SILVERTOWN TUNNEL

DOCUMENT TITLE:

Ecology Management Plan – Royal Borough of Greenwich

DOCUMENT NUMBER:

ST150030-RLC-ZZZ-06-ZZ-PLN-EN-0004

PURPOSE OF ISSUE	For Acceptance	**DOCUMENT SUITABILITY**	S3 - For Review & Comment	**TOTAL PAGES (Including this page)**	25

Prepared by	Checked by	Approved by	Date	Revision
CJV Ecology Advisor	CJV Environment Manager	CJV Project Director	04/08/2020	P03

Issue and Revision Control

Distribution and revision control is managed through the Electronic Document Management System – ASITE, with the latest revision displayed.

Document uncontrolled when printed.

Revision History			
Rev No	**Date**	**Summary of Changes**	**Section & Number**
P01	30/06/2020	First Issue, site specific plan developed from previous project wide Ecology Management Plan	Multiple
P02	20/07/2020	Update based on consultation with RBG	Multiple
P03	04/08/2020	Update to include INNS and TFL comments	Multiple

Contents

1. Introduction 4
1.1 Introduction 4
1.2 Purpose 4
1.3 Project Details 5
2. Ecological Resources 6
2.1 Existing Site Description 6
2.2 Existing Designated Sites 7
2.3 Existing Habitats 7
2.4 Existing Protected Species 9
2.5 Existing Terrestrial Species 9
2.6 Existing Marine Species 11
2.7 Existing Invasive Non-Native Species 13
3. Planning 15
3.1 Aims and Objectives 15
3.2 Roles and Responsibilities 15
3.3 Training and Awareness 16
3.4 Legislative Requirements 16
4. Ecological Management 17
4.1 Measures to Protect and Minimise Construction Impact 17
4.2 Site Clearance Plan 19
4.3 Retained and Enhanced Habitats 20
4.4 Newly Created Habitats 20
5. Checking 21
5.1 Compliance Checks 21
5.2 Ecological Monitoring 21
5.3 Review 21
Appendix 1 – Greenwich Phase 1 Survey Report 23
Appendix 2 – Greenwich Bat Survey Results 24
Appendix 3 – Invasive Species Survey 25

1. Introduction

1.1 Introduction

The Silvertown Tunnel (STT) Scheme involves the construction of a twin bore road tunnel providing a new connection between the A102 Blackwall Tunnel Approach on the Greenwich Peninsula (Royal Borough of Greenwich) and the Tidal Basin roundabout junction on the A1020 Lower Lea Crossing / Silvertown Way (London Borough of Newham). The project was formally granted development consent through a Development Consent Order (DCO) issued by the Department of Transport in May 2018. STT will be approximately 1.4km long and able to accommodate large vehicles including double-decker buses. It will include a dedicated bus, coach and goods vehicle lane, enabling Transport for London (TfL) to provide additional cross-river bus routes. The scheme also includes the introduction of free-flow user charging on both the Blackwall Tunnel (northern portal located in London Borough of Tower Hamlets) and the new STT. TfL have entered into a Project Agreement with the Project Company Riverlinx (Project Co) who are responsible for the detailed design, construction, financing and maintenance of the tunnel and supporting infrastructure. A 5 year period of design and construction will be followed by a further 25 years of operation and maintenance. The Project Co has appointed Riverlinx CJV as the Design and Construction (D&C) Contractor responsible for undertaking the detailed design and construction of the STT scheme all in accordance with the constraints and parameters of the DCO, TfL specifications and other commitments made by TfL to stakeholders. Riverlinx CJV is a joint venture formed between Ferrovial Agroman (UK) Ltd, BAM Nuttall and SK Engineering and Construction Co Ltd.

1.2 Purpose

The purpose of this Ecology Management Plan (EcMP) is to detail how Riverlinx CJV will implement measures to manage the risk of adversely affecting ecology on and in vicinity of the Greenwich worksite in constructing STT, located within the Royal Borough of Greenwich. Site specific EcMPs is a requirement under Schedule 2, Part 1 (requirements), 5 93f) of the DCO and has been developed in accordance with the Outline Ecology Management Plan (OEMP) prepared as part of the DCO application and appended to the Code of Construction Practice (CoCP). In accordance with DCO, Natural England were consulted on the OEMP on 2nd June 2020 and provided a standard response referring to current standing advice. This EcMP has been developed from an initial project wide EcMP to make specific to the Greenwich worksite and to include the latest information relating to surveys that have been carried out to date in 2020. The EcMP is a dynamic document which will be updated with the changing ecological needs of the project. This EcMP draws upon the Silvertown Tunnel Environmental Statement (ES) (Document Reference 6.1: TR010021), specifically chapter 9 ‘Terrestrial Ecology’ and chapter 10 ‘Marine Ecology’ as well as various appendices:

- Appendix 4A Construction Method Statement (Document Reference: 6.3.4.1);
- Appendix 9A Options Summary Table (Document Reference: 6.3.9.1);
- Appendix 9E Arboricultural Impact Assessment (Document Reference: 6.3.9.5);
- Appendix 9G Habitat Regulations Assessment (HRA) (Document Reference: 6.3.9.7);
- Appendix 9H Biodiversity Action Plan and Mitigation Strategy (Document Reference: 6.3.9.8);
- Appendix 10A Water Framework Directive (WFD) Compliance Assessment (Document Reference: 6.3.10.1); and
- Appendix 10C Underwater Noise Assessment (Document Reference: 6.3.10.3).

Whilst significant data from desktop and site surveys has been collated for the project (and reported upon within this document), additional aquatic confirmatory surveys are being undertaken in advance of the relevant construction works. Should the result of these surveys require an update to the information within this plan, the plan would be updated, and the latest version shared with the Royal Borough of Greenwich as part of monthly reporting.

1.3 Project Details

The tunnel will require changes to the existing road network on both sides of the River Thames. On the south side of the river, on the Greenwich Peninsula, the following changes to the A102 Blackwall Tunnel approach will be needed; widening the A102 Blackwell Tunnel approach to create space for STT approach lanes, building a new flyover for the southbound traffic from the Blackwall Tunnel to cross above the Silvertown Tunnel approach lanes and introducing new signage to direct traffic.

2. Ecological Resources

A detailed site description is set out in the ES, chapter 9 and 10 which combined the northern (Silvertown), southern (Greenwich) and river areas to provide a wider context of the Silvertown Tunnel site. Ecological surveys were carried out from 2013 to 2016 at the Silvertown Tunnel site in the Silvertown, Greenwich and river areas (ES Document Reference 6.1: TR010021 Chapters 9 and 10). Further confirmatory ecological surveys were conducted in 2020 to record any notable changes to the baseline. Aquatic investigations are ongoing and will be supplied as part of monthly ecological reports.

Terrestrial and marine survey data from the 2013 to 2020 period has been used in the present EcMP to identify existing on-site and nearby designated sites, and to determine the existing nature of the ecological resources within the order limits, specifically habitats and protected species. The Greenwich Area, Extended Phase 1 Habitat Report (May 2020) provides further detail and can be found in **Appendix 1** of this document.

2.1 Existing Site Description

Greenwich (south side of the River Thames)

The Greenwich site, on the south side of the River Thames, is located to the northeast side of Primrose Wharf in the Royal Borough of Greenwich (RBG). Transport infrastructure is prominent in the Greenwich site, with the A102 Blackwall Tunnel Approach leading to the north and southbound tunnels, Millennium Way providing access to the North Greenwich London Underground (LU) and bus station, the Jubilee Line linking to Canning Town and Canary Wharf and the Emirates Air Line (EAL) south station. Most of the area to the northeast and east of the A102 is undergoing re-development as part of the Greenwich Peninsula Masterplan, which is a high-density residential led (ca. 12,000 homes), mixed-use development. The masterplan is part implemented, with new offices, hotel and college buildings to the north and northeast, set around the established O2 Arena and new residential blocks to the east and south.

The central portion, northeast of Millennium Way, is predominantly laid out as surface car parks, access roads and landscaped parkland associated with the O2 Arena, North Greenwich station and the new residential areas. Land of potential value to wildlife in this area is limited to narrow linear strips of grassland, scrub and scattered trees within and around the car parks and alongside roads, with a larger band of landscaped grassland bordered by woodland and scrub between West Parkside and East Parkside, stretching from just north of Edmund Halley Way in the northwest to John Harrison Way in the southeast. Further west, between Millennium Way and the A102, there is a redundant gas holder (approximately 75m in diameter), former lorry park, nightclub, offices and commercial land. Land of potential value to wildlife in this area is primarily limited to partially connected patches of open mosaic habitat comprising scattered trees, scrub, ruderals and grassland. To the west of the A102, just outside the Greenwich site, a variety of existing and former light industrial and commercial uses are located along the western edge of the Greenwich Peninsula, including the Greenwich Peninsula Golf Range to the north, and an aggregate and chemical distribution facility to the south. Land of potential value to wildlife in this area is dominated by grassland (landscaped around the golf range), with some scrub and scattered trees in the north. Whilst further south, the area is limited to a few small, isolated pockets of grassland, scrub and scattered trees in and around the aggregate and chemical distribution facility.

River Thames

The development site extends across the River Thames, within an area that shall hereafter be referred to as the ‘river area’. In addition to the EAL, Jubilee Line and Blackwall Tunnel infrastructure there is a pier serving the Thames Clipper river bus on the east side of the Greenwich Peninsula. South of this there are moorings for leisure craft and on the north side there are moorings for barges, tugs and marine engineering vessels adjacent to Thames Wharf. The main navigation channel serves a variety of traffic from large sea-going vessels to small leisure craft. The River Lea (known as Bow Creek) joins the main river at the northern end of Thames Wharf. There are plans for significant regeneration either side of the River Thames along the route of the Scheme. A masterplan for the development of the Greenwich Peninsula has been in place since 2004 and has been partly implemented. A revised masterplan application (to revise part of the approved Greenwich Peninsula 2015 Masterplan) for the undeveloped areas was submitted in spring 2015 (RBG application reference: 15/0716/O) and has been approved by the RBG and a more up to date Greenwich Peninsula Masterplan submission (RBG application reference: 9/2733/0) was validated in September 2019. This revised application introduces further building and associated infrastructure constraints on the Scheme proposals. The river area contains habitats of potential value to wildlife. These include the river walls, constructed reedbed platforms along the eastern side of the Greenwich Peninsula,

piers, other in-river structures, and benthic (bottom) and pelagic (open water) habitats of the intertidal and subtidal zones.

2.2 Existing Designated Sites

This section reviews and summarises the existing terrestrial and marine designated sites within, and associated with, the STT order limits within Greenwich. It is based on the desk study information collected in June 2014 for the Phase 1 Habitat Survey (ES Chapter 9 (Document Reference 6.1: TR010021) and ES Appendix 9A Extended Phase 1 Habitat Survey (Document Reference: 6.3.9.1)).

This information was updated in 2020 as part of the updated desk study for the Phase 1 Habitat survey in March/June 2020. No significant changes occurred between the 2014 and 2020 desk studies.

The Phase 1 Habitat Survey desk study data (updated 2020) revealed the Scheme was not situated within or immediately adjacent to any international or nationally designated sites for nature conservation. Although the Scheme lies within 2km of one Geological Site of Special Scientific Interest (SSSI), one Local Nature Reserve (LNR) and 27 non-statutory Sites of Importance for Nature Conservation (SINCs), none of these sites will be directly affected by construction of the Scheme (as stated in ES chapters 9 and 10 (Document Reference 6.1: TR010021)). These sites have been mapped on ES Drawings 9.1 Statutory Sites and 9.2 Non-statutory Sites (ES Document Reference 6.2: TR010021). The closest of these sites to the Greenwich site are as follows:

- The River Thames and Tidal Tributaries SINC (this includes the areas of mudflat within the Study Area, under which the tunnel would be bored) is directly adjacent to the Scheme at Silvertown;
- Greenwich Ecology Park and Southern Park SINC (an area of freshwater habitat with native tree planting and wildflower meadows approximately 0.5km south-east of the Greenwich site).

2.3 Existing Habitats

This section reviews and summarises the existing terrestrial and marine habitats within the Greenwich worksite. It is based on the following habitat surveys conducted between 2013 and 2020:

- Extended Phase 1 Habitat Survey: October 2015 (updated from the November 2013 and March 2014 Phase 1 Habitat surveys) (ES Chapter 9 (Document Reference 6.1: TR010021); and ES Appendix 9A Extended Phase 1 Habitat Survey (Document Reference: 6.3.9.1);
- Phase 1 Intertidal Habitat Survey: December 2016 (ES Chapter 10 (Document Reference 6.1: TR010021); and ES Appendix 10B Marine Ecology Survey Report (Document Reference: 6.3.10.2); and
- Greenwich Area, Extended Phase 1 Habitat Report: May 2020 – **Appendix 1**.

Updates to the 2016 Phase 1 Intertidal Habitat Survey are ongoing as part of the 2020 confirmatory surveys. In the unlikely scenario the result of these surveys requires an update to the existing baseline marine information within this plan, the plan would be updated, and the latest version shared with the Royal Borough of Greenwich as part of monthly reporting.

Existing Terrestrial Habitats

Terrestrial habitats have been mapped on ES Drawing 9.3 Phase 1 Habitat Survey Sheets 1 of 2 (see ES Document Reference 6.2: TR010021) and have been updated as part of the Greenwich Area, Extended Phase 1 Habitat Report: May 2020, Appendix B – **Appendix 1**.

Habitat composition had not notably changed between the 2014 – 2020 survey. In summary, the key habitats present across the Greenwich worksite as of 2020 comprise:

- Built environment (buildings and hardstanding);
- Grassland (poor semi-improved and amenity); and

- Woodland and scrub (mature and young scattered broadleaved trees, mature plantation woodland, dense/continuous scrub).

The 2020 Extended Phase 1 Habitat Survey found that the Greenwich site comprised habitats typical of the built environment, mostly buildings and hard standing. Most of the site comprised roads, paths, cycle lanes and carparking, forming associated infrastructure for the adjacent O2 arena.

Roadside verges were amenity grassland mown short and comprising common and widespread species. Around the O2 arena car parks and access roads there were numerous tree lines, many of which were recently planted.

Ecological interest was limited to the centre of the site, directly north of the gasworks where there was a large area of dense scrub habitat. There was a small clearing of poor semi-improved grassland in the centre of the scrub which had some localised areas of developed thatch suggesting relaxed management. There was also an isolated small area of roadside plantation broadleaved woodland to the north of the Greenwich site.

Tree surveys were carried out within the STT order limits in October and November 2015 providing additional arboricultural information. Full details of these surveys are provided in ES Appendix 9.D: Arboricultural Survey Report (Document Reference: 6.3.9.4). A total of 35 arboricultural items, 18 single trees and 17 groups of trees, were recorded, comprising 15 different tree species, the most predominant of which was silver birch (Betula pendula). The trees recorded were of varying ages as follows: young (31%), semi-mature (29%), early-mature (31%) and mature (9%).

Updated tree surveys have been undertaken in 2020 and will inform the updated Arboricultual Impact Assessment and Method Statement that will be provided as part of monthly reporting.

