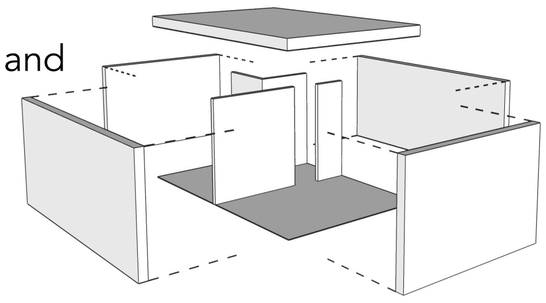
Modularising Billingsgate Market
- Design And Access Statement -
"A Healing Community"

To create a place that acts to nurture community values, restore the distribution of wealth and support a high quality and robust public realm, in order to 'heal' and reconnect residents with their local neighbourhood.



Design Principles

Yield (Number of Units)

Provision of affordable housing units through the delivery of high-rise modular buildings to allow for maximum density and yield.

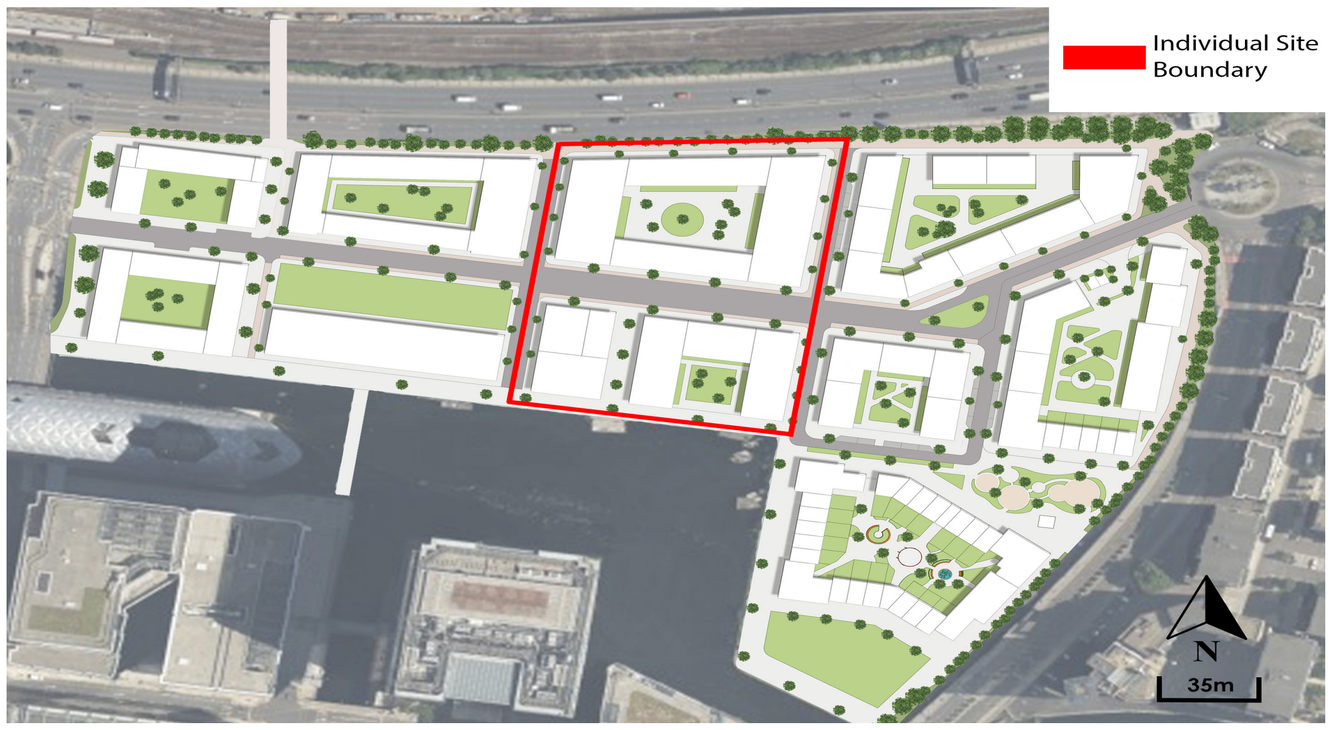
Quality And Design

High quality public realm and affordable housing provision, designed for the people of Tower Hamlet.

