

NORTH-WEST T-WAY

LEIGHTON CONTRACTORS
SYDNEY NSW





FAST TRACK

When the NSW Government sought assistance to provide a transport solution for Sydney's rapidly expanding North West, it turned to major construction firm Leighton Contractors.

Leighton Contractors employs over 7,000 dedicated and talented staff who work across diverse sectors including construction, mining, telecommunications, industrial engineering and infrastructure investment. Leighton Contractors is wholly owned by Leighton Holdings Limited, which is one of the world's Top 25 construction contractors. Today, Leighton Contractors is enjoying massive growth and development. Over the past two years alone the company has doubled in size and trebled its work in hand.

In December 2004 the NSW Roads and Traffic Authority (NSW RTA) awarded Leighton Contractors the contract to design, construct

and maintain a \$524 million transit way development for a rapid bus service linking Parramatta, Blacktown and Rouse Hill. The North-West T-way, or T-way, would link existing bus and rail networks, including the recently completed Paramatta-Liverpool T-way. Former NSW Premier Bob Carr envisaged the T-way would provide Sydney's North West residents with increased access to "jobs, health, education and leisure facilities", reduced travelling times and reduced car congestion on existing roads.

Sydney's North West is experiencing enormous development, with the population increasing by around 1,000 residents a week. When designing the bus-based rapid transport system, Leighton Contractors and principal designer Maunsell Australia considered the future, favouring designs which offered NSW RTA more options for growth and development.

In June 2005, Leighton Contractors began constructing the T-way in two linked sections. A 17km link was built from Parramatta to Rouse Hill Town Centre, adjacent to Old Windsor Road, and a 7km link built connecting Blacktown to Parklea, adjacent to Sunnyholt Road. This major project involved the design and construction of a 21km bus only road with 3km of bus only lanes, 30 bus stations, two park and ride stations with a total of 400 car spaces, and three "kiss and ride" stations. Seven new bridges and three underpasses were also constructed. Not forgetting pedestrian/cycle access, a 3m wide shared pedestrian path and cycle way was built along the entire length of the T-way, linking with other pedestrian and cycle networks in the North West region.

Construction was completed ahead of schedule. The 17km Parramatta to Rouse Hill section was completed first with bus services running from

March 2007. The 7km Blacktown to Parklea section was completed and opened for service in November 2007.

Leighton Contractors has an industry reputation for consistently working to a high standard across all facets when delivering a project. The company demonstrated the effectiveness of its safety training and management procedures when it twice celebrated one million work hours with no lost time injuries during T-way construction. Engineering Manager Adam Sharman attributes this success to the continuous efforts of all staff involved to live a definite safety conscious culture. A continuous improvement and collaborative approach towards delivering a quality product also imbued the project team's culture.

Undertaking construction in such a densely populated area as Sydney's North West provided

numerous challenges, particularly as major roads adjacent to the construction were kept open during project delivery. On the ground traffic management included a dedicated traffic manager who worked with NSW RTA to strategically plan all construction interfaces with operating roads. Motorists using Old Windsor Road, accustomed to carrying 60,000 cars per day and Sunnyholt Road, with normal traffic volumes around 30,000 vehicles per day, were able to traverse their normal traffic route with minimal disruption during the two and a half year construction phase. A robust communication strategy ensured the public were kept well informed via various means including direct mail outs, a dedicated project website, a display centre and a 24 hour, seven days a week T-way phone line. Since completion, the project has been nominated as a finalist for the prestigious 2008 Australian Construction Achievement Award.

It is clear that Leighton Contractors has taken immense pride working with the NSW RTA and the NSW Government to deliver this important transport infrastructure development for Sydney's North West region.

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IN GOOD FORM

A civil contracting company, P & T Formwork & Welding Pty Ltd provides formwork and concrete and steel fixing for large infrastructure projects. P & T Formwork & Welding subcontract to large Australian construction companies such as Transfield, Baulderstone/Hornibrook and Montgomery Watson Harza, Thiess/John Holland and Leighton Contractors to conduct specialist works.

For the North-West T-way project, P & T Formwork and Welding were subcontracted to work on two bridges spanning each of the two main arterial roads. The bridges, over Sunnyholt and Old Windsor Roads, formed a critical part of the pedestrian and bicycle access which was constructed adjacent to the transit way.

The 21km shared pedestrian path and cycle way was included to increase user options and link in with other pedestrian and cycle networks in the North West region.

The steel bridges were constructed off-site and lifted into place. P & T Formwork & Welding were then engaged to make accessibility a reality for pedestrian and bicycle users. The Company constructed concrete staircases and ramps leading up to each of the two bridges.

