

HAMS WAY FOOTBRIDGE: AN EXAMPLE OF ELEGANCE IN HIGHWAY OVERBRIDGE DESIGN

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Summary

Situated adjacent to the meandering River Teme, the site of Hams Way Footbridge is located on the cusp of the ever-growing National Cycle Route 46 to the south-west of the historic town of Worcester. An existing pedestrian signal crossing links the walking and cycle route from Worcester Town to the Malvern Hills Area of Outstanding Natural Beauty. The need for an elevated link over the busy A4440 road is evident from the increased usage of this area by walkers and cyclists as they seek to lose themselves in this historic landscape, as well as the increased importance of this ring road around Worcester.

It was evident from the outset that the sensitivity of this site deserved a balanced approach to design. The bridge is visible from nearby structures dating back hundreds of years and situated on the site of a 16th century English Civil War battlefield. However, the original concept for the crossing was a fabricator-led standardised steel truss footbridge without due consideration for the context of the site. In the early stages of stakeholder engagement it was clear that this would not fit with the aspirations of the client. Through early concept design sessions working closely with the many stakeholders, the design team formulated a modest and simple response to the context of the site and ensured good value for money for the client.

Hams Way Footbridge serves as an example of how to avoid standardised steel highway truss overbridges and replace them with simple architectural concepts that are modest to their surroundings. This steel bowstring truss bridge features smooth curves and intricate connections and is designed to catch shadow lines along its main members to enhance its lightweight appearance. The ramps are rhythmic and speak the same language as the main span with seamless repeating details. Connections are predominantly hidden to retain the flow of the geometry from one side of the crossing to the other.

This paper discusses the importance of the quality of design in highway overbridge structures and how competing stakeholder interests were managed to deliver a quality product. It covers various aspects of the design and construction of Hams Way Footbridge including conceptual design of the structural form, design of the unbraced inward leaning top chords, detailing of the key features such as the rotated hollow sections and tightly curved end transitions, digital and parametric workflows, and the various details adopted to reduce the carbon footprint of the bridge. Innovative work on the lateral dynamic performance of the ramps is also discussed as well as the collaboration between designer, architect, contractor, fabricator and stakeholders.



Fig. 1. Hams Way Footbridge

Keywords: Context; aesthetics; dynamics; structural concepts; complex steelwork; bowstring truss; unbraced arch; curved steelwork.