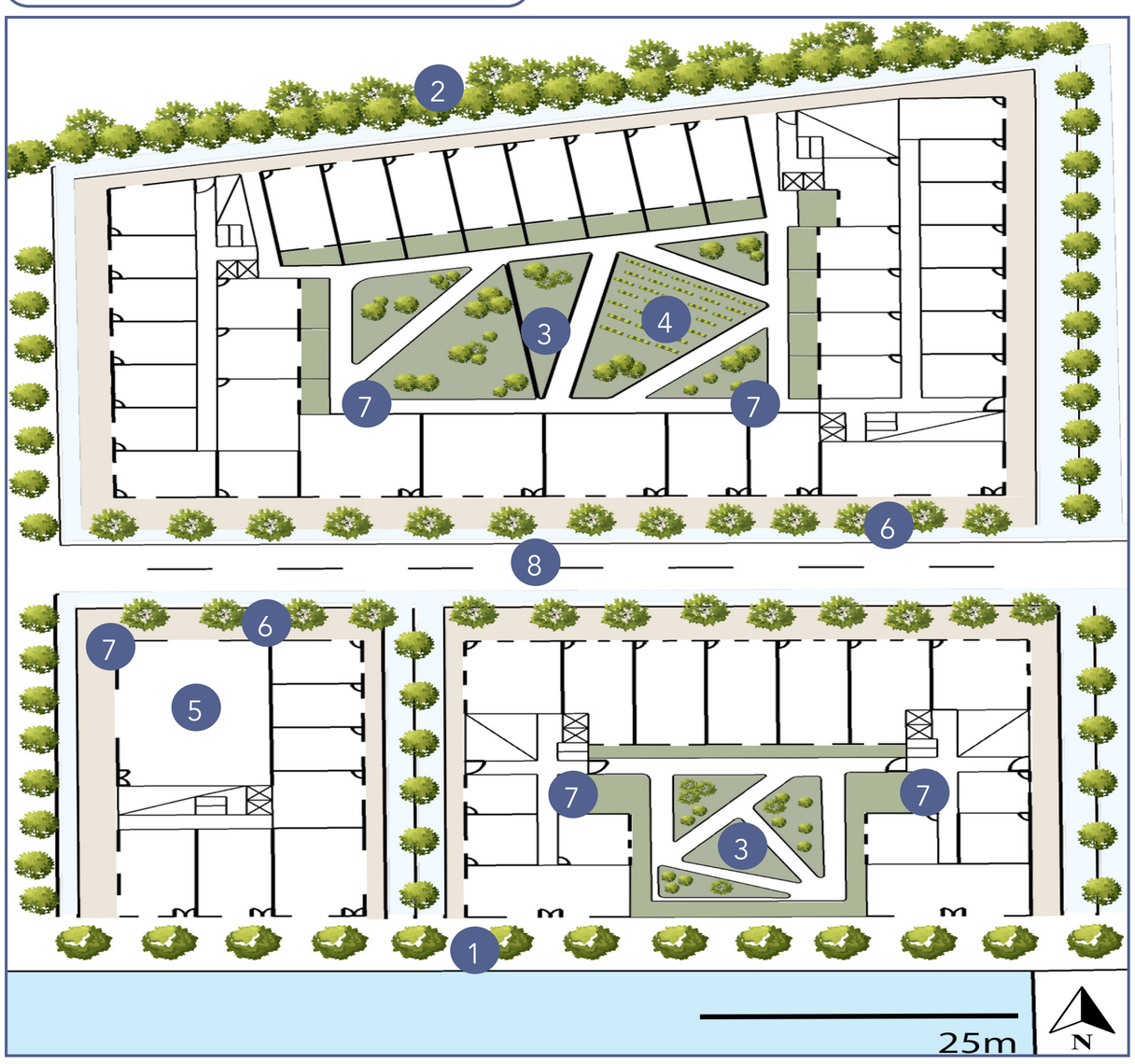
Affordability

Residents of the Canary Wharf and South Poplar social housing register are given priority access to new affordable housing.