Working with reinforced concrete, P & T Formwork set up formwork and carried out steel fixing to 8 metres above road level.

P & T Formwork & Welding has been in operation for 15 years and has completed many successful projects throughout NSW and interstate. The Company has been heavily involved on numerous stages of the Sydney Orbital system including the M5 East Motorway, Westlink M7, M2 Tollway and the Lane Cove Tunnel Pump Station. Other work includes Service Building for the Parramatta Rail Link in Chatswood and Sewage and Power Plant works throughout the Eastern States.

Recent and current projects include the Brunswick By-Pass for Abi Group and the Bond River Bypass in Coffs Harbour.

The company varies its formwork system from job to job. P & T Formwork & Welding have a close working relationship with Peri Australia and Novatec Brisbane, using their equipment on a regular basis.

Company Director Michael O'Toole believes that one of the Company's strengths is the practice of direct supervision of the work by management, ensuring outstanding results every time.

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A FIRM COMMITMENT

South East Concreting has an enviable record of density and tolerance achieved in their hand placed concrete works. The civil concreting company was well qualified to be awarded the major subcontract for hand placed concrete in all zones of the North West T-way, as well as a minor subcontract for machine placed wall pavements.

Based in Tweed Heads, South East Concreting specialise in subcontracting to major civil construction projects in New South Wales, Queensland and Victoria.

The North West T-Way is one of several projects the company has recently been working on in the region. These include two of Sydney's other key transport ventures, the Lane Cove Tunnel (completed in May this year) and Westlink M7, where South East Concreting also worked with Leighton Contractors on its joint venture with Abigroup.

South East Concreting employs around 100 staff, half of which were involved with the

transit way project. Most have been with the company since its inception five years ago. Many of these also began working for South East Concreting under a previous organisation.

Company Director Daniel Ingold has worked alongside Construction Managers Paul Shorter and Dennis Rogers since 1996.

Mr Ingold believes the dedication of staff and business success is largely due to the company's unwavering commitment to quality.

"We believe in getting it right the first time," Mr Ingold explained. "Our jobs stand the test of time. We virtually never have to replace any part of our concrete paving."

South East Concreting achieves these consistent results by using a stiffer concrete mix (up to 70 slump) and its compaction techniques. South East Concreting has at their disposal up to 80 concrete vibrators and vibrating screeds to ensure maximum air reduction and stability.

The company also purchased a Gomaco Commander III paving machine for use on the North-West T-way project. The fast loading and tracking capacity of this machine contributed to a high standard of completion on the job. Suitably impressed, South East Concreting has recently purchased a second machine, which is currently creating barrier walls in Brisbane.

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THEY'VE GOT IT COVERED

Since 1988, T & M Group has established an excellent reputation in engineered architectural metalwork, sheet metal work and signage. In collaboration with Ox Urban/ Over Exposure Media, the T & M Group profile has expanded to include projects anywhere from urban furniture to medium architectural industry.

Based at Smithfield on a huge three hectare industrial block, TM Over Exposure has cultured a particularly successful blend of resources, space, experience and innovation.

The company has demonstrated its capabilities on sites such as Olympic Station. On this significant site, TM Over Exposure designed, engineered and manufactured 7500 perforated panels for the complex vaulted ceiling in addition to the pylon signage structures, gates, emergency systems, clocks and directional signage.

The company uses pioneering technology which can convert 3D models directly into machine code for fabrication. Laser and water jet cutting are used in construction. A massive 1000 tonne press, one of only several in the country, has also been added to the workshop. The \$1.2

million press has the capacity to bend steel up to 8 metres in length. Sheet, angle and tube rolling complete the group's total in-house one stop architectural metal processing capability.

TM Over Exposure was responsible for the total design and fabrication of the 54 bus shelters along the length of the North West T-way project.

The shelters were built completely offsite in the company's workshop, and transported and installed on site.

TM Over Exposure had provided signage, stainless steel cladding, light structural framing and complex paneling on bus shelters for the Parramatta-Liverpool T-way.

The company worked with a number of other contractors on this job such as glaziers, extrusion and roofing teams. When it came to the North West T-way, TM Over Exposure engineer Terry Tisdale felt the company could streamline the process, and save time and money, by completing the entire job themselves. The company worked with civil engineer Steve McLean of Leighton Contractors to design a prototype.

Mr Tisdale was very happy with the result. "We have made some improvements on the previous shelters, such as the roof and ceiling design, lighting features and waterproofing," Mr Tisdale explained. "It's a nice looking unit, commuters will be able to enjoy the aesthetics."

The shelters were made using advanced materials and have a high quality finish.

