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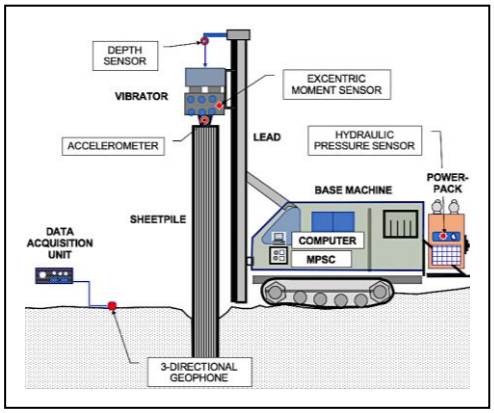
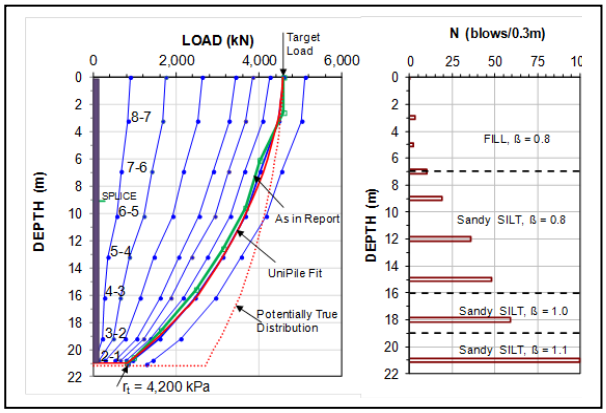
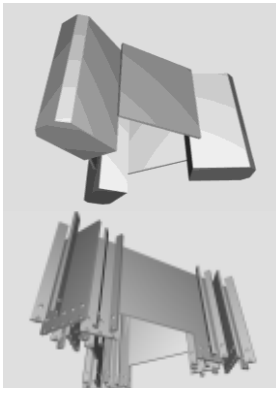
Interactive display that guides the machine operator during the resonance compaction process showing compaction (After K. R. Massarsch and C. Wersäll, 2019)



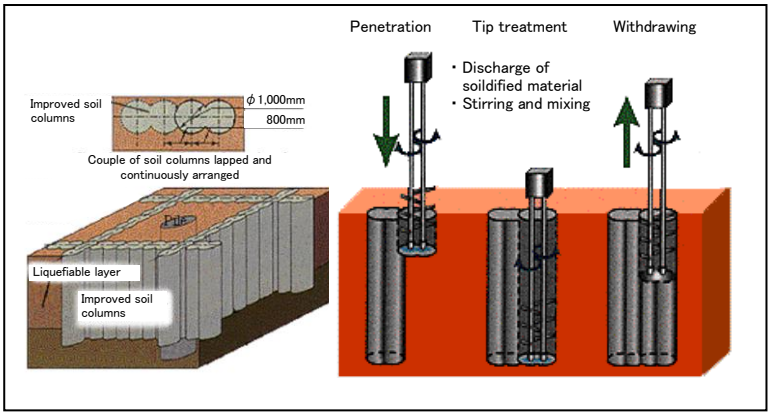
Principle of Monitoring and Process Control System (MPCS), showing sensors mounted on the rig and ground surface (After K. R. Massarsch and C. Wersäll, 2019)



Load Distributions determined from strain values (After Bengt H. Fellenius and Ba N. Nguyen, 2019)

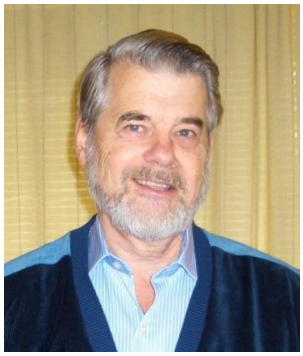


Left: Photo 1 Test nodular diaphragm wall having nodular parts and pile base enlargements
Right : Figure 1 Alternative of foundation types
(After K. Watanabe and T. Sudo, 2019)



Schematic of grid-form cement deep mixing walls (After K. Yamashita, T. Tanikawa and A. Uchida, 2019)

Honouring Dr Bengt Fellenius



Dr. Bengt H. Fellenius is a professional engineer specializing in foundation design and studies by participation in project teams, special investigations, instrumented field tests, etc. Services are also provided in regards to construction problems, claims, and litigation in collaboration with Consultants and Contractors, as well as Owners.

