

## MAJOR HIGHWAY BRIDGE DEPARTURE SLAB LIFTING AND RE-LEVELING

### Site Profile

Transport for NSW (“TfNSW”) is the lead government agency of the NSW Transport cluster. Their role is to lead the development of a safe, efficient, integrated transport system that keeps people and goods moving, connects communities and shapes the future of our cities, centres, and regions.

Among many other things, TfNSW manage maintenance and repairs on the major highway network in NSW and the ACT. The Hume Highway connects Sydney and Melbourne and crosses a range of small creeks and water courses, including Wollgorang Creek, on its way south.



### The Situation

TfNSW identified subsidence on the highway bridge departure slab at Wollgorang Creek which was causing a potential hazard for highway traffic. Further to this, due to their experiences with previous other treatments for similar issues, it was

decided that traditional ‘slab-jacking’ directly underneath the departure slab was not the most suitable solution for this subsidence, and that a deeper penetration slab-lifting solution was required. This meant that the resin injection points and the subsequent expansion and lifting mechanism was targeted for well underneath the approach slab and the sand-cement subgrade material. TfNSW decided upon rectifying this situation immediately and required a supplier able to deliver within a very short lead time.



Having had previous interactions with Resinject, TfNSW contacted our Business Development team who, understanding the urgency and safety-critical nature of the request, were able to arrange immediate site assessment and scheduled next-day servicing for TfNSW.

### Our Solution

Resinject proposed a tailored deep penetration solution to raise the departure slab and re-align the road surface levels with the bridge roadway

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surface which were in some places originally up to 40mm different from each other.

The injection points for this treatment were targeted at between 1.0m and 2.5m below the road level which enabled our resin to be injected underneath the underlying cement-sand layer which would facilitate the slab and sand-cement layer to be lift as a single mass as desired.



Figure 3. Injection Works Under Traffic Control

TfNSW accepted Resinject's proposal, and the treatment was confirmed for the following day.

The works were performed under alternating lanes of live traffic where TfNSW managed the required traffic control accordingly.

### The Results

Resinject's treatment design included a pattern of thirty drill holes across both lanes of traffic, and incorporated injection depths of 2.5m down from the road surface.

After completing the proposed tailored injection solution, Resinject had been successful in raising the approach slab and sand-cement mass to the

desired levels and brought alignment with the adjacent roadways as planned. Furthermore, the works were completed within a single shift which minimised the disruption to the highway traffic and public.



Figure 4. Post-treatment Roadway Surface

TfNSW were delighted with the results, the efficiency of the service delivery and especially the quick response given the urgent nature of this special request.

### Acknowledgements

Resinject would like to thank the TfNSW team for the opportunity to demonstrate our time and cost-effective, sustainable solutions and for their permission to publish this case study.

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