



**THE INSTITUTION OF ENGINEERS, MALAYSIA**  
 Bangunan Ingenieur, Lots 60/62, Jalan 52/4, P.O. Box 224  
 (Jalan Sultan), 46720 Petaling Jaya, Selangor  
 Telephone No. 03-7968 4001/2 Fax No. 03-7957 7678  
 Email: nurul@iem.org.my Website: www.myiem.org.my

## REGISTRATION FORM

### ONE DAY SEMINAR ON PILE FOUNDATION

22<sup>ND</sup> MAY 2017, MONDAY

Email to nurul@iem.org.my / IEM Website: www.myiem.org.my  
**(CLOSING FOR REGISTRATION: 16<sup>th</sup> May 2017)**

No	Participant Name (s)	M'ship No.	Grade	Cost (RM)
1				
2				
3				
4				
5				
<b>SUB TOTAL:</b>				
<b>ADD GST @ 6%:</b>				
<b>TOTAL PAYABLE:</b>				

**\*\*\*IMPORTANT NOTICE\*\*\*** All registration fees must be FULLY paid before commencement of the Seminar. IEM reserves the right to refuse entry for participant(s) who have not paid their registration fees to attend the course. THIS REQUIREMENT WILL BE STRICTLY ENFORCED. \*\*I/We understand that the fee is not refundable if I/we withdraw after my/our registration is accepted but substitution of participants will be allowed. If I/we fail to attend the Seminar, the fee paid will not be refunded.

Name of Organization: \_\_\_\_\_

Address: \_\_\_\_\_

Tel(O): \_\_\_\_\_ Mobile No.: \_\_\_\_\_

E-mail: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(Please write clearly for confirmation of registration purposes)



Organised by:  
 Geotechnical Engineering Technical Division, IEM  
 Co-organised with:  
 Malaysian Geotechnical Society (MGS)

## ONE DAY SEMINAR ON PILE FOUNDATION

**BEM APPROVED CPD/PDP HOURS: 8.0**  
**REF. NO.: IEM17/HQ/137/S**

Date/Day:  
**MONDAY, 22<sup>ND</sup> MAY 2017**

Time:  
 8.30 am to 5.30 pm

Presenters:

Ir. Neoh Cheng Aik, Ir. Chow Chee Meng,  
 Ir. E.G. Balakrishnan, Ir. Assoc. Prof. Dr Dominic  
 Ong Ek Leong, Ir. Wong Chen Jack,  
 Ir. S. Chandrasegaran Sundararaju and  
 Ir. Liew Shaw Shong

**Change to New Location Venue**

Venue:

Puteri Grand Ballroom, Four Points by Sheraton,  
 1201, Tower 3, Puchong Financial Corporate  
 Centre (PFCC), Jalan Puteri ½, Bandar Puteri,  
 Puchong, 47100 Selangor

**1 Light Refreshment, 2 Coffee Breaks and 1 Buffet Lunch will be served in 4-Star Hotel**

## INFORMATION TO NOTE

### Terms & Conditions

- ✓ For ONLINE REGISTRATIONS, only ONLINE PAYMENT is applicable (via RHB and Maybank2u-Personal Saving & Personal Current; Credit Card – Visa/Master)
- ✓ Payment via CASH / CHEQUE / BANK-IN TRANSMISSION / BANK DRAFT / MONEY ORDER / POSTAL ORDER / LO / WALK -IN will be considered as NORMAL REGISTRATION
- ✓ For online registrations, please note that **payment MUST be made on registration.**
- ✓ **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 participants fail 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. Registration fee includes lecture notes, refreshment and lunches.
- ✓ The Organising Committee reserves the right to cancel, alter, or change the program due to unforeseen circumstances. Every effort will be made to inform the registered participants of any changes. In view of the limited places available, intending participants are advised to send their registrations as early as possible so as to avoid disappointment.

