



CANARY WHARF  
GROUP PLC

NQ.PA.27

# North Quay Ecological Impact Assessment

Greengage  
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## 1. Executive Summary

1.1 Canary Wharf (North Quay) Ltd (“the Applicant”) are submitting applications for Outline Planning Permission (OPP) and Listed Building Consent (LBC) to enable the redevelopment of the North Quay site, Aspen Way, London (“the Site”).

1.2 Two separate applications are being submitted for the works. The applications will seek permission for:

- Application NQ.1: Outline Planning Application (all matters reserved) - Application for the mixed-use redevelopment of the Site comprising demolition of existing buildings and structures and the erection of buildings comprising business floorspace, hotel/serviced apartments, residential, co-living, student housing, retail, community and leisure and sui generis uses with associated infrastructure, parking and servicing space, public realm, highways and access works.
- Application NQ.2: Listed Building Consent - Application to stabilise listed quay wall and any associated/necessary remedial works as well as demolition of the false quay in connection with Application NQ.1.

1.3 Greengage Environmental Ltd was commissioned to undertake an Ecological Impact Assessment (EclA) of the Site.

1.4 This document is a report of this assessment and has been produced to assess the likely significant effects of the construction and operational phases of the Proposed Development in terms of ecology. This is to support:

*“Application for outline planning permission (all matters reserved) for the redevelopment of the North Quay site for mixed use comprising:*

- *Demolition of existing buildings and structures;*
- *Erection of buildings and construction of basements;*
- *The following uses:*
  - *Business floorspace (B1)*
  - *Hotel/Serviced Apartments (C1)*
  - *Residential (C3)*
  - *Co-Living (C4/Sui Generis)*
  - *Student Housing (Sui Generis)*
  - *Retail (A1-A5)*
  - *Community and Leisure (D1 and D2)*
  - *Other Sui Generis Uses*

- *Associated infrastructure, including a new deck over part of the existing dock;*
- *Creation of streets, open spaces, hard and soft landscaping and public realm;*
- *Creation of new vehicular accesses and associated works to Aspen Way, Upper Bank Street, Hertsmere Road and underneath Delta Junction;*
- *Connections to the Aspen Way Footbridge and Crossrail Place (Canary Wharf Crossrail Station);*
- *Car, motorcycle, bicycle parking spaces, servicing;*
- *Utilities including energy centres and electricity substation(s); and*
- *Other minor works incidental to the proposed development.”*

- 1.5 As part of this assessment, a Preliminary Ecological Appraisal (PEA) was undertaken in November 2019 to establish the ecological value of the Site and the presence/likely absence of notable and/or legally protected species. An Aquatic Ecology Scoping Survey was also undertaken to ascertain the need for further phase 2 aquatic surveys as agreed with the London Borough of Tower Hamlets. (see Appendix 2).
- 1.6 This document presents the results of this PEA and Aquatic Ecology Scoping Assessment (see Appendix 2) and assesses the likely impacts upon key ecological receptors as a consequence of the Proposed Development.
- 1.7 The survey area extends to approximately 3.28 hectares and mainly comprises hardstanding, bare ground and temporary buildings used as offices/storage space.
- 1.8 The PEA identified the Site to be of generally low ecological value, with the only natural terrestrial habitat on Site limited to a few ornamental planters.
- 1.9 The Site does however encompass an area of the Millwall and West India Dock, a Borough Grade II Site of Importance for Nature Conservation.
- 1.10 Impacts from the construction works, in lieu of mitigation, are expected upon the dock in this location through vibrational, noise, and light disturbance, as well as risk of pollutant spillage and dust deposition. These potential construction impacts will be addressed through compliance with a Construction and Environmental Management Plan (CEMP), secured as a planning condition.
- 1.11 Furthermore, the Proposed Development could potentially lead to impacts upon the condition of dock habitat through overshadowing caused by a new stretch of boardwalk. Compensatory

aquatic habitat in the form of fish walls should therefore be embedded within proposals to address this operational impact. The final form of these will be secured through a planning condition.

- 1.12 Otherwise, value for protected and notable species was limited to low value for foraging and commuting bats and low value for nesting birds amongst the small areas of vegetation present.
- 1.13 A sensitive lighting strategy is recommended to address potential impacts upon bats, with seasonal clearance of vegetation proposed to address nesting birds.
- 1.14 The Site provides an opportunity to contribute to the local green infrastructure network and ecological enhancements are accordingly included within the plans, in line with policy, Canary Wharf Group Biodiversity Action Plan (CWG BAP) and best practice guidance. These enhancements include:
- Provision of large areas of extensive biodiverse roofs, to include enhanced invertebrate habitat features;
  - Provision of vertical greening;
  - Provision of wildlife friendly ground floor and podium level landscaping; and
  - Provision of integrated bird and bat boxes within new buildings.
- 1.15 Assuming key mitigation and compensation actions summarised above are followed, alongside delivery of the ecological enhancements, it is considered highly likely that proposals would deliver significant biodiversity net gain (BNG) and result in at least negligible impacts upon receptors and at most significant permanent positive impacts at a local scale. The BNG Assessment calculator provided at Appendix 3 shows a predicted BNG of 1.13 units, which equates to a 55% increase.
- 1.16 An Ecological Management Plan (EMP) should be produced for the Site which provides design and management detail for the ecological design features described within.
- 1.17 The EMP and CEMP could be secured through a planning condition.

## 2. Introduction

2.1 Canary Wharf (North Quay) Ltd (“the Applicant”) are submitting applications for Outline Planning Permission (OPP) and Listed Building Consent (LBC) to enable the redevelopment of the North Quay site, Aspen Way, London (“the Site”).

2.2 Two separate applications are being submitted for the works. The applications will seek permission for:

- Application NQ.1: Outline Planning Application (all matters reserved) - Application for the mixed-use redevelopment of the Site comprising demolition of existing buildings and structures and the erection of buildings comprising business floorspace, hotel/serviced apartments, residential, co-living, student housing, retail, community and leisure and sui generis uses with associated infrastructure, parking and servicing space, public realm, highways and access works.
- Application NQ.2: Listed Building Consent - Application to stabilise listed quay wall and any associated/necessary remedial works as well as demolition of the false quay in connection with Application NQ.1.

2.3 Greengage was commissioned to undertake a Preliminary Ecological Appraisal (PEA) by Canary Wharf Group (CWG) of a site known as North Quay in the Canary Wharf Estate, within the London Borough of Tower Hamlets.

2.4 This document is a report of this survey and has been produced to support an outline planning submission for:

*“Application for outline planning permission (all matters reserved) for the redevelopment of the North Quay site for mixed use comprising:*

- *Demolition of existing buildings and structures;*
- *Erection of buildings and construction of basements;*
- *The following uses:*
  - *Business floorspace (B1)*
  - *Hotel/Serviced Apartments (C1)*
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  - *Student Housing (Sui Generis)*
  - *Retail (A1-A5)*

- *Community and Leisure (D1 and D2)*
    - *Other Sui Generis Uses*
  - *Associated infrastructure, including a new deck over part of the existing dock;*
  - *Creation of streets, open spaces, hard and soft landscaping and public realm;*
  - *Creation of new vehicular accesses and associated works to Aspen Way, Upper Bank Street, Hertsmere Road and underneath Delta Junction;*
  - *Connections to the Aspen Way Footbridge and Crossrail Place (Canary Wharf Crossrail Station);*
  - *Car, motorcycle, bicycle parking spaces, servicing;*
  - *Utilities including energy centres and electricity substation(s); and*
  - *Other minor works incidental to the proposed development.”*
- 2.5 This survey aimed to establish the ecological value of this Site and the presence/likely-absence of notable and/or legally protected species in order to inform appropriate mitigation, compensation and enhancement actions in light of proposed development works.
- Site Description and Planning History**
- 2.6 The survey area extends to approximately 3.28 hectares and is centred on National Grid Reference TQ375805, OS Co-ordinates 537536, 180540.
- 2.7 The Site is located to the north of the Canary Wharf Estate and comprises an area of cleared land which has been previously used as a construction laydown site for the Canary Wharf Crossrail Station. There are some temporary uses currently on site, including the Tower Hamlets Employment and Training Services, WorkPath and advertising structures. The Site mainly comprises hardstanding and several temporary buildings which have been erected for use as offices and amenity facilities for construction workers. There are small areas of bare ground throughout the site with no vegetation. Several planters have been installed around the temporary buildings which contain small trees, ornamental pelargoniums and introduced shrubs.
- 2.8 The Site is bound by the West India North Dock to the south, the A1261 to the north, West India Quay DLR station to the west and Billingsgate Market to the east. It is set in a heavily urbanised environment within the Canary Wharf Estate, an area dominated by high-rise commercial development, with residential development, largely in the form of low to mid rise housing, extending to the north into Poplar.

- 2.9 Greenspace in the local area is largely limited to that associated with Canary Wharf, including Jubilee Park ~300m south and Westferry Circus ~600m south-west, as well as amenity space associated with housing in Poplar to the north. Other ecological features of note in the vicinity include a number of living roofs throughout Canary Wharf and the network of docks which extends south of the Site into the Isle of Dogs, and connects to the Thames, located ~600m east or west.
- 2.10 As part of the previous North Quay development proposals (LPA ref. PA/17/01193, application withdrawn December 2017) , an initial ecological assessment (An Extended Phase 1 Habitat survey) was undertaken on 13th September 2016 and subsequently reported in an Ecological Impact Assessment (produced by Ramboll, dated 21st April 2017).
- 2.11 This assessment confirmed the Site was a recently cleared area mainly comprised of hardstanding with five temporary buildings, ephemeral/short perennial vegetation and four young trees. Much of the Site was classified as being of negligible potential value for protected/notable species and habitats, with the exception of the presence of the SINC to the south of the Site.
- 2.12 Black redstart surveys were undertaken in 2019 (1620001103/ECO/BXS/R01) which confirmed the absence of this species from the Site.



### 3. Methodology

- 3.1 This Ecological Impact Assessment (EclA) was undertaken in line with guidance in the Chartered Institute of Ecological and Environmental Management (CIEEM) (2016) Guidelines for Ecological Impact Assessment<sup>i</sup>, in accordance with BS42020:2013: Biodiversity<sup>ii</sup>.
- 3.2 The EclA was informed by the findings of a Preliminary Ecological Appraisal (PEA) which included an extended Phase 1 Habitat Survey, undertaken in accordance with guidance in the Joint Nature Conservation Committee (JNCC) (2010) Handbook for Phase 1 Habitat Survey<sup>iii</sup> and the Chartered Institute of Ecological and Environmental Management (CIEEM) (2017) Guidelines for Preliminary Ecological Appraisal<sup>iv</sup>. The PEA consisted of:
- A desktop assessment including analysis of a biological records search; and
  - A site walkover, protected species scoping assessment and phase 1 habitat survey.
- 3.3 The site survey was carried out on the 6th November 2019.
- 3.4 The survey boundary and existing site is shown at Figure 1.
- 3.5 Greengage undertook the site walkover during clear and cold weather conditions. Features within the site boundary and accessible features immediately bordering it were evaluated and the extent and distribution of habitats and plant communities were recorded, and supplemented with target notes on areas or species requiring further commentary. Fauna using the area were recorded and areas of habitat suitable for statutorily protected species were identified where present, with an active search carried out for evidence of such use.
- 3.6 An Aquatic Ecology Scoping Assessment was also undertaken to determine the need for further aquatic ecological surveys and inform this EclA. This assessment, including the methodology, results and discussion, is found at Appendix 2.

#### **Preliminary Ecological Appraisal**

##### **Desk Top Review**

- 3.7 A review of readily available ecological information and other relevant environmental databases (included Defra's Multi-Agency Geographic Information for the Countryside (MAGIC) website) was undertaken for the Site and its vicinity. In addition, local authority websites and a biological records search from Greenspace Information for Greater London (GiGL) were reviewed to identify the location and citations of local non-statutory designated sites and presence of records for notable and protected species. This provided the overall ecological context for the site, to better inform the Phase 1 Survey.

##### **Site Survey**

##### **Flora**

- 3.8 The extent and distribution of different habitats on site were identified and mapped according to the standard Phase 1 Survey methodologies, supplemented with target notes describing the dominant botanical species and any features of interest. Any present protected plant species and invasive/non-natives were also noted. A habitat map has been produced to illustrate the results, as shown at Figure 1.

### ***Fauna***

- 3.9 The Phase 1 Survey specifically included assessments to identify the potential value for notable, rare and protected species at site. This involved identifying potential habitats in terms of refugia, breeding sites and foraging areas in the context of species known to be present locally and regionally.
- 3.10 The likelihood of occurrence is ranked as follows:
- Negligible - While presence cannot be absolutely discounted, the site includes very limited or poor-quality habitat for a particular species. The site may also be outside the known national range for a species;
  - Low - On-site habitat is poor to moderate quality for a given species, with few or no information about their presence from desk top study. However, presence cannot be discounted due to the national distribution of the species or the nature of on-site and surrounding habitats;
  - Moderate - The on-site habitats are of moderate quality, providing most or all of the key requirements for a species. Several factors may limit the likelihood of occurrence, habitat severance, habitat disturbance and small habitat area;
  - High - On-site habitat of high quality for given species. Site is within a regional or national stronghold for that particular species with good quality surroundings and good connectivity; and
  - Present - Presence confirmed for the survey itself or recent, confirmed records from information gathered through desk top study.
- 3.11 Given the urbanised setting and surveyors familiarity with the Canary Wharf Estate it was possible to rule out the presence of many protected species prior to the site survey. A focus was therefore provided on the following taxa:

### **Bat Species (Chiroptera)**

- 3.12 The site visit was undertaken in daylight and the evaluation of bat potential comprised an assessment of natural features on site that aimed to identify characteristics suitable for bat roosts, foraging and commuting. In accordance with Bat Conservation Trust's Good Practice Guidelines<sup>v</sup> and methods given in English Nature's (now Natural England) Bat Mitigation Guidelines<sup>vi</sup> consideration was given to:
- The availability of access to roosts for bats;

- The presence and suitability of crevices and other places as roosts; and
- Signs of bat activity or presence.

3.13 Definite signs of bat activity were taken to be:

- The bats themselves;
- Droppings;
- Grease marks;
- Scratch marks; and
- Urine spatter.

3.14 Signs of possible bat presence were taken to be:

- Stains; and
- Moth and butterfly wings.

3.15 Features with potential as roost sites include mature trees with holes, crevices or splits (the most utilised trees being oak, ash, beech, willow and Scots pine), caves, bridges, tunnels and buildings with cracks or gaps serving as possible access points to voids or crevices.

