

Providing critical access for major infrastructure project

Bridging Case Study



LNG Upstream Infrastructure Project, Papua New Guinea



Customer: Esso | Solution: Universal™ and Compact 200™

The Challenge

The LNG Upstream Infrastructure Project in Papua New Guinea is a major undertaking in which an extensive pipe work system is being installed capable of carrying 6.6 million tonnes per annum of liquid natural gas from its source in the Southern Highlands to the capital Port Moresby.

An undertaking of this scale requires major supporting infrastructure work. This includes the installation of several bridges along the supply route, replacing many local structures that were in a critical need of repair. Amongst the bridges and infrastructure works needed to support the project was a requirement for a bridge spanning 120 metres across the Kikori River, the upgrading of the existing Highlands Highway and the installation of other bridges to provide access to the site of the Hides Gas Conditioning Plant.

Mabey Bridge was tasked with the fabrication and supply of five bridges to be used in the early phases of the project.

The Solution

Due to their long spanning capabilities and heavy-duty nature, Universal™ bridges were chosen for four of the longer structures (52 metres, 61 metres, 63 metres and 120 metres). In addition, a Compact 200™ was used for the fifth bridge due to the smaller spanning requirement of just 33 metres.

The first installation was the 61 metre Universal™ bridge crossing the River Lai. Components were delivered for assembly on the banks of the river. The skeleton structure was pushed over the river, jacked down onto bearings and decking installed. A team of 20 local workers, assisted by a Mabey Bridge Site Advisor, assembled the bridge with the help of a crane. The bridge took only three weeks to build and was successfully launched in April 2010.

Work then began to erect the other bridges, including the most impressive of the scheme – the Kikori River Bridge; a three span, 120 metre long structure with a double storey centre span. The local labour force, now with valuable bridge erection experience, assembled and launched the bridge over newly constructed piers during an eight-week period.

The remaining bridges were erected independently by the contractor with minimum technical assistance required. As the region experiences many earthquakes, all bridges included seismic restraints.

The Result

All five structures were installed before the end of 2010. Their installation allowed the four-year US\$15.7 billion project to gain pace, with the scheme completing in 2014. LNG deliveries commenced in 2014 and the project will have an expected operational life of 30 years.



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