

WIDER CONTEXT

NOISE AND LIGHT POLLUTION

There is a wide variety of factors that have a negative impact on wildlife throughout London. It is important to first understand the wider context of these factors before diving into the in-depth research of the site itself. One of the features that can be identified on a wider scale is the site's proximity to London City Airport, which not only poses immediate physical danger to birds, but also contributes to noise and air pollution in the area.


With a wider context to the site, it is much easier to see the severity of noise pollution in in Greenwich compared with the rest of London and although not as bad as some of the more central boroughs, Greenwich is one of the more polluted.


Noise pollution impacts a bird's ability to navigate, forage, attract mates, and avoid predators, effecting their chance of survival.


Rather than seeing aircrafts as a threat to birds, London City Airport believes that "birds are the greatest threat to aircraft" and although it does support and invest in biodiversity and sustainability in the new developments, it discourages proposals that could increase bird numbers.


The sound of London Underground trains peaks at 112.3 dB. This coupled with the air pollution they cause, can have a severely negative impact on nearby wildlife. Construction of tunnels to expand the rail system also disrupts habitats and ecosystems.

People living in areas with higher levels of noise (particularly from traffic) are more likely to struggle with stress and sleep disturbance, increasing the chance of developing more serious health conditions such as depression, anxiety, heart disease and diabetes.

Lighting

Noise pollution

Train lines

Flight path and destination

UOG

Scale 1:6000 at A1

0 125 250 500m

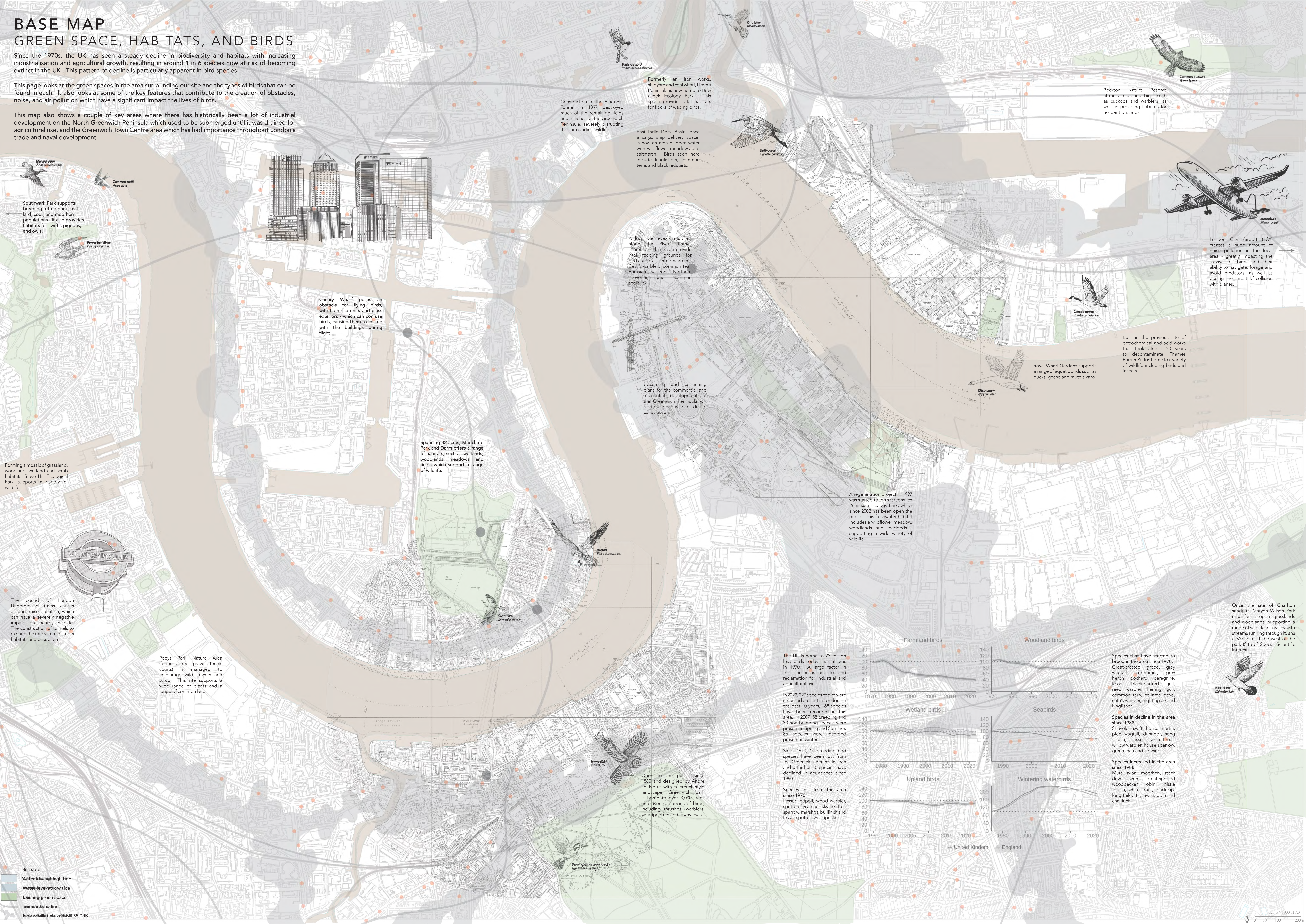
BASE MAP

GREEN SPACE, HABITATS, AND BIRDS

Since the 1970s, the UK has seen a steady decline in biodiversity and habitats with increasing industrialisation and agricultural growth, resulting in around 1 in 6 species now at risk of becoming extinct in the UK. This pattern of decline is particularly apparent in bird species.

