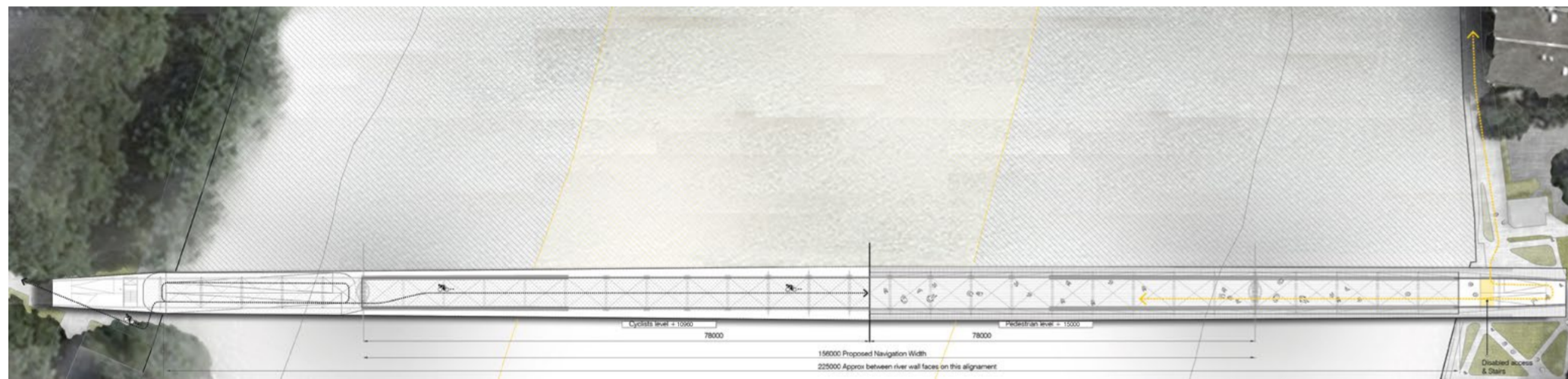
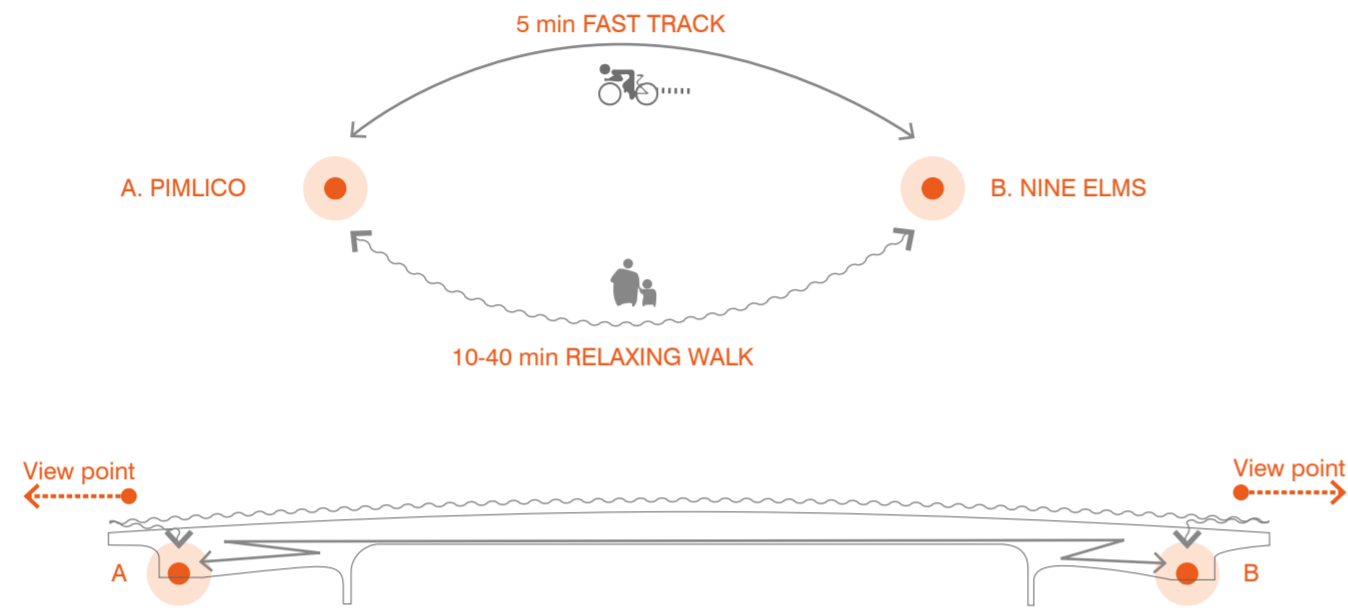