Existing Marine Habitats

The boundary of the terrestrial portion of the Scheme with the River Thames was represented by hard infrastructure such as sheet piling, wharfs and walls. There was no saltmarsh vegetation within the order limits, however a small amount of exposed mud was observed at low tide. ‘Rivers and wetlands’ are listed as a Priority Habitat in the London, Greenwich and Newham Biodiversity Action Plan (BAP).

Marine habitats have been mapped on ES Drawing 9.3 Intertidal Habitat Map (see ES Document Reference 6.2: TR010021). The 2016 Phase 1 Intertidal Habitat Survey (ES Appendix 10B Marine Ecology Survey Report (Document Reference: 6.3.10.2)) identified the following intertidal habitats within the order limits:

- Coarse sand (in the western section of the intertidal area in the immediate vicinity of the Scheme) was most appropriately described as a more sheltered and lower salinity version of LS.LSa.MoSa.BarSa (Barren littoral coarse sand).
- Mudflat (small areas in the eastern section) was considered to be representative of LS.LMu.UEst.Tben (*Tubificoides benedii* and other oligochaetes in littoral mud) but without presence of *T. benedii*. Intertidal mudflat habitat is a UK BAP Priority Habitat and listed as a Habitat of Principal Importance in England under the NERC Act 2006 Section 41. However, the extent of mudflat habitat in this area is small and is considered to be of limited ecological importance.
- Silt (large areas of silt in the eastern section) containing a highly impoverished faunal community with very limited diversity. The oligochaete *Limnodrilus hoffmeisteri* dominated the community and contributed almost entirely to the low total abundances of organisms. This species commonly occurs in the upper Thames Estuary and is typically found in high densities at enriched locations such as at sewage outfalls. Other species of oligochaete, nematode and gastropod were also found, but in very low numbers.

Patches of debris and rubbish were present throughout the area and were particularly common along the eastern side of the river area adjacent to the Silvertown site. No visible fauna or signs of fauna (such as casts, trails or burrows) were recorded in the survey, suggesting an improvised intertidal community. A community characterised by a low density of oligochaete annelids was recorded in the adjacent intertidal muds at the mouth of the River Lea in 2006 and near Woolwich between 2005 and 2006. The overall intertidal assemblage recorded within the order limits was therefore considered typical of the intertidal mud community in the wider area. No benthic species of conservation importance were found to be supported by the intertidal habitat within the vicinity of the Scheme. The surface subtidal sediments within the order limits consisted predominantly of cobbles and gravels. Due to the presence of cobbles and pebbles, the seabed was assumed to be highly scoured and frequently disturbed. This was reflected by the macrofaunal community found within the area, which was impoverished and dominated by

mobile opportunistic species such as the scavenging amphipod *Gammarus zaddachi* and brackish mud shrimp *Apocorophium lacustra*. These results were consistent with previous research indicating *G. zaddachi* was the dominant species in terms of biomass and abundance in some sections of the inner Thames Estuary. Oligochaete, isopods, polychaete and molluscs were all recorded in this habitat but in low abundances. Similar communities have been found in other subtidal areas of the inner Thames and are mainly characterised by low species diversity and abundances.

2.4 Existing Protected Species

This section reviews and summarises the existing protected terrestrial and marine species recorded and identified within, and associated with, the Greenwich site order limits. The following surveys were conducted during the 2013 to 2016 period:

- Extended Phase 1 Habitat Survey: October 2015 (updated from the November 2013 and March 2014 Phase 1 Habitat surveys) (ES Chapter 9 (Document Reference 6.1: TR010021); and ES Appendix 9A Extended Phase 1 Habitat Survey (Document Reference: 6.3.9.1));
- Phase 1 Intertidal Habitat Survey: December 2016 (ES Chapter 10 (Document Reference 6.1: TR010021); and ES Appendix 10B Marine Ecology Survey Report (Document Reference: 6.3.10.2));
- Protected Species Surveys: November 2013, March 2014 and October 2015 (ES Chapter 9 (Document Reference 6.1: TR010021); and ES Appendix 9A Extended Phase 1 Habitat Survey (Document Reference: 6.3.9.1));
- Intertidal Benthic Invertebrate Survey: December 2015 (ES Chapter 10 (Document Reference 6.1: TR010021); and ES Appendix 10B Marine Ecology Survey Report (Document Reference: 6.3.10.2)); and
- Subtidal Benthic Invertebrate Survey: December 2015 (ES Chapter 10 (Document Reference 6.1: TR010021); and ES Appendix 10B Marine Ecology Survey Report (Document Reference: 6.3.10.2)).

Additionally, as part of the ongoing April to September 2020 confirmatory surveys, the following documents form an updated assessment of the STT order limits suitability to support protected species:

- Greenwich Area, Extended Phase 1 Habitat Report: May 2020 – **Appendix 1**;
- Greenwich Area Bat Surveys: May 2020 – **Appendix 2**; and
- Invasive Species Survey: July 2020 – **Appendix 3**.

The following surveys are still ongoing as part of the 2020 confirmatory surveys. Should the result of these surveys require an update to the information within this EcMP, the plan will be updated, and the latest version shared with the Local Authority as part of monthly reporting.

- Phase 1 Intertidal Habitat Survey, Intertidal Benthic Invertebrate Survey and Subtidal Benthic Habitat Surveys: August 2020.

2.5 Existing Terrestrial Species

Existing Terrestrial Species – Plants

The Phase 1 Habitat Survey desk study data updated in 2020 found a large number of records for notable plant species (i.e. species with conservation designations, but no legal protection – e.g. nationally scarce species and local species of conservation concern) within 1km of the order limits. Relevant local species of conservation concern included:

- Common cudweed *Filago vulgaris*;
- Creeping willow *Salix repens*;
- Golden dock *Rumex maritimus*;

- Meadow crane's-bill *Geranium pratense*; and
- Sea buckthorn *Hippophae rhamnoides*.

Plants recorded within the Greenwich worksite were common and widespread throughout London. No nationally scarce or local species of conservation concern were noted during both the 2014 and 2020 survey.

Existing Terrestrial Species – Terrestrial Invertebrate

The Phase 1 Habitat Survey desk study data updated in May 2020 found records of notable invertebrate within 1km of the order limits including:

- Wall *Lasiommata megera;*
- Stag beetle *Lucanus cervus*;
- Shoulder-striped Wainscot *Leucania comma;*
- Cinnabar *Tyria jacobaeae*; and
- Brown banded Carder-bee *Bombus humilis*.

Stag beetles are protected under the Wildlife and Countryside Act (WCA) 1981 (as amended) against sale only and are listed as a London, Greenwich and Newham BAP Priority Species.

The 2020 confirmatory Extended Phase 1 Habitat Survey found the Greenwich worksite to be unsuitable for notable invertebrates. However, the Greenwich worksite was set within a wider landscape of suitable habitat (in particular the adjacent gas works and the Silvertown site north of the Thames).

Existing Terrestrial Species – Amphibians and Reptiles

The Phase 1 Habitat Survey desk study updated in 2020 found two records of reptile / amphibian with 1km of the Order Limits:

- Common toad *Bufo bufo*; and
- Slow-worm *Anguis fragilis*.

Amphibians and reptiles are listed as London BAP Priority Species, as well as being protected from killing and injury under the WCA.

Existing Terrestrial Species – Breeding Birds

The Phase 1 Habitat Survey desk study data updated in 2020 found of the following records for red-listed bird species located within 1km of the Scheme, including:

- Black redstart *Phoenicurus ochruros*;
- Dunlin *Calidris alpina*;
- Lapwing *Vanellus vanellus*;
- Lesser spotted woodpecker *Dendrocopos minor*;
- Starling *Sturnus vulgaris*; and
- Yellow-legged gull *Larus michahellis*.

A large number of confidential records of black redstart were found in the vicinity of the Scheme. Black redstart is listed under Schedule 1 of the WCA and a London and Greenwich BAP Priority Species. East London and the Docklands is a historic stronghold for black redstart. Both the River Thames and tidal tributaries and East India Dock Basin SINCs are known to support foraging black redstarts therefore special consideration was given towards this species during the assessment.

The 2020 confirmatory Extended Phase 1 Habitat Survey identified the central scrub, woodland and tree lines as suitable for use by common and widespread nesting birds. There were no structures suitable for nesting black redstart within the Greenwich worksite. The gas work structure (previously within the order limits) to the south of the Greenwich worksite was noted as suitable to support black redstart. However, this structure was outside the boundary of work and not considered an ecological constraint to the STT works.

Existing Terrestrial Species – Bats

The Phase 1 Habitat Survey desk study data updated in 2020 found records of the following bat species within a 1km radius from the order limits:

- Common pipistrelle *Pipistrellus pipistrellus*;
- Soprano pipistrelle *Pipistrellus pygmaeus*;
- Nathusius' pipistrelle *Pipistrellus nathusii*;
- Noctule *Nyctalus noctula*;
- Leisler's *Nyctalus leisleri*; and
- Daubenton's *Myotis daubentonii*.

Bats are protected under European and national legislation and are listed as London and Greenwich BAP Priority Species. The 2015 Extended Phase 1 Habitat Survey found the order limits supported suitable, albeit limited, habitats for use by commuting and foraging bats and the August – September 2015 bat surveys recorded low levels of bat foraging and commuting activity, exclusively by common pipistrelle bat, were recorded at various locations throughout the order limits.

The August – September 2015 bat surveys identified low levels of bat activity across the Greenwich worksite, with low numbers of common pipistrelle recorded in the centre and north of the site.

The 2020 confirmatory Extended Phase 1 Habitat Survey found baseline suitability of the Greenwich site habitats for bats has not changed significantly since the 2015 survey. Habitats were largely unsuitable for bats comprising majority brightly lit hardstanding of negligible value to commuting and foraging bats. In the centre of Greenwich site there were areas of woodland and dense scrub suitable to support foraging bats, however this habitat was poorly connected to the wider landscape, with surrounding urban habitats unsuitable to support commuting bats. There was some connectivity between the Greenwich site and the wider area provided by the River Thames corridor. However, this was approximately 250m west of suitable habitat and separated by the busy A102 and urban development.

The survey found the suitability of the site to be low, with suitable habitat constrained to an isolated area of foraging habitat in the centre of the site. The survey found one tree with bat roost potential and two buildings with bat roost potential. These were subject to a presence / absence survey in May 2020 which did not find any active bat roosts.

2.6 Existing Marine Species

Existing Marine Species - Fish

The Phase 1 Habitat Survey desk study data collected in June 2014 revealed the following species records:

- Common bream *Abramis brama*: a freshwater species tolerant of low salinity conditions was recorded in low numbers.
- Common goby *Pomatoschistus microps*: a relatively common estuarine species.
- Common roach *Rutilus rutilus*: a freshwater species tolerant of low salinity conditions was recorded in low numbers.
- Dover sole *Solea solea*: an abundant flatfish species recorded in moderate numbers.

- European eel *Anguilla anguilla*: one of only two migratory species recorded during a range of life stages, including elvers and glass eels. This species was also one of the most numerous species recorded in the nearby River Lea in the Limmo Peninsula and Bow Creek area.
- European smelt *Osmerus eperlanus*: was the most abundant migratory species recorded.
- Flounder *Paralichthys dentatus*: a common flatfish species recorded in moderate numbers.
- Red mullet *Mullus surmuletus*: a seasonal demersal marine species that has only been identified in the area during its juvenile life stage.
- Sand goby *Pomatoschistus minutus*: the most abundant demersal estuarine roundfish species recorded in the area.
- Sand smelt *Atherina presbyter*: a common estuarine species recorded in moderate numbers.
- Sea bass *Dicentrarchus labrax*: a marine pelagic species which occurs seasonally in the inner River Thames.
- Short-snouted seahorse *Hippocampus hippocampus*: a single individual was recorded in the Greenwich area in 2011.
- Sprat *Sprattus sprattus*: a marine pelagic species which occurs seasonally in the inner River Thames.
- Whiting *Merlangius merlangus*: a seasonal demersal marine species that has only been identified in the area during its juvenile life stage.
- Zander *Sander lucioperca*: a non-native freshwater species tolerant of low salinity conditions was recorded in low numbers.

Existing Marine Species - Invertebrates

The Phase 1 Habitat Survey desk study data collected in June 2014 and the Phase 1 Intertidal Habitat, Intertidal Benthic Habitat and Subtidal Benthic Habitat Surveys conducted in December 2015 revealed only one marine invertebrate in the vicinity of the order limits:

- Brown shrimp *Crangon crangon*: were recorded in low numbers.

Existing Marine Species - Mammals

The Phase 1 Habitat Survey desk study data collected in June 2014 found:

- Common/harbour seal *Phoca vitulina*: frequently recorded foraging within the Silvertown and Greenwich Peninsula area.
- Grey seal *Halichoerus grypus*: regularly recorded foraging in the Silvertown and Greenwich Peninsula area.
- Harbour porpoise *Phocoena phocoena*: infrequent visitor to the Silvertown and Greenwich Peninsula area.

Updated Phase 1 Intertidal Habitat, Intertidal Benthic Habitat and Subtidal Benthic Habitat Surveys have been commissioned as part of the 2020 confirmatory surveys. Should the result of these surveys require an update to the information within this plan, the plan would be updated, and the latest version shared with the Royal Borough of Greenwich as part of monthly reporting.

2.7 Existing Invasive Non-Native Species

This section reviews and summarises the existing terrestrial and marine Invasive Non-Native Species (INNS) recorded and identified within, and associated with, the STT order limits. It is based on surveys conducted during the 2013 to 2016 period, and updated surveys conducted in July 2020:

- Extended Phase 1 Habitat Survey: October 2015 (updated from the November 2013 and March 2014 Phase 1 Habitat surveys) (ES Chapter 9 (Document Reference 6.1: TR010021); and ES Appendix 9A Extended Phase 1 Habitat Survey (Document Reference: 6.3.9.1));
- Phase 1 Intertidal Habitat Survey: December 2016 (ES Chapter 10 (Document Reference 6.1: TR010021); and ES Appendix 10B Marine Ecology Survey Report (Document Reference: 6.3.10.2));
- Intertidal Benthic Invertebrate Survey: December 2015 (ES Chapter 10 (Document Reference 6.1: TR010021); and ES Appendix 10B Marine Ecology Survey Report (Document Reference: 6.3.10.2));
- Subtidal Benthic Invertebrate Survey: December 2015 (ES Chapter 10 (Document Reference 6.1: TR010021); and ES Appendix 10B Marine Ecology Survey Report (Document Reference: 6.3.10.2)); and
- Silvertown Tunnel Invasive Species Survey: July 2020 – **Appendix 3**.

Existing Terrestrial INNS

The Phase 1 Habitat Survey desk study data, updated in 2020, found a number of records for terrestrial INNS WCA Schedule 9 plant species were found within 1km of the order limits, detailed below:

- Floating pennywort *Hydrocotyle ranunculoides*
- Giant hogweed *Heracleum mantegazzianum*
- Himalayan balsam *Impatiens glandulifera*
- Japanese knotweed *Fallopia japonica*
- Montbretia *Crocosmia* x *crocosmiiflora*
- Rhododendron *Rhododendron ponticum*
- Three-cornered garlic *Allium triquetrum*
- Wall cotoneaster *Cotoneaster horizontalis*

The 2020 Extended Phase 1 Habitat Survey found evidence of Japanese knotweed within the Greenwich site. Japanese knotweed was found within the central dense scrub and the central woodland.