Dr. Fellenius, Professor of Civil Engineering at the University of Ottawa from 1979 through 1998, is an internationally recognized authority in the field of soil mechanics and foundation engineering, and, in particular, in deep foundations. He has gained a wealth of practical experience during more than 50 years of work at home and overseas through a variety of assignments that encompass foundation, embankment, and soil improvement design for water and sewage treatment plants, industrial plants, as well as bridges, highway, and airport projects, and marine structures and urban area development projects; some of which he has written up in 300+ technical journal and conference papers, articles, books, and book chapters. Copies of many of the papers are available for downloading from Dr. Fellenius' web site: [www.Fellenius.net]

Dr. Fellenius moved from his native Sweden to Canada in 1972 where he worked on foundation investigations and design and construction projects in North America and overseas. In 1973, he was one of the first to apply geotextile soil separation sheets to stabilize roadbeds and construction surfaces, investigating conventional carpet underlay (Celanese) for this purpose. He was active in promoting to the US market the splicing of prestressed concrete piles by means of mechanical full-strength splices, and he introduced to Canada and the USA ground improvement applications of lime column method for reducing soil compressibility and wick drains (the Geodrain and Alidrain) for accelerating consolidation and stabilizing landslides. He was one of the earliest (1977) to research and use dynamic testing and the Pile Driving Analyzer in actual project design and construction.

In 1984 he introduced the Janbu method of determining soil compressibility and analysis of settlement. He has also had a fundamental part of the development of commercial software for analysis of settlement from loads on natural soils and soils subjected to soil improvement methods, design of piled foundations, and other software. In 1984, he published the design and analysis method for foundation design known as the "Unified Method of Design for Capacity, Drag Force, Settlement, and Downdrag".

Dr. Fellenius is and has been an active participant in many national and international professional societies and research associations and in Canadian and US Codes and Standards Development. For example, Member of the subcommittee for the American Society for Testing and Materials D-4945 Standard for High-Strain Dynamic Testing of Piles; Chairman of the Canadian Geotechnical Society, CGS, Technical Committee on Foundations writing the 1985 Canadian Foundation Engineering Manual; Member of the Ministry of Transportation Committee for the Development of the 1983 and 1992 Ontario Bridge Design Code; Author of three Public Works Canada publications: Marine Division Master Specifications for Piling, Pile Design Guidelines, and Hammer Selection Guide; Past Overseas Correspondent Member to the Geotechnical Engineering Advisory Panel of the Institution of Civil Engineers, ICE (London); and Past Member of Editorial Board for the ASCE Geotechnical Engineering Journal.

Dr. Fellenius has given lectures and courses to several universities and been invited lecturer at international conferences throughout Europe, the Americas, and South-east Asia.

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Preface

There are eighteen peer reviewed papers in this Issue of the journal honoring Dr Bengt Fellenius. The guest editors are Dr Phung Duc Long, Prof Der Wen Chang & Dr T Hosoi.

The first paper is by K. R. Massarsch and C. Wersäll on Monitoring and Process Control of Vibratory Driving: Vibrators are used increasingly in the foundation industry, primarily for installation of piles and sheet piles, but also for deep vibratory compaction. Fundamentals of vibratory driving are described that make it possible to choose vibrator performance parameters based on field monitoring and performance control. Variable frequency and amplitude vibrators have become available that make it possible to adapt the driving process to project-specific requirements. The components of modern electronic measuring systems are detailed that can be used to monitor, control, and document different aspects of vibratory driving. Two examples are presented—vibratory driving of sheet piles and resonance compaction—which show how the performance of vibrators and sheet piles can be analysed and adapted to meet specific requirements. By using the advanced monitoring and process control systems, the efficiency of vibratory driving is enhanced. From the retrieved parameters, a better understanding of the vibratory driving process is gained, which can be used to develop a valuable database