NINE ELMS TO PIMLICO BRIDGE COMPETITION

CHALLENGE 1 Integrating cycle and pedestrian traffic

Our concept enables a perfect separation and integration of pedestrians and cyclists. Cyclists take the route of the horizontal chord, enclosed and protected whilst traveling at speed. Pedestrians take the route of the gentle curve and have plenty of space to meet and dwell to enjoy open uninterrupted views of the river and city. Ramps span between the river piers and bank to bring cyclists safely between the river bank and bridge levels. Pedestrians take a processional stair to reach the bridge and also have the option of using a platform lift located on each bank. The entry points for both pedestrians and cyclists are separate but adjacent, so the 2 routes are integrated at the point of arrival and departure from the river.



Plan

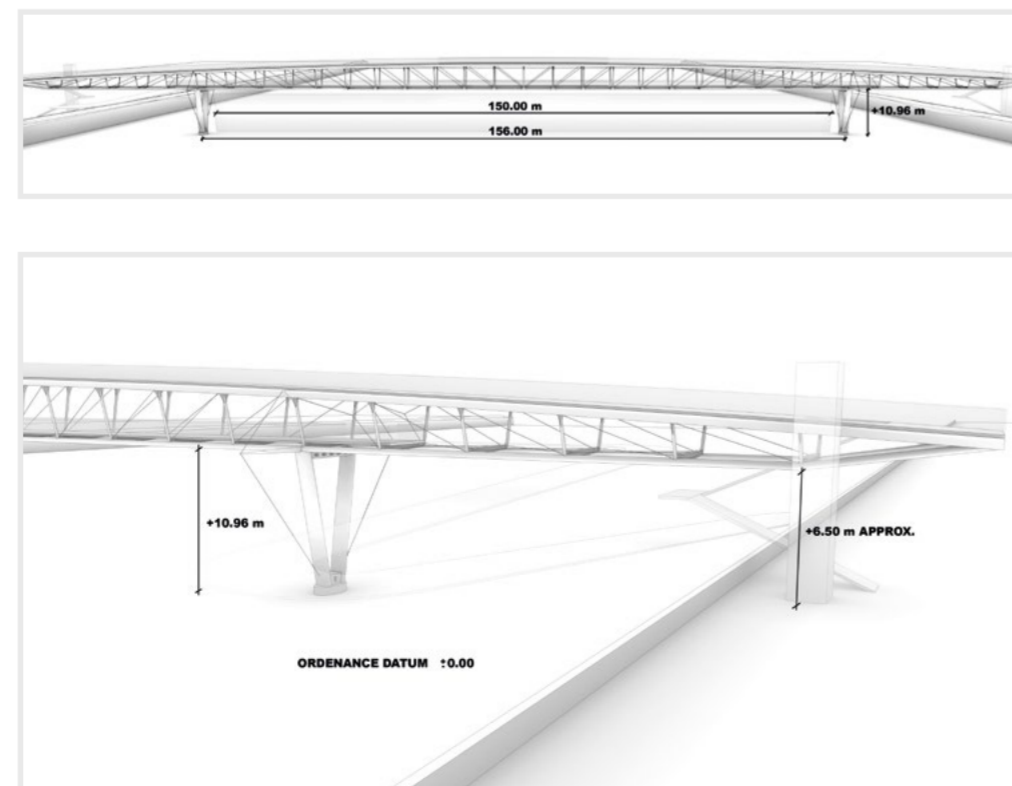
CHALLENGE 3 Height across the river and the inherent access issues

The bridge proposed has a main span of 156m, providing a vertical clearance of 10.96m above Ordinance Datum (and 13.40m above Chart Datum); ensuring the requirements stated by the Port of London Authority.

The design of the structure takes advantage of the fact that the traffics of cycles and pedestrians are separated in two different levels. These two levels constitute the top and bottom chords of a three dimensional truss spanning the total length between piers and reaching towards the Thames banks with symmetrical cantilevers.

The total depth of the truss is adapted to the vertical clearance required for cyclists and permits the design of a very efficient and light structure, where the elements in tension are designed with cables. The structural concept adopted in the design is flexible and versatile and can be easily adapted to future developments of the project.

The access onto and off the bridge is solved by means of stairs for pedestrians, ramps for cyclists and one lift on each side for disabled people. The segregation between pedestrians and cyclists adopted in the design avoids any conflict in the accesses and increase the sense of safety, user confidence and user comfort.



