

STABILISATION OF ROAD AND CREEK BED

Site Profile

Straddling the landscape of a flat little town in New South Wales is a timber bridge dating back to the 1960s. The bridge is one of the oldest bridges in the region.

The bridge, originally constructed in September 1969, is nearing the end of its useful life. Load limits have been introduced to allow vehicles to continue to use the structure until works can be completed.

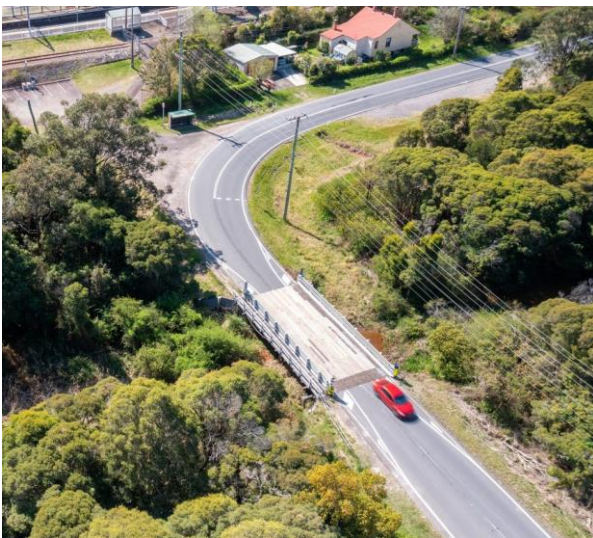


Figure 1. The original 1960s bridge. Image courtesy of 2HD

The Situation

The bridge was long overdue for an upgrade from timber to concrete to not only make it safer for road users but to ensure the roadway can handle the increased traffic the area is now seeing due to population growth.

The Mayor highlighted the key factor of safety saying, “This upgrade will not only increase the load capacity of the bridge, it will make travel safer for motorists, cyclists and pedestrians alike.”

The council set about inspecting the site with the aim of widening the bridge and upgrading the structure from timber to concrete. On inspection, it was identified that the ground surrounding the bridge including the underlying creek bed was weak and poorly compacted.



Figure 2. The Resinject team working to consolidate the weak ground surrounding the bridge

To ensure that they could successfully upgrade and widen the bridge, council sought a cost and time efficient solution to the project.

Our Solution

The local Council engaged Resinject to propose a suitable solution to improve the load bearing capacity of the surrounding soils and the road. Subsequently, Resinject’s experienced consultants promptly attended the site for assessment and to come up with a treatment plan.

On assessment, it was proposed that an injection program of varying depths be implemented in order to improve the load bearing capacity of the road and surrounding soils. It was identified that

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treatment should occur from up to 3 metres to the road surface.

Resinject's RSJ170 Polyurethane Resin is designed to completely fill any voids and cavities (the main causes of poorly compacted ground) around the targeted injection points. The product travels along the void areas, expanding up to 40 times its original fluid volume. This not only fills the voids and cavities but simultaneously compacts the surrounding fill material, improving its strength and capacity to support any overlying structures.

Resinject's primary injected Resin product, labelled as "**RSJ170**", fully complies with the Roads & Maritime Services M232 Quality Assurance Specification for Injected Expanding Resin Slab Jacking / Stabilisation, and is engineered to lift over ninety (90) tonnes per square metre area.



Figure 3. In-ground injection treatment

Council agreed to the proposed solution and Resinject's services were booked in for shortly thereafter.

The Results

Resinject completed the injection program via a series of targeted injection points at varying depths as planned. Working together with a civil contractor who took care of traffic control, Resinject was able to ensure that there was minimal disruption to the usual flow of traffic in the area. No down time was associated with the project and work was completed within a single day.

After completing the injection program, when the contractor went to place material they had no issues with heaving/movement. This meant that it was now safe for the civil contractor to continue constructing their engineered fill and widening the adjacent roadway.

Acknowledgements

Resinject would like to thank Lake Macquarie Council, the residents of Awaba and the civil contractor for the opportunity to demonstrate our sustainable, and cost and time effective solutions.

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