

Strategies Play

The adjacent diagram shows existing play areas within walkable distance from our site.

Play Area for children aged under 5 years old (within 100m walking distance):

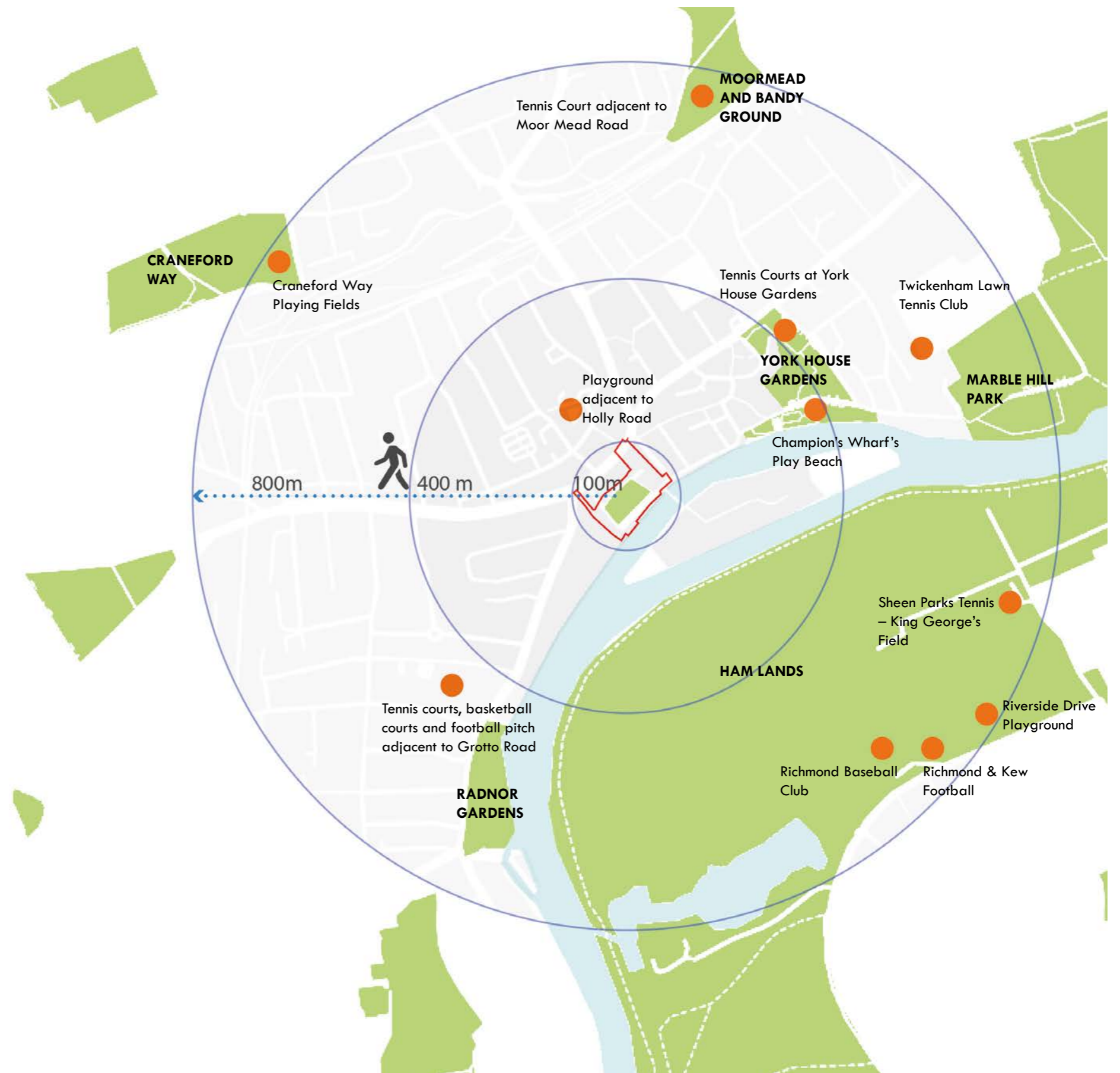
NIL

Play Area for children aged 5 - 11 years old (within 400m walking distance):

- Champion's Wharf's Play Beach
- Playground adjacent to Holly Road

Play Area for children aged 12+ years old (within 800m walking distance):

- Craneford Way Playing Fields
- Jeremy Hooton Tennis Coaching
- Richmond Baseball Club
- Riverside Drive Playground
- Richmond & Kew Football
- Sheen Parks Tennis – King George's Field
- Tennis Court adjacent to Moor Mead Road
- Tennis courts, basketball courts and football pitch adjacent to Grotto Road
- Twickenham Lawn Tennis Club



Strategies Play

Masterplan wide play requiremen (sqm):

Age Group	Child Yield	Required Space for Play	Proposed Space for Play	Maximum Distance from site
0 - 4 years	7.5	75	144	100
5 - 11 years	5.1	51	130	400
12+ years	2.3	23	187	800

Total Proposed Play Space = 343 sqm



Key



0 - 4 years



5 - 11 years



12+ years



5+ years

Strategies Open Space

The plans below shows an increase of existing and proposed open space* within the site boundary. For the proposed plan a breakdown is provided of the areas above and below the flood line, and also between hard and soft surfaces.

*The definition for open space has been taken from the London Plan:
'Publicly accessible space between and around buildings, including streets, squares, forecourts, parks and open spaces.'

