



BANORA POINT WASTEWATER TREATMENT PLANT

CONSTRUCTION COMPANY : Tenix Pty Ltd
 CLIENT : Tweed Shire Council
 COMPLETION : August 2012
 PROJECT END VALUE : \$35 Million

BETTER SOLUTIONS FOR TWEED'S WASTE WATER



In just short of twenty years, the Banora Point Wastewater Treatment Plant (WWTP) had almost reached the limits of its original design capacity of 15 megalitres per day, due to the explosion of growth in the area's population. Tenix was contracted by Tweed Shire Council to undertake an upgrade to the plant, which will not only see capacity increased to 18 ML./day, but will also deliver vastly improved effluent quality thanks to an upgrade of filtration and treatment technology.

Construction of the \$35M project commenced in September 2010, with the original completion timeframe of 18 months extended due to extremely wet weather over the 2010/2011 and 2011/2012 wet seasons. The project has been funded by Tweed Shire Council, with the assistance of a \$16.8M interest-free loan from the NSW State Government Local Infrastructure Fund.

The main building tasks included construction of a control building, concrete tanks, mechanical filters and roads.

The upgrade to the treatment process itself comprised the installation of a new five-stage Bardenpho process and the inclusion of tertiary-stage filters, which will reduce the concentration of nitrogen by 40% and phosphorus by 90% in discharged effluent. This will improve the quality of water entering the Terranora Inlet ecosystem in line with current environmental guidelines, and have flow-on benefits for water quality in the lower Tweed estuary, which is popular for fishing, recreational boating and swimming.

Filtration and disinfection equipment have also been upgraded, with the installation of a multi-barrier treatment system.

Work completed to date includes the new screening system to remove particulate waste matter; a new flow balancing tank and pump station; new anaerobic treatment tank; new UV disinfection system; and new emergency generator. These systems have all been commissioned, tested and proven fit for purpose.

Work which is due to be completed by August 2012 includes a new tertiary filtration system; RAS pump station; clarifier tank; aeration system and odour treatment system.

Tenix is a leading multi-disciplinary firm delivering numerous water-related infrastructure projects across Australia, New Zealand and the Pacific. Their scope of capabilities include design, construction, operation, maintenance and management of assets and systems across not only water and waste water but also gas, electricity, heavy industrial and mining sectors.

The company's in-house Engineering and Operations Division has specific expertise in the engineering aspects of planning, sustainability,

design and operations of facilities such as Banora Point WWTP, allowing them to provide clients with turn-key solutions, and where required, ongoing 24/7/365 skilled operational and maintenance support. They can offer both conventional and state-of-the-art treatment systems, and undertake the design and construction of pumping facilities, tanks, reticulation systems, mechanical systems and all required civil works.

They also provide services for water infrastructure in the areas of rehabilitation, decommissioning, reuse systems, decanters, plus provide reliable expertise in SCADA, telemetry and process control systems.

Their track record of successful projects over the last 30 years has built a reservoir of experience from which they can draw to provide innovative lifecycle solutions for water infrastructure. With the combination of highly professional project management, design talent and hands-on abilities, Tenix is a client-focused and cost-effective partner for local government, industry, utilities, state governments and other infrastructure owners and managers. They also ensure effective stakeholder and community engagement process are followed throughout the construction planning and implementation phases, to ensure a win-win outcome wherever possible.

Tenix has designed and constructed more than 30 wastewater treatment plants in the last decade, and currently operate 15 treatment facilities.

Clients include Melbourne Water, Yarra Valley Water, Water Corporation of WA, ActewAGL, Country Water, Allconnex Water, Queensland Urban Utilities, Watercare Services (NZ), Department of Public Works (Fiji), Samoa Water Authority, Bega Valley Shire Council, Wagga Wagga City Council, Mackay Regional Council, Port Macquarie-Hastings Council, Far North District Council (NZ), New Plymouth District Council (NZ), and GWM (Grampians Wimmera Mallee) Water.

TENIX
 Infrastructure
 Contact : Allan Cupitt
 t. 0419 984 110

Engineering and Operations
 Contact : Chris Yeats
 t. 03 8517 9108



COMPLETE CHEMICAL AND LIQUID STORAGE

Chemstore International Group (formerly Gebel Chemquip) supplied and installed 5 Fibreglass Reinforced Plastic composite chemical storage tanks at the Banora Point wastewater treatment plant.