Group Masterplan

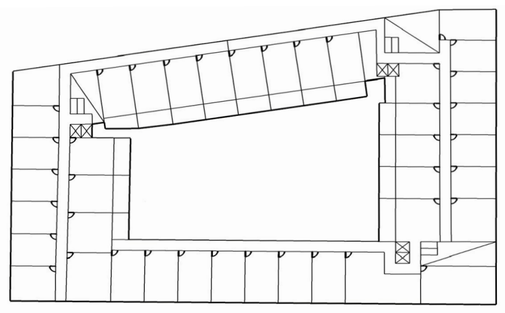


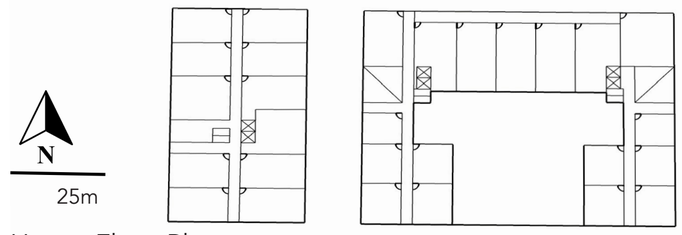
Individual Masterplan - Ground Floor



1. Waterfront Promenade
2. Green Corridor
3. Communal Gardens
4. Food Planters
5. Community Centre (GF)
6. Street Planting
7. Bicycle Parking
8. Primary Street

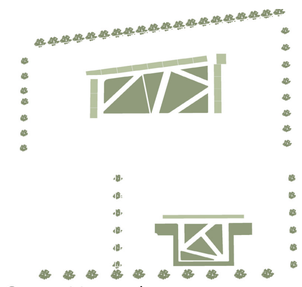
The initial masterplan has gone through various changes for the design principles stated above to be achieved. Final design features have included changes such as a perimeter block on the northern edge of the site to reduce inactive edges while also increasing density across the whole site. Furthermore, the activition of the edges bordering the site's waterfront have allowed for this area to continue as a public hub of the site and create an important East-West connection within the site.



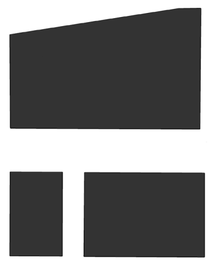


Upper Floor Plan

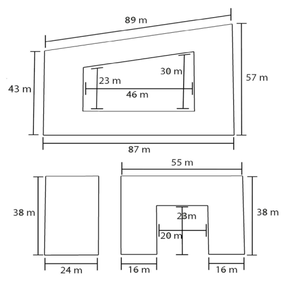
Morphological Layers



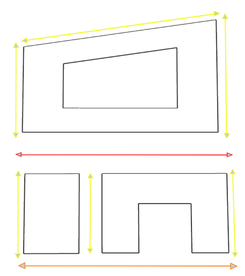
Green Network



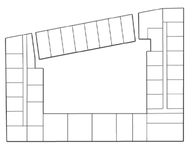
Blocks



Block Dimensions

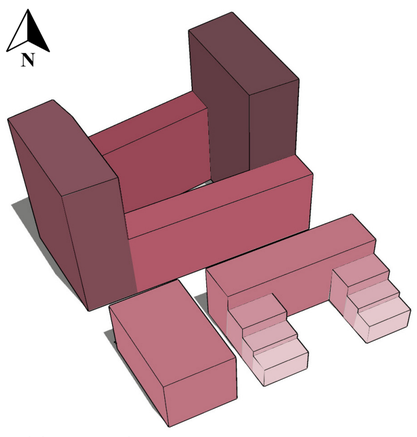


Network



Plots

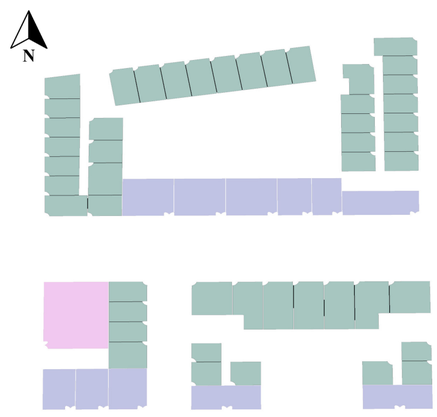
Block & Building Designs



Building Heights

- 26 Floor (78m)
- 24 Floor (72m)
- 15 Floor (45m)
- 12 Floor (36m)
- 10 Floor (30m)
- 7 Floor (21m)
- 5 Floor (15m)
- 4 Floor (12m)

