Organised by Geotechnical Engineering Technical Division & Supported by The Malaysian Geotechnical Society (MGS) and Jabatan Kerja Raya Malaysia (Cawangan Kejuruteraan Cerun)

SEMINAR ON

RESILIENT SLOPES: SUSTAINABLE DESIGN, MONITORING AND GOVERNANCE

SPEAKERS:

Ir. DR LOW TIAN HUAT

Ir. DR TOH CHENG TEIK

Ir. NURSALBIAH BT HAMIDUN

FORUM MODERATOR:

DR. MOHAMAD NIIZAR B ABDURAHMAN

Scan QR Code or Click Here to Save the Event into your Calendar

23 JULY 2025, WEDNESDAY
8:30 AM - 6:00 PM
ARMADA HOTEL, PETALING JAYA

Registration fee (Subject to 8% SST)

GRADE	FEE (VIA IEM WEBSITE)	FEE (THROUGH EMAIL)
IEM Student Member	RM230	RM250
IEM Member / HRDC for IEM Member	RM350 / NA	RM400 / RM425
Non-IEM Member / HRDC for Non-IEM Member	RM750 / NA	RM800 / RM850

BEM Approved CPD: 7
Ref. No.: IEM25/HQ/209/S

APPROVED DURATION:
27/05/2025 - 27/05/2026
HRD CORP SERIAL NO:
10001556728

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SYNOPSIS

In an era of increasing environmental challenges and infrastructure demands, slope stability has become a critical concern for engineers, planners, and authorities. The Seminar on Resilient Slopes: Sustainable Design, Monitoring, and Governance brings together experts to share insights on sustainable slope design, advanced monitoring systems, real-world failure case history, and the evolving regulatory landscape. This one-day seminar aims to foster practical knowledge and interdisciplinary dialogue for developing robust, sustainable, and proactive slope management strategies.

Topics include:

- Green and sustainable slope design approaches
- Technological advancements in slope monitoring and early warning
- A case history analysis of a liquefaction-induced slope failure
- National Slope Master Plan 2025-2030

Join us to explore integrated solutions that enhance safety, and sustainability in slope engineering.

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SYNOPSIS

Time	Description	Speaker
8:30am – 8:50am	Registration & Light Refreshment	
8:50am – 9:00am	Welcoming Address	
9:00am – 10:00am	Session 1: Innovative Sustainable Approaches for Green Slope Design	Ir. Dr. Low Tian Huat
10:00am – 10:30am	Morning Tea Break	
10:30am – 11:30am	Session 2: Advancement in Slope Monitoring and Early Warning Systems	Ir. Dr. Low Tian Huat
11:30am – 12:00pm	Q&A - 1	
12:00pm – 1:30pm	Lunch	
1:30pm – 2:30pm	Session 3: Kampung Pasir Revisited - Case History on a Liquefaction Slide	Ir. Dr. Toh Cheng Teik
2:30pm – 3:30pm	Session 4: National Slope Master Plan 2025–2030	Ir. Nursalbiah binti Hamidun
3:30pm – 4:00pm	Afternoon Tea Break	
4:00pm – 6:00pm	Session 5: Forum & Panel Discussion - Forum Moderator: Dr. Mohamad Niizar Bin Abdurahman Panel: All Speakers	
6.00pm	Token Appreciation to Speaker / Closure	

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REGISTRATION FORM

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			ADD SST @8%	
			TOTAL PAYABLE	

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SPEAKERS' BIODATA

Ir. Dr. Low Tian Huat

Session 1: Innovative Sustainable Approaches for Green Slope Design

Synopsis:
Environmentally friendly solutions have always been emphasized in many major projects in Malaysia. A low carbon footprint combined with green vegetation cover can significantly reduce environmental pollution hazards. However, the implementation of green solutions using vegetation has often proven to be unsustainable or costly to maintain, especially under problematic ground conditions. Many highway slopes are situated in areas with challenging conditions for vegetation growth, such as acidic, hard, or infertile soil. In such cases, the sustainability of green solutions becomes unfeasible, often resulting in severe erosion and landslips.