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WELL EQUIPPED

Easy Dig is a compact and well equipped company operating from Sydney's North West region. The company specialises in Directional Drilling Services. All staff are accredited with all utility providers and have been with the company long term.

Easy Dig's services were engaged by various clients along the length of the North-West T-way as it was being constructed. With different sections of the road being constructed concurrently, Company Director Roger Hill managed his team of four so that they could provide drilling services wherever and whenever they were required.

With the growth that is occurring in the region, the provision of major utilities is of utmost importance and, in some instances, Easy Dig were providing directional boring on a site where up to a dozen pipes were to be installed at a time.

Easy Dig Pty Ltd can be depended upon to provide consistent service on extended or ongoing contracts as well as short term projects. Easy Dig has been involved with all utility providers over the last 12 years.

The team from Easy Dig has a broad range of experience in working with utilities in construction zones. The company has worked on the M7 project since December 2001 and has provided essential services on both the Windsor Road Upgrade as well as the adjacent North-West transit way construction for the past two years.

Easy Dig's Director Roger Hill is often contacted to provide Directional Boring and Non Destructive Digging where other techniques would not suffice.

Well equipped, Easy Dig gets the job done. The company provides a Vermeer D36x50 Directional Borer and a 3.5 Tonne Mini

Excavator with mixing plant setup and Rock Drilling Capabilities. A Vacuum Suck Truck and a Non Destructive Digging Unit are also part of Easy Dig's capable plant and equipment.

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A REPUTATION SET IN CONCRETE

In any major construction there are small but essential jobs that machines can't get to. Fitting and finishing of storm water pits and curb and guttering for driveways and footpaths, for example, requires specialised hand work.

Enter DNA Concrete. This small, dynamic company delivers with efficiency and expertise to leave a job done right, first time. Company Director David Auddino began DNA Concrete 10 years ago after many years of working under an experienced concrete fitting and formwork specialist.

DNA Concrete offers their services on a variety of developments including subdivisions, roads and industrial estates. "We supply the formwork, labour and know how to get the job done." Mr Auddino explains. "With us, the engineers, foreman and leading man are all happy." The Company has developed a solid reputation

for rapid and reliable installation of non prefabricated materials. This reputation has grown with the successful delivery of services on numerous development sites including Leighton Contractor's M7. David Auddino and his company were a natural choice for the in situ placement of grates and edging on the many hundreds of storm water pits on the North-West T-way project.

DNA Concrete worked full time for 18 months on the T-way during construction, on both the Parramatta to Rouse Hill and Blacktown to Parlela links. By working on a price per pit basis rather than an hourly rate, DNA Concrete are driven to complete jobs quickly and efficiently.

DNA Concrete's practical experience is also an invaluable asset when transposing designs into solid forms. Working with engineers on the North-West T-way, Mr Auddino was able

to simplify and streamline access to the storm water pits for future maintenance and inspection services.

Based in western Sydney, DNA Concrete services the wider Sydney region north to Gosford, west to the Blue Mountains and to southern Sydney.

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STRAIGHT TO THE POINT

Non Destructive Excavations Australia is a small family business based at Baulkham Hills, close to the site of the new North-West T-way. The company specialises in vacuum excavations for location of underground services, as well as trenching and pit excavation over existing services. They also use potholing techniques, which cause minimal impact on the road or at the worksite.

The work carried out by the company has a variety of applications including power pole hole excavations, dewatering and sludge removal. Limited access locations are not a problem for Non Destructive Excavations Australia.

When company director Kim Liddell was asked why the company chose to specialise in non destructive methods of operation, the answer was simple.

“Non destructive excavating is the way of the

future. It is safe, with minimal disruption. It’s the best way to locate underground services,” Kim said. Accuracy is imperative when working in heavily serviced areas such as in Sydney’s northwest, to avoid running through a service. Non Destructive Excavations Australia were able to provide safe and effective service location over the entire length of the North-West T-way.

In the two and a half years since its inception, Non Destructive Excavations Australia have worked on a number of projects such as the Liverpool – Ashfield pipeline, the M7 motorway, various rail projects as well as continuing work with companies such as Integral Energy.

“There are a number of advantages to dealing with a small business,” explains Kim. “The service offered is very personalised. There is also continuity on site. When the same team is there each day, they really know what’s going

on. It helps with communication between the major contractors and other subcontractors.” “We provide an important service, and we enjoy what we do,” Kim added.

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GOING UNDER GROUND

Established in 1958 as a plumbing business, Barry Bros. has grown to become a leader in drain cleaning and industrial services. With a workforce of over 300 people spread across 10 branches nationally, Barry Bros. offer fast efficient service to most capital cities and major provincial centres. Barry Bros. is a subsidiary of public company Tox Free Solutions Limited.

