SILVERTOWN TUNNEL

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[redacted] CJV Ecology Advisor	[redacted] CJV Environment Manager	[redacted] CJV Project Director	03/08/2020	P03

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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 to align with RBG Plan	Multiple
P03	03/08/2020	Update to include INNS and Bat Surveys and address TfL comments	Multiple

Contents

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 Silvertown worksite in constructing STT, located within the London Borough of Newham. Site specific EcMPs is a requirement under Schedule 2, Part 1 (requirements), 5 (3f) 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 Silvertown 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 London Borough of Newham 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 north side of the river, in Silvertown, the following changes will occur; modification of the existing Tidal Basin Roundabout to connect the STT approach roads with Dock Road, realigning the Dock Road so that it links with the modified roundabout and introducing new pedestrian and cycle facilities within the modified roundabout.

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 Silvertown Area, Extended Phase 1 Habitat Report (June 2020) provides further detail and can be found in Appendix 1 of this document.

2.1 Existing Site Description

Silvertown (north side of the River Thames)

The Silvertown site, on the north side of the River Thames, is located to the south of Canning Town in the London Borough of Newham (LBN). Transport infrastructure dominates this area, which contains the elevated A1020 Silvertown Way/Lower Lea Crossing and the elevated Docklands Light Railway (DLR) Woolwich extension running north-west to south-east, as well as the Jubilee Line and Emirates Air Line (EAL) cable car running north-east to south-west across the River Thames. To the northeast of Silvertown Way, the area just beyond the Silvertown site predominantly consists of mixed residential and recreational land uses around the perimeter of the Royal Victoria Docks. Land of potential value to wildlife in this area is limited to vegetation present in residential gardens and small parks (e.g. Keir Hardie Recreation Ground), and in pockets of soft landscaping (e.g. around The Crystal events venue) and along narrow roadside verges and railway corridors.

Conversely, to the southwest of Silvertown Way, light industrial and commercial uses dominate, bounded by a safeguarded wharf known as Thames Wharf. In this area Dock Road/North Woolwich Road provide local access to a number of businesses including steel and metal suppliers, scrap metal dealers, concrete batching plants, waste recycling and management businesses and an aggregates supplier. Land of potential value to wildlife in this area is dominated by a mixture of habitat types, including small (often linear) woodland blocks, scrub and scattered trees, with larger patches of scrub, tall ruderals and grassland, that form a relatively well-connected network of open mosaic habitat. Soft landscaping is also present, primarily comprising linear strips of grassland and trees alongside Dock Road and at the junction with Silvertown Way.

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: 19/2733/0) 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 on both sides of the River Thames, 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 Newham. 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 confirmatory desk study for the Phase 1 Habitat survey in June 2020. No significant changes have 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 Silvertown site are as follows:

- The River Thames and Tidal Tributaries SINC (this includes the areas of mudflat within under which the tunnel will be bored) is directly adjacent to the Scheme at Silvertown;
- Royal Docks SINC (an area of open water linked to the River Thames and its tidal creeks, located approximately 0.2km east of the northern part of the Silvertown site);
- East India Dock Basin SINC (an area of mud and saltmarsh habitat approximately 0.5km west of the Silvertown site); and
- Bow Creek Ecology Park SINC (an area of created wetlands which include ponds, reedbeds and ditches approximately 0.8km north-west of the Silvertown site).

2.3 Existing Habitats

This section reviews and summarises the existing terrestrial and marine habitats within the Silvertown 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
- Silvertown Area, Extended Phase 1 Habitat Report: June 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 London Borough of Newham as part of monthly reporting.

Existing Terrestrial Habitats

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

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

- Brownfield habitat (semi-natural open mosaic habitat);
- Built environment (buildings and hardstanding);
- Grassland (semi-improved neutral, poor semi-improved and amenity);
- Wetland (settling pond); 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 order limits comprised habitats typical of the built environment, mostly buildings and hard standing. Notable vegetation and habitats included some fragmented areas of habitat contributing towards the open mosaic habitats on previously developed land, listed as a Section 41 habitat in the Natural Environment Research Council (NERC) Act, 2006 (habitats or species for material consideration in planning determination) also referred to as brownfield habitat which is a mosaic of a number of habitat types. This included pockets of tall ruderal, dense scrub and ephemeral/short perennial vegetation and standing water forming a settling pond. Along the banks of the Docklands Light Railway (DLR) there were areas of semi-improved neutral grassland which also contributed towards the open mosaic.