Recent advancements in bioengineering and botanical engineering have addressed these challenges, improving the sustainability of green solutions in the construction industry. Through the symbiotic relationship between microbes and specific vegetation types, establishing green vegetation cover on difficult terrain has become feasible. Slope strengthening measures using vegetation roots—such as "Live Stake"—offer alternative methods for slope reinforcement. Meanwhile, "Vegetated Drains" provide drainage solutions that require minimal or no maintenance. These green approaches mimic natural jungle conditions. The methods and case studies demonstrating these techniques will be highlighted in the presentation.

Session 2 : Advancement in Slope Monitoring and Early Warning Systems

Synopsis:
Slope instability continues to pose a serious threat to infrastructure safety and human life in Malaysia, particularly in high-rainfall and hilly regions. Traditional slope failure response strategies have often been reactive, depending heavily on post-failure remediation. However, with the advancement of real-time monitoring and early warning technologies, proactive risk mitigation has become possible. This approach emphasizes continuous assessment of critical parameters such as ground movement, pore water pressure, and rainfall patterns, providing early indications of slope instability.
Real-time slope monitoring systems combine state-of-the-art geotechnical instrumentation—such as inclinometers and piezometers—with wireless data transmission, robust data analytics, and automated notification protocols. These systems enable continuous data collection, visualization, and alarm-based threshold warnings to ensure timely intervention. Intelligent data processing and visualization tools enhance the interpretability of geotechnical data, allowing stakeholders to make informed decisions rapidly.

Recent breakthroughs in sensor integration, data pipelines, and predictive modeling have significantly improved the accuracy and reliability of early warning systems. This presentation will showcase how the seamless integration of these technologies has enabled effective monitoring even in challenging environments. Examples of practical implementation and case studies will be highlighted, demonstrating how real-time systems have become essential components in modern slope hazard management frameworks.

Speaker's Profile:

After graduation from the University of Malaya in Civil Engineering in 1994, Ir. Dr. Low Tian Huat joined the research team in University Malaya to carry out research on Unsaturated Tropical Residual Soil under the PLUS-IPT research Grant. Subsequently, Ir Dr Low pursued his post graduate study and obtained his Master Degree in 2001 and PHD in 2011 from University Malaya. While his pursuing his Post Graduate studies, he worked as geotechnical engineer in consultant firm. Ir Dr Low was also providing part time lectures on Geotechnical subjects i.e., foundation engineering, ground improvement, soil mechanics in University Malaya from 2002 to 2008. Currently, Ir Dr Low has been working in Mohd Asbi Associates Sdn Bhd since 2002 and he has been appointed as partner of the firm. He has published more than 50 papers in journals and proceedings for local and international conferences.

Ir Dr Low has been involved in numerous landslide studies for both government (i.e., JKR and JMG) and private organisations (i.e., Resort World Berhad and Petronas). The area based slope study projects involved i.e., Hulu Klang Landslide study, Penang Island Area Based Risk and Hazard Mapping and PBRC for Selangor area are mainly on the risk and hazard mapping and zoning. As for linear infra structures slope hazard and risk mapping and zoning, projects involved were Tamparuli- Sandakan road, Genting Highland Access Road, Sabah Sarawak Gas Pipelines (SSGP) and Kertih, (Terrenganu State) Gas Pipelines. The current on-going projects on slope hazard and landslide susceptibility are SUKE Highway and GENTING highlands. Ir Dr Low also has been involving in numerous early warning systems with threshold levels for slope monitoring in the country. In the recent years, Ir Dr Low also involved in numerous green solution research and design for slope. His current design using green approach is the decommissioning design of Sabah Sarawak Gas pipe (SSGP) in Sarawak.

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SPEAKERS' BIODATA

Session 3: Kampung Pasir Revisited - Case History on a Liquefaction Slide

Ir. Dr. Toh Cheng Teik

Synopsis:

The failure at Kampung Pasir occurred on 31st May 2006. Official proceedings took 19 years with exoneration of the consultant in year 2025.

