The Institution of Engineers, Malaysia

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TUSTD Pre-AGM Talk on "Advances in Bored Tunnel Design and Ground Investigations for KVMRT Project"

Organised by: Tunnelling & Underground Space Technical Division, IEM
BEM Approved CPD/PDP Hours: 2 Ref No: IEM16/HQ/163/T

Date: **14 May 2016 (Saturday)**
Time: **9.00 am – 11.00 am** *(Refreshment will be served at 8.30 am)*
Venue: Auditorium Tan Sri Prof. Chin Fung Kee, Third Floor, Wisma IEM.
Speaker**: Er. Poh Seng Tiok**, Mass Rapid Transit Corporation

SYNOPSIS

Over recent decades there have been significant advances in the bored tunnel design for underground railways. The successful completion of the KVMRT Line 1 tunnels marks an important step in the use of SRFC tunnel segmental lining in South East Asia. Besides the segment design, advances in the Tunnel Boring Machine (TBM) technology and waterproofing gasket materials have contributed significantly to the high built quality in modern bored tunnels.

Ground investigations make use of the advances made in geophysics and in-situ testing were employed in this project, thus increasing substantially the value of geotechnical design that later be based on their findings. Examples of the advantages that could accrue is illustrated by the use of engineering geophysics as one of the key approaches to aid the characterisation and profiling of in-situ ground, in particular the challenging karst limestone, which provide many benefits for geotechnics. It is tempting to conclude that this approach is useful and effective as reconnaissance for assessing potential ground risks in tunnelling where rock properties are appropriate.

This talk will outline some of the recent advances in bored tunnel design with examples from both Singapore and Kuala Lumpur as well as the initiatives on ground investigations compared to traditional method and its achievements in KVMRT project.

BIODATA OF SPEAKER

Seng Tiok has almost 20 years' experience in large scale mass transit, railway design and construction projects in Singapore, Hong Kong, Malaysia and other parts of Asia. Currently, he is the Planning and Design Director for Mass Rapid Transit Corporation (MRTC) in Malaysia, implementing the MRT projects in Kuala Lumpur.

He manages the MRTC design group covering disciplines such as Architectural, Civil & Structural, Geotechnical & Tunnels, Interface Coordination, Programme & Planning, Development Building Control and Transport Planning. He leads the team in supporting the implementation of the KVMRT Line 1 of 51km railway as well as Line 2 with 53km of railway. Concurrently, he also provides technical leadership on the Engineering Feasibility Study for Line 3, which is a circle line connecting all the radial lines with other forms of public transport.

Prior to joining MRTC, he was an Associate Director with Arup Singapore Private Ltd. Besides being the Project Manager on Architectural and Engineering detailed design contracts, he also led Singapore Arup's infrastructure group's Tunnelling, Railway Engineering, Rail Civil & Structural and Alignment team. Seng Tiok's design management experience for major regional railway projects includes his current projects in Kuala Lumpur, Singapore Thomson Line Package A, Eastern Region Line Contract E1002. He is also the Professional Engineer and technical lead for the Singapore Downtown Stage 3 Contract C933 consisting of underground Bendemeer station and Singapore's first steel fibre reinforced concrete bored tunnels.

In 2010, he was also part of the project management team overseeing the Technical Advisory and Review contract assisting the MRT Company in Jakarta in reviewing the design and proposals from the Basic Designer for the country's first metro line together with a team of multi-disciplinary specialists. From 2008 to 2010, Seng Tiok worked in Hong Kong with Aecom HK on design and feasibility studies for few railway projects in Hong Kong and Mainland China. Before 2008, Seng Tiok worked in the Singapore Land Transport Authority (LTA) and was involved in major railway projects such as the North East Line, Circle Line stage 1 to 5 and Down Town Line Stage 1 (DTL1). For DTL1, he was the LTA Design Manager leading the Authority's design team. After the Nicoll Highway collapse, Seng Tiok was selected into a core team set up within the LTA to work with the expert witnesses and lawyers engaged by the Singapore LTA to investigate the causes of the collapse.

Ir. Andrew Yeow
Chairman
Tunnelling & Underground Space Technical Division, IEM

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- Preferential admission to talk shall be accorded to IEM members (pre-registration and online registration are NOT required). Telephone and/or fax reservation will NOT be entertained.
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- IEM members are required to produce membership cards for confirmation of attendance (CPD purpose).
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- The fee would be used to cover overhead costs, building maintenance expenses as well as contribute to Wisma IEM Building Fund.
- All contributions will be deeply appreciated by IEM.
- Student Members are however exempted.

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Membership No: .....

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