CHALLENGE 2 Place making across the bridge and its landing points

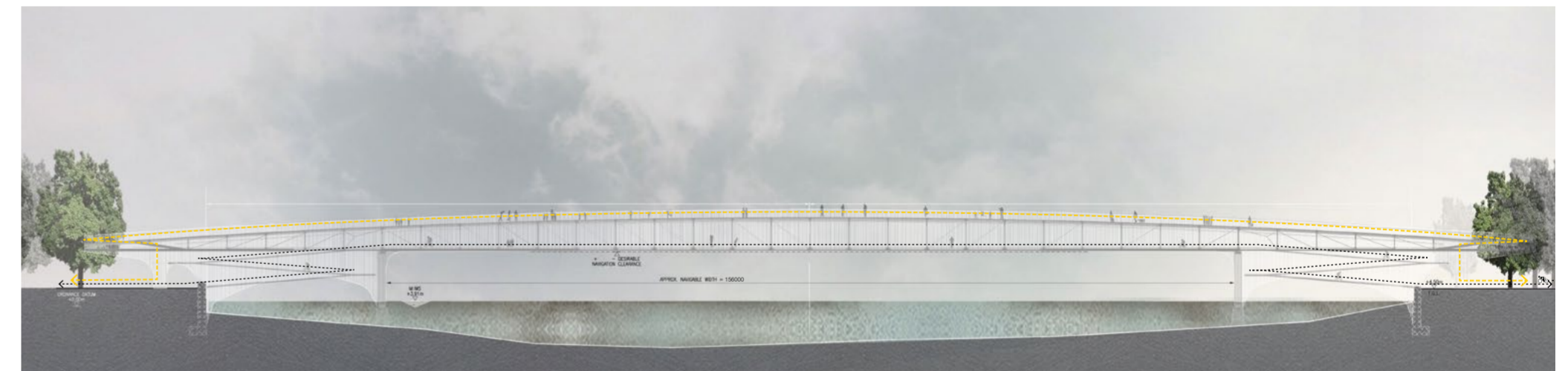
The landing at Elms Quay is constrained by Nine Elms Road and the apartment buildings either side. Our design therefore makes a minimal and delicate connection with the river bank here whilst preserving the existing riverside walk.

The landing adjacent to St Georges Square is already attractive with the existing protected trees. Our bridge preserves the trees and its landing is aligned with the proposed cycle and pedestrian route across Grosvenor Road to St Georges Square.

We have extended both ends of the bridge slightly beyond the landing points to create cantilevered promontories. These provide attractive viewing platforms looking towards St Georges Square on the north side and towards the new American Embassy on the south side. The promontories complete the elegant sweep of the bridge and provide a sense of sculptural drama above the public realm. The landscape design would be developed to create attractive places to meet and dwell at the bridge landing points, to enjoy the view of the river complemented by the effortless poise of our Longbow Bridge, a dynamic and elegant new landmark for the Thames and for London.