The lecture will explain the failure and present the following:

(1) Definitions of different types of liquefaction failure and the differences between debris flow, mudflows, etc.
(2) The conditions (surface and sub surface) specific to this particular slide.
(3) Travel distances and risks to life
(4) Actual footage of a video recording of this high velocity slope movements
(4) The causes of this the failure of this gentle slope
(5) Mechanics of liquefaction
(6) Is it possible to reasonable predict potential for flow slide?
(5) Irrelevance of limit equilibrium analysis and the false conclusions that can arise from limit equilibrium analyses often used in back calculations.
(6) Consequences of incorrect conclusions

Speaker's Profile:

Ir. Dr C.T Toh is currently a Director at Dr. Toh Associates Sdn Bhd. He has been practicing geotechnical engineering for 46 years. He graduated from Monash University in 1974 with the degree Bachelor of Civil Engineering and was subsequently awarded a Doctorate from the same university in 1979.

His experience covers foundations, soil treatment, slope stabilization, basement construction etc. in alluvial and marine deposits, peat, residual soils and rocks.

Session 4: National Slope Master Plan 2025-2030

Ir. Nursalbiah binti Hamidun

Synopsis:

This session introduces the National Slope Master Plan 2025–2030, a strategic framework developed by the Public Works Department Malaysia to enhance slope management nationwide. The plan outlines a comprehensive approach to addressing landslide risks through sustainable slope design, real-time monitoring, maintenance practices, and institutional strengthening. Participants will gain insights into key focus areas, including hazard and risk mapping, asset inventory, early warning systems, and slope management policies. Real-world examples and implementation strategies will be shared to demonstrate how the plan supports safer infrastructure development and improves slope resilience across Malaysia.

Speaker's Profile:

Ir. Nursalbiah binti Hamidun is the Head of the Slope Technology Transformation Division, Slope Engineering Branch, Public Works Department Malaysia (JKR). She holds a Diploma and a Bachelor of Engineering in Civil Engineering from Universiti Teknologi Malaysia (UTM) Skudai, Johor Baharu, and a Master of Disaster Risk Management from the Malaysia-Japan International Institute of Technology (MJIIT), UTM Kuala Lumpur. With over 24 years of experience in civil and geotechnical engineering, Ir. Nursalbiah has served in diverse technical and leadership roles across JKR, including in project management, competency development, and marine engineering. Her current role focuses on transforming slope management practices through technology, innovation, and sustainable policy implementation. She was a key figure in the revision of the National Slope Master Plan 2009–2023, contributing significantly to shaping Malaysia's national strategy for slope safety. In addition, she oversees the development and implementation of the Landslide Early Warning System (LEWS) under the Slope Engineering Branch (CKC), JKR — a critical initiative to mitigate disaster risks in vulnerable areas. Her expertise covers slope engineering and maintenance, disaster risk reduction, building assessment, and infrastructure resilience.

MODERATOR'S BIODATA

Dr. Mohamad Niizar Bin Abdurahman

Dr. Mohamad Niizar Bin Abdurahman is a Senior Civil Engineer at the Slope Engineering Branch, Public Works Department Malaysia (JKR). He holds a Master of Engineering in Civil Engineering (2005), and a PhD in Civil Engineering (Geotechnics) (2020) from Universiti Tun Hussein Onn Malaysia (UTHM). With over 18 years of experience in civil and geotechnical engineering, Dr. Mohamad Niizar has served in various capacities within JKR, including roles in maritime infrastructure, structural forensics, facilities maintenance for military bases, and geotechnical slope engineering. His expertise encompasses slope stability, soft soil improvement, and infrastructure resilience. He has contributed to numerous high-impact projects and forensic investigations, including serving on the main technical committee for the Batang Kali landslide and the review of JKR's Slope Design Guidelines. In addition, he is actively involved in research and has published extensively in both national and international journals and conferences, particularly in the field of peat soil improvement and slope failure mechanisms. Dr. Mohamad Niizar is a Committee Member of the Geotechnical Engineering Technical Division (GETD) of the Institution of Engineers Malaysia (IEM) and a Co-opted Committee Member for the 2023/2024 session.