3.16 Additionally, linear natural features such as tree lines, hedgerows and river corridors are often considered valuable for commuting and semi-natural habitats such as woodland, meadows and waterbodies can provide important foraging resources. Consideration was given to the presence of these features both immediately within and adjacent to the assessment area.

#### Birds

3.17 During the walkover survey, the potential for breeding, wintering and migratory birds was assessed. In particular, this includes areas of trees, scrub, heathland and wetlands that could support nests for common or notable species.

#### Invertebrates

3.18 As part of the walkover survey the quality of invertebrate habitat and the potential for notable terrestrial and aquatic invertebrate species was considered. There is a wide variety of habitats suitable for invertebrates including wetland areas, heathland, areas of bare sandy soil, ephemeral brownfield vegetation and meadows.

#### Fish

3.19 Value for fish in the form of open water or associated structures which may provide shelter, feeding or egg laying opportunities was assessed.

#### Biodiversity Action Plan priority species/ Species of Principal Importance

- 3.20 Where consultation and desk-study indicates the presence of Biodiversity Action Plan ("BAP") priority species (Species of Principal Importance) not protected by statute, effort was made to establish the potential for the site to support these species.

### **Ecological Impact Assessment**

- 3.21 Following analysis of the PEA and Aquatic Scoping Assessment taking account of the Proposed Development, an Ecological Impact Assessment (EclA) has been undertaken.
- 3.22 This EclA seeks to identify potential impacts upon key ecological receptors described by the baseline survey reports.
- 3.23 An impact is defined as 'actions resulting in changes to an ecological feature'.
- 3.24 The approach to ecological evaluation advocated by the CIEEM guidelines involves professional judgement, based on available guidance and information, together with advice from experts who know the locality of the project and / or the distribution and status of the species or features that are being considered. The analysis aims to assign value to an ecological feature with reference to a defined geographical scale, i.e.:
- International;
  - National;
  - Regional;
  - Metropolitan/Borough;
  - Local.
- 3.25 Sites which are subject to statutory and/or non-statutory designation may be readily assigned a value on this scale, for example:
- Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are internationally important sites;
  - SSSIs are nationally important sites; and
  - SINC (non-statutory) are of metropolitan/borough/local value in London.
- 3.26 Where an area has more than one designation, the highest of these has been used to assign significance. Features of a site that are not the reasons for its designation(s) are assessed and valued according to their intrinsic value.
- 3.27 In assigning value to species, reference to a species' geographical distribution, and its population status (e.g. widespread, common, rare) and trends (e.g. declining, stable) has been made. A species that is rare and declining may be assigned a higher level of importance than one that is rare but known to be stable. Species which have a significant proportion of their European population in the UK may also be highly valued.

## **Methods for assessing nature and significance of ecological impacts**

### ***Impact Identification***

- 3.28 The sensitivity (and recoverability) of receptors to an impact was identified, as far as current knowledge allows. Generally, this was, by necessity, a qualitative assessment based on published literature and best available scientific information.

### ***Impact Characterisation***

- 3.29 Impacts were characterised by reference to the following terms and definitions:
- Positive (a change that improves the quality of the environment);
  - Negative (a change which reduces the quality of the environment);
  - Extent (the spatial or geographical area over which the impact/effect may occur);
  - Magnitude (size, amount, intensity and volume);
  - Duration (should be defined in relation to ecological characteristics (such as a species' lifecycle) as well as human timeframes);
  - Timing (timing of an activity or change may result in an impact if it coincides with critical life-stages or seasons e.g. bird nesting season.);
  - Frequency (the number of times an activity occurs will influence the resulting effect.); and
  - Reversibility.
- 3.30 Consideration was given to the potential for impacts to interact with other impacts (either arising from the proposed development or a different (external) source), thus producing a cumulative effect (often of greater magnitude).

### ***Significance***

- 3.31 For the purpose of EclA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general.

### ***Residual Impacts***

- 3.32 During the EclA process the available means to avoid, minimise or mitigate for negative impacts where identified. Then, subject to their acceptability, these means were incorporated in the design of the proposal, so that the final assessment of impact identified impacts that would be left. The consequences for development control, policy guidance and legislative compliance were then identified from the predicted residual impacts.

### ***Assessment of potential impacts***

- 3.33 The following table provides definitions for the terms used to describe impacts in each of the sections below.

SEVERITY	PERIOD	EXTENT
Major (negative or positive)	Temporary	Local
Moderate (negative or positive)	Short term	Borough
Minor (negative or positive)	Medium-term	Regional – within London
Negligible	Long-term Permanent – no recovery to previous state within lifespan of project	National – national population context International – international context

**Figure 3.1: Terms for describing ecological impacts**

## Surveyors

- 3.34 Morgan Taylor, who reviewed this report, has a bachelors and master's degree in marine biology (MSci Hons), a Natural England CL17 Bat Survey Level 2 Class Licence (2015-7369-CLS-CLS) and CL10 Dormouse Survey Licence (2017-30817-CLS-CLS). Morgan is a Chartered Environmentalist, Full member of CIEEM and has over 8 years' experience in ecological surveying having undertaken assessments of numerous development sites of this type. He leads the Ecology team at Greengage.
- 3.35 Olivia Guindon, who undertook the survey and wrote this report, has a Bachelor's degree in Ecology and Wildlife Conservation (BSc Hons), a Master's degree in Species Identification and Survey Skills and is a Graduate member of CIEEM. Olivia has over two years' experience working in the commercial sector.
- 3.36 This report was written by Olivia Guindon and reviewed and verified by Morgan Taylor who confirms in writing (see the QA sheet at the front of this report) that the report is in line with the following:
- Represents sound industry practice;
  - Reports and recommends correctly, truthfully and objectively;
  - Is appropriate given the local site conditions and scope of works proposed; and
  - Avoids invalid, biased and exaggerated statements.

## Constraints

- 3.37 The PEA was undertaken during a sub-optimal time of year by a suitably qualified ecologist. Given the dominant habitats present and the absence of rare habitats which require careful botanical identification, undertaking the survey at this sub-optimal time of year is not considered to have impacted the findings of the survey, nor the associated conclusions drawn in this report.

- 3.38 It was not possible to internally inspect the buildings; however this was not considered a constraint as all portal cabins were flat roofed lacking a void or loft space which may be used by wildlife.
- 3.39 No significant constraints that stand to impact conclusions drawn in this report therefore presented themselves.

## 4. Results

### Desk Top Review Designations

- 4.1 Consultations with the local biological record centres (GiGL) and the MAGIC dataset have confirmed that there are no statutory designations of national or international importance within the boundary of the site.
- 4.2 Furthermore, there were no statutory designated sites within a 1km radius.
- 4.3 Records from GiGL did however identify one non-statutory SINC within the boundary of the Site and seven SINC within 1km of the boundary. SINC are recognised by LPAs as important wildlife sites.
- 4.4 The table below gives the locations and descriptions of a selection of the nearest/most relevant local designations.

SITE NAME	APPROXIMATE LOCATION	DESCRIPTION
Millwall and West India Docks (SINC – Borough Grade II)	Present within the site	These large areas of open water are surrounded by dense and high-rise development. The vertical concrete walls of the docks support a sparse flora where the old brick and stonework is still extant. A few plants of Jersey cudweed ( <i>Gnaphalium luteoalbum</i> ), which is protected under Schedule 8 of the Wildlife & Countryside Act 1981 (as amended), grow on the western wall of Millwall Inner Dock, with hundreds more plants on adjacent vacant land. Millwall Outer Dock supports the greatest number of colonising plant species on its sides, some associated with wetland habitats, others with terrestrial habitats. These include skullcap ( <i>Scutellaria galericulata</i> ), hemlock water-dropwort ( <i>Oenanthe crocata</i> ), alder ( <i>Alnus glutinosa</i> ), pellitory-of-the-wall ( <i>Parietaria judaica</i> ) and rat's-tail and squirrel-tail fescues ( <i>Vulpia myuros</i> and



		<p><i>V. bromoides</i>). Tern rafts are present in the docks, and are used by common terns in some years. The docks provide an important area for gulls and other aquatic birds, such as breeding great crested grebe, coot, mute swan and mallard. Waterfowl numbers are swelled in hard weather, when several hundred diving ducks, mostly tufted duck, can be present. The land immediately surrounding the dock is hard-landscaped with some planted trees, the greater number around Millwall Outer Dock, which comprise horse chestnut (<i>Aesculus hippocastanum</i>) and London plane (<i>Platanus x hispanica</i>). A small semicircle of grass at the eastern end of Millwall Outer Dock is surprisingly rich chalk grassland, with plants including restharrow (<i>Ononis repens</i>) and field madder (<i>Sherardia arvensis</i>). Access to the docks is open, apart from parts of West India Dock, where development is underway. About 25% of the water area in West India Docks has been lost to development since 2000.</p>
Blackwall Basin (SINC – Borough Grade I)	~500m east	<p>This large area of open water has hard surfaces around the perimeter, apart from a margin of grassland, scrub and tall herbs along the south a side. Common terns nest on rafts in Blackwall Basin, and small numbers of tufted duck, great crested grebe, cormorant, coot and mallard are regularly present, with larger numbers of waterfowl in hard winters.</p>
Poplar Dock (SINC – Local)	~700m east	<p>Poplar Dock is now a well-used marina, with moorings and boats covering most of its surface. Despite the restricted area of open water, a great crested grebe, coot and mallard</p>

		<p>nest regularly, and tufted ducks nest in some years. Larger numbers of tufted ducks can appear in hard winters. Sparsely-vegetated areas on the north and east sides of the dock support a diverse ruderal flora, with a number of species which are rare in London. These include a very large population of Jersey cudweed (<i>Gnaphalium luteoalbum</i>), which is protected under Schedule 8 of the Wildlife &amp; Countryside Act 1981. Other locally rare species include slender sandwort (<i>Arenaria leptoclados</i>), rue-leaved saxifrage (<i>Saxifraga tridactylites</i>) and musk stork's-bill (<i>Erodium moschatum</i>). Along the north edge of the site are small areas of young woodland and scrub, comprised mostly of native trees and shrubs, with woodland wild flowers such as wood anemone (<i>Anemone nemorosa</i>), sweet violet (<i>Viola odorata</i>) and stinking iris (<i>Iris foetidissima</i>) beneath. These were planted in the 1990s.</p>
River Thames and tidal tributaries (SINC – Metropolitan)	~800m east and west	<p>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. The Thames is extremely important for</p>

		<p>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 (<i>Sonchus palustris</i>). Wetlands beside the river in Kew support the only London population of the nationally rare and specially-protected cut-grass (<i>Leersia oryzoides</i>). The numerous small islands in the upper reaches support important invertebrate communities, including several nationally rare snails, as well as a number of heronries. Chiswick Eyot, one of the islands, is a Local Nature Reserve. The towpath in the upper reaches is included in the site, and in places supports a diverse flora with numerous London rarities, both native and exotic.</p>
London's canals (SINC – Metropolitan)	~1km north	<p>London's canals support a wide range of aquatic flora, amongst which are found a number of locally uncommon species. These include narrow-leaved water plantain (<i>Alisma lanceolatum</i>), rigid hornwort (<i>Ceratophyllum demersum</i>) and shining pondweed (<i>Potamogeton lucens</i>), all species of clean, clear waters. Many waterside plants, including several London rarities, also grow on the brickwork and banks of the canal. The canals also support an important invertebrate fauna (including several species of dragon/damselflies), a diverse fish community, and breeding waterfowl. London's network of canals</p>

		fulfil an important function in allowing nature into heavily built-up environments. The towpath and associated areas of waste ground, especially in East London, support a number of uncommon species of disturbed ground. The whole of the Grand Union Canal system in London, including the Regent's and Hertford Union Canals, is included in this single Metropolitan site.
Robin Hood Gardens (SINC – Local)	~800m north east	This open space, within estate of tall flats, is unusual in that it rises, forming a tall rounded mound with fairly steep sides. The site is well laid-out with a wide flight of steps leading up to the top of the mound to provide a good viewing point. Most of the site is grassland which is quite rich in wild flowers, though frequent cutting prevents many of them from flowering. Species present include black knapweed ( <i>Centaurea nigra</i> ), common mallow ( <i>Malva sylvestris</i> ), daisy ( <i>Bellis perennis</i> ) and a sizeable population of Blue Eryngo ( <i>Eryngium planum</i> ), a garden escape rarely seen in the wild. A couple of clumps of mostly native trees are developing into young woodland. Nesting birds here include goldfinch. Aromatic flowers and shrubs alongside the steps up the mound attract butterflies and other insects. The estate is soon to be redeveloped. The existing open space will be retained, and it is hoped that it will be even better for wildlife.
St Anne's Churchyard, Limehouse (SINC – Local)	~900m north west	Peaceful churchyard of amenity grassland with numerous trees and shrubs surrounding the church buildings. Headstones have been removed to perimeter walls, where they are sparsely colonised by a few species. Larger tombstones remain in situ. Trees include

		a single mature specimen of the rare black poplar ( <i>Populus nigra ssp betulifolia</i> ), a priority species in the London and Tower hamlets Biodiversity Action Plans.
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**Figure 4.1: Statutory and Non-Statutory Designated Sites within 1km**

### **Biodiversity Action Plans**

- 4.5 UK Biodiversity Action Plans (BAPs) have been developed which set priorities for nationally important habitats and species. To support the BAPs, Species/Habitat Statements (otherwise known as Species/Habitat Action Plans) were produced that provide an overview of the status of the species and set out the broad policies that can be developed to conserve them. A list of priority species of conservation importance was also developed.
- 4.6 The UK BAP was succeeded in 2012 by the UK-Post 2012 Biodiversity Framework which informed the creation of the Biodiversity 2020 strategy; England's contribution towards the UK's commitments under the United Nations Convention of Biological Diversity.
- 4.7 Despite this, the UK BAP priority species lists and conservation objectives still remain valid through integration with local BAPs (which remain valid), and in the form of the Habitats and Species of Principle Importance list (as required under section 41 of the Natural Environment and Rural Communities (NERC) Act).
- 4.8 The following UK BAP priority habitats were present at site or in the immediate vicinity:
- Standing Open Water and Canals.
- 4.9 Local Biodiversity Action Plans (LBAPs) ensure that national action plans (the UK BAP/Biodiversity 2020) are translated into effective action at the local level and establish targets and actions for locally characteristic species and habitats.

### **London BAP**

- 4.10 The London BAP<sup>vii</sup> lists 26 priority habitats and species to protect and enhance, which are of importance to London's nature conservation. Notable features of the London BAP that are of relevance to this report are:
- The onus placed on the importance of built structures to local wildlife;
  - The bat Species Action Plan (SAP);
  - Sand martin SAP;
  - House sparrow SAP;
  - Standing water HAP;
  - Grey heron former SAP;
  - Black redstart London Priority Species (and former SAP); and

- Peregrine falcon London Priority Species (and former SAP).

