



## NEW WOLVERCOTE VIADUCT, OXFORDSHIRE



The Wolvercote Viaduct was built in 1961 to carry the A34 Oxford Bypass over the Oxford to Birmingham railway line, the Oxford Canal and the A40.

Water ingress at the deck joints caused significant deterioration and a Whole Life Costing Analysis determined that it was more cost effective to replace the entire structure than to spend money every year keeping the viaduct serviceable and safely maintained.

Main contractor Costain, who selected Jacobs of Reading as their designer, was appointed as ECI contractors by the Highways Agency to build the new structure. A combined online and offline design format was determined to make certain that the high level traffic flow could be maintained with half of the new viaduct built alongside the original. With half the traffic flow switched to the new structure, the second part would be fabricated on temporary supports and, with the old unit demolished, this new section would be slid into place. This technique allowed the demolition and rebuild of the bridge while keeping the road open virtually at all times to the 70,000 vehicles that use it every day.

In assessing strategy, it was decided to reuse the existing abutments and their foundations. A substantial amount of original back-fill was excavated to enable close examination to take place. Having the assurance that these foundations were in adequate condition to service the new structure, it was determined to use Leca® Lightweight Expanded Clay Aggregate lightweight aggregate for the back fill to reduce the loadings. Nearly 1000m<sup>3</sup> of Leca® Lightweight Expanded Clay Aggregate was placed, with the benefit of superior friction angle being achieved, to dress the high abutment structure.

## FACTS

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**Amount of material:** 1000m<sup>3</sup>

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**Delivery Method:** Walking Floor

**Main Contractor:** Jacobs