Existing Open Space



 Existing Open Space

Total Site Area = 13414 sqm

Total Existing Open Space = 4366 sqm

Park Area= 3293 sqm

Open Space along Promenade = 1073 sqm

Proposed Open Space



 Flood Line

 Softscape outside Floodable Area
 Hardscape outside Floodable Area

 Softscape within Floodable Area
 Hardscape within Floodable Area

HARD (Total: 5431 sqm)		SOFT (Total: 1553 sqm)	
Outside Flood-able Area	Within Flood-able Area	Outside Flood-able Area	Within Flood-able Area
2785	2646	685	868
Outside Diamond Jubilee Garden 1153	Within Diamond Jubilee Garden 1121	Outside Diamond Jubilee Garden 622	Within Diamond Jubilee Garden 523

Total Site Area = 13414 sqm

Total Proposed Open Space Area = 6984 sqm

Strategies Urban Greening Factor

The adjacent plan shows the different areas of greening within the site that correspond to the categories used to calculate the Urban Greening Factor. These areas are then used in the table on the next page to calculate the score of 0.32.

The guidelines recommend a score of 0.3 for commercial developments, and 0.4 for residential development, and as a mixed use development the proposal is achieving a score mid way between these.



Key

	Rain Garden		Flower-rich Perennial		Amenity Grass		Permeable Paving
	Floating Wetlands		Green Roof		Existing Trees (including existing tree relocated within the site)		Proposed Trees
	Climbing Plants						

Twickenham Urban Greening Factor Analysis














Total Site Area (ha)	13414
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Surface Cover Type	Factor	Area (ha)	Ratio
Semi-natural vegetation (e.g. woodland, flower-rich grassland) maintained or established on site.	1.0	819.72	0.06
Wetland or open water (semi-natural; not chlorinated) maintained or established on site.	1.0	1039.58	0.08
Intensive green roof or vegetation over structure. Substrate minimum settled depth of 150mm.	0.8	NA	NA
Standard trees planted in connected tree pits with a minimum soil volume equivalent to at least two thirds of the projected canopy area of the mature tree.	0.8	1450.66	0.09
Extensive green roof with substrate of minimum settled depth of 80mm (or 60mm beneath vegetation blanket) – meets the requirements of GRO Code (2014).	0.7	62.40	0.00
Flower-rich perennial planting.	0.7	930.23	0.05
Rain gardens and other vegetated sustainable drainage elements.	0.7	63.92	0.00
Hedges (line of mature shrubs one or two shrubs wide).	0.6	NA	NA
Standard trees planted in pits with soil volumes less than two thirds of the projected canopy area of the mature tree.	0.6	NA	NA
Green wall –modular system or climbers rooted in soil	0.6	400	0.02
Groundcover planting.	0.5	NA	NA
Amenity grassland (species-poor regularly mown lawn).	0.4	564.71	0.02
Extensive green roof of sedum mat or other lightweight systems that do not meet GRO Code 2014.I	0.3	4.9	0.00
Water features (chlorinated) or unplanted detention basins.	0.2	NA	NA
Permeable paving.	0.1	588.91	0.00
Sealed surfaces (e.g. concrete, asphalt, waterproofing, stone).	0.0	/	/

Total Score	0.32
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Strategies
Ecology & Net Gain Strategy



Key											
	Rain Gardens		Woodland Planting		Lawn		Existing Trees		Existing Tree (relocated)		Proposed Trees
	Herbaceous Planting		Climbing Plants		Floating Ecosystems		Bat Boxes		Generic Bird Boxes		Insect Hotels
	Green Roof										

The diagram opposite outlines the ecology strategy. The biodiverse planting palette seeks to provide a wide variety of habitat opportunities. Berry producing trees are proposed where appropriate to encourage bats and support birds. Bat and bird boxes and insect hotels are provided where suitable and appropriate. The existing insect hotels within the gardens to be re-located within the site.

There is also an opportunity to enhance the ecology along the river with floating ecosystems that are attached to the river wall. This proposal is being discussed with the Port of London Authority and the Environment Agency.



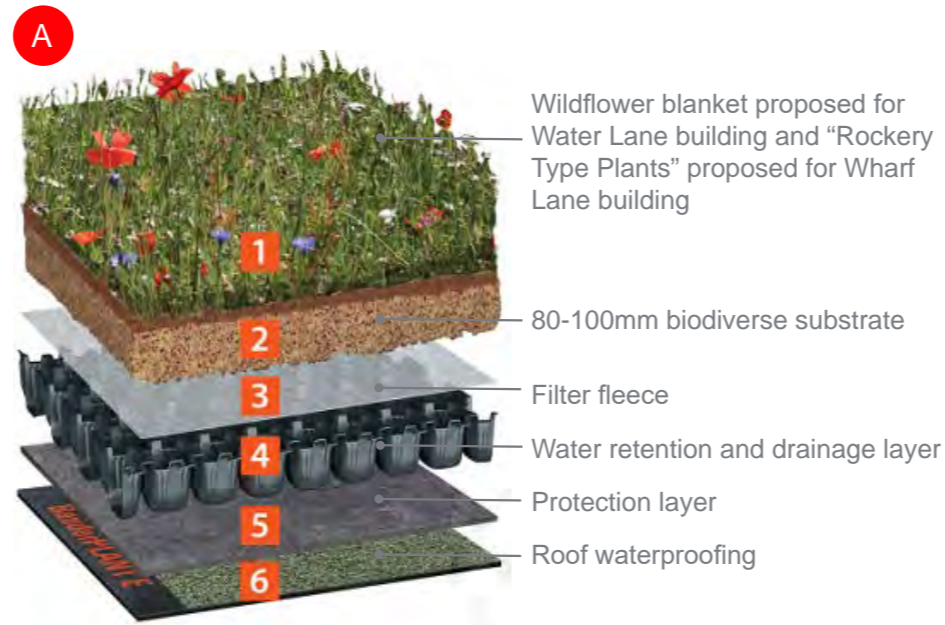
Example of Bio-diverse Floating Ecosystems



