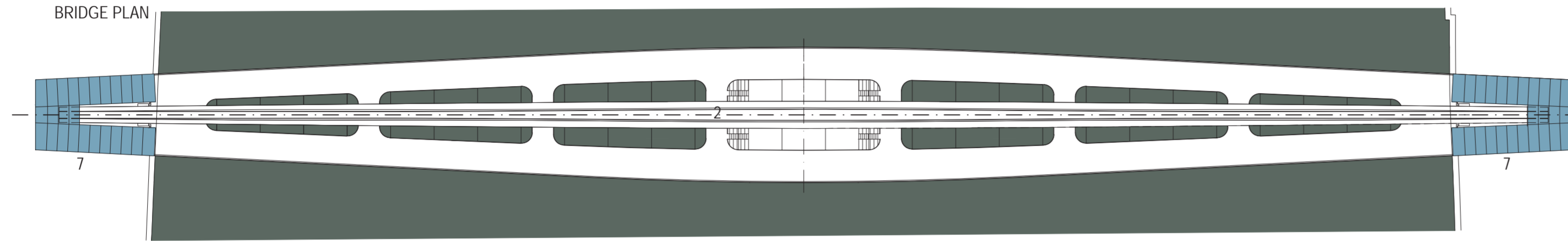
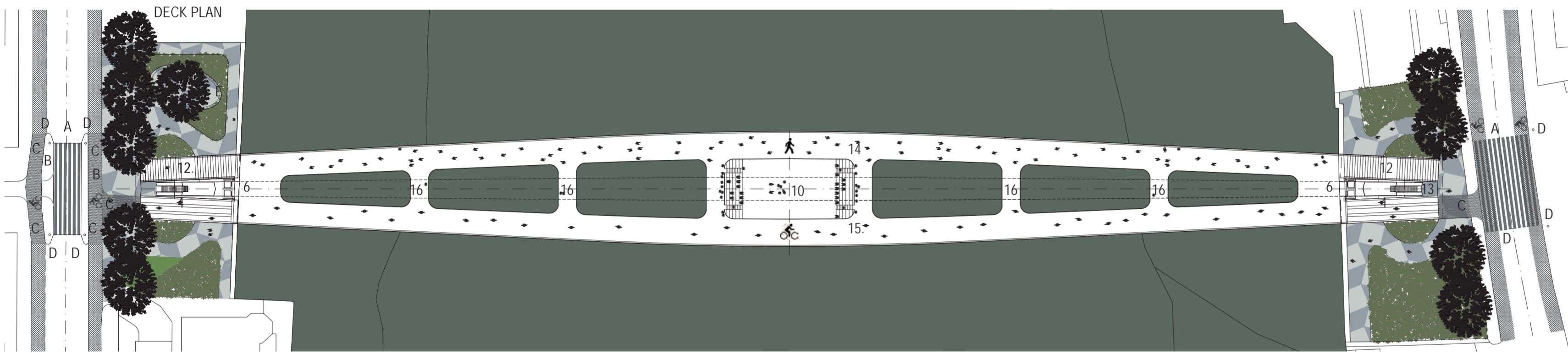