An updated invasive species survey was undertaken July 2020 apart of confirmatory surveys and includes detailed mapping and management plan for INNS. The survey targeted plant species listed as Species of Concern by the London Invasive Species Initiative (LISI). Specifically, the survey recorded Category 3 and Category 4 plant species as these Categories were deemed relevant to the Site and to London.

The survey recorded three areas of Japanese knotweed (WCA Schedule 9) within the Greenwich site:

- A 3m x 4m stand of mature Japanese knotweed stem within a thicket of dense bramble at the centre of the Greenwich site;
- A linear section of mature stems and secondary rhizome growth along the boundary of the Blackwall Tunnel southern approach road; and
- Small stand of mature stems within the northern woodland.

Non-schedule 9 species listed by LISI included widespread buddleia (LISI Category 3).

Existing Marine INNS

The Phase 1 Habitat Survey desk study data collected in June 2014 revealed that several marine INNS have become established within the Thames Estuary. These include the following species that have been identified in the River Thames and that could occur in the vicinity of the Scheme (based on their environmental tolerances and a review of site specific data) (see ES Appendix 10.B Marine Ecology Survey Report (Document Reference 6.3.10.2)):

- Asiatic clam *Corbicula fluminea*
- Carpet sea squirt *Didemnum vexillum*
- Chinese mitten crab *Eriocheir sinensis*
- Jenkin's spire shell *Potamopyrgus antipodarum*
- Pacific oyster *Crassostrea gigas*
- Polychaete *Boccardiella ligerica*
- Slipper limpet *Crepidula fornicata*
- Zebra mussel *Dreissena polymorpha*

Many of these species are widespread throughout the Thames Estuary with records of Chinese mitten crab, zebra mussel, the Polychaete *B. ligerica* and Jenkin's spire shell both upstream and downstream of the Scheme. Only two invasive species, Jenkin's spire shell and the Polychaete *B. ligerica*, were recorded within the marine surveys carried out in December 2015 (Benthic Intertidal Invertebrate Survey and Benthic Subtidal Invertebrate Survey (ES Appendix 10B Marine Ecology Survey Report (Document Reference: 6.3.10.2)) and in December 2016 (Phase 1 Intertidal Habitat Survey (ES Appendix 10B Marine Ecology Survey Report (Document Reference: 6.3.10.2)).

Updated Phase 1 Intertidal Habitat, Intertidal Benthic Habitat and Subtidal Benthic Habitat Surveys have been commissioned as part of the 2020 confirmatory surveys should these identify aquatic INNIS and management plan for INNS will be supplied as part of monthly reporting.

3. Planning

3.1 Aims and Objectives

This EcMP aims to identify key ecological resources at the site (retained, newly created and enhanced) and describe how these will be protected, created, and enhanced during the construction of the development. It will continue to be developed as the development details evolve, providing a strategy for managing and monitoring the ecological resources at the site and for optimising their eventual value. The EcMP will be reviewed during key project milestones throughout the duration of construction and updated as required. This EcMP aims to:

- Ensure procedures are implemented to control and limit the disturbance of areas of nature conservation interest and protected species and habitats during construction.
- Ensure that works undertaken during the construction phase remain compliant with wildlife legislation, regulations and good practice;
- Ensure that the ecological protection measures are implemented;
- Provide a document for consultation with the relevant statutory authorities as appropriate; and
- Facilitate an effective ecological monitoring regime

3.2 Roles and Responsibilities

The Riverlinx CJV Project Director is responsible for the implementation of ecology management during the construction of STT. Many members of the Riverlinx CJV also have responsibility for elements of ecology management appropriate to their function, experience and seniority. The Riverlinx CJV Environmental Manager will lead on ecology management and act as the key advisor on all related matters including compliance with the plan. The Environmental Manager will be supported by a lead ecologist to lead on technical matters. The lead ecologist shall meet the following experience criteria shown in Table 1 below.

Environmental specialism	Specialist's minimum qualifications and experience
Ecology	A member of either the Charted Institution of Ecology and Environmental Management, Landscape Institute (Science Division); or the Society of Environment (provided the latter was achieved through a relevant constituent body). Must have a minimum of 3 years relevant post-qualification experience.

Table 1 Riverlinx CJV Roles and Responsibilities

Table 2 provides details of the personnel working on the project with specific responsibilities in relation to ecology management.

Role Title	Responsibilities
Project Director	• Provide adequate environmental resources and support to effectively deliver the requirements of this plan.
Environmental Manager	• Develop and implement the EcMP. • Identify and maintain compliance with the requirements and principles of the EcMP during construction. • Assist lead auditors in auditing the EcMP • Identify, develop and provide environmental training as required specific to the EcMP. • Approve method statements and consider EcMP requirements.

Role Title	Responsibilities
	• Advise and instruct construction teams in the event of incidents and complaints. • Liaise/meet with external stakeholders.
Environmental Advisors	• Inspections on compliance with the EcMP requirements. • Brief EcMP requirements to relevant teams. • Advise and guide project team in the implementation of ecology protection measures. • Identify ideas for improvement to environmental manager for consideration. • Report best practice across the project. • Assist in incident investigations and reporting. • Encourage near miss reporting and identify trends.
Lead Ecologist	• Provide technical support on ecology matters. • Undertake/oversee site surveys and watching briefs. • Advise on ecological protection measures.
Section Manager	Work to ensure method statements conform to the requirements of the EcMP. • Manage the investigation and response to complaints.
Community Construction Liaison Manager	• Liaise with the local community regarding any complaint or query. • Notify the Section Manager and environmental team of any complaints regarding ecology. • Manage investigations into the complaints and provide the main point of contact with the helpline.
All Personnel	• Carry out the works in accordance with agreed methods and briefings. • Report anything that deviates from agreed processes. • Attend environmental training.

Table 2 Riverlinx CJV EcMP Roles and Responsibilities

3.3 Training and Awareness

The Riverlinx CJV Environmental Team will provide training to staff and operatives at all levels (and, when appropriate, to others involved in or affected by work activities) to achieve and maintain a high standard of environmental awareness and risk control. The construction team will be involved in the development of the EcMP and will be briefed on its requirements including the results of the surveys and ongoing ecological monitoring. Environmental information on ecology will be displayed in offices, site cabins and at sensitive locations to increase awareness of specific ecology matters. All those working for Riverlinx CJV or on behalf of Riverlinx CJV shall undertake an induction that includes an introduction to the key aspects of environmental management on the project including information on the EcMP. In addition, all Riverlinx CJV personnel will undertake the bespoke Environmental Awareness training session that will introduce personnel to how to manage site environment risks relevant to STT and provide practical guidance for specific topics including ecology. The Environmental Team, the Lead Ecologist and the Riverlinx CJV construction team will deliver ecology themed toolbox talks to site and office teams making use of best practice materials from parent companies and organisations such as CIRIA.

3.4 Legislative Requirements

This EcMP has been produced in accordance with relevant legislation and good practice guidelines identified and reviewed during the 2013 to 2016 baseline surveys. This EcMP will include details of relevant legislation produced or amended since 2016, as applicable.

4. Ecological Management

4.1 Measures to Protect and Minimise Construction Impact

This section of this EcMP details the management measures needed to protect and minimise impacts from construction activities.

Generic best practice construction measures will be implemented throughout the site and in accordance with the Construction and Environment Management Plan (CEMP) (ST150030-RLC-ZZZ-06-ZZ-PLN-EN-0001). The CEMP includes the following measures to minimise impacts from construction:

- Dust attenuation and pollution prevention measures following Environment Agency Guidelines;
- Screening of worksites, and protective hoarding erected to reduce disturbance to adjacent habitats and species; and
- Other relevant measures included within the CEMP will be summarised here.

Additionally, measures in the following plans required for compliance with the DCO will further reduce impacts in relation to air quality, light and noise:

- Air Quality Management Plan (ST150030-RLC-ZZZ-06-ZZ-PLN-EN-0003);
- Noise and Vibration Management Plan (ST150030-RLC-ZZZ-06-ZZ-PLN-EN-0002); and
- Lighting Management Plan (ST150030-RLC-ZZZ-ZZ-ZZ-PLN-EN-0002).

The CEMP and other management plans listed above will be updated where required following ongoing pre-construction and monitoring surveys.

The measures described above will minimise impacts of construction. Specific mitigation, protection and enhancements for dedicated habitats and species is summarised below and detailed further in Sections 4.2 – 4.4, including for:

- Designated sites
- Habitats
- Protected Species (breeding birds); and
- NNIS

General

Ongoing pre-construction surveys and monitoring will ensure the ecological baseline of the site and ecological requirements are current and relevant. Any changes in the baseline of the site recorded during the pre-construction surveys or monitoring will feed into the EcMP. Further details on monitoring requirements are provided in Section 5 below.

All site staff will be informed about the species and habitats that may be present on site via toolbox talks provided by a Suitably Qualified Ecologist (SQE). Toolbox talks will be tailored to the specific ecological issues relevant to the site, and will focus on sensitive receptors, their characteristics and mitigation requirements. The SQE must be present onsite during the clearance of vegetation if it's undertaken during active ecology season or for works with potential to impact sensitive ecological receptors, further details are provided in the Site Clearance Plan. This EcMP details which construction activities will require a SQE to be present.

Site clearance will take account of seasonal constraints and will be undertaken in accordance with the Site Clearance Plan below.

Designated sites

Measures to protect designated sites located close to or adjacent to the Scheme such as dust attenuation, light spill and pollution prevention guidelines will be within the CEMP and other specific management plans.

In particular these measures are required to prevent impacts upon The River Thames and Tidal Tributaries SINC

East India Dock Basin SINC is within 50m of a construction traffic track-out route, dust attenuation measures will be detailed within the Air Quality Management Plan.

Habitats

All habitat, including trees, will be retained and protected where possible. Areas of temporary land occupation will be returned to their previous state, condition and owner following completion of construction.

Terrestrial Habitats

The habitats listed below were identified in the Phase 1 Habitat surveys within the land to be temporarily occupied during construction of the Scheme.

- Plantation Woodland and Scattered Trees;
- Dense Scrub;
- Grassland; and

Habitats of value with potential to be affected beyond the works footprint will be demarcated and avoided. Where there are sensitive habitats such as trees adjacent to the site, an appropriate barrier e.g. temporary fencing, would be put in place to ensure that the trees and their roots would be protected throughout the construction phase. In addition, the Arboricultural Method Statement will ensure all trees are protected appropriately.

Following the completion of the works, all land temporarily occupied will be examined by an SQE to ensure habitats have been returned to their previous state and condition, where applicable.

Marine Habitats

The following measures will minimise any adverse effects from the construction and demolition of a temporary jetty and any in-river construction activities:

- lighting will be designed to minimise light levels in the marine environment. Any lighting on the river would have the lamps facing out to the watercourse, to facilitate unimpeded loading and unloading operations. Reflectors, that avoid excessive light pollution to surrounding areas, will be used.

Further measures to protect marine ecology receptors and minimise construction impacts may be required following completion of the pre-construction surveys, which will be detailed as part of monthly reporting.

Protected Species

Terrestrial Species

Species which require additional mitigation measures to those within the CEMP are:

- Breeding birds.

Terrestrial Species - Birds

In the first instance sensitive timing of tree works / scrub clearance is recommended as a precautionary measure against potential impacts to birds. These works should be undertaken between September – February (inclusive) to avoid the active nesting season. If this is not achievable an ECoW would be required to complete the following to inform works:

- In areas of open scattered and trees inspection for active bird nests should be undertaken by a competent person no more than 24 hours prior to works commencing.
- In areas of dense scrub and woodland, clearance should be supervised by an ECoW, who should be present over the clearance period and will undertake periodic checks as habitat becomes accessible.
- If birds' nests are present and likely to be affected by works, works should cease immediately, and a suitably qualified ecologist should be contacted. A suitable protection buffer zone around the nest would be required until such time that the young have fledged and the nest is no longer active.
- This would likely result in delays to the programme and would need to be informed by a suitably qualified ecologist.

Marine Species - Fish

Soft start procedures during piling are required for a minimum of 20 minutes. Should piling cease for a period greater than 10 minutes the soft start procedure must be repeated. There will be no piling between March and October to avoid fish migration periods (unless otherwise agreed with the MMO, PLA and EA);

To be updated following 2020 surveys.

Non-Native Invasive Species - Terrestrial

As Japanese Knotweed and giant hogweed are present on site, these WCA Schedule 9 species will be subject to special measures. These measures include the classification and disposal of the waste as a 'controlled waste' under the Environmental Protection Act 1990 (c. 43) (as amended in 1996 and 1999).

Areas containing Japanese knotweed will be demarcated with an appropriate 7m buffer to ensure no spread of this species. Contractors working in the vicinity of Japanese knotweed will be suitably informed (by project Managers as part of any works briefing) and any essential works within the 7m exclusion zone will be overseen by a suitably qualified person to ensure any actions which would result in spread are prohibited.

Where works will result in ground disturbance stands of Japanese knotweed will be subject to full excavation and removal from site by appropriately licenced waste carriers to a licenced disposal site, or where feasible waste material will be ‘entombed’.

Yearly monitoring of Japanese knotweed will be conducted to inform future prescriptions and remedial actions.

Further to this, species listed by LISI as Category 3 & 4 will be prevented from spreading in accordance with the best practice guidance. Where appropriate these species will be removed from within the Order Limits during construction where appropriate and measures will be implemented to prevent the spread of non-native invasive species during construction, including chipping of woody material and removal of green waste by a licensed waste contractor.

An appropriate tool-box talk to communicate the presence and appearance of INNS will be given.

Non-Native Invasive Species – Marine

To be updated following 2020 surveys.

4.2 Site Clearance Plan

Site clearance will be conducted and completed during the ecological dormant season where possible to avoid impacts on sensitive ecological receptors, or if required to meet legal compliance. This section will be updated following production of the Site Clearance Plan prior to the commencement of main works in December 2020, with further details and specific sensitive methods for notable habitats and species; provided in **Table 3** below.

Site Clearance Area	Ecological Requirements	Toolbox talk / SQE required
E.g. Scrub clearance at xx	E.g. Nesting bird inspection and Ecological Clerk of Works supervision	Yes

Table 3 Site Clearance Plan

4.3 Retained and Enhanced Habitats

As per section 5.2 of the Silvertown Tunnel BAP & Mitigation Strategy document: “The type of habitat affected by the project can be broadly classified as Open Mosaic Habitats on Previously Developed Land or Brownfield habitat” and within this there are also urban scattered trees. Where possible existing habitats and features will be retained (or enhanced if they are poor quality). Upon further development of the design and assessment of the latest arboricultural survey data it will be determined which habitats and features are likely to be retained.