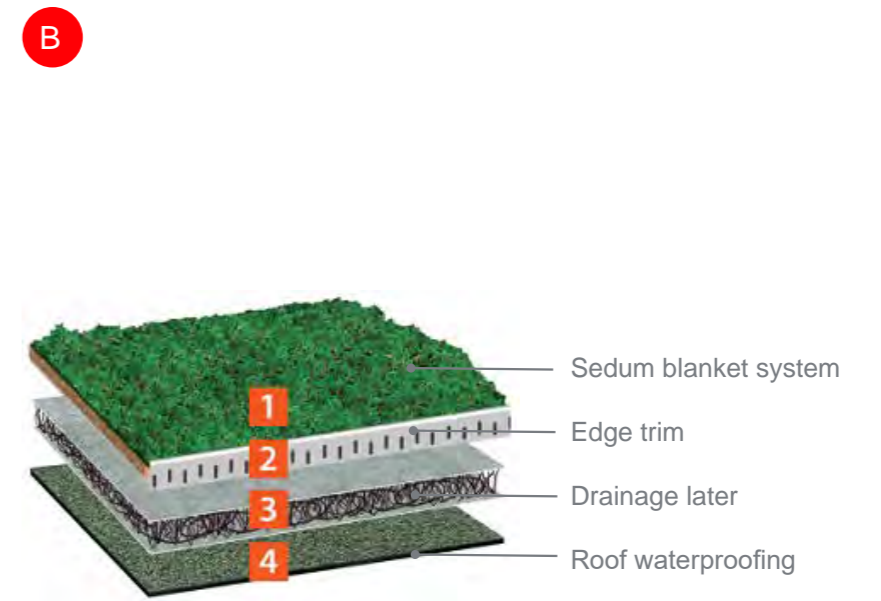
Illustrative Diagram of Floating Ecosystems

Strategies Green roofs

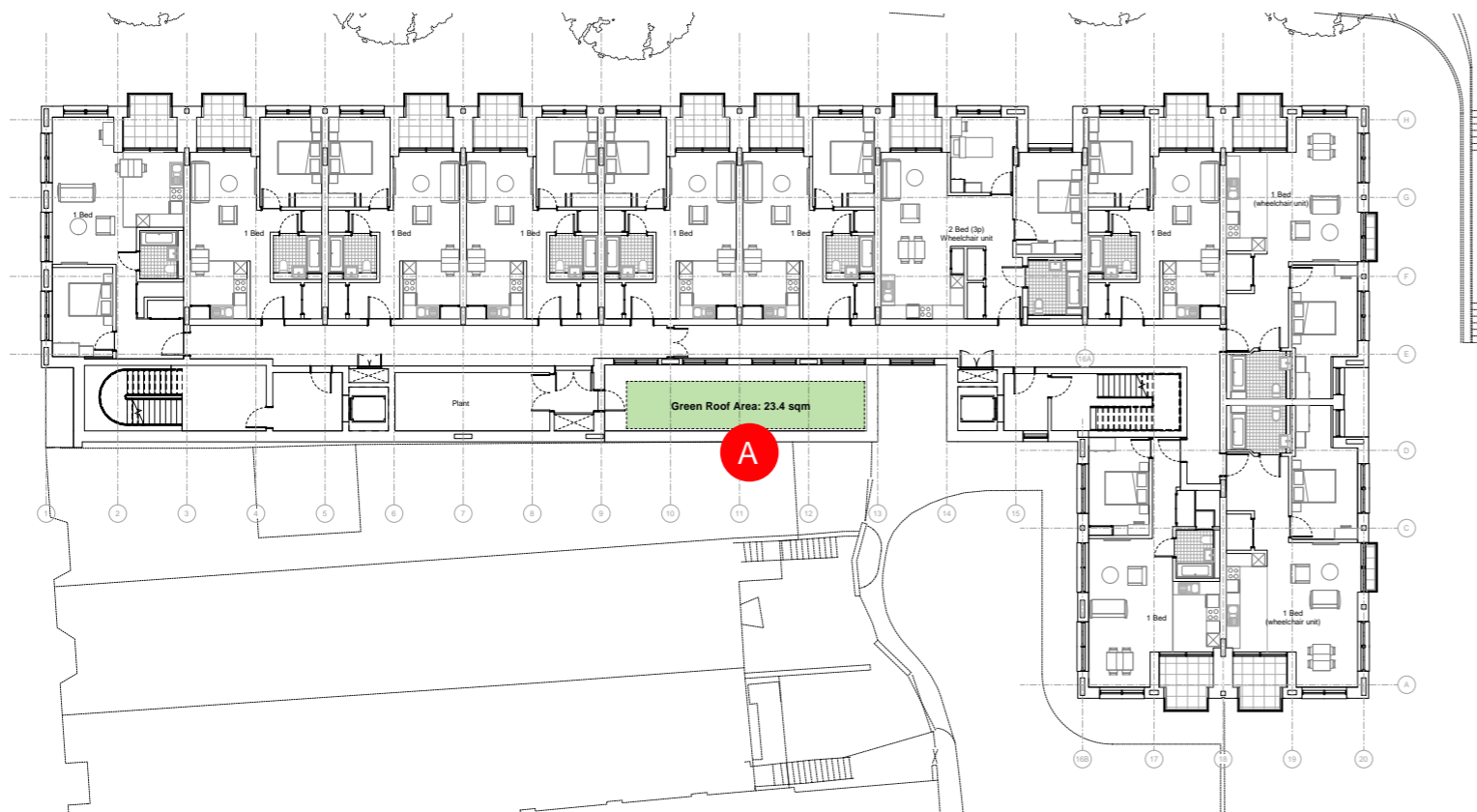
Biodiverse green roofs are proposed on both buildings, with circa 23.4 sq.m of wildflower blanket proposed on top of the single storey bin store and plant space at the west of the Wharf Lane building, and circa 39.0 sq.m of "Rockery Type Plants" proposed on the single storey pub/restaurant foyer in the Wharf Lane Building. 80-100mm of biodiverse substrate is proposed in both instances. Circa 4.9 sq.m of sedum blanket is also proposed on top of the bin store in Wharf Lane.