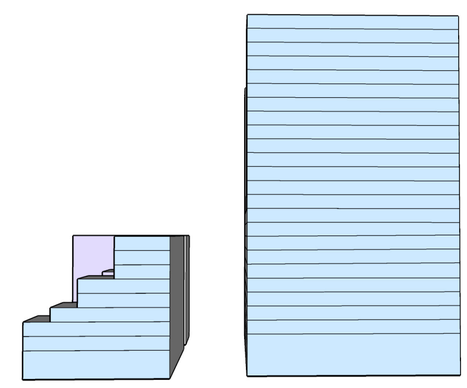
Building heights have been designed to reduce shadow impacts on public spaces and communal gardens while still ensuring a high density across the site. Low-rise towers have been strategically placed along the waterfront to allow for greater visual permeability.



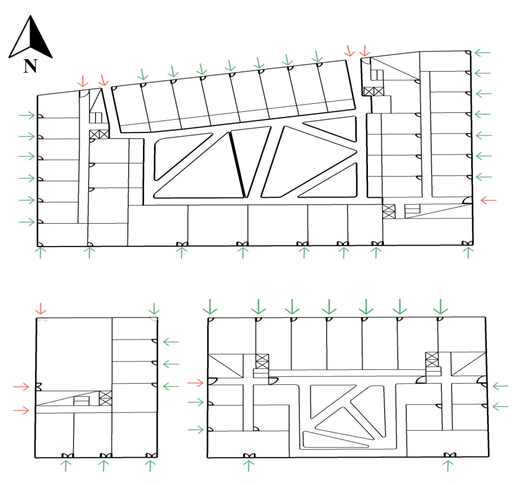
Ground Floor Uses

- Residential
- Commercial
- Community Centre

Ground floor uses include commercial units along the primary public spaces to increase edge activity and create higher quality public realm design.
A community centre facing the market space of the group masterplan will extend the public centre of the proposed Billingsgate site and invite people of the communnity to these areas.

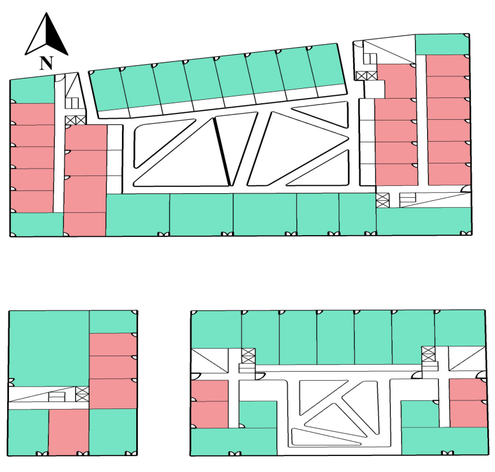


East Elevation



Access Points (GF)

- Communal Access
- Private Access



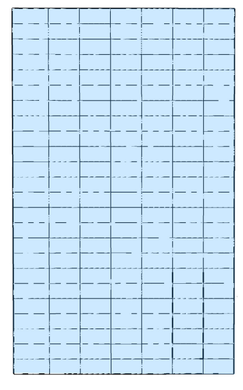
Aspects GF

- Dual Aspect
- Single Aspect

Buildings have been designed to include a mix of housing types and sizes to provide for various different types of tenants for affordable housing.

