

WEBINAR

ONLINE



Soft Ground, Hard Decisions: Navigating Known and Unknown Geotechnical Risks and Challenges for Boorloo Bridges

10TH
APRIL 2025

4.00PM
TO
5.00PM

BEM Approved CPD Hours: 1
Reference: IEM25/PP/016/T(w)
PEB PDUs: APPLYING



SU KWONG TAN

Technical Executive (Geotechnical)
APEC Engineer, CPEng, NER, MIEAust,
IntPE

Register Now!

CLICK ON [THIS LINK](#)
TO REGISTER

Registration Fee

MGS/IEM/GeoSS/CTGS/HKGES Member: **FREE**

Payment Methods:

- 1) Online Bank Transfer
Bank name: Hong Leong Bank Berhad
Payee: Pertubuhan Geoteknikal Malaysia
Bank Account No: 281-000-12316
- 2) PayPal - <https://paypal.me/mygeosociety>
- 3) Online Money Transfer Platforms (such as Wise)



MGS Webinar by Su Kwong Tan

Scan event into calendar
[Click here to save into your calendar](#)

www.mygeosociety.com

IMPORTANT

- ✓ Each approved registrant will receive a unique Zoom link for the webinar.
- ✓ A minimum attendance of 75% is required in order to obtain a certificate of attendance.

SYNOPSIS

The Boorloo Bridge project, comprising two cable-stayed bridges, represents a culturally significant crossing over Perth's Swan River (Derbal Yerrigan), symbolizing both historical heritage and modern infrastructure advancement. The bridges aim to provide safer, segregated access across the river, linking East Perth and Victoria Park via Heirisson Island. Challenging foundation conditions at the site include soft Swan River Alluvium (SRA) underlain by layered alluvial sand, clay (Perth Formation), and Kings Park Formation (KPF), with fill materials above the SRA. These conditions required a combination of various ground improvement and piling techniques to ensure compliance with design requirements.

On-land abutments and piers are supported by twenty-eight bored piles (0.9 to 1.2 m in diameter), while each river pier relies on six 1.2 m diameter closed-ended steel piles filled with concrete. Ground improvement for the approach embankments incorporated rigid inclusions using Controlled Modulus Columns (CMCs), preloading, Prefabricated Vertical Drains (PVD), surcharging with PVD, and basal reinforcement to address variability and settlement risks.

This presentation delves into the geotechnical risks and challenges encountered during the design and construction phases, emphasizing the mitigation measures and decisions in response to variable ground conditions to ensure safety and compliant foundation performance. It explores strategies for addressing construction-phase changes due to unforeseen geotechnical conditions and design adjustments, which were critical to the project's success. By showcasing adaptive real-time problem-solving, meticulous planning, and effective stakeholder communication, the presentation demonstrates how the construction schedules were maintained despite significant challenges. This presentation aims to offer valuable lessons and practical insights for tackling complex geotechnical issues in similar future infrastructure projects.

SPEAKER BIODATA

Su Kwong Tan is a Technical Executive (Geotechnical) with over 22 years' experience in soil and site investigation works, design of temporary earth retaining systems, design of shallow and pile foundations, design of reinforced earth walls, ground improvement design and the assessment of slope stability.

Su Kwong has expertise in the interpretation of high strain dynamic pile test data and low strain test data following from his MEng Science (Research) at Monash University. He has also been involved in the forensic investigation of pile failures, offshore pile capacity reassessment and driveability studies. His recent experiences mainly focus on the foundation design of major infrastructures within Perth.