

TARCUTTA BYPASS

DESIGN & CONSTRUCT ALLIANCE : Roads and Maritime Services, Leighton Contractors, AECOM, SMEC Australia and Coffey Geotechnics
CLIENT : Australian Government
PROJECT END VALUE : \$290 Million
COMPLETION : November 2011



PROGRESS DELIVERED AT TARCUTTA

As part of the drive to upgrade key stretches of the Hume Highway which links Melbourne and Sydney, the \$290 million Federally-funded Tarcutta bypass was constructed to improve safety, reduce travel times and remove heavy traffic from the centre of Tarcutta.

The project was undertaken by the Tarcutta Hume Alliance (THA), a design and construct alliance comprising Roads and Maritime Services (formerly the Roads and Traffic Authority), Leighton Contractors, AECOM, SMEC Australia and Coffey Geotechnics. The seven kilometres of new four lane dual carriageway includes ten new bridges across flood plains, creeks and other waterways, and was opened to traffic in November 2011. A northern interchange, southern interchange and local service road also formed part of the project scope.

A mix of environmental initiatives were implemented, including controls to minimise impacts on waterways and natural areas both during construction and in the long-term; landscaping including the planting of over 57,000 native trees; installation of 198 nesting boxes in retained trees for native bird breeding sites; and the installation of 19 glider poles and three rope bridges to enable safer passage for native fauna between clumps of vegetation. Undertaking civil projects in a flood zone requires particular planning, and in this case, the number and duration of severe weather events meant

those plans were frequently put into action. Record rainfall was recorded in 2010, with Tarcutta Creek overtopping its banks 17 times and inundating works. The project was continuously reprogrammed and resequenced to ensure the completion date was still met.

The Alliance Flood Mitigation Strategy set guidelines, based on the 72 hour weather forecast, which dictated when plant, equipment and materials would be removed from the floodplain.

Careful planning and design of the piling platforms allowed work areas in the Tarcutta Creek floodplain to be accessed very soon after major weather events, minimising both damage to the work and project delays.

THA also formed a Flood Response Team, which provided assistance to Roads and Maritime Services (RMS) and the local Tarcutta community when major flood events either threatened or occurred.

One of the key construction innovations was the use of CFA piles. These were not previously favoured for RMS projects, however investigations during the early planning stages resulted in their use. Their successful performance on this project, including the time advantages, resulted in RMS rewriting its CFA piling specifications.

Other innovations THA implemented included particular attention to worker fatigue. Bus transport was provided to and from Wagga Wagga for workers, a house rented and furnished in Tarcutta for those who felt too tired to drive, and a taxi service offered to those who worked late. The laboratory introduced a split shift in order to manage fatigue as well as maintaining a good level of service between the laboratory and the field providing timely testing and reporting.

In total, the project involved the excavation of approximately 900,000 cubic metres of soil to build up the road surface and over 65,000 cubic metres of concrete generated at an on-site batch plant. At the peak of construction the main paving machine generated over almost 500 lineal metres of roadway - over 1100 cubic metres of concrete - in a single day.

In terms of quality outcomes, this project has been rated extremely well by the RMS, who recognised the quality of the finished bridges as 'some of the best ever built' and also praised the aesthetics of the parapet installations.

The results of the combination of design and construction excellence, and the strong commitment to safety, health, the environment and the community, has delivered a project which is a credit to all Alliance parties. For Leighton Contractors, it is another example of the skills and

capabilities which have made them one of the nation's leaders in the delivery of essential civil infrastructure.

"Given our long-standing industry experience within the roads and traffic area, we were able to successfully deliver all required components of the Tarcutta Bypass," said Stephen Nicolay, Project Manager from Leighton Contractors.

"Not only did we carry out our duties in a cost and time effective manner, but we also worked tirelessly to ensure the specific needs of this important project were met and the client's expectations were exceeded."

"As a result of liaising with other stakeholders, as well as our highly-skilled onsite team, any potential obstacles or delays to the construct process were minimised and the THA team's 'can do' attitude guaranteed the swift completion of the Tarcutta Bypass," he said.

LEIGHTON CONTRACTORS

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The Tarcutta Bypass, NSW South West.



THE CRANE AND HEAVY HAULAGE SPECIALISTS

Established in 1975 with initially only one crane and employee, Wagga Mobile Cranes has grown from its' humble beginnings to become a diverse and extensive business, offering crane hire, heavy haulage and tilt tray services to a range of building and construction projects.