Chemstore is dedicated to providing a complete range of chemical and liquid storage options. Their products are constructed to all relevant international standards. The range of tanks supplied by Chemstore International Group can sustain most chemical situations and maintain a 20 year life of service. In addition to their range of FRP Tanks they also specialize in the supply and erection of large capacity Glassed fused to steel (GFS) and Fusion Bonded Epoxy (FBE) steel panel tanks

Chemstore's services start at the design phase of a project and include comprehensive support right up to the commissioning date. Chemstore supply a full in-house engineering service and for their field erected tanks they can engage plumbers and electrical engineers to cover the entire scope of a project. They provide all quality, commissioning, engineering, installation, operation and maintenance support from their own offices.

Chemstore remains a family owned company that has been in this business for three generations. They have the experience to supply the highest quality product.

In 2003 the company relocated its entire facility and head office to the city of Parkes in the central western region of NSW. Parkes is strategically situated at the centre of the road and rail link between Sydney, Melbourne, and Brisbane. It is also positioned on the main rail

lines from Sydney to Perth and Adelaide to Darwin. This ideal location provides accessibility to all of Australia's capital cities.

The facility at Parkes extends over 6000 square metres, including the manufacturing area and testing facility. Their quality management system is accredited to ISO9001:2008.

Over the last couple of months the company has also established a fully equipped branch in Stawell, Victoria, with its own sales, marketing, and project management team.



CHEMSTORE INTERNATIONAL GROUP

19-21 Clarke Street
Parkes NSW 2870
t. 1300 139 971
f. 02 6863 5766
e. sales@chemstoregroup.com.au
www.chemstoregroup.com.au

This photo was taken after the tanks were delivered and before installation of the tanks had commenced.



UNDERGROUND COMPONENTS MADE TO ORDER

High quality customized products delivered reliably makes Tri Underground (formerly Tri Distributors) a leader in the field of specialist supplies for electrical and communications systems. For the Banora Water Treatment Plant project, they provided PVC electrical conduit, Fabricated PVC electrical bends, joiners, bell mouths and associated accessories, sometimes on an extremely fast turnaround.

The biggest challenge was ensuring the right products were delivered at the appropriate point in the construction schedule, a task requiring ongoing liaison with Tenix and focused commitment from the manufacturing and distribution operations.

Every project has its unique aspects, on this one it was a requirement for special customized bellmouth cable entry fittings. These were manufactured to order by Tri Underground, often with a next day turn around.

Tri Underground has been in business for 10 years, and have a history of working with Tenix on Electrical Substations in and around south east Queensland.

The company manufactures and distributes underground products such as pits, covers, conduit, bends and fittings to contractors in the roading, new estate, electrical and communications industries. There are currently 60 staff across manufacturing and distribution sites in Queensland, Victoria and New South Wales, servicing Australian and New Zealand customers.

Tri Underground is ISO9001 certified and a member of APUG (Asia Pacific Utilities Group), with approval for the supply of access pits and covers for Queensland Main Roads, Brisbane City Council, Gold Coast City Council and Cairns Regional Council. They were named a finalist in the Energex Supplier Quality Awards.

"We enjoyed working with the Tenix team and we are proud to have been a part of a successful project such as the Banora Water Treatment Plant," said Tri Underground Director, Darrin Hughes.

"We strive to manage our customers changing needs, and our products are tailored specifically to the needs of each project including specific bend radius. We also carry extensive stocks so we can meet any project requirements. Also, our dedicated account management creates value for our customers through competitive and on time delivery - our trucks can deliver to site as required.