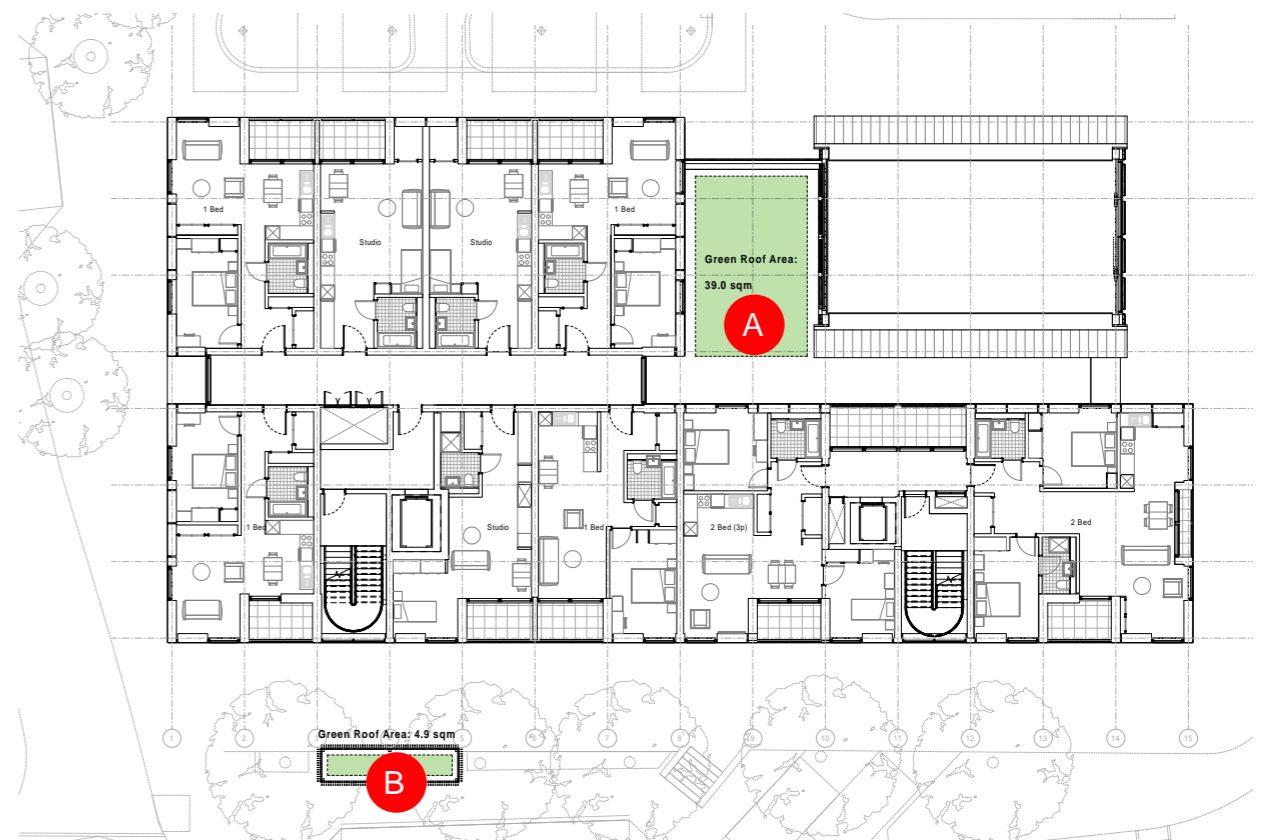
Example of Bio-diverse Roof by Bauder



Example of Sedum Roof by Bauder



Location of Bio-diverse roof on Level 01 of the Water Lane building



Location of Bio-diverse and Sedum roofs on Level 01 of the Wharf Lane building

Key



Proposed green roof locations



Strategies

Bird and Bat Boxes

We are proposing a total of 8 no. bird boxes and 4 no. bat boxes on the south east and south west elevations of the Water Lane building, as shown on the elevation below. The bird boxes will target swifts as requested by the officers, and will be partially shaded by nearby buildings, the gutter and lift overrun. The proposed product is by Bird Brick Houses and fits into the stretcher bond brickwork seamlessly, being faced with the same bricks as used elsewhere and mortared into the external wall. All boxes will be spaced out by up to 6m apart.



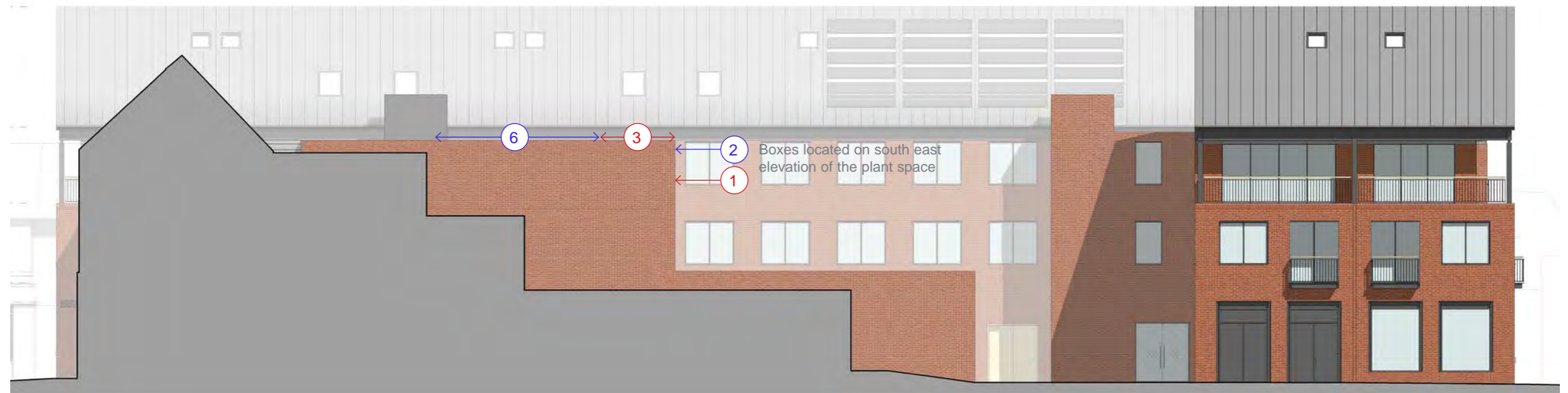
Proposed swift box by Bird Brick Houses



Proposed bat box by Bird Brick Houses



Proposed bird and bat boxes fit seamlessly into the adjacent brickwork by being constructed using the same bricks as used elsewhere



Locations of bird and bat boxes on the south east and south west elevations of the Water Lane building

Key

- 8 Number of bird boxes, targeting swifts
- 4 Number of bat boxes

Strategies

Lighting, Power, Water, and Bins

The lighting strategy is to be carefully designed to ensure the site remains safe at night whilst also maintaining a suitable environment for flora and fauna.

