Technical Ability Behind WA Railway Bridge

CSR Readymix™'s technical ability and proximity of their East Perth plant was a major reason for their selection to supply concrete for the new railway bridge built across the Swan River at East Perth, using the innovative incremental launch technique.

The newly completed dual-track bridge, to be named 'The Goongoongup Bridge' is to replace the present 80-year old single track timber structure.

The bridge is 405 metres in length, 11 metres to the water at its highest point and compeises 26 individual segments, each approximately 16 metres long and spanning over eight piers.

Seamus Doogan, Project Manager for the main contractor, Transfield Construction, said that construction of the bridge proceeded at the rate of one segment each week.

He said each segment was constructed on site and used prestressed, reinforced concrete supplied from the nearby CSR Readymix™ plant at East Perth.

'Our week started with the launch of the segment, followed immediately with preparatory work for the first concrete pour, which was the box girder bottom slab and sides.

'This pour took place around midday every Tuesday and used approximately 70 cubic metres of the 550 GP mix.

'Stripping of this pour took place early on Wednesday, with the remainder of that day and Thursday being taken up in preparation for the deck pour.

'This second pour took place about 10am each Friday and used approximately 60 cubic metres of 550 E2. This mix had been specially designed to give a compressive strength in excess of 30MPa in 48 hours, which was critical for the timing of pre-stressing and, ultimately, launching operation,' Mr Doogan stated.

The bridge was cured using a combination of moist curing and compounds. The deck was also treated with 'silane,' a chemical designed to reduce chloride ion attack, reducing the risk of reinforcement corrosion and also the effects of alkali silica (aggregate) reaction.

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Approximately 4000 cubic metres of 50 MPa concrete were used in the bridge superstructure and about 2,000 cubic metres in the substructure.

The substructure used CSR Readymix™ Micropor® concrete, predominantly in the piers and pilecaps, to enhance durability.

Results from this mix were impressive, with compressive strengths of up to 80MPa being achieved at 56 days.

Response Number 8

KEY FEATURES

- technical resources
- efficient construction program
- selective techniques