4.4 Newly Created Habitats

The newly created habitats will broadly fall into the following categories (which are based on those listed in Section 5 of the Silvertown Tunnel BAP & Mitigation Strategy document). Note these still need to be confirmed through the detailed design process and will be informed and influenced by the Biodiversity Net Gain: Good Practice Principles for Development and features outlined within the ES. Habitats for potential inclusion include:

- Urban scattered trees (specifically those with biodiversity value but also pollution tolerance, particulate air quality attenuation, carbon sequestration, water conservation)
- Grassland (primarily semi-improved neutral grassland but also potentially some amenity grassland where it needs to be hard wearing (native species only))
- Standing water (SuDS swales and the potential for a small pond)
- Brownfield (inc. biodiverse roofs and scrub) for invertebrates
- 3D Living walls (likely to be green screens on the green roofs (and possibly elsewhere) those with no/very minimal maintenance)
- Wasteland (open mosaic) and stony habitat for black redstart
- Species features (e.g. invertebrate hotels, bird/bat breeding/roosting features)

5. Checking

5.1 Compliance Checks

During the construction phase Riverlinx CJV will monitor the effectiveness of the EcMP. This will be undertaken by the Environmental Team and Section Managers and will include inspections and audits to confirm compliance with the plan. Any non-conformances will be addressed, and further action will be taken where deemed appropriate. The Lead Ecologist will undertake/oversee the ecological monitoring described below.

5.2 Ecological Monitoring

Ecological monitoring will focus on ensuring potential construction phase impacts are kept within the predicted impacts identified in the ES. This section will include details of monitoring for habitats and species, including for retained, enhanced or newly created habitats and also for any newly created habitat features during construction. Monitoring will be carried out by SQEs. The monitoring measures will:

- monitor impacts on habitats and species identified in the ES as being important and of relevance to the site;
- monitor changes in the sites suitability to support protected habitats and/or species;
- cover the time period required for robust and effective monitoring; and
- facilitate reporting and address any need to amend management in line with the results of future monitoring.

Monitoring requirements are detailed in **Table 4** below, requirements may require updating depending on results of updated surveys and continued monitoring. The Lead Ecologist will undertake/oversee the monitoring and will produce monthly reports to track compliance and ensure any updates are reported and incorporated into the EcMP.

Monitoring	Ecological Requirements	Frequency
Ecology walk-over survey	Search for change in habitats or signs of the following protected or notable species; • Breeding birds; • Bats; • Badger; • Reptiles and amphibians; • Invertebrates; and • NNIS.	Monthly for duration of construction (monthly reporting required)
Marine	Search for change in habitats, presence of INNIS or signs of protected or notable species.	Supplied as part of monthly reporting once available
Species specific survey (informed by ecology walk-over monthly monitoring)	tbc	tbc

Table 4 Ecological Monitoring

5.3 Review

The Environmental Manager will meet with senior team members, including the Project Director, Quality Manager, and Engineering Manager for formal management reviews. The review will include specific focus on the Ecology Management Plan. The Environmental Manager will issue all review attendees with a report including the following items before the meeting:

- Adequacy of environmental resourcing
- Training undertaken and planned
- Analysis of site inspections, audits, incidents and non-conformities
- Analysis of monitoring
- Recurring issues and time taken to complete actions
- Follow-up actions from previous management review
- Recommendations for improvement.

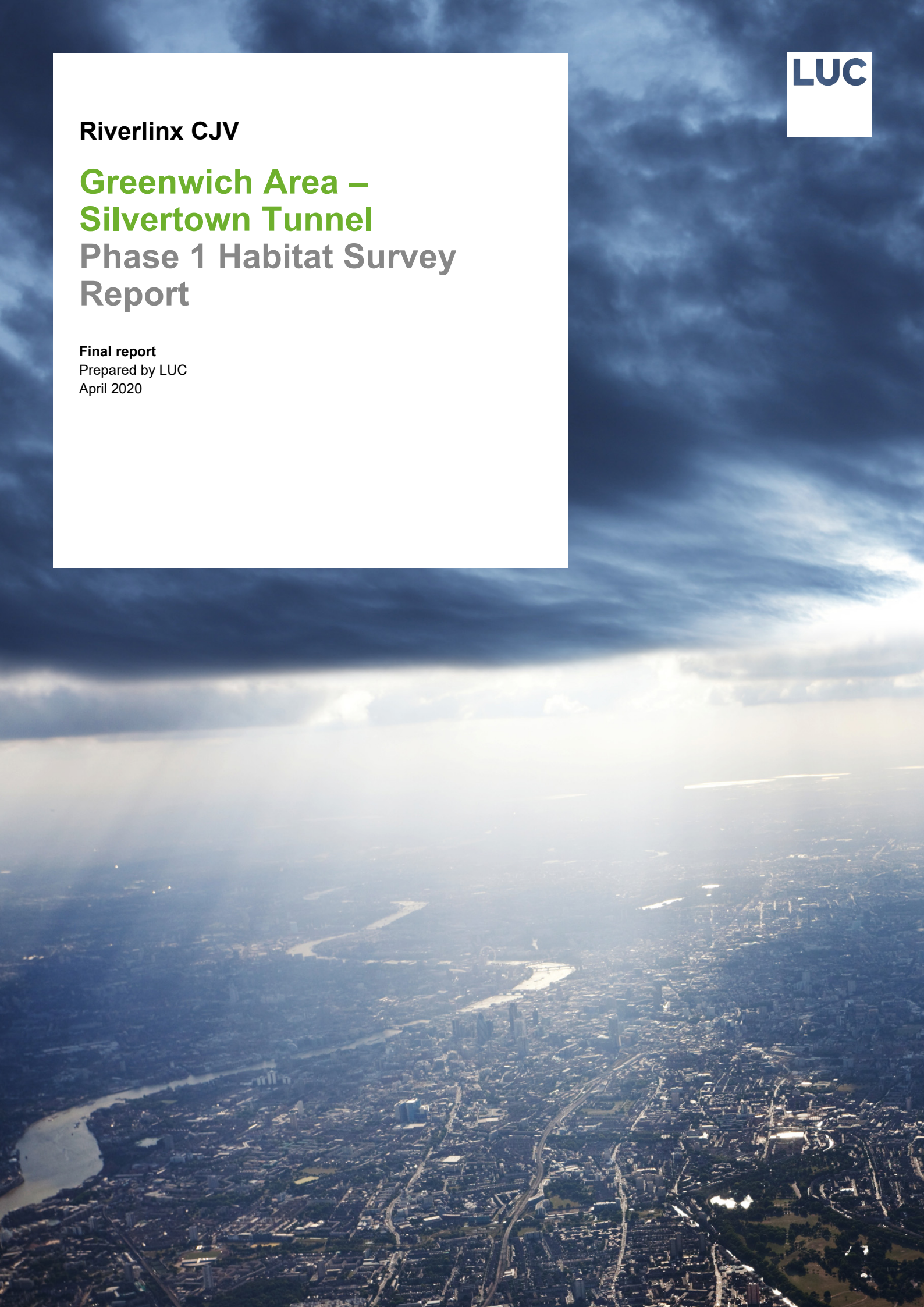
Appendix 1 – Greenwich Phase 1 Survey Report

Riverlinx CJV

Greenwich Area – Silvertown Tunnel

Phase 1 Habitat Survey Report

Final report
Prepared by LUC
April 2020



Riverlinx CJV

Greenwich Area – Silvertown Tunnel
Phase 1 Habitat Survey Report

Project Number
11032

Version	Status	Prepared	Checked	Approved	Date
1.	First Draft				27.04.2020
2.	Final Issue				18.05.2020

Bristol
Edinburgh
Glasgow
London
Manchester

landuse.co.uk

Land Use Consultants Ltd
Registered in England
Registered number 2549296
Registered office:
250 Waterloo Road
London SE1 8RD

100% recycled paper

Landscape Design
Strategic Planning & Assessment
Development Planning
Urban Design & Masterplanning
Environmental Impact Assessment
Landscape Planning & Assessment
Landscape Management
Ecology
Historic Environment
GIS & Visualisation

Contents

Chapter 1
Introduction 1

Terms of Reference 1

Chapter 2
Methodology 3

Desk Study 3
Extended Phase 1 Habitat Survey 4
Bat Surveys 4
Limitations and Constraints 5

Chapter 3
Results 6

Desk Study 6
Extended Phase 1 Habitat Survey 11
Invasive Species 11
Protected and Notable Species Assessment 12
Bats 12
Badger 13
Birds 14
Reptiles 14
Invertebrates 14

Chapter 4
Recommendations and Pre-Commencement Survey Requirements A-1

Habitats A-1
Invasive Species A-1
Bats A-1
Birds A-2
Reptiles A-2
Badger A-2
Invertebrates A-3
Additional Considerations A-3

Chapter 5
[Click to enter text] A-4

Appendix A
Legislation A-4

Appendix B
Extended Phase 1 Habitat Map and Target Notes B-1

Appendix C
Invasive Species C-1

Appendix D
Preliminary Bat Assessment D-1

Chapter 1
Introduction

Terms of Reference

1.1 LUC was appointed in March 2020 by Riverlinx CJV to provide ecological support in advance of main constructions works for the Silvertown Tunnel Scheme. Consented works were primarily informed by the Silvertown Tunnel Environmental Statement (April 2016).

1.2 The scheme includes two ties-in sites north and south of the River Thames. Silvertown Area (Northern Tie-In) and Greenwich Area (Southern Tie-In). Both sites require updated pre-construction surveys to inform enabling works, including development of the Ecological Mitigation Plan (EMP) and Ecological Clerk of Works (ECoW) during construction.

1.3 This report presents the baseline findings of the 2020 updated Phase 1 Habitat Survey for the Greenwich Area, hereafter referred to as 'the Site'.

1.4 This report has been prepared for the exclusive use by Riverlinx CJV and the Silvertown Tunnel Project. No part of this report should be considered as legal advice.

Policy and Legislation Considerations

1.5 This report has been prepared in cognisance with relevant legislation and policy. Further detail is provided in **Appendix A**. The primary documents which are of relevance:

- The Wildlife and Countryside Act of 1981 (as amended);
- The Countryside and Rights of Way Act (CRoW Act), 2000 (as amended);
- The Natural Environment and Rural Communities Act (NERC Act), 2006;
- The Conservation of Habitats and Species Regulations 2017 (SI 2017/1012), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (SI 2019/579);
- The National Planning Policy Framework (June 2019); and
- Greenwich Local Plan[1];

[1] Available at: https://www.royalgreenwich.gov.uk/info/200191/planning_policy_and_strategy/869/local_development_framework/2

- The Greenwich Bio-diversity Action Plan;
- The London Biodiversity Action Plan[2].

[2] Available at: https://www.gigl.org.uk/planning-projects/londons-biodiversity-action-plan/

Chapter 2
Methodology

The methods adopted in the Phase 1 Habitat Survey are outlined below. They are in accordance with good practice guidance documents produced by the Chartered Institute of Ecological and Environmental Management[3] and the British Standards Institute[4].

Desk Study

2.1 To provide additional background and to highlight likely features or species groups of interest, an updated study of available biological records was undertaken to identify sites designated for their nature conservation value, and existing records of protected or notable species of relevance to the Site. A search of the following resources was undertaken, covering a 1km radius from the application Site boundary:

- Greenspace Information for Greater London (2020, GIGL);
- Multi-Agency Geographical Information for the Countryside[5] (MAGIC);
- Ordnance Survey (OS) mapping;
- Aerial photography.

2.2 Additionally, previous survey work and ecological assessments associated with the granted planning application were reviewed to provide additional information and support the conclusions of this report, this includes the following documents:

- Silvertown Tunnel Environmental Statement (2016) *Chapter 9. Terrestrial Ecology*. Transport for London (Document Reference 6.1).

[3] CIEEM (2017). Guidelines for Preliminary Ecological Appraisal. 2nd Edition. Chartered Institute for Ecology and Environmental Management, Winchester.

[4] British Standards Institute (2013). BS42020:2013 Biodiversity – Code of Practice for Planning and Development.

[5] Available at: http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx

- Silvertown Tunnel Environmental Statement, Technical Appendix 9.A (October 2015): *Extended Phase 1 Habitat Survey* (Document Reference 6.3.9.1);
- Silvertown Tunnel Environmental Statement, Technical Appendix 9.A (2015): *Extended Phase 1 Habitat Survey* (Document Reference 6.3.9.1);
- Silvertown Tunnel Environmental Statement, Technical Appendix 9.B (2015): *Bat Activity Surveys* (Document Reference 6.3.9.2); and
- Silvertown Tunnel Environmental Statement, Technical Appendix 9.F (2014): *Dedicated Species Assessments for Reptiles* (Document Reference 6.3.9.6).

2.3 The absence of a species from biological records cannot be taken to represent actual absence. Species distribution patterns should be interpreted with caution as they may reflect survey/reporting effort rather than actual distribution.

Extended Phase 1 Habitat Survey

2.4 A Phase 1 Habitat Survey was undertaken within the Site boundary in line with standard methods set out by the Joint Nature Conservation Committee[6]. Phase 1 Habitat Survey provides a rapid means of classifying broad habitat types in any given terrestrial site.

2.5 The survey was 'extended' to consider the suitability of the Site to support notable or protected flora or fauna. Species considered included those identified during the desk study, or those considered appropriate by the surveyor during the survey. Detailed surveys were not completed for these species; however, based on an understanding of species ecology, consideration was given to the Site's potential to provide sheltering or foraging habitat and/or connectivity to allow dispersal between populations. Further information is provided in the 'Results' section below.

2.6 The survey also noted any presence of invasive species, including those listed within the London Invasive Species Initiative[7] (LISI).

2.7 The Extended Phase 1 Habitat survey was undertaken on Monday 16th March by [redacted] BSc GradCIEEM. Weather conditions during the survey were cool, dry and sunny.

Bat Surveys

Preliminary Inspection

2.8 The Extended Phase 1 Habitat Survey included a preliminary bat inspection of the Site. This comprised a Preliminary Roost Assessment (PRA) of all buildings on Site and a Ground Level Assessment (GLA) of all trees on Site.

2.9 The surveys were carried out with due consideration of best practice guidelines[8] and comprised a detailed search for external features with potential to support access points and roosting places suitable for bats. The survey also recorded evidence of bat activity, such as droppings, staining, feeding remains and live/dead specimens. Where applicable, a high-powered torch and binoculars were used to inspect potential features.

2.10 In addition to this, the surrounding habitats were assessed in relation to their suitability to support foraging and commuting bats, as well as any potential connectivity to surrounding habitats of value to bats (which may increase the potential for bats to use the Site).

2.11 Trees and buildings were classified by their Bat Roost Potential (BRP). Categories of BRP are outlined in **Table 2.1** below, which also identifies requirements for additional survey to determine if a potential roost is in use:

Table 2.1 Bat Roost Potential Categories and Survey Requirements

BRP Category	Roosting Habitat Features	Commuting and Foraging Habitat Features	Survey Requirement
Negligible	Negligible habitat features likely to support roosting, commuting or foraging bats		No surveys required
Low	Structures in this category offer one or more potential roost sites for individual, opportunistically roosting bats. These sites do not offer the space, shelter or appropriate conditions to support large numbers of bats or maternity roosts. Tree in this category include those of sufficient size and age to support suitable	Habitat on and around the site could be used by a small number of commuting bats. This category includes densely urbanised landscapes or linear vegetation features poorly connected to the wider landscape.	1 dusk or dawn survey required for structures. No surveys required for trees.

[6] Joint Nature Conservation Committee (1990). Handbook for Phase 1 Habitat Survey. JNCC, Peterborough.