### Cancellation Policy

- ✓ IEM reserves the right to postpone, reschedule, allocate or cancel the Course. No cancellation of registration will be accepted 1 day prior to the date of the event or during the event day. Replacement or substitute name and additional fees however, can be made at least 3 days prior to the event date.

### Data Protection Act

- ✓ I have read and understand the IEM's Personal Data Protection Notice published on IEM's website at <http://www.myiem.org.my> and I agree to IEM's use and processing of my personal data as set out in the said notice.

### Payment Details

- Cash: RM \_\_\_\_\_
- Cheque no. \_\_\_\_\_ for the amount of RM \_\_\_\_\_ (non-refundable) and made payable to **"THE INSTITUTION OF ENGINEERS, MALAYSIA"** and crossed "A/C Payee Only".

### Registration Fees (Before GST)

Grade	Normal Registration (by fax & email) Payment by cash, credit card and bank-in	Online IEM Registration with Payment Fee (Log-in and payment via IEM Website)
IEM & MGS Student	RM250	RM200
IEM & MGS Member	RM400	RM350
Non-IEM & Non-MGS Member	RM800	RM700

## ONE DAY SEMINAR ON PILE FOUNDATION

Monday, 22<sup>nd</sup> MAY 2017

### TENTATIVE PROGRAMME

08:00am - 08:30am	Registration, Scan-in and light refreshment
08:30am - 08:45am	Opening Remarks & Introduction by Session Chairman
08:45am - 09:45am	Lecture 1: Design and Construction of Driven RC Pile Foundations – Past and Present Experiences <b>by Ir. Neoh Cheng Aik</b>
09:45am - 10:00am	Coffee/Tea Break
10:00am - 11:00am	Lecture 2: Foundation Design and Construction of Barrette Piles <b>by Ir. S. Chandrasegaran Sundararaju</b>
11:00am - 12:00nn	Lecture 3: Performance of Bored Piles Based on Instrumented Load Test Results <b>by Ir. E.G. Balakrishnan</b>
12:00nn - 1:00pm	Lecture 4: Detrimental Effects of Lateral Soil Movements on Pile Behaviour <b>by Ir. Assoc. Prof. Dr Dominic Ong Ek Leong</b>
01:00pm - 01:15pm	Questions and Answers Session
01:15pm - 02:15pm	Lunch
02:15pm - 03:15pm	Lecture 5: Local Construction Practice and Geotechnical Performance of Rock Socketed Bored Pile in Sedimentary Crocker Formation in Sabah <b>by Ir. Wong Chen Jack</b>
03:15pm - 03:30pm	Coffee/Tea Break
03:30pm - 04:30pm	Lecture 6: Jack-in Piles in Granite vs Limestone Formation <b>by Ir. Chow Chee Meng</b>
04.30pm - 05:30pm	Lecture 7: Planning and Interpretation of Instrumented Lateral Pile Design Performance and Testing with a Semi Restrained Pile Head Condition <b>by Ir. Liew Shaw Shong</b>
05:30pm - 06:00pm	Conclusions
06:00pm - 06:30pm	Scan-out and collection of Certificate of Attendance

### Synopsis:

#### Title: Design and Construction of Driven RC Pile Foundations - Past and Present Experiences

For most geotechnical works including driven RC piles installation, design and construction are inseparable. In fact, the performance (capacity, settlement, structural integrity & durability) of driven RC pile is very sensitive to how it is installed and the subsoil conditions. Principles, design and construction requirements of code of practice in the past and present will be elaborated. The Lecture will focus on:

- Principles and behaviour of driven RC piles during installation and in service conditions.
- Applications & limitations of driven RC piles.
- Pile design & construction practice in the past and present.
- Basic scope of design verification for driven RC piles.
- Significance of driveability analysis for driven RC piles
- Basic scope of design validation & QC tests for driven RC piles.
- The role & responsibility of pile supervisors/RE as required by BS EN 12699:2001.
- The material, QC and construction requirements of driven RC pile installation according to BS EN 12699:2001 plus their respective significance and effects on driven pile performance.
- Interpretations of selected driven pile load tests by high strain dynamic pile test (PDA) and instrumented static load tests (maintained load test & bi-directional load test).
- Case histories of defective construction of driven RC piles plus their necessary remediation's based on speaker's recent experiences in several projects will be elaborated and presented.

