

INTERNATIONAL SITE VISIT:

GROUND FREEZING WORK, MINED TUNNEL & DRY DOCK

SUPPORTED BY THE INSTITUTION OF ENGINEERS, SINGAPORE (IES)

(Jointly Organised by Tunnelling & Underground Space Technical Division and Geotechnical Engineering Technical Division)

BEM Approved CPD/PDP hours: 11 hours Ref No : IEM18/HQ/388/V



THE INSTITUTION
OF ENGINEERS,
SINGAPORE

Date: 4th and 5th October 2018

Site Visits:

1. Singapore – Thomson-East Coast Line, Marina Bay MRT Station (T226)
2. Singapore – Thomson-East Coast Line, Orchard MRT Station (T219)
3. Pasir Gudang, Johore, Malaysia – Dry Dock 3, Malaysia Marine Heavy Engineering (MMHE)

Transport: Coach will be provided. Participants are required to **assemble** at **6.45 a.m.** at Wisma IEM, Petaling Jaya. The coach will **depart** from IEM at **7.00 a.m. sharp.**

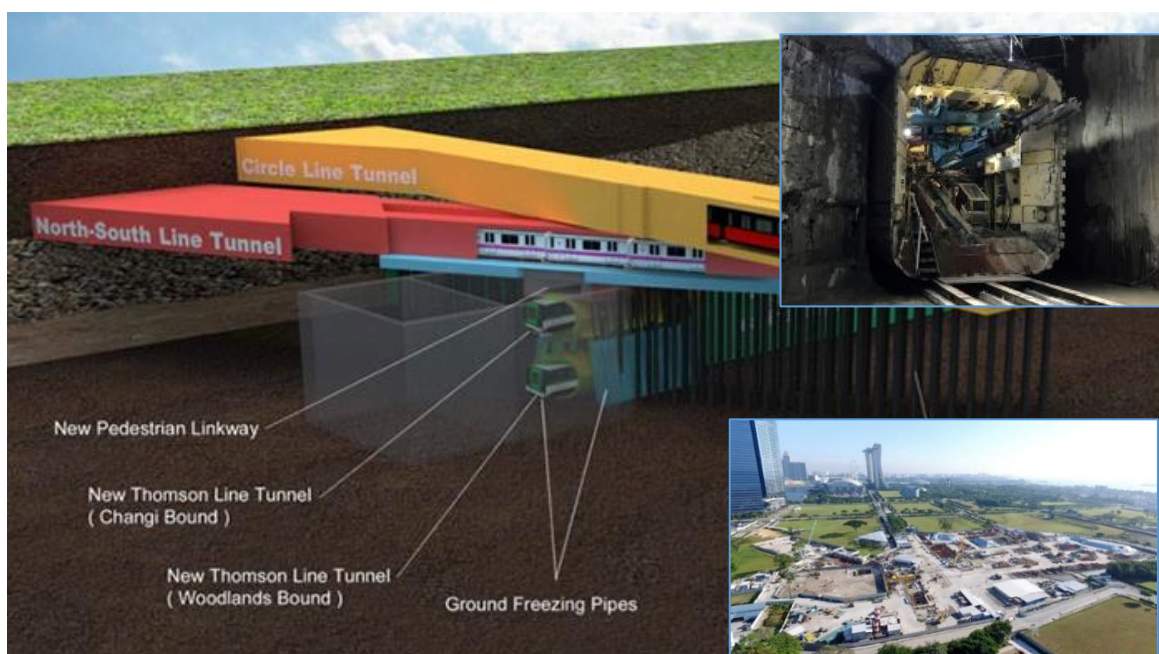
SYNOPSIS

The Tunnelling & Underground Space Technical Division and Geotechnical Engineering Technical Division of The Institution of Engineers, Malaysia (IEM) is jointly organising the Technical Visits to Singapore MRT sites and MMHE site at Johore with respect to the ground freezing work, mined tunnel construction and dry dock. This International Site Visit is supported by The Institution of Engineers, Singapore (IES), which is expected provides a platform for interaction and exchange of ideas between IEM and IES members.