[7] Available at: http://www.londonisi.org.uk/wp-content/uploads/2013/10/LISI-species-of-concern_-Nov_2014.pdf

[8] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London

BRP Category	Roosting Habitat Features	Commuting and Foraging Habitat Features	Survey Requirement
	roosting features, but none are visible from the ground		
Moderate	Structures and trees in this category offer one or more roost site that, due to their space, shelter or conditions, offer roosting potential for a range of species. Roosts may be more permanent, rather than opportunistic. Small maternity roosts of common species may form in one of these roost sites.	Habitat on and around the site is well-connected to wider continuous habitat and offers commuting and foraging habitat to a larger number of bats across a number of species (e.g. tree lines or linked gardens in the urban context, or continuous hedge/tree lines and watercourses in an agricultural setting)	1 dusk and 1 dawn survey required for both structures and trees. Tree-climbing may be an appropriate alternative to dusk and dawn surveys.
High	Structures and trees in this category have one or more potential roost sites that are suitable for large number of bats. Roosts are likely to be permanent and include maternity roosts. Potential roost sites exist for a wide range of species or species of particular conservation interest.	Habitat on and around the site is diverse, continuous and linked to extensive suitable habitat. This category includes well-vegetated rivers, streams, hedgerows and woodland edge. Habitat is sufficiently diverse to offer opportunities to a wide range of species or those of particular conservation interest.	3 surveys, including both dusk and dawn elements. Tree-climbing may be an appropriate alternative to dusk and dawn surveys.

Limitations and Constraints

General

2.12 It is important to note that ecological surveys provide information regarding the ecological baseline of a site for only a 'snapshot' of time. Therefore, if significant time lapses between the surveys and the further development or implementation of proposals updated ecological surveys may be required to identify any change in the baseline, such as natural succession of habitats, or local extinction or colonisation of species. Therefore, if a year lapses between the progressions of development proposals, it is recommended that ecological advice is sought regarding the applicability of the survey findings, in cognisance with advice given by CIEEM on the lifespan of ecological reports and surveys[9].

Invasive Species Survey

2.13 The survey was undertaken in March, which is a sub-optimal time of year for botanical species. Crucially, emerging invasive plant species may be obstructed from view by dense vegetation. However, as most of the Site was hardstanding and an un-obstructed search for invasive species could be conducted with high confidence. Areas unable to be surveyed fully due to dense impenetrable vegetation have been identified within this report and should be considered a limitation to the invasive species survey.

[9] CIEEM (2019). Advice Note: On the Lifespan of Ecological Reports and Surveys. Chartered Institute for Ecology and Environmental Management, Winchester.

Chapter 3
Results

The results of the Phase 1 Habitat Survey are detailed below and form the ecological baseline of the Site as of 16th March 2020.

Desk Study

3.1 The findings of the desk study are presented in the tables below. **Table 3.1** summarises statutory and non-statutory designated sites within 1km of the development boundary (comprising both the Greenwich Area and Silvertown Area). **Table 3.2** summarises records of protected and notable species within 1km of the Site boundary.

Table 3.1: Statutory and Non-statutory Designated Sites within 1km from the Site Boundary (Comprising both Areas)

Name	Designation	Description	Location in Relation to Site
Sites with Statutory Designations			
Mudchute Park Farm	Local Nature Reserve	Large city farm and nature area at the southern end of the Isle of Dogs, serving an extensive area of inner-East London with wildlife-rich open space. Habitats include pastures, scrub, planted woodland and various wetlands, supporting a surprisingly diverse flora of native and non-native plants. The farm is also important for breeding birds, invertebrates and a large population of smooth newt *Lissotriton vulgaris*.	TQ 381 788
Sites with Non-statutory Designations			
River Thames and tidal tributaries	Metropolitan Site of Importance for Nature Conservation	The River Thames and the tidal sections of creeks and rivers which flow into it comprise a number of valuable habitats not found elsewhere in London. The mud-flats, shingle beach, inter-tidal vegetation, islands and river channel itself support many species from freshwater, estuarine and marine communities which are rare in London. The site is of particular importance for wildfowl and wading birds. The river walls, particularly in south and east London, also provide important feeding areas for the nationally rare and specially protected black redstart *Phoenicurus ochruros*. The Thames is extremely important for fish, with over 100 species now present. Many of the tidal creeks are important fish nurseries, including for several nationally uncommon species such as smelt. Barking Creek supports extensive reed beds. Further downstream are small areas of saltmarsh, a very rare habitat in London, where there is a small population of the nationally scarce marsh sow-thistle *Sonchus palustris*.	TQ 302 806

Name	Designation	Description	Location in Relation to Site
Mudchute Farm and Park	Metropolitan Site of Importance for Nature Conservation	See section within 'Sites with Statutory Designations' above.	TQ 381 789
Greenwich Ecology Park and Southern Park	Borough Grade I Site of Importance for Nature Conservation	Greenwich Ecology Park is a fairly recent habitat creation scheme, containing a wide range of habitats and managed for environmental education by the Trust for Urban Ecology. The ponds have been planted with a good diversity of aquatic and marginal plants and is a valuable educational resource.	TQ 400 791
Thames Wharf	Borough Grade I Site of Importance for Nature Conservation	Designated for scattered trees, scrub, semi-improved grassland and tall herb habitats.	TQ 397 468
Royal Docks	Borough Grade I Site of Importance for Nature Conservation	Designated for breeding and wintering birds.	TQ 427 804
Bow Creek Ecology Park	Borough Grade I Site of Importance for Nature Conservation	An educational nature park within a bend of the River Lea, designed around a series of created wetlands, including ponds, ditches and reedbeds.	TQ 391 811
East India Dock Basin	Borough Grade I Site of Importance for Nature Conservation	Designated for breeding birds, wintering birds, saltmarsh, reed beds, woodland, access to nature and environmental education.	TQ 391 808
Blackwall Basin	Borough Grade I Site of Importance for Nature Conservation	Designated for breeding birds, wintering birds and open mosaic habitats.	TQ 382 803
Millwall and West India Docks	Borough Grade II Site of Importance for Nature Conservation	Designated for wintering birds, breeding birds, grassland, plants including Jersey cudweed.	TQ 377 796
Fun Forest	Local Site of Importance for Nature Conservation	A small, wooded open space on a former derelict site.	TQ 406 814
Lyle Park	Local Site of Importance for Nature Conservation	An early 20th century park with a formal layout and changes in level. It has a riverside frontage and mature trees.	TQ 405 457
Poplar Dock	Local Site of Importance for Nature Conservation	Docks supporting a very large population of Jersey cudweed *Gnaphalium luteoalbum*.	-

Name	Designation	Description	Location in Relation to Site
Saffron Avenue Pond	Local Site of Importance for Nature Conservation	Pond with aquatic plants, aquatic invertebrates, breeding birds providing local access to nature.	TQ 386 809

Table 3.2: Relevant and Notable Species within 1km from the Site Boundary (Comprising Both Areas)

Taxon Name	Designation	Distance and Bearing of Most Recent Record
Reptiles		
Slow-worm *Anguis fragilis*	W&CA Sch5 Sec 9.1k/i NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc	0m SW
Birds		
Common (Mealy) Redpoll *Acanthis flammea*	BAP Priority London Local Spp of Cons Conc	404m NW
Cuckoo *Cuculus canorus*	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc Bird-Red	952m SW
Reed Bunting *Emberiza schoeniclus*	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc	404m NW
Merlin *Falco columbarius*	Birds Dir Anx 1 W&CA Sch1 Part 1 Bird-Red	404m NW
Kestrel *Falco tinnunculus*	Local Spp of Cons Conc	744m S
Linnet *Linaria cannabina*	BAP Priority London Local Spp of Cons Conc Bird-Red	0m S
Red Kite *Milvus milvus*	Birds Dir Anx 1 W&CA Sch1 Part 1	404m NW
Yellow Wagtail *Motacilla flava*	BAP Priority London Local Spp of Cons Conc Bird-Red	404m NW
Spotted Flycatcher *Muscicapa striata*	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc Bird-Red	404m NW
House Sparrow *Passer domesticus*	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc Bird-Red	573m SE

Taxon Name	Designation	Distance and Bearing of Most Recent Record
Tree Sparrow *Passer montanus*	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc Bird-Red	633m SE
Black Redstart *Phoenicurus ochruros*	W&CA Sch1 Part 1 BAP Priority London Bird-Red	582m NW
Dunnock *Prunella modularis*	BAP Priority London Local Spp of Cons Conc	652m SE
Bullfinch *Pyrrhula pyrrhula*	BAP Priority London	573m SE
Sand Martin *Riparia riparia*	BAP Priority London Local Spp of Cons Conc	899m N
Starling *Sturnus vulgaris*	BAP Priority London Local Spp of Cons Conc Bird-Red	652m SE
Song Thrush *Turdus philomelos*	BAP Priority London Local Spp of Cons Conc Bird-Red	573m SE
Mammals (excluding bats)		
West European Hedgehog *Erinaceus europaeus*	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc	1011m SW
Bats		
Daubenton's Bat *Myotis daubentonii*	Hab&Spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 Sec 9.4b W&CA Sch5 Sec 9.4c BAP Priority London Local Spp of Cons Conc	156m S
Lesser Noctule *Nyctalus leisleri*	Hab&Spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 Sec 9.4b W&CA Sch5 Sec 9.4c BAP Priority London Local Spp of Cons Conc	633m SE
Noctule Bat *Nyctalus noctula*	Hab&Spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 Sec 9.4b W&CA Sch5 Sec 9.4c NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc	334m N
Nathusius's Pipistrelle *Pipistrellus nathusii*	Hab&Spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 Sec 9.4b W&CA Sch5 Sec 9.4c BAP Priority London Local Spp of Cons Conc	334m N
Pipistrelle *Pipistrellus pipistrellus*	Hab&Spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 Sec 9.4b W&CA Sch5 Sec 9.4c BAP Priority London Local Spp of Cons Conc	334m N

Taxon Name	Designation	Distance and Bearing of Most Recent Record
Soprano Pipistrelle *Pipistrellus pygmaeus*	Hab&Spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 Sec 9.4b W&CA Sch5 Sec 9.4c NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc	465m N
Invertebrates		
Amphipod *Apocorophium lacustre*	Local Spp of Cons Conc Nationally Rare	1044m E
Adonis' Ladybird *Hippodamia (Adonia) variegata*	Local Spp of Cons Conc Nationally Notable B	586m N
Stag Beetle *Lucanus cervus*	Hab&Spp Dir Anx 2 NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc Nationally Notable B	275m E
A Beetle *Mecinus janthinus*	Nationally Notable A	633m SE
Mellet's Downy-back *Ophonus (Metophonus) melletii*	NERC Act Section 41 UKBAP RedList_GB-Lr(NT) Nationally Notable A	259m N
A Beetle *Polydrusus (Chrysophis) formosus*	Nationally Notable A	633m SE
A Beetle *Rhinusa collina*	Nationally Notable A	586m N
Wall *Lasiommata megera*	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc RedList_GB-Lr(NT)	586m N
Jersey Tiger *Euplagia quadripunctaria*	Hab&Spp Dir Anx 2	467m NW
Shoulder-striped Wainscot *Leucania comma*	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc	999m SW
White Ermine *Spilosoma lubricipeda*	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc	999m SW
Cinnabar *Tyria jacobaeae*	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc	408m NW
Black Colonel *Odontomyia tigrina*	Local Spp of Cons Conc Nationally Notable	926m SW
Black Mining Bee *Andrena (Plastandrena) pilipes*	Nationally Notable B	1011m SW

Taxon Name	Designation	Distance and Bearing of Most Recent Record
Brown-banded Carder-bee *Bombus humilis*	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc	353m N
Large Yellow-face Bee *Hylaeus (Prosopis) signatus*	Local Spp of Cons Conc Nationally Notable B	586m N

Extended Phase 1 Habitat Survey

The Extended Phase 1 Habitat Map and target notes are presented in Figure 1, Appendix B.

Hard Standing and Roadside Verges

3.2 Most of the Site comprised hardstanding forming roads, paths, cycle lanes and carparking. Roadside verges were amenity grassland mown short and comprising commonly sown amenity grass species including perennial rye grass *Lolium perenne*, annual meadow grass *Poa annua* and red fescue *Festuca rubra*.

Semi-Improved Neutral Grassland

3.3 In the north of the Site there was a relatively large area of herb rich poor-semi improved grassland (target note 7) including yarrow frequent *Achillea millefolium*, daisy *Bellis perennis*, cock's foot *Dactylis glomerata* , creeping buttercup *Ranunculus repens* and creeping cinquefoil *Potentilla reptans*.

Tree Lines

3.4 Around the 'O2' car parks and access roads there were numerous tree lines, these comprised a mix of oak *Quercus robur*, sycamore *Acer pseudoplatanus*, London plane *Platanus × acerifolia*, poplar *Populus* sp. and rows of more recently planted birch *Betula* sp..

Dense and Scattered Scrub

3.5 In the centre of the site, directly north of the gas-works there was a large area of dense scrub habitat comprising dominant bramble *Rubus fruticosus*, occasional willow *Salix* sp., elder *Sambucus nigra* and rare sycamore. There was a small clearing of poor semi-improved grassland in the centre of the scrub which had some localised areas of developed thatch suggesting relaxed management.

3.6 Scattered scrub comprising dominant bramble and occasional elder was found throughout the Site (target note 10), often along wall and fence boundaries.

Intertidal Terracing

3.7 Along the Thames foreshore there was a 6m wide strip of dominant common reed *Phragmites australis* as part of constructed intertidal terracing. Beyond the reed were mudflats.

Woodland

3.8 In the centre of the Site there was a small area of plantation broadleaved woodland (target note 12) comprising abundant birch, sycamore and London plane. The scrub layer comprised occasional scattered elder with rare hazel *Corylus avellana* and hawthorn *Crataegus monogyna*. The ground flora included dominant ivy, abundant garlic mustard *Alliaria petiolata*, nettle *Urtica diocia* and rare wood sage *Teucrium scorodonia*. Invasive species were found in the woodland, outlined in the section below.

Invasive Species

Invasive species locations are shown in Figure 2, Appendix C.

3.9 Within the woodland block in the centre of the Site a stand of Japanese knotweed *Fallopia japonica* were found. Stems were approximately 1-inch tall.

3.10 Buddleia scrub was recorded throughout the Site, which is listed as a Category 3 species of concern by the LISI as a species of "*high impact or concern which are widespread in London and require concerted, coordinated and extensive action to control/eradicate*".

3.11 The central were unable to be surveyed with high confidence due to seasonal survey constraints, with dense

bramble scrub obstructing the view of potentially present emerging shoots.

Protected and Notable Species Assessment

The following species were considered in detail.

- Bats;
- Badger *Meles meles*;
- Birds (including black redstart *Phoenicurus ochruros*);
- Reptiles; and
- Invertebrates.

Bats

Desk Study

3.12 The desk study found records of the following bat species within a 1km radius from the Site boundary:

- Common pipistrelle *Pipistrellus pipistrellus*;
- Soprano pipistrelle *Pipistrellus pygmaeus*;
- Nathusius' pipistrelle *Pipistrellus nathusii*;
- Noctule *Nyctalus noctula*;
- Leisler's bat *Nyctalus leisleri*; and
- Daubenton's bat *Myotis daubentonii*.

