

NEWCASTLE INNER CITY BYPASS

The Shortland to Sandgate project is a 1.8 kilometre four lane divided road extension of the Newcastle inner city bypass between Shortland to Sandgate.

NEWCASTLE INNER CITY BYPASS / THIESS



Left Newcastle Inner City Bypass constructed by Thiess in alliance with RMS.

Considered one of Australia's leading major construction companies, Thiess takes the helm on major infrastructure and other building projects with a solidity of management and commitment to ensuring a successful end result. This professionalism is what Thiess were able to bring to the Newcastle Inner City Bypass project, and essentially ensure this project reached its complete manifestation, thereby immensely improving this section of NSW road infrastructure.

While not the first association with Roads and Maritime Services by any means, 'Thiess' involvement with the Newcastle Inner City Bypass was in fact established as an alliance with RMS due to the particularities of these works. Thiess management had around 30 of their staff on this project, and embedded were another 6 RMS staff.

While the project in fact had come to a stand still early on in its construction phase, it was Thiess's management that was able to bring things back on track. As Graham Nuss reveals, "RMS required a rapid start up, or re-start-up of construction, and the alliance format of completing the work allowed that to happen quickly. And it worked really well."

The Newcastle Inner City Bypass started in the early 1990's, with its construction being carried out in 5 separate sections. Thiess has been involved with three phases including the Sandgate section, the fourth section. There is still one outstanding section to be completed. Graham Nuss states, "We are concerned with the overall management and timely completion of the project, of this section and meeting RMS project milestones."

One way that Thiess has demonstrated their project management expertise has been the early re-opening of the Sandgate Interchange Bridge in December 2012.

"Other concerns were ensuring that the construction of the continuously launched bridge was timed to coincide with scheduled

ARTC Rail shutdown. And that was also completed successfully. And then bringing the overall project back on track to a Bypass Opening completion in early 2014."

The particular challenges for this section were mostly focused on the technical requirements of the continuously launched bridge over the rail line. Other challenges involved the rapid re-start of the project and the requirement by RMS that all previous incumbent subcontractors and suppliers were given the opportunity to be engaged for further work. Further challenges also involved service diversions, and working around the Maitland Road Intersection and managing heavy traffic congestion.

Environmental concerns remain at the top of 'Thiess' work ethic, and they treat them as seriously as every other concern in a project.

"We are working adjacent to the Hunter Wetland Centre and we have to take into consideration the endangered Green and Golden Bell Frog, which is a priority for us, ensuring that there is no negative impacts from the project on the habitat of this species."

"We always have environment as a very high priority along with safety. And we do regular inspections with our client, and to date across the Sandgate project we've had 100% green ratings which is the highest we can achieve, which is a really good outcome for the project."

Another project currently of note in the area for Thiess is the contract for the 13 kilometre Hunter Expressway Alliance, which has just recently reached practical completion. The upgrade of the Pacific Highway was also recently commenced, with the new road upgrade starting from Frederikton to Eungai, near Kempsey. Furthermore, Thiess are the main contractor for a pedestrian tunnel reaching from Wynyard to the current development at Barrangaroo.

For more information, contact Thiess, Project Manager Graham Nuss, phone 0438 497 866; website www.thiess.com.au



Below Ace Scaffolding Services provided safe access solutions for the Newcastle inner City Bypass.

For the Sandgate to Shortland road project, part of current civil works for Newcastle Inner City By-pass, a dependable scaffolding company was required to provide reliable, high quality, effective and most importantly, safe means of access for the construction of the 1.8km road section. Awarded the supply contract from Thiess, Ace Scaffolding Services successfully handled the provision of scaffolding services, assisting the realisation of an intense project for all contractors involved.

With their head office located in Cardiff, NSW, Ace Scaffolding Services have provided safe-access solutions for projects across Australia for over 22 years. Ace Scaffolding Services can support projects ranging across all industries, from commercial and domestic, industrial, as well as infrastructure projects such as mining, rails and roads. They also do events. For the Newcastle Inner City By-pass, Ace Scaffolding Services took on the 12 month project and had up to 20 people working on the project.

