

# SEMINAR ON GEOSYNTHETICS

## SPEAKERS:



MR. CHRIS LAWSON



Ir. LEE PEIR TIEN



Mr. MIKE DOBIE



Ir. ALBERT LIM



Ir. COLIN LIM



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**23 APRIL 2025, WEDNESDAY**  
**8:30 am - 6:00 pm**  
**VENUE : CONNEXION**  
**CONFERENCE & EVENT CENTRE**  
**(NEXUS) - AUDITORIUM**

### 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/091/S

**APPROVED DURATION:**  
03/03/2025 - 02/03/2026  
**HRD CORP SERIAL NO:**  
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# SYNOPSIS

Generally, soils are inherently weak in tension and some types, especially soft clays, have low shear strength and low permeability. In the past, engineers would use natural materials to improve the soils. For example, using bamboo allows an embankment to be built on soft ground. But, with new technology, geosynthetics are now commonly used in the construction industry to improve the soils and thus allow for construction works to be carried out effectively (in terms of cost and time), practically and in an environmentally friendly manner. Geosynthetics are used extensively in the construction industry, especially in geotechnical engineering applications, to provide technical practicality and cost-effective solutions. Although relevant standards and handbooks are available, engineers might still face difficulties to specify the appropriate geosynthetics products to meet their project requirements. This webinar shall provide an overview on geosynthetics by introducing the different types of geosynthetics materials, their functions, and some aspects of quality control for the materials. Subsequently, the application of geosynthetics for reinforced soil wall and slope, basal reinforcement and ground stabilisation will be discussed in greater detail.

## PROGRAMME

Time	Description	Speaker
8:30am – 8:50am	Registration & Light Refreshment	
8:50am – 9:00am	Welcoming Address	
9:00am – 10:30am	Lecture 1 : Geosynthetic Reinforced Fill	Mr. Chris Lawson
10:30am – 11:00am	Morning Tea Break	
11:00am – 12:00pm	Lecture 2 : Soft Ground Treatment with Prefabricated Vertical Drain (PVD)	Ir. Lee Peir Tien
12:00pm – 12:15pm	Q&A - 1	
12:15pm – 1:30pm	Lunch	
1:30pm – 3:00pm	Lecture 3 : Stabilization and Reinforcement of Aggregate Layers in Pavements (paved/unpaved)	Mr. Mike Dobie
3:00pm – 3:30pm	Afternoon Tea Break	
3:30pm – 4:45pm	Lecture 4 : Geosynthetics for Inland Waterways and Coastal Erosion Protection	Ir. Albert Lim
4:45pm – 5:45pm	Lecture 5 - Environmental & Hydraulics Barriers with Geosynthetics	Ir. Colin Lim
5:45pm – 6:00pm	Q&A - 2	
6.00pm	Token Appreciation to Speaker / Closure	

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# SPEAKERS' BIODATA

**Mr. Chris Lawson**

**Title: Geosynthetic Reinforced Fill**

**Synopsis:**

The basic concepts of geosynthetic reinforced fill are presented along with the attributes the geosynthetic must have to successfully act as reinforcement, with design life being a major requirement. The three geosynthetic families of woven geotextiles, geogrids and geocomposite strips are shown to fulfil these reinforcement requirements for geosynthetic reinforced fill.

While there are a wide range of geosynthetic reinforced fill applications in use, the presentation concentrates on the four most common; basal reinforced embankments over soft foundations, basal reinforced embankments on piles, reinforced fill slopes and reinforced fill retaining walls. These four applications are considered standard practice today. For each of these four applications the design requirements are presented in a generic manner to enable an engineer to make a practical assessment of the benefits involved. Case studies of each of these four common applications are also given in the presentation.

**Speaker's Profile:**

Chris Lawson is an engineering consultant based in Malaysia. Chris received his Engineering Degrees from The University of New South Wales, Sydney, Australia. He has worked in the field of geosynthetics for 45 years in Australia, Europe, North America and Asia. During this period, he has worked on large scale geosynthetics projects in the field of reinforced embankments, other reinforced fill techniques, and coastal, hydraulic and environmental engineering structures in many countries. Chris has served on international organizations developing Standards and Codes of Practices for geosynthetics and geosynthetics structures. He is the author of over 50 technical papers on geosynthetics, geotechnical engineering, mining and hydraulic and coastal engineering. In 2006 he delivered the 3rd Giroud Lecture at the 6th International Conference on Geosynthetics at Yokohama, Japan.