External power points, drinking fountains and bins are to be located in the most suitable position as illustrated on the plan.



Key

P

External power pedestal

DF

Drinking fountains and bottle fillers



Existing Light Posts



Proposed lighting posts with multiple fixtures



Linear lighting integrated within benches and terraces

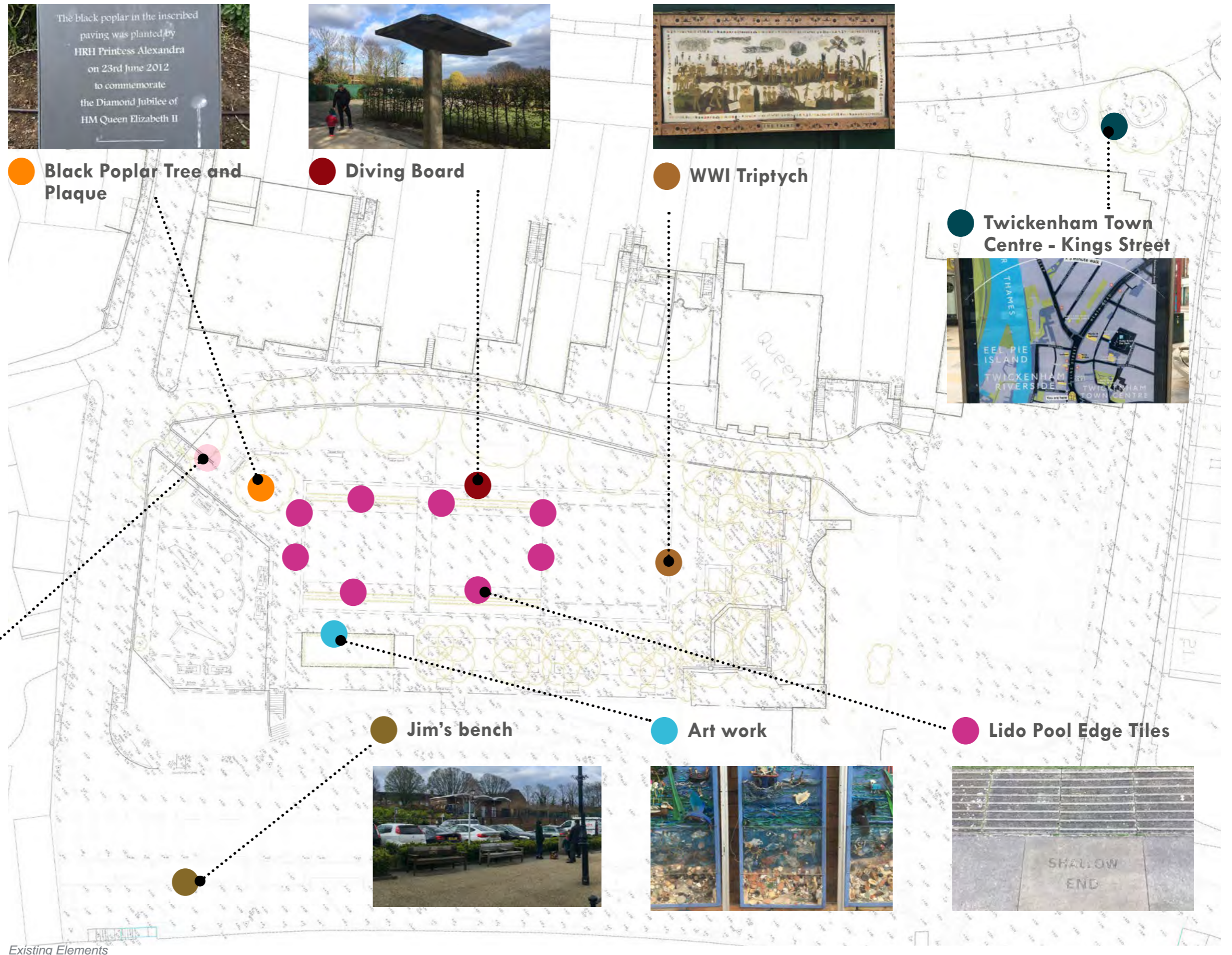
Strategies

Heritage Elements - Existing

There are a number of interesting and valued features within the existing Diamond Jubilee Gardens that could be carefully removed, before construction of the new project starts, and then re-located either within the new gardens or at a different location to be agreed with both the Trust and LBRuT.

This includes artwork, memorial bench / plaque, remnants of the lido, and paving and edging materials that could potentially be re-used.

The adjacent plan identifies these existing features as the first step in discussing whether they are to be re-located.