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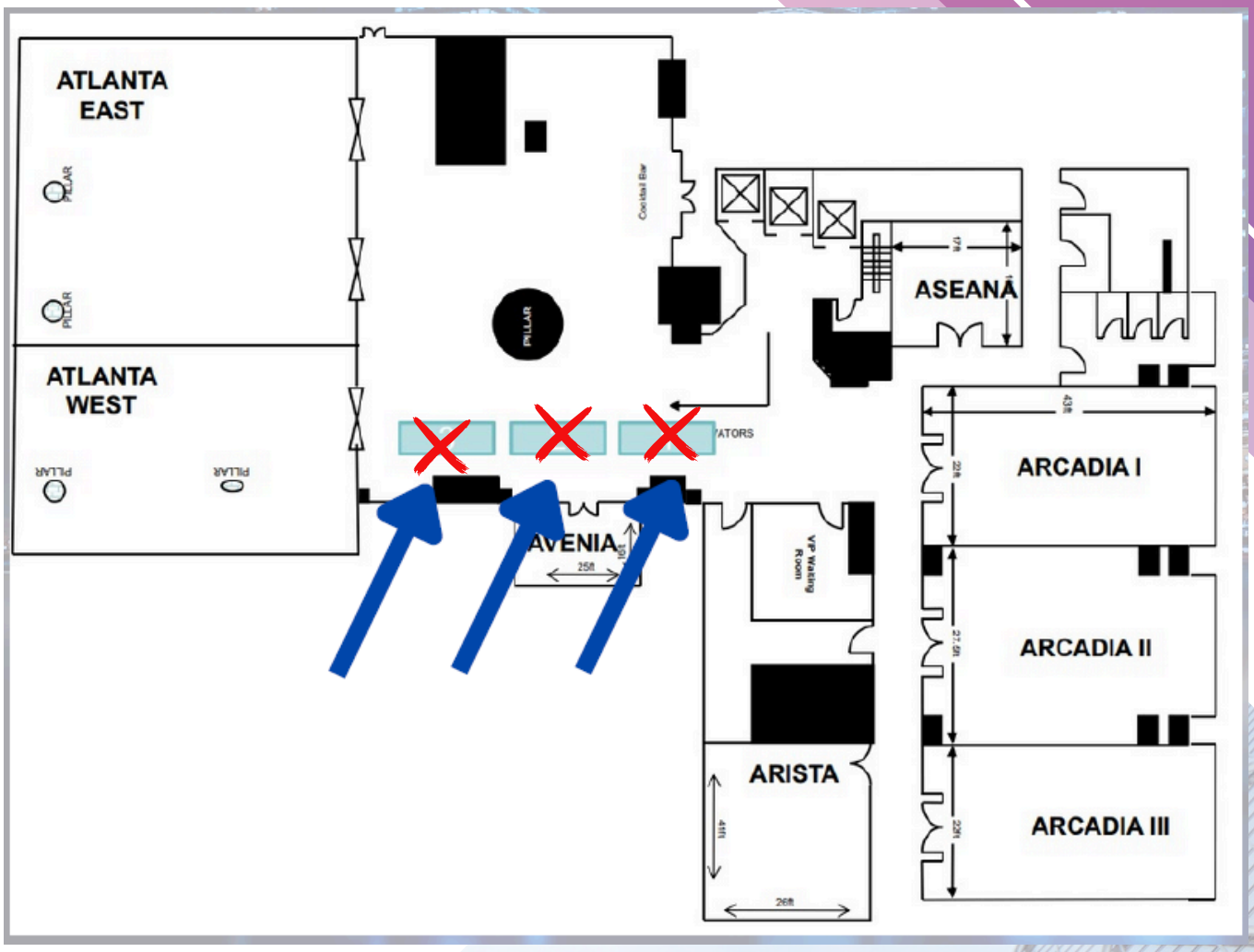

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