



Alltask Scaffolding at Sharnbrook Viaduct

SHARNBROOK VIADUCT

Ensuring Safe and Efficient Access for Critical Infrastructure Repairs

Alltask is supporting our valued client, BAM Nuttall, in the ongoing refurbishment of Sharnbrook Viaduct in Bedfordshire. This historic railway viaduct, an essential part of the UK's rail network, requires structural repairs, strengthening, and blast and paint works to the existing steelwork due to age-related deterioration, corrosion, weathering, and general wear and tear to ensure the structures long-term stability and safety.

Project Remit

Our remit for the project is to provide our client with a fully encapsulated access solution that enables engineers and specialist contractors to carry out their survey and refurbishment works safely, whilst minimising disruption to the operational railway and the surrounding environment and floodplains. This introduced significant challenges, particularly regarding the foundation of the scaffold. Our design brief required that all scaffolding systems be anchored to the existing viaduct piers, both internally and externally, to mitigate the risk of instability caused by potential flooding.

With a clear remit in place, Alltask, in conjunction with our design partners Prime Scaffold & Structural Designs Ltd, designed and installed a complex beamed scaffold solution that provides safe access to all areas of the nine span Viaduct. Load bearing primary decks have been installed below the soffit of the structure by way of 780mm deep aluminium beams spanning between the existing brick piers, and these are supported via punched up scaffolds which are tied into the face brickwork. External walkways and access scaffolds have been installed providing safe passage from one span to the next as well as giving access to the external face of the two outside parapets of the Viaduct. To protect both workers and the surrounding environment, the full external façade of the scaffold structure has been encapsulated using shrink wrap sheeting, preventing debris and contaminants from escaping, and protecting workers during the harsh winter months.

Live Railway Operations

A significant consideration was the presence of a live railway line running

alongside the entire structure. While parts of the work occurred during scheduled track possessions, the scaffold had to remain operational whilst trains were running. This required rigorous planning to ensure that none of the scaffold encroached upon the kinematic envelope of passing trains, with careful calculations to accommodate dynamic loads from train movements.

Proximity to Electrical Overhead Line Equipment (OLE)

The scaffold was constructed directly beneath the over line equipment. Managing the risks associated with electrical hazards was crucial. Our Design Risk Assessment included thorough checks against the Overhead Contact Line Zone (OCLZ), and we collaborated with BAM to devise a bonding design that effectively mitigated these risks.

Support Structures

To address the flood risk, we designed a bespoke support bracket solution that utilised traditional tube and fitting

CLIENT • BAM NUTTALL
PROJECT • SHARNBROOK VIADUCT
LOCATION • BEDFORDSHIRE



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components to support both internal and external bridging beams. These support systems also facilitated temporary access for scaffold operatives during the installation process. We are working closely with BAM and ARUP to navigate the challenges posed by structurally unsound areas of the piers, ensuring our solutions meet all safety requirements throughout.

Span Six - The River Span

The biggest challenge arose with the primary scaffold span over the Great River Ouse. At approximately thirty-five meters, spanning the river directly was deemed un-feasible due to unstable banks and its overall length. Instead, we opted to anchor the scaffold to the existing structural steels of the bridge. This approach introduced its own complexities, as the flanges of the bridge steels were too thick for standard girder couplers. Working with our head of innovation Rob Vernon, and our design partners PSD, we developed a custom adjustable support bracket system that provided a secure fixing solution, and which can be utilised again for future suspended access scaffold projects. Additionally, we co-ordinated efforts to strengthen the supporting steels, which had limited structural capacities, and devised a phased system of work that clearly outlined responsibilities for each phase of the restoration and refurbishment works.

Spans One & Nine – Embankments

To support the scaffolds while minimising disruption to the existing embankments, we engineered additional supports using Mabey bracketry fixed directly to the pier walls. This design maximised strength to accommodate substantial loads from beam spans at each end of the bridge. It also preserved a consistent working level across the bridge, eliminating the need for excavation of the potentially unstable embankments and avoiding further temporary foundation designs.

Environmental Considerations

From an environmental standpoint, our approach to the Sharnbrook Viaduct project emphasised sustainability and

minimal ecological impact. By utilising existing viaduct piers for support, we reduced the need for extensive groundwork that could disturb the floodplain ecosystem. This careful planning not only protected the surrounding environment but also preserved the natural landscape of the area, demonstrating our commitment to responsible engineering and scaffold practices. Through innovative design and collaboration with various stakeholders, we aimed to ensure that our scaffold solution aligned with environmental best practices while fulfilling the project's stringent requirements.

Safety & Compliance

Alltask adhere to strict safety protocols. Preliminary shear and anchor testing were carried out to inform the scaffold design and regular inspections of the scaffolding and existing structure are carried out to ensure full compliance with Network Rail and HSE regulations. Our staff are trained in advanced working-at-height procedures, always ensuring a secure and controlled work environment.

Project Outcomes

The scaffold system enabled BAM Nuttall's engineers and other specialist contractors to complete the restoration efficiently, within budget, and on schedule. Thoughtful planning minimised disruptions to railway services, and no major safety incidents have occurred, reflecting Alltask's strong commitment to quality and workplace safety.

Conclusion

Alltask Scaffolding's expertise in access solutions is pivotal to the successful completion of the refurbishment of Sharnbrook Viaduct. By providing a safe scaffold solution, we have supported BAM Nuttall in preserving the railway structure, ensuring its longevity for years to come. Our ability to navigate technical challenges, prioritise safety, and work seamlessly in a live railway environment highlights our leadership in scaffolding solutions for large-scale infrastructure projects.