This page looks at the green spaces in the area surrounding our site and the types of birds that can be found in each. It also looks at some of the key features that contribute to the creation of obstacles, noise, and air pollution which have a significant impact the lives of birds.

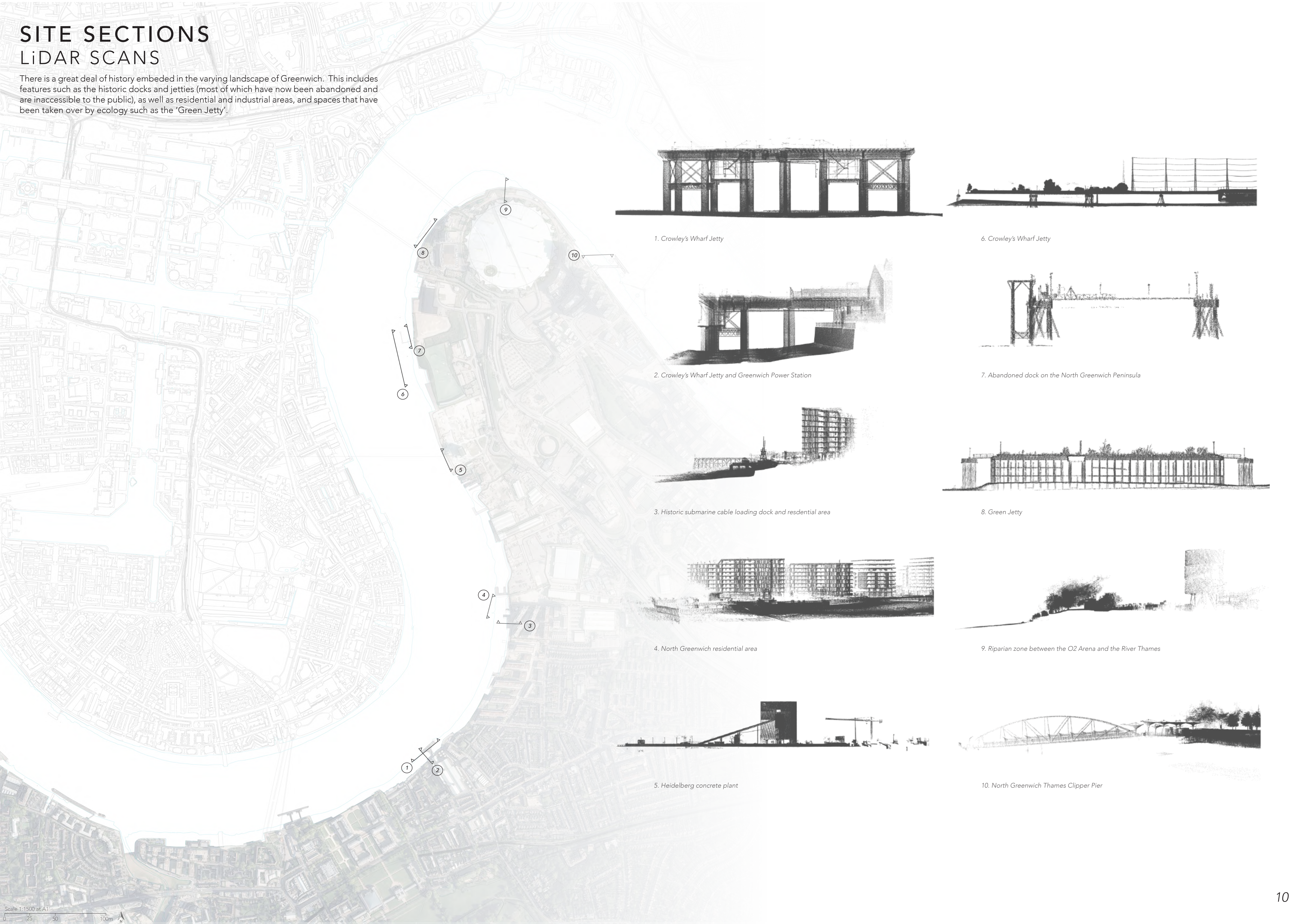
This map also shows a couple of key areas where there has historically been a lot of industrial development on the North Greenwich Peninsula which used to be submerged until it was drained for agricultural use, and the Greenwich Town Centre area which has had importance throughout London's trade and naval development.



SITE SECTIONS

LiDAR SCANS

There is a great deal of history embedded in the varying landscape of Greenwich. This includes features such as the historic docks and jetties (most of which have now been abandoned and are inaccessible to the public), as well as residential and industrial areas, and spaces that have been taken over by ecology such as the 'Green Jetty'.



