

Bentleigh and McKinnon Level Rail Crossing Removal



Victoria's Level Crossing Removal Project is one of the most comprehensive transport infrastructure developments in the state's history. Spanning 75 removals, the project aims to address traffic congestion throughout Melbourne and improve safety. As part of an Alliance involving KBR, VicRoads, Public Transport Victoria (PTV), Metro Trains Melbourne (Metro) and the Level Crossing Removal Authority, John Holland was awarded a package of works related to the removal of two rail crossings in Bentley and McKinnon.

As it was imperative the interruption to traffic flow be minimized, the plan was to replace the level crossings with underpasses, so the busy roads could pass over the railway line. This strategy was a clear and practical solution to avoiding traffic chaos which was paramount to the project's success. The execution of this strategy required two large concrete slabs to cap the water table on each side of the railway line. Each reinforced tanking slab would measure 1.2 kilometres by 20 metres and require a massive 3,000 tonnes of reinforcing steel. Of the 37 days allowed for the project, 7 were scheduled for the slabs. Foreseeing the complexity of the project, John Holland engaged InfraBuild Construction Solutions to meet their reinforcing supply and installation requirements.

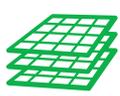
Project details

| | |
|---------------------------|---------------------------------------|
| Location | Victoria |
| Solution | BAMTEC® |
| Primary contractor | John Holland, as part of the Alliance |

Conventional reinforcing would have required 430 steel fixers, each working at capacity for the entire day to meet the tight schedule. Considering the site was bracketed by Melbourne traffic, this volume of workers on-site presented an unacceptable safety risk and posed a threat to the already demanding schedule. InfraBuild Construction Solutions' BAMTEC® prefabricated product offered the perfect solution. The fastest steelfixing system in the world, BAMTEC® rollout bar carpets simplify onsite reinforcing to placing and rolling. >>

"InfraBuild really understood what we needed to do on site and they managed the supply right through from design issue to installation so that we received the right products at just the right time."

Stephen Litterick, Alliance Manager, Level Crossing Removal Project



3000 tonnes
of reinforcing steel
used



8 times
normal daily
production

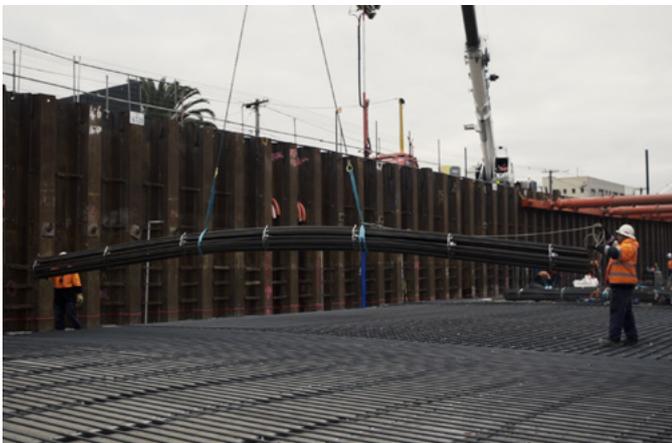


36 deliveries
daily



7 days
were scheduled
for slabs

InfraBuild Construction Solutions started the prefabrication process by adapting the original designs to suit BAMTEC®. Working in conjunction with John Holland, the prefabrication team simplified the slab cross-sections and in doing so increased the efficient use of steel. The resulting carpets ranged in size up to 12 x 12.5 meters and were prefabricated offsite by a team of qualified welders using bar diameters ranging from N20 to N28. The hefty carpets weighted in from 800 kg to 2.8 tonnes with strapping used within the carpet to assist with machine operated rollout. In utilising a prefabricated solution John Holland increased onsite labour efficiency by 3 times the rate of conventional steel fixing. As 1700 tonnes of the total 3000 tonne supply was BAMTEC®, this significantly contributed to John Holland success.



The scale of the project required significant consideration from InfraBuild Construction Solutions' expert schedulers and planners. The project required 430 tonnes of reinforcing steel per day which included 240 tonnes of BAMTEC® carpets – more than 8 times the product's normal daily production.



Since its introduction to the Australian market in 2000, BAMTEC® has proven itself the leading rollout reinforcing carpet solution. Exclusive to InfraBuild Construction Solutions, BAMTEC® is the fastest steelfixing system in the world and revolutionised the use of steel reinforcing in slabs, decks and Continuously Reinforced Concrete Pavement (CRCP). By simply rolling out 'carpets' of reo detailed to fit designated areas, installation time is slashed, accuracy is improved, waste reduced and fewer onsite steelfixers are required.

Machine manufactured and fully customisable, BAMTEC® is made bespoke to the individual project and is fabricated using bar diameters from 10 to 32 millimetres and carpet lengths up to 12 metres, with variable spacing to suit. Fully adherent to the relevant Australian Standards, BAMTEC® has repeatedly proven itself as the preferred solution for time critical projects.

“One of the specific production risks was pouring over 12,000m³ [of concrete] with over 3000t of steel reinforcement to construct massive concrete slabs over poor ground in the rail cutting. We had just a few days to do this and we would not have achieved our targets without the support from InfraBuild and the ease with which the BAMTEC® product was fixed.”

Stephen Litterick, Alliance Manager, Level Crossing Removal Project

Moreover, the 7 days allowed for all reinforcing elements to be installed meant supply needed to be rapid and well-executed.

To meet this challenge, InfraBuild Construction Solutions began fabrication in advance and secured a facility to store the significant tonnage. Before the critical week even arrived 90% of BAMTEC® and loose steel reinforcing was fabricated. Key to the project's success was the choice by planners to store the product in sequence to suit the unloading requirements on site. When delivery day arrived, InfraBuild Construction solutions were prepared with 20 dedicated BAMTEC® trailers and 16 bases for loose bar. Throughout the delivery schedule, a fleet including 6 primary trucks operating on a 24-hour schedule completed 36 deliveries daily. This rapid delivery solution, led by InfraBuild Construction Solutions' expert schedulers, was crucial to John Holland meeting their tight schedule.

Inarguably, InfraBuild Construction Solutions provided a solution for John Holland that would have been impossible to achieve by any other reinforcing method. Fabricated in a controlled, safe and efficient environment factory, BAMTEC® not only reduced onsite labour and congestion but eliminated on-site waste and relieved weather pressures. Elements were delivered complete and compliant to standards. In developing solutions from product design to delivery logistics, InfraBuild Construction Solutions were essential allies in John Holland's delivery of the Bentley-McKinnon Level Rail Crossing Removal. 

