

# BARWON HEADS BRIDGE

**MAIN CONSTRUCTION COMPANY :** McConnell Dowell  
**DEVELOPER :** VicRoads  
**ROAD BRIDGE DESIGN :** AECOM  
**PEDESTRIAN BRIDGE ENGINEER :** Arup  
**PEDESTRIAN BRIDGE ARCHITECT :** Peter Elliott Architects  
**PROJECT END VALUE :** \$48 Million  
**COMPLETION :** June 2011

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## BRIDGING THE OLD AND THE NEW

Some would say the reconstruction of the Barwon Heads Bridge has been long overdue. Originally built in 1927, the former Barwon Heads Bridge was a local icon that held a special place in the community's heart. But it was more than an icon, it was and still remains a key road link to the Barwon Heads and Ocean Grove communities and is also a protected asset on the Victorian Heritage Register.

Because of its age, and a myriad of issues such as deteriorating concrete, rotting timber, cracked piles, and rusted steel beams the load limit was officially reduced to 16 tonnes. The bridge was rapidly reaching the end of its lifespan as a working bridge.

Because the former bridge was a much loved landmark reconstructing the existing timber bridge needed to preserve the heritage appeal of its original design. VicRoads undertook three years achieving planning and Heritage approvals to determine the requirements of the new bridge, subsequently awarding a construction contract to McConnell Dowell Constructors P/L.

VicRoads and McConnell Dowell Constructors P/L then worked together incorporating the design and materials from the old bridge, and ensuring construction would be minimally invasive to the local communities, and high in quality.

They succeeded, creating a new road bridge consisting of 34 spans supported by 165 treated timber piles, galvanised steel I-beams and a reinforced concrete deck. The bridge is 308 metres long, 9 metres wide and carries two 3.3 metre wide traffic lanes. The new 4.5 metre wide pedestrian bridge is located 10 metres downstream from the new road bridge. It is a modern concrete bridge with 18 metre long spans supported by one pile per pier.

"The project was not without its challenges," said Project Manager Arnold McGill. "Thanks to fast flowing tides and shallow water, we needed to create a temporary bridge rather than working from floating barges or work platforms. We effectively constructed four bridges in the space of 18 months. That includes the construction of the temporary working bridge to support a 120 tonne crane, construction of the permanent pedestrian bridge and placing one lane of traffic on this bridge."

McConnell Dowell then utilised a method of continuous demolition and re-construction in order to remove and replace the old bridge segments with the new throughout the build process. The result is a twin pedestrian and road bridge, effectively separating pedestrians from vehicular traffic. There are dedicated cyclist lanes as an additional safety aspect. An elevated fishing platform has been incorporated on the pedestrian bridge especially to cater to anglers.

In order to satisfy local residents, the new road bridge was designed as an architecturally secure replica, rather than a callous replacement. To this end, McConnell Dowell recycled and repurposed 300x150mm timber Crossheads and 350mm diameter Corbels from the existing bridge into the new. The effect is one of serene splendor, truly characteristic of the coastal township that featured prominently in the ABC television series SeaChange.

"McConnell Dowell exhibited an open communication approach with VicRoads ensuring that any concerns or issues were resolved amicably," said John Clinch, Acting Manager of Program Delivery. "This approach was also used to engage the community and stakeholders, resulting in open two way feedback throughout the project"

McConnell Dowell is known for their operational focus, their commitment to finding the personality ingrained within every project they undertake. With regards to Barwon Heads Bridge, Arnold McGill and team were able to successfully blend the old with the new, creating a local landmark that not only pleases residents and tourists, but also to the specific design requirements of Heritage Victoria.

Since its inception in 1960, McConnell Dowell has successfully serviced the construction, civil engineering, mechanical and electrical industries, earning them such accolades as the 2010 Australian Engineering Excellence Award from Engineers Australia. Their environmental procedures are also second to none, with recent projects taking out the Civil Contractors Federation Earth Awards for innovative and environmentally-friendly project design and delivery.