The unique element to the Sandgate project for all contractors to contend with was the road crossing at two locations across the rail corridor, therefore requiring two separate bridges to be inserted at this section of the project. Ace Scaffolding Services provided the scaffolding access solutions for the bridge piers along with the catch platforms to the rail lines. Further requirements for this aspect of the project was the need for specifically rail- trained workers, and the necessity to be absolutely on schedule to ensure no further disruptions to rail lines were created.

The issue of working to specific time-frames for the launching of the two bridges was a particular milestones for the Sandgate to Shortland project. A full-shut down of the rail lines was required, therefore adding a heightened sense of pressure for all contractors on the job. With all trains stopped, there was a three day and five day window allocated for the two bridges to be launched, so working to

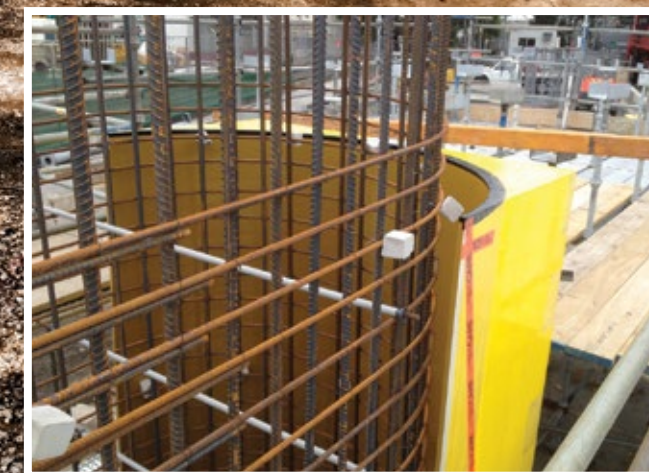
this timeframe was the main priority on the job. If in fact it had been missed, the problem of launching two bridges at the same time would have to have been handled.

The construction of the bridges needed to be completed prior to the launching over the rail lines. With two bridges assembled from their pre-fabricated components, they were then separately pushed out over the rail lines, and inserted into place. Ace Scaffolding Services were dealing with heights up to 8 metres, providing the scaffolding support for the fabrication of the bridges and their launch, utilizing both their stainless steel and aluminium systems of scaffolding. Overall, this type of project was something that had not been attempted for quite a long time on any Roads and Maritime Services site.

Working in the rail corridor required employees who had specific training for this type of environment. Ace Scaffolding Services were able to provide people with this specific rail training and experience, with a dedicated team working through the night to achieve the set time requirements.

Ace Scaffolding Services handle projects across Australia, with Thiess being a returning client for their services. Further works currently underway include providing safe scaffolding services for mining company Rio Tinto at Mount Thorley-Warksworth in the Hunter Vally, and they also have Centennial Coal as a long-held client. Another project in New South Wales coming up is providing scaffolding services for work at the Kincumber Sewer Treatment Plant. Ace Scaffolding Services have also recently been awarded the contract for the new Newcastle Court House Redevelopment by John Holland.

For more information contact Ace Scaffolding Services, Ryan Zeitsch, 12 Alhambra Ave, Cardiff NSW 2285, phone 02 4902 5200, fax 02 4902 5251, website www.acehire.com.au



Working with concrete elements of a structure allows a plasticity to form beyond traditional shapes. One company that has created a niche market in supply of custom made formwork is Ezytube, with operations located in both Sydney and Brisbane. It was to this company that Thiess looked to for creating feature design elements for the bridge as part of the Shortland to Sandgate section of the Newcastle Inner City Bypass.

Formed in July 1995, Ezytube have established themselves as an innovative company providing custom – designed concrete formwork for companies to create a range of shapes and surfaces. For the Sandgate project, Thiess were interested in creating a rounded edge to the end portion of the two supporting concrete piers at either end of the bridge. The custom rounded column ends were incorporated with the pier column formwork after the reinforcement was in place.