The second paper is on Load-movement Response by t-z and q-z Functions by Mohammad Manzur Rahman and Bengt H. Fellenius: A static loading test provides more than a "capacity", its primary use is to show the load-movement response of the pile-and-soil system in order to assist in analysis of the transfer of a supported load to the soil. A pile is an axial unit composed of a series of short lengths (elements) that are affected by shaft shear or toe stress, expressed as a relation of stress (load) versus movement for the element. The analysis of the load-transfer must consider the development of shaft shear and toe resistances as a function of movement for a pile shaft or toe element, expressed in a load-transfer function commonly called t-z and q-z function. The conditions of the soil around a pile determines the response of the elements making up a pile. Inasmuch soil layering usually varies along a pile, the t-z function modeling the response of an element will differ along a pile. The response of a pile head, that is, the actual pile load-movement curve, is the sum of the response of the individual pile elements. Fitting the theoretical load-movement response to actual test results by trial-and-error applying a series of shaft (t-z) functions and a toe (q-z) function, enables a calibration of a pile and site that serves to establish the load-transfer conditions of a piled foundation at the site needed for determining what short and long-term settlement the foundation will experience. This, a crude "capacity" assessment will not do. Eight functions for modeling strain-hardening and strain-softening response are presented in the paper and their use in fitting theoretical to actual results is illustrated.

The third paper on Common Mistakes in Static Loading Test Procedure and Result Analyses is by Bengt H. Fellenius and Ba N. Nguyen: Static loading tests on piles are arranged in many different ways ranging from quick tests to slow test, from constant-rate-of-penetration to maintained load, from straight loading to cyclic loading, to mention just a few basic differences. Frequently, the testing schedule includes variations of the size of the load increments and duration of load-holding, and occasional unloading-reloading events ("cycles"). The development and reduced costs of instrumentation over the past decades have enabled also routine tests to be enhanced with instrumentation for measuring load-induced axial strain in a test pile. The strains are converted to load by multiplication with the pile axial stiffness, EA. Both the modulus, E, and the pile area, A, are often uncertain values. In contrast to steel, E-modulus for a concrete pile is strain and stress dependent and, moreover, it can differ considerable from one pile to the next, especially so for cast-in-situ piles. In a bored pile (cast-in-situ pile), the actual pile size can differ from the nominal by 50 % or more, usually, the actual size is larger than the nominal. However, if the analysis is directed to determining and applying the pile stiffness directly, the uncertainty and inaccuracy can be offset, provided that proper test procedure is stringently adhered to. Unfortunately, instrumenting test piles and performing the test while still using unequal size of load increments, duration of load-holding, and adding unloading-reloading events will adversely affect the means for determine reliable results from the instrumentation records. A couple of case histories are presented to show difficulties arising from improper procedures involving unequal load increments, different load-holding durations, and unloading and reloading events—indeed, to demonstrate how not to do.

The fourth paper on Stiffening Effect on End Bearing Granular Pilesis by M. R. Madhav, B. Jitendra Kumar Sharma and A. Vaibhaw Garg,: Among the various economic options available for ground improvement the use of granular piles (GP), composed of compacted gravel, sand or mixture of both, is the most preferred choice. The performance of these GP is limited by low strength and stiffness of the soil near the ground surface. If GPs are partially strengthened and stiffened near the ground surface their overall performance gets enhanced several fold. Stiffening of GP can be achieved by replacing partially the upper portion of GPs with material having higher strength and

deformation modulus, e.g. by geosynthetic encased columns, SDCM (stiffened deep cement mixing), etc. Analyses of a single and group of two partially stiffened end bearing GPs is presented in this paper. Results in terms of top settlement influence factor, settlement interaction factor for two-pile group, settlement reduction factor, percentage load transferred to the base, variation of normalized shear stress distribution along the length of the pile are presented. Settlement influence factor decreases while the percentage load transferred to the base of increases with increase in the relative stiffness factor and the relative length of stiffening from top of the partially stiffened GP, both for single as well as for two pile group.