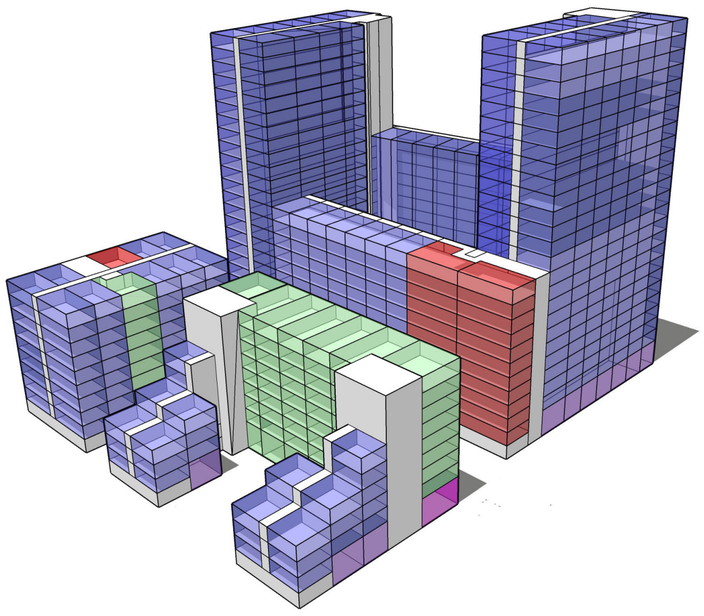
All buildings include various access points on the ground floor level including access to circulation cores for units without street level access and upper floor units.
Other access points include ones to ground floor units that have been placed to face the streets to mitigate inactive edges surrounding the blocks.

Buildings have been designed to include a majority of dual aspect units on ground floor levels and will include a balcony feature to help maintain quality and design while also ensuring architectural distinctions between market housing and affordable on the entire site are reduced.



West Elevation

Floor Plans



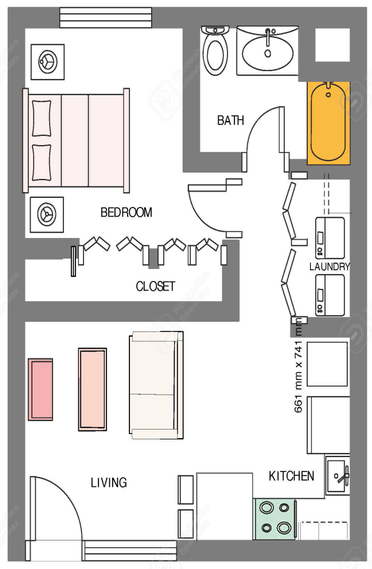
1 Bedroom Flats (~50sqm)

3 Bedroom Flats (~80sqm)

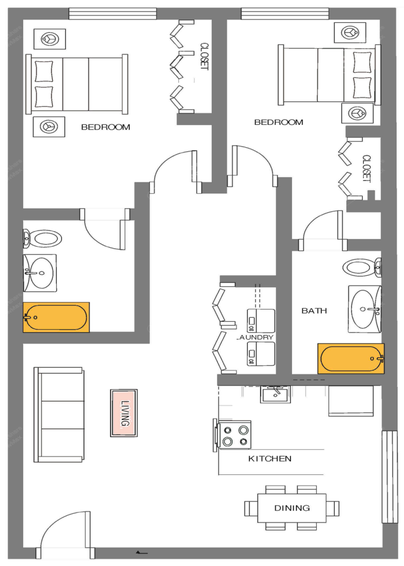
2 Bedroom Flats (~70 sqm)

Duplex Type 1- 2 bedroom (~50sqm each floor)

Duplex Type 2 - 3 bedrooms (~70sqm each floor)

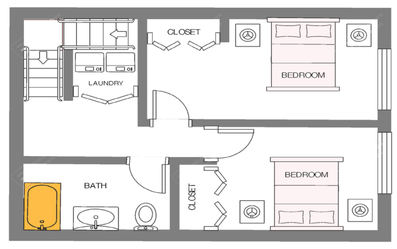


1 Bedroom Floor Plan

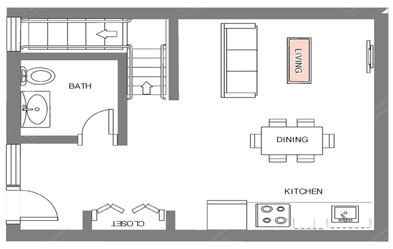


2 Bedroom Floor Plan

First Floor

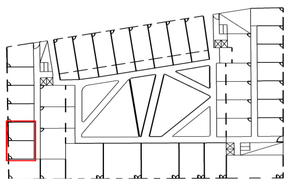


Ground Floor



Type 1 Duplex

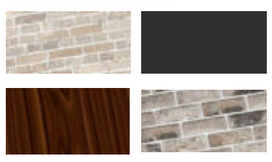
Building Facade



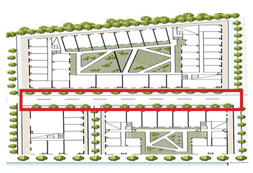
All buildings have been designed to a high-quality and uniform facade to create units of different types to be indistinguishable from each other.
All ground floor level units will receive small front garden spaces to distringuish between communal pathhways and private access, while only some units will also include private back gardens.