# BUILT ON EXPERIENCE & EXPERTISE SINCE 1972



**B**RC Piling & Foundations Pty Ltd was built on the experience gained by Mr Stuart Boam, Managing Director, who commenced his career in the piling industry in 1972, working for major pile construction firms in the U.K. The company was formed in December 1988 in Melbourne and has since undertaken and completed various projects throughout Australia and the Far East.

Major roadwork contracts have been the Eastlink Project, Citylink Project, Albury Bypass, Geelong Bypass, Craigieburn Bypass, Tullamarine Calder interchange, (Victoria) Bridges on the Alice springs to Darwin Railway Line, Halls Creek and Argyle Diamond Mine (WA), Australian Embassy in Hanoi, Vietnam, West Rail Project in Hong Kong, Barwon River Bridge, Lorne Pier Reconstruction, South Morang Rail Extension Project and Sunbury Rail Electrification Project to name a few.

Major building works include MCG, Great Southern Stand, Crown Casino, Melbourne Underwater World, Commonwealth Law Courts, QP2, Aldi Superstores, Commonwealth Archive Building.

Initially starting with one drilling rig, BRC Piling & Foundations Pty Ltd now has 23 drilling rigs, for bored piles, caisson, contiguous, secant and CFA piles. Hole diameters range from 300mm – 4500mm diameters to depths in excess of 90 meters. We also have driving and vibratory type rigs to install driven concrete and steel piles, driven UBs UCs and sheet piles.

The company is self contained in that all personnel required to design, manufacture or maintain the equipment and tools are employed directly by the company.

BRC Piling & Foundations Pty Ltd currently employs 34 personnel who include office staff, design engineers, supervisors, operators and site personnel. All are fully ticketed and meet all current requirements.



The objective of our company is to be the preferred piling contractor by providing our customers with the confidence that their specifications will be met. We do this by ensuring our name for quality work remains intact and by providing evidence that the standards have been achieved.

We recognise that our personnel are the key to our reputation and future in the industry, and as such we aim to maintain the highest level of knowledge, health, safety and satisfaction of our people.

A Member of the Piling & Foundation Specialists Federation.

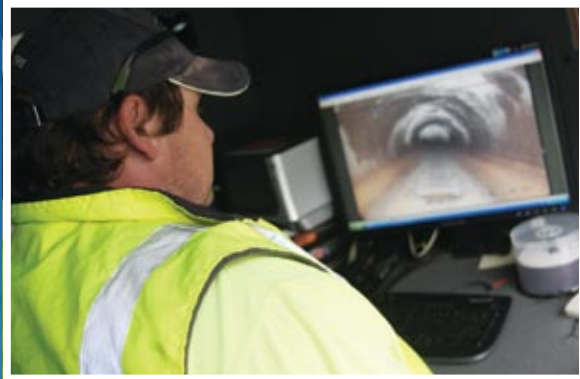
BRC Piling & Foundations' expertise in drilling extremely hard rock, using up to 7 drilling rigs at one time, including the impressive SOILMEC SR100, the largest drilling rig in the Southern Hemisphere, ensured the McConnell Dowell construction program was completed on time. BRC are proud to have been part of the team involved with the Barwon Heads Bridge and wish McConnell Dowell every success with all their future projects.

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# INNOVATIVE SEWER CLEANING



Bartlett's Environmental, formally Bartlett's Waste Management is a family-owned and operated company that has been supplying liquid waste, asset management and environmental services to Government Authorities and businesses throughout Victoria for over two decades. Bartlett's were engaged to decommission the old 450mm rising sewer main that passed underneath the historic Barwon Heads Bridge. Such a task required a coordinated effort with the onsite operators.