#### ***Tower Hamlets BAP***

4.11 Priority habitat and species listed in the Tower Hamlets BAP include:

- Standing water (canals and docks);
- Built environment;
- Bats;
- Peregrine;
- Black redstart; and
- Sand martin.

#### ***Canary Wharf BAP***

4.12 The Canary Wharf BAP lists 19 priority habitats and species to protect and enhance, which are of importance to the estate's nature conservation. Notable features of the Canary Wharf BAP that are of relevance to this report are:

- Black redstart;
- Peregrine falcon;
- Swift;
- House sparrow;
- House martin,
- Kingfisher;
- Common tern;
- Bats;
- Grey seal;
- Fish;
- Living roofs and the built form; and
- Aquatic habitats.

#### **Species Record**

4.13 The information provided in the biological data search from GiGL identified records of a number of protected and BAP priority species within 2km search radius of the site. Among others, these include the following species of relevance to the site:

- Birds – kingfisher (*Alcedo atthis*), Grey heron (*Ardea cinerea*), swift (*Apus apus*), herring gull (*Larus argentatus*), house sparrow (*Passer domesticus*), black redstart (*Phoenicurus ochruros*), sand martin (*Riparia riparia*), common tern (*Sterna hirundo*), peregrine (*Falco peregrinus*);
- Mammals (excluding bats) – common seal (*Phoca vitulina*), grey seal (*Halichoerus grypus*);
- Bats – Daubenton's bat (*Myotis daubentonii*), Leisler's (*Nyctalus leisleri*), Nathusius pipistrelle (*Pipistrellus nathusii*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*);

- Invertebrates – stag beetle (*Lucanus cervus*), moth mullein wave (*Scopula marginepunctata*);
- Plants – jersey Cudweed (*Gnaphalium luteoalbum*).

4.14 The species listed above are primarily those known to be in the area that may be impacted by any proposals at the site, or that stand to benefit as a consequence of potential ecological enhancements at the site and inform site-specific mitigation and enhancement recommendations described in the following chapter.

### **Detailed Description of site: habitats**

4.15 The habitats presented across the 'Site' consist of the following Joint Nature Conservation Committee (JNCC) Phase 1 Habitat categories, as mapped at Figure 1:

#### **Building (J3.6)/Hardstanding (J3.6.1)**

4.16 There are four temporary buildings on site. Building 1 is a two-storey portacabin structure used as offices (see Photograph 1, Appendix 1); building 2 is a single storey portacabin structure used as offices; and building 3 is a three-storey portacabin structure used for amenity and as health and safety facilities (Photograph 2). Building 4 is a single-storey metal shed with a pitched corrugated metal roof and is used as a showroom apartment (Photograph 3). These temporary buildings are surrounded mostly by large areas of hardstanding used as car parking space and storage space. There are also many empty containers and portacabins stored on the site.

#### **Bare ground (J4)**

4.17 There are small areas of bare ground throughout the Site. There is no vegetation growing on these areas (Photograph 4).

#### **Introduced shrub (J1.4)**

4.18 A few small planters are located throughout the site planted with a selection of garden herbaceous perennial, shrub and tree species. Species include Pelargonium sp. and dwarf fan palm (*Chamaerops humilis*) (Photograph 5).

#### **Standing Open Water (G1) (Brackish) and Canals**

4.19 The site encompasses an area of the Millwall and West India Inner Dock to the south. No aquatic flora were observed in this location and water clarity was poor with litter floating at the surface. A length of submerged pillars run parallel with the dock edge; these are seemingly concrete pillars with wooden battening.

### **Detailed description of Site: Species**

#### **Bats**

#### **Foraging**

4.20 The majority of the site is likely to be of limited value for foraging or commuting bats comprising predominantly building and hardstanding with existing light disturbance. The south of the site comprises dock habitat which is suitable habitat for foraging and commuting bats, however it is not well connected to the surrounding greenspaces. Unpublished data on bats collected by Greengage as part of BAP monitoring works (to be published in 2020) also identified low levels of activity over the dock near the site.

4.21 The site is therefore considered to be of low value for foraging and commuting bats.

### **Roosting**

4.22 There are no trees on site and the temporary portacabin structures lack features which could support roosting bats. No field signs for bats were observed during the PEA.

4.23 The Site therefore has negligible value to support roosting bats.

### **Invertebrates**

4.24 The only natural terrestrial habitat on site (several planters with introduced shrubs) has limited potential to support notable invertebrates comprising non-native ornamental species. The Site is therefore considered to have negligible potential to support notable terrestrial invertebrates.

4.25 Some value is likely to be present for aquatic epifaunal and infaunal invertebrates associated with the dock walls which bound the site to the south and the pillars within the dock. Habitat structure in this location is generally lacking however, being limited to the timber fenders and piles.

4.26 There are no records of notable and/or protected aquatic invertebrate species, however as detailed in the Aquatic Scoping Survey (Appendix 2) it is known from that there are small numbers of invertebrate groups present such as mysid shrimps and gammarid amphipods. These previous surveys also demonstrate a surprisingly small number of benthic invertebrates with only four common species recorded and an exceptionally low number of individuals compared to other surveys along the Thames. Invasive non-native species such as the zebra mussel (*Dreissena polymorpha*) and non-native gastropods are also known to be present on the dock walls with several other common species. The potential for notable aquatic invertebrates at site is therefore considered to be low.

### **Birds**

4.27 A herring gull (*Larus argentatus*) was recorded flying over the dock area to the south of the site during the ecology walkover survey. Several bird species were seen swimming around the dock during the survey including cormorant (*Phalacrocorax carbo*), mute swan (*Cygnus olor*), herring



gull (*Larus argentatus*), mallard (*Anas platyrhynchos*), moorhen (*Gallinula chloropus*), and coot (*Fulica atra*).

- 4.28 Previous surveys confirmed the likely-absence of black redstart. It is considered highly unlikely that this species would nest at site given the abundance of alternative more favourable habitat in the surrounding area. Unpublished surveys of the Estate in 2019 observed no black redstart activity in this part of Canary Wharf, with results suggesting that the birds are nesting at 20 Bank Street.
- 4.29 There is limited value for common nesting bird species in the planters on site and on the flat roofs of the temporary buildings. The Site is therefore considered to have low potential to support nesting birds.

### **Fish**

- 4.30 The dock basins are likely to provide limited opportunities given the general absence of habitat structure for shelter, feeding and spawning. Previous surveys carried out in 2004 demonstrated a relatively low numbers of fish through the docks such as perch (*Perca fluviatilis*), roach (*Rutilus rutilus*), and flounder (*Platichthys flesus*) (Aquatic Scoping Survey, Appendix 2). Value along the stretch of dock wall which bounds the site is likely to be greatest associated with the fenders and piles which may provide structure for epifaunal invertebrate prey as well as shelter opportunities from predators. More notable species such as eel (*Anguilla anguilla*), a UK BAP Priority Habitat, are likely to be present in the wider dock, although they are not likely to find much value in the aquatic habitats adjacent to the site. Further discussion relating to the aquatic baseline can be found in the aquatic scoping report at Appendix 2.
- 4.31 The Site is therefore considered to have low potential to support notable fish species.

### **Protected Plants**

- 4.32 Special consideration was given the presence of the protected plant species Jersey cudweed. This species is known to be present throughout the docklands with several records known within the Canary Wharf Estate. No Jersey cudweed plants or other notable plant species were however observed at the Site.

### **Invasive species**

- 4.33 The 2017 survey observed a stand of Japanese knotweed (*Fallopia japonica*) to be present in the centre of the site. The species was not observed during the updated survey and has presumably been managed. No other invasive species listed on schedule 9 were encountered.
- 4.34 Several specimens of Buddleia (*Buddleja davidi*), a species listed on the London Invasive Species Imitative list, were however present along the dock habitat.

- 4.35 Commentary on non-native aquatic species is provided in the aquatic ecology scoping report at Appendix 2.

***Other BAP/Protected Species***

- 4.36 No other UK, London, Tower Hamlets or Canary Wharf BAP priority species were recorded during the PEA.
- 4.37 Value for other protected species/species groups such as great crested newt, reptiles, badgers, or riparian mammals was considered negligible given the absence of suitable habitat on or around the site.

## **5. Ecological Impact Assessment**

### **Potential Impacts**

#### **Designated Sites – Non – Statutory**

- 5.1 There are seven non-statutory designated sites within 1km of the Site. All but one are at least 500m from the Site and separated from it by the high-rise developments within Canary Wharf and associated infrastructure. The Site however encompasses a small proportion of a non-statutory designated site, the Millwall and West India Dock Borough Grade II SINC.
- 5.2 Potential impacts from the Proposed Development upon other non-statutory designated sites within 1km of the site are considered not significant, due to them being separated from the site by high density urban developments and are therefore already subject to the noise, air quality and dust levels associated with these developments.
- 5.3 However, in the absence of mitigation, **temporary local negative impacts** from the construction phase upon water quality and habitat availability in the adjoining part of the Millwall and West India Dock SINC would be expected through indirect and direct disturbance associated with the demolition and construction works, such as noise and light disturbance, dust deposition, pollutant spill, and vibration from piling. The installation of the pontoon overhanging over the dock to the south of the site will result in approximately 895m<sup>2</sup> of the Millwall and West India dock to be shaded and could therefore lead to a loss of habitat for some species within the SINC.
- 5.4 Difficulty in assessing overall impact upon the designation as a single receptor is presented given the variety of habitats and species present in the docks.
- 5.5 Construction of new piles within the dock habitat for example is predicted to increase habitat structure and availability for some invertebrates and fish within the dock, thus resulting in a **permanent local positive impact** on the habitat for these species.

- 5.6 Further to the above construction and tangible operational impacts, indirect operational impacts upon non-statutory designated sites for nature conservation can arise through increased visitor pressure. The Proposed Development will result in an increase of the local population which may therefore result in impacts such as increased litter. Residents are not likely to result in a level of litter which impacts the conservation status of the SINC, nor direct physical disturbance however through activity within the dock, and any impact is therefore considered **negligible**.

#### **Existing Habitats on site**

- 5.7 The planters on Site are considered of low ecological value. The Proposed Development will likely result in the loss of these planters to facilitate the redevelopment of the Site. However due to the low ecological value of this terrestrial habitat, potential impacts of the Proposed Development on this habitat are considered **negligible**.
- 5.8 The dock habitat to the south of the Site is a habitat of priority importance in the Tower Hamlets BAP. Impacts relating to this habitat are discussed above within the designated sites section.

#### **Bats**

- 5.9 The Site has limited value to support foraging and commuting bats, however the dock habitat may provide suitable commuting and foraging habitat. Without due consideration, proposals may stand to result in increased light spill into the surrounding dock habitat which would therefore stand to result in **permanent negative impacts at a local scale** upon foraging and commuting bats.

#### **Birds**

- 5.10 The killing or injury of adult birds is highly unlikely as they will be able to fly away. Therefore, the potential impacts of the construction phase on birds includes killing and injury of dependant young birds and/or eggs, the loss of potential nesting habitat and the disturbance of nesting birds in areas adjacent to the site. Therefore, in the absence of mitigation, the Proposed Development has the potential for **a temporary negative impact at a local scale** upon the local bird population.

#### **Invertebrates**

- 5.11 The Site has limited value to support terrestrial and aquatic invertebrates, however the dock may provide suitable habitat for low numbers of common and non-native species of aquatic invertebrates. Proposals will result in overshadowing of an area of the dock habitat, which would impact on algae growth that provide food and shelter for some invertebrate larvae (see Aquatic Scoping report, Appendix 2). Previous studies have however demonstrated that no species of conservation concern are found in the algae growth in the Thames Estuary and shading over a relatively small area of the overall waterbody of the dock is unlikely to affect invertebrates in such small densities. Removal of the concrete piling present in the dock water might lead to short term minor impacts at a local level for invertebrates whose main habitat are underwater structures,

however the additional hard structures provided as a result of the Proposed Development would increase suitable habitat. Potential impacts from the proposals on terrestrial and aquatic invertebrates are therefore considered **negligible**.

## **Fish**

- 5.12 The Site (including the small area of adjacent dock) has limited value to support fish species, however the wider dock habitat provides suitable habitat for small numbers of common fish species. Proposals will result in overshadowing of an area of the dock habitat, however shading over a relatively small area of the overall waterbody of the dock is unlikely to affect fish in such small densities. Other indirect potential impacts are likely to arise from the piling works within the dock which would generate underwater noise potentially harmful to fish including notable species such as eel. It is understood however that a low impact piling technique is embedded within the proposed approach. Such a piling method would only cause minor disturbance to nearby fish and would only displace the nearest ones, with fish easily able to move away.
- 5.13 Furthermore, it is understood that proposals do not pose any entrainment risk as coffer dams are not required.
- 5.14 Accordingly, through the embedded construction approach percussive impacts upon fish are considered to be **negligible**, although in the absence of control of wider pollutant risk such as spills or excessive dust deposition, proposals could stand to result in direct and indirect disturbance, causing **temporary negative impacts at a local scale**.

## **Mitigation and Enhancement**

### **Aquatic Receptors**

- 5.15 Proposals should include measures which address the potential impacts on the Millwall and West India North Dock SINC, dock habitat, fish and aquatic invertebrates during construction works, specifically relating to vibrational and noise disturbance, pollutant spillage, light spill and increased dust deposition. These measures should be described within a Construction and Environmental Management Plan (CEMP) and may include, but not be limited to, controls for dust deposition, pollutant spillage, the use of low impact piling techniques in and around the dock, and provision of a sensitive lighting scheme.
- 5.16 Potential impacts from the development on the SINC during the lifetime of the development in relation to the overshadowing of the dock should be compensated for by introducing aquatic enhancements within a nearby area of dock consisting of submerged fish wall and invertebrate habitat features.
- 5.17 Species of known value for wildlife as well as a range of species which will provide colour and structure year round should be chosen.

### ***Hanging fish wall habitat***

- 5.18 Ecological enhancements should be created in the form of hanging vertical fish wall habitat. These will take the form of hanging planters with half of them enclosed in wire mesh to provide shelter opportunities for small fish, with hanging rope/brush and submerged gravel tray features also provided.