With a modern fleet and a varied range of equipment, such as pick up and carry Frannas, hydraulic trucks, prime movers, low loaders and all-terrain cranes that range in lifting capabilities from 12 to 200 tonnes, Wagga Mobile Cranes are able to service the vast needs of all projects.

Given their industry expertise and team of professional operators, Wagga Mobile Cranes have worked for a prolific range of clients such as the RTA, Essential Energy, Pacific National Rail and more recently, Leighton on the Tarcutta Bypass development.

This \$250 million bypass stretches more than seven kilometres to the west of Tarcutta and joins the existing Hume Highway divided carriageways to the north and south of the village.

The project also incorporates twin bridges over Tarcutta and Keajura creeks, a four-lane divided carriageway, as well as urban and landscape design treatments to minimise any visual or environmental impacts.

Ken Deacon, Manager of Wagga Mobile Cranes, said throughout the project, they had been responsible for delivering all of the bridgework, kerbs, barriers and heavy haulage requirements.

"Using our new 20 tonne Frannas and 30 tonne Liebherr cranes we fulfilled our project responsibilities in a time and cost effective manner and ensured that all of the stringent onsite safety requirements were adhered to," he said.

"In addition, given our commitment to the supply of prompt, professional service, as well as our well presented, serviced and reliable cranes and trucks, we operate a safe and environmentally aware workplace at all times" Mr Deacon said.

With the diversification of their business activities now encompassing all of NSW, as well as their outstanding fleet and skilled operators, Wagga Mobile Cranes are without a doubt 'the crane and heavy haulage specialists.'

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HELPING STRENGTHEN TARCUTTA BYPASS

Grace Construction Products Australia offers a wide range of innovative specialty construction chemicals and materials including, concrete admixtures and fibres, architectural concrete products, cement processing additives, concrete masonry products, structural waterproofing systems and fire protection products.

As a worldwide leader in the construction products industry, Grace products are specified by architects and engineers and are extensively used throughout the building and construction industry. Given their prolific profile and extensive industry expertise, Grace Construction Products have been involved on a number of significant projects, such as Leighton's Ballina Bypass and more recently, New South Wales Tarcutta Bypass.

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Responsible for providing the concrete admixture for strength and durability of all of the required concrete used on the Bypass, Grace Construction Products also established a dispensing system for Leighton's onsite concrete plant, which was specifically tailored to meet the demands of the project.

Using Calorimetry techniques, the team from Grace Construction Products were able to provide a solution to identify setting times of the concrete during winter, so that the saw cuts were applied at the appropriate age.

Due to Leighton's expertise in road placement and a new admixture technology provided by Grace a small trial stretch of the bypass is of a pervious concrete design.

With a team of professional and highly skilled staff that contributed to the overall success of the Tarcutta Bypass Project, incorporating research and development, operations and customer representative services, Grace Construction Products once again delivered optimum project results and complete client satisfaction.

With their innovative techniques, a renowned international reputation and a broad range of expertise, Grace Construction Products will continue to remain at the forefront of the construction products industry.

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The Tarcutta Bypass delivered by the Tarcutta Hume Alliance in NSW South West.



BUILDING THE NATION'S ROADS

With more than 23 years of experience, Maylena is a steel reinforcement company that provides outstanding services and results to major roads and bridge developments within the building and construction industry.

Having worked on a number of prolific projects, including Sydney's M7 Motorway, the Albury Bypass and the East Link in Melbourne, Maylena was also involved on the significant Tarcutta Bypass.

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Pat Cullen, Managing Director, said between June 2010 and June 2011, Maylena was appointed the main steel reinforcement company for the redevelopment. "Our extensive responsibilities for this Bypass project incorporated tying steel for pile caps, abutments, columns, head stocks and decks," Mr Cullen said.

"In addition, to ensure these responsibilities were carried out in a time efficient manner and to prevent any unnecessary reworking, all of the structures that were constructed from pile cages, were built on support bars," he said.

Given the fact the site's location at Tarcutta Creek and the nearby floodplain were often subject to flooding, coordination with the other trades working on the project was imperative to ensure the development got out of the ground as soon as possible.

However, with their wealth of industry experience and a committed project team, Maylena not only delivered leading reinforcement results, but also completed their contract ahead of schedule.

"During our involvement on the Tarcutta Bypass, we maintained excellent working relationships with Leighton and Quickway Constructions," Mr Cullen said.

"This ensured the project ran smoothly and efficiently for all parties and we look forward to working together again in the near future," he said.

With an ever-expanding skills base and a dedication to delivering outstanding project results every time, Maylena are the number one choice for all your steel reinforcement needs.

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