Daytime view

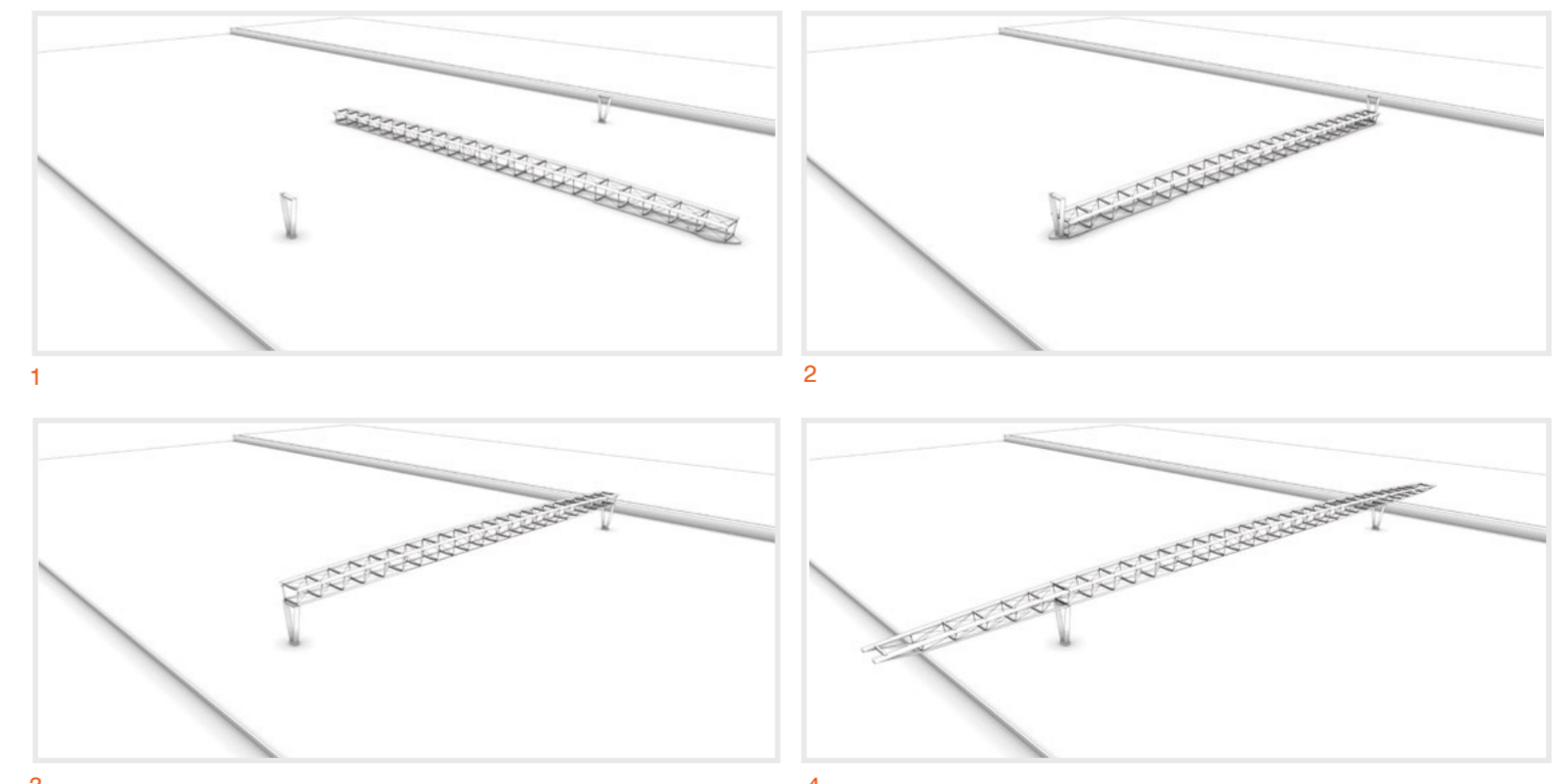


Elevation

CHALLENGE 4 Approach to construction to minimise impact on river traffic

The construction sequence adopted in the design has a minimum impact to the river traffic, with construction manoeuvres in the river expected to last a few hours having a minimum affection and minimizing disruption in the river.

The section of truss spanning the distance between piers will be assembled and then transported to the site sailing by the river. It will be then rotated and lifted over the piers. At this stage, the structure is stable and the cantilevers can be installed from the side spans without encroaching the navigational clearance. Once completed the erection of the main structure, the ramps and stairs can be constructed from the banks.





Team 024 Longbow at Rest – Bridge Concept and Design

We propose the bridge is as slender and elegant as possible, we also suggest that suspension structures requiring tall elements or masts should be avoided. We therefore propose the concept of an extremely slender gently curved structure that touches the river banks and the river lightly. The curvature is pulled taught by a horizontal chord. Then the bridge is held poised and balanced at the required height by the most slender of supports. Conceptually this is like an archers longbow held at rest.

We developed this concept to create an extremely slender bridge on 2 levels, the structure of which is extremely efficient and lightweight. The skeleton of the bridge is designed with steel components, many of which perform in tension. This primary structure acts as a trussed beam spanning the required 156m between pier supports.

The primary structural skeleton is overlaid with a secondary structural screen that provides further enclosure and balustrade guarding for the users. This is made with a delicate filigree of parallel translucent white tubes of carbon fibre and fibreglass. The filigree is aligned vertically in elevation and inclined to follow the tapering cross sectional shape of the bridge. This provides dynamic glimpses of the cyclists traveling within the bridge together with a poetic moiré pattern created by the perspectival layering of filigree on both sides of the bridge.

All steel and metalwork on the bridge has a silver finish to compliment the white translucent quality of the filigree. The internal lighting of the bridge decks and translucent soffits creates a delicate white glow through the filigree and along the sweep of the bridge at twilight and night time.

The central highpoint of the bridge is an ideal place for pedestrians to dwell and enjoy the views of the river and city. This centre point is marked with a slot opening or Oculus creating openness and views between the two levels of the bridge.

The cycle ramps and landings are suspended on rods and outriggers from the underside of the primary bridge structure. The ramps traverse the space between the river banks at the bridge piers linking the river bank cycle routes to the bridges lower chord. Pedestrians have the choice of taking an open staircase or platform lift to the upper level of the bridge. These elements have minimal footprint and impact on the river bank. This maintains the riverside walk and enables the landscape design of the public realm to create amenity and best enhance the setting of the new Longbow Bridge.