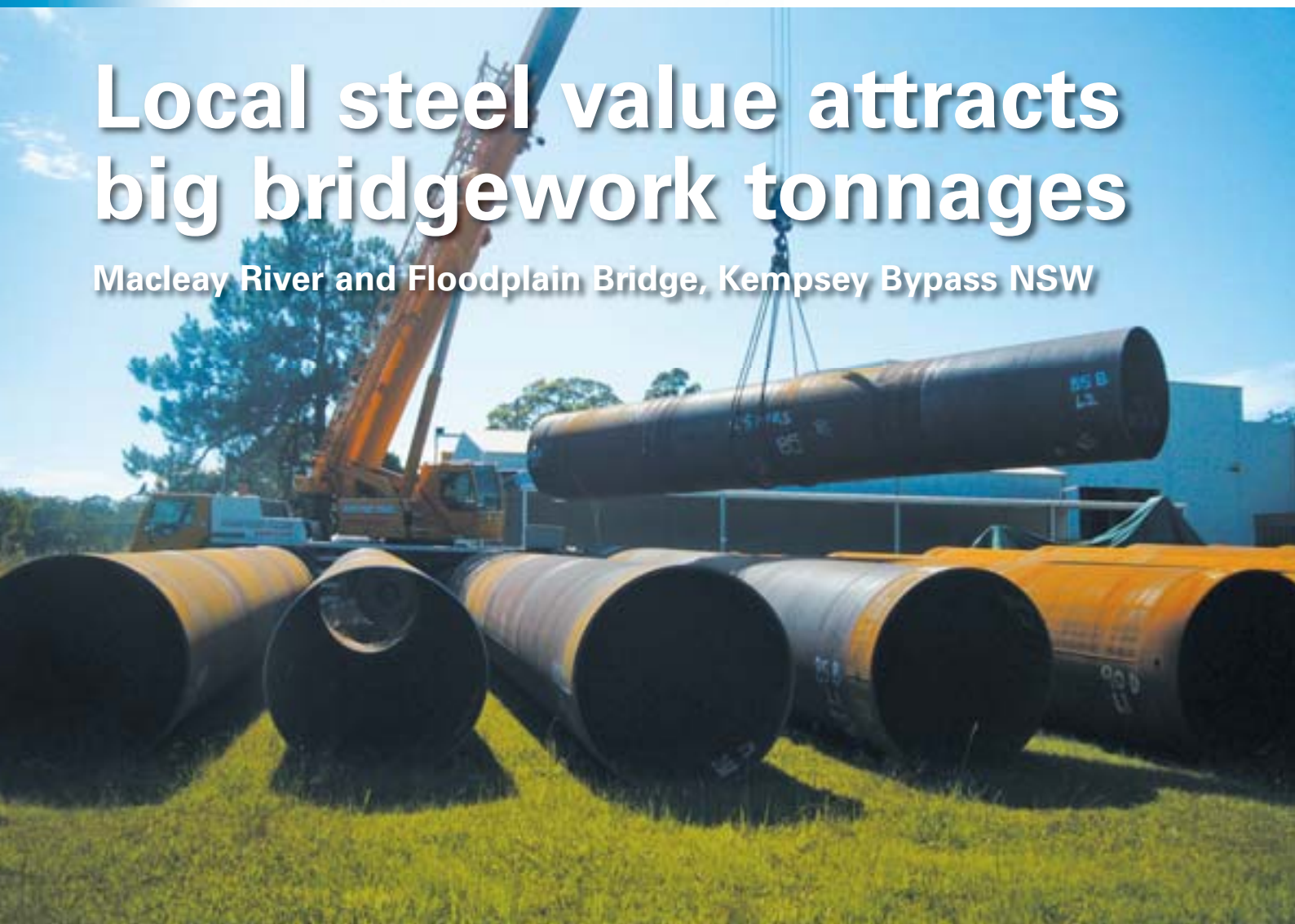


# Local steel value attracts big bridgework tonnages

Macleay River and Floodplain Bridge, Kempsey Bypass NSW



**The choice of Australian steelwork for impressive tonnages supporting major new bridgeworks on NSW's Mid North Coast came down to local supply surety to meet the tight timeframes with over 5000 tonnes of locally manufactured and fabricated steel used for bored pile casings, driven piles and purpose-designed steel concrete formwork.**

The \$618 million project involves building a four-lane bridge over the Macleay River and floodplain. Once completed, the 3.2 kilometre Macleay River and Floodplain Bridge will be Australia's longest bridge.

Financed through the Australian Government's Building Australia Fund and being built by Abigroup Contractors under a Design and Construct contract with Roads and Maritime Services NSW (RMS), it comprises 82 spans over the floodplain and 12 spans over the river.

The ASI has been working concurrently with RMS and other state transport authorities to foster better appreciation of the market but also the stringent requirements of fabricated steel supply for road and bridge projects as well as the need to mitigate risk through compliance to rigorous Australian steelwork standards.

The local steel had to win the new work on its own merits as Government funding of the project was not tied to the mandated use of Australian product.

BlueScope Steel National Sales Manager, **Troy Gent** said the project shows how the local steel industry proves its value and ability to compete with imported material.

"We have worked with our channel partners for the past year on volumes, price and delivery," he said.

High on the agenda of Abigroup, the contractor, was the speed of supply and responsiveness as well as the surety of material compliance.