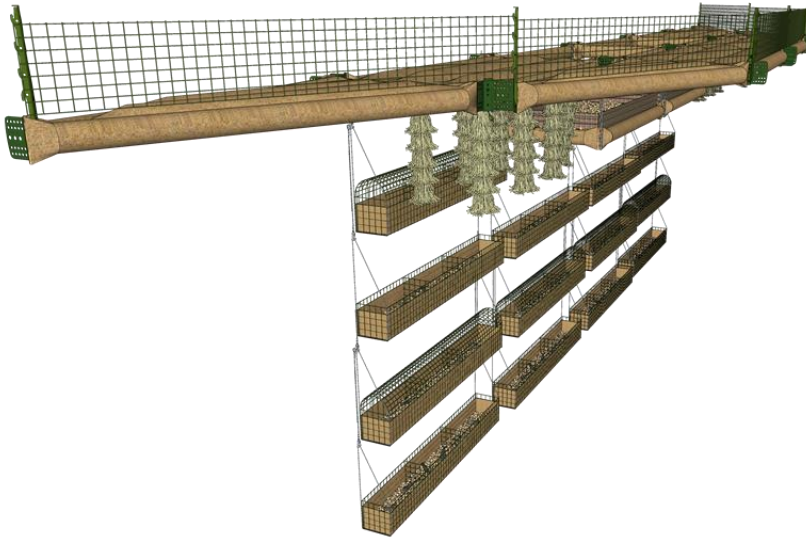


Figure 5.3: Visualisation of hanging fish wall showing enclosed wooden planters

### **Terrestrial receptors**

#### ***Birds***

- 5.19 Impacts upon nesting birds can be fully avoided through seasonal clearance of vegetation outside of the active nesting period (March to August inclusive), unless a suitably qualified ecologist has confirmed absence of active nests. Should an active nest be identified, works that would stand to impact the nests must cease until the nest is vacated.

### ***Bat sensitive lighting strategy***

- 5.20 It is recommended that a sensitive lighting strategy following best practice industry guidance produced by the Bat Conservation Trust and Institute of Lighting Professionals<sup>viii</sup> should be implemented. Light spill modelling and an assessment of impact of spill upon the docks should be undertaken on the basis of the proposed lighting strategy. Specifically, consideration must be given to:

- Avoidance of metal halide and fluorescent light sources;
- 'Warmth' of luminaires. Any external areas should incorporate light at <2700K where possible, with peak wavelengths higher than 550nm;
- Use of screens/hoods to make any external lighting as directional as possible, avoiding light spill on any natural features;

- Height of lighting column. Where possible, external lights should be as low to the ground as possible; and
- Lighting controls. Appropriate controls to minimise the duration lights are illuminated should be instated.

5.21 These actions could be described within the Construction Environmental Management Plan (CEMP) and an Ecological Management Plan (EMP) for the site, which could both be secured through planning condition in accordance with BS 42020: 2013 Biodiversity.

#### ***Biodiverse living roofs***

5.22 The Indicative Scheme incorporates 2754m<sup>2</sup> of biodiverse roof which should take the form of substrate-based biodiverse roofs. Due to the unpredictable nature of colonisation and its dependence on plant propagules in the area, the low-nutrient substrates should be seeded and plug planted with a suite of native species of known value for the target ecological receptors.

5.23 These should be included at top roof level and will be combined in some areas with photovoltaic panels.

#### ***Substrate specification***

5.24 At least three industry-standard substrate types should be used on the biodiverse roof in order to improve habitat heterogeneity and increase ecological niche provision. The different substrate types should be 'patterned' to create habitat structure for invertebrates and aesthetic interest. Organic content will be kept below 20% in all substrates. The three substrate types should include:

- One substrate should be a 'typical' biodiverse substrate designed for extensive living roofs, composed of recycled crushed brick, expanded clay shale and recycled organic content. Bauder's Biodiverse substrate is a suitable product.
- One substrate should be composed of pebbles/Caledonia cobbles of roughly 40-120mm size mixed with the biodiverse roof substrate;
- One substrate should be a finer gravel/sandy substrate.

5.25 Substrate depths should vary across rooftops between 120-200mm to ensure suitable retention of water and embed resilience for future climate risks, including longer and more frequent periods of drought.



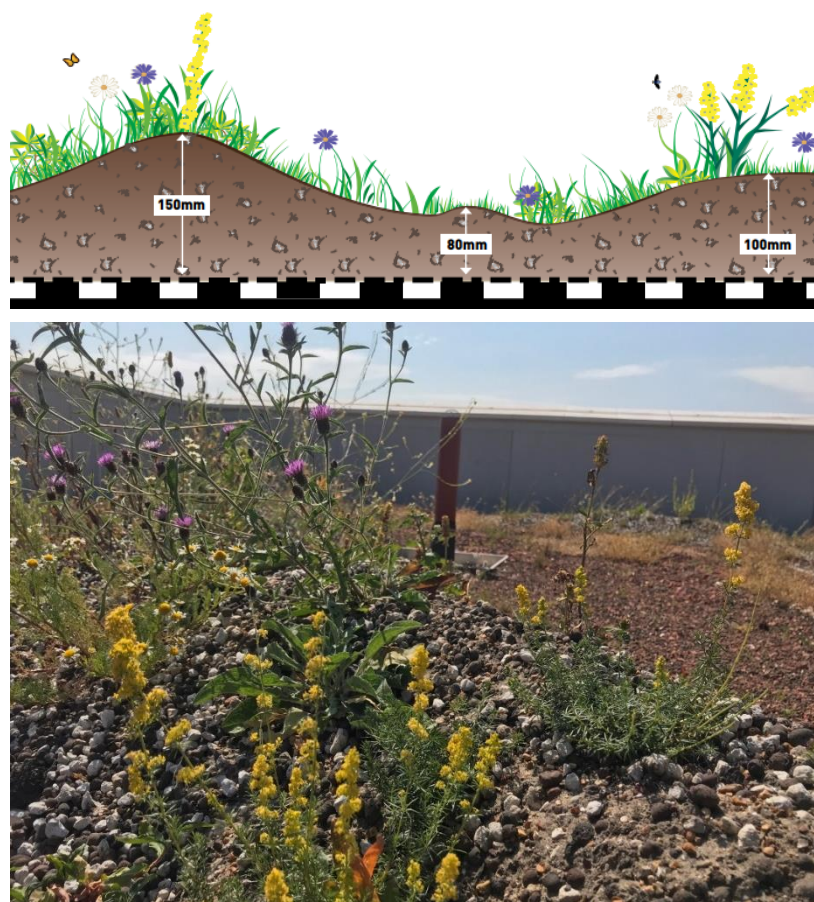


Figure 5.4: Example substrate type and planting variation on biodiverse living roofs

#### Species/Seed Mixes

- 5.26 Due to the unpredictable nature of colonisation and its dependence on plant propagules in the area, the low-nutrient substrate should be seeded and plug planted with a suite of native species of known value for the targeted ecological receptors. The diverse mix of species increases the flowering period, increasing the availability of nectar for pollinators throughout the year. Seed mixes and species composition should vary across the roof depending on substrate types.
- 5.27 Seeds should be sown at a rate of 5g/m<sup>2</sup> with plugs planted at a density of 15-20/m<sup>2</sup> with a minimum root ball of 25cm<sup>3</sup>.
- 5.28 Suitable seed mixes can be procured from a variety of retailers that are tailored for exposed, low-nutrient conditions on roof tops. Bauder's Flora 3 Seed Mixx contains 49 species including 35 wildflowers on the RHS Perfect for Pollinatorsxi list. The diverse mix of species increases the flowering period, increasing the availability of nectar for pollinators throughout the year. This seed mix, or similar products from other suppliers, should be used on the biodiverse substrate areas.

5.29 Table 7.3 below gives suitable species for each of the substrate types.

5.30 These species are selected for their suitability to well-drained substrates (being ideally for 'rockery' type planting which would be recreated in the cobbled areas) as well as their biodiversity value.

COMMON NAME	SCIENTIFIC NAME
<b>Fine to medium aggregate areas</b>	
Yarrow	<i>Achillea millefolium</i>
Agrimony	<i>Agrimonia eupatoria</i>
Kidney Vetch	<i>Anthyllis vulneraria</i>
Thrift	<i>Armeria maritima</i>
Common daisy	<i>Bellis perennis</i>
Common Knapweed	<i>Centaurea nigra</i>
Viper's Bugloss	<i>Echium vulgare</i>
Blue fleabane	<i>Erigeron acer</i>
Dropwort	<i>Filipendula vulgaris</i>
Lady's Bedstraw	<i>Galium verum</i>
Common Rock-rose	<i>Helianthemum nummularium</i>
Perforate St John's Wort	<i>Hypericum perforatum</i>
Common cat's-ear	<i>Hypochaeris radicata</i>
Wild Candytuft	<i>Iberis amara</i>
Field Scabious	<i>Knautia arvensis</i>
Rough Hawkbit	<i>Leontodon hispidus</i>
Oxeye Daisy	<i>Leucanthemum vulgare</i>
Birdsfoot Trefoil	<i>Lotus corniculatus</i>
Mellilots	<i>Melilotus spp</i>
Wild Marjoram	<i>Origanum vulgare</i>
Hoary Plantain	<i>Plantago media</i>
Salad Burnet	<i>Sanguisorba minor</i>
Cowslip	<i>Primula veris</i>
Selfheal	<i>Prunella vulgaris</i>
White stonecrop	<i>Sedum album</i>
Bladder Campion	<i>Silene vulgaris</i>
Red clover	<i>Trifolium pratense</i>
Dark Mullein	<i>Verbascum nigrum</i>
Wild pansy	<i>Viola tricolor</i>
<b>Free draining cobble dominated substrate</b>	
Sea thrift	<i>Armeria maritima</i>
South American vervain	<i>Verbena bonariensis</i>
Great mullein	<i>Verbascum thapsus</i>
Yarrow	<i>Achillea spp.</i>
Lesser calamint	<i>Calamintha nepeta</i>
Common primrose	<i>Primula vulgaris</i>
Mother-of-Thyme	<i>Thymus polytrichus</i>
Small scabious	<i>Scabiosa columbaria</i>
Bugle	<i>Ajuga reptans</i>
Biting stonecrop	<i>Sedum acre</i>
Mexican fleabane	<i>Erigeron karvinskianus</i>
Maiden pink	<i>Dianthus deltoides</i>
Rock rose	<i>Cistus x purpureus</i>
Sticky catchfly	<i>Silene viscaria</i>
Common wallflower	<i>Erysimum cheiri</i>

Figure 5.4: Guide of suitable species for the extensive biodiverse roofs



### ***Invertebrate Habitat Features***

- 5.31 Invertebrate habitat structure should be provided on the biodiverse roofs. Log piles, sandy piles, stone swirls, ephemeral water features, and rope coils should be integrated into the biodiverse roofs to enhance their value for invertebrates and provide aesthetic interest.

#### **Log pile**

- 5.32 Log piles made up of wood from broadleaved trees such as oak and beech, and from fruiting trees such as apple and pear should be installed on the biodiverse roofs, at least 100mm in diameter with the bark still on. Logs in contact with the substrate will remain damp underneath, which is vital for many invertebrates such as woodlice. Logs should be placed both vertically and horizontally in clusters; vertical standing wood should be incorporated by submerging the logs into the full depth of the substrate, ideally in the deeper sections, again using a range of diameters and lengths.



Figure 5.5: Log piles on example biodiverse roofs

#### **Sandy piles**

- 5.33 Many species of burrowing solitary bees and wasps require sandy areas to burrow and nest. Provision of sandy piles provides nesting opportunities for such invertebrates within close proximity of a foraging resource. Sandy piles should be incorporated on the biodiverse roofs. These should be compacted to form a sandcastle effect, and be 50cm high covering one square metre, with 30o angled sides. Rocks and stones may be placed on the surface to increase stability.

**Figure 1.1 Sandy piles on a biodiverse roof**



**Figure 5.5: Sandy and cobble piles on example biodiverse roofs**

Rope coil

- 5.34 Ropes made from natural fibres should be used such as Manila rope which is suitable for general outdoor use. Manila rope is made from the leaves of the plant *Musa textilis* and will last up to 10 years, reducing maintenance requirements. Ropes should be coiled in a spiral shape to cover an area of 1m<sup>2</sup> and should be coiled loosely to ensure suitable gaps are created for invertebrates. Pegs will need to be used to harness the rope to the roof and ensure that it cannot blow away.





Figure 5.6: Rope coil on a biodiverse roof

### ***Bird and bat boxes***

- 5.35 The inclusion of the living roof and areas of soft landscaping will stand to provide good foraging habitat for bats and birds and may act to encourage them to the site. There are opportunities to provide nest boxes for a number of BAP priority bird species and for bats within the scheme.
- 5.36 A mixture of products designed for different BAP priority bird species, including black redstart, house sparrow and swift will be provided. We would recommend one open fronted nest boxes for black redstart, two house sparrow terraces and five swift boxes are incorporated within the scheme. The products shown below are suitable examples, however Greengage does not officially endorse any products.
- 5.37 The black redstart open fronted nest box should be fixed on the lift overrun at roof level, ideally overlooking the biodiverse roof. The house sparrow terraces should be integrated within the fabric of the building, on an east facing elevation at least 2m high. The swift boxes should also be integral to the building, grouped together and at least 5m above ground.



Figure 5.7: Example bird boxes – Open fronted nest box (left), Habibat terraced sparrow box (middle) and habibat 003 swift box (right)

- 5.38 In addition to the bird boxes, integrated bat boxes should be installed on the south facing elevation of the buildings. Like the bird boxes these should be installed at least 3m high and away from doors and windows.



Figure 5.8: Habibat bat box

### **Vertical greening**

- 5.39 The indicative scheme incorporates 312m<sup>2</sup> of vertical greening to be included within the Proposed Development. Raised planters of sufficient size should be planted with a mix of species including ivy (*Hedera helix*), Clematis species (*Clematis sp.*), honeysuckle (*Lonicera periclymenum*), star jasmine (*Trachelospermum jasminoides*), hops (*Humulus lupulus*) and grapevines (*Vitis vinifera*). Supporting trellis systems should be in place to support and direct the growth of climbers to cover designated wall areas.



Figure 5.9: Example of trellis system with vertical planting

### ***Bee bricks/houses***

- 5.40 Bee bricks and boxes should be positioned in sunny, exposed areas on southern aspects between 1-2m from living roof/level ground. They should only be incorporated near soft landscaping areas which provide nectar sources within close proximity. Bee bricks can be attached to or integrated within walls.



Figure 5.10: Example bee bricks/houses

- 5.41 Detail on the measures, including the extent of gains delivered, could be described within an Ecological Management Plan (EMP) for the Proposed Development which could be secured via planning condition.

### **Residual Impacts**

#### **Designated sites – Non-statutory**

- 5.42 Following the implementation of the compensation and enhancements measures outlined above, predicted residual impacts of the Proposed Development on the Millwall and West India Dock are considered to be **permanent positive impacts at a local scale**.