3.13 Previous survey work identified low levels of bat activity across the Site, with low numbers of common pipistrelle recorded in the centre and north of the Site.

3.14 Bat activity on the Greenwich side of the Thames was recorded as markedly lower than bat activity on the Silvertown side.

Habitat Appraisal

3.15 Habitats on Site were largely unsuitable for bats comprising majority brightly lit hardstanding of negligible value to commuting and foraging bats.

3.16 In the centre of the Site there were areas of woodland and dense scrub suitable to support foraging bats.

3.17 Suitable areas for bat foraging within the Site were poorly connected to the wider landscape, with surrounding urban habitats unsuitable to support commuting bats. There was some connectivity provided by the River Thames corridor approximately 250m west of suitable habitat separated by the A102 and urban development.

3.18 The results of the PRA of buildings and GLA of trees is summarised in the sections below.

Preliminary Roost Assessment

Buildings and trees with bat roost potential are shown in Figures 3 and 4 respectively in Appendix D.

3.19 All buildings within the Site provided negligible suitability for roosting bats.

3.20 Two buildings directly adjacent to the Site had low bat roost potential, full details including maps and photographs are provided in **Appendix D** and summarised below:

- **Building 1:** *Low Bat Roost Potential*. A small lifted section of wooden cladding on the south west façade provided potential access for singleton bat for use on an occasional basis.

Building 1: Low Bat Roost Potential

- **Building 2:** *Low Bat Roost Potential*. Binocular inspection of lead flashing found multiple places where lead flashing was lifted, providing potential entry into potential cavity suitable to support roosting bats.

Building 2: Low Bat Roost Potential

Tree 1: Moderate Bat Roost Potential

3.21 Both buildings faced the A102 which is a busy well-lit road leading up to the black wall tunnel, reducing the suitability of this feature for all but the widespread common pipistrelle, which is more tolerant to urban light levels.

Ground Level Assessment

3.22 One tree within the Site provided moderate bat roost potential. Full details including maps and photographs are provided in **Appendix D** which are summarised below:

- **Tree 1**: *Moderate Bat Roost Potential* Mature London plan with rotted knot hole with potential entry to larger cavity. It was not possible to determine the extent of potential cavity from ground level.

3.23 No other trees on Site provided BRP.

Badger

Desk Study

3.24 The desk study found no records of badger with a 1km radius of the Site boundary.

Habitat Appraisal

3.25 The majority of habitat on Site, comprising urban hardstanding and buildings, were unsuitable to support badger foraging and sett building.

3.26 Small areas of woodland and dense scrub habitat provide good potential for badger sett establishment. However, this suitable badger habitat was geographically and ecologically isolated as it was bound by dense urban development unsuitable to support badger commuting activity.

3.27 No signs of badger were recorded within the Site.

Birds

Desk Study

3.28 The desk study found records of the following relevant and notable bird species within a 1km radius from the Site boundary of primary relevance:

- Black redstart; and
- Kestrel *Falco tinnunculus*.

3.29 The 2015 survey for black redstart found only common and widespread birds within the Site. Black redstart or kestrel were not found.

Habitat Appraisal

3.30 The Site provides suitable opportunities for a range of common and widespread birds to nest in trees, dense scrub and buildings across the Site. Additionally, the small area of intertidal mudflats to the east provide opportunities for wading birds.

3.31 The gas works directly south of the Site were suitable to support nesting and foraging black redstart. This structure also provided a vantage point for predatory birds.

Reptiles

Desk Study

3.32 The desk study found records of the following reptile species within a 1km radius from the Site boundary:

- Slow worm *Anguis fragilis.*

3.33 The 2015 Extended Phase 1 Habitat Survey found suitable habitat for reptiles and the 2015 reptile surveys found no reptiles present within the Site.

Habitat Appraisal

3.34 Small areas of woodland, dense scrub habitat and semi-improved neutral grassland in the center of the Site were suitable for reptile foraging, sheltering and hibernation.

3.35 Suitable habitats on Site were geographically and ecologically isolated by developed urban habitats unsuitable to support commuting reptiles. This geographical isolation is likely to severely limit the ability of reptiles to colonise / re-colonise the Site.

Invertebrates

3.36 The Site has limited value for notable invertebrates. However, it is set within a wider landscape of suitable habitat for notable invertebrates. In particular the gas works (adjacent habitats) was noted for its brownfield character. Brownfield habitat is known to be of particular value to diverse assemblages of invertebrates including scarce and rare species.

Chapter 4
Recommendations and Pre-Commencement Survey Requirements

Habitats

4.1 Habitats within the Site had not markedly changed from the 2015 Phase 1 Survey.

4.2 A thin 6m wide strip of intertidal reedbed, a priority habitat, previously unrecorded, was found to the east of the Site along the River Thames foreshore.

4.3 It is understood habitat along the River Thames foreshore will not be impacted by the proposals, therefore this habitat is not considered to be an ecological constraint to enabling works and no further survey is required.

Invasive Species

4.4 The survey found Japanese knotweed and buddleia within the Site.

Pre-commencement Requirements

4.5 Non-native species will be managed via method statement as part of the EMP.

4.6 Areas not possible to fully survey due to seasonal survey constraints should be subject to a second confirmatory survey to confirm absence.

Bats

4.7 Legal protection afforded to bats and their roosts is detailed in **Appendix A.** In summary, all bats and their roosts are subject to the highest level of protected afforded to species in the UK as European Protected Species (EPS).

4.8 The baseline suitability of the Site for bats has not changed significantly since the 2015 survey. The survey found the suitability of the Site to be low, with suitable habitat constrained to an isolated area of foraging habitat in the centre of the Site.

4.9 Previous surveys found very low activity within the Site and it is unlikely that activity has increased since the 2015 surveys as baseline habitats remain largely unchanged.

4.10 The survey found one tree with BRP and two buildings with BRP. BRP features on buildings were adjacent to the Site on buildings outside of the Site boundary. As a precautionary measure presence / absence survey is recommended as good practice, to inform works and avoid potential impacts to bats

as a result of large-scale construction activities in close proximity.

Pre-commencement Survey Requirements

4.11 Dusk and/or dawn emergence / return surveys are recommended to determine presence / absence of roosting bats, and roost status, in features identified with BRP (the requirement for these is outlined within **Table 1.1** and required survey effort is summarised in **Table 4.1** below).

4.12 The optimal bat survey window is May to August, with surveys also possible in April and September (subject to weather conditions and assuming at least two surveys are completed in the optimal window).

Table 4.1: Bat Survey Requirements

Roosting Feature	Survey Requirement
Building 1	Single dusk or dawn survey for presence / absence.
Building 2	Single dusk or dawn survey for presence / absence.
Tree 1	Tree climbing or two dusk / dawn surveys for presence / absence.

4.13 If proposals result in the loss, damage, obstruction or destruction of a roost, a Natural England licence would be required. More information on NE Bat Licensing is provided in **Appendix A**

Birds

4.14 Birds and their nests are protected by the Wildlife and Countryside Act, 1981 (as amended) detailed in **Appendix A**.

4.15 The survey found suitable habitat for widespread and common breeding birds.

4.16 East London and the Docklands is a historic stronghold for black redstart. The combination of dockland, brownfield habitat, foreshore and complex building structures provide the optimal mix of suitable nesting and foraging opportunities for this specially protected (Schedule 1) species. No structures within the Site were deemed suitable for nesting black redstart. At the time of the survey the gas work structure south of the Site and outside the boundary of works was suitable to support black redstart. Given this structure is outside of the order limits works this is not considered a constraint to enabling works.

Pre-commencement Survey Requirements

4.17 In the first instance sensitive timing of tree works / scrub clearance is recommended as a precautionary measure against potential impacts to birds. These works should be undertaken between September – February (inclusive) to avoid the active nesting season.

4.18 If this is not achievable an ECoW would be required to complete the following to inform works:

- In areas of open scattered and trees inspection for active bird nests should be undertaken by a competent person no more than 24 hours prior to works commencing.
- In areas of dense scrub and woodland, clearance should be supervised by an ECoW, who should be present over the clearance period and will undertake periodic checks as habitat becomes accessible.

4.19 If birds' nests are present and likely to be affected by works, works should cease immediately, and a suitably qualified ecologist should be contacted. A suitable protection buffer zone around the nest would be required until such time that the young have fledged and the nest is no longer active. This would likely result in delays to the programme and would need to be informed by a suitably qualified ecologist.

4.20 Additional measures for breeding birds and black redstart will be outlined within the EMP.

Reptiles

4.21 Legislation afforded to reptiles is detailed in **Appendix A**.

4.22 2015 presence / absence surveys for reptiles in found no reptiles within the Site. Although the survey found suitable habitat for reptiles, it is unlikely that reptiles have colonised / recolonised the Site since 2015 given habitats are geographically and ecologically isolated. Therefore, reptiles are not considered to be an ecological constraint to enabling works and no further survey for reptiles is required.

Badger

4.23 Legislation afforded to badger is detailed in **Appendix A**.

4.24 With the exception of the central plantation woodland and dense scrub the Site was found to be unsuitable for badger. No signs of badger were recorded during the Site visit.

4.25 Due to the isolated nature of suitable habitat within the Site it is unlikely that this species is present and highly unlikely that badger would establish setts within the Site in the future.

4.26 Given it is unlikely badger use the Site this species is not considered to be an ecological constraint to enabling works within the Site and no further survey for badger is required.

Invertebrates

4.27 The survey found limited habitat suitable for notable invertebrates. Invertebrates will be mitigated for via measures outlined within the EMP, informed by previous surveys and ES reporting.

Additional Considerations

4.28 In the event a protected species is encountered during works, including badger, reptiles, bats are encountered during construction works then activity should cease immediately and the ECoW contacted to advise best how to proceed.

Appendix A
Legislation

Statutory nature conservation sites and protected species are a ‘material consideration’ in the UK planning process (DCLG 2012). Where planning permission is not required, for example on proposals for external repair to structures, consideration of protected species remains necessary given their protection under UK and EU law. Natural England Standing Advice aims to support Local Planning Authorities decision making in respect of protected species (Natural England 2012). Standing advice is a material consideration in determining the outcome of applications, in the same way as any individual response received from Natural England following consultation.

The Conservation of Habitats and Species Regulations 2017 transpose the requirements of the European Habitats Directive (Council Directive 92/43/EEC) and Birds Directive (Council Directive 79/409/EEC) into UK law, enabling the designation of protected sites and species at a European level.

The Wildlife and Countryside Act 1981 (as amended) forms the key piece of UK legislation relating to the protection of habitats and species.

The Countryside Rights of Way Act 2000 provides additional support to the Wildlife and Countryside Act 1981; for example, increasing the level of protection for certain species of reptiles.

The Wild Mammals Protection Act 1996 sets out the welfare framework in respect to wild mammals, prohibiting a range of activities that may cause unnecessary suffering.

Species and Habitats of Principal Importance for Conservation in England and Wales and priority habitats and species listed in the London Biodiversity Action Plan (BAP) are species which are targeted for conservation. The government has a duty to ensure that involved parties take reasonable practice steps to further the conservation of such species under **Section 41 of the Natural Environment and Rural Communities Bill 2006**. In addition, the Act places a **biodiversity duty on public authorities** who ‘must, in exercising their functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity’ (Section 40 [1]). Criteria for selection of national priority habitats and species in the UK include international threat and marked national decline.

The National Planning Policy Framework (MHCLG 2018) states (Section 15) that the planning system should identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks; promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

It also states that local planning authorities should refuse planning on the following principles:

- If significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for;
- If development is on land within or outside a Site of Special Scientific Interest (SSSI), and is likely to have an adverse effect on it (the exception being where the benefits of the development in the location proposed clearly outweigh its likely impact);
- If development results in the loss or deterioration of irreplaceable habitats, such as ancient woodland and ancient or veteran trees (unless there are wholly exceptional reasons and a suitable compensation strategy exists).

Additionally the NPPF states that development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

Bats

All British species of bat are listed on the **Wildlife and Countryside Act 1981 (as amended) Schedule 5.** It is an offence to deliberately kill, damage, take **(Section 9(1))** a bat; to intentionally or recklessly disturb a bat whilst it occupies a place of shelter or protection **(Section 9(4)(b))**; or to deliberately or recklessly damage, destroy or obstruct access to a bat roost **(Section 9(4)(c)).** Given the strict nature of these offences, there is an obligation on the developer and owner of a site to consider the presence of bats.

All British bats are listed on the **Conservation of Habitats and Species Regulations 2017, Schedule 2. Regulation 41** strengthens the protection of bats under the 1981 Act against deliberate capture or killing **(Regulation 41(1) (a)),** deliberate disturbance **(Regulation 41(1) (b))**[10] and damage or destruction of a resting place **(Regulation 41(1) (d)).**

A bat roost is defined as any structure or place which is used for shelter or protection, irrespective of whether or not bats are resident. Buildings and trees may be used by bats for a number of different purposes throughout the year including resting, sleeping, breeding, raising young and hibernating. Use depends on bat age, sex, condition and species as well as the external factors of season and weather conditions. A roost used during one season is therefore protected throughout the year and any proposed works that may result in disturbance to bats, and loss, obstruction of or damage to a roost are licensable.

Application for a Natural England EPS Licence

Development works that may cause killing or injury of bats or that would result in the damage, loss or disturbance of a bat roost would require a Natural England (NE) Bat Mitigation Licence. For a Mitigation licence to be granted three tests must be met. Evidence is needed to determine these three tests: whether there is a need for the development which justifies the impact on the European Protected Species (EPS); whether there is an alternative which would avoid the impact and need for an EPS licence; and whether mitigation proposed is sufficient to maintain the conservation status of the EPS in question. A Mitigation Licence application will generally only be considered by NE on receipt of planning consent, and once any pre-commencement conditions of relevance to ecology have been discharged. There are two licensing routes now available for bats, which comprise:

Full NE England EPS Mitigation Licence:
NE aim to determine the application within six weeks (although this can take longer).

- The application comprises three components including an application form (broad details of the applicant, site and proposals);
- a detailed Method Statement providing the survey methods and findings, impact assessment and mitigation measures (including detailed maps and schedule of works); and a Reasoned Statement outlining the „need" for the development and consideration of alternatives.

[10] Relates specifically to deliberate disturbance in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young or ii) the local distribution of that species.

NE Low Impact Class Licence
This new route provides an alternative, quicker route (with a much reduced application form, and a target of 10 days to determine an application).

This Low Impact Class Licence is only available to Registered Consultants identified by NE. This is available for sites which support up to three low status roosts (day roosts, night roosts, feeding roosts and transitional roosts) of a maximum of three common species.

The common species which can be covered by this licence include common pipistrelle, soprano pipistrelle, brown longeared, whiskered, Brandts, Daubenton"s and Natterer"s bat.

All licensed works require evidence that there is a need for the development and that appropriate mitigation, including seasonal constraints and provision of alternative habitat and/or roosting structures is considered.