### CV of speaker:



**Ir. Neoh Cheng Aik** joined JKR/PWD Malaysia after graduated from University of Malaya in 1974. Has served 25 years in various capacities and posts including Site Engineer for several building & road/bridge projects, Senior Executive Engineer of KL-Karak Highway Project, Senior Executive Engineer in Design & Research Branch, Superintending Engineer (Structures) of Armed Forces Works Branch, Head of Geotechnical Division of Institute of Public Works Malaysia for about 6 years and Head of Road Design Unit of Road Branch, PWD HQ for about 5 years. Optional retirement in 1998. Ir. Neoh CA joined Kumpulan IKRAM as Director of IKRAM Runding Sdn Bhd from 1998 to 2000. From April 2000 to to-date, Ir. Neoh CA is the Director of E-Geo Consultant Sdn. Bhd.

Ir. Neoh CA is also frequently engaged as independent geotechnical design checker and as expert witness in construction disputes/arbitrations. Ir. Neoh CA was amongst the first batch of accredited geotechnical independent checkers accredited/appointed by BEM or Board of Engineers, Malaysia.

### Synopsis:

#### Title: Foundation Design and Construction of Barrette Piles

Tall tower construction is gaining momentum all over the world and increasingly require robust, reliable, high capacity foundation elements to support large forces namely vertical, horizontal and seismic from the super structure. Barrettes traditionally installed with same equipment as the diaphragm walls are increasingly adopted as an efficient foundation system. The ability to adopt different geometrical shapes to form rigid foundation members to carry large tower loads installed to >100m where required makes barrettes a viable and efficient option to meet more and more complex design requirements. The presentation will cover the barrette design, installation process, new equipment developed to suit different geology and site conditions, techniques adopted to increase the carrying capacity of the barrette member and discuss examples of tall tower projects where it has been used successfully. Different load test procedures adopted to meet the ever increasing test load for ultimate load test will also be discussed

### CV of speaker:



**Ir. S. Chandrasegaran Sundararaju** is a registered Professional Engineer (PE) in Singapore, PE (Geo) in Singapore and Malaysia, ASEAN Chartered Engineer, ACPE. He is also a Corporate Member of The Institution of Engineers, Malaysia (IEM). He has more than 25 years of design and construction experience in both major building developments as well as underground infrastructure in the region in the role of both consulting engineer as well as a specialist subcontractor. Ir Chandrasegaran is currently a Regional Design Manager with Bachy Solentacnche Singapore Pte. Ltd. Covering the region that includes Singapore, Malaysia, Indonesia, Brunei, Australia and New Zealand. His major area of expertise is in the deep excavation, deep foundations and ground improvement. Graduated in 1988 with First Class in Civil Engineering and obtained MSc in geotechnical engineering in 1996 from National University of Singapore. He is also serving as a Committee Member of GeoSS, Singapore since 2013 and served as a Committee Member of the Geotechnical Engineering Technical Division (GETD), The Institution of Engineers, Malaysia (IEM) between 2012-2016.

### **Synopsis:**

#### **Title: Performance of Bored Piles Based on Instrumented Load Test Results**

Bored piles are currently widely used in all large infrastructure projects including high-rise buildings in Klang Valley and the surrounding. It is quite normal to carry out instrumented pile load tests on preliminary test piles to study the behavior of the load distribution and verify the shaft and base resistance correlations used in the design. Number of these tests results are now available.