"The three pump stations leading to this particular line were shut off and Bartlett's acted as a bypass for this waste," said General Manager John McCoy. "We had trucks controlling the flow of sewerage between Ocean Grove and the Bellarine Peninsular. We had to maintain the sewer flow in order to avoid a sewerage spill, which could have a detrimental impact on the environment."



"Valves were connected to the start and end of the old sewer line to stop flow during decommission. The installation of the hot taps was the first time such work had been undertaken on a sewer main this size in the region and specialised contractors and equipment were required from the United States."

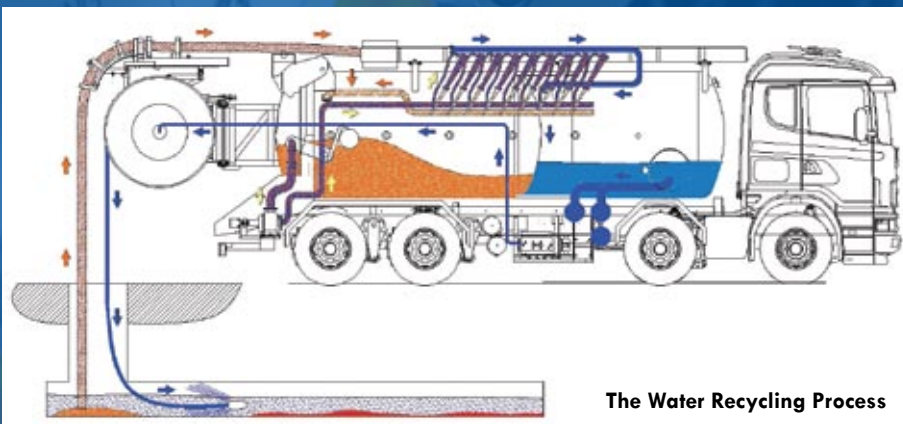
"Once the line was decommissioned, the pipe was cleaned using our Recycling Drain Cleaning Unit," said John. "This unit enabled us to jet and clean the sewer pipe while simultaneously processing the waste. We used the recycled water for jetting and cleaning the line which completely eliminated the need to use potable water. Our automatic five stage recycling system can process 785 litres per minute, ensuring continuous supply for the jetting operation."

To ensure the line was free from debris, Bartlett's monitored operations using CCTV technology.

Over the years, Bartlett's has expanded their services to meet the changing requirements and expectations of the environment and their customers. Along with Asset Management, Bartlett's core activities include Hydro Excavation (Non-Destructive Digging), Liquid Waste Management, Drain Cleaning, Mobile Dewatering, Confined Space Entries, High Pressure Cleaning and CCTV Inspections.



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**JPS Lifts**



## We lead with innovative foresight

The extreme energy efficient **ULTRA 630-1000** Low Rise Commercial Lift is exceeding customer expectations across Australia. Exclusively supplied by JPS Lifts, the **ULTRA** is just one example of the extensive range of residential and commercial lift products available, all uniquely tailored to the client. "Leading with quality, confidence and innovative foresight is what we strive for every day" says Shaun Leicester director of JPS Lifts.

### So what makes the **ULTRA 630-1000** so unique?

Newly developed low power AC gearless machine and VVVF drive systems provides for a smooth, quiet operation that is unsurpassed in the market. With 240 volt single phase power there is no requirement to run three phase cable all the way to the lift controller. The standard MRL does not have a machine room, only needs a maximum pit depth of 900mm, offers an optional self supporting structure which ensures reduced building costs and an optional automatic rescue function when power fails.

"Our Australia wide team of fully qualified technicians and sales professionals are dedicated to producing what the clients need and the way we achieve this is through clear, honest and efficient communication with everyone involved in the project" says Shaun

The **ULTRA** is available in a range of high quality finishes including laminate, stainless steel, glass or steel skin-plate. Multi entrance configurations are available for all new and existing buildings. Italian designed, engineered and manufactured to Australian Standards, the **ULTRA** Low Rise Commercial Lift is simply outstanding.

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**ULTRA**