The fifth paper is Long-term Behaviour of Piled Raft with DMW Grid on Reclaimed Land by K. Yamashita, T. Tanikawa and A. Uchida: This paper offers a case history of a friction piled raft, supporting a four-story parking garage on reclaimed land. The subsoil consists of filled sand and alluvial loose sand which have the potential for liquefaction. Hence, grid-form cement deep mixing walls were employed as a countermeasure of liquefaction with the piled raft. Below the sand layers, there are very-soft to medium alluvial clay layers, which are normally consolidated or under-consolidated, and the depth of the dense sand layer changes markedly near the center of the site. To reduce the differential settlement due to consolidation of the clay, 152 friction piles of different length were employed. To confirm the validity of the foundation design, field monitoring on the foundation settlement and the load sharing between the piles and the raft was performed. The measured settlements and the maximum angular rotation of the raft about 12 years after the end of the construction were less than an acceptable value. Furthermore, at the time of the 2011 off the Pacific coast of Tohoku Earthquake, no significant change in effective contact pressure between the raft and the unimproved sand was observed after the event, which confirms that the effectiveness of the grid-form DMWs as a countermeasure of liquefaction.

The sixth paper is by Koji Watanabe and Toshimi Sudo on In-situ Full Scale Load Tests and Estimation Method of Pile Resistance for Nodular Diaphragm Wall Supporting High-rise Tower: In recent years, the height and weight of buildings have increased. This trend is noticeable especially in the urban central areas of Japan. Both tension force and compression force occur in foundation such as pile foundations or wall foundations because of the overturning moments from earthquake and wind loads. Because of these situations, it is necessary to develop new types of foundations for high-rise superstructures. The nodular diaphragm wall is a new type of foundation with a nodular part at the middle section of the wall foundation. The purpose of this study was to evaluate the application of the nodular diaphragm wall for the high-rise tower. This paper firstly reviews foundations similar to the nodular diaphragm wall, secondly describes the outline of the high-rise tower, then presents the tension and compression load tests, and finally discusses the design formula for the nodular diaphragm wall.

The seventh paper is on Three-dimensional Finite Element Analyses of Barrette Piles under Compression and Uplift Loads with Field Data Assessments by D.W. Chang, C. Lin, T. Wang, Y.K. Lin, F.C. Lu and C.J. Kuo: This paper presents the three-dimensional finite element modeling of barrette piles in clayey and sandy soils in which the piles are subjected to statically compressive and uplift loads. Load displacement curves and load transfers were monitored and compared to the solutions from one-dimensional finite difference analysis. Capacities of the barrette piles were examined by interpretation methods and bearing capacity equations. Pile load test data of the barrette piles located in Xingyi District at Taipei Basin was simulated. It was found that the conventional bearing capacity equations are applicable to barrette pile. The interface elements between pile and soils were found significantly affecting the results. Finite element analysis can provide more complete solutions rather than finite difference analysis. It is also found that the soil frictions of uplift pile in soft clays at Taipei Basin were underestimated with the commonly reduced strength ratios.

The eighth paper is on AUT: Geo-CPT & Pilr Database Updates and Implementations for Pile Geotechnical Design by Abolfazl Eslami, Sara Moshfeghi and F. Valikhah: Due to uncertainties in geomaterial properties and modelling, a detailed and precise data source can significantly improve reliability indices. Accordingly, to facilitate quantifying the uncertainties, there are currently several databases in the realm of piling and CPT. AUT (Amirkabir University of Technology): Geo-CPT&Pile Database was initially developed in 2015 by 466 case records including pile and CPT records. At present, it is updated to the total number of 600 case records which are partly accessible online. Aiming at pile performance-based design, risk analyses and evaluation of optimum safety factor have been examined based on value engineering by Wasted Capacity Index (WCI). Subsequently, the performance of direct CPT methods for pile bearing capacity estimation have been assessed focusing on reliability-based approaches. In addition, a methodology was employed to predict the load-displacement and bearing capacity of driven piles interactively. Finally, an algorithm is implemented for pile geotechnical performance-based design through a selected database considering probabilistic, reliability and risk assessments.