**Title: Soft Ground Treatment with Prefabricated Vertical Drain (PVD)**

**Synopsis:**

Prefabricated vertical drain (PVD) is an effective and common ground improvement method to expedite the consolidation process of soft clay. The concept of PVD will be discussed in the lecture. In addition, the speaker will also discuss several important parameters in PVD design and highlight on construction control. Lastly, the speaker will present 2 case studies where PVD were adopted successfully to expedite the consolidation settlement..

**Speaker's Profile:**

Ir. Lee Peir Tien obtained his Bachelor of Engineering (Civil) from University of Technology, Malaysia in 2001. He has been involved in design and construction of various geotechnical specialist works for more than 20 years.

He involved in several major infrastructure projects in Malaysia such as Kajang Dispersal Link Road (SILK), Northern Double Track (Padang Renggas to Alor Setar), KVMRT Line 1, East Coast Rail Link (ECRL), KL - Singapore High Speed Rail (HSR) and Southern Double Track (Gemas to Kluang) etc. He also involved as the main designer in several reclamation projects such as Penang World City (60 acres), Melaka Gateway (500 acres), Penang South Reclamation (about 4000 acres), Butterworth reclamation (1000 acres). He also involved in Klang Valley MRT (KVMRT) Line 1 as internal geotechnical reviewer. He also familiar with advanced finite element modelling using PLAXIS 2D specifically on modelling of soil-structure interaction problem involving embankment, ground treatment, piled foundations and deep excavations.

He has published more than a dozen technical papers on geotechnical engineering in international and local conferences. His research interests include soft ground engineering, slope stabilisation, foundation and deep excavation.

He was the Chairman for Geotechnical Engineering Technical Division (GETD) of IEM for Session 2017/2018 and 2018/2019. He also actively involved in Malaysian Geotechnical Society (MGS). He served as Committee Member from 2016 to 2020, was the Secretary General for Session 2020/2021. Subsequently, he was elected as the Deputy President and President for 2021/2022 and 2022/2023 & 2023/2024 respectively. Currently, he is the Immediate Past President of MGS for Session 2024/2025.

**Ir. Lee Peir Tien**



# SPEAKERS' BIODATA

**Mr. Mike Dobie** Title: Stabilization and reinforcement of aggregate layers in pavements (paved/unpaved)



## Synopsis:

**Stabilisation means to keep stable, in other words, keep things unchanged (as quoted by Dr JP Giroud, 2018). This is the case in a number of geosynthetic functions. Separation geotextiles create a stable interface between materials of different gradings, preventing aggregate loss from the coarser material and migration of fines from the finer material, thereby avoiding intermixing of these adjacent materials. Filtration geotextiles also provide a stable interface between fine soil and drainage aggregate, permitting water flow into the drain without loss of material from the fine soil. Stabilisation geogrids provide a stabilisation function within an adjacent granular material, such as a road sub-base. In this case, the term used is “mechanical stabilisation”, such that interlock between aggregate particles and geogrid apertures minimises the relative movement of the particles when subjected to repeated loading. This creates a composite of geogrid and aggregate, referred to as a “mechanically stabilised layer”. Geosynthetic reinforcement, either geogrid or geotextile, provides a tensile resistance within a soil mass, which combines with the compressive resistance of the soil or aggregate to increase stability. In order to generate tensile and compressive resistances, significant strains are required, both in the geosynthetic and the soil material.**

**This presentation examines the use of geosynthetics to create the functions of mechanical stabilisation and reinforcement, specifically in terms of their use in road pavements. The relevant properties of geosynthetics are examined, and it is clear that strength and stiffness at high strains are important for reinforcement function strength and stiffness, this is not the case with mechanical stabilisation. For this function, the nature of the interaction between aggregate particles and geogrid apertures is crucial to creating an effective composite, such that aperture shape, size, and rib geometry are of major importance. These points are illustrated based on a wide range of experiments, testing and trafficking trials.**