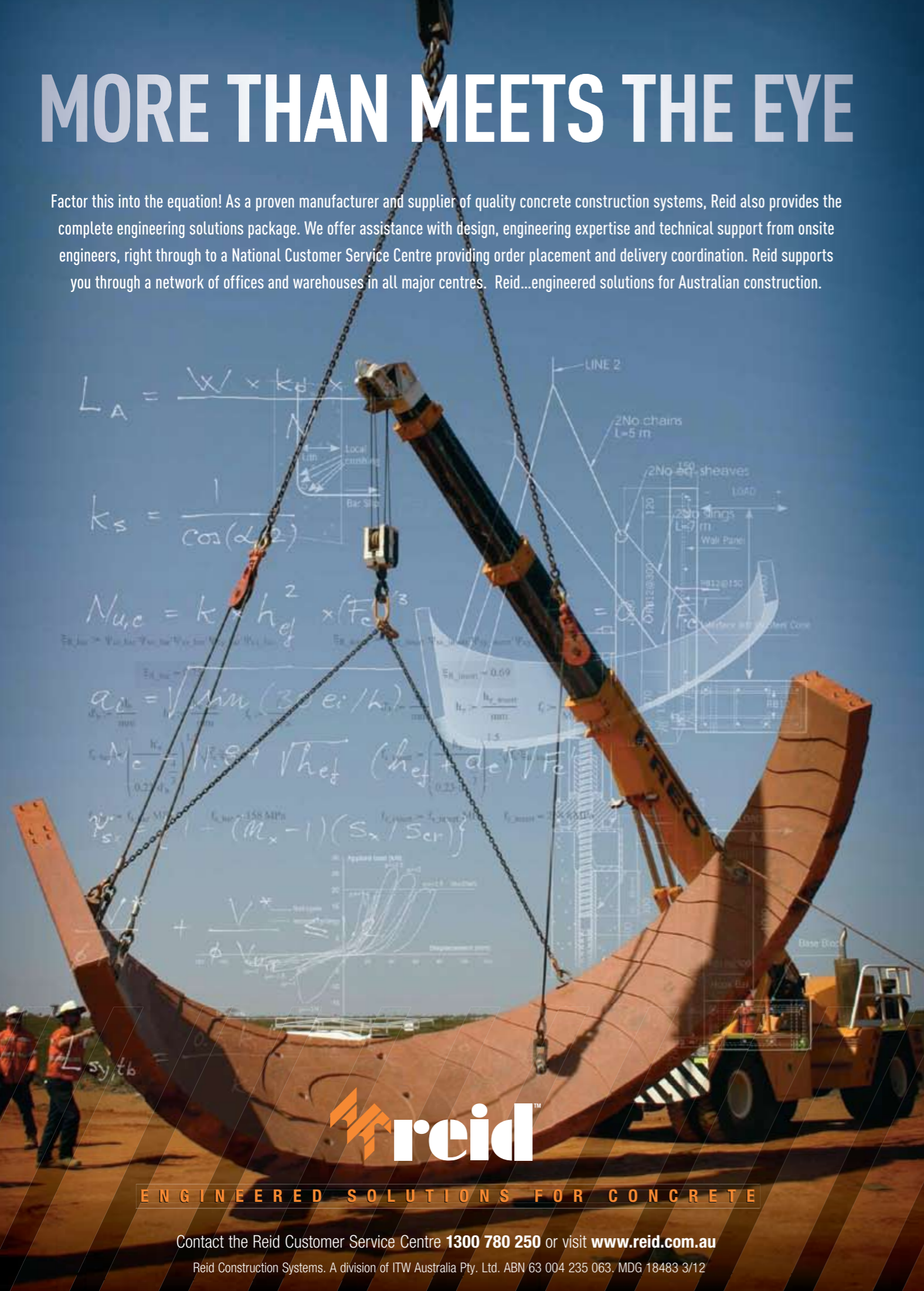
"As projects move from planning to construction, unforeseen challenges arise and Tri Underground provides a highly flexible and quick service including manufacturing products on short lead times to get the project back on track."

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MORE THAN MEETS THE EYE

Factor this into the equation! As a proven manufacturer and supplier of quality concrete construction systems, Reid also provides the complete engineering solutions package. We offer assistance with design, engineering expertise and technical support from onsite engineers, right through to a National Customer Service Centre providing order placement and delivery coordination. Reid supports you through a network of offices and warehouses in all major centres. Reid...engineered solutions for Australian construction.



JOB CONNECT - A DUTY OF CARE

Job Connect Recruitment is very proud to have been a partner with Tenix Australia in enlisting quality blue collar contract staff for the Banora Point wastewater treatment plant project in Tweed Heads. The staff enlisted ranged from trades assistants to electrical and mechanical tradespeople. Job Connect also provided HR, OH&S solutions and consulting services for the duration of the project. It is a pillar of Job Connect's involvement in a project that they monitor the safety of staff working on the site as a duty of care.

Job Connect has been in business for five years in Queensland, providing professional, blue collar and administration recruitment and labour hire. In its second year it aimed further afield by starting Job Connect Global, which specialises in recruiting personnel to work in the United Arab Emirates – engineers, managers, accountants, corporate and office support, tradespeople, warehouse, logistics and aviation staff.

Wherever the job is, Job Connect listens to their customer's needs and provides quality staff for the job. They believe in honest communication, regular feedback and genuine partnerships with clients to achieve best practice in recruitment.

Job Connect has no hesitation in stating its core values: passion, commitment, enthusiasm, positivity, encouragement, perseverance and professionalism.

Job Connect is a 100% Australian owned company with a proven reputation in providing quality temporary and permanent staff to employers and a proven reputation for providing opportunities and caring about jobseekers. Its Directors have over 15 years of local, national and international experience in the provision and placement of temporary and permanent staff. With this depth of experience they can quickly understand individual client's and candidate's needs and expectations and broker a perfect match. Their stated goal is to do this first time, every time.

JOB CONNECT RECRUITMENT PTY LTD

Level 4, Suite 4/10
182 Bay Terrace
Wynnum QLD 4178
t. 07 3396 3811
f. 07 3396 3711
www.jobconnect.com.au

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