The nineth paper is on Drilled Shaft Grouting Effectiveness in Mekong Delta By Hai M. Nguyen, Anand J. Puppala, Long D. Phung and Trung T. Nguyen: In recent years, the post shaft-grouting technique has been used prevailingly for improving the drilled shaft bearing capacity of the high-rise building foundation projects in Mekong River basin of Vietnam. However, the effectiveness of the post shaft-grouting works for the drilled shafts is rarely obtained as expected. This paper will present the bidirectional load test results on the non-grouted and grouted shafts of the Lancaster Lincoln high-rise building project in Ho Chi Minh City, Vietnam. The test shafts had diameter of 1.5 m and were constructed to a depth of 85.0 m below ground surface. The shaft grouting was performed for about 49 m above the drilled shaft toe level. The bidirectional load test results and the analysis shows that the unit shaft resistances of the sand and clay layers were increased about 150 and 300 percent after grouting, respectively.

The tenth paper is on Design of Axially-loaded Piles: Experimental Evidence from 400 Field Tests by Alessandro Mandolini & Raffaele Di Laora: This work is aimed at furnishing an experimental support to the design of axially-loaded piles, taking advantage of an extensive database of pile load tests carried out in different sites nearby Napoli, in South Italy. Experimental data consist of nearly 400 full-scale pile load tests, some of them reaching large values of settlement. Different technologies, including Non-Displacement, CFA and Displacement piles, have been used. The main results of the work consist in furnishing experimentally-derived rules and indications for pile design. With regards to failure loads, mobilization curves relating properly normalized values of load and settlement are proposed as function of the installation technology; indications on the bearing capacity of piles as function of geometry and technology are also provided. Initial stiffness of piles is investigated, identifying a rule of thumb for a rapid assessment, function solely of pile diameter and valid regardless of length and specific properties of pile and soil material.

The eleventh paper is on The Use of Equivalent Circular Piles to Model the Behaviour of Rectangular Barrette Foundations By H.G. Poulos, H.S.W. Chow and J.C. Small: Barrettes having rectangular cross-sections can be analysed using finite elements, but this requires a three-dimensional non-linear computation which can be time consuming. Therefore, in this paper, the use of simple means of analysis based on conventional piles of circular cross-section is examined. Equivalent dimensions are chosen for the circular piles to represent the barrette, and the behaviour of the equivalent piles is compared to finite element results for the barrettes. It is shown that for single barrettes and groups of barrettes under either vertical or lateral load, it is possible to model barrette behaviour approximately but adequately using equivalent circular piles.

The twelfth paper is on Analysis of Thermo-mechanical Behaviour of Energy Piles by G. Russo, R.M.S. Maiorano and G. Marone: The use of pile foundations as heat exchangers in combination with heat pump conditioning systems are becoming increasingly popular. Quite a large number of small scale laboratory tests and field scale experiments are available and allow to gain an insight in the mechanisms governing pile-soil interaction under thermo-mechanical loading. In the paper numerical FEM simulations are carried out on published experimental small scale laboratory tests. The paper focus is on the load-settlement relationship and on the load-transfer curves with depth. The tests show that under purely cyclic thermal loading reversible strains are predominant, while the preliminary application of an axial load causes the development of irreversible deformations during the thermal loading. Numerical FEM simulations carried out with two different constitutive soil models confirm such a finding. A simple procedure to calibrate the model's parameters is proposed and validated.

The thirteenth paper is on A Method to Estimate Shaft and Base Responses of a Pile from Pile Load Test Results by Madhav Madhiraand and Kota Vijay Kiran: A practical method for estimating initial shaft and base stiffnesses and ultimate shaft and base resistances of a pile from pile load test results has been proposed. The method employs hyperbolic relationships for the non-linear responses of shaft and base resistances, which are solved using iterative procedures to arrive convergence. A large number of empirical correlations are reported in the literature but many-a-times they either under-estimate or overestimate the pile response. Similarly, numerical tools that can predict shaft and base resistances typically would depend on the expertise of the engineer and also based on various input parameters. Thus, the applicability of the tools therefore too is uncertain. The present method discussed in this paper, would help engineers to estimate shaft and base responses of the actual site using the initial Pile load test results. The analytical solutions of the method are discussed in detail and the proposed method is applied to few load - displacement data available from pile load test results to illustrate its efficacy.