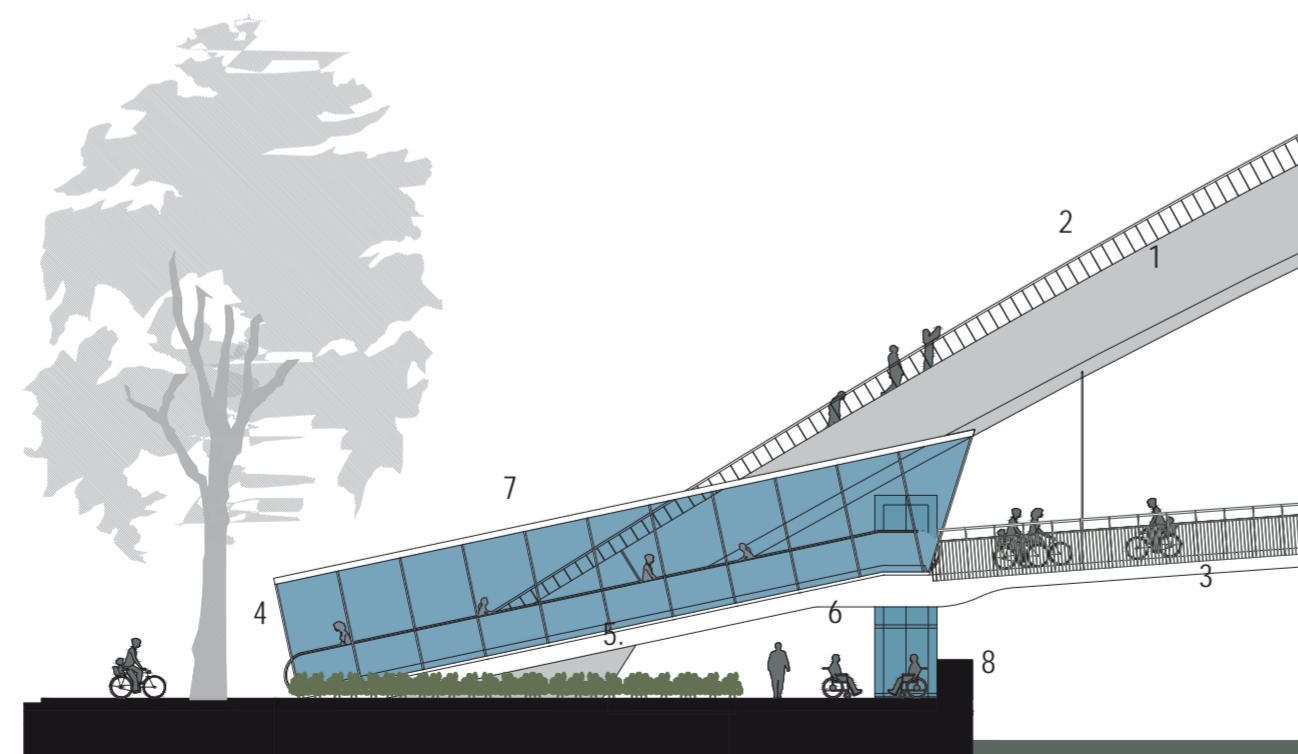
BRIDGE PLAN



DECK PLAN

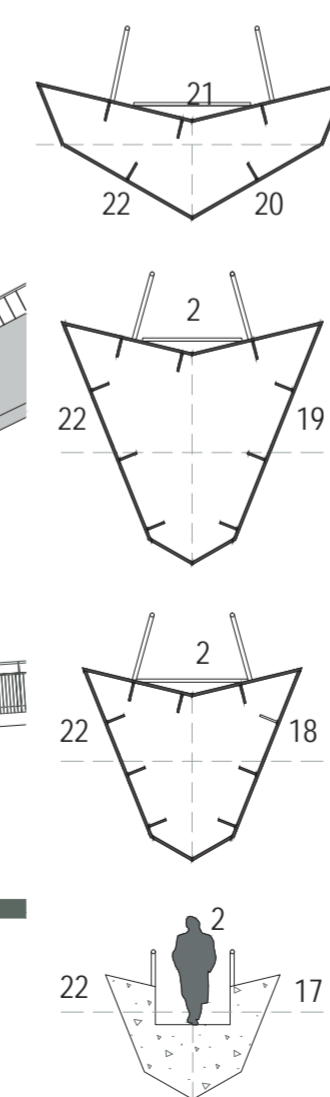


1. Steel arch, shape articulated to reflect actual flow of forces
2. Walkway atop the arch (removable timber steps, allowing access to steel for inspection and maintenance)
3. Main bridge deck in steel – cyclist side / west
4. 3 x Travellator/ Autowalk for cyclists
5. Concrete base to steel arch
6. Twin elevators with 'through' cabins
7. Glass enclosure to Travellator and pedestrian steps
8. Existing river wall untouched
9. Main bridge deck in steel – pedestrian side / east
10. Public access piazza at mid span, glazed sides to provide views but protect from wind
11. Navigation zone
12. 5m wide shallow pedestrian steps
13. Roofed over entrance to walk-atop-the-arch (access controlled by a sliding panel at roof level)
14. Pedestrian deck surface colour coded
15. Cycle deck surface colour coded
16. Deck links
17. Arch section at concrete base
18. Steel arch section at 1/4 arch span
19. Steel arch section at 1/3 arch span
20. Steel arch section at arch apex
21. Wider viewing platform atop the arch
22. Plane of the arch parabola
- A. Zebra crossing as shared space for cyclists and pedestrians
- B. Painted traffic islands reduce width of road and cycle paths (not elevated so that riding over is possible)
- C. Cycling area with pronounced texture to reduce speed over shared space
- D. Traffic lights with 'attention elements'. Lights timed during peak hours, and car priority at off peak times.
- E. New piazza with a tree and perimeter seating at north abutment