Ezytube work collaboratively with their clients to design a system of formwork that can create what the designers have as their goal. The overall challenge is to find a system that can create a form that traditional formwork is unable to achieve. “Our customers send us

plans of what they are trying to achieve, and what the parameters are, and we work with them to advise the system that we need to create to achieve what they are after. In this case, we computer cut a high density foam insert to the specific shape and size required and lined it with our proprietary Yellow Formliner. Thiess then placed these inserts within their conventional formwork system to achieve the curved ends.”

A lighter workload is another beneficial aspect to working with Ezytube’s formwork. In the Sandgate project, installation of the formwork was able to be easily handled by two workers instead of requiring a mobile crane. A further benefit is a limitation of injury by formworkers or carpenters during manual installation and a much shorter time frame is required overall.

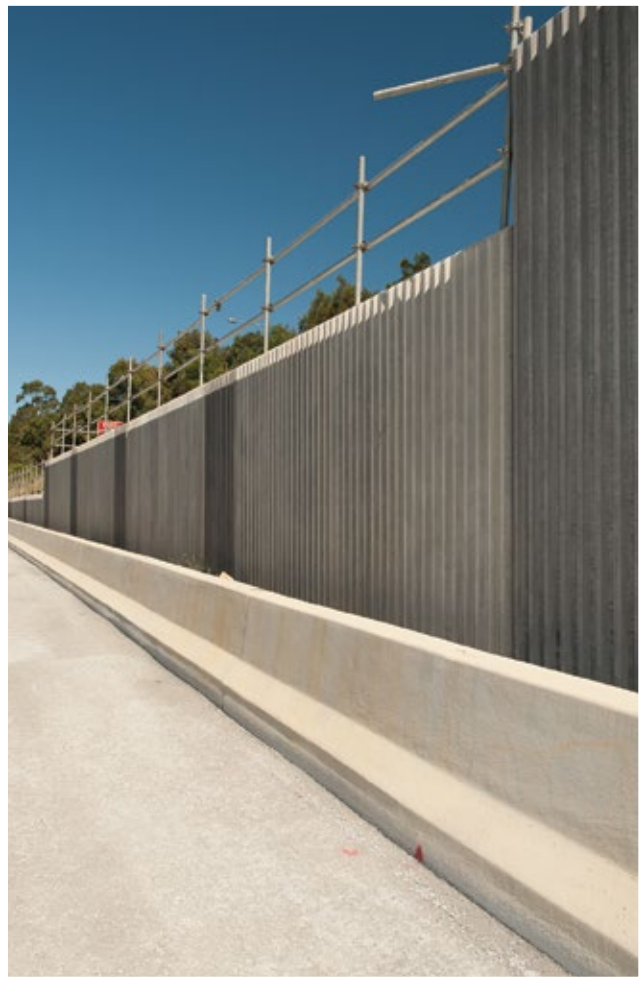
Other projects that Ezytube are involved with are Liverpool Rail project, Hume Highway Overpass and more recently, the Pacific Highway Upgrade at Coffs Harbour.

For more information contact Ezytube Pty Ltd, 29 Liverpool St, Ingleburn NSW 2565, phone 1300 138 011, website www.ezytube.com.au

Below Waeger Constructions supplied pre-cast components for the twin bridges and retaining walls.

Below Hunter Kerb delivered over 5km of kerb and s.o drainage, along with 400 metres of barrier walls for the Newcastle Inner City Bypass.

Below S&L Steel was contracted to fabricate, construct and deliver ten I beams joined together 110m long each.



Distinctive designs rely on specialist talents like Waeger Constructions to give them form, a case in point is the twin bridges of the Newcastle Inner City Bypass. Waeger Constructions were contracted by Thiess to supply the pre-cast components for this civil project, bringing to the task extensive abilities in incorporating unique architectural detailing into pre-cast.

