

BRIDGING SUCCESS

MAIN CONSTRUCTION COMPANY : BMD Constructions
PROJECT VALUE : \$55 million

The \$55 million Kapooka Bridge/Olympic Highway upgrade sets out to improve road safety and reduce travel times. Transforming almost 3km of new approach to the bridge which was built in 1880, and realigning the Olympic Highway to reduce accident risk and enhance transport efficiency.

Roads and Maritime Services is realigning the Olympic Highway and replacing the existing bridge over the main southern railway line at Kapooka, and multi award-winning civil construction company BMD Constructions is the Principal Contractor for this \$55 million project. The federal and state governments will each contribute \$27.5 million. The contract recognises BMD's capability to deliver complex infrastructure projects for local communities across the country.

With approximately 1,700 staff throughout Australia, BMD has the capability and experience to deliver projects ranging in size from \$1 million to over \$1 billion. The Group is supported by third party certified management systems. Substantial balance sheet strength and the resources and flexibility of a large Australian owned private company.

"We've grown from a small Queensland family business to become one of Australia's largest privately-owned construction, consulting

and urban development organisations," stated Mark Gallagher, BMD Project Manager. "Our expansion into new capabilities and broader geographic footprint has positioned the company as a major player in the national construction and property industry."

Built in 1880, the current brick Kapooka Bridge is 7.5km south of Wagga Wagga and spans the main southern railway line between Sydney and Melbourne on what is now the Olympic Highway. The two 90-degree turns onto the bridge have been the cause of multiple accidents since its construction. With more than 300,000 truck movements through this section of the highway each year, the project is a priority for the region as part of the Bridges for the Bush Program in NSW.

The new bridge will have nearly 3km of new approach road built for the four-lane bridge. Vehicles will then be able to drive safely at a straight 100km an hour. The bridge has also been designed to be high enough for double stack trains to pass under.

Major building work began in November 2014, with completion expected in mid 2016.

BMD are responsible for installing and maintaining environmental controls and constructing sedimentation basins, installing fencing and signposting, stripping top soil, earthworks, drainage work, concrete pouring of bridge components, construction of reinforced soil walls at the bridge, and construction work at the northern end of the project where the existing Olympic Highway will meet the new highway.

"The project is unique given the type of prestressed girder used on the bridge structure," said Mark. "We're using 33no, Bulb-T girders on the project, only the second such type of bridge being constructed by the NSW Roads and Maritime Services in recent years. This unique type of girder allows for higher bridge skew angles of some 53° degrees to the railway and thus the potential to straighten road horizontal geometry".

Along with a new three span 99m bridge, the scope of works includes a new alignment, intersection improvements, footpaths, bicycle ways, utility adjustment works and improvements to the existing highway including 2.8km of single carriageway on an essentially greenfield site,

new intersection and access road for the Blamey Army Barracks at Kapooka and north and south tie-ins constructed during three stages.

The proposed upgrade aims to improve road safety along this important stretch of highway to reduce accident risk, reduce travel times and improve interstate freight transport efficiency.

"In 2015, our Kapooka Bridge project team received the Dare Award for Collaboration and the NSW Safety Award. These were internal awards from BMD, recognising the commitment and dedication our team has had to the project and each other and excellent commitment to safety." Added Mark. "They're national awards across the BMD group of companies."

Other projects BMD are currently working on include: Bringelly Road Upgrade, Camden Valley Way, Narellan Road Upgrade, Seventh Street – Sydney Airport Corporation, Webb Dock – Port of Melbourne, and the Buangor Bypass.

For more information contact, BMD Constructions (Head Office), 25 Cambridge Parade, Manly QLD 4179, PO Box 197, Wynnum QLD 4178, phone 07 3893 7000, fax 07 3893 1006, email brisbane@bmd.com.au, website www.bmd.com.au





PRECISION SURVEYING

With over 40 years of consulting survey and engineering experience in major heavy construction projects behind them, Linke & Linke Surveys are the ideal partner for BMD on the Olympic Highway realignment and bridge at Kapooka project.