SINGAPORE MRT SITE VISITS

Thomson-East Coast Line - Marina Bay Station (T226)

For the first time in Singapore's rail history, the technique of **GROUND FREEZING** has been chosen to stabilise the soil during construction of Singapore's new Thomson-East Coast Line (TEL) Marina Bay Station. The works are underway to build a pedestrian walkway and the two tunnels, the TEL tunnels, one on top of the other, underneath the existing lines. To do this, the team has utilised a rectangular shield tunnelling machine to cut away a section of approximately 20 existing piles that support the North-South Line (NSL)'s tunnel. The level of complexity is raised as the current live MRT lines are in use coupled with the poor soil conditions which make the project even more challenging. Contractor for the Marina Bay Station and associated tunnels – T226 – is Taisei Corporation, which was awarded the S\$425M contract in February 2014.



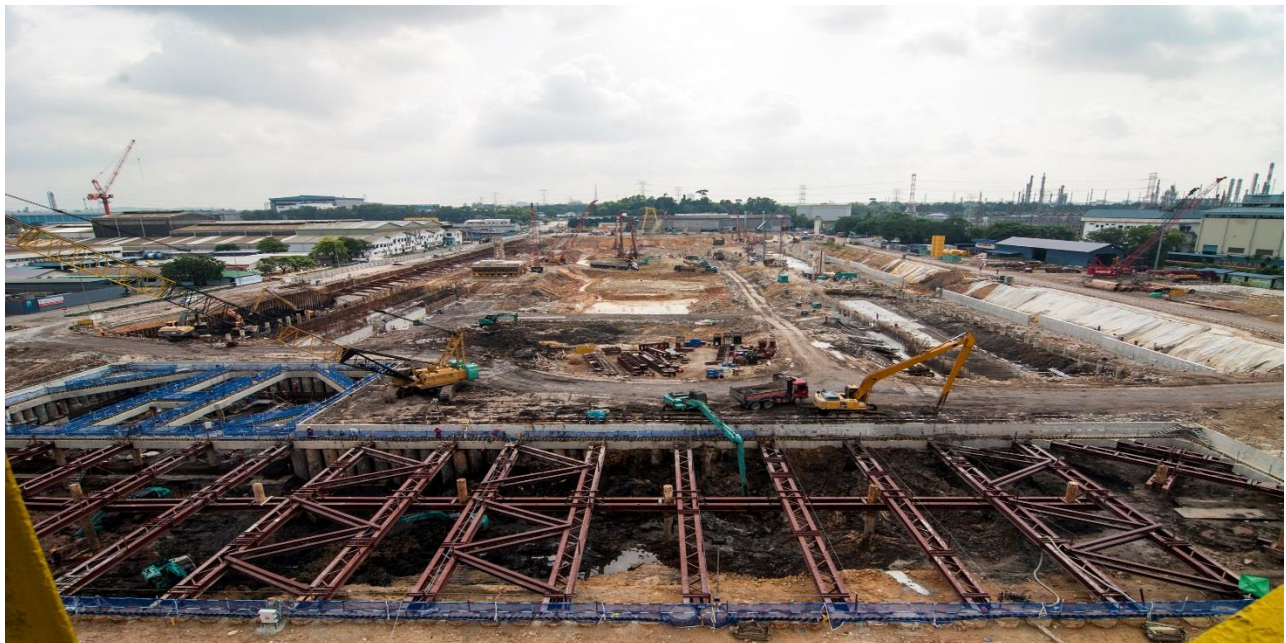
Thomson-East Coast Line - Orchard Station (T219)

At T219 Orchard Station, a major portion of the Platform Link (**MINED TUNNEL**) which connects the platforms of both NSL and TEL Orchard stations is right below the existing NSL Orchard Station as well as ION Orchard (shopping mall, 7 stories) and Orchard Residences (condominium, 55 stories). The link is located approximately 25 metres below the ground level, undercrossing the NSL tunnel tracks. Platform Link works have to take place while ensuring that the NSL Orchard station and tunnels remain in operation throughout the construction period. Due to the close proximity of the proposed Platform Link to the existing underground and above ground structures, it is essential for the mining works to be carried out in a planned, incremental and co-ordinated manner without compromising the above ground activities and amenities as well as the structural integrity or serviceability of these structures. The S\$498M T219 contract for the construction of Orchard Station and its associated tunnels was awarded to a joint venture between Penta-Ocean Construction Co Ltd and Bachy Solentanche Pte Ltd.



MMHE DRY DOCK 3, PASIR GUDANG, JOHORE, MALAYSIA

The MMHE Dry Dock 3 which is under construction, is one of the biggest **DRY DOCK** in Malaysia, with a size of 350m x 80m x 14m depth. The construction of the MMHE Dry Dock 3 combines the expertise from various engineering disciplines comprising Civil, Geotechnical, Marine, Mechanical, and Electrical engineering. Currently, the Dry Dock 3 is in the foundation construction stage.