The floor plans above represent suggested layouts for 1 and 2 bedroom flats, including the layout of ground floor duplex units consisting of two floors.
Plans have been designed to be flexible and to accommodate the needs of people and families on the Tower Hamlet Social Housing Register. Pre-approved designs with internal fittings can easily be applied to volumetric construction, allowing for the design phase of modular units to be shortened. A challenge will be to design units that can universally acommodate the needs of the people and families of these residents.
Modules must be built to allow for scalibility and repetitive mass construction. The units designed for this masterplan can be divided into four different sizes. Three of these unit sizes are reoccur freqently through the buildings and would be better suited for a modular construction approach. Due to the design of the building for this site some units are different in shape and therefore pose a challenge regarding scalability of a modular construction. Engagement from the local community will be vital in the designing of off-site construction units.

Materials



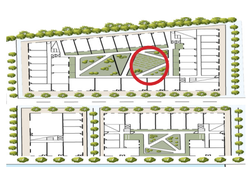
Public Realm



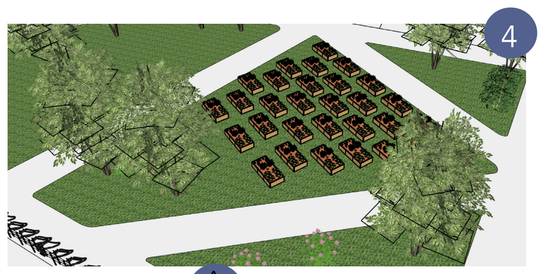
This street has been designed to be the primary street through from East to West. Vehicular access to the site is limited to this street but priority is still given to pedestrians and cyclists in the design of this public realm through wide pavement and cycling lanes.

Street planting

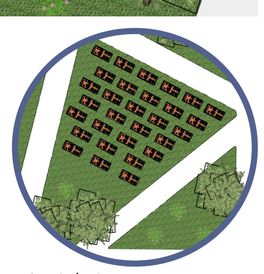
Aerial view



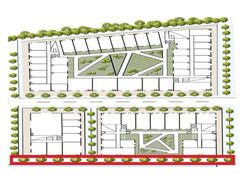
Communal garden space has been prioritised over private back gardens. This has presented an ideal opportunity for the use of urban farming planters. Residents of the building wil be able to engage in the farming as well as reap from the food grown.



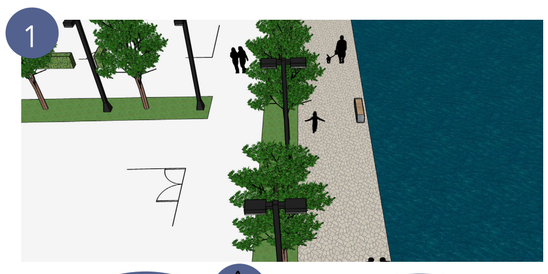
Urban farming



Aerial view



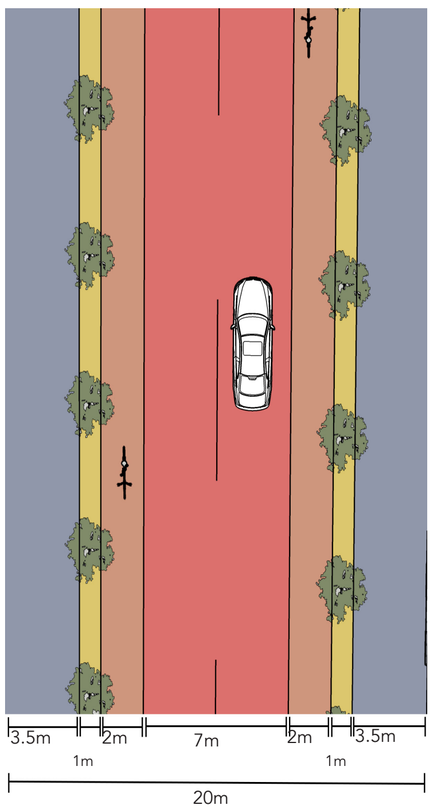
The waterfront promenade serves as primary movement network through the site. By designing a wide shared space with no vehicular access and including commercial space alongside activates the waterfront and creates a high quality public realm for people to enjoy.