### **Habitats**



- 5.43 Under the Indicative Scheme proposals and following the ecological recommendations outlined in this report, the Proposed Development stands to result in a net gain of 1.16 biodiversity units associated with area-based habitats from pre development levels (see BNG calculations which includes current areas of differing habitats understood to be delivered at site, Appendix 3). This corresponds to a total net increase of 55% in ecological value.
- 5.44 The Proposed Development therefore in compliance with local and national planning policy and with the emerging BNG Mandate which seeks a 10% uplift in biodiversity units.
- 5.45 Furthermore, assuming the measures to be outlined in the CEMP are implemented, residual impacts upon habitats will be fully mitigated, with the uplift in habitat areas and quality resulting in overall **permanent positive impacts at a local scale**.

#### ***Bats***

- 5.46 Following the implementation of the mitigation outlined above, predicted residual impacts of the Proposed Development on commuting and foraging bats are considered to be **permanent positive impacts at a local scale**.

#### ***Birds***

- 5.47 Following the implementation of the avoidance measure outlined above and the enhancement measures described below such as provision of additional roosting opportunities and habitat, predicted residual impacts of the Proposed Development on nesting birds are considered to be **permanent positive impacts at a local scale**.

#### ***Invertebrates***

- 5.48 No impacts upon terrestrial invertebrates are predicted, however the ecological enhancement recommendations outlined within this report would stand to result in **permanent positive impacts at a local scale** upon notable invertebrates.
- 5.49 In addition to this and following the implementation of the CEMP, aquatic compensation and enhancement measures discussed above, **permanent positive residual impacts at a local scale** are predicted upon aquatic invertebrates.

#### ***Fish***

- 5.50 As per discussion relating to the SINC, dock habitat and aquatic invertebrate receptors, following the implementation of the CEMP, and aquatic compensation and enhancement measures in the form of hanging fish refuge, **permanent positive residual impacts at a local scale** are predicted for the on-site fish population.

## 6. Conclusion

- 6.1 Greengage was commissioned by Canary Wharf (North Quay) Ltd (“the Applicant”) to undertake an Ecological Impact Assessment of a site known as North Quay in Canary Wharf, London in order to establish the ecological value of this site and its potential to support notable and/or legally protected species.
- 6.2 This document is a report of this assessment and has been produced to assess the likely significant effects of the construction and operational phases of the Proposed Development in terms of ecology. This is to support:

*“Application for outline planning permission (all matters reserved) for the redevelopment of the North Quay site for mixed use comprising:*

- *Demolition of existing buildings and structures;*
- *Erection of buildings and construction of basements;*
- *The following uses:*
  - *Business floorspace (B1)*
  - *Hotel/Serviced Apartments (C1)*
  - *Residential (C3)*
  - *Co-Living (C4/Sui Generis)*
  - *Student Housing (Sui Generis)*
  - *Retail (A1-A5)*
  - *Community and Leisure (D1 and D2)*
  - *Other Sui Generis Uses*
- *Associated infrastructure, including a new deck over part of the existing dock;*
- *Creation of streets, open spaces, hard and soft landscaping and public realm;*
- *Creation of new vehicular accesses and associated works to Aspen Way, Upper Bank Street, Hertsmere Road and underneath Delta Junction;*
- *Connections to the Aspen Way Footbridge and Crossrail Place (Canary Wharf Crossrail Station);*
- *Car, motorcycle, bicycle parking spaces, servicing;*
- *Utilities including energy centres and electricity substation(s); and*
  - *Other minor works incidental to the proposed development.”*







- 6.3 Data received from the desk top study and the PEA site walkover have confirmed that the Site has negligible potential to support all protected/notable species with the exception of foraging and commuting bats and nesting birds.
- 6.4 It was also identified that the Site contains a small area of the Millwall and West India Dock Borough Grade II SINC. Suitable measures should accordingly be embedded within the proposed construction approach to mitigate potential impacts upon the dock habitat.
- 6.5 Given the possible value for nesting birds in the planters on site it is recommended that any clearance of suitable vegetation on Site should be undertaken outside of nesting bird season (March-August Inclusive).
- 6.6 Subject to the undertaking of the mitigation detailed within this EcIA the Proposed Development will comply with all legislation and planning policy with regards to ecology (outlined at Appendix 4). The proposals are in line with London Plan policies and Supplementary Planning Guidance and the requirements within the Tower Hamlets Local Plan with regards to expanding green infrastructure and the inclusions of living roofs. The proposals are also in line with the policies and guidance regarding the protection and enhancement for biodiversity and access to nature for the residents.
- 6.7 There will be no net loss of biodiversity as a result of the Proposed Development once the scheme is complete. The proposed mitigation, compensation and enhancements will result in a Negligible impact at a Local scale based on the habitats and species identified. With the additional enhancement features such as biodiverse roof, living roofs, wildlife-friendly landscaping, submerged fish walls, integrated bird/ bat boxes, and invertebrate habitat this will result in a Positive impact at a Local scale for those species and habitats.



## **Figure 1 – Site map and habitat plan**

# NORTH QUAY

## Habitats

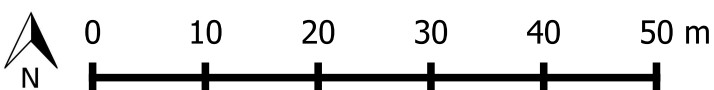
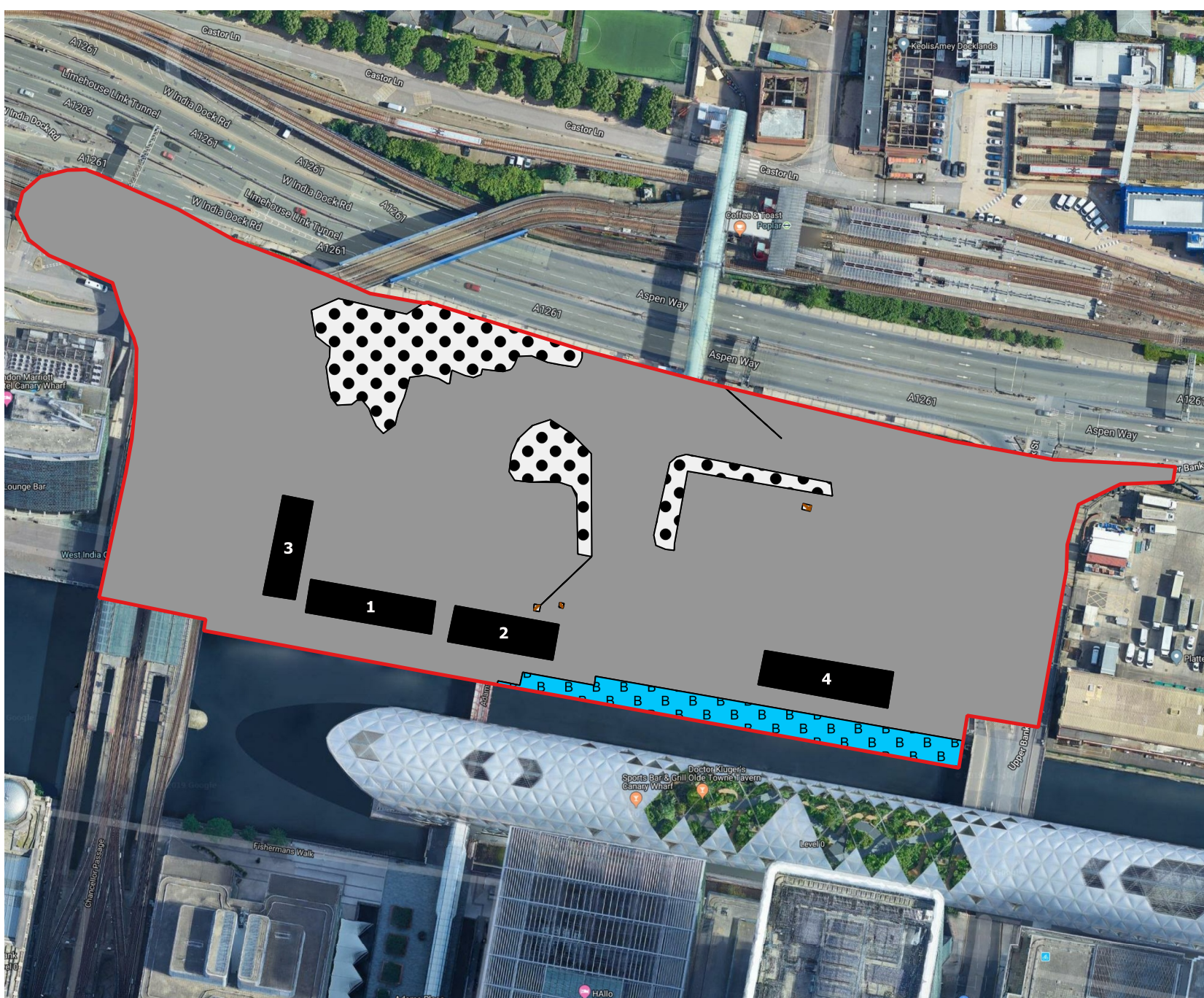
-  G1.6 - Standing water - brackish
-  J1.4 - Introduced shrub
-  J3.6 - Buildings
-  J4 - Bare ground
-  J3.6.1 - Hardstanding
-  Assessment boundary



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## Fig 1.0 Site Plan and Habitat Map

Project Number 551368  
November 2019





## Appendix 1 – Site Photographs

Photograph 1 – Building 1



Photograph 2 – Building 3



**Photograph 3 – Building 4**



**Photograph 4 – Bare ground**



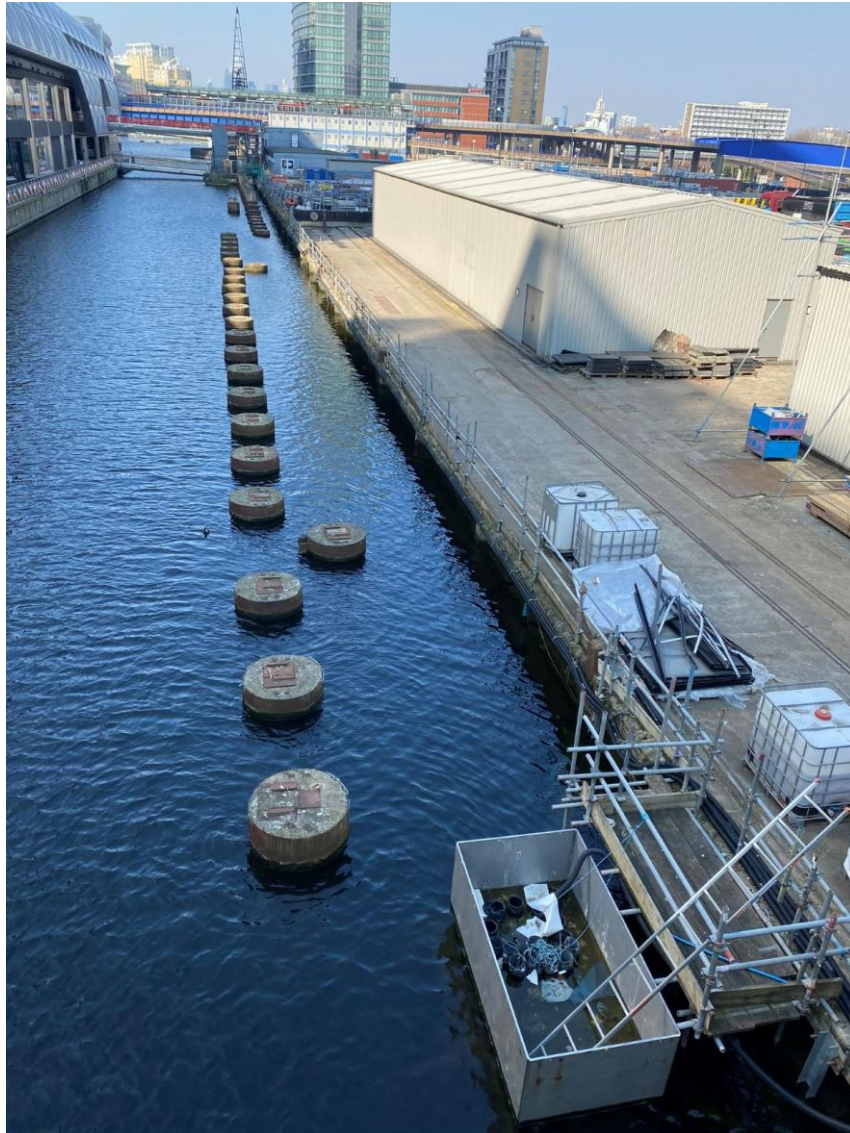


**Photograph 5 – Pelargoniums in planters**



## **Appendix 2 – Aquatic Ecology Scoping Assessment**

# ASSESSMENT OF THE LIKELY IMPACT OF THE PROPOSED DEVELOPMENT AT NORTH QUAY, CANARY WHARF ON AQUATIC ECOLOGY



PREPARED FOR GREENGAGE BY

BY

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15 MAY 2020

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Report Title	ASSESSMENT OF THE LIKELY IMPACT OF THE PROPOSED DEVELOPMENT AT NORTH QUAY CANARY WHARF ON AQUATIC ECOLOGY
Client	Greengage
Author	Dr Phil Smith
Status	Final Report
Date	15 May 2020

## **1. QUALIFICATIONS OF THE AUTHOR**

This report was prepared by Dr Phil Smith, who has worked on freshwater, estuarine and marine surveys since 1978. He has particular expertise in sediment infauna and algae (seaweeds) found in estuaries. He has published several papers on estuarine and marine species including new records of non-native species. He has done several surveys of the Thames in London at various locations and also has a database of results from many surveys of the Thames in London carried out by other specialist consultancies. This database allows the author to make predictions about which native and non-native species may be present.

## **2. AIM OF THE SITE VISIT**

The proposed development site at North Quay off Aspen Way (the 'Site') is partially situated in the North Dock. The main aim of the site visit was to assess the aquatic habitats present and to determine whether there is a need for detailed surveys of the aquatic ecology of the site.

Morgan Taylor of Greengage undertook the site visit and undertook a photographic assessment. Morgan Taylor holds a first class integrated bachelor's and master's degree in marine biology (MSci Hons) from the University of Southampton. Morgan is a Chartered Environmentalist, a Full member of CIEEM and has over 8 years' experience in ecological surveying having undertaken assessments of numerous development sites of this type. He is a Director at Greengage and leads the Ecology team. He has extensive experience of survey work across the Canary Wharf Estate having written their Biodiversity Action Plan 2018-2028, alongside their emerging Aquatic Habitat Strategy. He has surveyed numerous sites throughout the wider dockland area having also coordinated surveys in the nearby Millwall Docks and Royal Victoria Docks.

