Nine Elms Bridge

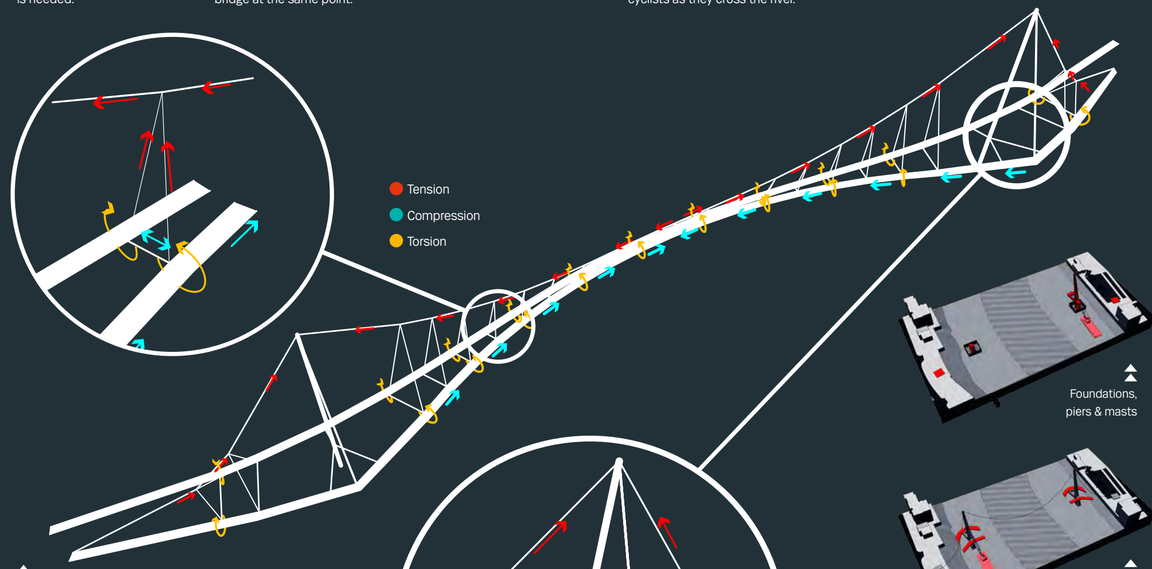
To get the bicycle path to the required height, a long ramp is needed.

By bending the ramp the cyclists and pedestrians can access the bridge at the same point.

Placemaking on the bridge. Viewpoint and destination

The meandering path, will offer different views for pedestrians and cyclists as they cross the river.

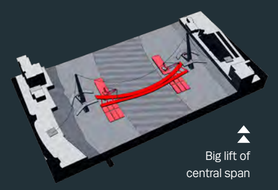
The Bridge is clear of sightlines from the neighbor buildings



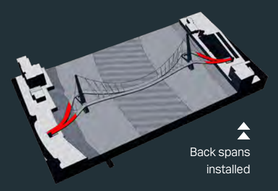
Each deck is supported on its inside edge by an inclined hanger, acting in tension to take loads to the main suspension cable. The hangers generate horizontal forces which are resisted by the cycle deck acting as a compression arch spanning between the piers. Between the hangers, at deck level, a series of compression struts exchange horizontal forces between the two decks. Equilibrium is completed by the deck acting in torsion to resist the eccentric support at only one edge.

Foundations, piers & masts

Main cable, deck at piers



Big lift of central span



Back spans installed

The main suspension cable acts in tension to transfer forces into the inclined masts, which work in compression to take forces into the pier foundations. Twin backstays extend vertically down from the masts and act in tension to resist the forces resulting from the main cables. Two cantilevering 'arms' extend from the pier to anchor the backstays and resist the cycle deck arch compression. These arms as well as a single arm on the opposite side respectively support the decks and restrain them in torsion

North Landing

The bridge will be an integral component of the green infrastrucutre of the local and wider areas. On the north side, this will utilise the existing trees in Pimlico Gardens to create a unique public space for people to gather below the tree canopies and elevated bridge section. The existing cycle superhighway on Grosvenor Road will be seamlessly linked if travelling by bicycle and the quiet streets of St. Georges Square directly accessible for pedestrians from the landing site – so neither of the two user groups will adversely affect the amenity of the other, or those of the surrounding communities.