Before Natural England can confirm the site is registered and licensable works can commence, an assessment of the three tests must be undertaken by the Registered Consultant. Although this does not need to be submitted to NE, NE may subsequently undertake a review of the project and request to see all evidence as collected by the Consultant. This can only be undertaken following a survey and impact assessment which must be carried out in accordance with licence conditions and BCT survey guidelines.

This licence cannot be used in relation to trees.

Several species of bat, including brown long-eared and soprano pipistrelle are listed as species of principal importance under the **NERC Act (2006). Section 41** of the Act is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the **Natural Environment and Rural Communities Act 2006**, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Reptiles

All UK reptiles and amphibians are legally protected from intentional and reckless killing and injury under the Wildlife and Countryside Act 1981 (as amended).

Badger

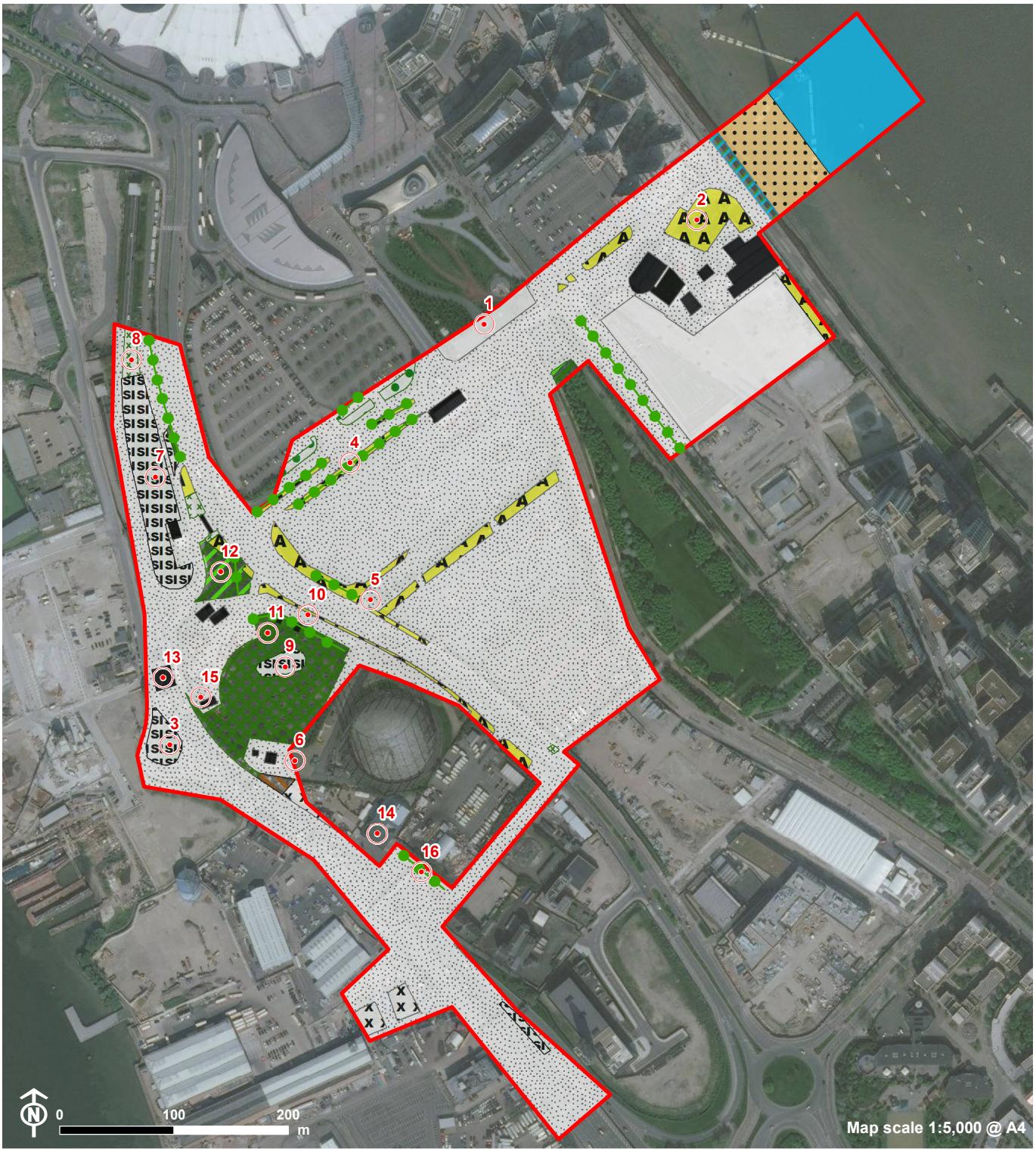
Badger are subject to legal protection under the Protection of Badgers Act (1992). Works which may result in damage to a badger sett, or potential disturbance to badger using setts, must be undertaken under a Natural England licence.

Nesting Birds

Birds and their nests are protected by the Wildlife and Countryside Act 1981 (as amended). This Act gives protection to all species of bird with regard to killing and injury, and to their nests and eggs with regard to taking, damaging and destruction. Certain species listed on Schedule 1 of the Act, are afforded additional protections.

Appendix B

Extended Phase 1 Habitat Map and Target Notes



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: FA, LUC
CB:MB EB:Beetham_m LUC FIG1_11032_r0_Phase1Habitats_A4P 19/05/2020

Figure 1: Phase 1 Habitats

Indicative study area

Target note

Phase 1 habitats

TL Tree line

A1.3.2 Mixed woodland (plantation)

A2.1 Scrub (dense/continuous)

A2.2 Scrub (scattered)

A3.1 Broadleaved scattered trees

B6 Poor grassland (semi-improved)

C3.1 Other tall herb and fern (ruderal)

F2.1 Marginal and inundation - marginal vegetation

G2 Running water

H1.1 Intertidal - mud/sand

HS Hardstanding

J1.2 Amenity grassland

J1.3 Ephemeral/short perennial

J3.6 Building

J5 Other habitat

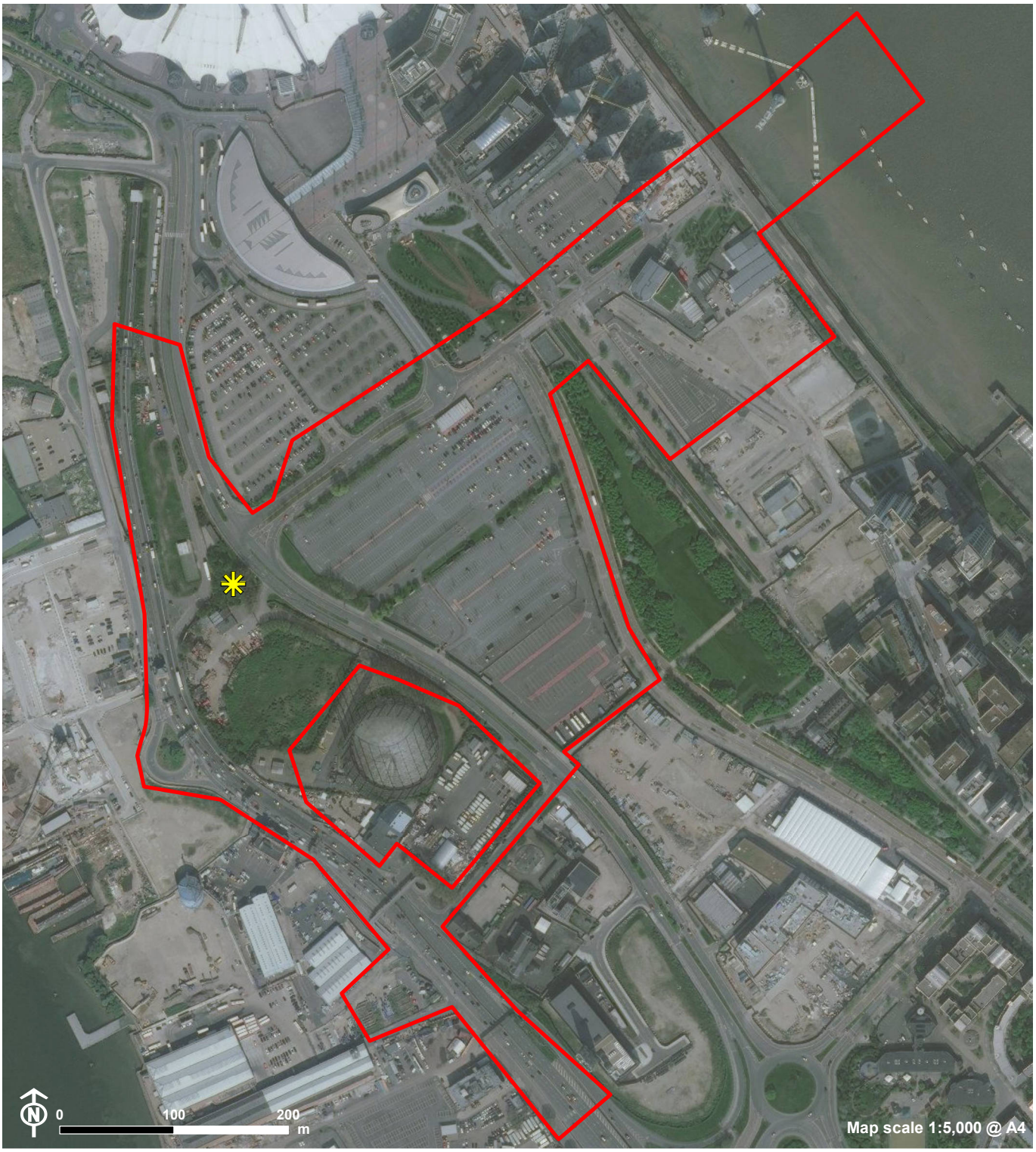
Table 5.1 Phase 1 Habitat Target Notes and Photographs

Reference Number	Target note	Photograph
1	Change from 2015 baseline – now an active construction site	
2	Amenity grassland planted with dominant silver birch tree line.	-
3	Inaccessible due to traffic, island contained juvenile scattered trees unsuitable for roosting bats.	-
4	Newly planted tree line with amenity grassland beneath.	
5	Oak dominant tree line.	

Reference Number	Target note	Photograph
6	Recently laid flint gravel with sparse ephemeral vegetation, no notable plant species found.	
7	Large island area of herb rich poor semi-improved grassland, mown short with scattered trees	
8	Fenced off area with hardstanding and scattered buddleia scrub	-
9	Small clearing of semi-improved neutral grassland with limited suitability for reptiles.	-
10	Access road with pollarded London plane	

Reference Number	Target note	Photograph
11	Dense scrub comprising dominant buddleia, abundant bramble occasional elder and rare sycamore.	
12	Japanese knotweed within plantation woodland	
13	Building with BRP. See BRP assessment section.	-
14	Off-site building with BRP. See BRP assessment section.	-

Appendix C
Invasive Species



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: FA, LUC
CB:MB EB:Beetham_m LUC FIG2_11032_r0_InvasiveSpecies_A4P 19/05/2020

Figure 2: Invasive Species

Indicative study area

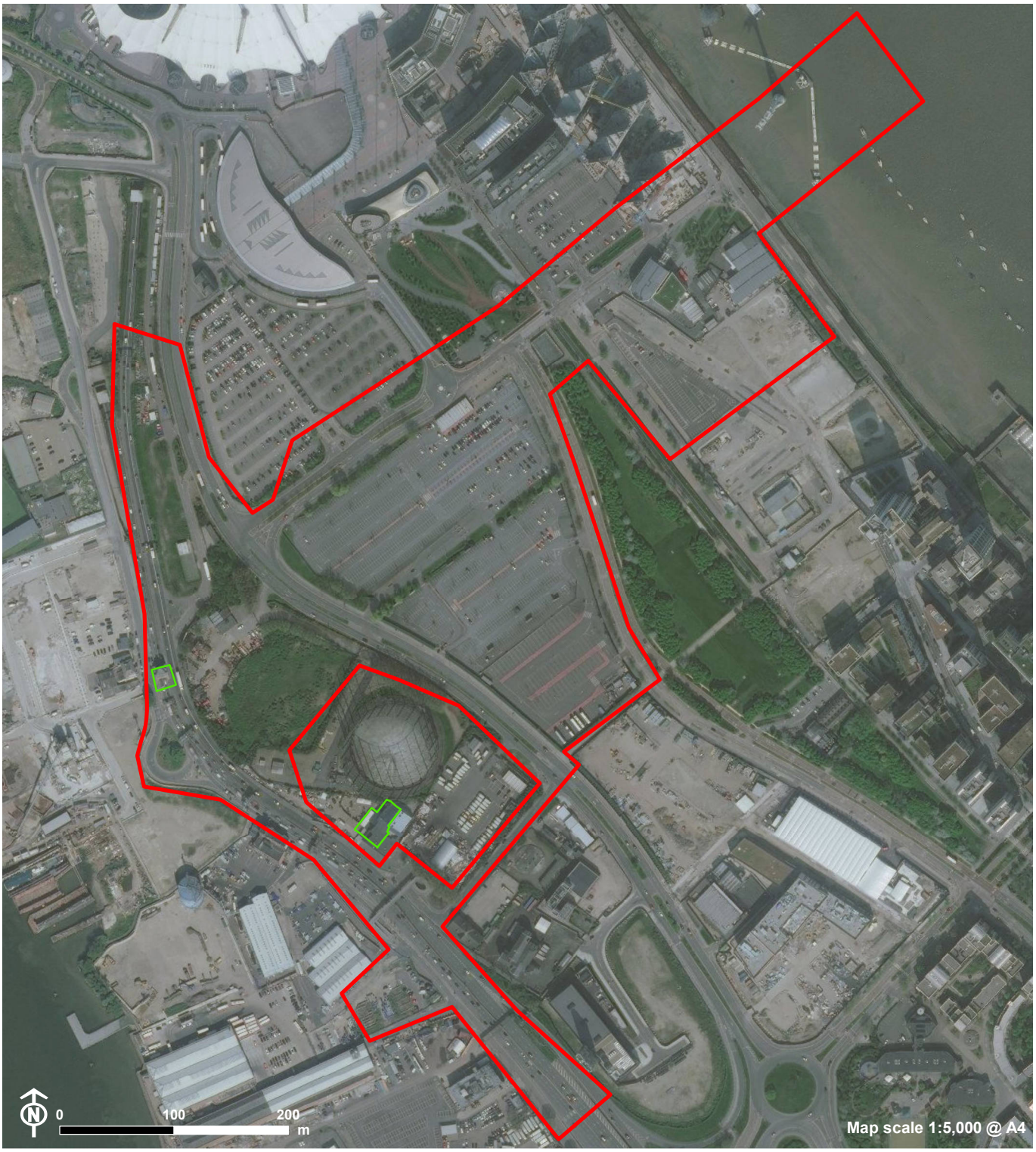
Japanese knotweed

Figure C.1: Young Japanese Knotweed Shoots Within Woodland

Click here to enter caption.

