connected to blocks **C** and **E** by walkways on its first floor.

D1 and **D3** both have flat roofs covered in felt which does not overhang and offers no opportunities for roosting bats. **D2** has a gable shaped roof covered in clay tiles, with ridge tiles running south-west to north-east and made from the same material. No gaps were observed in the tiles during the survey. Two skylights are present in each roof pitch, allowing daylight to permeate the roof void. **D2** has wooden soffits and barge boards, which were mostly in good condition except for a gap in the north-east soffit which could potentially be utilised by roosting bat species.

D1 is constructed of solid brick walls which are covered in corrugated metal sheeting, with the exception of the north-west elevation which is exposed. The walls of **D2** and **D3** are both rendered. The walls contain a few cracks, but nothing which could be utilised by roosting bat species. Doors and windows were all observed to be intact. Windows are mostly made from uPVC, with wooden frames in the north-west elevation of **D1**. Artificial lighting was present on the south-west gable end of **D2** and on the south-east elevation of **D3**. No evidence of bird nests was observed.

D1 and **D3** were therefore assessed to have a **negligible** potential for supporting bats and birds. Due to the hole in the north-east soffit, **D2** was assessed to have a **low** potential for supporting bats and **negligible** potential for supporting birds.

Block E

This block covers approximately 570m^2 and has a flat roof which is covered in felt. The felt overhangs and presents some gapping which could be utilised by roosting bat species. The walls are constructed of solid brick with sections of intact timber cladding. Potential roosting features in the form of holes were identified in the brickwork in the north-west elevation. Artificial lighting and air vents are present throughout the structure. Windows and doors were found to be intact. No bird nests were observed.

Overall, due to the presence of roosting features, **Block E** was assessed to have a **low** potential for supporting bats and **negligible** potential for supporting birds.

Block F

This block covers approximately 1,192m^2 and consists of a large studio building with smaller buildings attached to the sides. The studio has a gable-shaped roof, while the attached buildings have flat roofs, except for a lean-to at the south-west corner. All of the roofs are covered in felt, with no observable gaps which could be utilised by roosting bats.

The walls of the studio building are covered in corrugated metal sheeting, with air vents in the gable ends. The walls of the other buildings are cavity brick to the north-east and solid brick to the south-west. The walls of two units to the south have been pebble-dashed and painted. No gaps or cracks were observed in any of the walls. Hanging tiles are present along the eastern and northern elevations and these were also observed to be in good condition.

Windows of uPVC construction are present in the east and north elevations, interspersed with doors made from uPVC and wood. All windows and doors were found to be intact. Artificial lighting was observed on the east, north and south-west elevations. No evidence of bird nests was observed. Overall, **Block F** was assessed to have a **negligible** potential for supporting bats and birds.

Block G

This block covers approximately 258m^2 and consists of a long, two-storey building used as offices. Under the proposed works, it is due to undergo an exterior refurbishment.

This building has a flat roof which is covered in felt, with no gaps which could be utilised by roosting bat species. The walls are constructed from cavity brick, with timber cladding above and below the windows. The cladding was uneven in places, but no gaps were found which could be utilised by roosting bats. All windows and doors were intact, with the windows made from uPVC and doors made from wood.

Air vents were seen at regular intervals along the eastern elevation, with artificial lighting also present there and on the north elevation. No evidence of bird nests was observed. Overall, **Block G** was assessed to have a **negligible** potential for supporting bats and birds.

Block H

This block covers approximately 1,444m^2 and has a flat roof covered in felt. The walls are constructed of cavity brick, with cladding present beneath (hanging tiles and timber) and above (uPVC) the windows. On the north-east elevation, lead sheeting lines the hanging tiles and gaps were observed underneath this sheeting which could be utilised by roosting bat species. The hanging tiles themselves also contained gaps which would be suitable for roosting bats. Windows and doors were all observed to be intact, with windows of uPVC construction and doors of wood.

Artificial lighting is present on the south elevation, while air vents can be found throughout the structure. No evidence of bird nests was found. Overall, due the presence of extensive roosting features under the cladding and in the hanging tiles, **Block H** was assessed to have **high** potential to support bats and **negligible** potential to support birds.

Summary of Building Inspection

Based upon the above assessment, the structures at Twickenham Film Studios, Twickenham have varying levels of bat and bird roost potential:

Building reference	Bat Potential	Bird Potential	Number of bat activity surveys required	Number of surveyors required
Block B	**Negligible**	**Negligible**	None	N/A
Block C	**Low**	**Negligible**	None	N/A
Block D1	**Negligible**	**Negligible**	None	N/A
Block D2	**Low**	**Negligible**	None	N/A
Block D3	**Negligible**	**Negligible**	None	N/A
Block E	**Low**	**Negligible**	None	N/A
Block F	**Negligible**	**Negligible**	None	N/A
Block G	**Negligible**	**Negligible**	None	N/A
Block H	**High**	**Negligible**	None	N/A

In summary, the exterior building inspections revealed that **Block H** has a **high** potential for supporting roosting bats, while **Blocks C**, **E** and **D** have **low** potential. The results for **Blocks H**, **C**, and **E** are consistent with the previous report, which has already confirmed the absence of bat roosts from these buildings ('Twickenham Film Studios, Twickenham – Elite Ecology Preliminary Ecological Assessment & Bat Activity Survey Report [September 2021]').

The roosting potential for **Block D2** has increased since the last survey due to the identification of a new roosting feature in the soffit of the north-east gable end. However, this building will not be impacted by phase one of the proposed works, and therefore no further survey effort is required. All of the buildings had **negligible** potential to support roosting birds.

Table 1: Low/Moderate/High potential building(s) survey recommendations. The full guidance can be found in the Bat Conservation Trust Good Practice Survey Guidelines.

Bat Conservation Trust

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey[a] (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.[b]	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.[b]

[a] Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

[b] Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

4.1.7 **J4 – Hard Standing Ground**

This habitat is dominant throughout the site, surrounding the buildings in the form of roads, pavement, and car parks. This habitat has **negligible** potential to support protected species.

4.2 Species

The preliminary ecological appraisal survey revealed that the habitats that have been outlined for the proposed development area do contain protected species potential. The following assessment has also considered the adjacent habitats and connectivity to the wider landscape for all protected and rare species.

4.2.1 **Amphibians (including great crested newts)**

The site contains poor terrestrial habitat and no breeding habitat for amphibians. A desktop study revealed no ponds within 500m of the site (see **Figure 6**). There is a lake 286m to the north-west, but this is blocked from the site by a major road. The river Thames lies 426m to the north-east of the site, although this habitat will be too fast flowing to be suitable for these species. The site is surrounded by roads, with the exception of the railway embankment to the north-west and the gardens to the south-east and north. In the desktop study, no ponds were found within the gardens and no standing water was found along the trainline to the north or south within 2km. However, the ecological data set provided by GIGL revealed at least one record of common frog (*Rana temporaria*) located 65m to the north-west of the site centroid. Although GIGL did not provide a location for this record, it appears likely that this was located in the gardens across the railway track. As described in **Section 4.1**, the lap-panel fence and raised hard standing ground presents a major obstacle to species commuting from this direction. Overall, due to the lack of suitable habitat within the site boundary, the potential for the site to support amphibians is **negligible** and no further action is required.

Figure 6: An aerial map showing the location of waterbodies within 500m of Twickenham Film Studios, Twickenham.

4.2.2 Badgers (*Meles meles*)

The ecological data set provided by GIGL revealed that badgers were present within 2km of the site. No evidence of badger activity or setts was found during the survey and there is very little foraging habitat and no opportunities for sett creation within the site boundary. There may be some suitable habitat for sett creation directly off-site within the railway embankment to the north-west. This location was not physically accessible to the surveyors and was covered in dense vegetation, meaning badger signs may have been concealed. However, this area will not be impacted by the phase one groundworks and the potential for badgers to be impacted is therefore **negligible**.

4.2.3 Bats

The mixed scattered trees on the site and on the railway embankment to the north-west will provide valuable foraging and commuting habitat for local bat populations. Two sycamore (*Acer pseudoplatanus*) trees in this location were observed to be covered in ivy (*Hedera helix*) and assessed to have a low potential to support roosting bats. Furthermore, features that had the potential to support roosting bats were found within four of the blocks on site (**Blocks C, E, D2,** and **H**). Surveys conducted by Elite Ecology in 2021 have already confirmed the absence of bat roost from the buildings on site. However, a new roosting feature in **Block D2** was identified, indicating a change in the condition of this building. However, the phase one groundworks do not include changes to any of these buildings. Therefore, the potential for roosting bats to be impacted is **negligible**. However, as the groundworks may take place in close proximity to the scattered trees on site, the potential for works to impact foraging and commuting bats is **low** and precautions should be undertaken (see **Section 5.3** for details). The site could also be enhanced for bats post-development (please see **Section 5.4**).

4.2.4 Birds

The buildings on site were assessed to have **negligible** potential to support birds, but the mixed scattered trees offer suitable breeding habitat for local bird populations. The works are not expected to require the removal of any of the trees on site, although two manna ash (*Fraxinus ornus*) trees are due to be removed from the south-west of the site boundary. No historic birds' nests were observed within these trees during the survey, although this does not preclude birds from using these in future breeding seasons. It is unclear whether these trees will be removed as part of the phase one groundworks. Therefore, the proposed works may have a **low** potential to impact breeding birds and precautionary measures will be required (please see **Section 5.3**). The site could also be enhanced for birds post-development (please see **Section 5.4**).

4.2.5 Flora

The site contains no protected floral species, and the habitats are not considered likely to support protected floral species. Therefore, the potential for these to be affected is **negligible**.

4.2.6 Hazel Dormouse (*Muscardinus avellanarius*)

The site is within the range of the hazel dormouse but there is a lack of suitable habitat on site. While there are scattered trees present, there is no scrubby understory or native hedgerows. The ecological data set provided by GIGL revealed the closest record of hazel dormouse to be 1,656m to the south of the site centroid. It is possible that the site is connected to the wider landscape through the close proximity of the vegetated railway embankment, but with no suitable vegetation on site it is highly unlikely that this species is present. Therefore, the site has **negligible** potential to support this species and no further action is required.

4.2.7 Hedgehogs (*Erinaceus europaeus*)

Hedgehogs are likely to be present within the local landscape. There is very little cover present on site, but there is some foraging habitat present in the form of short ephemeral at the edges of the north-eastern part of the site. There is also a relatively dense patch of short ephemeral in the corner of the south-east car park, which may be impacted by the landscaping and resurfacing works. Overall, the site has a **low** potential for supporting hedgehogs and further precautionary measures are required during works (please see **Section 5.3**).

4.2.8 Invertebrates

The habitats on site have the potential to support a variety of common invertebrate species, but there is no significant vegetation to support rare or protected species. Overall, the potential for the site support rare or protected invertebrate species is **negligible** and no further survey effort is required.

4.2.9 Molluscs

The habitats on site have the potential to support common mollusc species, but there is no significant vegetation to support rare or protected species. Overall, the potential to support rare or protected molluscs is **negligible** and no further survey effort is required.

4.2.10 **Reptiles**

While the site may offer some basking opportunities, the majority of these locations are far from suitable cover or foraging habitat. The railway embankments to the north-west likely provides suitable habitat for reptiles, with basking sites and dense vegetation. However, the lap-panel fence and raised hard standing ground will present a barrier to species commuting from this direction. Overall, due to a lack of suitable habitat, the potential for the site to support reptiles is **negligible** and no further action is required.

4.3 Potential Impacts of the Works

Based upon the results from the desktop survey, field survey and using a degree of academic supposition, the uncompensated development impacts have been summarised as follows:

- Amphibians – **Negligible**
- Badgers – **Negligible**
- Bats – **Low**
- Birds – **Low**
- Flora – **Negligible**
- Hedgehogs – **Low**
- Hazel dormouse **– Negligible**
- Invertebrates – **Negligible**
- Molluscs – **Negligible**
- Reptiles – **Negligible**

5. Recommendations

5.1 Designated Sites

No designated sites that were revealed by the ecological data search provided by GIGL fell on the proposed re-development site itself. In fact, the site was located within an Area of Deficiency in Access to Nature, which is an urban area located more than 1km walking distance from a Site of Importance for Nature Conservation (Metropolitan or Borough tier). However, Local tier SINCs were present within 1km. Overall, the proposed re-development will have no impact upon any local designated sites as the works are due to remain within the site boundary.

5.2 Habitats

No habitats of conservation concern were located on the site itself. Therefore, the proposed scheme of works will not impact upon any rare or valuable habitats.

5.3 Species

The site was found to contain the potential to support protected and/or rare species. Therefore, the following recommendations are required for the site:

5.3.1 Bats

Due to the suitable foraging and commuting habitat found on the site, no artificial lighting is preferred on the exterior of the new buildings. If artificial lighting is necessary, a **sensitive lighting scheme** is required to ensure that no impacts occur on foraging and commuting individuals. This will involve downward pointing lights and motion-sensor lights (please see **Appendix G** for more information on bats and artificial lighting). The site can also be enhanced for bats post-development (please see **Section 5.4**).