Place Making

The bridge will of course become an important component of the evolving active travel network in London, however it also needs to respond to the local conditions and the communities that live around it. This social benefit should not be understated – it must quickly become a loved component of the two integrated neighborhoods. We consider the bridge to be an extension of the public space network – a fitting addition to London's world-class squares parks and gardens, a destination in its own right.

South Landing

The entrance to the bridge will be situated in a contemporary public square. The square will manipulate the site levels to create a terraced waterside seating area on the Thames Path link and stepped access onto the bridge. Cyclists will be accommodated with a separate access ramp for unimpeded connection to and from Nine Elms Lane. Pedestrians will be able to join the Thames Path link or carry on over the crossing into Embassy Gardens, thus extending the influence and usefulness of the bridge.

Scale: 1:1000

Pedestrian and Bicycle Integration

To avoid conflicts between pedestrians and cyclists we have designed separate access points at both landing plazas. This approach lowers the risk of pedestrian obstruction to cyclists but also signals the bridge of being equal importance to both sets of users - this clear differentiation will aid integration rather than hinder. During busy commuter hours the plaza spaces around the bridge landings will provide the necessary space to accommodate pedestrians and cyclists queuing to cross the busy Nine Elms Lane and Grosvenor Road. Through careful manipulation of levels and celebrating the existing Plane trees, the northern landing will ensure the cycle superhighway lane will seamlessly link to the Pimlico Plaza providing direct access for cyclists travelling across the bridge.

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Nine Elms Bridge

Architectural Concept

The new Nine Elms Bridge derives its dynamic form, gently curving out as it rises, from an architectural solution. The length of this graceful gesture enables cyclists to ascend and descend the span at a comfortable angle. This also results in a distinctive, curvilinear contribution to the London cityscape. Its sinuous shape, which echoes the meandering path of the Thames itself, will offer the added benefit of introducing different views for pedestrians and cyclists as they cross the river.

A classic suspension bridge, the Nine Elms' structure evokes London's rich industrial legacy, which is particularly evident in the nearby Battersea Power Station. This nod to history is, however, rendered in a thoroughly modern design that incorporates two distinct routes for bicycles and pedestrians. The two paths converge at the center of the bridge, where a platform invites people to stop and enjoy stunning views of the river and city.

An important extension to the city's transportation infrastructure and public space, this bridge will ultimately belong to the people of London who use and enjoy it. Nine Elms Bridge will serve as both a connector of communities and a destination for generations to come.

Structure

The structural form is a modern rethinking of the traditional suspension bridge, with a finely engineered balance of tension and compression elements combining to create an efficient, lightweight, solution. The bridge features an inclined parabolic suspension cable slung between two leaning masts, with double stays extending below to support each deck at its inside edge. The cycling deck acts as a horizontal arch to resolve the inclined forces. The entire suspension structure fits between the two decks to offer unimpeded panoramas up and down river, generating a dynamic elevation to reflect the meandering decks.
A construction approach based around a single lift of the central span decks is proposed. Clearances at the downstream Thames bridges have been checked and this approach is desirable for this specific structure and will also create a key event in the early days of the bridge life.

Lighting

Light will be used for functional and architectural effect and to enhance the user's experience, making the bridge an appealing destination and useful connection. Practically, lighting design will ensure that the pedestrian and cycle routes feel safe to use after dark. The vertical structural elements will not be illuminated at night, making the bridge appear to float effortlessly without support after dark. Lighting will reveal the fluid curving forms of the bridge, differentiating the two routes from each other. The appearance of the bridge after dark will become a new visual icon on the river Thames, without detracting from the views to Battersea Power Station.

Long-life LED sources will be used with intelligent digital control to minimise energy use and enable the efficiency of the sources to be monitored remotely, reducing the need for physical maintenance checks.