A study has been taken to study some of them, analyze and interpret the results. The talk will address the basic design principles currently practiced in the bored pile design, instrumentation details adopted in the field, the instrumentation results and discussion on the findings covering the load distribution, shaft resistance, base resistance, correlation with SPT N values, rock quality designation (RQD), etc.

### **CV of speaker:**



**Ir. E.G. Balakrishnan** graduated from University Malaya with honours degree in Civil Engineering in 1985. He has worked in both consulting and construction firms covering the general disciplines of civil engineering before pursuing a Master Programme in Geotechnical Engineering at Asian Institute of Technology, Bangkok from 1992 to 1994. He started his own consulting firm, GCU Consultants Sdn Bhd in 1998 providing civil consultancy services with specialist skills in geotechnical engineering.

Since then, he has been involved in large civil engineering projects providing geotechnical consultancy services. His scope covered all ranges of geotechnical engineering comprising foundation, ground treatments, slopes, walls & retention systems for highways, railways, reclamation, high rise buildings, ports, oil & gas and large civil infrastructure projects.

Some of the major completed projects include Express Rail Link, Guthrie Expressway, Electrified Double Track Projects, New Pantai Expressway, Besraya Expressway, Pengerang Oil Terminal and, MRT1.

He has published number of papers locally and internationally. He has also published a paper in the ASCE journal titled "Load Deformation Analysis of Bored Piles in a Residual Weathered Formation" in 1999. He also made number of presentations locally and internationally on various topics in geotechnical engineering. He is also a committee member of the Geotechnical Engineering Technical Division of Institution of Engineers, Malaysia (IEM).

### **Synopsis:**

#### **Title: Detrimental Effects of Lateral Soil Movements on Pile Behaviour**

Deep excavation, tunnelling and river tidal fluctuations are some activities that can induce lateral soil movements, which can detrimentally impact nearby existing infrastructure. One major design concern is that the behaviour and mechanisms of complex soil-structure interaction that occur in these situations are often still not well understood. Limited design methods are currently available to evaluate these problems in practice.

Therefore, the latest development and understanding of soil-structure interaction involving pile foundations subject to lateral soil movements are presented with reference to successfully implemented projects or research outcomes based on finite element modelling, centrifuge experiments as well as field observations and interpretations. The novel concept of passive pile behaviour and limiting soil pressure due to stress relief will also presented and discussed in detail.

### **CV of speaker:**



**Ir. Assoc. Prof. Dr. Dominic Ong Ek Leong** obtained his Bachelor's Degree from the University of Western Australia (UWA) and his PhD in Geotechnical Engineering from the National University of Singapore (NUS). Currently, he is an Associate Professor and Director of the Research Centre for Sustainable Technologies, Faculty of Engineering, Computing & Science, Swinburne University of Technology Sarawak Campus.

He is also actively involved in geotechnical consultancy works within the local industry and previously in Singapore. Ir. Assoc. Prof. Dr. Ong has particular interests in the fields of deep excavation, tunnelling, soil-structure interaction, ground improvement, field instrumentation works and finite element modelling. He currently holds the position of EXCO Member of the Association of Consulting Engineers Malaysia (ACEM) Sarawak Branch, Vice-Chairman Institution of Engineers Malaysia (IEM) Sarawak Branch and is also a Founding Member of the Malaysian Geotechnical Society (MGS).

He is also an Editorial Board Member of the UK's Institution of Civil Engineer (ICE) journal, *Geotechnical Research* and SEA Geotechnical Society's *Geotechnical Engineering* journal.

Recently, he serves as Malaysia's representative in the International Society for Soil Mechanics & Geotechnical Engineering (ISSMGE) Technical Committees, namely, TC104 Physical Modelling and TC207 Soil-Structure Interaction & Retaining Walls.