5.3.2 Birds

Due to the presence of suitable bird breeding habitat within the site, all works should be undertaken outside of the bird breeding season (March to August). If vegetation, including the two manna ash (*Fraxinus ornus*) trees off-site, and/or structures are required to be removed during the bird breeding season, then a further inspection by a suitably qualified ecologist is required no more than twenty-four hours before these are to be removed. This is to ensure that no active nest site is illegally destroyed, due to the protection afforded to all active bird nests under the Wildlife and Countryside Act 1981.

If an active nest is found by a site inspection, an exclusion zone around the nest will be necessary, where no vegetation removal can take place, to preserve this feature until the chicks have fledged the nest.

The site may also be enhanced for birds post-development (please see **Section 5.4**).

5.3.3 **Hedgehogs (*Erinaceus europaeus*)**

If shrub, dense vegetation, or the piles of construction materials (including tubing) are cleared between the 1st of November and the 31st of March, then an inspection by a suitably qualified ecologist is required to ensure no hibernating hedgehogs are present on site.

It is recommended that precautionary measures are incorporated if construction is undertaken at other times of the year. This will be to create provisions for hedgehogs to escape from all trenches dug into the ground, by creating slopes or providing ramps at the end of each working day.

Additionally, any pipework left on site that is greater than 150mm in diameter will need to be planked off. Should this information be strictly adhered to, then the development works will not negatively impact on the local mammal populations.

The site may also be enhanced for hedgehogs post-development (please see **Section 5.4**).

5.4 Site Enhancements

For the proposed development works, the following site enhancement measures could be incorporated into the site post-development. These measures are optional but are bespoke to the site surveyed for the enhancement of biodiversity. Once the options have been finalised, the locations of these features should be placed on a master plan.

5.4.1 **Bats**

It is an option to install Eco Bat Boxes or Integrated Eco Bat Boxes on the trees or buildings. These should avoid any artificial lighting, whilst being sighted facing east, south-east, south, south-west, and/or west. This will enhance the roosting opportunities within the area for the local bat populations. Bat boxes can be purchased by emailing admin@eliteecology.co.uk.

The site can further be enhanced by introducing a bat friendly planting scheme in the soft landscaping plan. The table below outlines species recommended by the Bat Conservation Trust, all of which could be incorporated into the site post development.

Flowers for borders	Trees, shrubs & climbers
Aubretia	Bramble
Candytuft	Common alder
Cherry pie	Dogrose
Corncockle	Elder
Corn marigold	English oak
Corn poppy	Gorse
Echniacea	Guelder rose
English bluebell	Hawthorn
Evening primrose	Hazel
Field poppies	Honeysuckle (native)
Honesty	Hornbeam
Ice plant 'pink lady'	Ivy
Knapweed	Jasmine
Mallow	Pussy willow
Mexican aster	Rowan
Michaelmas daisy	Silver birch
Night-scented stock	**Herbs**
Ox-eye daisy	Angelica
Phacelia	Bergamot
Poached egg plant	Borage
Primrose	Coriander
Red campion	English marigolds
Red valerian	Fennel
Scabious	Feverfew
St. John's Wort	Hyssop
Sweet William	Lavenders
Tobacco plant	Lemon balm
Verbena	Marjoram
Wallflowers	Rosemary
Wood forget-me-not	Sweet Cicely
Yarrow	Thyme

5.4.2 Birds

The site could be enhanced for birds with a variety of bird boxes on site, such as an Apex Bird Box, an Apex Robin Box, and a Sparrow Terrace. Furthermore, due to the height of the buildings, swift boxes or bricks could be incorporated into the proposed works. Nest boxes and swift bricks can be ordered by contacting Elite Ecology at: admin@eliteecology.co.uk.

5.4.3 Flora

At present, the site is not considered to have a diverse range of flora. Therefore, it is recommended that a small section of the site is converted into a 'wild meadow' that uses native wildflower seed mixes. A variety of these can be found on the Meadowmania webpage.

To enhance the site for the local bat and bird populations several native shrubs and herbs could be included within the 'wild meadow' which will provide excellent foraging habitat. More information on shrubs for bats can be found on the Wildlife Trust website and more information on shrubs for birds can be found on the RSPB website.

There are several different shrubs to choose from but it is important to avoid invasive species such as buddleia, more information on invasive flora can be found on the RSPB website.

5.4.4 Hedgehogs (*Erinaceus europaeus*)

The site could be enhanced for the local hedgehog population by installing at least one Eco Hedgehog Nest Boxes on the site. These can be ordered by contacting Elite Ecology at: admin@eliteecology.co.uk. This will create more opportunities for hedgehogs within the local landscape.

Additionally, the site is currently considered to have poor connectivity for hedgehogs due to the design of the fencing. To ensure that local hedgehog populations do not become fragmented within the local landscape, small 13 x 13cm gaps should be left within any boundary fencing to enable hedgehogs to commute through the area (an example can be found within **Figure 7**). Wildlife corridors such as hedgerows should be planted alongside or instead of fences.

Figure 7: An image illustrating a gap within a hedgerow to enable hedgehogs to continue to commute through an area and not fragment the populations (Image courtesy of the RSPB).

5.4.5 Invertebrates

At present, the site is not considered to be of any importance to local invertebrate populations. In conjunction with the wildflower planting, it is recommended that at least two Bumblebee Boxes are incorporated into the scheme, along with at least two Bug Hotels. These can be ordered by contacting Elite Ecology at: admin@eliteecology.co.uk. This will enhance the site for the local invertebrate populations, which will thus attract species further up in the trophic level.

The site would benefit from plants rich in a pollen source throughout the year to enhance the area for the potential of bees. In order to ensure a nectar source year-round it is important to use plants that are relevant to the season. The table below includes just a few examples of which plants thrive through the different seasons to ensure a bee friendly area.

SPRING	SUMMER	AUTUMN	WINTER
• Alliums Bugle • Crab Apple • Daffodils • Flowering Cherry • Hawthorn • Sea Thrift	• Angelica sylvestris • Campanula latifolia • Comfrey • Echinops • Foxgloves • Scabious	• Aster tripolium • Common Ivy • Sedums	• Hellebores foetidus, • Salix aegyptica • Salix caprea • Winter-flowering heather

5.5 Biodiversity Net Gain

Biodiversity Net Gain needs to be ensured within the scheme of works and this will be devised utilising the latest DEFRA metric. A feasibility report will be required to determine if a net gain is possible on site.

6. References

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7. Appendices

Appendix A: Site Plans

Appendix B: Desktop Study Table

Appendix C: Desktop Study Maps

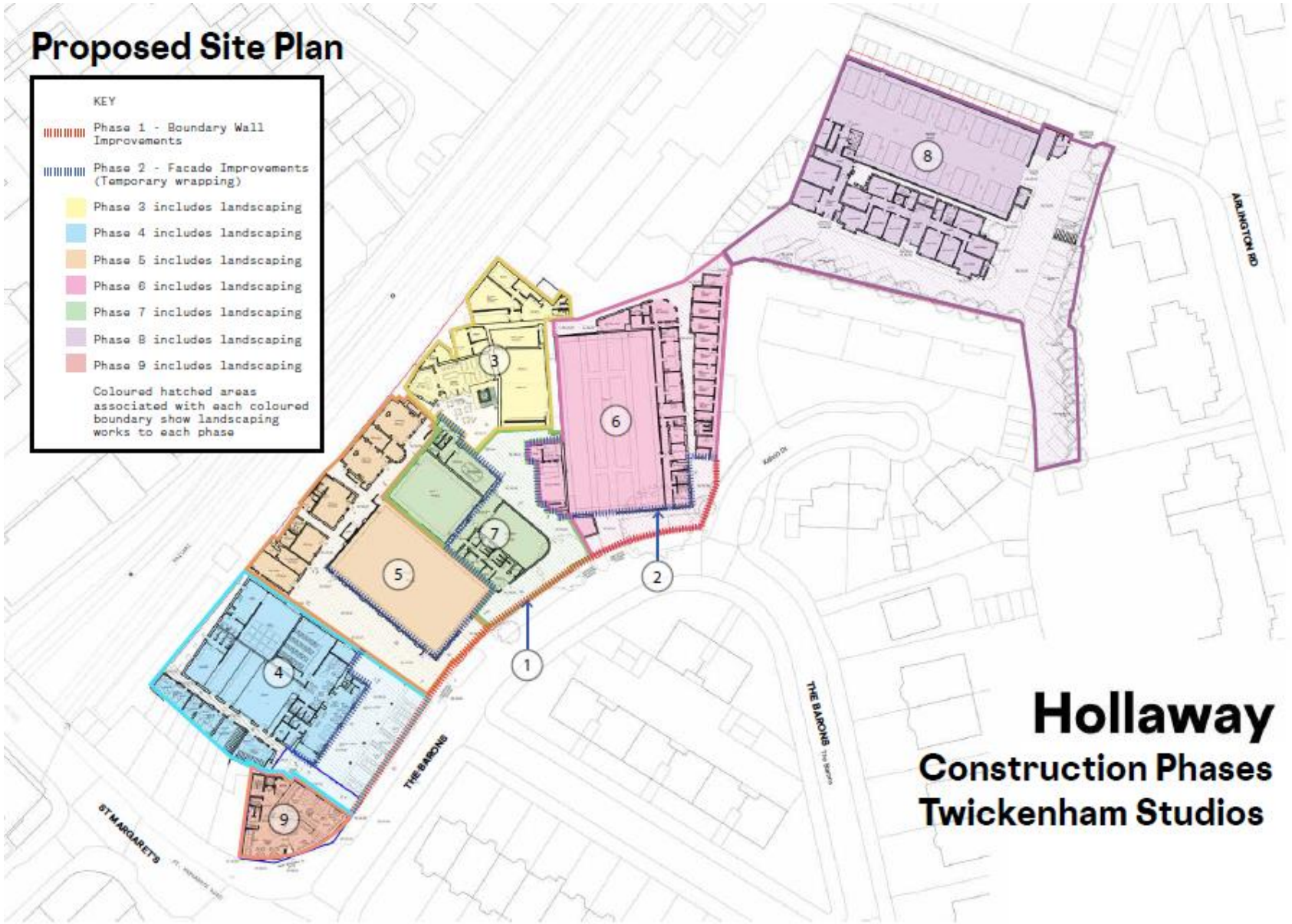
Appendix D: Phase 1 Habitat Map

Appendix E: Site Photographs

Appendix F: Biodiversity Legislation and Policy

Appendix G: Bat and Artificial Light

Appendix A: Site Plans


Proposed Site Plan
KEY
Phase 1 - Boundary Wall Improvements
Phase 2 - Facade Improvements (Temporary wrapping)
Phase 3 includes landscaping
Phase 4 includes landscaping
Phase 5 includes landscaping
Phase 6 includes landscaping
Phase 7 includes landscaping
Phase 8 includes landscaping
Phase 9 includes landscaping
Coloured hatched areas associated with each coloured boundary show landscaping works to each phase
1
2
3
4
5
6
7
8
9
ARLINGTON RD
THE BARONS
ST MARGARETS
Hollaway
Construction Phases
Twickenham Studios

Appendix B: Desktop Study Tables

The results within the following table are a collation of the species identified within the desktop search, undertaken by Greenspace Information for Greater London (GIGL).