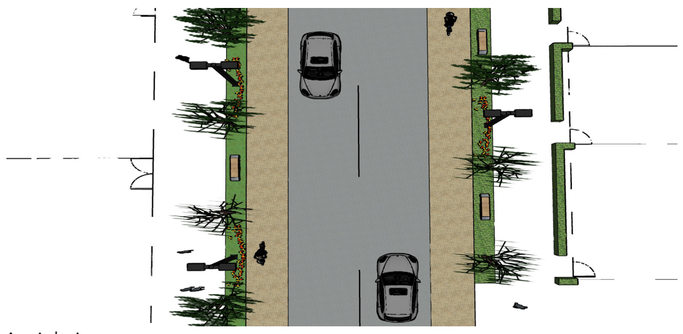
View to water

South-view

Street Sections

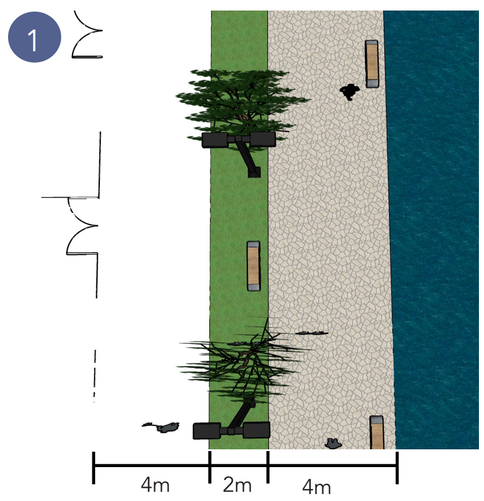


The design of this street includes wide pavements to assure priority to pedestrians is continuously given while still allowing a carriageway for motoverhicles to pass through the site. Furthermore this street is designed to have wide cycling lanes on either side allowing cyclists to move freely and securely alongside motorvehicles passing through.
Building heights bordering this street edge have been strategically designed to be lower to create an open environment on the street and limit shadows throughout the day. Street trees and diverse planting will create a green avenue on the street for a connected and visually attractive public space.

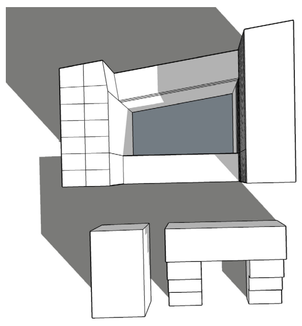


Aerial view

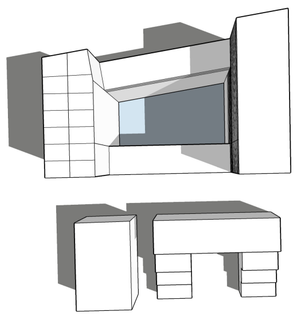
The promenade shown on the right features eight metres of shared space for pedestrians and cyclists. In between these areas of shared space the promenade has been designed to include soft and hard furniture. Trees will form a corridor in the middle of the street and will be accompanied by street lighting to create a safer environment. The design for the promenade will include benches to allow people to sit and stay in this attractive public space.



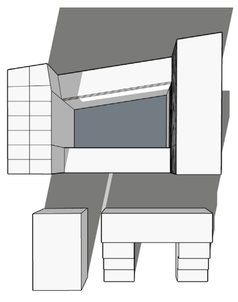
Shadow Analysis



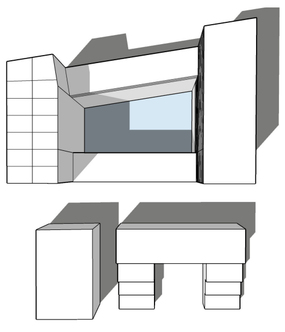
Shadows - January (10am)



Shadows - July (10am)



Shadows - January (12pm)



Shadows - July (12pm)

The images shown here identify the placement of shadows on the site. These images show the shadows at 12pm and 4pm in January and July to allow for comparison of winter and summer times.

