



HYBRID HALF DAY SEMINAR ON LANGAT 2: *What Have We Learnt?*



**3 SEPTEMBER 2024 (TUESDAY)
9.00AM - 1.00PM**

HYBRID (PHYSICAL + ONLINE EVENT)
PHYSICAL VENUE - MALAKOFF AUDITORIUM,
BEM APPROVED CPD: 4.0
REF NO: IEM24/HQ/295/S(H)



Langat 2: Project Introduction



Ground Investigation for Tunnel Construction



NATM and Tunnel Design Consideration



Tunnel Construction and Excavation Sequence



IEM

The Institution of Engineers, Malaysia



Organised by
TUNNELLING AND UNDERGROUND SPACE
TECHNICAL DIVISION (TUSTD)



PROGRAMME

TIME	PROGRAMME
08:30 – 09:00	Registration of Participants Welcome Breakfast at D'Place, Ground Floor, Wisma IEM
09:00 – 09:10	Welcoming Speech by Ir. Frankie Cheah, Chairman TUSTD
09:10 – 09:45	Langat 2: Project Introduction by Mr. Johari Sinal@Zainal, Project Director Pengurusan Aset Air Berhad (PAAB)
09:45 – 10:30	Ground Investigation for Tunnel Construction by P.Geol. Yon Basirah, SMHB Sdn. Bhd.
10:30 – 11:30	NATM and Tunnel Design Consideration by Ir. Andri Abdul Rahman, SMHB Sdn. Bhd.
11:30 – 11:45	Refreshment
11:45 – 12:45	Tunnel Construction and Excavation Sequence by Mr. Yasir Ali, Protect Construction (M) Sdn. Bhd.
12:45 – 13:00	Q&A Session

“IEM reserves the right to alter or cancel the programme due to unforeseen circumstances at its discretion’
IEM SHALL NOT be responsible for any direct or consequential losses”.

For further details, kindly contact:

The Institution of Engineers, Malaysia

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SYNOPSIS

The Hulu Langat-Ampang Tunnel is a dual-purpose tunnel system constructed for the Langat 2 Water Supply Project to store and transmit potable water for water supply to Ampang and northern Kuala Lumpur. The tunnel system consists of twin tunnels of nominally 3.2-meter clear diameter traversing the high terrain of the Hulu Langat-Bukit Sungai Putih Forest Reserve from its inlet portal at Hulu Langat to its outlet portal at Ampang Jaya for a length of approximately 2.2 km. The tunnel's construction uses the New Austrian Tunnelling Method (NATM) method in the initial section, followed by drilling and blasting the rock.

This half-day seminar will share many lessons learnt and underground experiences. It will cover three main components of Langat 2, including the ground investigation work, which is crucial in identifying the project's ground profile. Then, it will follow with the tunnel design using the NATM and the construction stage of Langat 2.

The tunnel's design involves the NATM for the initial section, followed by drilling and blasting the rock. This method provides flexibility and adaptability in the construction process. It entails the sequential excavation of small tunnel sections while providing immediate support using elements such as rock bolts, steel ribs, shotcrete, and wire mesh. The NATM allows engineers to respond to the actual ground conditions encountered during tunnel excavation, ensuring safety and stability throughout the construction process.

This seminar also will present the drill and blast tunneling technique in more detail. This tunneling method involves using explosives, and the drilling rigs are used to drill blast holes on the proposed tunnel surface to a designated depth for blasting. Once blasting is carried out, waste rocks and soils are transported out of the tunnel before further blasting. Most tunneling construction in rock involves ground between two extreme conditions of hard rock and soft ground. Hence, adequate structural support measures are required when adopting this tunneling method, which will also be presented here.

SPEAKERS



Mr Johari Sinal@Zainal has 31 years of experience as a Civil Engineer with Water Engineering, Civil & Structural Engineering, and retail and operation experience from a multinational company. He has obtained experience in water pipeline design and other water-related structures (consultancy), construction of flood mitigation projects & highway construction (contractors), water distribution industry (SYABAS), and more than 12 years in the oil & gas industry (service station construction, design work, permitting–dealing with governments & local authorities, maintenance and marketing operation – Mobil, ExxonMobil, ProJet & Sinclair Knight Merz). Currently, he is working with Pengurusan Aset Air Berhad (PAAB), managing Langat 2 Phase 1 and Phase 2.

