

Case Study

Reinforcing New Zealand since 1954

Fletcher Reinforcing providing solutions to the Waterview diaphragm wall project

The Waterview Connection will deliver 5km of 6-lane motorway through and beneath Auckland's western suburbs, linking State Highways 16 and 20 to complete the city's Western Ring Route by 2017. This will provide a viable alternative for commuters, freight and through-traffic to State Highway 1, which runs through the city and over the Auckland Harbour Bridge and is regularly over capacity at peak times. It will also directly connect the International Airport and CBD, reducing travel times between the two points by over 15 minutes.

As part of the approach to the tunnel entrance at the Southern end of the connection, the Alliance designed in the use of Diaphragm Wall construction. This required a varying depth of reinforcing cage as the road approaches the tunnel entrance, ranging from ground level down to 31 metres at the deepest point. Fletcher Reinforcing engaged early with the Alliance to look at providing new solutions for the challenge of splicing reinforcing steel up to the 40mm diameter that the engineers required. We were able to offer the Ancon BT metric threading system which has been a proven system around the world for mechanical splicing and proven specifically in diaphragm wall applications in the UK over several years. This built on previous experiences in major infrastructure projects supplied by Fletcher Reinforcing in Auckland.

The Auckland Team at Fletcher Reinforcing embraced the challenges presented to them by the Alliance and were ready to start supplying finished cages on time in January 2013. At the peak of demand in February, the prefabrication yard in Otahuhu was buzzing with a large team of steel fixers working at speed in order to deliver to the required schedule. Once prefabricated, the cages were a regular sight leaving the Pacific Steel Mill early in the morning, led by pilot vehicles to escort them through the traffic. On site, Fletcher Reinforcing supported the Alliance by supplying its own team of steel fixers, removing unnecessary worry on the part of the project managers. Both out at site and back at the production facility, health and safety was a major consideration. Some key learnings were developed through the project and any concerns were addressed quickly. By April, over 900 tonnes of New Zealand made Pacific Steel reinforcing bar had been cut, threaded, coupled, fixed and fabricated into over 100 individual cages. The heaviest was 35 tonnes and approximately 31 metres long.

"Fletcher Reinforcing offered the Alliance a total package for this stage of the Waterview connection project. They brought solutions to a very complex design of reinforcing cage and worked with our engineering team at every stage to ensure QA requirements were met fully. Any issues that occurred on site were addressed

quickly with a 'can-do' attitude to avoid any negative impact. Even when program timeframes were reduced, the team at Fletcher Reinforcing cope well to adjust resources to ensure the project ran to plan. Overall, this was a well-run project by the Auckland team who showed a commitment at every stage to make sure that we achieved a result ahead of the original program."

- Matt Zame | Foundation Works Manager | The Well-Connected Alliance

Main Contractor	Well Connected Alliance
Total Tonnes	900 tonnes of steel
Total # Finished Cages	29 complete
Total # Individual Sections	100 before jointing
Heaviest Full Cage	35 tonnes
Maximum Deliveries in One Week	3 D-Walls [90 tonnes]
Longest Cage	Approximately 31m
Number of Loads out to Site	Over 60
Number of Spliced Bars	3557 couplings, 7114 threads cut on 240 tonnes of steel
U-bolts	11500
Ground Anchor Ducts	325