Amphibians	
Common Name	**Latin Name**
Common Frog	*Rana temporaria*
Common Toad	*Bufo bufo*
Bats	
Common Name	**Latin Name**
Bat	*Chiroptera*
Bats	*Vespertilionidae*
Brown Long-eared Bat	*Plecotus auritus*
Common Pipistrelle	*Pipistrellus pipistrellus*
Daubenton's Bat	*Myotis daubentonii*
Lesser Noctule	*Nyctalus leisleri*
Long-eared Bat species	*Plecotus*
Myotis Bat species	*Myotis*
Nathusius's Pipistrelle	*Pipistrellus nathusii*
Natterer's Bat	*Myotis nattereri*
Noctule Bat	*Nyctalus noctula*
Nyctalus Bat species	*Nyctalus*
Pipistrelle Bat species	*Pipistrellus*
Serotine	*Eptesicus serotinus*
Soprano Pipistrelle	*Pipistrellus pygmaeus*
Whiskered/Brandt's Bat	*Myotis mystacinus/brandtii*
Birds	
Common Name	**Latin Name**
A Bird	*Larus argentatus argentatus*
Baltic Gull	*Larus fuscus fuscus*
Barnacle Goose	*Branta leucopsis*
Bittern	*Botaurus stellaris*
Black Redstart	*Phoenicurus ochruros*
Brambling	*Fringilla montifringilla*
Cetti's Warbler	*Cettia cetti*
Common Redpoll	*Acanthis flammea*
Common Sandpiper	*Actitis hypoleucos*
Common Scoter	*Melanitta nigra*
Common Tern	*Sterna hirundo*
Crossbill	*Loxia curvirostra*

Cuckoo	*Cuculus canorus*
Curlew	*Numenius arquata*
Dunlin	*Calidris alpina*
Dunnock	*Prunella modularis*
Fieldfare	*Turdus pilaris*
Firecrest	*Regulus ignicapilla*
Gadwall	*Mareca strepera*
Golden Plover	*Pluvialis apricaria*
Goldeneye	*Bucephala clangula*
Grasshopper Warbler	*Locustella naevia*
Green Sandpiper	*Tringa ochropus*
Greenfinch	*Chloris chloris*
Grey Partridge	*Perdix perdix*
Grey Wagtail	*Motacilla cinerea*
Herring Gull	*Larus argentatus*
Hobby	*Falco subbuteo*
Honey-buzzard	*Pernis apivorus*
House Martin	*Delichon urbicum*
House Sparrow	*Passer domesticus*
Kingfisher	*Alcedo atthis*
Lapwing	*Vanellus vanellus*
Lesser Black-backed Gull	*Larus fuscus*
Lesser Redpoll	*Acanthis cabaret*
Lesser Spotted Woodpecker	*Dryobates minor*
Lesser Whitethroat	*Curruca curruca*
Linnet	*Linaria cannabina*
Little Egret	*Egretta garzetta*
Marsh Tit	*Poecile palustris*
Mistle Thrush	*Turdus viscivorus*
Nightingale	*Luscinia megarhynchos*
Nightjar	*Caprimulgus europaeus*
Osprey	*Pandion haliaetus*
Peregrine	*Falco peregrinus*
Pied Flycatcher	*Ficedula hypoleuca*
Pochard	*Aythya ferina*
Red Kite	*Milvus milvus*
Red-necked Grebe	*Podiceps grisegena*
Redwing	*Turdus iliacus*
Reed Bunting	*Emberiza schoeniclus*
Ring Ouzel	*Turdus torquatus*
Ring-necked Parakeet	*Psittacula krameri*
Ruddy Shelduck	*Tadorna ferruginea*
Sand Martin	*Riparia riparia*

Sandwich Tern	*Thalasseus sandvicensis*
Scaup	*Aythya marila*
Shag	*Gulosus aristotelis*
Shelduck	*Tadorna tadorna*
Short-eared Owl	*Asio flammeus*
Skylark	*Alauda arvensis*
Smew	*Mergellus albellus*
Song Thrush	*Turdus philomelos*
Spotted Flycatcher	*Muscicapa striata*
Starling	*Sturnus vulgaris*
Swift	*Apus apus*
Tawny Owl	*Strix aluco*
Tree Pipit	*Anthus trivialis*
Tree Sparrow	*Passer montanus*
Turtle Dove	*Streptopelia turtur*
Whinchat	*Saxicola rubetra*
White-fronted Goose	*Anser albifrons*
Willow Tit	*Poecile montanus*
Woodcock	*Scolopax rusticola*
Yellow Wagtail	*Motacilla flava*
Crustaceans	
Common Name	**Latin Name**
Chinese Mitten Crab	*Eriocheir sinensis*
Fish	
Common Name	**Latin Name**
European Eel	*Anguilla anguilla*
Goldfish	*Carassius auratus*
Flora	
Common Name	**Latin Name**
Cotoneaster	*Cotoneaster*
Rhododendron ponticum	*Rhododendron ponticum*
Bluebell	*Hyacinthoides non-scripta*
Bluebell	*Hyacinthoides non-scripta x hispanica = H. x massartiana*
Box	*Buxus sempervirens*
Butcher's-broom	*Ruscus aculeatus*
Butterfly-bush	*Buddleja davidii*
Canadian Waterweed	*Elodea canadensis*
Cherry Laurel	*Prunus laurocerasus*
Common Cudweed	*Filago vulgaris*
Corn Spurrey	*Spergula arvensis*

Cornflower	*Centaurea cyanus*
Dartford Cotoneaster	*Cotoneaster obtusus*
Dittander	*Lepidium latifolium*
Evergreen Oak	*Quercus ilex*
False-acacia	*Robinia pseudoacacia*
Fringed Water-lily	*Nymphoides peltata*
Gallant Soldier	*Galinsoga parviflora*
Garden Angelica	*Angelica archangelica*
Giant Hogweed	*Heracleum mantegazzianum*
Goat's-rue	*Galega officinalis*
Green Alkanet	*Pentaglottis sempervirens*
Hairy Vetchling	*Lathyrus hirsutus*
Heath Dog-violet	*Viola canina*
Highclere Holly	*Ilex aquifolium x perado = I. x altaclerensis*
Himalayan Balsam	*Impatiens glandulifera*
Hoary Cinquefoil	*Potentilla argentea*
Hollyberry Cotoneaster	*Cotoneaster bullatus*
Japanese Knotweed	*Fallopia japonica*
Large-leaved Lime	*Tilia platyphyllos*
Least Duckweed	*Lemna minuta*
Lizard Orchid	*Himantoglossum hircinum*
Maidenhair Fern	*Adiantum capillus-veneris*
Montbretia	*Crocosmia pottsii x aurea = C. x crocosmiiflora*
New Zealand Pigmyweed	*Crassula helmsii*
Nuttall's Waterweed	*Elodea nuttallii*
Orange Balsam	*Impatiens capensis*
Parrot's-feather	*Myriophyllum aquaticum*
Sainfoin	*Onobrychis viciifolia*
Shaggy Soldier	*Galinsoga quadriradiata*
Small Balsam	*Impatiens parviflora*
Small Water-pepper	*Persicaria minor*
Snowberry	*Symphoricarpos albus*
Spanish Bluebell	*Hyacinthoides hispanica*
Stinking Hellebore	*Helleborus foetidus*
Tall Hawkweed	*Hieracium acuminatum*
Tasteless Water-pepper	*Persicaria mitis*
Thames Yellow-cress	*Rorippa palustris x amphibia = R. x erythrocaulis*
Three-cornered Garlic	*Allium triquetrum*
Tree-of-heaven	*Ailanthus altissima*
Turkey Oak	*Quercus cerris*
Wall Cotoneaster	*Cotoneaster horizontalis*
Wild Pansy	*Viola tricolor*

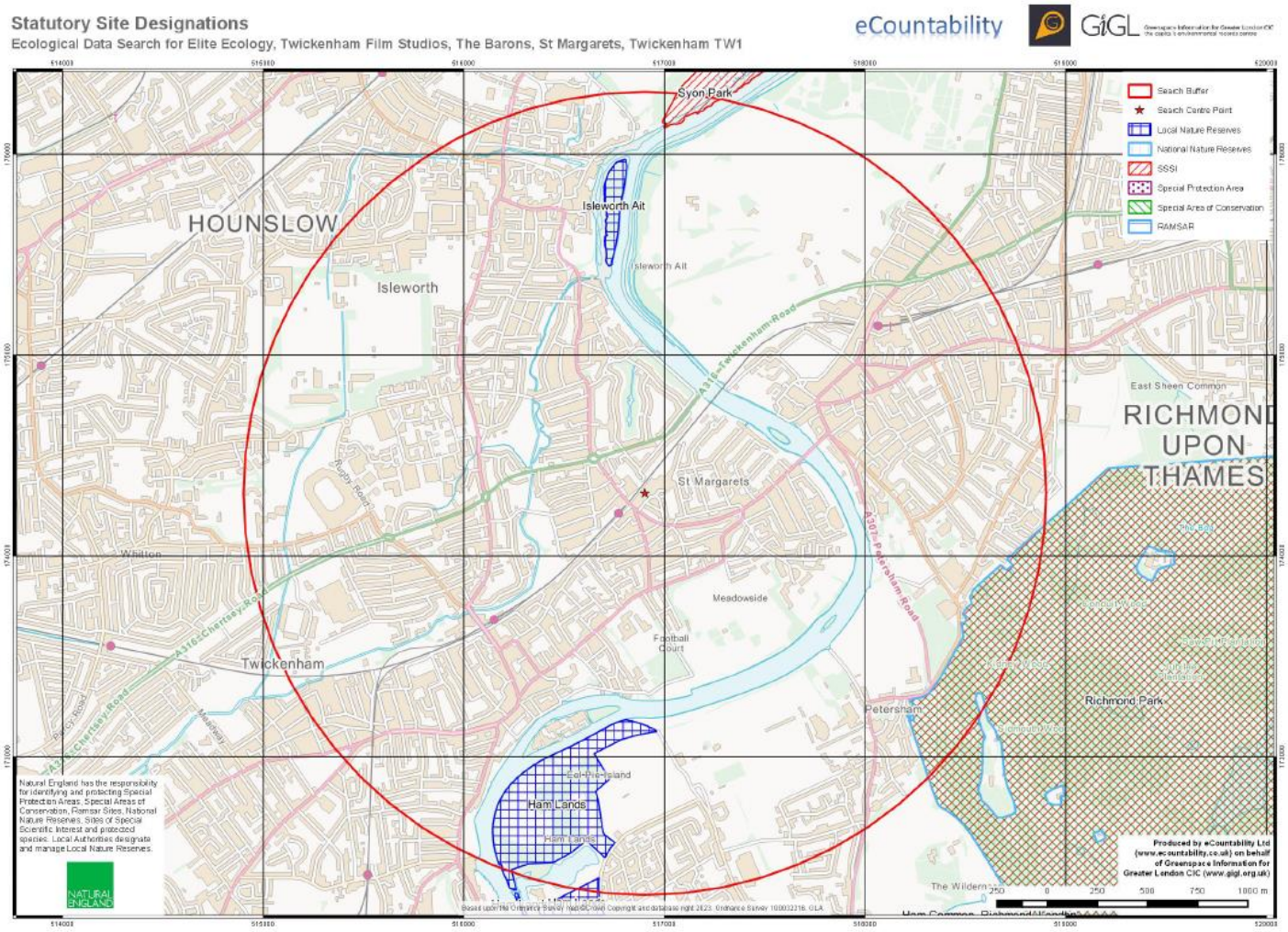
Yellow Vetchling	*Lathyrus aphaca*
Fungi	
Common Name	**Latin Name**
Boletus declivitatum	*Boletus declivitatum*
Zoned Rosette	*Podoscypha multizonata*
Invertebrates	
Common Name	**Latin Name**
A Beetle	*Ampedus elongatulus*
A Beetle	*Anommatus duodecimstriatus*
A Beetle	*Clambus pallidulus*
A Beetle	*Cossonus linearis*
A Beetle	*Cryptarcha strigata*
A Beetle	*Cypha pulicaria*
A Beetle	*Dorytomus ictor*
A Beetle	*Enicmus brevicornis*
A Beetle	*Ernoporicus fagi*
A Beetle	*Gyrophaena joyi*
A Beetle	*Holobus flavicornis*
A Beetle	*Hypera meles*
A Beetle	*Kissophagus vicinus*
A Beetle	*Leptusa norvegica*
A Beetle	*Magdalis cerasi*
A Beetle	*Nemozoma elongatum*
A Beetle	*Omalium rugatum*
A Beetle	*Orthoperus nigrescens*
A Beetle	*Phytoecia cylindrica*
A Beetle	*Platystomos albinus*
A Beetle	*Polydrusus formosus*
A Beetle	*Rhinocyllus conicus*
A Beetle	*Scaphisoma boleti*
A Beetle	*Scymnus femoralis*
A Beetle	*Scymnus schmidti*
A Beetle	*Sepedophilus testaceus*
A Beetle	*Symbiotes latus*
A Butterfly	*Lycaena phlaeas eleus*
A Caddis Fly	*Psychomyia fragilis*
A True Fly	*Epistrophe melanostoma*
A True Fly	*Myolepta dubia*
Alder Leaf Beetle	*Agelastica alni*
An Ant, Bee, Sawfly or Wasp	*Auplopus carbonarius*
An Ant, Bee, Sawfly or Wasp	*Crossocerus distinguendus*