Appendix D

Preliminary Bat Assessment



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: FA, LUC
CB:MB EB:Beetham_m LUC FIG3_11032_r0_Buildings_BRP_A4P 19/05/2020

Figure 3: Buildings With Bat Roost Potential (BRP)

Indicative study area

Building with low BRP

Table 5.2 Building 1

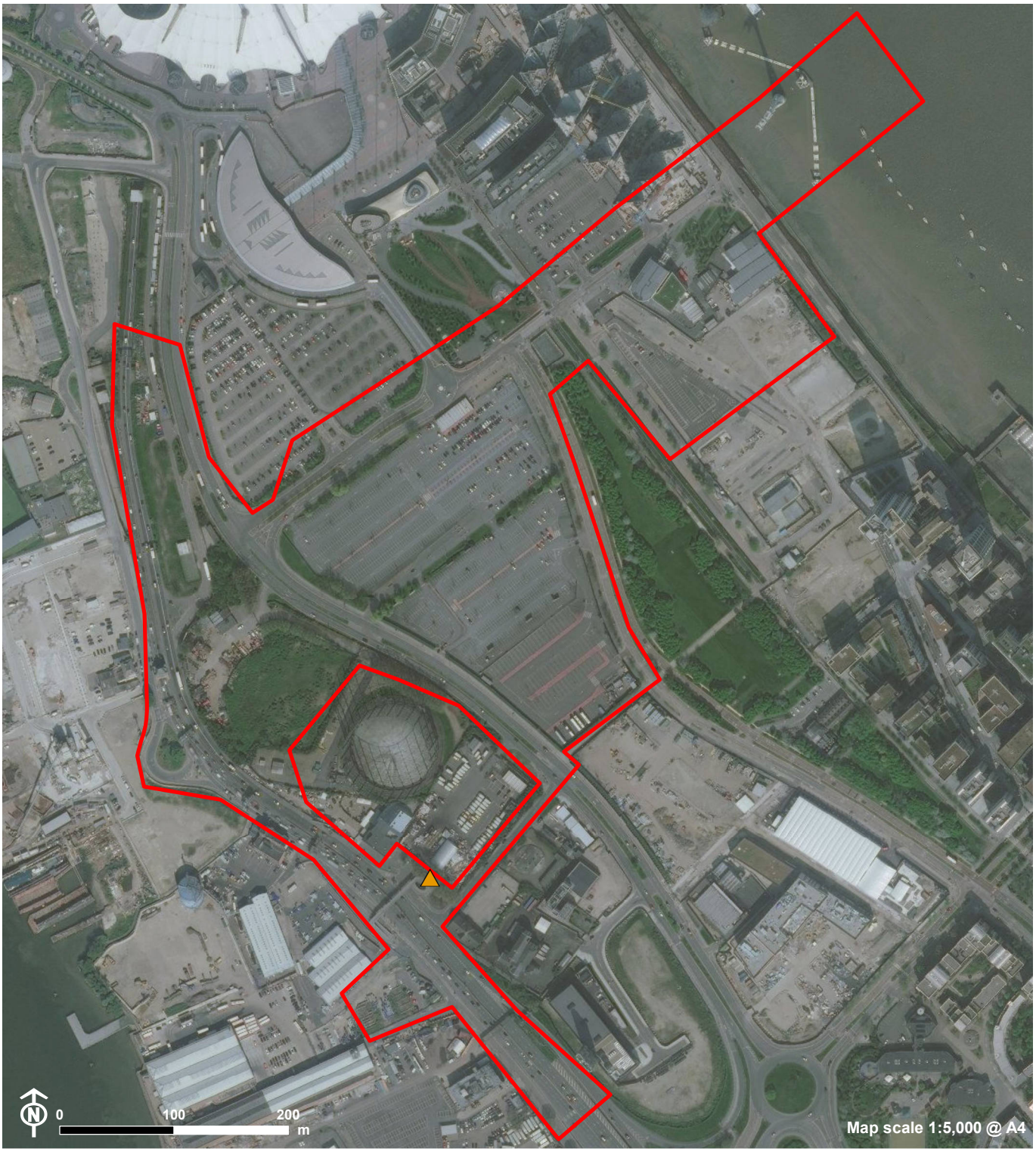
Reference Number	1	Location	TQ 39275 79278 (off site)

Structure Description	
Type of Building and Current Use	Two story wooden clad building in use as a nightclub.
Dimensions	Approximately 25m x 45m x 5m
Construction Materials and Age	External wooden cladding. Flat roof. Unknown age - appears recently constructed/renovated.
Feature	
Description of potential access points and roosting places	Small lifted section of wooden cladding on the south west façade (photographed) provided potential access for singleton bat for use on an occasional basis. Solid wall beneath the cladding with no potential cavity for larger roosts. Low BRP.
Description of evidence of bats found	No other evidence of bats found.
Additional Information	
Building faces the A102 which is a busy well-lit road leading up to the black wall tunnel, reducing the suitability of this feature for all but the widespread common pipistrelle, which is more tolerant to urban night time lighting.	

Table 5.3 Building 2

Reference Number	2	Location	TQ 39093 79423 (off site)

Structure Description	
Type of Building and Current Use	Gate house marking approach to Blackwall Tunnel, with A102 running underneath.
Dimensions	Unknown.
Construction Materials and Age	Stone with slate roof and lead flashing.
Feature	
Description of potential access points and roosting places	Binocular inspection of lead flashing found multiple places where lead flashing was lifted, providing potential entry into potential cavity suitable to support roosting bats. Low BRP.
Description of evidence of bats found	No other evidence of bats found.
Additional Information	
Building faces the A102 which is a busy well-lit road leading up to the black wall tunnel, reducing the suitability of this feature for all but the widespread common pipistrelle, which is more tolerant to urban night time lighting.	



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: FA, LUC
CB:MB EB:Beetham_m LUC FIG4_11032_r0_Trees_BRP_A4P 19/05/2020

Figure 4: Trees With Bat Roost Potential (BRP)

Indicative study area

Tree with moderate BRP

Table 5.4 Tree 1

Tree tag / Reference Number	1	Location	TQ 39311 79255

Tree Description	
Species	London plane
Diameter at breast height	60-70cm
Age	Mature
Feature	
Description of potential access points and roosting features	4m high west facing knot hole with potential entry into potential cavity. Moderate BRP.
Description of evidence of bats found	No other evidence of bats was observed. There was no staining or bat droppings.
Additional Information	
The ground level assessment could not determine extent of cavity.	

Appendix 2 – Greenwich Bat Survey Results

Riverlinx CJV
BY EMAIL

Our reference

11032 - Silvertown Tunnel

Date

27 May 2020

Bat Surveys 19th - 20th May

This letter sets out the results of further bat surveys conducted on buildings and a tree identified as having Bat Roost Potential (BRP) within the Greenwich Area of the Silvertown Tunnel project. This letter should be read in conjunction with the Extended Phase 1 Habitat Survey report[1] which sets out the methodology and detailed mapping and results of the Preliminary Roost Assessment (PRA) of buildings on Site and a Ground Level Assessment (GLA) of all trees on Site. For the benefit of the reader the legislation afforded to bats is appended to this letter and the results of the preliminary inspections are summarised in the section below.

Preliminary Inspections

The results of the PRA and GLA are summarised below and detailed in the Extended Phase 1 Habitat Survey:

- **Building 1** (Studio 338)**:** The survey found a small lifted section of wooden cladding on the south west façade which provided potential access for singleton bats for use on an occasional basis. The building was assessed as having Low Bat Roost Potential, thereby requiring a single dusk or dawn survey to determine presence / absence.
- **Building 2** (Blackwall Tunnel Gatehouse): Binocular inspection of lead flashing found multiple places where lead flashing was lifted, providing entry into potential cavities suitable to support roosting bats. The building was assessed as having Low Bat Roost Potential and therefore requiring a single dusk or dawn survey to determine presence / absence.
- **Tree 1** (Mature London Plane *Platanus* × *acerifolia*): The survey confirmed that the tree had a rotted knot hole with the potential to lead to a larger cavity. It was not possible to determine the extent of potential cavity from ground level. The tree was assessed as having Moderate Bat Roost Potential, and therefore requiring two dusk / dawn surveys to determine presence / absence.

[1] LUC (March 2020). *Extended Phase 1 Habitat Survey Report, Greenwich Area – Silvertown Tunnel.*

Emergence Survey

To identify the presence / absence of bat roosts, and identify roost type, status and characteristics (e.g. roost dimensions, access points and flight paths) the features described above were subject to emergence surveys in line with best practice guidance. Surveys were conducted over two nights from May 19th to May 20th 2020 and conducted with consideration to good practice guidance[2,3&4]. Photographs from the survey, alongside maps showing the position of features are attached to this letter.

Due to the current COVID-19 tree climbing surveys were unable to be conducted, therefore trees identified with BRP were subject to emergence survey.

Dusk emergence surveys commenced at least 15 minutes before sunset and lasted for at least 1.5 hours after sunset. During each survey, experienced bat surveyors were positioned around the building and trees such that all aspects could be observed simultaneously.

Standard survey equipment comprised Bat Box Duet heterodyne and Anabat Express frequency division detectors. Bat sonograms were recorded for subsequent analysis and species identification (if required). Bat foraging and commuting activity was also recorded during the surveys, with species, number, time and direction of flight recorded to gain an understanding of how the area is utilised by foraging or commuting bats.

Surveys were undertaken by a team of experienced bat surveyors including holders of Natural England licences. The survey team is set out below:

- [redacted] ACIEEM (NE Bat Level 2 and Level 4 Class Licence holder: 2016-25139-CLS-CLS / 2019-43260-CLS-CLS);
- [redacted] GradCIEEM (NE Bat Level 2 Class Licence holder: 2018-35997-CLS-CLS);
- [redacted] GradCIEEM; and
- [redacted] GradCIEEM.

The results of the presence / absence surveys are presented in the table below:

Table 1.1: Emergence Survey Results

Bat Roost Potential Feature	Survey Type	Date and Timings	Weather	Surveyors	Findings
Tree (Photograph 1)	Dusk / Emergence	19th May 20:36 – 22:21pm	24°C clear skies, dry, light breeze and no rain.	[redacted]	No roosts were recorded. No bat activity was detected.
Building 1 (Photograph 2 and 3)	Dusk / Emergence	19th May 20:36 – 22:21pm	24°C clear skies, dry, light breeze and no rain.	[redacted]	No roosts were recorded. No bat activity was detected.
Building 2 (Photograph 4)	Dusk / Emergence	20th May 20:36 – 22:21pm	22°C clear skies, dry, light breeze and no rain.	[redacted]	No roosts were recorded. No bat activity was detected.

[2] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London
[3] Andrews H. (2018). Bat Roosts in Trees - A Guide to Identification and Assessment for Tree-care and Ecology
[4] Mitchell-Jones, A.J. and McLeish, A.P. (2004). Bat Workers' Manual. 3rd Edition. JNCC, Peterborough.

The survey also noted features were heavily lit by flood lighting from industrial units to the west (on the other side of the A281) which reduced the suitability of the features for roosting bats.

Discussion

The March 2020 preliminary roost inspection concluded that Tree 1 provided moderate BRP and required two surveys to determine presence / absence. Given the absence of recorded bat activity in the area over the two nights, flood-lighting and proximity of the tree to the A281 the feature has been re-assessed as providing negligible bat roost potential and does not require additional presence / absence survey.

The surveys found no bat roosts and there was no bat activity recorded in the vicinity of buildings or tree. It is highly unlikely that bats are present within the potential roosts, therefore bats are not considered a constraint to works impacting these features.

In the highly unlikely event that bats are encountered during the project, works should cease immediately and advice sought from an appropriately qualified ecologist.

Yours sincerely

Appendix A

Legislation and Photographs

Bats

All British species of bat are listed on the **Wildlife and Countryside Act 1981 (as amended) Schedule 5.** It is an offence to deliberately kill, damage, take **(Section 9(1))** a bat; to intentionally or recklessly disturb a bat whilst it occupies a place of shelter or protection **(Section 9(4)(b))**; or to deliberately or recklessly damage, destroy or obstruct access to a bat roost **(Section 9(4)(c)).** Given the strict nature of these offences, there is an obligation on the developer and owner of a site to consider the presence of bats.

All British bats are listed on the **Conservation of Habitats and Species Regulations 2017, Schedule 2. Regulation 41** strengthens the protection of bats under the 1981 Act against deliberate capture or killing **(Regulation 41(1) (a)),** deliberate disturbance **(Regulation 41(1) (b))**[10] and damage or destruction of a resting place **(Regulation 41(1) (d)).**

A bat roost is defined as any structure or place which is used for shelter or protection, irrespective of whether or not bats are resident. Buildings and trees may be used by bats for a number of different purposes throughout the year including resting, sleeping, breeding, raising young and hibernating. Use depends on bat age, sex, condition and species as well as the external factors of season and weather conditions. A roost used during one season is therefore protected throughout the year and any proposed works that may result in disturbance to bats, and loss, obstruction of or damage to a roost are licensable.

Application for a Natural England EPS Licence

Development works that may cause killing or injury of bats or that would result in the damage, loss or disturbance of a bat roost would require a Natural England (NE) Bat Mitigation Licence. For a Mitigation licence to be granted three tests must be met. Evidence is needed to determine these three tests: whether there is a need for the development which justifies the impact on the European Protected Species (EPS); whether there is an alternative which would avoid the impact

[10] Relates specifically to deliberate disturbance in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young or ii) the local distribution of that species.

and need for an EPS licence; and whether mitigation proposed is sufficient to maintain the conservation status of the EPS in question. A Mitigation Licence application will generally only be considered by NE on receipt of planning consent, and once any pre-commencement conditions of relevance to ecology have been discharged. There are two licensing routes now available for bats, which comprise:

Full NE England EPS Mitigation Licence:
NE aim to determine the application within six weeks (although this can take longer).

- The application comprises three components including an application form (broad details of the applicant, site and proposals);
- a detailed Method Statement providing the survey methods and findings, impact assessment and mitigation measures (including detailed maps and schedule of works); and a Reasoned Statement outlining the „need" for the development and consideration of alternatives.

NE Low Impact Class Licence
This new route provides an alternative, quicker route (with a much reduced application form, and a target of 10 days to determine an application).

This Low Impact Class Licence is only available to Registered Consultants identified by NE. This is available for sites which support up to three low status roosts (day roosts, night roosts, feeding roosts and transitional roosts) of a maximum of three common species.

The common species which can be covered by this licence include common pipistrelle, soprano pipistrelle, brown longeared, whiskered, Brandts, Daubenton"s and Natterer"s bat.

All licensed works require evidence that there is a need for the development and that appropriate mitigation, including seasonal constraints and provision of alternative habitat and/or roosting structures is considered.

Before Natural England can confirm the site is registered and licensable works can commence, an assessment of the three tests must be undertaken by the Registered Consultant. Although this does not need to be submitted to NE, NE may subsequently undertake a review of the project and request to see all evidence as collected by the Consultant. This can only be undertaken following a survey and impact assessment which must be carried out in accordance with licence conditions and BCT survey guidelines.

This licence cannot be used in relation to trees.

Several species of bat, including brown long-eared and soprano pipistrelle are listed as species of principal importance under the **NERC Act (2006). Section 41** of the Act is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the **Natural Environment and Rural Communities Act 2006**, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Photographs

Tree 1, Photo Taken May 19th 2020

Building 1, South Façade - Photo Taken May 19th 2020

Building 1, North Façade - Photo Taken May 19th 2020

Building 2, West Façade - Photo Taken May 20th 2020

Appendix 3 – Invasive Species Survey