

Carpenters Land Bridge

Creating an 'Olympic' legacy

£4m

/ Project value

January 2019

/ The project commenced

July 2020

/ The project was completed

Demonstrating “exceptional engineering”, the multi-award-winning Carpenters Land Bridge (CLB) project scooped the “Engineering Award” and the prestigious “Overall Winner Award” at the national Chartered Institution of Highways & Transportation (CIHT) Awards 2020. The innovative installation of CLB was achieved using a Self-Propelled Modular Transporter, allowing our team to manoeuvre and position the complete bridge (66m long, 7.2m wide and 350tn of steel) as a long, eccentrically loaded cantilever, on wheels. It was balanced using a 450tn counterweight. Within an extremely constrained site, across five railway tracks, we completed the launch during a single possession – 15 hours early. Equally as impressive, we completed the installation on Christmas Day (3.30am/3.30pm) – the perfect “present” for the multi-billion-pound East Bank regeneration scheme.

The brief

To support the “continued regeneration” of Queen Elizabeth Park (site of the 2012 Olympic Games), we were tasked by the London Legacy Development Corporation (LLDC) to provide programme and cost certainty in the design, fabrication and installation of a 66m span weathering steel footbridge as part of an NEC3 Option A contract.



“The dedication of everyone involved to achieve such a complex operation, under incredibly challenging time constraints, must be praised.”

Jason Millet
Mace CEO for Consultancy

“Our thanks go to all the hard working construction staff, especially those from GRAHAM and their contractors, who were hard at work over the Christmas holiday to deliver this fantastic new bridge.”

Rosanna Lawes
Executive Director at LLDC

The challenges

It is worth noting that we were awarded the CLB project based on the “quality” of our “solution” and installation “methodology”. The “defined problem” was the need for programme certainty due to a number of factors. In particular, the extremely constrained urban site crossed three Network Rail lines, two DLR lines and Carpenters Road. Rail possessions were, therefore, required. Compounding the challenge further, the proposed December installation date also meant inevitable inclement weather, and the potential for the cancellation of works, or programme over-runs. Three options were initially considered - crane installation, live-launching, and SPMT installation. To address the “challenge”, we successfully implemented the SPMT installation methodology.

The solution

Our “well thought out” planning and design solution was the foundation for the effective coordination, design and prefabrication of the 66m long, 7.2m wide, and 350tn steel bridge. Significantly, the innovative SPMT proposal allowed us to complete the launch during a single possession, enabling the bridge structure to remain balanced whilst maintaining a 40m-long cantilever. By increasing the number of axles, the SPMT had the capability to lift and move the bridge, counterweight and support steelwork (1,050tn total) into position. Furthermore, the SPMT’s manoeuvrability meant that the bridge could be rotated through 90° during installation to land on abutments. Notably, we executed the bridge installation on Christmas Day. Work commenced at 3.30am on Christmas morning and was completed by 3.30pm, therefore, delivering “on performance measures” in compliance with agreed rail possessions (a single-possession, we handed back 15-hours early). Despite the complexity, the installation was completed without any disruption to the rail network.

Outputs & Benefits

- / **Award winning:** The CLB project scooped the “Engineering Award” and the prestigious “Overall Winner Award” at the national Chartered Institution of Highways & Transportation (CIHT) Awards 2020
- / **Complexity:** Believed to be a “UK first”
- / **Safety:** Completed LTI free. The stability provided by the SPMT also reduced the risk of accidents
- / **Certainty:** Our innovative SPMT solution demonstrated “value for money” as its implementation provided programme certainty and avoided potential costly overruns associated with traditional crane solutions due to inclement weather
- / **We go beyond:** The bridge installation was completed on Christmas Day, 2019, and we handed back 15-hours early.



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