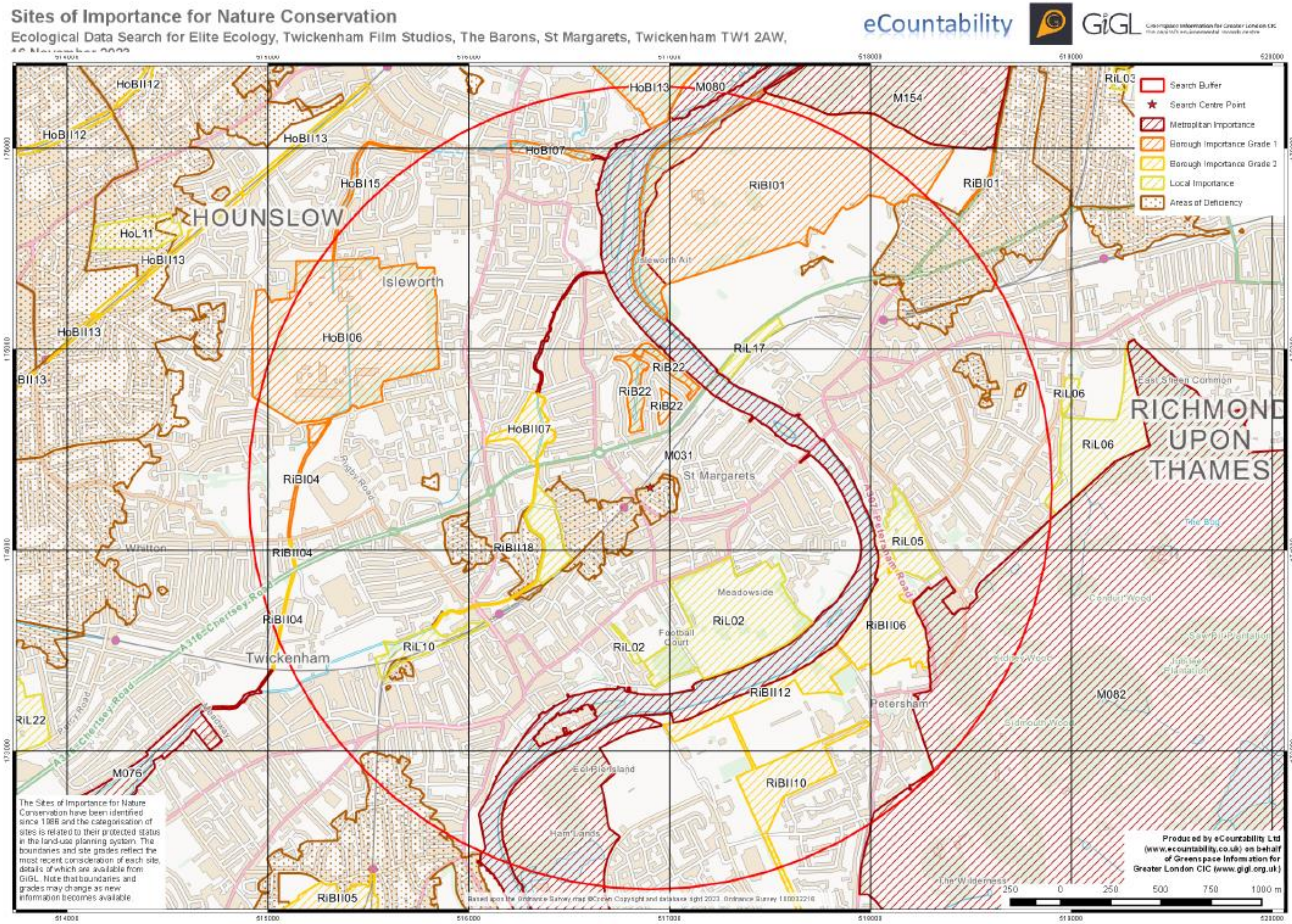
An Ant, Bee, Sawfly or Wasp	*Dolichovespula media*
Big-headed Mining Bee	*Andrena bucephala*
Brown Hairstreak	*Thecla betulae*
Brown Tree Ant	*Lasius brunneus*
Cinnabar	*Tyria jacobaeae*
Common Darter	*Sympetrum striolatum*
Cramp-Ball Fungus Weevil	*Platyrhinus resinosus*
Dark Green Fritillary	*Speyeria aglaja*
Dusky Thorn	*Ennomos fuscantaria*
Essex Skipper	*Thymelicus lineola*
Four-banded Flower Bee	*Anthophora quadrimaculata*
Garden Tiger	*Arctia caja*
Grey Dagger	*Acronicta psi*
Jersey Tiger	*Euplagia quadripunctaria*
Large Skipper	*Ochlodes sylvanus*
Lobe-spurred Furrow Bee	*Lasioglossum pauxillum*
Painted Nomad Bee	*Nomada fucata*
Red-girdled Mining Bee	*Andrena labiata*
Sharp-collared Furrow Bee	*Lasioglossum malachurum*
Shoulder-striped Wainscot	*Leucania comma*
Small Copper	*Lycaena phlaeas*
Small Copper	*Lycaena phlaeas phlaeas*
Small Heath	*Coenonympha pamphilus*
Small Heath	*Coenonympha pamphilus pamphilus*
Small Skipper	*Thymelicus sylvestris*
Southern Crablet	*Ozyptila claveata*
Stag Beetle	*Lucanus cervus*
Swollen-thighed Blood Bee	*Sphecodes crassus*
Tanner Beetle	*Prionus coriarius*
Tree Snipefly	*Chrysopilus laetus*
Wall	*Lasiommata megera*
White Admiral	*Limenitis camilla*
White Ermine	*Spilosoma lubricipeda*
White-letter Hairstreak	*Satyrium w-album*
Molluscs	
Common Name	**Latin Name**
A Mollusc	*Perforatella rubiginosa*
Other mammals	
Common Name	**Latin Name**
American Mink	*Neovison vison*
Chinese Muntjac	*Muntiacus reevesi*

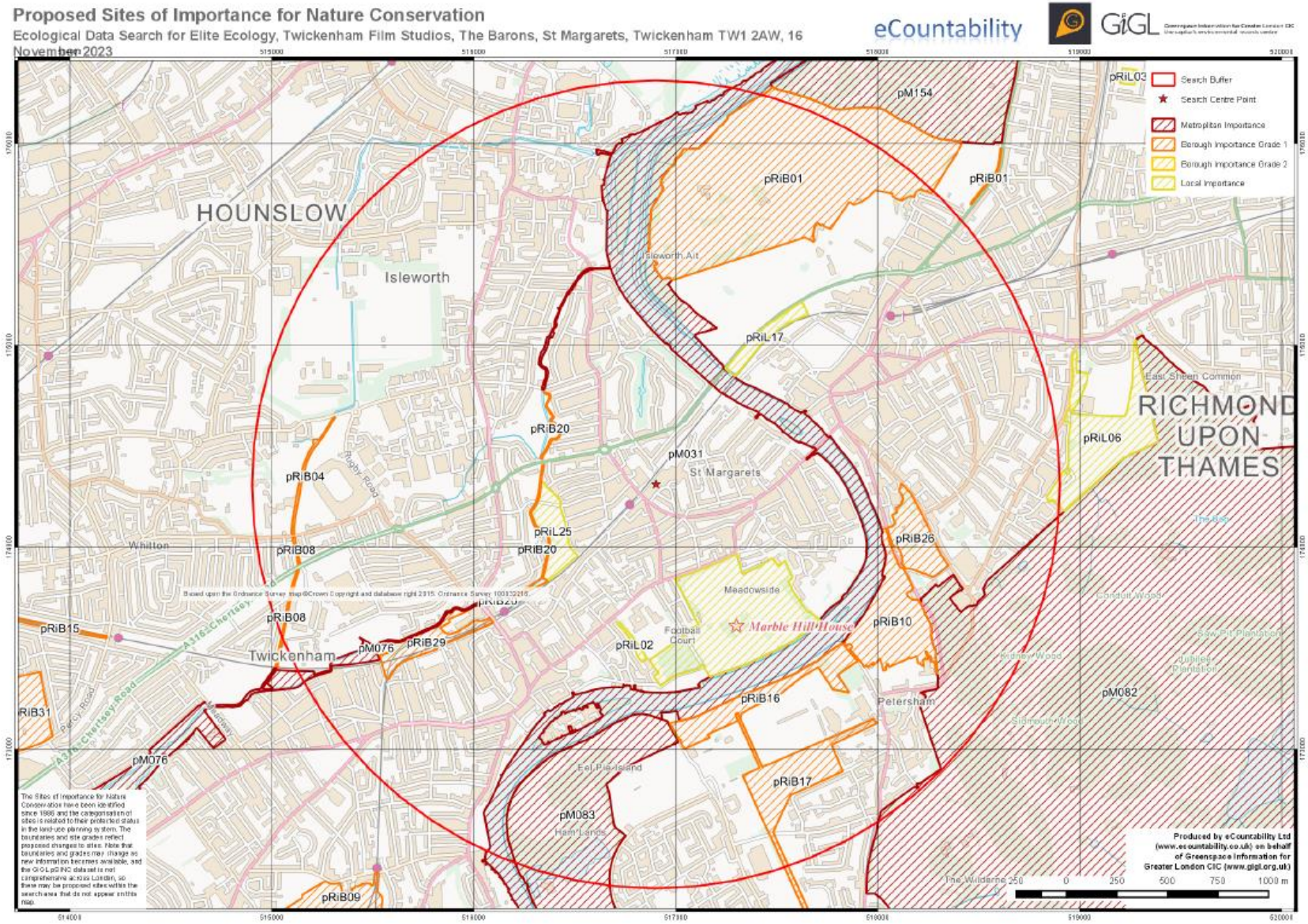
Common Porpoise	*Phocoena phocoena*
Eurasian Badger	*Meles meles*
European Water Vole	*Arvicola amphibius*
Grey Seal	*Halichoerus grypus*
Harbour Seal	*Phoca vitulina*
Hazel Dormouse	*Muscardinus avellanarius*
West European Hedgehog	*Erinaceus europaeus*
Reptiles	
Common Name	**Latin Name**
Common Lizard	*Zootoca vivipara*
Grass Snake	*Natrix helvetica*
Red-eared Terrapin	*Trachemys scripta subsp. elegans*
Slow-worm	*Anguis fragilis*

Appendix C: Desktop Study Maps

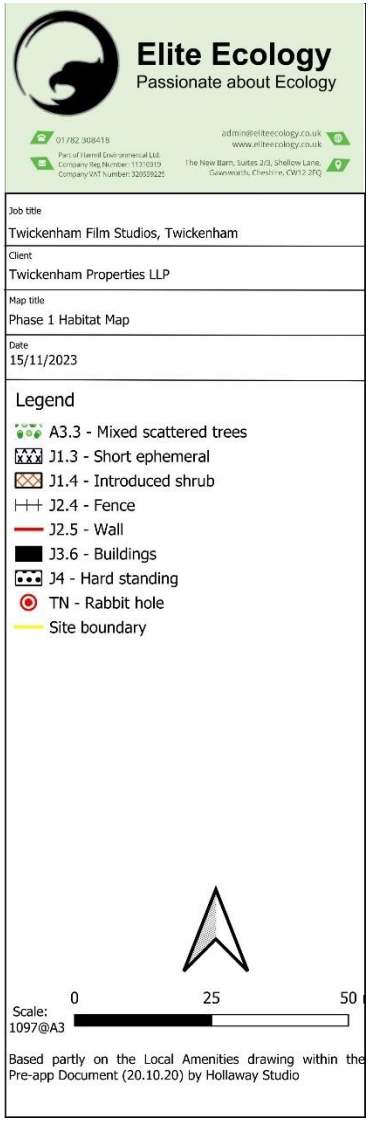
This map was provided by GIGL. All rights regarding the map belongs to them.




Sites of Importance for Nature Conservation
Ecological Data Search for Elite Ecology, Twickenham Film Studios, The Barons, St Margarets, Twickenham TW1 2AW,
eCountability
GiGL
Search Buffer
Search Centre Point
Metropolitan Importance
Borough Importance Grade 1
Borough Importance Grade 2
Local Importance
Areas of Deficiency
HOUNSLOW
Isleworth
Twickenham
St Margarets
RICHMOND UPON THAMES
Petersham
The Sites of Importance for Nature Conservation have been identified since 1986 and the categorisation of sites is related to their protected status in the land-use planning system. The boundaries and site grades reflect the most recent consideration of each site, details of which are available from GiGL. Note that boundaries and grades may change as new information becomes available.
Produced by eCountability Ltd (www.ecountability.co.uk) on behalf of Greenspace Information for Greater London CIC (www.gigl.org.uk)


Proposed Sites of Importance for Nature Conservation
Ecological Data Search for Elite Ecology, Twickenham Film Studios, The Barons, St Margarets, Twickenham TW1 2AW, 16 November 2023
eCountability
GiGL
Search Buffer
Search Centre Point
Metropolitan Importance
Borough Importance Grade 1
Borough Importance Grade 2
Local Importance
HOUNSLOW
Isleworth
Whitton
Twickenham
St Margarets
Meadowside
Petersham
RICHMOND UPON THAMES
pM154
pRiB01
pRiL17
pRiB20
pM031
pRiB04
pRiL25
pRiB08
pRiB26
pRiL06
pRiB10
pRiL02
pRiB16
pRiB17
pM083
pM082
pRiB15
pRiB31
pM076
pRiB29
pRiB09
Marble Hill House
Produced by eCountability Ltd (www.ecountability.co.uk) on behalf of Greenspace Information for Greater London CIC (www.gigl.org.uk)

Appendix D: Phase 1 Habitat Map



Appendix E: Site Photographs

Plate 1: Image showing the pebble-dashed perimeter wall at the south-west corner of the site.

Plate 2: Image showing south-west elevation of the office building within **Block B**.

Plate 3: Image showing the south-west elevation of the workshop within **Block B**.

Plate 4: Image showing the south-east elevation of the office building within **Block B**.

Plate 5: Image showing the north-east elevation of the workshop building within **Block B** (left) and the south-east elevation of **Block D1** (right).

Plate 6: Image showing the south-east elevation of **Block D1**.

Plate 7: Image showing part of the north-west elevation of **D1** with exposed brick and wooden window frames.

Plate 8: Image showing dense vegetation on railway embankment (left) and part of the south-west elevation of **D1** (right), with lap-panel fence and raised hard standing ground (centre)

Plate 9: Image showing the densely vegetated railway embankment at the north-west boundary of the site.