1. Crowley's Wharf Jetty

6. Crowley's Wharf Jetty

2. Crowley's Wharf Jetty and Greenwich Power Station

7. Abandoned dock on the North Greenwich Peninsula

3. Historic submarine cable loading dock and residential area

8. Green Jetty

4. North Greenwich residential area

9. Riparian zone between the O2 Arena and the River Thames

5. Heidelberg concrete plant

10. North Greenwich Thames Clipper Pier

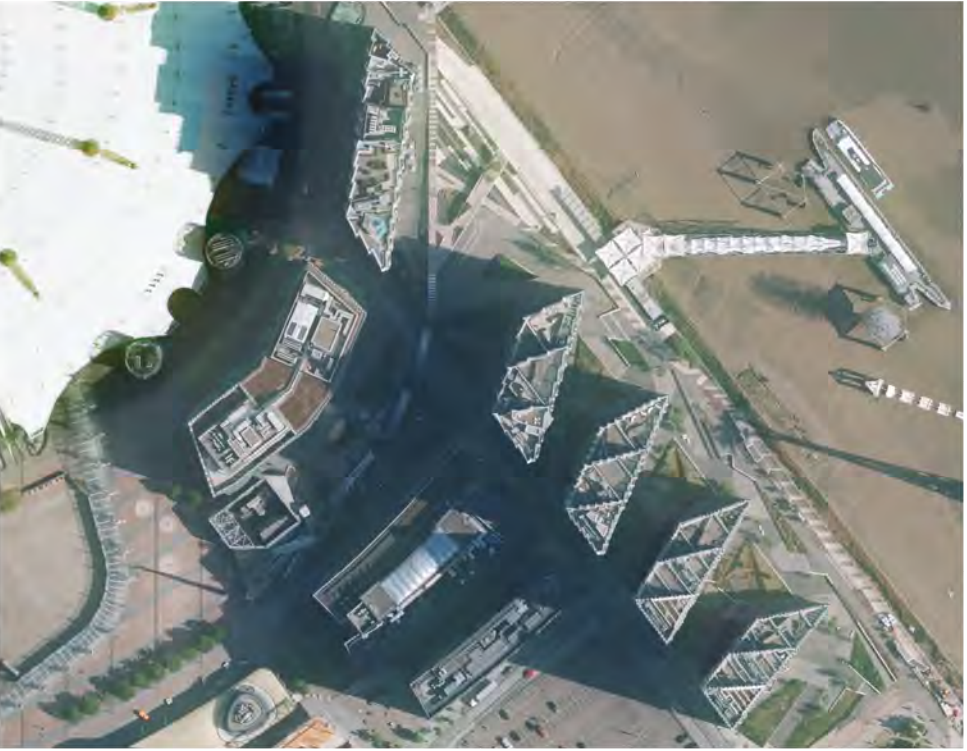
LAND USE ANALYSIS

UNDER-UTILISED AND ABANDONED SPACE

Analysing the use of space on the North Greenwich Peninsula, it is clear that much of it is under-utilised. There are large expanses of abandoned industrial spaces (some with ruderal vegetation claiming spaces in the wastelands, as well huge areas of car parks for the



Abandoned industrial land



High-rise development



Ruderal vegetation



Impermeable car parks



Industrial land



Warehouses

BROWNFIELD HABITATS

Previously developed sites consist of bare ground, short grassland, patches of tall herbs, longer flower-rich grassland, scrub and temporary pools. This, with a lack of human intervention provides an essential source of nectar, sheltered warm areas, opportunities for burrowing and good foraging habitat for insects. Reptiles also thrive in these habitats due to an abundance of food, basking sites and shelter.

Brownfield habitats having experienced periodic disturbance and abandonment, combined with low nutrient soils and introduced materials creates the mosaic of early successional habitats. This is the first stage in a habitat's journey towards becoming a forest. Exposed substrate, soil heaps, broken bricks and concrete create drought-prone and nutrient poor soils, ideal for species that are dependent on early successional habitats. These habitats are increasingly rare elsewhere. The varied history of brownfield sites means that there is variation in pH and chemical composition of soils, creating variety across the range of the habitat.

Bees, wasps and hoverflies feed on the nectar and pollen of flowering plants. Rare species such as the shrill carder bee (*Bombus sylvarum*) and the distinguished jumping spider (*Attulus distinguendus*) now rely on brownfield sites. Slow worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*), adder (*Vipera berus*) and grass snake (*Natrix helvetica*) may all be present and pools can support newts and frogs. Butterflies include dingy skipper (*Erynnis tages*) and grayling (*Hipparchia semele*). Orchids, such as bee orchid (*Ophrys apifera*) and fragrant orchid (*Gymnadenia conopsea*), can also be found.

Increasing pressure on our environment from agriculture and development however, means that many species depending on early successional habitats have become rare in the wider landscape and many of these species now almost totally rely on brownfield habitats. The importance of brownfield habitats is recognised by their listing as Priority Habitat on Section 41 of the Natural Environment and Rural Communities Act (2006) under the name "Open Mosaic Habitat on Previously Developed Land". Despite the recognition of the importance of this habitat within the planning system, development continues to pose the greatest threat to brownfield sites. Over half of the important sites in the Thames Gateway have been lost, partially lost or damaged due to development, and those which remain are under threat.

RUDERAL VEGETATION

A ruderal species is a plant species that is first to colonize disturbed lands. The disturbance may be natural – for example, wildfires or avalanches – or the consequences of human activities, such as construction (of roads, of buildings, mining, etc.) or agriculture (abandoned fields, irrigation, etc.).