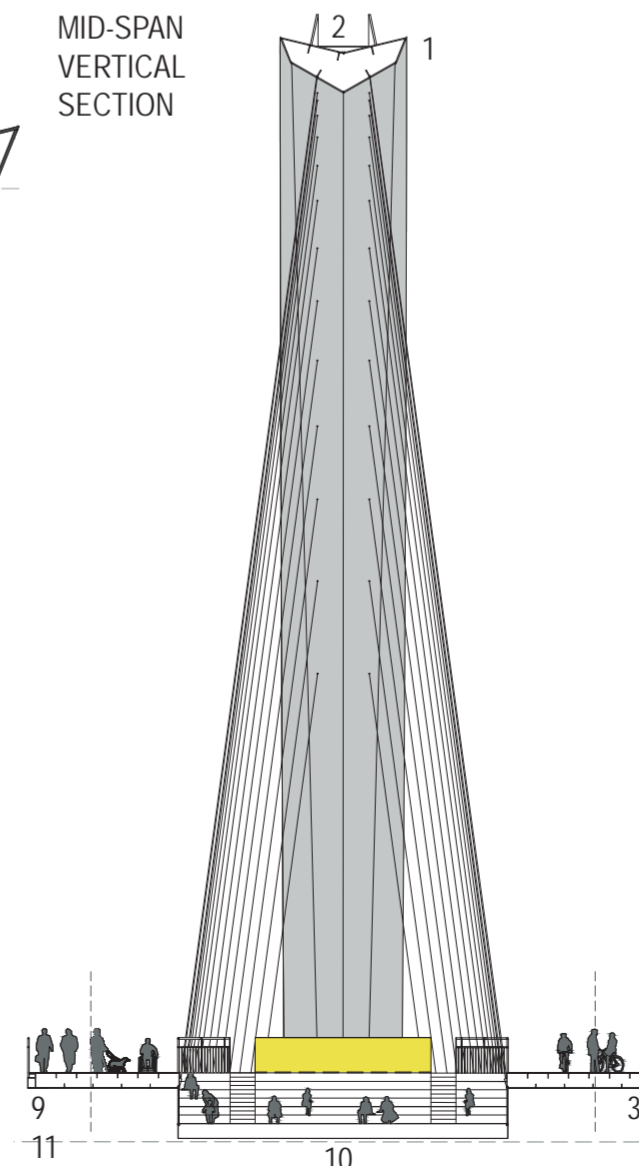


NORTH ABUTMENT

ARCH SECTIONS



MID-SPAN VERTICAL SECTION



CHALLENGE 1 - INTEGRATING CYCLE AND PEDESTRIAN TRAFFIC

Along the bridge cyclists and pedestrians use separate decks, however the use of the bridge can be as flexible as needed, with both user types at times using the whole deck surface. At ground level the cyclists and pedestrians share the road and pavements as shown on the plans.

CHALLENGE 2 – PLACE MAKING ACROSS THE BRIDGE AND AT ITS LANDINGS

A deck that is some 235m long can feel relentless. Linked split deck solution required for structural reasons offered an opportunity to create a public piazza with amphitheatrical seating set into a cavity in the deck at mid-span. In addition both side decks widen towards mid-span from 5m to 6m and so offer rest spaces along the centre of the bridge outside of the main lanes for cycles and pedestrians. By avoiding ramps we have freed some land space at both landings. This would be turned into small fairly formal parks. On the north side, where there is more land available, we are creating also a small land based oval piazza. At both landings there will be strong geometric paving pattern.

CHALLENGE 3 – HEIGHT ACROSS THE RIVER AND THE ACCESS ISSUES

As a result of the suspension system the decks will only be 600mm deep. Using the maximum allowable gradients over the length of the deck we get down to a reasonable level above the ground as explained on this sheet.