The site visit to North Dock was done on 27 March 2020 by Morgan Taylor. Weather conditions were dry, clear and cool, with a temperature of 12° C. Photographs were taken using a high quality camera and lens (Nikon D3400 with Sigma 180-600 mm lens).

This report used the 70 photographs and 6 short videos taken on 27 March 2020 by Morgan Taylor and three photos and a site plan attached to an email dated 9 March 2020 to assess the likely ecological importance of the area that will be affected by shading due to the development proposals ('Proposed Development'). Other potential impacts of the construction and development phases of the Proposed Development on aquatic ecology are also considered. This assessment is based on the author's detailed knowledge of the invertebrate and algal flora of the Thames in London, including some surveys of docks.

### **3. AREA AFFECTED BY THE PROPOSED DEVELOPMENT**

#### **3.1 Proposed Works to the Existing False Quay and Proposed Dock Deck**

Our assessment of likely impacts is based on the following information which has been provided to Aquatronics Ltd:

“The existing false quay at the south of the Site is a reinforced concrete structure supported on marine piles within the North Dock. The structure was constructed in the 1930’s and is in poor condition and cannot be incorporated into the Proposed Development. It is also not feasible to re-use the existing marine piles to support the new permanent works. The existing false quay deck would be removed and a new false quay provided as part of substructure works.

In addition, a new marine deck is proposed and would be located to the south of the proposed new false quay structure. The new marine deck and supporting marine piles would be designed around the existing piles to minimise any requirement to remove existing piles and reduce the construction waste from the development.

The total volume of new piles is expected to total approximately 2,581 m<sup>3</sup> of dock take. Once the Proposed Development is completed, approximately 950 m<sup>2</sup> of the West India North Dock will be shaded by the overhang of the Proposed Development along the southern edge of the Site.

The indicative development programme includes the basement being excavated in a number of separate phases. In this scenario temporary retaining walls and/or berms would be required to the outline of the basements for the earlier phases. In general, Site wide substructure works include: basement excavation; bearing piling; capping beam construction and basement raft construction. The perimeter wall of the basement would be formed from a secant pile wall (phased as necessary) which would be constructed from a piling platform at the existing ground level. For the excavation of the deeper sections of the basement, temporary internal raking props or ground anchors may be required to support the secant pile wall for a temporary period. Discharge consents would be obtained from the relevant statutory authority for any discharges to the sewers or North Dock.”

The Applicant’s design team estimate that 950 m<sup>2</sup> of new shading of aquatic habitat will be caused by the overhang. However, there are 47 existing concrete piles in this area, with a combined area of 55 m<sup>2</sup> (calculated from pile diameter of 1,219 mm provided in Travers and Yeow, 2014). The new area of shading will therefore be 950 - 55 = 895 m<sup>2</sup> of new shading. This area is shown in yellow in Figure 1.

As the new deck faces almost due south the impact of shading is not expected to be great along the southern edge of the walkway, but a few metres back shading will be intense.



Figure 1. The additional area that will be shaded is shown in yellow. It has an area of 895 m<sup>2</sup> (0.0895 hectare) and is located at the south of the Site. It is on the northern edge of North Dock.

Figures 2 - 4 set out below show the general appearance of the southern edge of the Site along North Dock. More detailed photos are shown in Figures 5 – 9. Figures 10 - 12 show close-up views of existing structures and attached algae.

## 4 HABITATS PRESENT

Sites of Importance for Nature Conservation (SINC) are non-statutory wildlife local wildlife sites. North Dock is part of the Millwall Docks and West India Docks SINC.

### 4.1 QUAY WALLS AND CONCRETE PILES

The close-up photographs (Figures 10 - 12) show that larger seaweeds (marine algae) are not present. This is due to the low salinity at the Site. There are however obvious growths of small filamentous green seaweeds (see Figures 10 - 12). These are likely to be common species in the Thames in this part of the Thames, such as *Rhizoclonium riparium* (complex), *Blidingia marginata*, *Blidingia minima*, *Ulva prolifera*, *Ulva intestinalis* and *Ulothrix* sp. This

list has been compiled from data from surveys by Aquatronics Ltd and from a site in Greenwich (Tittley and John, 1998) which is expected to have a similar salinity and algal flora to the North Dock. Filamentous colonial green diatoms such as *Melosira* sp. and *Fragilaria* sp. may also be present. The brown growths visible in Figure 10 are probably due to very high densities of pennate diatoms.

Larvae of dipteran families such as Chironomidae (non-biting midges), Ceratopogoninae (biting midges), Tipulidae (crane flies) and Dolichopodidae (long-legged flies) are also likely to live amongst the filamentous green algae on the quay walls and concrete piles of North Dock.

Surveys of North Dock in 2004 included analysis of scrapes of the dock walls (Crossrail, 2005). The two most abundant species recorded were the non-native Zebra mussel (*Dreissena polymorpha*) and the non-native gammarid amphipod *Gammarus tigrinus*. The isopod crustacean *Sphaeroma serratum* was also recorded.

## **4.2 WATERBODY**

The dominant invertebrate groups present are likely to be crustaceans such as mysid shrimps (e.g. *Neomysis integer*) and gammarid amphipods (e.g. *Gammarus zaddachi* and some non-native gammarid amphipods such as *Gammarus tigrinus*).

Two surveys of fish in the West India Docks were carried out in the summer of 2004 (Crossrail, 2005). The surveys used standard monofilament 60 m x 1.5 m multi-mesh survey gill nets. The results are semi-quantitative but give a good indication of the fish species likely to be present in North Dock. The nets were set 1.5 - 2 m from the bottom in the South Dock, the North Dock, the Blackwall Basin and the Millwall Inner Dock. Nets were set overnight, for a maximum of 16 hr. The nets were stretched across the width of the docks in order to maximise trapping efficiency. The surveys showed the presence of European Perch (*Perca fluviatilis*), Common Roach (*Rutilus rutilus*), Common Bream (*Abramis brama*), Roach x Bream hybrid, European Smelt (*Osmerus eperlanus*), European Sprat (*Sprattus sprattus*) and European Flounder (*Platichthys flesus*). On both occasions the bulk of the catch came from the South Dock, with very low catch per unit effort from the North Dock and the Millwall Inner Dock. The fish community was dominated by the freshwater species Roach, Bream and Perch. Brackish water species (Smelt, Sprat and Flounder) were caught only in the South Dock.

During the cofferdam dewatering for construction of the Canary Wharf Crossrail Station a fish rescue was carried out by Framlingham Fisheries (Expanded Limited, 2010). The removal of the fish was probably in late February/early March 2010 (the date was not stated in the brief report) which is towards the end of the dewatering of the cofferdam. The following fish species and numbers caught were recorded:

Common Roach ( <i>Rutilus rutilus</i> )	20
Common Bream ( <i>Abramis brama</i> )	70
European Eel ( <i>Anguilla anguilla</i> )	3
European Perch ( <i>Perca fluviatilis</i> )	225
Common Dab ( <i>Limanda limanda</i> )	4
European Flounder ( <i>Platichthys flesus</i> )	10
European Smelt ( <i>Osmerus eperlanus</i> )	240

The fish removal survey also recorded one Mitten Crab (*Eriocheir sinensis*), a non-native species.

European Eel and European Smelt are both listed as Species of Principal Importance in England in Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006).

Densities of the invertebrate and fish species found in North Dock are unlikely to be affected by increased shading over a relatively small area of the overall water body, and may in fact be higher in the proposed shaded area.

#### 4.3 SEDIMENTS ON THE FLOOR OF THE BASIN

The sediments on the base of North Dock were removed in approximately April 2010 to provide a "dry working environment for the unexploded ordnance (UXO) probing and piling." (Travers and Yeow, 2014).

Due to the low water velocities in docks they act as very efficient settling basins for the finest sediments. Even though the sediments were removed 10 years ago we would expect that a shallow layer of silt and clay (i.e. mud) will have settled onto the bed of the dock. However it may be that it is still slightly species-poor and have somewhat lower densities of infaunal species due to its recent history.

The results from 5 Eckmann grab samples taken in North Dock in 2004 are reported in a Crossrail report (Crossrail, 2005). This showed a surprisingly low number of invertebrates in the sediments at North Dock, with only 4 species recorded:

Species	Total in 5 grabs
<i>Limnodrilus claparedianus</i> (an oligochaete worm)	1
<i>Potamopyrgus antipodarum</i> (a non-native gastropod mollusc)	1
<i>Radix balthica</i> (a native gastropod mollusc)	2
<i>Limnophyes</i> sp. (a chironomid larva)	1

The diversity in the sediments and number of specimens was lower than in the other sites surveyed (Poplar Dock, Blackwall Basin, Bellmouth Passage, Woods Wharf and South Dock). The number of invertebrates recorded in all the samples from the various locations during the 2004 surveys is exceptionally low compared to any other surveys along the Thames and the results should therefore be treated with some caution. To overcome this we have examined below which species we expect to be present in the sediments at North Dock.

In this habitat and salinity regime the numerically dominant species in the mud will be various types of oligochaete worms which can process the organic matter in the sediments and are often present at densities of 10,000 to 100,000 per m<sup>2</sup>. Likely species include:

- *Limnodrilus* spp. (mainly *L. hoffmeisteri* and *L. udekemianus*)
- *Tubifex tubifex*

These tubificid oligochaete worms thrive in conditions of organic enrichment (e.g. from sewage discharges or large amounts of decomposing plant matter). They are also very tolerant of low oxygen concentrations in the sediment.

Other native UK oligochaetes likely to be found in the sediments of North Dock are certain members of the family Naididae (e.g. *Nais elinguis* and *Paranais litoralis*) and specimens of the family Enchytraeidae (which cannot be routinely identified to genus or species).

Non-native tubificid oligochaete worms may also be present. For example, the non-native North American oligochaete worm *Quistadrilus multisetosus* has recently been reported from a dock in the Thames (unpublished report by Aquatronics Ltd, 2019).

The most common crustacean on the sediments is likely to be water hoglouse (*Asellus aquaticus*). This species can thrive in organically enriched sediments and is an extremely common isopod crustacean in UK freshwaters. The gammarid amphipod *Apocorophium lacustre* is also likely to be present. Although this small crustacean has been recorded at many locations in the Thames in the London area, it has quite specific requirements for very low salinities and is therefore not widely distributed in the UK. It meets the definition of a Nationally Scarce marine species in the UK. These are species that occur in 9 - 55 of the 10 x 10 km squares of the Ordnance Survey national grid containing sea within the 3 mile territorial limit for Great Britain. If present at North Quay it will mainly be associated with structures such as the concrete pilings below the waterline, as it builds tubes on hard substrates.

The most common gastropod mollusc (snail) in the sediments of North Dock is likely to be the non-native *Potamopyrgus antipodarum*. This is the most commonly recorded gastropod in UK freshwaters and is known to thrive in London docks. The native gastropod *Radix balthica* is also likely to be present. It is a very common species in UK freshwaters.

The most common bivalve molluscs in the sediments are likely to be *Pisidium* spp. *Pisidium casertanum*, the most common member of this genus, is known to thrive in some London Docks. It is also likely that the non native Zebra mussel *Dreissena polymorpha* is present, as it was recorded nearby in 2004 (Crossrail, 2005).

Larvae of the dipteran families Chironomidae (non-biting midges), Ceratopogonidae (biting midges), Psychodidae (moth flies), Tipulidae (crane flies) and Dolichopodidae (long-legged flies) are also likely to occur in the sediments of North Dock.

In addition to the species listed above, the following invertebrates were recorded in subtidal sediments from the Thames nearby at Greenwich (National Rivers Authority, 1992):

#### OLIGOCHAETE WORMS

*Potamothrix hammoniensis*

*Monopylophorus rubroniveus*

Naididae spp.

*Tubifex costatus* (now *Baltidrilus costatus*)

#### POLYCHAETE WORMS

*Polydora* sp.

*Streblospio shrubsolii*

#### LEECHES

*Erpobdella testacea*

#### CRUSTACEANS

*Corophium volutator* (this may be a mis-identification of *Apocorophium lacustre*)

*Sphaeroma rugicauda*

*Crangon crangon* (brown shrimp)

#### BIVALVE MOLLUSCS

*Dreissena polymorpha* (Zebra mussel, non native)

### 4.3.1 Biotope Matching

Biotores are habitats and their associated biological communities. The Joint Nature Conservation Committee (JNCC) has produced a biotope classification for UK marine waters which includes some low salinity biotores (JNCC, 2015). Each JNCC biotope code is a combination of substrate type, depth, salinity regime and characterising species.

For the sediments on the bed of North Dock adjacent to North Quay the best match with JNCC biotores is expected to be:

SS.SMu.SMuVS.LhofTtub *Limnodrilus hoffmeisteri*, *Tubifex tubifex* and *Gammarus* spp. in low salinity infralittoral muddy sediment.



This is a common biotope in low salinity muds in the upper reaches of estuaries around the UK.

## **5 POTENTIAL CONSTRUCTION IMPACTS OF THE PROPOSED DEVELOPMENT**

The precise methods of construction are not available at this stage and will be further developed during detailed design. However, it is understood that for the Marine Deck construction:

Where feasible, the new marine deck and supporting marine piles would be designed around the existing piles to minimise any requirement to remove existing piles and reduce the construction waste from the development.

If possible, the existing marine piles would be used in combination with a temporary works scheme to support the piling equipment to install the new marine piles within the North Dock. Where this is not possible the piling equipment will be mobilised onto pontoons in the North Dock.

The new piles to support the marine deck would be constructed by installing a steel casing into the dock bed to a depth of approximately 6 to 8 m below the dock bed level. The pile would then be drilled using a rotary piling rig to the design depth. In the temporary condition the pile bore would be supported with a polymer drilling fluid. A steel reinforcement cage would be placed inside the pile and the pile would then be concreted.

The new marine deck would be constructed using a mixture of pre-cast and insitu concrete elements to suit the final design and construction logistics. Pre-cast elements of the deck would be lifted into position using a crawler crane.

### **5.1 FALSE QUAY DECONSTRUCTION**

There will be a comprehensive Construction Environmental Management Plan (CEMP) in place for the deconstruction works.

In the absence of suitable control measures in the CEMP it seems likely that some construction waste could accidentally fall into the North Dock. This material is likely to be a combination of cement and building materials.

Provided that no toxic substances such as hydrocarbons enter the North Dock, the impact of small amounts of construction waste will be minimal and would have the effect of increasing the range of sediment sizes on the bed of the North Dock. This would slightly increase the diversity of the Site, but on balance it would be better to try and prevent as

much construction material as possible from the dock. This has already been considered by the Applicant's construction team (see below) and can therefore be excluded from the likely impacts of the Proposed Development.

