CASE STUDY

PROTECTING A VALUED COMMUNITY BOAT RAMP

Site Profile

A local Council is responsible for the building and maintenance of public access leisure facilities throughout the region.

This includes the repair and maintenance of all public boat ramps in the area. The boat ramp mentioned in this project is used for launching small boats with trailers and vehicles.

Figure 1: The Resinject Crew setting up prior to works commencing

The Situation

The concrete slab boat ramp located was experiencing significant cracking and movement between the two slabs. The area requiring repair was approximately 45 square metres.

The structure experienced damage because it was impacted by tidal movement, stormwater, and boat wash. This regular movement of water causes the soil to wash out and erode from underneath the structure causing it to move.

When a solid, single structure moves on a regular basis, has no solid support underneath it and is subject to heavy loads such as boats and vehicles, the slab starts to become weak, sink, and will deflect from its original position.

Figure 2: A concrete slab close to the water which showed signs of subsidence

The uneven nature of the boat ramp structure was causing significant concern to the safety of the public and the potential to damage the boats, trailers and cars using the facility. The potential for slips, trips and falls was a major concern.

The Council is committed to providing the safest facilities to their residents and so sought a sustainable and cost-effective solution to repair the boat ramp.

Our Solution

The local Council engaged Resinject to propose a suitable solution to raise and re-level the effected foundation slabs, that would have the boat ramp out of use for as little time as possible.

Subsequently, Resinject's experienced consultants promptly attended the site and assessed the foundation issues.

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It was discovered that the slabs had sunk due to the foundational soil becoming washed out and eroded away. The slabs were uneven and badly cracked posing a significant safety hazard to both people and equipment.

Figure 3: A treated slab which was raised and re-levelled 100mm

To raise and re-level the boat ramp slabs, Resinject proposed a slab-jacking solution consisting of injection points across the 45 square metre slab area.

It important to ensure that measures were taken to minimise the impact of tidal, storm water and boat wash on the boat ramp area. This would ensure a significantly reduced effect of erosion and washout of the soil and ensure a stable support structure for boat users.

Prior to any work commencing, Resinject worked collaboratively to install the waterborne retention barries. The barriers prevent the dispersal of any resin or other product solution into the water in an effort to protect the aquatic environment. It was also identified that works would need to be scheduled in accordance with tidal predictions.

Due to its non-invasive application process, Resinject's RSJ170 Resin was identified as the ideal solution to re-support and relevel the boat ramp, consolidate the founding soils, and fill any voids created by the tides. RSJ170 is an expanding and fast-acting polyurethane resin solution that is injected deep into the ground through small tubes, to increase bearing capacity and re-support existing structures.

The Results

After completing the proposed slab-jacking injection solution, Resinject re-measured the levels of the boat ramp slabs.

It was found that Resinject had achieved a lift of 100mm from the previous settled position on the slabs thereby extending the life of the concrete and overlying structure.

Furthermore, Resinject services were completed within a two-hour period (one hour either side of low tide), and with the foundations successfully raised and re-levelled, the boat ramp was able to open to the public immediately thereafter.

Acknowledgements

Resinject would like to thank the Council for the opportunity to demonstrate our sustainable, and cost and time effective solutions.