Existing Elements

Black Poplar Tree and Plaque



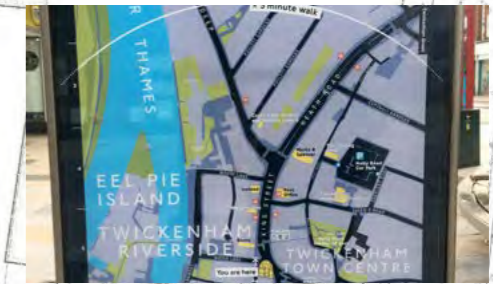
Diving Board



WWI Triptych



Twickenham Town Centre - Kings Street



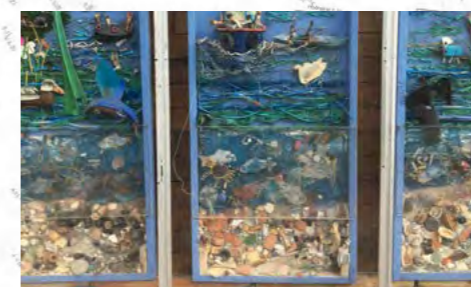
Diamond Jubilee Gardens Time-line



Jim's bench



Art work



Lido Pool Edge Tiles



Strategies Paving and Edges

Paving has been chosen to reflect and enhance the existing character of Twickenham town centre whilst also giving the site its own unique character. Stone pavers have been chosen both for the durability and sustainability qualities as well as for their aesthetic quality.

The colour and texture of the stone paving is to be selected to match the existing surface at the top of Wharf Lane and down Church Street, so that the scheme feels like an extension of these public spaces.

The hierarchy of the different spaces will be subtly demarcated through varying the size and finish of the stone paving, for example larger paving slabs for the town square / event space, and smaller sets along the river promenade.










The edging to the planters will be slightly raised engineering bricks similar to the existing planters along the river promenade. Where possible the existing bricks will be re-used from the site.

The extension of the existing raised tree planters adjacent to the service road will be re-built also in brick with timber top where to be used for seating.



Paving and Edges

Key

	Small paving slabs / Asphalt		Large paving slabs		Resin-bound / In-situ-concrete
	Sand		Medium paving slabs		Self-binding gravels
	Asphalt		Existing retained railing along river		Proposed railings

Strategies
Paving and Edges



Large stone - Town Square



Small stone - River Promenade, Wharf Lane and down Church Street



Engraved paving, small and medium stone paving - wayfinding



Recycled bricks - planters and retaining wall adjacent to service road



Recycled bricks - raised kerbs and retaining wall



Tree pit detail



Recycled timber - terraces and seats along promenade



Self-binding gravels - petanque courts



Playground sand - children's play area

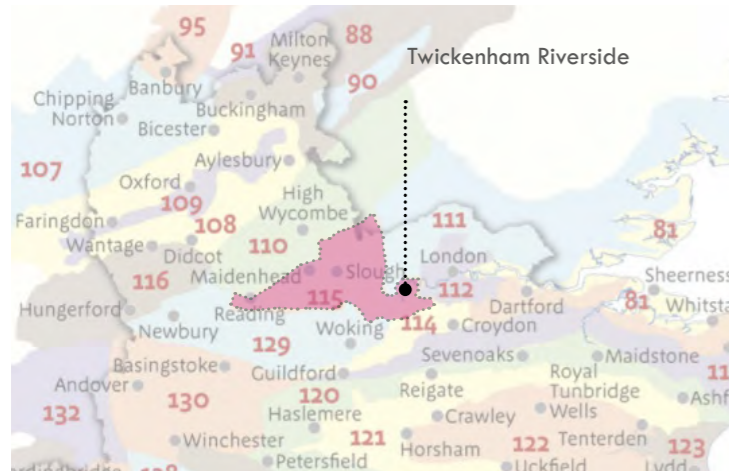
Strategies

Landscape Character Areas

The site sits on the edge of two national landscape character areas as defined by Natural England. The qualities of these two areas provide useful information and inspiration for the proposed trees and planting described in the following pages.

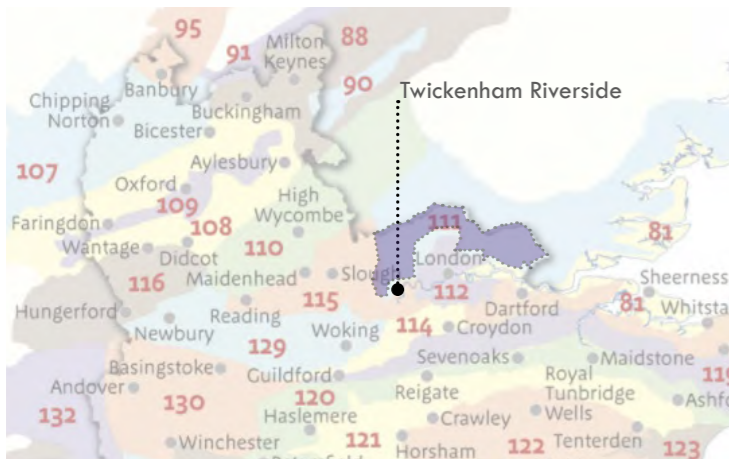
Thames Valley (115)

Geology dominated by London Clay; Flat and low lying, Hydrologic features; River Thames and tributaries, lakes, open bodies (gravel); Pockets of woodland; open grassland parkland, wetlands and meadows Woodlands in North-West edge; Formal historic designed landscapes - Hampton Court Palace and Kew Garden



Northern Thames Basin (111)

- Soil quality ranging from good to poor on London Clay ; Agriculture dominant ; Rich in geodiversity, archaeology and history; Diverse landscapes - wooded Hertfordshire plateaux & river valley to open landscape of predominantly arable in Essex heathlands ; Urban areas mixed throughout, urban expansion feature of area since 16th century



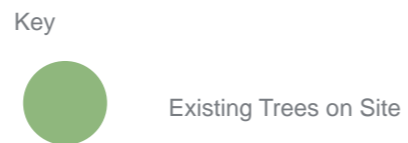
Strategies
Trees - Existing

The diagram opposite shows all existing trees currently on site. For information about the size, species, age, and condition of the trees refer to the tree survey in the Appendix.

