



## New pedestrian bridge, Richmond, Christchurch, NZ

A TTT Bridge 10.0m long and 2.5m wide was designed and installed in earthquake-affected Christchurch, NZ.



## Project background: New pedestrian bridge, Richmond, Christchurch, NZ

- A new bridge was required in a residential area in Christchurch.
- The bridge was installed over a river that was approximately 3.0m wide.
- The project was completed in 2014.

### Project challenge:

- The bridge needed to be designed to meet the requirements of the Transit NZ Bridge Manual, including pedestrian and earthquake loads.
- Health and safety during installation had to be taken into account at the design stage due to the nature of the project and close proximity to water.
- The bridge could not become a choke point in the river it was crossing.
- The bridge had to be cost effective.
- There were multiple dense intermediate layers that had to be driven through.
- The best solution was determined to be 2 x H5 treated Radiata Pine timber piles installed at each bank supporting TTT MultiPole UniLog bearers spanning the river with timber decking and handrails fixed to the bearers.
- The site was in a residential street, in close proximity to neighbouring properties.
- Installation was not allowed to have any impact on these neighbouring properties.
- Installation needed to be rapid, and equipment needed to have a small footprint.

### The TTT MultiPole solution:

- The TTT Bridge was identified as being able to satisfy the stringent design specifications.
- The TTT Bridge was designed to be 10.0m long with a 9.0m clear span between the piled foundations.
- Two TTT MultiPoles were installed high up the bank, away from the water, on either side to a depth of approximately 8.0m deep.
- The unique hollow core of the TTT MultiPole allowed for fast installation via high-frequency vibration.

- TTT MultiPoles were installed through the dense intermediate layers until the founding layer was reached.
- Pile tops were cut level, then scalloped on site to receive the TTT MultiPole UniLog bearers.
- The TTT MultiPole UniLog bearers (420mm diameter) were simply lifted into place onto the scalloped piles and secured.
- Hardwood timber decking and a timber handrail was quickly and easily screwed onto the bearers.
- After completion of the bridge the customer utilised the hollow core of the TTT MultiPole UniLog bearers to run water pipes and fibre optic cables.
- Installation was carried out within 3 days, without disturbance to neighbouring properties.
- TTT Bridges can also be designed for full highway loads, and can feature up to 20.0m clear span (subject to specific design).



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