Barry Bros. were subcontracted to provide a range of services along the entire length of the North West T-way project at different times during its construction.

Services investigations, using electronic location and potholing carried out by Barry Bros. provided much needed information during the early design stages of the project. The potholing of underground services prior to excavation was a practice employed right throughout the life of the project to prevent damage being sustained to infrastructure.

Chris Gavan is employed by Barry Bros. as the Area Manager-Salesman. He explained that the North West T-way project provided an opportunity to make good use of the company’s highly specialised equipment and skilled staff.

“It was a demanding area for service location, with a high level of critical infrastructure,” Mr Gavan said. “This included high pressure gas mains, oil line and sensitive fibre optic cable.”

Potholing up to 3 metres deep, and trenching 3 – 4 metres wide were often required in order to find a service. This was all carried out using high pressure air or water and vacuum.

Barry Bros. carried out extensive drain cleaning and CCTV Inspections of much of the storm water drainage system on the project as part of the mandatory hand over process by the contractor to the client.

Barry Bros. also provided road sweeping during the construction of the T-way five days a week for two years.

Barry Bros.’ Envirovac Sweeping Units provide a cost effective method of preventing the contamination of storm water systems and waterways by pollution control, including the management of silt and dust on construction sites. The dust suppression technology used in sweeping services, as well as the low noise emissions, result in little if any public disturbance when sweeping is performed by state of the art equipment.

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INTEGRATED WASTE MANAGEMENT AND INDUSTRIAL SOLUTIONS

Transpacific Industries Group Ltd (Transpacific) offers a range of integrated environmental, waste management, facility management and transportation services tailored to meet the needs of industrial, municipal and commercial customers across Australia, covering most industry sectors.

Josephine Mockford, Transpacific's Business Development Manager – New South Wales, points out that one of the company's unique strengths is the ability to provide customers with a comprehensive range of services delivered through a single contact point.

One of Transpacific's recently completed contracts involved the delivery of industrial cleaning of storm water systems and total waste management services for Leighton's North-West T-way project.

Transpacific's storm water services included

the provision of on-site high pressure water and super vacuum units. Company efficiency in relocating resources around the T-way site averted flooding incidents on several main arterial roads during construction.

The company's integrated waste operations seamlessly managed waste from its point of collection through to transfer stations and recycling and treatment plants. Working from sustainable principles with a focus on recycling and landfill reduction, the processes and equipment used by Transpacific are designed to minimise the client's environmental impact.

Paper recycling was provided for the T-way offices as well as general waste services which for the construction site included recycling of timber where possible. Transpacific also provided tanker collection and disposal of contaminated waste at the company's Homebush Bay Liquid Treatment Plant.

Due to the speed at which construction of the T-way was delivered, Transpacific based a Supervisor in Charge - Day to Day Operations, on site, to manage optimum location and relocation of bins and coordinate their delivery and pick up. Thus Transpacific minimised risks to the T-way project with coordination and ownership of the waste management services from collection to reduction, reuse or disposal of waste products.

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IN SAFE HANDS

HV T Inspection Services have been ensuring the safety of engineering works through inspection and testing since 1997. The company's experience stretches back even further under the previous name of Hunter Valley Testing, where HVT's Company Director Paul Ashby was involved in head management.

The small dedicated team of 10 runs their business from Smithfield, in Sydney. With long and flexible work hours and an emergency service that has them at the ready 24 hours a day everyday of the year, the company often conducts critical work where a crack in a boiler weld, or a tube leak at a power station, requires immediate professional attention.

HVT Inspection Services employ a variety of Non Destructive Testing techniques to locate

any areas of weld weakness or structural imperfection on pressure vessels, cranes, bridges, pipelines and boilers, for example. Techniques employed include Radiographic and Ultrasonic Examinations and Magnetic Particle/Dye Penetration Inspection. HVT Inspection Services also offer Concrete Slab Inspection, Eddy Current and consultancy services.

On the construction of the North West T-way, HVT Inspection Services was engaged to conduct testing on all of the transit way's guard rails and crash barriers. These safety devices were installed on the seven bridges built along the length of the transit way. In addition to inspecting and testing the welds on these structures as they were fitted, Director Paul Ashby was responsible for the Weld Procedure Development for these safety devices. Mr

Ashby and personnel worked with welding subcontractors onsite to ensure that all standards of the building code were met.

HVT Inspection Services have recently purchased a Positive Material Identification Unit (XRF or X-Ray Fluorescent), which is currently at work on the Shell Refinery Shutdown (Reactor Replacement) project. HVT Inspection Services are also widely involved with preventative maintenance, such as annual structural testing of the flagpoles on Sydney's iconic Harbour Bridge.

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