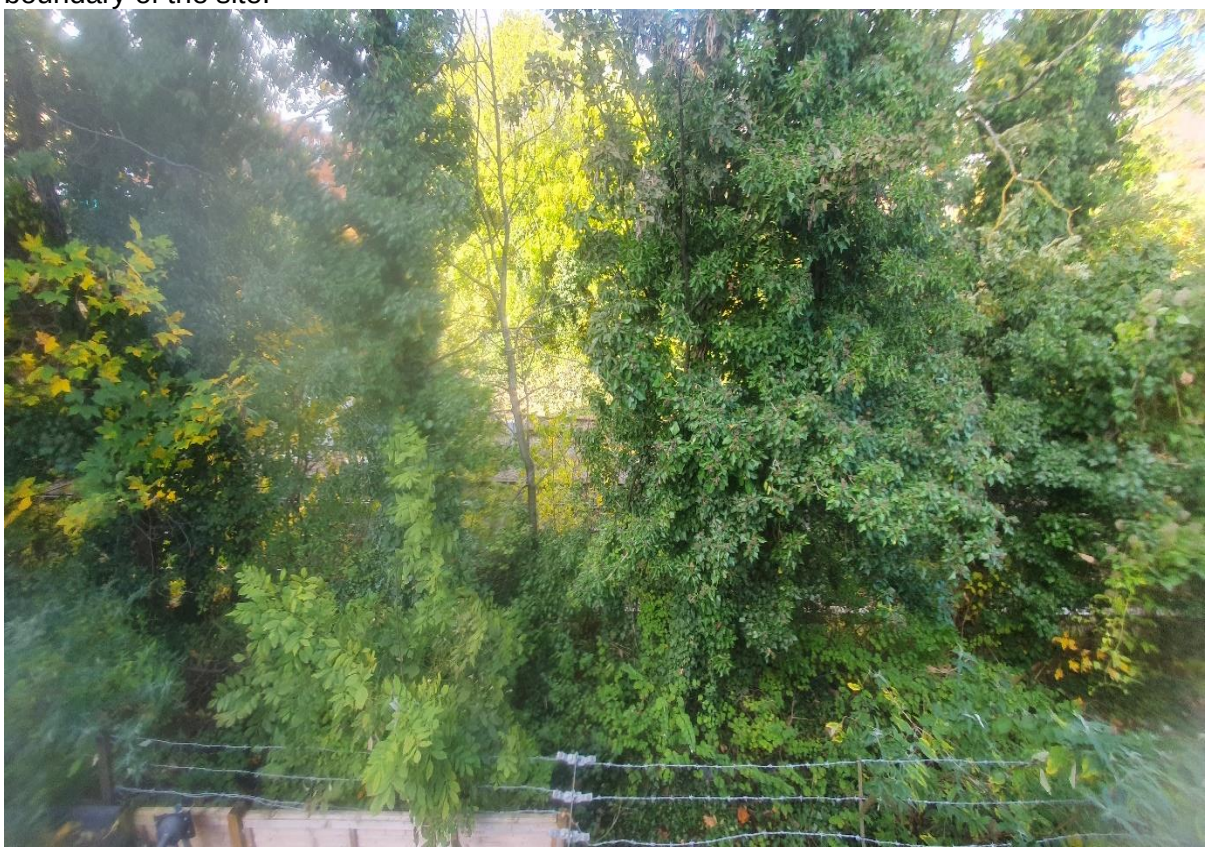


Plate 10: Image showing the south-west gable end of **D2**.

Plate 11: Image showing the north-west pitch of **D2** with clay tiles.

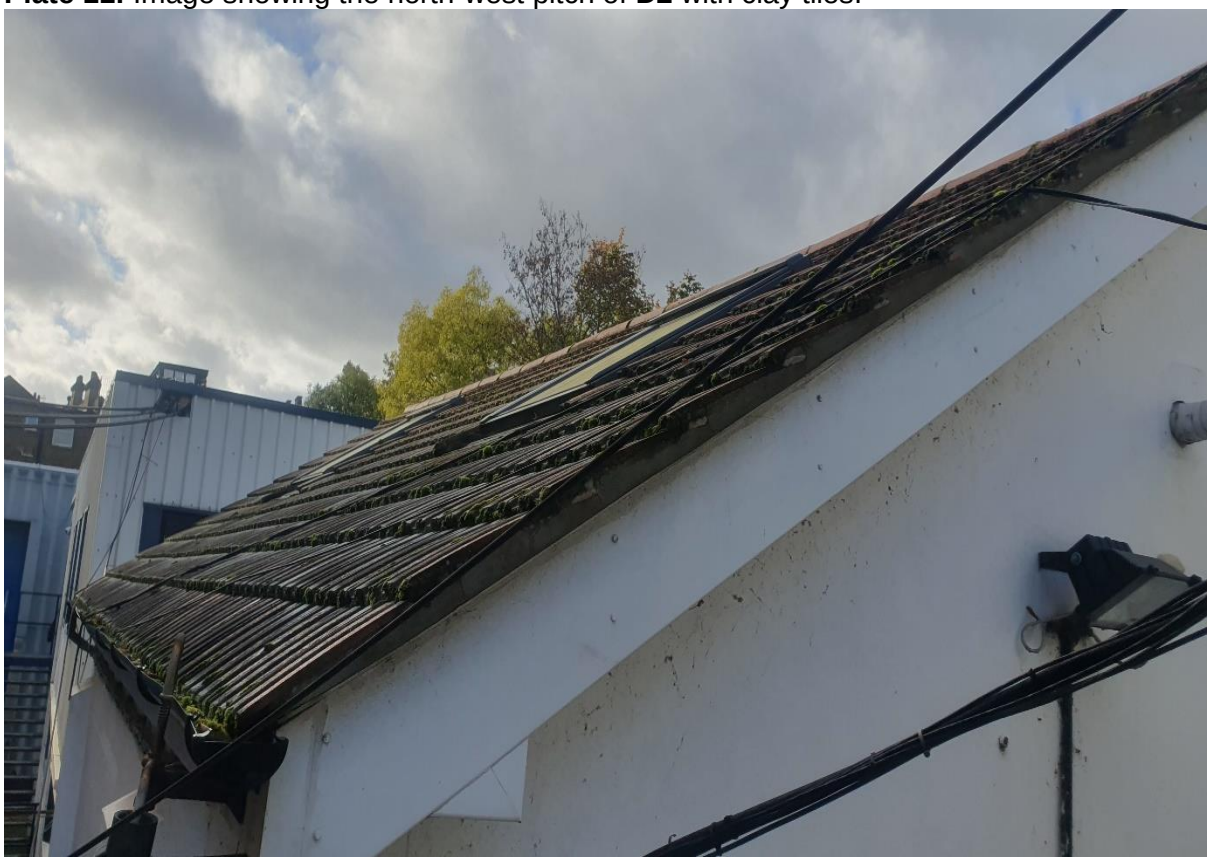


Plate 12: Image showing the north-east elevation of **Block C**.

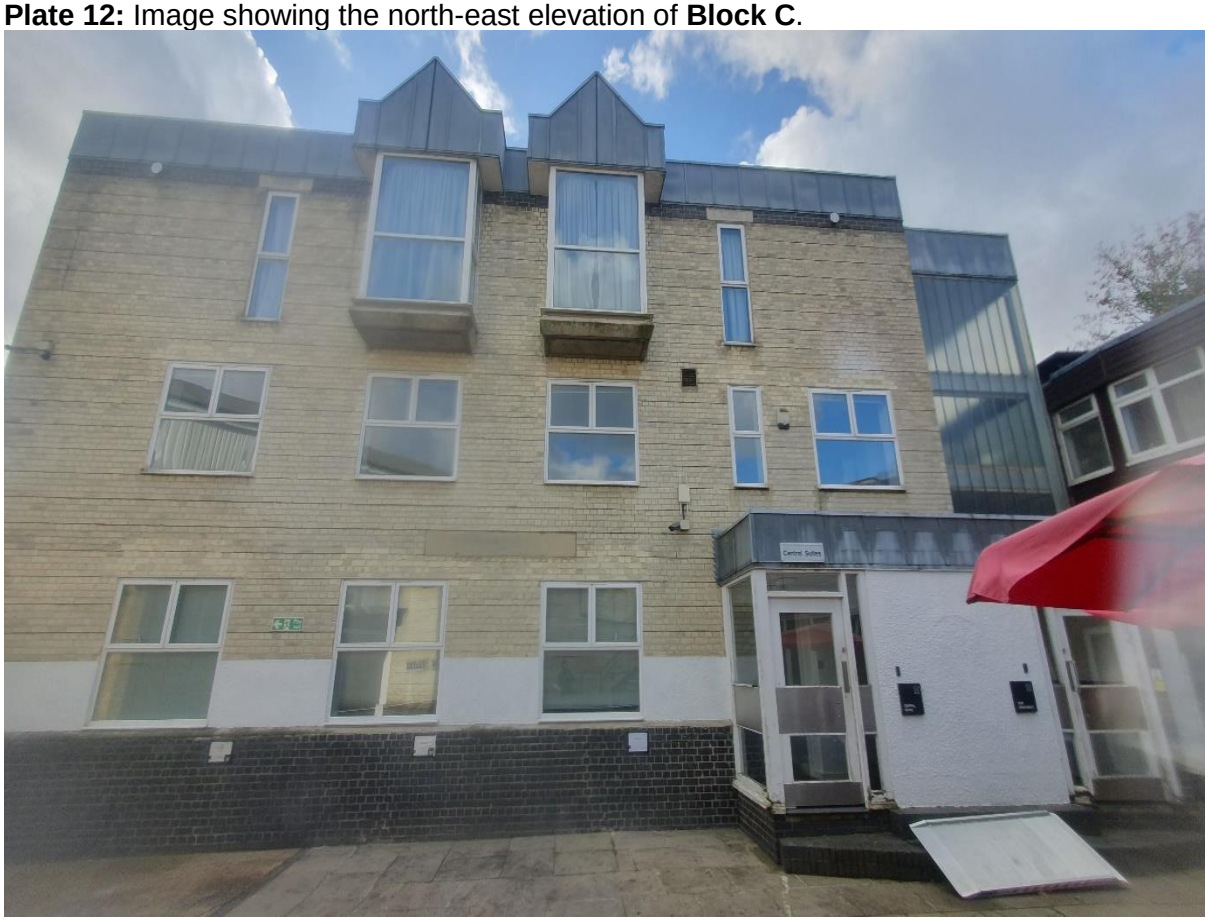


Plate 13: Image showing another part of the north-east elevation of **Block C** with one-storey ancillary building (left) and offices (right).

Plate 14: Image showing the north-east elevation of the one-storey ancillary building to be demolished within **Block C**.

Plate 15: Image showing the south-east elevation of the one-storey ancillary building to be demolished within **Block C**.

Plate 16: Image showing the south-east elevation of the studio building (left) and one-storey ancillary building (right) within **Block C**.

Plate 17: An image showing the south-west elevation of the studio building within **Block C**.

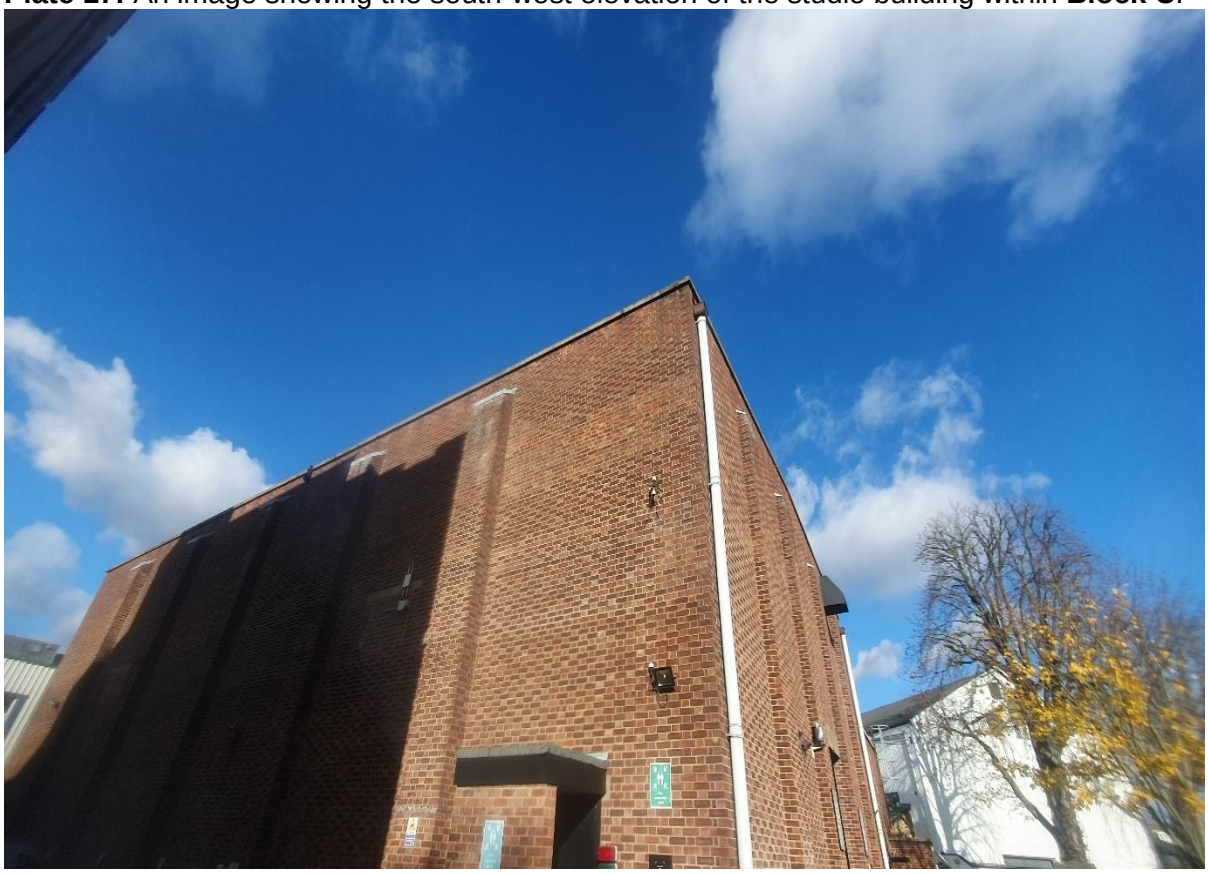


Plate 18: An image showing the gap under the lead flashing on the south-west elevation of the studio building within **Block C**.

