



Vancouver Geotechnical Society

A Local Section of the Canadian Geotechnical Society

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NOTICE OF UPCOMING DINNER PRESENTATION

TUESDAY, MARCH 06, 2012

SUBJECT: **Some Geotechnical Aspects of the Pitt River Bridge 2007 Static Pile Loading Test**

SPEAKER: **David J. Tara, P.Eng., M.Sc.A**
Principal, Thurber Engineering Ltd.

David J. Tara is a Principal of Thurber Engineering Ltd. and a professional engineer specializing in foundation design. He has been working in the areas of piles, pile design and installation, soft ground and seismic engineering throughout Western Canada for more than 25 years. More recently he has become heavily involved in high strain dynamic testing of piles. David was the lead geotechnical engineer on the award winning Richmond Olympic Oval project and the recently completed Pitt River Bridge. David completed his undergraduate studies at UBC and graduate studies at Université de Sherbrooke in the beautiful Eastern Townships of Quebec. It is at the latter where his interest in pile foundations came to the fore under the late Professor Jean-Paul Morin.

CONTENT: The Pitt River Bridge is part of the Gateway Program, a long-term initiative to improve roads and bridges throughout Greater Vancouver. The project is a stand-alone component of the North Fraser Perimeter Road Project. The bridge is designed to accommodate different lane allocations and to allow for one lane to be added in the future. This additional lane could meet future demand for vehicle use (HOV, buses, and/ or other vehicles) or Light Rail Rapid Transit.

In early 2007, Peter Kiewit Sons was awarded the design build (DB) contract to construct a new 400 m long, high level, cable stay, multi lane bridge to replace the existing swing span bridges. The cable towers and back stays of the bridge, as required by contract, had to be supported on piles terminating in very dense Pleistocene deposits (glacial till or drift and inter-glacial sediments) encountered at approximately 100 m depth below ground surface.

To validate the foundation design for the main piers of the new Pitt River Bridge, a conventional, head down, static pile loading test was carried out using production piles for both the test and reaction piles to minimize costs. The piles comprised driven 1824 mm diameter, open-toe, steel pipe. The 45 MN loading test was completed successfully in December 2007 by Peter Kiewit Sons. Design of the piles was based on information provided by the owner to the DB proponents and included results of test holes and static pile loading tests conducted in the 1970s on 36 and 55 m long, open toe steel pipe piles, CPT and SCPT profiling conducted in the 1990s and mid 2000s, and dynamic load tests (DLTs) conducted on an 100 m long, 1067 mm diameter, open toe indicator pile installed in 2005. Test pile installation records and Pile Driving Analysis (PDA) records and signal matching analyses for the 2005 test pile were used to calibrate the design and confirm pile installation requirements. Supplementary test holes, CPTs and SCPTs were conducted to over 100 m depth to calibrate pile resistance, particularly the pile toe resistance. DLTs were also conducted on several of the production piles to validate the design. This presentation is based on a upcoming paper and will present key aspects of the pile design and test loading.

DETAILS

Executive Inn, 4201 Lougheed Highway, Burnaby, BC V5C 3Y6 (Phone: 604-298-2010)

Social Hour: 5:30 to 6:30 pm (drinks available at the hotel bar)

Technical Presentation: 6:30 to 7:30 pm

Dinner: 7:45pm (\$30 will be charged for dinner)

RSVP: Dinner reservation to ali.amini@shaw.ca by Monday, March 05, 2012