"It was a commercial decision made by Abigroup to ward off potential costly delays to mesh well with the tight construction program," Mr Gent said.

"Most project communication has been around managing risk in supplying promptly and safely. Our long standing relationship with local fabricators and the supply chain's ability to program delivery and provide custom sizes on short notice were crucial to winning the work.

"With the high Australian dollar and high cost of labour it is no secret that the Australian manufacturing market is incredibly tough when competing with offshore alternatives," he said. "But what is perceived as our weakness is in fact our strength."

"Millions of dollars are being spent on projects across Australia, some of which are placed on hold for numerous reasons and then need to start quickly, efficiently and with minimal risk.

"BlueScope Steel and our supply chain are able to react to this change and micro-manage supply to minimise delivery and manufacturing risk. If a design fault is identified, the supply chain

can react quickly and sometimes without any additional cost due to the short lead-time of local supply.

"We pride ourselves on personalised local service, flow delivery, flexibility of supply and risk mitigation, all strengths of the local supply chain, and believe the Kempsey Bypass is a perfect example of the Australian supply chain showing great local value."



The floodplain section of the Bypass has steel piles driven between 22 and 50 metres deep into bedrock supporting concrete columns and headstocks and super 'T' bridge girders. The river section required reinforced concrete piles between 20 and 45 metres deep within permanent steel liners and reinforced concrete pile caps, columns and headstocks.

## River Crossing

There are 2000 lineal metres of bored pile casings using 1500 tonnes of grade 250 steel piles to support the river structure. The pile casing package awarded to ASI member WE Smith Engineering has been the largest of the packages.

The casing is formed by rolling plate to the desired diameter before welding the individual casings to form the desired 12 metre lengths. The entire operation was conducted out of WE Smith's Coffs Harbour facility. Then the 12 metre long sections are transported by truck to site where they are joined onsite by welding into lengths to suit the ground conditions at each pier location.

WE Smith is also supplying four sets of headstock formwork moulds and providing resources for all onsite non-destructive testing (NDT) of structural welds. It has also performed welder qualification for Abigroup and other onsite contractors via their approved laboratory.

Senior Site Services/Refurbishment Sales Engineer at WE Smith Engineering, **Craig Malt** said the pier column formwork presents a challenge as it was the first structural works undertaken.

"The associated complexities were overcome by our strong engineering capability, highly experienced boilermakers/pressure welders, machinists and fitters," he said. "The headstocks were a further step up in complexity from the pier column formwork."

This project has also spurred flow-on work for other contractors across the state from WE Smith's factory.

Around 400 tonnes of reusable steel formwork moulds are being fabricated by WE Smith, SILO Constructions and MacFab Steel which are used to cast the reinforced concrete columns and headstocks.

## Floodplain Crossing

Steel components for the floodplain works include permanent 750mm and 825mm diameter steel piles. Around 11,700 linear metres of piles are being used which comprise some 3600 tonnes of 350 grade steel supplied as 16 millimetre hot rolled plate.

RPG Australia rolls and welds the plate into tubes at its Wacol manufacturing facility in Queensland and the various length sections are then transported by truck to site where they are joined by welding into lengths to suit ground conditions at each pier location.

RPG Australia Managing Director, **Mike Lewis** confirmed why the local steel supply chain was engaged on supply surety.

"The project runs at an extremely fast pace that overseas competition was not able to meet and flexibility is also required for changes on the run whilst keeping the project progressing on a 'just in time' basis," he said.

"Confidence in the quality of product being supplied is crucial.

"Taking on this project has enabled us to get RMS prequalification for any work in NSW, extending RPG's market segment geographically with a potential for further work interstate."

The 3.2 kilometre long bridge as part of the bypass project is due to open mid 2013.

### Project Team

**Client:** Roads and Maritime Services NSW

**Project Manager:** Abigroup Contractors

**ASI Steel Fabricators:** RPG Australia, WE Smith Engineering

**ASI Steel Distributor:** BlueScope Distribution

**ASI Steel Manufacturers:** BlueScope Steel (plate), OneSteel and Australian Reinforcing Company (reinforcing steel)

## Building bridges with transport authorities

**Warren Stalter** from Roads and Maritime Services NSW (RMS) along with **Dr Ross Pritchard** from Queensland Transport and Main Roads (TMR) addressed 70 Australian steel fabricators at the Australian Steel Institute's Annual Convention in September.

Messages from this presentation were that road infrastructure involving structural steelwork can be a critical component.

It is required to handle load 24 hours per day, seven days a week every week for a 100 year design life. It has to continually perform in the open, exposed to all elements and once manufactured, it is virtually impossible to verify compliance except by destructive testing.

The message around this criticality for Australian steel fabrication was that the authorities expect their 'business partners', whether consultants or contractors, to adopt a culture at the very top of their organisations committed to quality that generates consistent supply.

Companies endorsed to ISO9001 and committed to enhancing client expectations would be a good target. They also expect contractors to work cooperatively with site teams.

The RMS objective from the presentation was to open the market to more fabricators meeting competence levels and this has been successful with four ASI fabricators already seeking prequalification.

Mr Stalter alerted the ASI then to the good work being done on the Kempsey Bypass by a range of Australian steel fabricators as detailed here.

More recently, the ASI has organised presentations with RMS in Sydney and Newcastle on the importance of third party accreditation for compliance to local standards which drew over 150 attendees.