"At the dock edge in the south of the Site, a full height hoarding would not be erected but temporary handrails with netting would be put in place to mitigate the risk of material entering the dock." (Environmental Statement for North Quay: Chapter 5, Enabling and Construction Works).

## **5.2 PILE DRIVING**

Although the exact number and location of new piles is not known at this stage, the method of piling has been determined. Instead of using percussive piling, which has the potential to generate underwater noise levels that are harmful to nearby fish, rotary piling will be used. Although this may cause some minor disturbance to fish within a few metres they will be easily able to move away from the immediate vicinity of the piling. For this reason this ecological impact assessment does not include a detailed assessment of potential impacts of underwater noise on fish. Instead the only migratory and protected fish species likely to be present (the European Eel) is considered. Three European Eels were found during the fish rescue from the cofferdam in spring 2010 (Expanded Limited, 2010) and it is very likely that European Eels are present now.

### **5.2.1 European Eel (*Anguilla anguilla*)**

The European eel has been listed as 'Critically Endangered' on the IUCN Red List since 2008 due to dramatic declines in abundance recorded across all stages of its life cycle and much of its natural range (Steele et al, 2018). In 2007, the European Commission Regulation (EC no. 1100/2007) enacted specific legislation 'Establishing measures for the recovery of the stock of European eel'. This requires Member States that have habitats supporting the European eel to develop mandatory Eel Management Plans for their river basin districts (RBD). In addition, the European eel is included within Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Appendix II of the Convention on Migratory Species (CMS) (Zoological Society of London, 2018).

Although European Eels are generally thought of as a species which migrates between freshwater to the Sargasso Sea to breed, it is now well-established that estuarine populations and brackish water marshes are important habitats for maturing and adult eels (Steele et al, 2018).

It is therefore of great importance to ensure that new developments do not affect the eel populations in the Thames. The author has examined the Proposed Development, and apart

from some short distance disturbance due to underwater noise during the rotary piling operations there is unlikely to be any effect on eels. The underwater noise from piling is likely to displace the nearest eels, but is not expected to affect the eel population in North Dock.

### **5.3 DISCHARGE OF GROUNDWATER FROM EXCAVATIONS**

The developer has said that “Discharge consents would be obtained from the relevant statutory authority for any discharges to the sewers or North Dock.”

In the author’s opinion it will be necessary to test for a range of contaminants before applying for a consent to discharge directly to North Dock. A more straightforward solution would be to discharge to sewer. We cannot assess potential impacts from groundwater discharge without information on contaminant concentrations and likely dilutions factors. The CEMP should consider any discharge to North Dock and, if necessary, water quality monitoring should be carried out.

### **5.4 IMPACT ON NON-NATIVE SPECIES**

If construction plant is brought in from locations outside the Thames it is possible that non-native species new to North Dock will be introduced. However, very few species are likely to survive the low salinities present in North Dock. If practicable the CEMP should require construction plant brought in from other low salinity sites outside the Thames to be thoroughly cleaned before it is moved to North Dock.

## **6 POTENTIAL OPERATIONAL IMPACTS OF THE PROPOSED DEVELOPMENT**

On the day of the site visit water clarity was about a metre, which is good for an estuarine site on the Thames. The relatively good water clarity is presumably due to any fine particulates settling out before they reach this part of the dock complex. It is possible that phytoplankton blooms occur from mid spring to summer, which would affect water clarity.

There are no floating or attached aquatic angiosperms (higher plants) in the photographs and it seems unlikely that any are present. They have therefore not been considered in relation to increased shading.

### **6.1 IMPACTS OF INCREASED SHADING ON SEaweEDS (ALGAE) AND DIPTERA**

The most obvious impact of the increased shading will be on the algae that currently occur on hard surfaces either in the splash zone or down to the limit of light penetration. These

are visible in Figures 10 - 12. These algal growths provide shelter and food for some invertebrates, especially larvae and pupae of Diptera (true flies). Although many Diptera have a maggot-like form as larvae this does not mean that they are of no ecological interest and it is possible that in addition to the common species some rarities will be present. However, it is unusual for any ecological survey of aquatic habitats to undertake a thorough examination of all the larvae and pupae present in the algal growths, as most cannot be identified to species. It has been estimated that “of the more than 80,000 species of Diptera known to science probably less than two per cent have been described in the immature stages while adults of further new species are continually being described” (Smith, 1989). Identification to species level in many cases requires the algal growths to be brought back to the laboratory, placed in sealed containers and kept alive so that when the adults emerge they can be examined and identified.

Detailed studies of the algal growths on seawalls and other hard substrates in the Thames estuary have produced only a few unusual species in London (Tittley and John, 1998; Tittley, 2001). It is therefore unlikely that any species of conservation importance will be affected by the increased shading. There are new records of algae for the Thames in London, but these are mainly species that are relatively common elsewhere (Tittley, 2013).

New habitat for algal species will be created by the construction works, and therefore there will only be a temporary loss of algal growths as they colonise new surfaces very quickly.

Due to water depths of approximately 9 metres (Travers and Yeow, 2014) it is unlikely that there are any significant growths of algae on the bed of North Dock.

## **6.2 IMPACTS ON NON-NATIVE SPECIES**

There are unfortunately a wide range of non-native marine invertebrates that occur in the upper reaches of the tidal Thames. Some of these can cause significant problems, for example Chinese Mitten Crabs (*Eriocheir sinensis*) but many have low or no known impacts. In the latter category are various oligochaete worms, which whilst they may compete somewhat with native species do not usually occur at high densities compared to the native oligochaete worms.

A single Chinese Mitten Crab was found during the removal of fish from the cofferdam at North Dock in 2010 (Expanded Limited, 2010).

From the information available there is no reason to expect that the construction phase will introduce non-native species to North Dock. There is also no reason to expect that the increased area that will be shaded by the development or the new structures below the waterline will cause an increase in the density or diversity of non-native species in that area.

## **6.3 IMPACT ON SPECIES OF CONSERVATION INTEREST**

### **6.3.1 Invertebrates and Seaweeds**

Of the invertebrates and seaweeds likely to be present at the Site only the amphipod crustacean *Apocorophium lacustre* has a restricted distribution in the UK. It is considered a Nationally Scarce marine species<sup>1</sup>. If present at North Quay it will mainly be associated with structures such as the concrete pilings below the waterline, as it builds tubes on hard substrates. It is possible that there will be a short-term but localised adverse impact during the construction phase, but in the Operational Phase the additional hard structures below the water-line will increase suitable habitat for this species. No adverse long-term impacts on populations of this species in North Dock are likely.

### **6.3.2 European Eel and European Smelt**

No adverse impacts due to the increased area of shading are predicted for European Eels or European Smelt present at the site.

## **7. PROPOSED ENHANCEMENT MEASURES FOR THE AQUATIC ENVIRONMENT**

A range of enhancements for fish, invertebrates and birds in the form of bespoke fish walls or floating vegetation islands are being considered by Greengage, the ecological consultants for the development. These enhancements will be proportionate to the area of overshadowed dock from the extended boardwalk. It is therefore expected that overall there may be some ecological benefits resulting from the development, but the scale of these cannot be assessed at present.

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<sup>1</sup> These are species that occur in 9 - 55 of the 10 x 10 km squares of the Ordnance Survey national grid containing sea within the 3 mile territorial limit for Great Britain.

## 8 CONCLUSIONS

The visible aquatic habitats that could be affected by the Proposed Development are typical for the artificial docks in the London area and are unlikely to support any species of conservation interest that could be adversely affected at the population level.

The mud habitat on the bed of the dock is unlikely to support any species of conservation interest and therefore a grab sampling survey is not considered necessary.

The fish fauna in the immediate vicinity of the rotary piling could be disturbed, but this effect would be temporary and only affect an area very close (within say 50 metres) of the piling. Fish would swim away from the disturbance. A fish survey would be unlikely to add any relevant information to assess likely impacts and is not considered necessary.

Although species of conservation interest such as the amphipod *Apocorophium lacustre* and European eels (*Anguilla anguilla*) are likely to be present at or near the Site there are no mechanisms by which their populations could be affected apart from some localised and temporary impacts during the construction phase. In the author's opinion there is no need to undertake any attempts to rescue or remove populations.

The existing information on the species likely to be present at North Dock is considered to be sufficient and no detailed ecological surveys of the algae, invertebrates and fish are considered necessary.

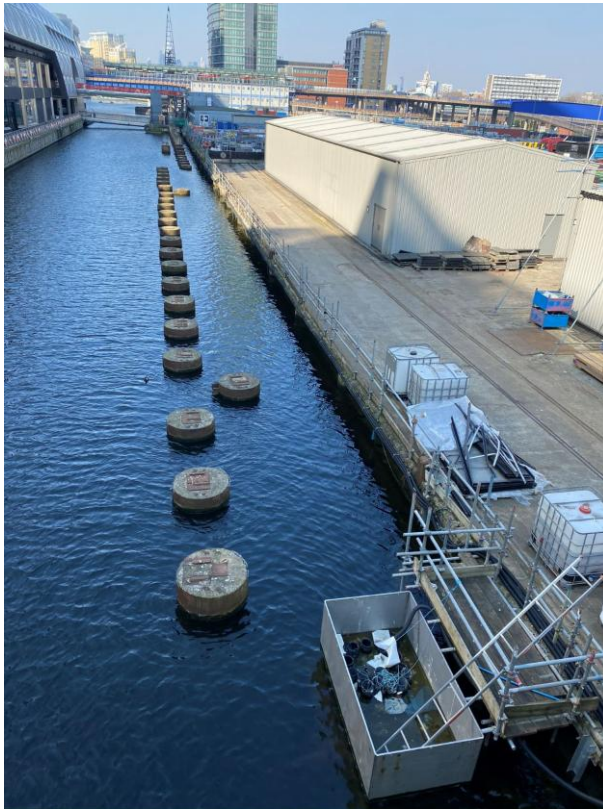


Figure 2. General view of the Site, looking west from Upper Bank Street road bridge. The new area that will be shaded extends slightly to the left of the existing concrete piles

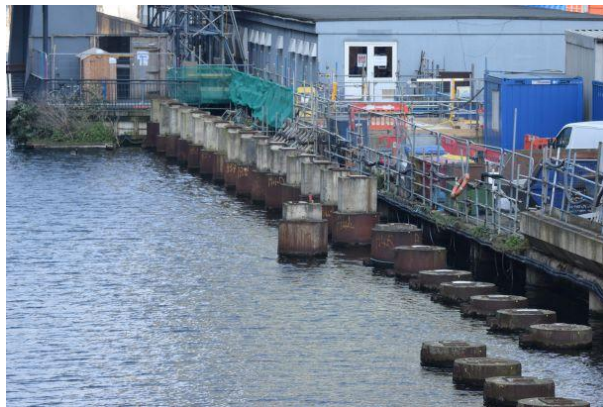


Figure 3. General view of the central part of the Site.



Figure 4. General view of the central part of the Site and the footbridge to the Canary Wharf Crossrail station.



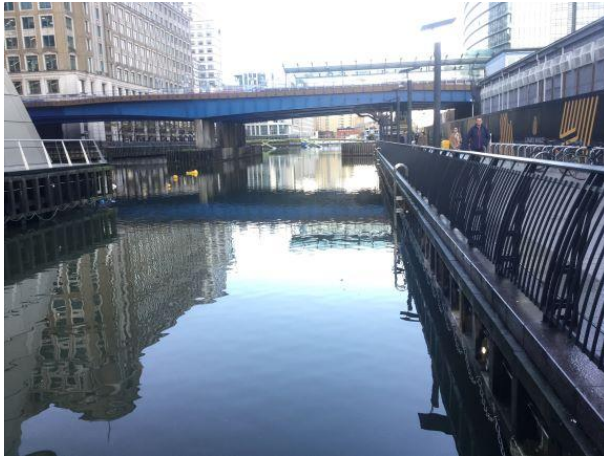


Figure 5. View of the western end of the Site, looking west from the footbridge to the Canary Wharf Crossrail station.



Figure 6. More detailed view of the mid section of the Site, showing the moored tern raft on the left. This has been excluded from the ecological assessment in this report as the habitat is primarily terrestrial.



Figure 7. More detailed view of the concrete piles that are found throughout the Site.



Figure 8. Another view of the tops of the concrete piles, showing the quay wall behind.





Figure 9. View towards the back of the area of the Site which would contain the new proposed marine deck structure.



Figure 10. Horizontal concrete with dense growths of green filamentous algae and brown-coloured algae. The latter are likely to be high densities of pennate diatoms.

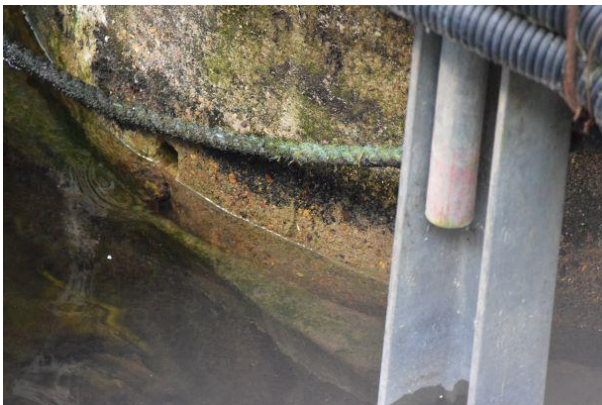


Figure 11. Concrete pile with growths of filamentous green algae above and below the waterline.



Figure 12. Metal pile with growths of filamentous green algae.

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## Appendix 3 – BNG Assessment Calculator

**Table 1.1 Baseline Biodiversity Units**

Broad Habitat	Habitat Type	Area (Hectares)	Distinctiveness	Condition	Biodiversity Units
Urban	Developed land/sealed surface	2.5256	Very Low	N/A	0
Urban	Ground level planters	0.00266	Low	Fairly poor	0.01
Urban	Vacant/derelict land/bareground	0.6312	Low	Poor	1.45
Lakes	Reservoirs	0.13	Medium	Poor	0.66
<b>Total:</b>					<b>2.12</b>

**Table 1.2 Post development Biodiversity Units**

Broad Habitat	Proposed habitat	Area (Hectares)	Distinctiveness	Condition	Biodiversity Units
Woodland and forest	Other woodland, young trees planted	0.03	Medium	Poor	0.06
Urban	Intensive green roof	0.07	Low	Moderate	0.31
Urban	Brown roof	0.2825	Medium	Good	2.10
Urban	Rain garden	0.0352	Low	Moderate	0.17
Urban	Introduced shrubs	0.0476	Low	Moderate	0.22
Urban	Ground level planters	0.00479	Low	Moderate	0.02
Urban	Amenity grassland	0.0446	Low	Moderate	0.19
Urban	Street tree	0.056	Low	Moderate	0.11
Urban	Façade bound green wall	0.0312	Low	Moderate	0.09
Urban	Developed land, sealed surface	2.68811	V.Low	N/A	0.00
<b>Total:</b>					<b>5.53</b>

## Appendix 4 – Relevant legislation and policy

### Legislation

Current key legislation relating to ecology includes the Wildlife and Countryside Act 1981 (as amended)xii; The Conservation of Habitats and Species Regulations 2017 ('Habitats & Species Regulations')xiii, The Countryside and Rights of Way Act 2000 (CRoW Act)xiv, and The Natural Environment and Rural Communities Act, 2006xv.