Their scope comprised manufacture and supply of pre-cast road barriers for the bridges over the rail lines and Deep Creek Bridge sections, and pre-cast retaining wall panels for underneath the Sandgate Road Interchange. The series of pre-cast panels for the retaining walls incorporated a decorative pattern of vertical ribs. Waeger Constructions achieved this by incorporating the rib forming elements into the mould. Every fifth panel also features an oxide for a darker coloured concrete effect, and this was also achieved during the casting process.

Approximately 10 Waeger Constructions employees worked on the project, including project management and the skilled concreting trade staff of the company's pre-cast factory in Rutherford, New South Wales. The main challenge was logistical, with the rail operations schedule dictating the timing of the project's works programme. All

contractors needed to work closely with Roads and Maritime Services (RMS) to ensure everything coordinated within the tight schedule.

Waeger Constructions have been designing, manufacturing and supplying high quality pre-cast concrete products across both civil infrastructure and general construction sectors since 1987. Other recent bridge projects include supplying pre-cast bridge barriers for the Hunter Expressway and all the pre-cast including bridge deck sections for a 55-metre long bridge over Glendon Brook for Singleton Council. In general construction, major achievements have included pre-casting the stairs, landings and other elements for the multi award-winning One Bligh Street project for Grocon.

The company's commitment to delivering on time and to a high standard, and skill at applying innovation to resolve design challenges, has built Waeger Constructions a solid industry reputation as a 'can-do' team who produce excellent results.

For more information contact Waeger Constructions, Michael Waeger 17 Shipley Drive, Rutherford, NSW 2320, phone 02 4932 4900, mobile 0402 448 647, website www.waeger.com.au

Detailed kerb slipforming in a major infrastructure project such as the Newcastle Inner City Bypass is just as important a feature as anything on the macro-scale. Sub-contracted by Thiess to this project was Hunter Kerb, a company that has over 25 years experience in kerbs.

A particular challenge in the creation of kerbs and drainage for the Newcastle Bypass was dealing with a tight schedule enforced by controlling live traffic around the site. Delivering over 5km of kerb and s.o drainage, along with 400 metres of barrier walls, Hunter Kerb had a crew of around 20 ready to go on the tightly scheduled construction. A further challenge was the tight tolerances set by RMS in the construction of kerb heights.

Working to tight tolerances set by RMS was just one demonstration of the competency Hunter Kerb delivers, not only for this project, but for all projects across the Hunter and NSW.

For more information contact Hunter Kerb Constructions Pty Ltd, Warners Bay, NSW, phone 02 4947 4700

S&L delivered the steel girders for Sandgate Newcastle Inner City Bypass Bridge, crossing the rail lines, on target for its pre-planned rail possession launching dates. S&L was contracted to fabricate, paint, fully shop trial assemble (as part of our QA and Specialised service), survey the shop assembly, dismantle for delivery and then reassemble on site, welding the girders to make 20 of 110m lengths each. S&L designed and supplied the temporary site assembly steel supports. Twin bridge decks made of five 110m girders each were then assembled together adding up to impressive 1000 ton each for the two launching segments. The assembled girder segments had their concrete decks poured on them before each assembly was launched by HA. Once cured this steel deck was slowly lowered on to launching supports and moved using hydraulic pulling jacks into their final position over the railway lines. S&L Steel has over 100 employees, and is in operation for over 39 years since 1974. We have over 11000m² of undercover workshop and 15000m² of open yard space for trial assemblies, allowing S&L to survey, spot check, match, duplicate or rectify against site survey data to the assembled item in our yard before delivery thus ensuring trouble free fitment of items on site.

For more information contact S&L Steel, 59 Glendenning Rd, Glendenning, NSW 2766, email: admin@slsteel.com.au phone 02 9832 3488, fax 02 9832 3445 or visit our website: www.slsteel.com.au