Annual communities are those comprised mainly of stress tolerant ruderals, which are short in stature and suited to low nutrient availability. Ruderal communities are those composed mainly of taller annuals, biennials or short-lived perennials and typical of slightly more nutrient-rich, or less disturbed conditions than the annual communities.

Typical examples of ruderal vegetation include

- *Arenaria*
- *Cannabis ruderalis* (family *Cannabaceae*)
- *Conyza bonariensis* (family *Asteraceae*)
- *Dittrichia viscosa* (family *Asteraceae*)
- *Nicotiana glauca* (family *Solanaceae*)
- *Daucus carota*
- *Linaria vulgaris*
- *Medicago lupulina*
- *Reseda luteola*

Ruderal vegetation has the ability to thrive where there is disturbance through partial or total destruction of plant biomass and shows high potential for remediation of degraded lands.

IMPERMEABLE LAND

London has a high proportion of impermeable surfaces, having lost 17% of its permeable surfaces in the last 40 years. Urbanisation has reduced the ability of land to absorb rainfall through the introduction of hard, impermeable surfaces. This results in an increase in the volume and rate of surface run-off as less water infiltrates into the ground.

The number of car parks, roads, and pavements on the North Greenwich Peninsula creates a large impermeable surface area of asphalt and concrete. This leaves the area liable to flooding, as excess rainfall and urban runoff cannot permeate the ground.

ABANDONED AND UNDER-UTILISED LAND

There is a large surface area of abandoned industrial space and areas on the North Greenwich Peninsula. Although some of this space has been claimed by ruderal vegetation, interventions in the spaces between could prove beneficial to users, by making use of under-utilised spaces and create areas for recreation.

SUSTAINABLE DRAINAGE SYSTEMS

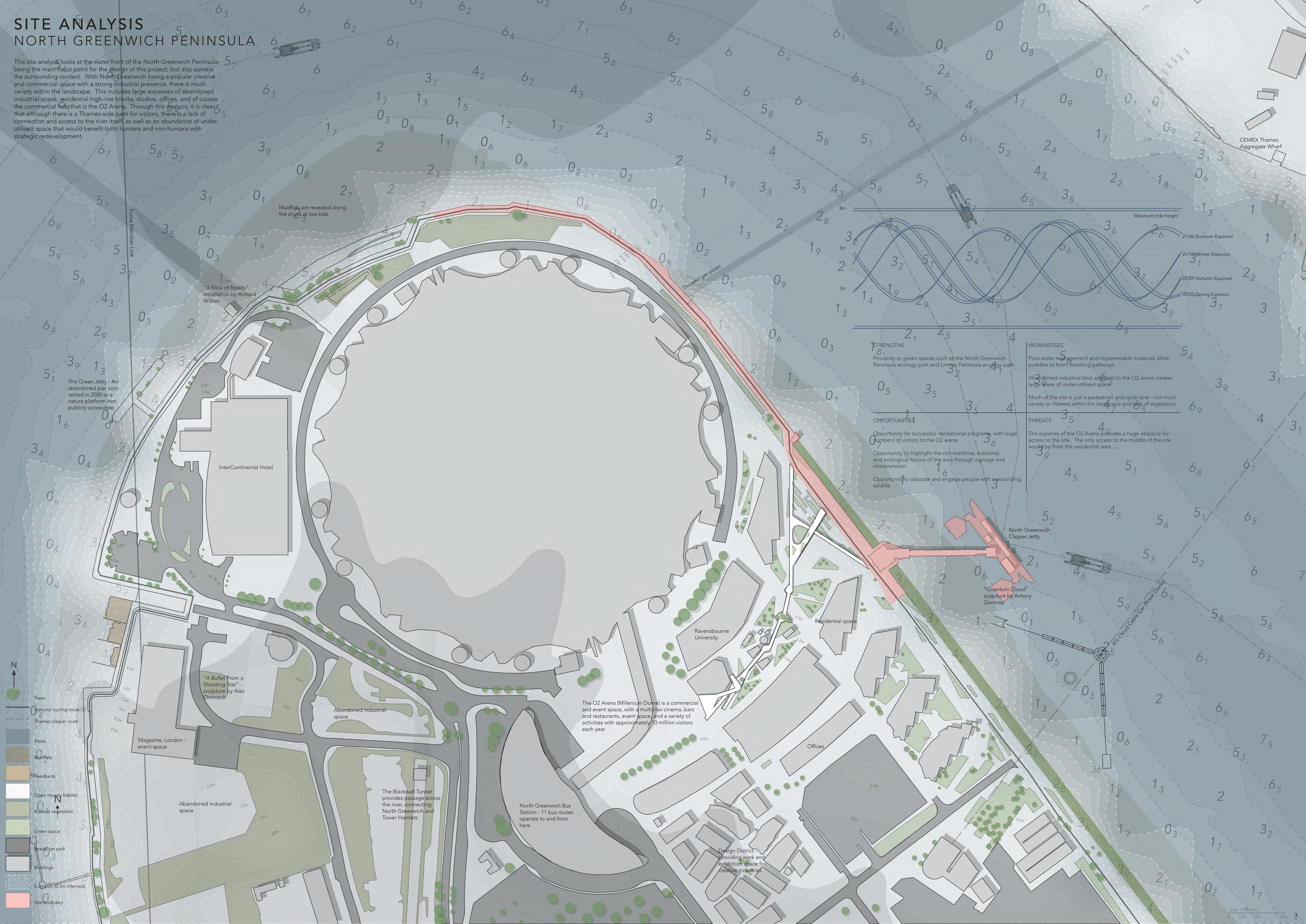
SuDS can be used to manage flooding and pollution risks resulting from urban runoff and excess rainfall, whilst also contributing to environmental enhancement and place making.