## Speaker's Profile:

**Mike Dobie is a practising geotechnical engineer, graduating in civil engineering from Bristol University (UK) and later obtaining a master's degree in soil mechanics from Imperial College, London. He is a Chartered Engineer and a Fellow of the Institution of Civil Engineers (UK). Since graduating in 1973, he has worked in the field of geotechnical engineering for British consultant WS Atkins & Partners, the Delft Soil Mechanics Laboratory in the Netherlands and Singapore, and American specialist consultant Dames & Moore. More recently he has worked for Acer Consultants (now Hyder Consultants, previously Freeman Fox & Partners), being seconded to establish the Central Soils Laboratory (CSL) in Bangi, to provide high quality soil testing for the North-South Expressway. Mike joined Tensar International in 1991 and currently is the Regional Manager (Asia Pacific) based in Jakarta with responsibilities for the development of design methods and software for both reinforced soil structures and mechanical stabilisation techniques.**

# SPEAKERS' BIODATA

## Ir. Albert Lim



**Title: Geosynthetics for Inland Waterways and Coastal Erosion Protection**

**Synopsis:**

Geosystem containment system has been used in a wide variety of hydraulic and marine engineering application for many years in inland waterway and coastal protection works. Under the geosystem umbrella there are geotextile tubes, sand filled mattress, geobags, and silt curtain. The speaker will share the design methodology for the different types of geosystem products with relevance of 5 projects case studies in Vietnam and Malaysia. The first case study is the usage of sand filled mattress for a river mitigation project in Malaysia. The second case study covers geotextile bags for riverbank protection in Malaysia. The third project is the use of geotextile tubes for land reclamation in Deep C2 and the construction of the longest sea-crossing bridge in Vietnam. The fourth case study is the use of composite tubes for beach protection works in Mui Ne, Vietnam. Lastly, the fifth case study is the use of geotextile silt curtain for a land reclamation project in Malaysia.

**Speaker's Profile:**

Ir. Albert Lim is an accomplished professional engineer, currently holding the position of Senior Geosynthetics Manager at Solmax. He is responsible for driving the technical capabilities and marketing of geosynthetics products throughout the Asia Pacific region. With previous experience heading the Water and Environment Division, Albert was responsible for overseeing strategic plans, sales, product development, design and marketing plans for geosynthetics across Asia Pacific. Albert holds a Master of Science degree from the University of Mississippi, USA. He is a well-respected collaborator, working closely with renowned universities such as the National University of Singapore, Nanyang Technology University, and Monash University. Over the course of his 25-year technical career, he has authored and co authored more than 30 technical papers for conferences both locally and overseas. Throughout his free time, he enjoys a cup of black coffee over good conversations.

## Ir. Colin Lim



**Title: Environmental & Hydraulics Barriers with Geosynthetics**

**Synopsis:**

In accordance with ISO 10318, Polymeric Geomembranes (GBR-P) and Clay Barriers (GBR-C) are widely used geosynthetic barriers for environmental and hydraulic containment applications, including ponds, landfills, mining, hydro dams, and even renewable energy projects. The decision to adopt one barrier system over the other is often influenced by regulatory requirements, sealing efficiency, and specific site conditions, though these factors are not always clearly understood. This seminar offers an overview of lining solutions designed to limit the movement of fluids, gases, or contaminants using GBR-P (e.g., polyethylene geomembranes) and GBR-C. Furthermore, it will also focus on key design considerations, functionality, performance criteria, relevant standards, and installation guidelines, ensuring that the barrier system is implemented to meet the highest quality standards and deliver optimal on-site performance.

**Speaker's Profile:**

Ir. Colin Lim is a registered Professional Engineer (P.E.) with the Board of Engineer Malaysia (BEM) and ASEAN Chartered Professional Engineer (ACPE). He currently hold the position of Technical Manager (Environmental Infrastructure) at Solmax focusing on technical specification & technical marketing of Value-Added Geomembrane for containment application. He obtained his Bachelor of Engineering (Civil) from Universiti Tenaga Nasional (UNITEN) Malaysia in 2012 and Master's Degree in Geotechnical Engineering from Universiti Teknologi Malaysia (UTM) in 2014 respectively.

Colin started his career with a Malaysian consulting firm specializing Geotechnical Engineering in 2012 where he was involved in various geotechnical projects consultancy work for 7 years. Subsequently, Colin joined a German geosynthetic manufacturer as the Business Development Manager in 2019 driving on sustainable solutions for infrastructure, water containment and waste management with geosynthetics before his current employment.

