

TSP

Technical Solutions in Partnership

Discovering our customers' needs and delivering the correct solutions:
On budget, on time, first time.



Kings Cross New Footbridge

TSP has provided the detailed design for two packages of work on the Kings Cross Redevelopment project. One included detailed design of a new footbridge, refurbishment of the existing service tunnel and engineering the dismantling of the existing listed footbridge. The project was delivered by a multidisciplinary team from bridges, OLE, M&E, geotechnical, environmental, planning and survey, all co-located in the York Head Office, liaising closely with architects BDP.

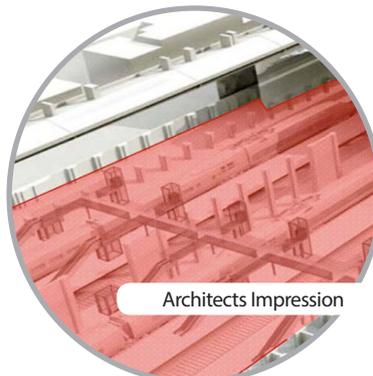
The appearance of the new footbridge is like a blade, with a very shallow steel deck, glass parapets, with no vertical supports and glass lifts and escalators for access to the platforms. TSP developed the original Form A concept into practical detailed designs which were safe both to construct and to maintain. Clever engineering allowed all glass panels to be installed and replaced safely from the deck above, during limited isolation possessions of the live OLE below. The platforms are serviced from the existing tunnel with new service lifts and shafts provided, which are incorporated into the bridge design.

The shallow steel deck was checked for natural frequency and footfall response by undertaking a detailed finite element model of the structure. The team liaised closely with their sub-consultants, Tata Steel Automotive, whose specialist state-of-the-art finite element modelling software and hardware was able to produce robust findings.

To dismantle the historic listed footbridge, the team worked closely with Balfour Beatty, devising a sequence of crane locations and tasks for the Kirow rail mounted crane, to remove the 4 bridge spans. TSP's knowledge of OLE structures in particular, the ease, timescales and systems for moving or lowering, was a key factor in overcoming the complex challenge of working with the crane radius and capacity around all the physical obstructions.



Historic Bridge



Architects Impression



New Footbridge