Plate 19: An image showing the south elevations of the studio building and one-storey units within **Block F**.

Plate 20: An image showing the south-east elevations of the one-storey lean-to and the studio building within **Block F**.

Plate 21: An image showing the south-east corner of **Block F**, with south elevations of studio building (left) and offices (right), partially covered in hanging tiles.

Plate 22: An image showing the east elevation of the two-storey office building attached to the studio within **Block F** (left) and the south elevation of **Block G** (right).

Plate 23: An image showing the north elevation of **Block F.**

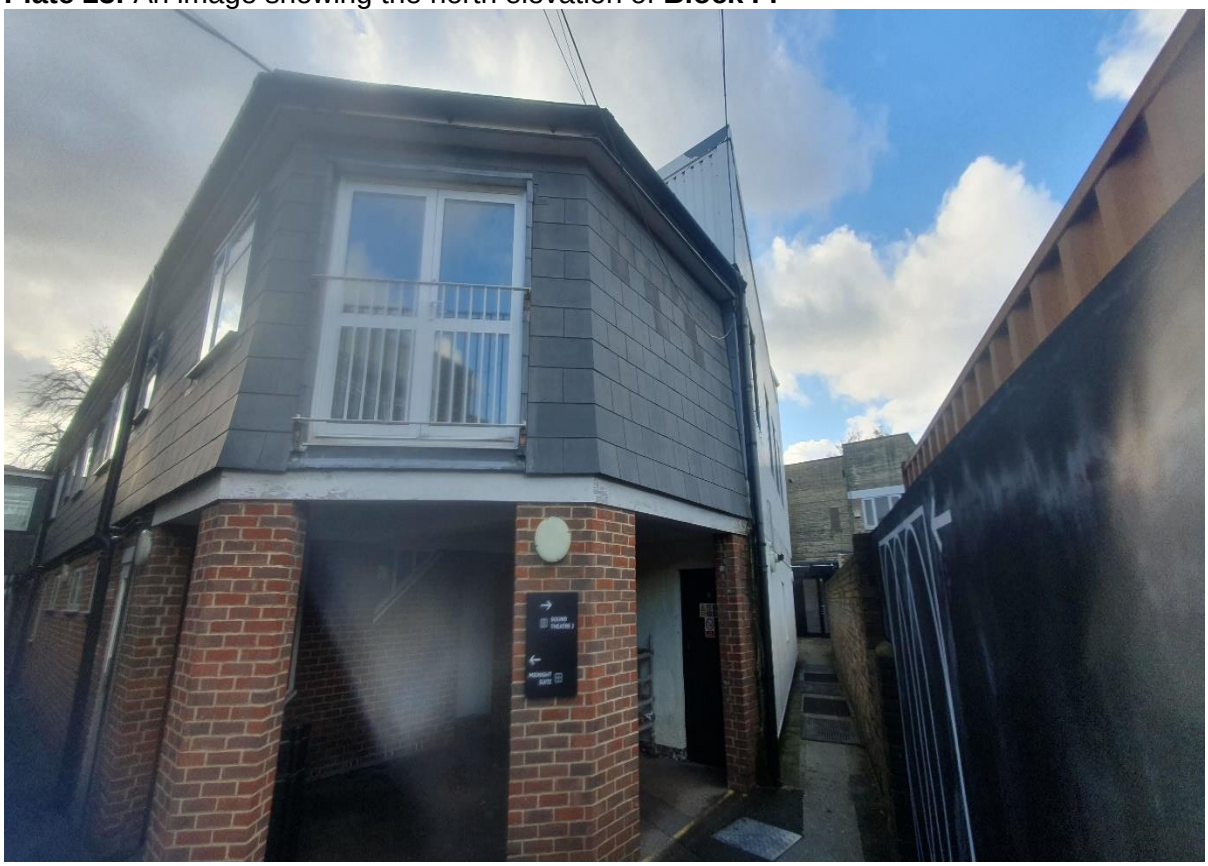


Plate 24: An image showing the north elevation of **Block G**.

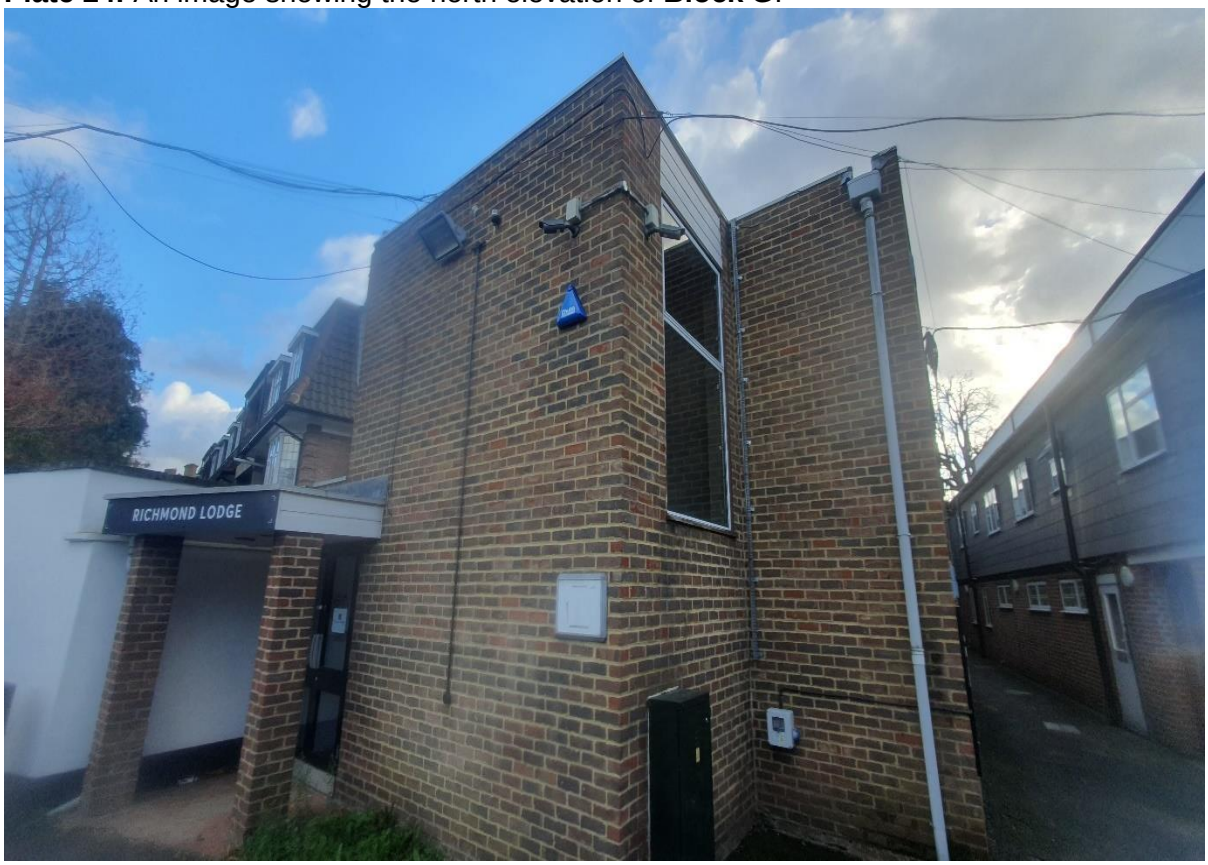


Plate 25: An image showing the east elevation of **Block G**.

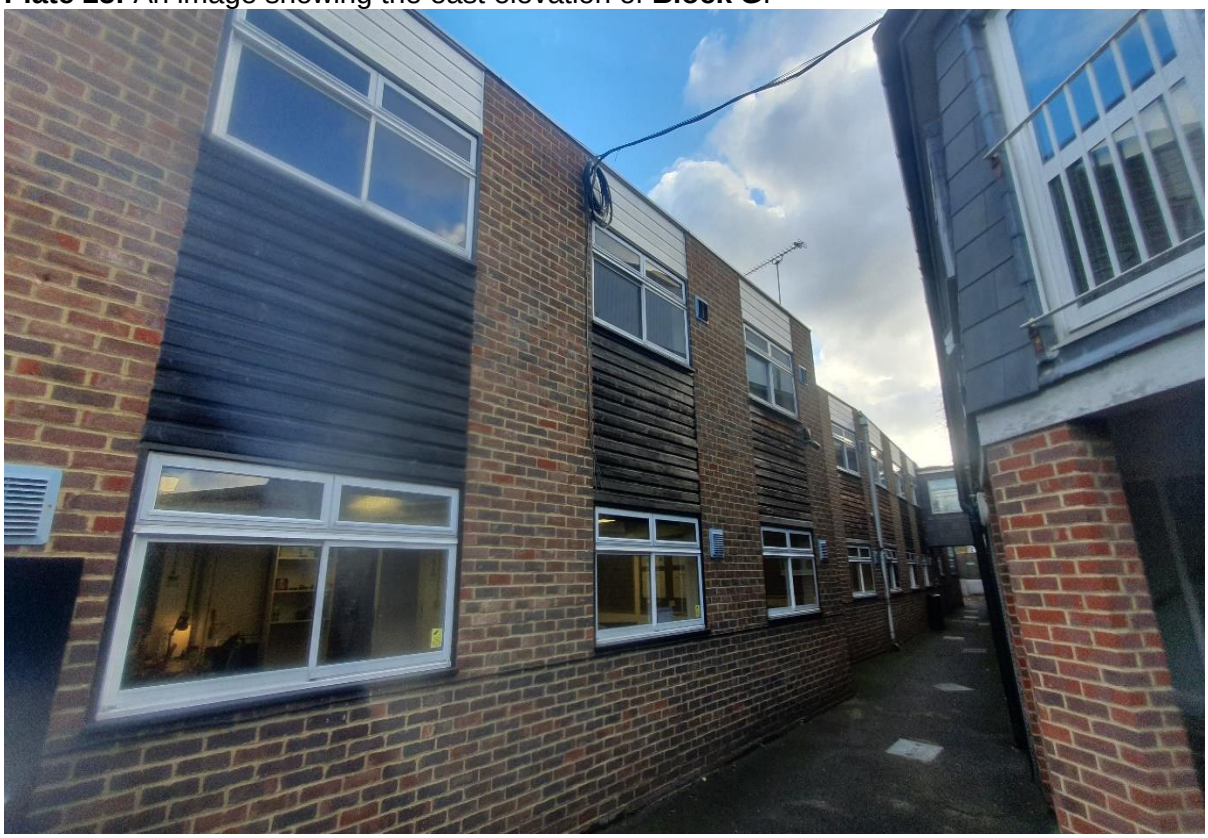


Plate 26: An image showing the south-west and south-west elevations of **Block H**.