Jointly funded by the Australian Government (\$27.5 million) and the State Government's Bridges for the Bush program (\$27.5 million) the project is on track with 90% of the earthworks and bridge structure now complete.

Specialising in precision project surveying services for roads and bridges, the Linke & Linke Surveys team has been instrumental in this progression.

“Our Kapooka project team are using unmanned aerial vehicles to create a digital model of the project,” advised company Director, James Linke. “From these we calculate volumes and also create hi-res spatial correct orthophotos, coloured mesh models and point clouds.”

This advanced image-based 3D modeling solution creates professional quality 3D content from still images. Based on the latest multi-view 3D reconstruction technology, it operates with arbitrary images and is efficient in both controlled and uncontrolled conditions. With the use

of photogrammetry and ground control points, the imagery provides a base for collecting all the 2D and 3D features. Photos can be taken from any position, providing that the object to be reconstructed is visible on at least two photos. Both image alignment and 3D model reconstruction are fully automated and build a textured 3D mesh model or point cloud.

“Point Cloud and Mesh increase the density of 3D points of the 3D model, which leads to a higher accuracy for both the DSM and orthomosaic,” said James. “After densification, the point cloud is filtered allowing the user to define the parameters and desired output formats for the densified point cloud and 3D Textured Mesh.”

The Linke & Linke Surveys team utilises all that UAV and Laser Scanning technology can offer, to enhance customer satisfaction and improve efficiency whilst maximising project outcomes.

For more information contact Linke & Linke Surveys, 1a Fletcher Street, Bondi NSW 2026, PO Box 3085, Tamarama NSW 2026, phone 02 9365 7336, fax 02 9130 3278, email admin@lillsurveys.com.au, website www.lillsurveys.com.au



PILING IT ON

The Olympic Highway at Kapooka carries around 4,500 vehicles per day including 750 heavy vehicles. A further 2,200 vehicles turn off the Highway to access the Kapooka Army Base via Camp Access Road. The existing highway alignment crosses the main southern railway line over an 1880 brick arch bridge with two 90-degree bends forming the bridge approaches, which has been the cause of many serious accidents. Roads and Maritime Services are spending \$55 million to realign the Olympic Highway and replace the existing bridge.

The Principal Contractors for the new Kapooka Bridge and Olympic Highway project is BMD Constructions. They subcontracted award-winning Caporn Piling Pty Ltd to strengthen and stabilise ground conditions to support the dual carriageway road bridge and realignment work for the project.

Established in 2012, Caporn Piling is a leading Australian privately owned piling contractor. The business owners' experience in the Piling Industry spans 50 years, having previously owned the largest Piling Contractor in Australia, plus Managing Director, Greg Caporn, offers 18 years of industry knowledge, combined with a lifetime of being immersed in the Civil Engineering environment.

“Caporn Piling design and install all types of piling solutions, including bored, driven, CFA, displacement, sheet piling, marine piling and falsework installation across QLD and NSW,” Greg said. “We have some of the most experienced pilers in Australia within our group and our team of over 30 people have worked on some of the largest and technically challenging projects in Australia. Together with

our quality equipment we are able to offer the most competitive and effective piling design and construction services in the market.”

On the Kapooka project Caporn Piling have supplied and installed 38 No.900mm diameter bored piles to 22.2m deep, at two pier locations and two abutments with extensions to 8.2m high.

“The actual ground conditions at pile locations were our biggest challenge,” added Greg. “They revealed harder rock than the earlier Geotechnical and Bore Log reports. This meant slower progress and deeper pre-drilling.”

Caporn Piling is tri-qualification accredited in Quality, Safety and Environment and offers a full design capability with input from some of the most experienced contractors and design engineers in the world.

During 2016 Caporn Piling will be relocating to a new purpose built office and plant yard facility, plus expanding permanently into NSW, on the back of their first year operating in this region.

For more information contact Caporn Piling Pty Ltd, 306 Duffield Road, Clontarf QLD 4019, phone 07 3889 3989, fax 07 3283 2219, email admin@capornpiling.com.au, website capornpiling.com.au





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For over 22 years Sewer Services have built their reputation on providing quality service and workmanship in specialised pipeline rehabilitation and pipe inspection for Government, Councils, Civil Companies, Plumbers and Water Authorities within NSW and Canberra. They also hold NATA accreditation for CCTV and air testing.