- Reedbeds - can be used to treat waste water and provide habitats for wildlife.
- Swales - collect and channel water slowly during storm events.
- Rain gardens - collect, filter and slowly release heavy rain water.
- Permeable paving - can provide water storage underneath
- Retention basins - provide additional storage for excess rainwater. These also filter and slowly release water.

SITE ANALYSIS

NORTH GREENWICH PENINSULA

This site analysis looks at the water front of the North Greenwich Peninsula being the main focus point for the design of this project, but also surveys the surrounding context. With North Greenwich being a popular creative and commercial space with a strong industrial presence, there is much variety within the landscape. This includes large expanses of abandoned industrial space, residential high-rise blocks, studios, offices, and of course the commercial hub that is the O2 Arena. Through this analysis, it is clear that although there is a Thames-side path for visitors, there is a lack of connection and access to the river itself, as well as an abundance of under-utilised space that would benefit both humans and non-humans with strategic redevelopment.



Mudflats are revealed along the shore at low tide.

"A Slice of Reality" installation by Richard Wilson

The Green Jetty - An abandoned pier converted in 2000 to a nature platform (not publicly accessible)

InterContinental Hotel

"A Bullet From a Shooting Star" - sculpture by Alex Chinneck

Abandoned industrial space

Magazine, London - event space

Abandoned industrial space

The Blackwall Tunnel provides passage across the river, connecting North Greenwich and Tower Hamlets

North Greenwich Bus Station - 11 bus routes operate to and from here

The O2 Arena (Millennium Dome) is a commercial and event space, with a multiplex cinema, bars and restaurants, event space, and a variety of activities with approximately 10 million visitors each year

Ravensbourne University

Residential space

Offices

Design District - providing work and exhibition space for creative industries

North Greenwich Clipper Jetty

"Quantum Cloud" sculpture by Antony Gormley

IFS Cloud Cable Car (Royal Docks)

CEMEX Thames Aggregate Wharf

STRENGTHS
Proximity to green spaces such as the North Greenwich Peninsula ecology park and Limps Peninsula ecology park.

OPPORTUNITIES
Opportunity for successful recreational programs, with large numbers of visitors to the O2 arena
Opportunity to highlight the rich maritime, industrial, and ecological history of the area through signage and interpretation.
Opportunity to educate and engage people with surrounding wildlife

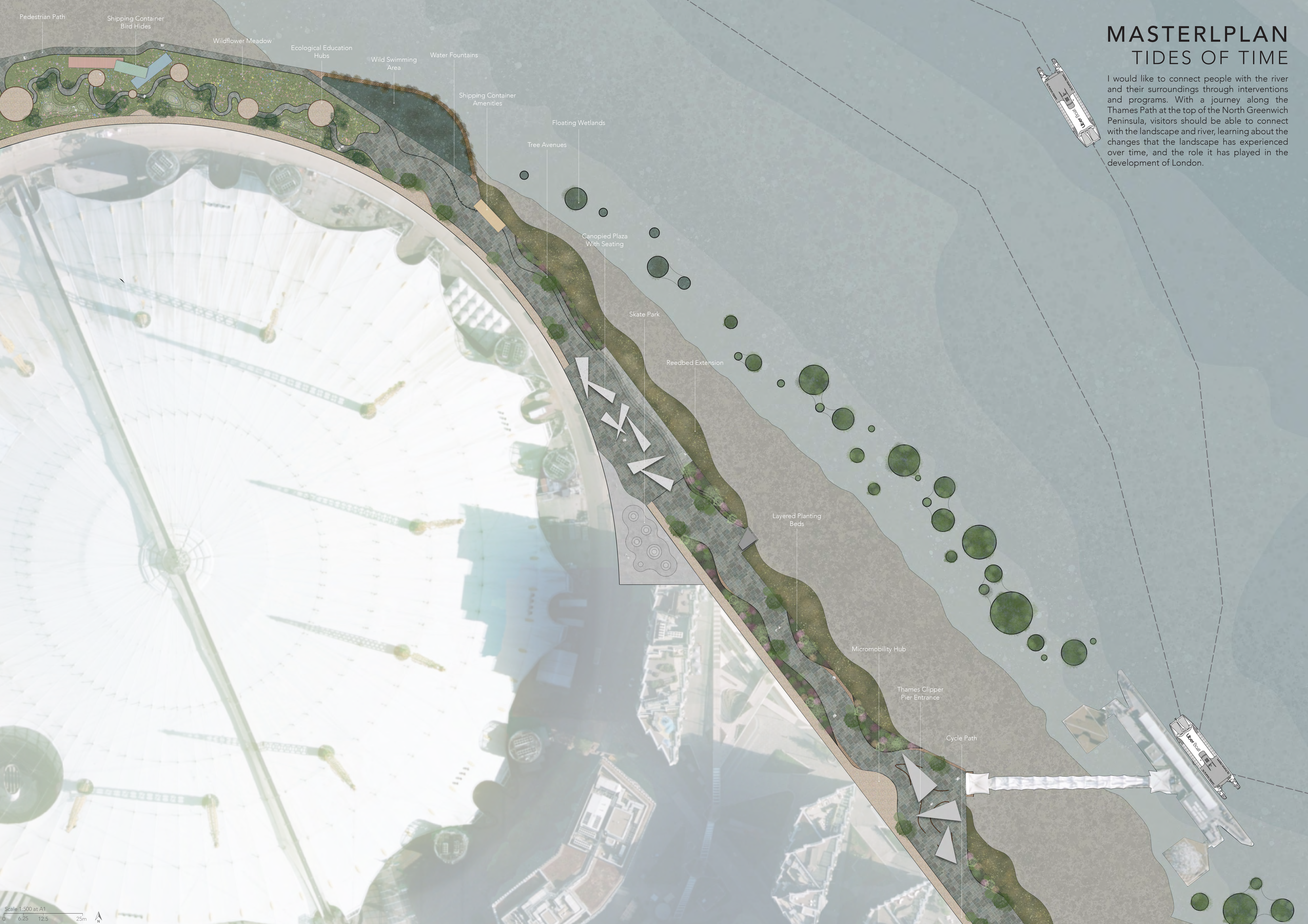
WEAKNESSES
Poor water management and impermeable materials allow puddles to form, blocking pathways
Abandoned industrial land adjacent to the O2 arena creates large areas of under-utilised space
Much of the site is just a pedestrian and cycle lane - not much variety or interest within the landscape and lack of vegetation.