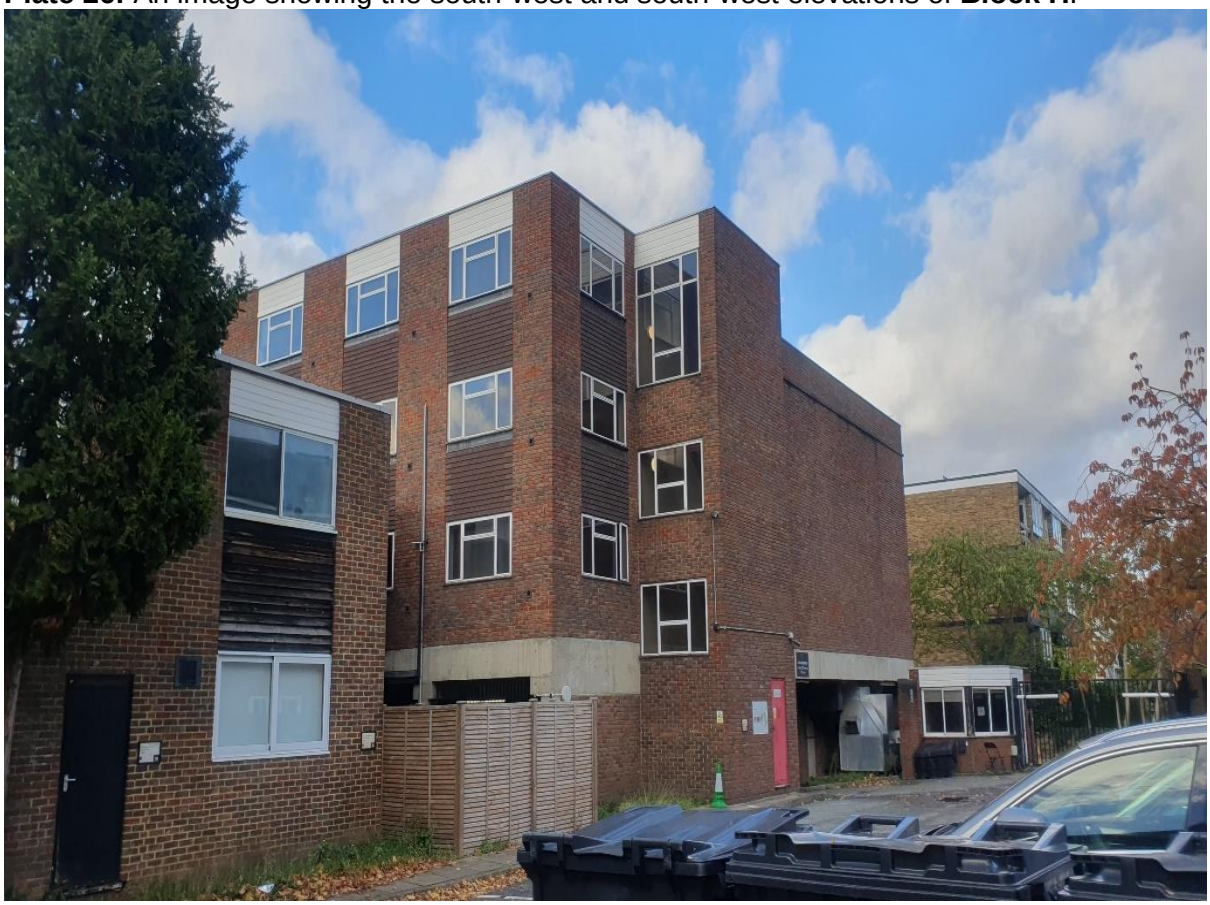


Plate 27: An image showing the south-east elevations of **Block H.**

Plate 28: An image showing the south-east corner of **Block H**, with mixed scattered trees and introduced shrub visible along the south-west elevation.

Plate 29: An image showing the north-west elevation of **Bock H** with gaps under lead flashing (circled in red) above cladding.

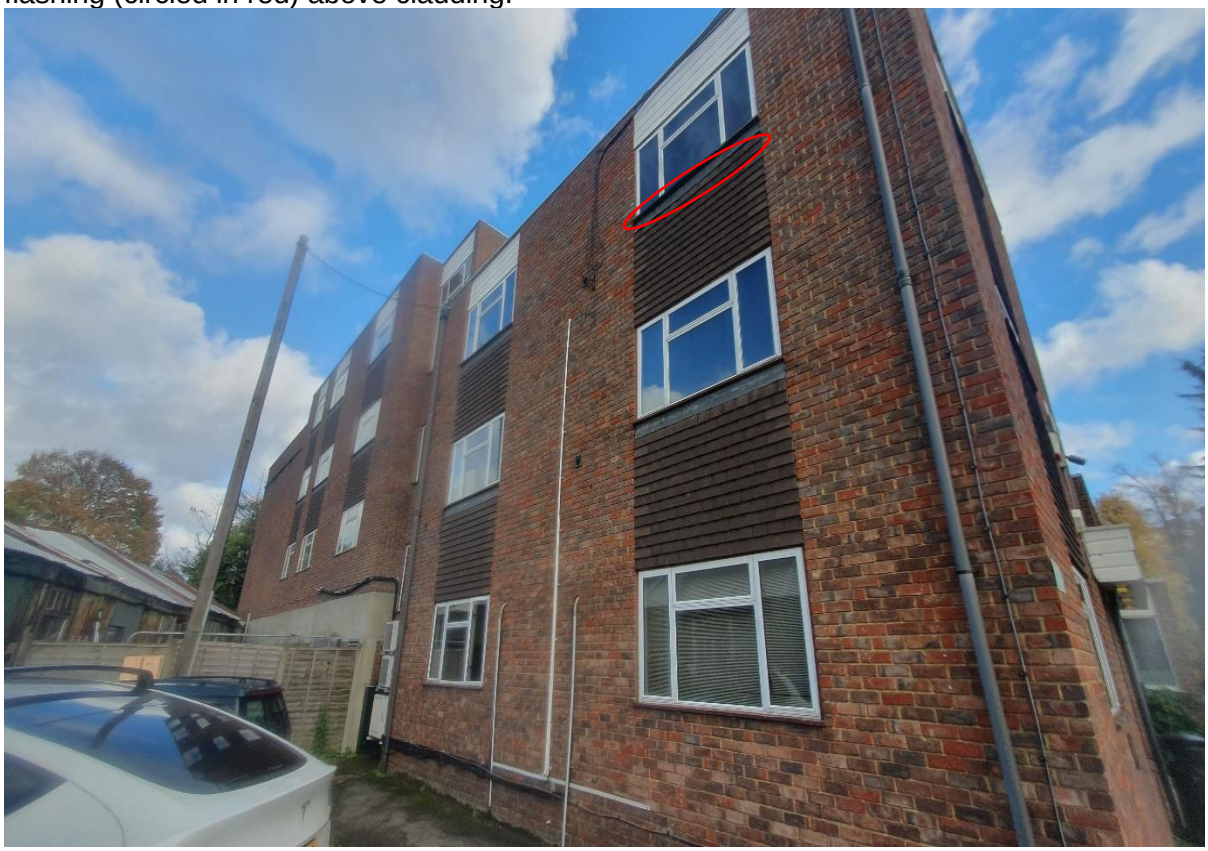


Plate 30: An image showing the south-east elevation of **Block H**.

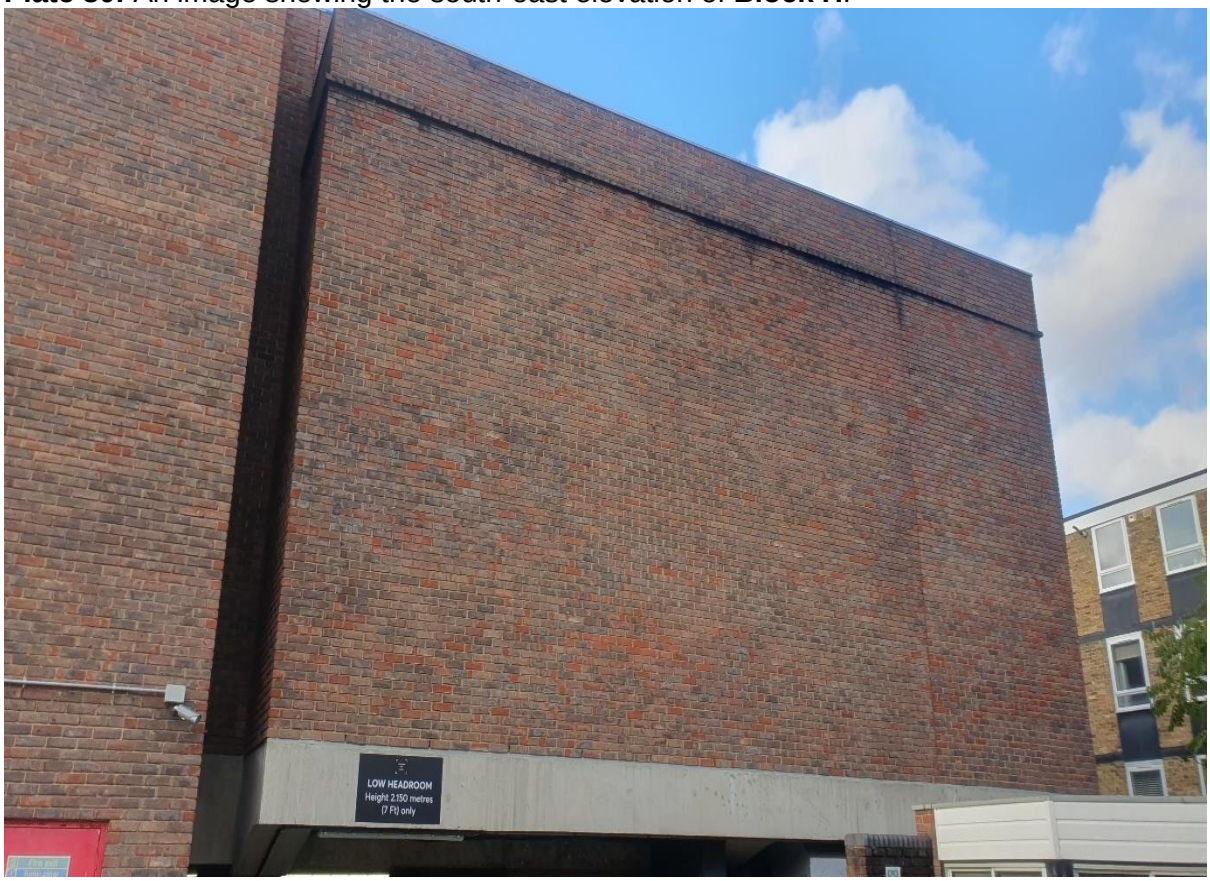


Plate 31: An image showing the mixed scattered trees, close-board fence and short ephemeral habitat along the south-west border of the **Block H** car park.

Plate 32: An image showing the mixed scattered trees, close-board fence and short ephemeral habitat along the south-west border of the **Block H** car park.

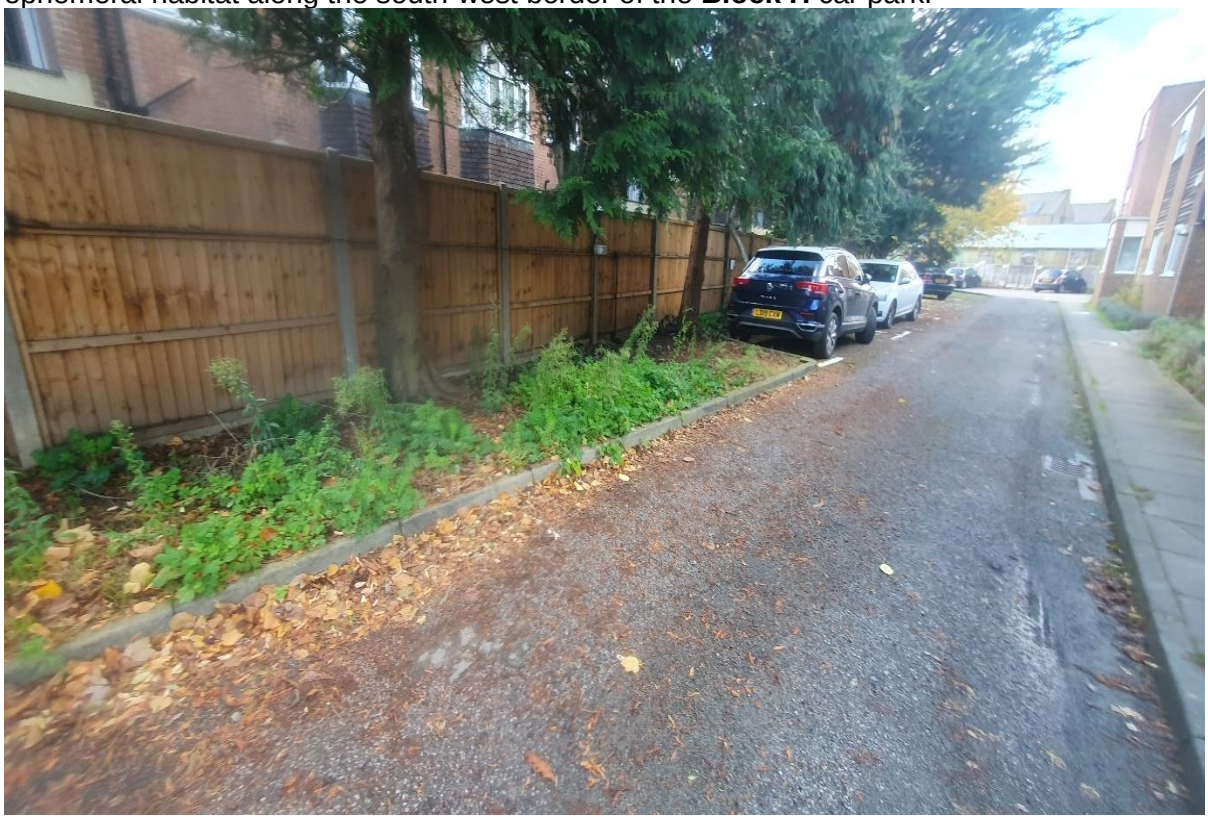


Plate 33: An image showing the short ephemeral habitat (left), mixed scattered trees (left) and exposed brick walls within the car park along the eastern boundary of the site.