### **Synopsis:**

#### **Title: Local Construction Practice and Geotechnical Performance of Rock Socketed Bored Pile in Sedimentary Crocker Formation in Sabah**

Bored cast-in-situ concrete pile with rock socket has become a popular foundation option to support highly loaded structure. However, unlike drive-in or jack-in piles, the evaluation of pile performance on both capacity and deformation of this pile type can be very subjective when it comes to deciding the required pile length or rock socket length during construction. Dispute on the technical requirements and, more often, on contractual issues arise during construction against the ideally designed cases. This presentation will cover the authors' experience in the bored pile construction practice in the local founding formation, namely Crocker Formation, along the west coast of Sabah. Review of the geotechnical performance of bored piles socketed into this sedimentary rock formation with different weathering condition were performed on the fully instrumented test pile using Global Strain Extensometer technology.

### **CV of speaker:**



**Ir. Wong Chen Jack** obtained his B. Eng. Degree in Civil Engineering from The University of Melbourne. He started his career with G&P Geotechnics Sdn Bhd where he was extensively involved in soft ground engineering and slope strengthening works. Thereafter, he joined a geotechnical specialist contractor in K.L. that specialized in design and build for slopes strengthening and foundation works for several years before he returned to his home town, Sabah, in 2011. In 2015, he set up his own consultancy, CJ Perunding and then CJ Consulting Engineers Sdn Bhd to provide Geotechnical Consultancy services in Sabah. Apart from the recent opportunity in the Pan Borneo Sabah and some slope projects, he has been involved in the local bored pile construction industry as Resident Engineer, Technical Advisor and Design Consultant.

### Synopsis:

#### **Title: Jack-in Piles in Granite vs Limestone Formation**

Large diameter jack-in pile foundation has been successfully adopted in Malaysia since late 1990s and currently, large diameter spun piles up to 600mm in diameter with working load up to 3000kN have been successfully adopted for high-rise buildings of up to 45-storays. This presentation summarises some recent experiences in design and construction of high capacity jack-in pile systems based on results of maintained load tests and settlement monitoring carried out on completed structures. Comparison is made between the performance of the piles in granite formation and limestone formation in order to understand the advantages and also limitations of the system.

#### CV of speaker:



**Ir. Chow Chee Meng** obtained his Bachelor of Engineering (Civil) from University of Malaya and won the Chan Sai Soo prize for the best engineering undergraduate thesis. He started his career with G&P Geotechnics, an independent consulting company specialising in Geotechnical and Geo-Environmental Engineering before joining Technip, the largest integrated offshore and onshore engineering contractor in South East Asia for the design and construction of hydrocarbon field development, oil refining, gas processing, petrochemicals and industrial plants and facilities. He has written numerous papers and given lectures on engineering subjects ranging from R&D to geotechnical engineering in international and local conferences and journals and his research interests includes deep excavation, jack-in pile, piled raft and soil nails. Throughout his career as a geotechnical engineer, he was fortunate to be involved in a number of award winning projects such as Bandar Botanic, Klang (ACEM Silver Award of Merit), Sg. Damansara Flood Mitigation (ACEM Gold Award of Special Merit) and was awarded the Outstanding Performance Award from **Sunrise Berhad for geotechnical consultancy**. His professional journey has also taken him to countries such as Turkmenistan and Vietnam where he gained invaluable experience in solving geotechnical problems and also working with different people and environment. He is currently the Director of G&P Geotechnics after re-joining them in 2005 and is a key member of the Sungai Buloh-Kajang KVMRT design team (in association with Mott MacDonald) responsible for the design of geotechnical works for the underground stations and foundation for viaducts from Pasar Rakyat to Plaza Phoenix, Cheras. He is a committee member of the Geotechnical Engineering Technical Division of the Institution of Engineers, Malaysia (IEM) from 2008 to 2013. He is also currently serving the Board of Engineers, Malaysia (BEM) as Investigating Committee Member on Professional Practice (since 2014).

