

Project: Houghton Highway
Bridge Duplication

Products: ONEMESH®
500PLUS® REBAR

REBAR relieves the tension out of pre-stressed girder bridge construction



OneSteel Reinforcing provided privately owned Brisbane based company ENCO Precast with 500PLUS® REBAR and ONEMESH® Special Mesh solutions that reduced labour and added to construction efficiency of the reinforced concrete girders for the new 2.7 kilometre Houghton Highway Bridge duplication.

A major thoroughfare that connects Brisbane to the Redcliffe Peninsula across Bramble Bay, the \$315 million Bridge, scheduled for completion in mid 2011, forms part of the Queensland Government's infrastructure development program.

Established in 1996, ENCO Precast specialise in the manufacture of structural precast concrete elements for the civil engineering and construction industry, predominantly bridgeworks.

"ENCO first started making pre-stressed concrete piles and bridge deck units of nominal span up to 25 metres long," said Managing Director, Adrian Slater.

Left: Completed girders ready for delivery to site. Each girder is poured on a 24 hour cycle.

Above: Three tonnes of high tolerance N16 500PLUS® REBAR is incorporated in each girder. Each pre-stressed girder is 1800mm high, 35 metres nominal span weighing 82 tonnes.





Adrian Slater,
Managing Director ENCO Precast.

“OneSteel Reinforcing provides ENCO with great service. They supply all our steel reinforcement needs and have done exclusively for 14 years and I see that continuing into the future.”

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“Utilising the engineered mesh speeds the production cycle, which allows us to pour earlier and assists with the curing cycle. It’s a process that’s worked very well and one we’ll continue to use for other girders.”

Adrian Slater,
Managing Director ENCO Precast.

“Over the years we have grown and are now producing “T” Roff girders up to 35 metres long as well as continuing to produce pre-stressed bridge decks and piles. As we have grown so has our relationship with OneSteel Reinforcing.

“The Houghton Highway bridge has 78 spans requiring eight ‘Super T’ girders of various configurations per span totalling 624 girders, which ENCO will fabricate 312,” explained Adrian.

The girders are 35 metres nominal span weighing 82 tonnes each. It’s the first major infrastructure project in Queensland to use pre-stressed girders 1800mm high. “OneSteel Reinforcing supplied engineered ONEMESH®, which makes up approximately 30 per cent of the steel reinforcing used in each girder.

“We supply six girders per week, which is very fast and an unprecedented cycle time for a bridge of this type,” Adrian said. “The mesh is incorporated into the top flange and eliminates multiple welds and tying of loose bars, which is labour intensive and would have made it difficult to meet the program schedule.

“Utilising the engineered mesh speeds the production cycle, which allows us to pour earlier and assists with the curing cycle. It’s a process that’s worked very well and one we’ll continue to use for other girders,” he said.

By the completion of the project, OneSteel Reinforcing will have supplied approximately 28,000 threaded bars and approximately 103,000 ligatures for the total 624 girders and 7,300 sheets of flange mesh. This will have saved carrying, tying and welding 140,000 loose bars.

Adrian explained that each girder is poured on a 24 hour cycle and has three tonnes of high tolerance N16 500PLUS® REBAR from OneSteel Reinforcing. The steel is delivered by OneSteel Reinforcing in a processed form in units of six girders, which ENCO prefabricate into cages. These are then placed into the forms in preparation for the prestressing strand.

ENCO also utilised OneSteel Reinforcing’s LENTON® A2 coupler system to tie the girders together at the ends. This provided the full range of diameters required, gave greater flexibility in use and ensured a continuous supply chain as all threading was undertaken in-house by OneSteel Reinforcing.

“OneSteel Reinforcing provides ENCO with great service. They supply all our steel reinforcement needs and have done exclusively for 14 years and I see that continuing into the future,” said Adrian.

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