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As a project 100 years in the making, the Perth City Link has long been debated as the rail line that splits the city. Reconnecting the CBD with Northbridge for the first time in 100 years, Perth City Link is an urban renewal and redevelopment project under construction in Western Australia's capital. It's a collaborative project, funded by three tiers of Government. When completed, the project will deliver significant benefits for locals and tourists alike, delivering better access and connectivity, more public spaces and more residential, retail, entertainment and commercial opportunities.

One of the major aspects of the Perth City Link is the public transport infrastructure. The \$360-million rail project was the first stage. It involved sinking of the Fremantle Line (between William Street and Lake / King Street) to create almost 600 metres of a new cut and cover section along the Fremantle Line.

National Precast member Delta Corporation was contracted to supply the roof of the entire 600 metre long tunnel. A total area of 13,750m² of planks was required. Construction began on these in early 2012 and panels were supplied over an 18-month period in line with the project program.

"There were a couple of significant challenges with this project," said Delta Executive Director Matt Perrella.

Precast Manufacturer

Delta Corporation

Project Owner

Perth City Rail Alliance

Service Engineer

GHD

Builders

John Holland

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“In regards to the product, we had to manufacture voids in the concrete planks, to lighten them.”

“And in terms of manufacture, the program sequencing was critical. Different sized planks were required at different times as the rail tunnel was constructed.”

Mr Perrella praised his team for their dedication to the project.

“We met the demands for a high level of quality management, as well as the complicated program sequencing,” he said.

High capacity precast prestressed concrete voided planks were manufactured, ranging from 8,500mm long up to 14,500mm, with a maximum weight of 24.0 tonnes.

The panels were wet cast in steel moulds with structural grey concrete to a class 2 finish. Panel profiles included 2225mm wide x 450mm thick (325No), 1815mm wide x 450mm thick (150No) and 1425mm wide x 550mm thick (130N0), were supplied.

Precast was the obvious choice for this project for several reasons. The congestion of the site, combined with difficult ground conditions, meant the roof slab could not be constructed using traditional in situ methods of construction.

“We really are proud to have been involved in such a historical project. The City Link will forever change the face of Perth. The city will be seamlessly connected, and that’s good for residents, business people and commerce,” Mr Perrella said.

The complex construction of the Fremantle Line Rail Tunnel has been recognised at a national level with the Perth City Rail Alliance receiving a Concrete Institute of Australia National Award for Excellence in the projects Engineering Category.

The judges commented on the design and construction techniques adopted, and the detail necessary for concrete mix design and placement methods.