THREATS
The expanse of the O2 Arena provides a huge obstacle for access to the site. The only access to the middle of the site would be from the residential area

MASTERPLAN

TIDES OF TIME

I would like to connect people with the river and their surroundings through interventions and programs. With a journey along the Thames Path at the top of the North Greenwich Peninsula, visitors should be able to connect with the landscape and river, learning about the changes that the landscape has experienced over time, and the role it has played in the development of London.



Pedestrian Path

Shipping Container
Bird Hides

Wildflower Meadow

Ecological Education
Hubs

Wild Swimming
Area

Water Fountains

Shipping Container
Amenities

Floating Wetlands

Tree Avenues

Canopied Plaza
With Seating

Skate Park

Reedbed Extension

Layered Planting
Beds

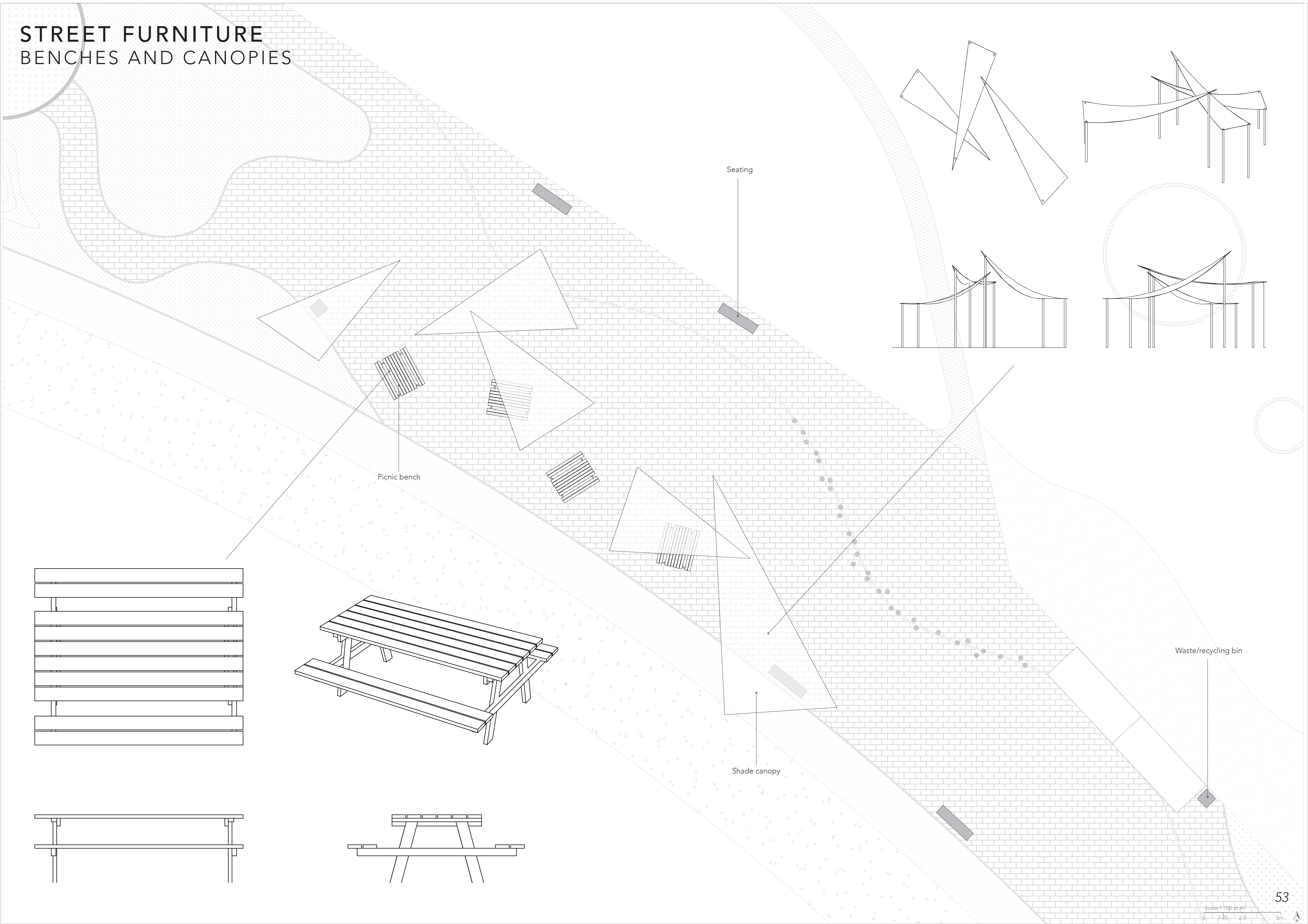
Micromobility Hub

Thames Clipper
Pier Entrance

Cycle Path

STREET FURNITURE

BENCHES AND CANOPIES

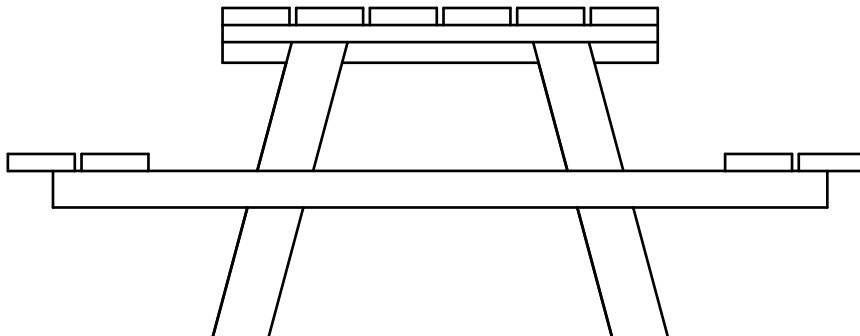
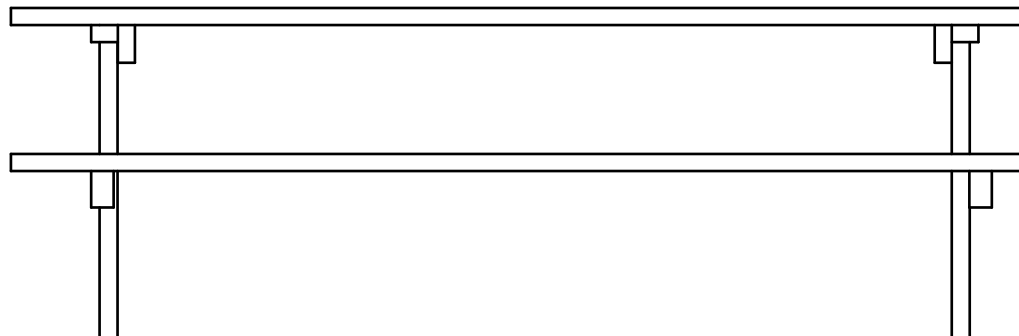
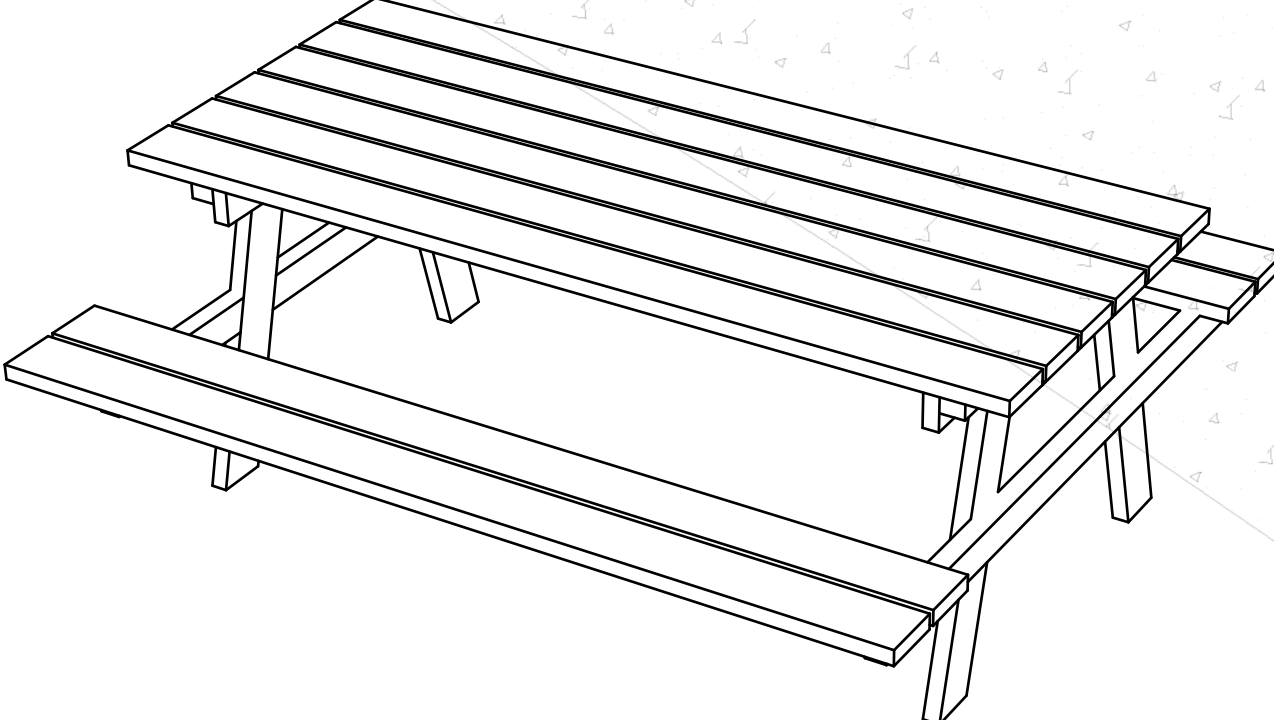