Plate 34: An image showing the mixed scattered trees and short ephemeral habitat along the north-east boundary.

Plate 35: An image showing the north-east corner of the site with gate (left) and individual tree (right).

Appendix F: Biodiversity Legislation and Policy

General Legislation and Policy:
The framework of legislation and policy which underpins nature conservation in England. This is a material consideration in the planning process in England.

Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2010 as amended)

The Conservation of Habitats and Species Regulations 2017 consolidate and update the Conservation Regulations 1994 and the conservation of habitats and species regulations 2010 (and all their amendments). The Conservation of Habitats and Species Regulations 2017 are the principal means by which the EEC Council Directive 92/43 (The Habitats Directive) as amended is transposed into English and Welsh law.

The Conservation of Habitats and Species Regulations 2017 place duty upon the relevant authority of government to identify sites which are of importance to the habitats and species listed in Annexes I and II of the Habitats Directive. Those sites which meet the criteria are, in conjunction with the European Commission, designated as Sites of Community Importance, which are subsequently identified as Special Areas of Conservation (SAC) by the European Union member states. The regulations also place a duty upon the government to maintain a register of European protected sites designated as a result of EC Directive 79/409/EEC on the Conservation of Wild Birds (The Birds Directive). These sites are termed Special Protection Areas (SPA) and, in conjunction with SACs, form a network of sites known as Natura 2000. The Habitats Directive introduces for the first time for protected areas, the precautionary principle; that is that projects can only be permitted having ascertained no adverse effect on the integrity of the site. Projects may still be permitted if there are no alternatives, and there are imperative reasons of overriding public interest.

The Conservation of Habitats and Species Regulations 2017 also provide for the protection of individual species of fauna and flora of European conservation concern listed in Schedules 2 and 5 respectively. Schedule 2 includes species such as otter and great crested newt for which the UK population represents a significant proportion of the total European population. It is an offence to deliberately kill, injure, disturb or trade these species. Schedule 5 plant species are protected from unlawful destruction, uprooting or trade under the regulations.

The Wildlife and Countryside Act (WCA) 1981 (As amended)

The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Conservation (Natural Habitats. & c.) Regulations 1994 (as amended), offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).

Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species.

The Countryside and Rights of Way (CRoW) Act 2000

The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife legislation detailed in the WCA. It places a duty on government departments and the National Assembly for Wales to have regard for biodiversity, and provides increased powers for the protection and maintenance of SSSIs.

The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

The Natural Environment and Rural Communities (NERC) Act 2006

Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all of their functions. Sections 41 (England) and 42 (Wales)

list habitats and species of principal importance to the conservation of biodiversity. These lists supersede Section 74 of the CRoW Act 2000. These species and habitats are a material consideration in the planning process.

The Hedgerow Regulations 1997

The Hedgerow Regulations make provision for the identification of important hedgerows which may not be removed without permission from the Local Planning Authority.

UK Biodiversity Action Plan

The United Kingdom Biodiversity Action Plan (UKBAP), first published in 1994 and updated in 2007, is a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UKBAP contains a list of priority habitats and species of conservation concern in the UK, and outlines biodiversity initiatives designed to enhance their conservation status. Lists of Broad and Local habitats are also included. The priority habitats and species correlate with those listed on Section 41 and 42 of the NERC Act.

The UKBAP requires that conservation of biodiversity is addressed at a County level through the production of Local BAPs. These are complementary to the UKBAP, however are targeted towards species of conservation concern characteristic of each area. In addition, a number of local authorities and large organisations have produced their own BAPs. UKBAP and Local BAP targets with regard to species and habitats are a material consideration in the planning process.

Planning Policy (England) and National Planning Policy Framework

In early 2012, the National Planning Policy Framework (NPPF) replaced much previous planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. The government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9, still remains valid. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives. The latest National Planning Policy Framework was updated in February 2019, with the section in relation to conserving the natural environment being located within section 15.

Section 15, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and, where possible, provide net gains in biodiversity. Opportunities to incorporate biodiversity gains into a development should be encouraged.

If a proposed development would result in significant harm to the natural environment which cannot be avoided (through the use of an alternative site with less harmful impacts), mitigated or compensated for (as a last resort) then planning permission should be refused.

Species Specific Legislation

This section contains a summary of legislation with relation to the species present or potentially present in the survey area. The reader should refer to the original legislation for definitive interpretation.

Nesting and Nest Building Birds

Nesting and nest building birds are protected under the Wildlife and Countryside Act WCA 1981 (as amended). Some species (listed in Schedule 1 of the WCA) are protected by special penalties.

Subject to the provisions of the act, if any person intentionally:

- kills, injures or takes any wild bird;
- takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
- takes or destroys an egg of any wild bird, he shall be guilty of an offence.

'Reckless' offences with regard to the disturbance of nesting wild birds included in Schedule 1 of the Wildlife and Countryside Act were added by the Countryside and Rights of Way Act 2000.

The Natural Environment and Rural Communities (NERC) Act 2006 places a duty on Government Departments to have regard for the conservation of biodiversity and maintains lists of species and habitats which are of principal importance for the purposes of conserving biodiversity in England and Wales. These lists include a number of bird species.

The reader is referred to the original legislation for the definitive interpretation.

Badger

The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to:

- wilfully kill, injure, take or attempt to kill, injure or take a badger;
- possess a dead badger or any part of a badger;
- cruelly ill-treat a badger;
- use badger tongs in the course of killing, taking or attempting to kill a badger;
- dig for a badger;
- sell or offer for sale or control any live badger;
- mark, tag or ring a badger; and
- interfere with a badger sett by:
- damaging a sett or any part thereof;
- destroying a sett;
- obstructing access to a sett;
- causing a dog to enter a sett; and
- disturbing a badger while occupying a sett.

The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger".

Bats

All species of bat are fully protected under a variety of domestic, European and international legislation and conventions. These include:

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- Conservation of Habitats and Species Regulations 2017
- Countryside Rights of Way Act 2000
- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

In addition to this, some species have additional protection by being listed on the UK Biodiversity Action Plan (UKBAP).

The legislation afforded to bats makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which protects birds, nests, eggs and nestlings from harm. In addition to this, some rarer species, such as barn owls are afforded extra protection.

National Planning Policy Framework, Section 15:

The published framework in 2018 replaces the previous Planning Policy Statement 9 and National Planning Policy (dated 2012).

Section 15: Conserving and enhancing the natural environment reaffirms the government's commitment to maintaining green belt protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife. It also aims to improve the quality of the natural environment and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.

Biodiversity 2020:

This sets out to halt overall biodiversity loss and support healthy well-functioning ecosystems by establishing coherent ecological networks, with more and better places for nature, to the benefit of wildlife and people. The government's policy is aimed at individuals, communities, local authorities, charities, business and government, which all have a role to play in delivering Biodiversity 2020.

Freshwater White-clawed Crayfish

The white-clawed crayfish is partially protected under Wildlife and Countryside Act 1981 (as amended). It is listed on schedule 5 and therefore afforded protection under Section 9 (1 and 5). Therefore, it is an offence to take white-clawed crayfish and to sell, or attempt to sell, any part of the species, alive or dead, or intend to buy or sell.

Great Crested Newt

The great crested newt (*Triturus cristatus*) is fully protected under a variety of legislation and conventions. These include:

- Bern Convention (Appendix II)
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)
- Conservation of Habitats and Species Regulations 2017
- EU Habitats Directive (Annex II and IV)
- Nature Conservation (Scotland) Act 2004
- NERC Act 2006 (Section 41 England; Section 42 Wales)
- Wildlife and Countryside Act 1981 (as amended)

In addition to this, the great crested newt has been listed as a priority species on the UK Biodiversity Action Plan (UKBAP).

This legislation covers all aspects of newt life stages (eggs, efts and adult newts) and makes it illegal to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a great crested newt while it is occupying a structure or place which it uses for that purpose.

Licenses can be obtained from Natural England (DEFRA) under the Conservation (Natural Habitats etc.) Regulations 1994, to permit activities for the purposes of:

- Regulation 44(2)(e): Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment, or
- Regulation 44(2)(f): Preventing the spread of disease
- Regulation 44(2)(g): Preventing serious damage to any form of property or fisheries

  Or
- If there is no satisfactory alternative.

The above regulations allow people to carry out activities which would otherwise be illegal.

Hazel Dormouse

Hazel Dormouse and their habitats are protected by:

- Wildlife and Countryside Act 1981 (as amended)
- Countryside Rights of Way (CROW) 2000
- The Natural Environment and Rural Communities Act 2006
- Conservation of Habitat and Species Regulations 2017

These make it an offence to:

- Capture, injure or kill a Hazel Dormouse
- Disturb a Hazel Dormouse
- Damage or destroy breeding or nesting sites in use by Hazel Dormice
- Disturb a Dormouse whilst it is occupying a structure or place that they use for shelter or protection
- Obstruct access to any structure or place that the Dormouse uses for shelter and protection.
- To possess or control any live or dead specimens.

Otter

Otters are fully protected by the European Habitats Directive (92/43/EEC) by being incorporated in annex II of the legislation. In addition to this, otters are listed on schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- To intentionally kill, injure or take an otter.
- To possess or control any live or dead specimens.
- To intentionally or recklessly damage, destroy or obstruct access to any structure, feature or place of shelter in use by otters.
- To intentionally or recklessly disturb an otter whilst it is in occupation of a feature or structure.
- To sell, possess or transport for the purpose of sale or publicly declare the desire to buy or sell otters.

Reptiles

All six native reptiles within Great Britain are legally protected, with the extent of protection varying dependent upon their rarity and conservation importance.

Those that receive full protection under the Wildlife and Countryside Act 1981 (as amended) are the rare sand lizard and smooth snake. These species also receive protection under the Conservation (Natural Habitats &c.) Regulations 1994 (also referred to as the Habitats Directive). This means that they are protected from deliberate disturbance, killing, injury or capture and the habitat in which they live is also fully protected against damage or destruction. Any activity involving disturbance or damage to habitats utilised by sand lizards or smooth snakes would require a licence issued by the Department of the Environment, Food and Rural Affairs (DEFRA) following consultation with the statutory nature conservation organisation (Natural England).
The remaining four reptile species are ‘partially protected’ under the Wildlife and Countryside Act 1981 (as amended), with these species being slow-worm, common lizard, grass snake and adder. This means that these species are protected against intentional killing, injuring and against sale, but their habitat is not protected. In planning terms this means that the presence of these species is a material consideration and there is a requirement to ensure that any reptile interest is safeguarded. If a proposed development is likely to have an impact on these reptiles, then the statutory nature conservation organisation must be notified, particularly if capture and translocation is being proposed. In some parts of the UK, sites that support common reptile species such as common lizards and slow-worms can qualify as County Wildlife Sites. Sites of this designation may receive protection in planning policy.

Water Voles

Water Voles are fully protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- To intentionally kill, injure or take a water vole.
- To possess or control any live or dead specimens.
- To intentionally or recklessly damage, destroy or obstruct access to any structure, feature or place of shelter in use by water voles.
- To intentionally or recklessly disturb a water vole whilst it is in occupation of a feature or structure.
- To sell, possess or transport for the purpose of sale or publicly declare the desire to buy or sell water voles.

Non-Native Floral Species

It is an offence under schedule 9 of the Wildlife and Countryside Act 1981 (as amended) to plant or otherwise cause non-native flora to grow in the wild. This includes the transportation of earth that has previously had non-native species growing and includes the spread of the species.

All stands of non-native floral species need to be disposed of safely at a licenced landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991

Appendix G: Bats and Artificial Light

Artificial lighting is known to affect bat's roosting and foraging behaviour, with lighting resulting in a range of impacts that includes roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including the common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux.

In contrast, slow flying bats such as the myotid bats (Myotis spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012).

Current recommendations for all bat species specify that no bat roost should be directly illuminated.

Due to the impacts of lighting, mitigation and sensitive lighting design schemes are required for projects where bats are present. These should include bat friendly lighting plans that should aim to avoid lighting wherever possible. If this is not possible, then the minimisation of any lighting impacts is required by adopting the following measures:

- To introduce lighting curfews or use of PIR sensors.

  Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of time.

- To consider no lighting solutions where possible.

  Options such as white lining, good signage and LED cats eyes should be considered as preferable. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.

- To use only high pressure sodium or warm white LED lamps where possible.

  High pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).

- To minimise the spread of light.

  The light spread should be kept at or near horizontal to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.

- To consider the height of the lighting column.

  While downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide up-lighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce any up-lighting.

- To avoid reflective surfaces below lights.

  The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

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