The analysis shows that the public spaces within the site are likely to receive high levels of sunlight throughout the day with more natural light coming through in July. This will allow the spaces to retain activity regardless of the season as areas with little natural lighting are far less likely to be visited and experienced by people. Use of public spaces will promote healthy living and reduce anti-social behaviour.

With regard to the buildings, due to the high-rise nature of the towers on the north side, specifically on either end of the block residents will have great incentive for the use of their balconies, increasing natural surveillance and the overall quality of living.

The height of the Canary Whard towers and the future towers of the North Quay development could create a challenge for natural sunlight to penetrate into the site and activate public realm and communal gardens.

Financial Viability

Housing Stock	No. of units
1-Bedroom Flat	883
2-Bedroom Flat	16
3-Bedroom Flat	70
Duplex Type 1	32
Duplex Type 2	16

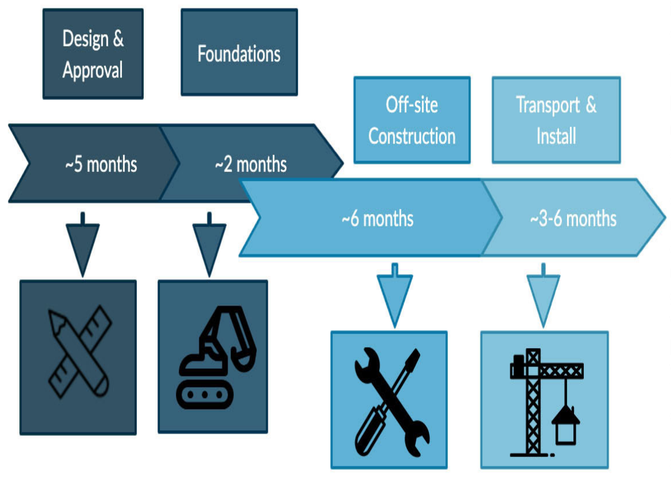
Affordable Housing	No. Units	Percentage (%)
1-Bedroom Flat	353	80%
2-Bedroom Flat	6	80%
3-Bedroom Flat	28	80%
Duplex Type 1	13	80%
Duplex Type 2	12	80%

Market Housing	No. Units	Percentage (%)
1-Bedroom Flat	177	20%
2-Bedroom Flat	4	20%
3-Bedroom Flat	14	20%
Duplex Type 1	7	20%
Duplex Type 2	4	20%

m2 / unit	£ / m2	£ / unit
55	145.0	£67,872
70	145.0	£86,383
80	145.0	£98,723
100	145.0	£123,404
143	145.0	£176,468

Capital Profit (All Scheme Costs)	10.18%
Capital Profit (Gross Development Value)	9.24%
Residual Land Value Estimate	£81,928,923
Existing Use Value (EUV)	£22,500
EUV + (EUV*Premium)	£247,500
Is Scheme Viable?	TRUE

The results of a viability test through a residual land value has concluded that the development is viable for this specific area of the site with the provision of 80% affordable housing.
However is the same design principles and high provision of affordable housing were to be applied the scheme would likely be found to be unviable. Therefore consideration to increase market housing is recommended.



The diagram on the left is a proposed timeline for a modular volumetric construction project. The timeline has been based on information and research gathered from various modular construction companies and case studies of residential developments that used a modular approach to deliver high quality affordable housing. Modular construction can deliver many different benefits, including lower construction costs and short delivery time, resulting in a faster turnaround. When compared to traditional building approaches, the most notable change in the timeline can be seen between the stages of foundations and off-site construction. Due to the off-site nature of modular building, foundations to a development site can be done simoultaneously significantly reducing time spent. However, modular construction carries practical challenges and issues which need great consideration when planning a development. A main challenge when building modular is the issue of scaleability and precision. The proposed site includes different unit sizes all requiring detailed designs which reduces the efficiency of repetitive building of a singular module. This challenge could be overcome limiting types of unit sizes for a development, as well as using pre-approved module designs from companies that would best fit the proposed buildings. Pre-approved designs would also overcome the issue of precision. Off-site construction once completed is unable to be corrected if concerns over the design arise. Therefore, the design and approval stage is one of the most time consuming and important parts of a modular project to ensure high-quality results.