Seating

Picnic bench

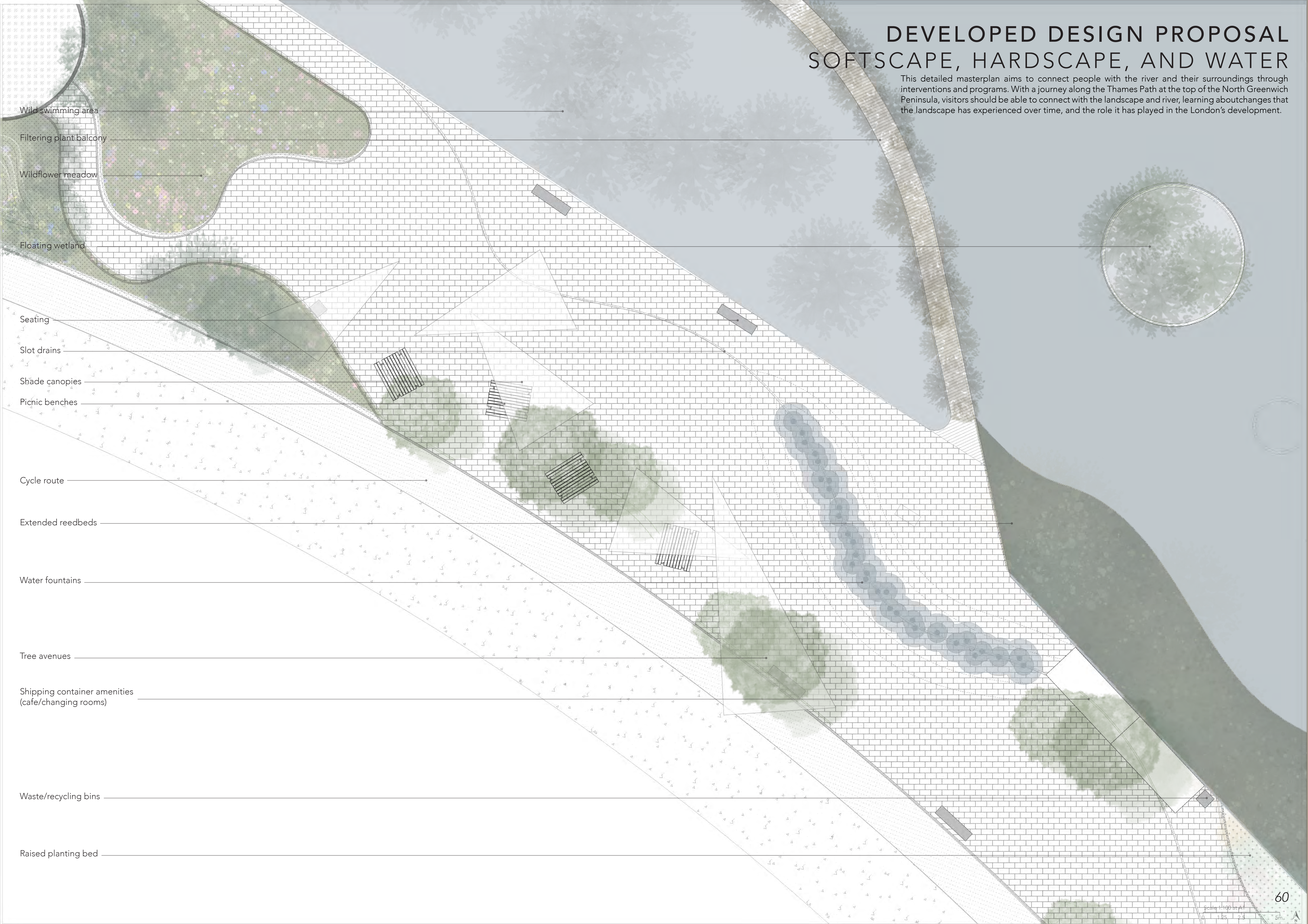
Shade canopy

Waste/recycling bin



DEVELOPED DESIGN PROPOSAL SOFTSCAPE, HARDSCAPE, AND WATER

This detailed masterplan aims to connect people with the river and their surroundings through interventions and programs. With a journey along the Thames Path at the top of the North Greenwich Peninsula, visitors should be able to connect with the landscape and river, learning about changes that the landscape has experienced over time, and the role it has played in the London's development.



Wild swimming area

Filtering plant balcony

Wildflower meadow

Floating wetland

Seating

Slot drains

Shade canopies

Picnic benches

Cycle route

Extended reedbeds

Water fountains

Tree avenues

Shipping container amenities
(cafe/changing rooms)

Waste/recycling bins

Raised planting bed