41 existing trees (not including the self-seeded group)

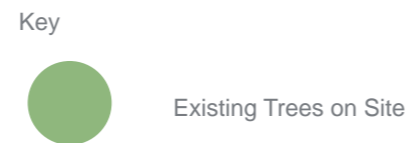
29 trees of different sizes in self-seeded group

70 trees total



Strategies

Trees - Existing trees overlaid onto proposed plan



Strategies

Trees - Existing removed

The scheme proposes:

5 existing trees retained in position

12 existing trees re-located within the site

53 existing trees removed



Key



Existing trees to be retained on site



Existing trees to be re-located on site



Existing trees to be removed on Site

Strategies
Trees - Existing re-located

The existing Black Poplar and the group of umbrella-shaped London Plane trees within the Diamond Jubilee Gardens are to be carefully lifted and re-planted in new positions within the gardens.



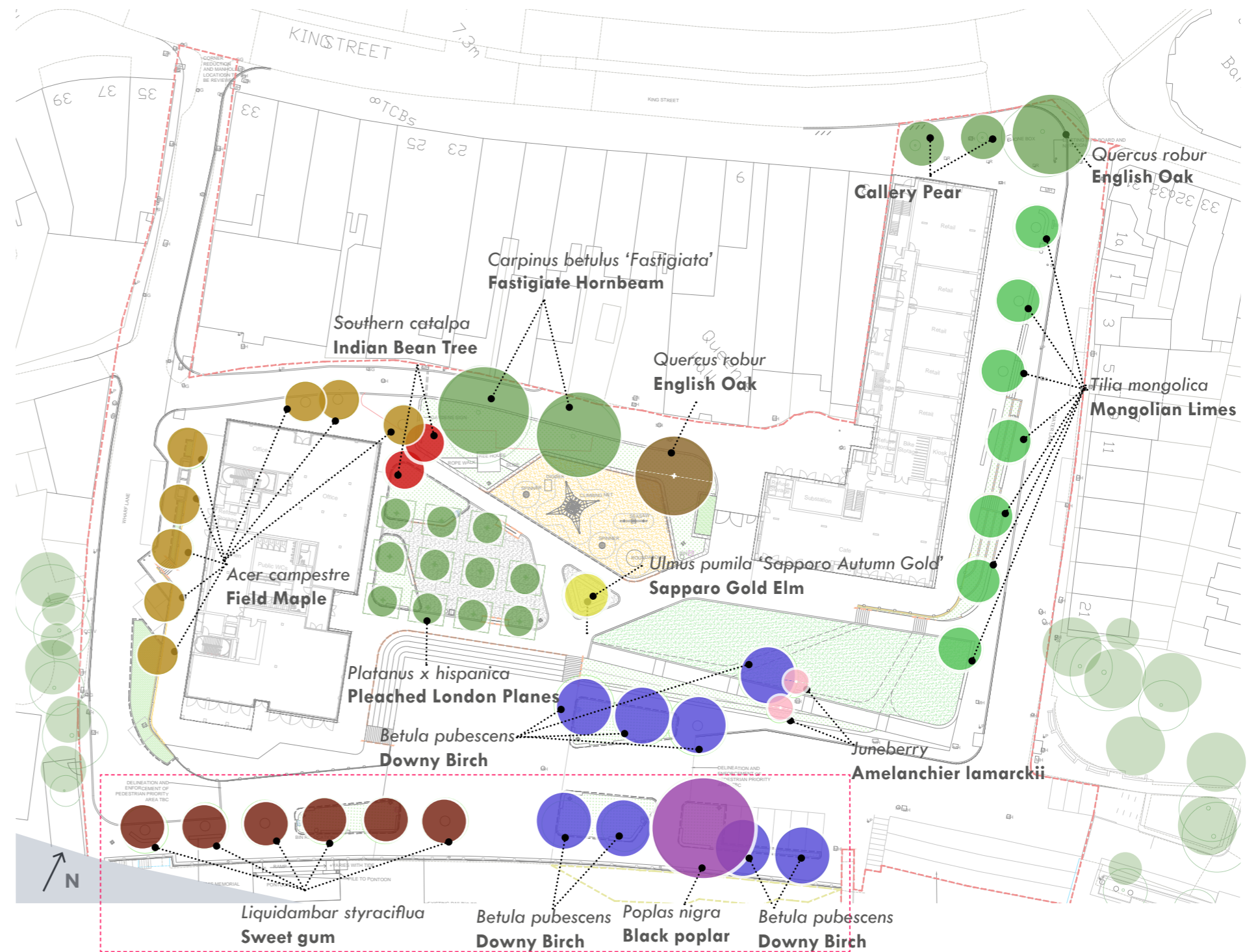
Strategies

Tree - Proposed Tree Species

The tree species have been carefully selected to be suited to the different environmental conditions around the site, and to provide a combination of aesthetic, amenity and ecological value.

The proposed trees species along the riverside promenade are to be confirmed following an investigation into the reasons for failure of the existing Pin Oaks.

The adjacent diagram shows the canopy sizes of tree species after 30 years.



Key



Existing trees to be retained on Site



Proposed tree on Site




Proposed Trees along promenade to be confirmed following soil investigation


Strategies
Trees - Species

 Downy Birch
Betula pubescens



 Black Poplar
Populus nigra



 Indian bean tree
Southern catalpa



 Field Maple
Acer campestre



 Sapporo Autumn
Gold Elm
*Ulmus 'Sapporo
Autumn Gold'*



 Sweet Gum
Liquidambar Styraciflua




 Mongolian Lime
Tilia mongolica



 Juneberry
Amelanchier lamarckii



 English Oak
Quercus robur



Strategies

Trees - Canopy size when planted

The tree strategy has been carefully considered to curate and enhance views across the site as well as maintaining as many high quality existing trees as possible. A wide variety of new trees are also proposed across site improving biodiversity and overall greening.

35 new trees

5 retained in position

12 re-located

52 trees in total

The adjacent diagram shows the canopy sizes of existing trees and proposed trees when planted. The size of proposed trees when planted used to work out the canopy size on the plan is 35-40cm girth.



