Customer case study

Silvertown Road Tunnel

Project specifications

Project type: Road tunnel
Application: Precast segmental lining

Partners

Owner: Transport for London (TfL) and Highways England
Contractor: Riverlinx CJV (BAM Nuttall, Ferrovial Construction and SK Ecoplant)
Segment supplier: Banagher Precast Concrete

The new Silvertown Tunnel under the River Thames will reduce pollution in East London while easing traffic congestion in a vital corridor. With an interior diameter of 10.66m, it's the UK's largest tunnel to date, designed to accommodate London's iconic double- decker buses in each lane. The 1.4km tunnel opens up new routes for public transit to quickly cross the river and access new destinations.

The challenge

This is the first road tunnel to be built under the River Thames in 30 years. Riverlinx CJV sought a highly robust and durable tunnel lining, setting exacting standards for segment manufacturing and specifications that would accommodate future road users.

In addition, Silvertown's busy, urban location required delivery and removal of materials via river barge to minimize the project's impact to local traffic and avoid increasing air pollution.

Time was of the essence for this fast-tracked project, which has been paid for with private funding and will be toll operated. The schedule called for completing the underground works within approximately 12 months.

The solution

For the section of the Silvertown tunnel that passes under the Thames, Riverlinx specified Dramix® 4D 80/60BGP fibres at a dosage of 35kgs/m. This fibre-only solution eliminated the requirement for steel cages, reducing both the cost and CO2 content of the segments. For fire resistance, the project also incorporated 1kg/m of Bekaert's Duomix micro polyproline fibre.

The Dramix-reinforced tunnel segments measured 2m wide and 400mm thick, and each ring comprised eight segments and a key.

Banagher cast all of these 6,750 steel-fibre reinforced segments onsite at its factory in Ireland, avoiding the waste of setting up temporary plants and saving space at the job site.

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