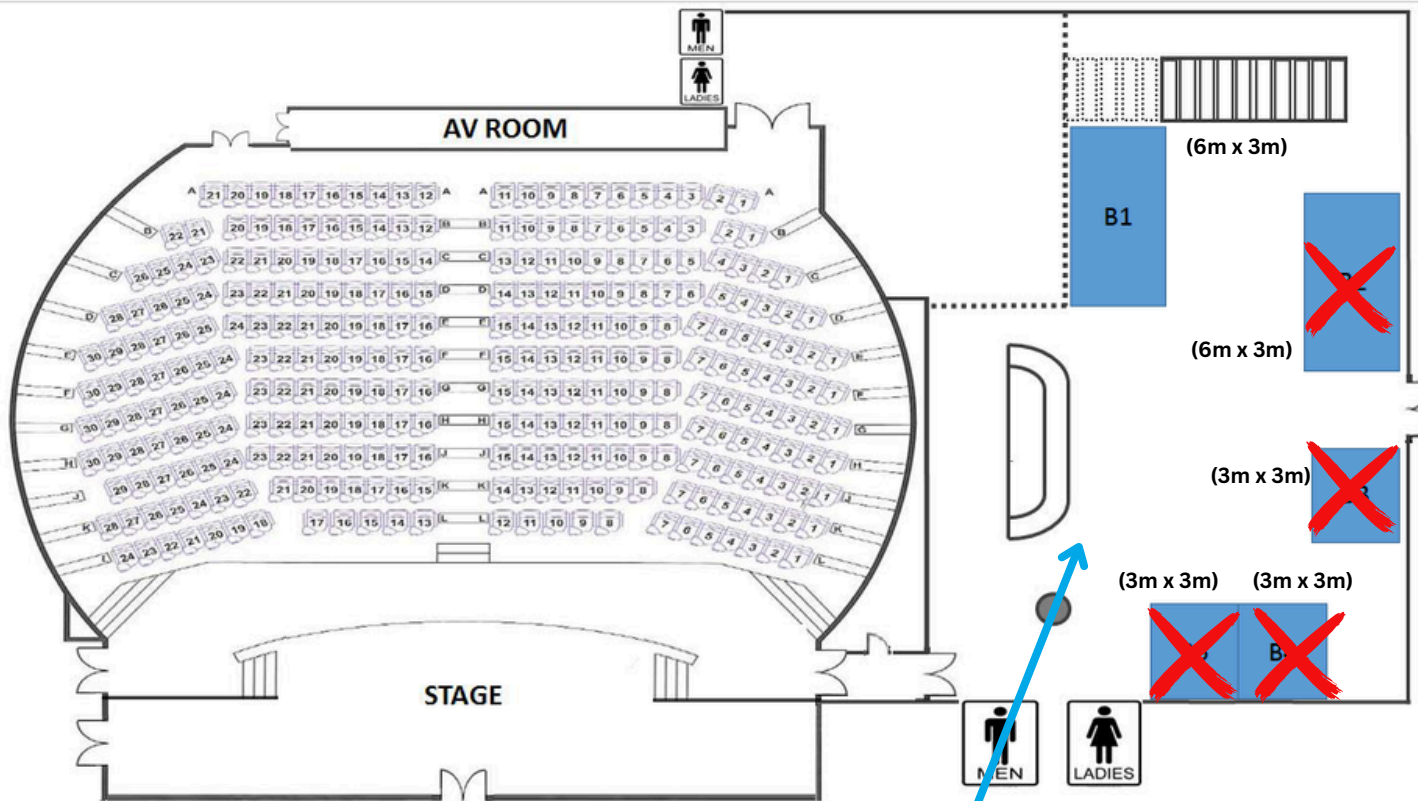
He has published multiple technical papers in international geotechnical & geosynthetics conferences and currently serves as the Co-secretary for TC-Barrier of International Geosynthetic Society (IGS). He is also the committee member of both The Institution of Engineers Malaysia (IEM) GETD & Malaysian Geotechnical Society (MGS). Besides, he is also a member of the Malaysia's Landfill Working Group and Waste Management Association Malaysia (WMAM).

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