### Synopsis:

#### **Title: Planning and Interpretation of Instrumented Lateral Pile Design Performance and Testing with a Semi Restrained Pile Head Condition**

This presentation describes the planning of the instrumentation in a hollow circular spun pile with an intended structural frame setup to attain a fixed head connection. The purpose of this lateral pile validation test is to establish the lateral stiffness response of the high free standing pile group with gigantic pilecaps to support the bridge deck with high demand of operational accuracy of support deformation. For the purpose of validating test under dry condition and also to avoid adverse interference of wave action to the test result, the testing platform was deliberately raised far above the actual working pile condition.

As a results, high free standing length of the test pile over water resulted in high induced moment from the lateral test load, which made the interpretation of the test results very difficult and challenging to yield the useful test performance with the target criteria on lateral deformation. The interpretation of the pile internal stresses, particularly the pile flexural stress, before the cracking of concrete is performed using the linear elastic beam theory in view of the relatively low working lateral load distributed to the huge group piles. The pile lateral deflection profile for the free standing pile length was considered as a free body with the linear elastic continuum mechanics to produce lateral stiffness response of the embedded pile in the riverbed. With the elasticity of the reduced free standing pile length and the back analyses lateral support in the embedded pile, the lateral designation and pile stresses were reassessed and indirectly validate the performance of pile lateral deflection. This presentation will illustrate the procedures of devising the methodology of the testing scheme and interpretation for indirection validation with testing constraints at site. The pile head connection fixity problem will also be discussed and quantified theoretically in compliance to the assumption made. The installation details of the inclinometer inside the spun pile will be described.

#### CV of speaker:



**Ir. Liew Shaw Shong** obtained his Bachelor of Science Degree in Civil Engineering with First Class Honours from National Taiwan University at Taipei in 1991 and worked as a geotechnical engineer in Sino Geotechnology Inc. at Taipei for a year.

In 1992, he continued his post-graduate study in University of New South Wales in Sydney, Australia and obtained his Master of Engineering Science in 1993. He then returned to Malaysia to work as geotechnical engineer in a multi-discipline engineering consultant firm. During the six years of working, he has exposed himself to numbers of major infrastructure projects, likes Lebuhraya Damansara Puchong, Tanjung Pelepas Port, Kuala Lumpur International Airport, etc.

In 1999, he jointly established a geotechnical specialist consulting firm with another two partners to continue the consultancy practice till now. He is now the senior director of G&P Geotechnics Sdn Bhd.

In the past twenty three years of his professional career, he has involved in numbers of forensic investigations of landslide problems at mountainous roads and is one of the project team members in the National Slope Master Plan Study commissioned by JKR.

He also conducted numbers of short courses and delivered lectures on subjects covering subsurface investigation, instrumentation, dam engineering, slope engineering, soft ground engineering, pile and retaining wall designs, geotechnical case histories and forensic engineering.

On the peaty soil formation, he involved in *platform treatment and foundation system for a palm oil mill project over the peat soils in flood plain alluvial deposits in Sumatra, Indonesia and a forensic investigation on peat soils flow failure with strengthening solution for an open coal mining at Mukah, Sarawak*. He also involves in numbers of basement construction projects in Peninsular and Sabah. Recently, he has completed an *alternative maritime foundation design and construction for a cross river mouth bascule bridge*.

Ir. Liew was the past chairman of Geotechnical Engineering Technical Division of the Institution of Engineers, Malaysia (IEM) for Session 2010 to 2013 and is currently the advisor of Geotechnical Engineering Technical Division of the Institution of Engineers, Malaysia (IEM) for Session 2014 to 2015.

He is also presently the secretary general of Malaysia Geotechnical Society.

*Ir. Yee Thien Seng*  
Chairman, Geotechnical  
Engineering Technical Division,  
(GETD), IEM

*Ir. Dr Chan Sin Fatt*  
President, Malaysian  
Geotechnical Society  
(MGS)