TENTATIVE ITINERARY – (subject to change without prior notice)

4th October (Thursday) Petaling Jaya – Singapore – Johore		
7:00 AM	- 12:30 PM	Journey from IEM to Marina Bay, Singapore.
12:30 PM	- 1:15 PM	Lunch/Free and easy near T226 Marina Bay Station.
1:15 PM	- 1:30 PM	Depart for T226 Marina Bay Station.
1:30 PM	- 4:30 PM	T226 Marina Bay Station visit(Highlight: Ground Freezing).
4:30 PM	- 6.30 PM	Travel back to Johore, check in to 1 Million Hotel, Taman Mount Austin, Johor Bahru.
6:30 PM	till late	Dinner / Free and easy. Please get enough rest.
5th October (Friday) Johore – Singapore – Johore – Petaling Jaya		
6:00 AM	- 8:00 AM	Breakfast, depart from 1Million Hotel to T219 Orchard Station, Singapore .
8:00 AM	- 11:00 AM	T219 Orchard Station visit (Highlight: Mined tunnel under Ion Orchard).
11:00 AM	- 12:00 PM	Lunch/Free and easy.
12:00 PM	- 2:00 PM	Depart to MMHE Dry Dock 3, Pasir Gudang, Johor.
2.00 PM	- 5:30 PM	MMHE Dry Dock 3 visit.
5:30 PM	till late	Dinner, return to Wisma IEM, Petaling Jaya, Selangor. Safe drive and have a good rest.

PRICE EXCLUDES

1. Travel insurance.
2. Items not mentioned herein such as extra expenses incurred due to disruption of travel plan, deportation, refusal entry, sickness, death, riot, act of nature, rumours, war, and diseases.
3. All personal incidental such as room services, laundry, beverage and telecommunication bills.
4. Breakfast/Lunch/Dinner
5. **Personal protective equipment.**

- The visit is strictly limited to **30 participants** registered on a first-come, first-served basis.
- Interested participants are to register and pay online at www.myiem.org.my or register by returning the appended registration form **before 20th September 2018** together with the payment.
- Cheques are to be made payable to **The Institution of Engineers, Malaysia.**
- Please note that the commitment fee must be settled prior to the visit.
- After this closing date, IEM reserves the right to allocate seats on first come first pay basis.
- Members are also reminded that IEM **MAY** cancel the reservation if payment is not received before the closing date

SAFETY REMINDER: Participants to be well equipped with **their own safety equipment** i.e. safety helmet, safety vest and safety boots in order to gain site access.

Ir. Khoo Chee Min
Chairman
Tunnelling & Underground Space Technical Division, IEM

Ir. Lee Peir Tien
Chairman
Geotechnical Engineering Technical Division, IEM

Contact Secretariat:
Zainun Rani
Email: zainun@iem.org.my
Fax: 03-7957 7678

REGISTRATION FORM
INTERNATIONAL SITE VISIT:
GROUND FREEZING WORK, MINED TUNNEL & DRY DOCK
 SUPPORTED BY THE INSTITUTION OF ENGINEERS SINGAPORE (IES)

CLOSING DATE:
20th SEPTEMBER 2018
 (First come, first served
 basis, max 30 participants)

(Jointly Organised by Tunnelling & Underground Space Technical Division and Geotechnical Engineering Technical Division)
 4th & 5th October 2018

No.	Participant Name	I/C No	IEM Membership No	Passport No	Participation Fees IEM Members: RM220 Non IEM Members: RM320 <i>(fees include transportation)</i>	Hotel (1 Million Hotel)		Total Payable (RM)
						Twin sharing +RM70	Single Room +RM120	

Enclosed herewith a crossed cheque No: _____ for the sum of RM _____ issued in favour of "The Institution of Engineers, Malaysia" and crossed 'A/C payee only' being registration fee for the visit.

Or

Enclosed herewith an online back transfer acknowledgement for "The Institution of Engineers, Malaysia"

I/we will be participating in the visit at our/my own risk and hereby indemnify fully the IEM from all claims arising from any injury, damage or loss that may be sustained by me/us.

 Signature of participant

 Date

Photocopies are acceptable

Fax: 03-7957 7678 Email: zainun@iem.org.my



**1 Million Hotel, Taman Mount Austin
 Johor Bahru**



16 Seater Coach

*images are for illustration purposes only.