To the north of the Silvertown worksite, beneath the electrical transmission tower, there was an area of increased botanical diversity. This was adjacent to an area of broadleaved plantation woodland on land adjacent to the Lower Lea Crossing Road and within the Tidal Basin Road Roundabout.

Tree surveys were carried out within the STT 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 a developing 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 Silvertown worksite. 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 Silvertown order limits suitability to support protected species:

- Silvertown Area, Extended Phase 1 Habitat Report: June 2020 – **Appendix 1**;
- Silvertown Area Bat Surveys: June – July 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 plan, the plan would be updated, and the latest version shared with the London Borough of Newham 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*.

In the north of the Silvertown worksite, beneath the electrical transmission tower, there was an area of increased botanical diversity. Species included hounds tongue *Cynoglossum officinale*, purple goats-beard *Tragopogon porrifolius*, oxeye daisy *Leucanthemum vulgare*, white campion *Silene latifolia*, bladder campion *Silene vulgaris*, burdock *Arctium minus*, mugwort *Artemisia vulgaris*, toad flax *Linaria vulgaris*, caper spurge *Euphorbia lathyris*, wild mignonette *Reseda lutea,* bristly ox-tongue *Helminthotheca echioides* and St. John's wort *Hypericum perforatum*.

No nationally scarce or local species of conservation concern were noted during both the 2014 and 2020 survey.

Existing Terrestrial Species – Terrestrial Invertebrates

The Phase 1 Habitat Survey desk study data updated in June 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 open mosaic habitats within the Silvertown worksite are largely unchanged from the 2015 baseline and likely support a diverse assemblage of invertebrates, including scarce and rare species.

An invertebrate survey of the Silvertown worksite, undertaken from June to August 2014, recorded 311 species. Full results of the 2014 Invertebrate Survey can be found in ES Appendix 9.C (Document Reference: 6.3.9.3). The survey found two species listed as at risk from extinction by the International Union for the Conservation of Nature (IUCN) Red Data Book. There were:

- Ground bug *Stictopleurus punctatonervosus*; and
- Toadflax brocade moth *Calophasia lunula*.

However, both of these species have become widespread and common in the River Thames corridor since the designation was applied. In addition, seventeen Nationally Scarce species were recorded including:

- Long-winged cone-head *Conocephalus discolour*; and
- Myrmecophilous ladybird *Platynaspis luteorubra*.

Ecological management for invertebrates is detailed in Chapter 4 of this document.

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 are listed as a Newham BAP Priority Species and reptiles are listed as London and Newham 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 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 Scheme. Black redstart is listed under Schedule 1 of the WCA and a London 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 habitat suitable for use by nesting birds including dense/continuous scrub, broadleaved plantation woodland, scattered broadleaved trees and buildings.

The survey found the combination of dockland, open mosaic habitat, foreshore and complex building structures provided an optimal mix of suitable nesting and foraging opportunities for this specially protected (Schedule 1) species. Targeted black redstart surveys were undertaken from April to June 2014 beyond Dock Road within the Silvertown worksite and no evidence black redstarts nesting with the Site.

The small amount of intertidal mud recorded along the River Thames at Silvertown was not considered suitable for wading birds.

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 Newham 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 2020 confirmatory survey found the baseline suitability of the Silvertown worksite for bats had not changed significantly since the 2015 survey. Habitats were largely comprised of hardstanding of negligible value to commuting and foraging bats. There were pockets of suitable habitat for bat foraging, comprising woodland, dense

scrub and water bodies. Suitable habitats were poorly connected to the wider landscape as surrounding urban habitats were unsuitable to support commuting bats. There was some connectivity provided by the River Thames corridor however habitats were poorly connected to the Thames corridor.

However, the 2020 survey noted successional scrub habitats were further developed and likely to provide some increased foraging opportunities for bats compared to the 2015 baseline. Such changes were noted as minor and it is unlikely that bat activity (recorded as low in 2015) has changed markedly since 2015.