“Our accreditations for product and systems reflect our focus on working in partnership with clients in order to provide a quality product whilst maintaining a safe workplace and also protecting the environment,” said Sewer Services Director, Mark Bugeja.

Sewer Services have had up to six of their 21 employees working on the new \$55 million Kapooka Bridge and Olympic Highway realignment project south of Wagga. This is one of the largest projects of its type in the region's history and impacts on several public utilities including electricity power poles, a CAN optical fibre line, a secondary high-pressure gas line and a high-pressure water main that is being relocated underneath the new bridge.

Sewer Services is a provider of No-Dig Technological solutions and is committed to investing in the latest technology and equipment and also in ensuring staff are trained to the highest level.

“In 2013 we did patch repairs and CCTV Inspections at the Kapooka Bridge project, and in 2015 we did cleaning and more CCTV

inspections and reporting with certification of the lines,” stated Mark. “Our CCTV units are fully self contained and equipped with the latest in Information Technologies, allowing real time video surveys, streamed direct to the client who can access these reports shortly after the survey is completed via our website. All of our mainline CCTV units have the capability to do 100mm diameter – 3m diameter pipes.”

Sewer Services uses the latest Wincan inspection reporting systems, allowing high quality CCTV footage along with detailed pipe reports for a complete package. They also specialise in High Pressure Water Jetting and Drain Cleaning, High Pressure Cleaning, Vacuum loading, Potholing and Patch Lining.

“Our company has grown along with the needs of our clients and we remain at the front of the pack in terms of latest equipment and technologies and are seen by many of our clients as a one-stop-shop.” Mark said. “We also work closely with authorities on many projects in an advisory capacity.”

For more information contact Sewer Services Pty Ltd, PO Box 209 Concord, 2137 NSW (with Depots in Arndell Park and Queanbeyan), phone 02 9676 3742, fax 02 9676 8835, email Operations@sewerservices.com.au, website www.sewerservices.com.au

MAKING BUSINESS EASIER WITH HIGH PERFORMANCE CONCRETE SOLUTIONS

For over 20 years G McMullan Contracting have been specialising in Pipe Laying, Plant and Labour Hire around NSW.

“Since December 2014 we’ve had 30 employees, an excavator and water truck, pipe layers and concreters working on the new Kapooka Bridge and Olympic Highway realignment south of Wagga,” informs Gerry McMullan, founder and Director of G McMullan Contracting. “And every week our team has received the weekly award for safety.”

The current Kapooka Bridge is a brick construction built in 1880, 7.5km south of Wagga Wagga and includes two 90-degree bends on the approaches that have caused numerous vehicle accidents over the years. The bridge also crosses the main Sydney–Melbourne railway line on the Olympic Highway at Kapooka and is a restriction for higher productivity vehicles on this route. The project is located within a natural gully with steep hills both sides. A main project objective is to allow for increased railway clearances and this has required a substantial increase in the level of the highway. The upgrade will improve road safety and reduce travel times.

The G McMullan contractors are responsible for the excavation, pipe laying and concrete box culverts on the project and staff have RISI tickets to work in the rail corridor.

“Other teams are currently working on the WestConnex-M4 widening project; the Pacific Highway upgrade from Woolgoolga to Halfway

Creek with OHL and York Joint Venture; the Pacific Highway upgrade between Halfway Creek and Glenugie with CMC Mining; and the Hexham Relief Roads and Long Term Train Support Facility for the National Rail,” Gerry said.

“We’ve also worked on the Trangie Nevertire Irrigation Scheme near Dubbo for MacMahon and ADASA Joint Venture and several other highway upgrade throughout New South Wales.”

For more information contact G McMullan Contracting Pty Ltd, 5 Arthur Street, Grafton NSW 2460, phone 02 6643 1932, mobile 0412 911 153 (Gerry), email gmcullancontracting@hotmail.com