#### **The Conservation of Habitats and Species Regulations 2017**

The Conservation of Habitats & Species Regulations replace The Conservation (Natural Habitats, etc.) Regulations 1994 (as amended)xvi, and transpose Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora ('EU Habitats Directive')xvii, and Council Directive 79/409/EEC on the Conservation of Wild Birds ('Birds Directive')xviii into UK law (in conjunction with the Wildlife and Countryside Act).

Regulation 43 and 47 respectively of the Conservation of Habitats & Species Regulations makes it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2 (European protected species of animals), or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 5 (European protected species of plant).

Development that would contravene the protection afforded to European protected species requires a derogation (in the form of a licence) from the provisions of the Habitats Directive.

Regulation 63 (1) states: 'A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which —

(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects); and

(b) is not directly connected with or necessary to the management of that site;

must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.'

#### **Wildlife and Countryside Act 1981 (as amended)**

The Wildlife and Countryside Act 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in Great Britain. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitatsxix (the 'Bern Convention') and the Birds Directive and EU Habitats Directive are implemented in Great Britain.

#### **The Countryside and Rights of Way Act 2000**

The Wildlife and Countryside Act has been updated by the CRoW Act. The CRoW Act amends the law relating to nature conservation and protection of wildlife. In relation to threatened species it strengthens the legal protection and adds the word 'reckless' to the offences of damaging, disturbing, or obstructing access to any structure or place a protected species uses for shelter or protection, and disturbing any protected species whilst it is occupying a structure or place it uses for shelter or protection.

#### **The Natural Environment and Rural Communities Act 2006**

The Natural Environment and Rural Communities Act 2006 states that every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. Biodiversity Action Plans provide a framework for prioritising conservation actions for biodiversity.

Section 41 of the Natural Environment and Rural Communities Act requires the Secretary of State to publish a list of species of flora and fauna and habitats considered to be of principal importance for the purpose of conserving biodiversity. The list, a result of the most

comprehensive analysis ever undertaken in the UK, currently contains 1,149 species, including for example, hedgehog (*Erinaceus europaeus*), and 65 habitats that were listed as priorities for conservation action under the now defunct UK Biodiversity Action Plan<sup>xx</sup> (UK BAP). Despite the devolution of the UK BAP and succession of the UK Post-2010 Biodiversity Framework<sup>xxi</sup> (and Biodiversity 2020 strategy<sup>xxii</sup> in England), as a response to the Convention on Biological Diversity's (CBD's) Strategic Plan for Biodiversity 2011-2020<sup>xxiii</sup> and EU Biodiversity Strategy (EUBS)<sup>xxiv</sup>, this list (now referred to as the list of Species and Habitats of Principal Importance in England) will be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 41 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.

### **Biodiversity Action Plans**

Non-statutory Biodiversity Action Plans (BAPs) have been prepared on a local and regional scale throughout the UK over the past 15 years. Such plans provide a mechanism for implementing the government's broad strategy for conserving and enhancing the most endangered ('priority') habitats and species in the UK for the next 20 years. As described above the UK BAP was succeeded in England by Biodiversity 2020 although the list of priority habitats and species remains valid as the list of Species of Principal Importance for Nature Conservation. Regional and local BAPs are still valid however and continue to be updated and produced. Detail on the relevant BAPs for this site are provided in the main text of this report.

### **Legislation Relating to Nesting Birds**

Nesting birds, with certain exceptions, are protected from intentional killing, destruction of nests and destruction/taking of eggs under the Wildlife and Countryside Act 1981 (as amended) and the CROW Act. Any clearance of dense vegetation should therefore be undertaken outside of the nesting bird season, taken to run conservatively from March to August (inclusive), unless an ecologist confirms the absence of active nests prior to clearance.

### **Legislation Relating to Bats**

All UK bats and their roosts are protected by law. Since the first legislation was introduced in 1981, which gave strong legal protection to all bat species and their roosts in England, Scotland and Wales, additional legislation and amendments have been implemented throughout the UK. Six of the 18 British species of bat have Biodiversity Action Plans (BAPs) assigned to them, which highlights the importance of specific habitats to species, details of the threats they face and proposes measures to aid in the reduction of population declines.

Although habitats that are important for bats are not legally protected, care should be taken when dealing with the modification or development of an area if aspects of it are deemed important to bats such as flight corridors and foraging areas.

The Wildlife & Countryside Act 1981 (WCA) was the first legislation to provide protection for all bats and their roosts in England, Scotland and Wales (earlier legislation gave protection to horseshoe bats only.)

All eighteen British bat species are listed in Schedule 5 of the Wildlife and Countryside Act, 1981 and under Annexe IV of the Habitats Directive, 1992 as a European protected species. They are therefore fully protected under Section 9 of the 1981 Act and under Regulation 43 of the Conservation of Habitats and Species Regulations 2017, which transposes the Habitats Directive into UK law. Consequently, it is an offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;

- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat; and
- Intentionally or recklessly obstruct access to a bat roost.

This legislation applies to all bat life stages.

The implications of the above in relation to the proposals are that where it is necessary during construction to remove trees, buildings or structures in which bats roost, it must first be determined that work is compulsory and if so, appropriate licenses must be obtained from Natural England.

### **Legislation Relating to Natura 2000 Sites and Habitats Directive Annex I/II Species**

European Commission Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora ('EU Habitats Directive'), and Council Directive 79/409/EEC on the Conservation of Wild Birds ('Birds Directive') form the cornerstones of nature conservation legislation across EU member states. Priority species requiring protection across Europe are listed in the Annexes of these Directives. Regulation 63(1) of the Conservation of Habitats and Species Regulations 2017 and Offshore Marine Conservation Regulations, 2007 (as amended) transpose these directives into UK law and set the basis for the designations of protected sites (known as Natura 2000 sites; Special Areas of Conservation under the Habitat Directive and Special Areas of Protection under the Birds Directive) that are of importance for habitats, species or assemblages listed on the directive Annexes. In the UK Ramsar sites are also offered the same level of protection as SPAs and SACs however the qualifying species for the designation may differ; Ramsar sites being designated specifically as important wetland habitats. Under article 6(3) of the Habitats Directive, where projects stand to have likely significant effect (in accordance with the European Court of Justice ruling of C-127/02 Waddenzee cockle fishing) upon the integrity of conservation objectives (i.e. conservation status of the qualifying species or habitats) within the designated sites then the Competent Authority must undertake an Appropriate Assessment.

## **Planning Policy**

### **National**

#### ***National Planning Policy Framework***

The National Planning Policy Framework (NPPF) 2019<sup>xxv</sup> sets out the Government's planning policies for England, including how plans and decisions are expected to apply a presumption in favour of sustainable development. Chapter 15 of the NPPF focuses on conservation and enhancement of the natural environment, stating plans should 'identify and pursue opportunities for securing measurable net gains for biodiversity'.

It goes on to state: 'if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused'. Alongside this, it acknowledges that planning should be refused where irreplaceable habitats such as ancient woodland are lost.

### **Regional**

#### ***The London Plan: Spatial Development Strategy for Greater London<sup>xxvi</sup> –***

The London Plan is comprised of separate chapters relating to a number of areas, including London's Places, People, Economy and Transport. The following policies have been identified within the London Plan, which relate specifically to ecology and this development.



#### Policy 2.18 Green Infrastructure

Policy 2.18 aims to protect, promote, expand and manage the extent and quality of, and access to, London's network of open and green spaces.

#### Policy 5.10 Urban Greening

This policy encourages the 'greening of London's buildings and spaces and specifically those in central London by including a target for increasing the area of green space (including green roofs etc) within the Central Activities Zone'.

#### Policy 5.11 Green Roofs and Development Site Environs

Policy 5.11 specifically supports the inclusion of planting within developments and encourages boroughs to support the inclusion of green roofs.

#### Policy 5.13 Sustainable Drainage

Policy 5.13 promotes the inclusion of sustainable urban drainage systems in developments and sets out a drainage hierarchy that developers should follow when designing their schemes.

#### Policy 7.19 Biodiversity and Access to Nature

'The Mayor will work with all the relevant partners to ensure a proactive approach to the protection, enhancement, creation, promotion and management of biodiversity in support of the Mayors Biodiversity Strategy.'

#### ***The Draft New London Plan (emerging)***

##### Policy G1 Green infrastructure

London's network of green and open spaces, and green features in the built environment such as green roofs and street trees, should be protected, planned, designed and managed as integrated features of green infrastructure.

Boroughs should prepare green infrastructure strategies that integrate objectives relating to open space provision, biodiversity conservation, flood management, health and wellbeing, sport and recreation.

Development Plans and Opportunity Area Planning Frameworks should:

identify key green infrastructure assets, their function and their potential function

identify opportunities for addressing environmental and social challenges through strategic green infrastructure interventions.

##### Policy G2 London's Green Belt

The Green Belt should be protected from inappropriate development:

development proposals that would harm the Green Belt should be refused

the enhancement of the Green Belt to provide appropriate multi-functional uses for Londoners should be supported.

##### Policy G5 Urban greening

Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.

Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. The UGF should be based on the factors set out



in Table 8.2, but tailored to local circumstances. In the interim, the Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development.

#### Policy G6 Biodiversity and access to nature

Where harm to a SINC (other than a European (International) designated site) is unavoidable, the following approach should be applied to minimise development impacts:

avoid adverse impact to the special biodiversity interest of the site

minimise the spatial impact and mitigate it by improving the quality or management of the rest of the site

seek appropriate off-site compensation only in exceptional cases where the benefits of the development proposal clearly outweigh the biodiversity impacts.

Biodiversity enhancement should be considered from the start of the development process.

Proposals which create new or improved habitats that result in positive gains for biodiversity should be considered positively, as should measures to reduce deficiencies in access to wildlife sites.

#### Policy G7 Trees and woodlands

Development proposals should ensure that, wherever possible, existing trees of quality are retained [Category A and B]. If it is imperative that trees have to be removed, there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.

#### ***Supplementary Planning Guidance (SPG): Sustainable Design and Construction 2014***

As part of the London Plan 2011 implementation framework, the SPG, relating to sustainable design and construction, was adopted in April 2014 and includes the following sections detailing Mayoral priorities in relation to biodiversity of relevance to The Site.

#### Nature conservation and biodiversity

The Mayor's priorities include ensuring 'developers make a contribution to biodiversity on their development Site'.

#### Overheating

Where priorities include the inclusions of 'measures, in the design of schemes, in line with the cooling hierarchy set out in London Plan policy 5.9 to prevent overheating over the scheme's lifetime'

#### Urban greening

A Priority is for developers to 'integrate green infrastructure into development schemes, including by creating links with wider green infrastructure network'.

#### Use less energy

'The design of developments should prioritise passive measures' which can include 'green roofs, green walls and other green infrastructure which can keep buildings warm or cool and improve biodiversity and contribute to sustainable urban drainage'.

## **London Environment Strategy 2018xxvii**

The Mayor's Environment Strategy was published in May 2018. This document sets out the strategic vision for the environment throughout London. Although not primarily a planning guidance document, it does set strategic objectives, policies and proposals that are of relevance to the delivery of new development in a planning context, including:

### Objective 5.1 Make more than half of London green by 2050

*Policy 5.1.1 Protect, enhance and increase green areas in the city, to provide green infrastructure services and benefits that London needs now.*

This policy states:

*"New development proposals should avoid reducing the overall amount of green cover and, where possible, seek to enhance the wider green infrastructure network to increase the benefits this provides. [...] New developments should aim to avoid fragmentation of existing green space, reduce storm water run-off rates by using sustainable drainage, and include new tree planting, wildlife-friendly landscaping, or features such as green roofs to mitigate any unavoidable loss".*

This supports the 'environmental net gain' approach promoted by government in the 25 Year Environment Plan.

Proposal 5.1.1.d The London Plan includes policies to green streets and buildings, including increasing the extent of green roofs, green walls and sustainable drainage.

### Objective 5.2 conserving and enhancement wildlife and natural habitats

Policy 5.2.1 Protect a core network of nature conservation sites and ensure a net gain in biodiversity

This policy requires new development to include new wildlife habitat, nesting and roosting sites, and ecologically appropriate landscaping will provide more resources for wildlife and help to strengthen ecological corridors. It states:

*"Opportunities should be sought to create or restore priority habitats (previously known as UK Biodiversity Action Plan habitats) that have been identified as conservation priorities in London [and] all land managers and landowners should take BAP priority species into account".*

## **Local**

### **Tower Hamlets Local Plan 2020**

#### Policy ES 3

##### *Urban Greening and Biodiversity*

- *Development is required to maximise the provision of 'living building' elements. 'Living building' elements need to contribute to local biodiversity through the provision of priority habitats, and/or features for priority species, as identified in the latest Tower Hamlets Local Biodiversity Action Plan.*
- *Development is required to:*
  - a. *Protect or replace existing elements of biodiversity features within the development as well as incorporating further measures to support wildlife, proportionate to the development proposed.*

- b. Submit an Ecology Assessment demonstrating biodiversity enhancement that contributes to the objectives of the latest Tower Hamlets Local Biodiversity Action Plan, where the site is a Major development.*
- *Planting and landscaping around developments should not include 'potentially invasive, non-native species'.*
- *Development is required to:*
  - a. Incorporate trees wherever possible;;*
  - b. Protect trees, including street trees; and*
  - c. Provide replacement trees where the loss of or impact on trees in a development is considered acceptable.*
- *Developments which would affect a Site of Importance for Nature Conservation (SINC), or significantly harm the population or conservation status of a protected or priority species, is required to be managed in accordance with the following hierarchy:*
  - a. To avoid adverse impact to the biodiversity interest; and*
  - b. To minimise impact and seek mitigation in exceptional cases where the benefits of the proposal clearly outweigh the biodiversity impacts, and for appropriate compensation to be sought.*

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