The 2020 confirmatory extended Phase 1 Habitat Survey found six buildings with bat roost potential. Presence / absence surveys for these buildings were conducted between June – July 2020, which found no bats and concluded that bats were not a constraint to works on, or in the vicinity of, these buildings. The survey noted that the River Thames is known as an important commuting corridor for bats, and the surveyors recorded very low activity of commuting bats when positioned adjacent to the River Thames

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.

An updated Phase 1 Intertidal Habitat, Intertidal Benthic Habitat and Subtidal Benthic Habitat Surveys has 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 London Borough of Newham 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 Silvertown Tunnel 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 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 Silvertown site. Knotweed was noted in the north of the Silvertown site, adjacent to land associated with the Docklands Light Railway.

An updated invasive species survey was commissioned as part of the 2020 confirmatory surveys which included 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.

The survey recorded two large areas of Japanese knotweed (WCA Schedule 9) within the Silvertown site.

- To the north west of the site there was a large section comprising mainly dead stems encroaching from Docklands Light Railway land; and
- Within the eastern section of the roundabout there were three stands of growth comprising two mature stands with evidence of secondary rhizome growth.

The survey also noted a single giant hogweed plant (WCA Schedule) within the Silvertown site.

Non-schedule 9 species listed by LISI included false acacia (LISI Category 4), goats' rue (LISI Category 4), widespread buddleia (LISI Category 3) and cherry laurel (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. • Advise and instruct construction teams in the event of incidents and complaints.

Role Title	Responsibilities
	• 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-17-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-17-ZZ-PLN-EN-0003);
- Noise and Vibration Management Plan (ST150030-RLC-ZZZ-17-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 (bats, birds and terrestrial invertebrates); 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 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.

- Brownfield (open mosaic habitat);
- Plantation Woodland and Scattered Trees;
- Dense Scrub;
- Grassland; and
- Standing Water

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 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 (and black redstart);
- Bats; and
- Invertebrates.

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.

Black redstart monitoring will be undertaken weekly, during the construction period in areas that are suitable for black redstart, from April to July. If black redstart is recorded, a SQE will determine whether there is a need for

additional mitigation in accordance with the scale of the potential impact, and will prescribe the measures to be taken. Potential additional mitigation measures the SQE may suggest include, but are not limited to, more frequent monitoring during the breeding season and during construction, demarcation of exclusion zones or whether discrete elements of the works, proximate to the recorded sighting area and which may give rise to local disturbance, are required to stop temporarily until the birds have left the area (i.e. following the breeding period).

Terrestrial Species - Bats

To prevent indirect effects to bat commuting and foraging along the River Thames the following measures to prevent any potential lighting impacts to the River Thames dark corridor should be taken:

- Ensure that operatives and contractors are aware that the River Thames is a sensitive area of importance to bats;
- Artificial lighting should be avoided where possible through implementation of a dark buffer zone alongside the River Thames dark corridor;
- Should night-time lighting be required alongside the River Thames an ecologist should, in the first instance, have input into sensitive design. If a buffer zone cannot be implemented light spill may be minimised to acceptable levels successfully through a combination of sensitive design measures.
- Any temporary or permanent (for the duration of works) lighting configuration impacting the River Thames dark corridor will be inspected and signed off by a ECoW.

Terrestrial Species - Invertebrates

In order to mitigate for notable invertebrates, the CEMP and Air Quality Management Plan state measures for dust pollution, timing recommendations to avoid core activity periods, and pollution prevention measures following Environment Agency guidelines.

Marine Species

The following marine species have been identified as requiring additional measure to those within the CEMP and other management plans:

- Migrating fish.

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.

The single giant hogweed plant will be subject to treatment by herbicide application (stem injection) by a suitably qualified contractor.

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

The Site Clearance Plan details the timing and methods for clearance of the site. 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 November 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 be focused on ensuring potential construction phase impacts are kept within the predicted impacts identified in the ES. This section includes details of monitoring for habitat 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 suitably experienced ecologists (such as those holding membership of the Chartered Institute of Ecology and Environmental Management (CIEEM)). The monitoring measures will be determined to:

- 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)
Black redstart	Breeding black redstart surveys in areas identified as having potential to support breeding black redstart in line with current best practice.	Weekly from April to July for duration of construction
Marine	Search for change in habitats, presence of INNS 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 – Silvertown Phase 1 Survey Report

Appendix 2 – Silvertown Bat Survey Results

Appendix 3 – Invasive Species Survey Report