Having considered the available land and the urban context we concluded that ramps were not the answer at this location but, as cyclists, we would be very frustrated if forced to wait for a lift to cross the bridge. We thus drew from the Dutch cycling innovation and propose three separate autowalks for cyclists. These are used in Holland even in large underground cycling hubs. The movement direction of the autowalks and number of them are made available to cyclists and to pedestrians can be programmed. Entry onto the bridge is weather protected by light-weight glass canopies covering the autowalks, shallow steps for pedestrians and access to the top-of-the-arch-walk. Disabled access onto the bridge is by way of two through-lifts with the lower landing partially weather protected by the deck and the arch above.



CHALLENGE 4 - APPROACH TO CONSTRUCTION TO MINIMISE IMPACT ON RIVER TRAFFIC

- Construction of this arch bridge is essentially conventional and straight forward. A similar method was used for the construction of the longer and wider (307m span) Pentele Bridge over the River Danube – see photos.
- Steelwork for the bridge will be fabricated in as large sections as possible for road or sea transport, and then brought up the Thames by barges in the largest size pieces permitted by the clearance of the bridges downstream and by the capacity of marine cranes that can access this reach of the Thames.
- In the area between Vauxhall and Grosvenor Bridges temporary supports will be installed between the low tide mark and the main navigation channel of the river, thereby protecting the ecologically sensitive intertidal foreshore.
- The bridge will be assembled into one piece on these supports.
- Then barges will be placed under points near the two ends of the bridge and the weight of the bridge transferred to the barges.
- The bridge will then be tugged into position over its supports at high tide and its weight transferred to the foundations.
- All barge movements will be coordinated with the PLA and notice to mariners issued, apart from the final installation of the bridge which will require a short full closure of the river





Our design – a single tied arch, scores on four counts with one design decision:

1. A large arch (274 m and 41 metres above the ground level) forms a highly visible landmark, and there is not a single arch bridge of this type in London. Despite its large scale it comes right down to the ground level and so doesn't adversely impact on the adjacent urban context.
2. Its clear span dramatically simplifies and speeds up the construction process reducing the need for river traffic restrictions during construction
3. It does not pose any restrictions or danger to navigation where safe manoeuvring of large barges for Cringle Dock Waste Transfer Station is of concern to the PLA
4. It avoids significant cost, and environmental impact, of river piers in this area (and the split deck reduces shading to river bed)

Disabled

Disabled access onto the bridge is by way of two through-lifts with the lower landing partially weather protected by the deck and the arch above.

Public domain

For structural reasons the bridge deck is relatively wide at mid-span. This facilitates a sunken piazza, a new public space suspended above the river. At both abutments formal public spaces come with bushes and trees and decorative paving pattern.

Ramps v Autowalks

Having considered the available land and the urban context we concluded that ramps were not the answer at this location but as cyclists we would be very frustrated if forced to wait for a lift to cross the bridge. We thus drew from the Dutch cycling innovation and propose three separate autowalks for cyclists. These are used in Holland even in large underground cycling hubs. The movement direction of the autowalks and number of them are made available to cyclists and to pedestrians can be programmed. Entry onto the bridge is weather protected by light-weight glass canopies covering the autowalks, shallow steps for pedestrians and access to the top-of-the-arch-walk.

Cyclists / pedestrians

While cyclists and pedestrians use separate decks, the use of the bridge can be as flexible as needed, with both user types at times using the whole deck surface.

Lighting

A mutable interactive lighting environment facilitates night-time rendering of the bridge revealing and emphasising its structure and relationship to the water in a way that is substantially different from its daytime appearance whilst also providing sufficient levels of light to enable safe pedestrian movement. The lighting of the bridge is stimulating, intriguing and enjoyable to those who experience it in close proximity whilst at the same time creating distinctive changing luminous images with varying colour and definition of elements for the distant observer.

Quirks

It is more difficult to book a walk atop the Sydney Harbour Bridge than to get tickets to the Sydney Opera. A walk over the O2 in London is popular. We suggest a top-of-the-arch-walk on our bridge, with controlled access. The views would be spectacular.

Trees

There is no need for any tree cutting at the north and only limited tree removal and replacement on the south.