

SCREW PILING INFORMATION SHEET

BRIDGE FAILURE AVERTED



Background

A bridge contractor engaged a screw piling contractor to install 50 tonne piles for two bridge abutments and two intermediate span supports. The piling contractor commenced installing the piles without any geotechnical report, test piles or static load testing.

The piles were installed to 6m deep and preparation commenced for the headstocks.

Engineer Concerned

The piles were installed to the installation torque of 50,000Nm, erroneously in the belief that it equated to 500kN Safe Working Load. The contractor terminated the piles at 6m deep once this torque had been achieved.

The council engineer was concerned with the situation and contacted P.J.Yttrup and Associates who are one of the leading authorities on screw piling engineering in Australia. Peter Yttrup recommended CPT testing be conducted urgently.

CPT Results

A probe extract is shown to the right.

As the CPT result shows the piles were terminated at 6m depth in medium dense sands only 300mm above a much softer layer. It would be likely the piles installed to 6m would have punched through to the soft material, causing settlement issues and possible bridge failure.

On reviewing the CPT results P.J.Yttrup and Associates recommended that the piles be installed to 12.5m with 100,000Nm of torque.

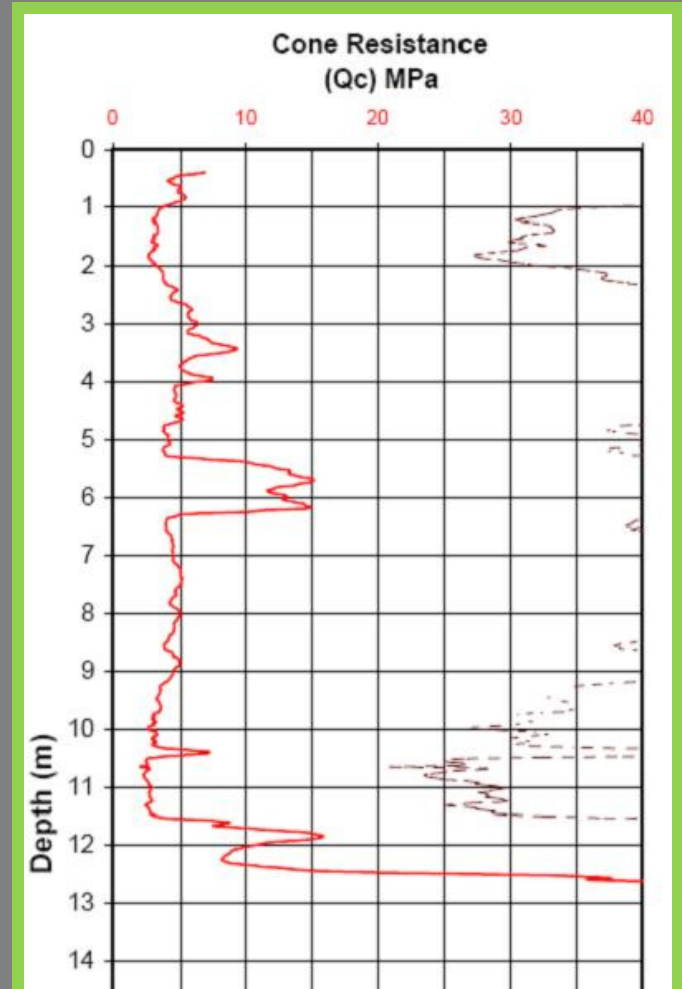
We were engaged to install the piles deeper to 12.5m plus depth and 100,000Nm, as the original piling contractor only had a 50,000Nm capability.

This is how a likely bridge failure was averted.

Recommendations

We are happy to recommend geotechnical investigation firms with different capabilities to match the specific project requirements or conduct these ourselves. These capabilities range from CPT, to SPT and seismic investigations.

CONE PENETROMETER TEST RESULTS



This graph shows a medium dense layer at around 6m, below which is soft soil until around 12.5m which is good founding material. Information used with permission from P.J. Yttrup and Associates who can be contacted on 03 5243 3388 or admin@yttrup.com.

We Can Help You

If your project has piles specified we are happy to provide you with a competitive price. We are confident that our price will be cost effective when compared directly on a like for like basis.

We do not compromise the pile design by using questionable engineering practices.

We have extensive load testing experience and results have been correlated to our pile design program.

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