PROJECT SHEET

LEGACY WAY TUNNEL

PROJECT SUMMARY

Client: Transcity JV

Location: Brisbane

Duration: 3 Years

Value: $ 5 M

Major Challenges Overcome:

- Water ingress
- Fast tunnel construction rate
- Access

The Project

Legacy Way Tunnel is a 4.6-kilometre-long tunnel joining the Western Freeway at Toowong to the Inner-City Bypass at Kelvin Grove. Construction started mid-2012 and it was opened on 25 June 2015. Legacy Way was named to honour the men and women of the Australian Defence Force.

Scope of Work

Dynaciv was engaged as a subcontractor to carry out defect repair work. After proving our capability and quality of work to the engineers at Transcity JV and the client, Brisbane City Council, Dynaciv was asked to provide many remedial solutions to structures such as the deep beam that supports the ICB above the

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Eastern Portal, and the corbels supporting the corbel slab in both tunnels.

Dynaciv was the longest serving subcontractor, starting work before the tunnelling started and continuing through the project to the very end. Our services over these years can be summarised as follows:

- ✓ Crack injection
- ✓ Concrete repair
- ✓ Waterproofing
- ✓ Structural strengthening
- ✓ Concrete repairs
- ✓ Waterstops
- ✓ Grouting
- ✓ Jointing Works

Crack Injection

Various types of cracks were repaired using a range of methods. Quality checks were performed through destructive testing. Our attention to detail and methodical task completion led to almost 10km of successful crack injection.

Below: Low pressure injection in a slab.

Below: Low-pressure injection in the tunnel

Below: A deep beam below the ICB that was successfully injected using a range of methods, including high pressure.

Below: A core taken 1000 mm into the beam. Note the epoxy throughout the crack

Waterstops and waterproofing

As most of the work was performed underground, groundwater was a common problem which had to be controlled. Dynaciv adopted a variety of methods to inject closed and open cell foam into problematic areas. This was often done to slow or stop water until a more permanent solution could be implemented.

Above: Foam slowing water flow into the work site

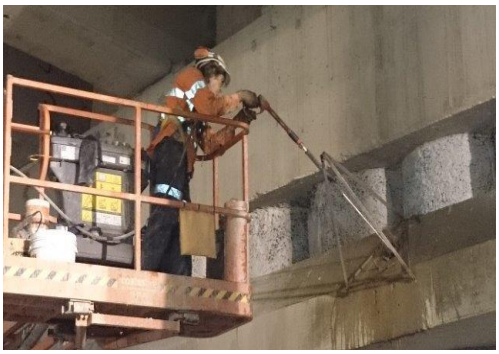
Other general work

Photos below show other general work done in the tunnel, portals, vent towers and other associated structures such as bridges.

Below: Concrete repairs at the entrance to the western portal.

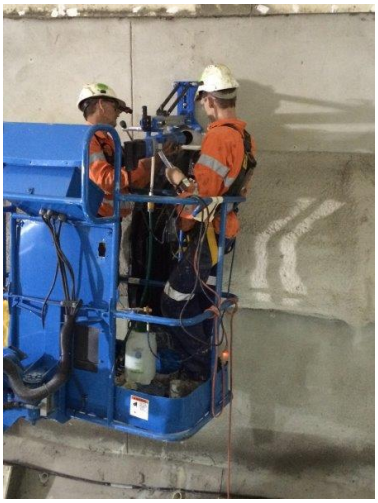
Below: The Russell Terrace bridge that we lifted/jacked to install the bearing grout.

Our engineers worked closely with the designers and site engineers to solve many issues. One of these issues were the removal and grouting of temporary anchor strands. The photos below show some of this work. The challenge was to cut the strands about half a meter in the corbel while they were imbedded in a flammable substrate.



We also carried out core drilling to install new drains to assist in dewatering.

Below: Coring



Below: Completed drains

Sealing exterior and interior expansion joints for the following structures:

- ✓ Concrete road base
- ✓ Footpaths
- ✓ Crash barriers
- ✓ Vent tower segments
- ✓ Precast and in-situ concrete structures

Below: The lower rings of the vent stack with joint sealant.