Key



Existing trees to be retained on site



Proposed trees on site

Strategies

Tree - Canopy size after 30 years

The adjacent diagram shows the canopy sizes of the trees after 30 years.



Strategies

Tree - Soil Volume

The strategy for providing soil for the existing and proposed trees is to design tree pits that exceed the minimum soil volume required per tree, and where possible to link tree pits in larger and longer soil trenches.

For example, the proposed tree planting along the riverside are in a combination of open planting beds and structural cell systems below the paving - and these can be linked below the surface in a continuous trench so that the trees can share water and nutrients.

In addition to trees in open planting beds and tree within cell systems below paving, the third proposed tree / soil detail is the structural soil proposed underneath the re-located pleached London Plane trees. This will allow the London Plane trees to share soil in this area, and also to lay the gravel surface above to be used for petanque.

The existing Hornbeam trees along the northern boundary in the raised brick lined planting beds are to be given additional soil by carefully extending to the south and east the area of this raised bed.



Soil Volume

Key



Soil volume within planting beds and below ground cell / structural tree pits

Strategies Planting

There is a wide variety of different considerations and constraints that assist with the selection of plant species and mixes to the planting areas illustrated on the adjacent plan.

These include environmental factors such as whether in a flood-able area or shaded under trees - to aesthetic and architectural considerations, such as the desire for visual screening or open views over planting, and providing seasonal change and interest throughout the year.








The plans and plant images on the following pages describe the approach to planting in each of these different areas.

An automated irrigation system will be installed as part of the project to provide water to all the trees and plants.



Planting Strategy

Key

	Rain Garden		Terraces		Upper Gardens
	Floating Ecosystems		River Gardens		Green Roof
	Climbing Plants				

Strategies Planting - Terraces

The planting to the terraces and beds along Water Lane, Wharf Lane, and adjacent to the sloped path up to the gardens has been selected to be tough and hardy that can grow well next busy to paths and spaces.

A combination of perennial and herbaceous flowering plants will ensure that there is greenery all year round, and also that there are colourful flowers appearing at different times throughout the growing season.

The height of the plants has been carefully considered and will be positioned so that you can always see over the top to the view beyond, with taller plants in the lower terraces.



Strategies
Planting - Terraces

Emergent Subgroup

Blue oat grass



Angel's fishing rod



Pittosporum pom pom



Centranthus ruber



Red-hot poker 'Tawny King'



Mullein



Shorter Subgroup

Yarrow 'Moonshine'



Calico aster 'Lady in Black'



Avens



Star of persia



Masterwort 'Claret'



Lamb's ear



Taller Subgroup

Feather reed grass



Oleaster 'Quicksilver'



Switchgrass



Black stem dogwood 'Kesselringii'



Eulia 'Ferner Osten'



Narrow-leaved olivewillow



Strategies
Planting - Upper Gardens

The planting under both the existing Hornbeam trees next to the play area and the re-located London Plane trees around the pétanque courts needs to be shade tolerant, and a mix of native perennial and herbaceous species will be planted as an under-storey to these trees.



Light Shade to Front

Yarrow



Marguerite



Snowflake



Wild daffodils



Primrose



Red campion



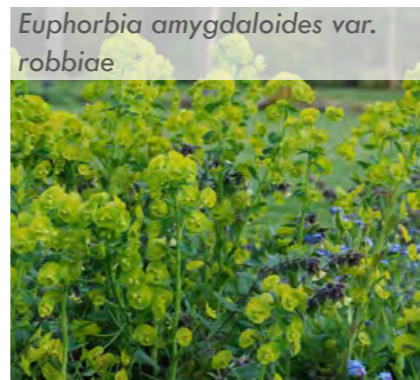
Dark mullein



Spiked speedwell



Spurge



Purple moor-grass



Tufted hair grass



Compact guelder rose





Shade at Rear

Bugle



Meadow geranium



Cuckooflower



Yellow archangel



Solomon's seal



Snowflake



Lungwort 'Bertram Anderson'



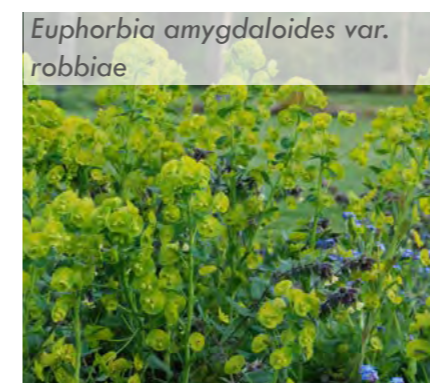
Cowslip



Hart's tongue fern



Spurge



Sedge



Knee holly



Strategies
Planting - River Garden

The lower level of the space next to the river floods occasionally and so trees and plants need to be tolerant of being inundated and wet conditions afterwards.

Aesthetically and ecologically the aspiration is to return some of the native river species to the site and give a less formal and more natural impression.

These constraints and aspirations have guided the plant selection with a mix that includes for example low shrubby willow species.

Planted floating ecosystems that would be attached to the river wall - and provide habitat for native flora and fauna.



Narrowleaf bluestar



Tufted hair grass



Bowles' golden sedge



Centranthus ruber



Red valerian



Bloodtwig dogwood



Purple loosestrife



Siberian iris 'Sparkling Rose'



Mexican daisy



Primrose



Narrow-leaved olive willow



Autumn moor-grass



Strategies
Planting - Rain Garden and Climbers

The planting mix for the rain garden at the bottom of Wharf Lane would be similar to within the river garden planting beds, however the variation is that plants in this space can be selected to grow taller in order to screen the adjacent flood protection wall.

Climbers are to green up wires attached to the flood protection retaining wall, with species selected to ensure flowering at different times throughout the growing season.



Yarrow 'Moonshine'



Star of persia



Joe-Pye weed



Climbers

Evergreen clematis



Globe thistle



Red-hot poker 'Little Maid'



White guara



Clematis 'Freckles'



Culver's root



Feather reed grass



Autumn moor-grass



Star jasmine