Mr. JOHARI SINAL@ZAINAL



P.Geol. Yon Basirah is a registered Professional Geologist with the Board of Geologists Malaysia with 14 years of experience in the geologist field. She is mostly involved in geological and geotechnical analyses and site investigation. She previously managed the construction of a 2.2km twin tunnel under Langat 2 Water Treatment Plant, which covered the scope of the geological mapping and geological evaluation for tunnels. She is also in additional temporary support and proposing the ground treatment whenever cavities or geological overbreak are encountered during the excavation process of Langat 2.

P. Geol. YON BASIRAH



Ir. Andri Abdul Rahman is an Associate Director at SMHB Sdn. Bhd. With 36 years of experience in design, supervision of construction, contract administration and project management of water supply headworks including earthfill dams, tunnels, intakes, pipelines, treatment works, distribution works and reservoirs. Ir. Andri was engaged as lead engineer for the design Langat 2, of the twin horseshoe-shaped tunnels of nominal 3.2 m clear diameter and approximately 2,200 m length with reinforced concrete lining by New Austrian Tunnelling Method (NATM). The tunnel is to be excavated in mostly moderately weathered rock and concrete lined as water conduit.

Ir. ANDRI ABDUL RAHMAN



Graduated in civil engineering in 2009, Mr. Yasir ali has been working at tunnelling projects particularly NATM, underground control rock blasting works and infrastructure. Currently working at Protect Construction (M) Sdn. Bhd. since 2016 as Project coordinator role and did various projects i.e. NATM Tunnelling in Ulu-Jelai hydroelectric Power project, Construction of 9 Cross Passages in SSP Line 2, Rock excavation of underground stations with supporting works i.e. Conlay station, Titiwangsa Station, Bandar Malaysia station, Intervention shaft 3 with 30meter diameter and 33meter depth excavation and RC lining works, Hulu Langat P6A twin water storage tunnel and currently working on Nenggiri Hydroelectric Power Project for Main Diversion and Access Tunnel construction and RC Lining works. Having expertise to work in various types of geological profiles, i.e., Limestone, Granite, Shale, and sandstone, and conduct tunnelling works with shallow ground cover and urban areas with live traffic on the surface.

Mr. YASIR ALI

REGISTRATION FORM

HYBRID HALF DAY SEMINAR ON "LANGAT 2: WHAT HAVE WE LEARN?"

3 September 2024 (Tuesday) **Closing Date : 30 Aug 2024**

Email : shahrul@iem.org.my / syafiq@iem.org.my

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	ONLINE FEE ATTENDANCE (RM)	PHYSICAL FEE ATTENDANCE (RM) -
IEM Student Members	40.00	100.00
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PAYMENT DETAILS :

Cash RM _____

Cheque no. _____ for the amount of RM _____ (non-refundable) .

FULL PAYMENT must be settled before commencement of the course, otherwise participants will not be allowed to enter the hall. If a place is reserved and the intended participant fails to attend the course, the fee is to be settled in full. If the participant failed to attend the course, the fee paid is non refundable. The Registration Fee includes lecture notes, refreshment and lunch.

For **ONLINE REGISTRATIONS**, please note that payment **MUST** be made **BEFORE the closing date**. If payment is not received within the stipulated time, the registration fee will be reverted to the normal registration fee.

Contact Person: _____ Designation: _____

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ADVERTISEMENT BOOKING FORM (EVENT BOOKLET)

HYBRID HALF DAY SEMINAR ON LANGAT 2: WHAT HAVE WE LEARNT?

3rd SEPTEMBER 2024 (Tuesday)

Organised by : Tunneling and Underground Space Technical Division (TUSTD), The Institution of Engineers, Malaysia No. 60/62, Jalan 52/4, P.O. Box 223 (Jalan Sultan), 46720 Petaling Jaya, Selangor
Tel No. 03-78900135 /134 Email: shahrul@iem.org.my / syafiq@iem.org.my
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Chairman, Tunneling and Underground Space Technical Division (TUSTD),
We would like to place an advertisement in the EVENT BOOKLET of the **HYBRID HALF DAY SEMINAR (3 September 2024)** as indicated below and attach herewith a cheque no. for the sum of RMmade payable to "THE INSTITUTION OF ENGINEERS, MALAYSIA"
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