The fourteenth paper is on Technical Issues on Static Load Tests on Barrettes and Bored Piles By K. Watanabe , T. Hosoi, S. Matsushita, A. S. Balasubramaniam and Richard Hwang: This paper addresses to 1) Characteristic of slurry and mechanism of forming cakes, 2) Effects of the shapes of piles on load capacities, and 3) Modulus of elasticity of concrete. The results of laboratory tests on the strengths of mud cakes formed of bentonite slurry and polymer slurry

are discussed. Also discussed are the results of loading tests on bored piles and barrettes with and with nodules. It has been found that the mud cakes formed of polymer slurry offer larger frictional resistance to shearing than bentonite slurry. It has also been found that nodules on piles will increase the load capacities of piles drastically. Furthermore, equations are proposed for calculating the moduli of elasticity of concrete based on the axial loads and stains obtained in pile load tests.

The fifteenth paper is on Piled Raft on Sandy Soil – An Extensive Study by V. Balakumar, Min J. Huang, Erwin Oh, Richard Hwang and A. S. Balasubramaniam: In recent years, designers have recognized that in addition to bearing capacity, settlement of foundations must be taken into account. To reduce settlement of buildings, piled raft appears to be a solution for structures found on soft ground. To investigate the performance of piled rafts, model tests have been conducted on circular, square an rectangular rafts supported on piles with different spacings between piles. Numerical analyses were carried out to verify the results obtained in the model tests. The performance of a 14-story building was analysed to compare with the settlement readings obtained. The results of numerical analyses appear to be very encouraging as the results of the analyses well agree with the results of model tests, as well as the settlement readings collected in 790 days for this 14-story building. The value of numerical analyses in back analyses and in prediction of settlement of buildings has thus been confirmed.

The sixteenth paper is by Phung Duc Long and B. William Cheang on Finite Element Modelling of a Bidirectional Pile Test in Vietnam: Static loading test on single piles for verification is commonly required, yet very expensive and difficult to perform, especially for the large-diameter bored piles. The bidirectional test, also-called Osterberg cell test, is nowadays very common in Vietnam. The Finite Element Method (FEM), which is a reliable tool for simulating loading tests, can also be used to model a bi-directional pile test. In this paper, FEM is used for modelling a bidirectional test on a 2.5m-diameter, 80m long bored pile at the Cao Lanh cable-stayed bridge in the Mekong Delta, Vietnam. The FEM results are compared with the monitored data obtained from the bi-directional test. The comparison showed that FEM can be an effective and reliable tool in this case. The FEM is performed using PLAXIS 2D.

The seventeenth paper titled a FEM Assessment on the Use of t-z and q-z Functions for Deep Foundations is by Q.J. Ong and S.A. Tan: Load-movement t-z and q-z functions have been established and widely accepted as a tool to characterise pile shaft and toe resistances. The functions are best used to represent a short element along the pile. But the question remains whether these functions are dependent on pile diameter and pile depth. This paper discusses the soil-structure interaction and load transfer mechanisms of a single pile and reviews why the t-z and q-z functions have strong theoretical basis. Linear elastic and Mohr-Coulomb soils are used for this study to investigate normalized stress-strain curves for pile behaviour.

The eighteenth paper is by T.D. Nguyen, V.Q. Lai, D.L. Phung and T.P. Duong on Shaft Resistance of Shaft-grouted Bored Piles and Barrettes Recently Constructed in Ho Chi Minh City:Recent years, several high-rise buildings have been constructed in Ho Chi Minh city, the largest and most dynamic city in Vietnam. The city is located in the Saigon-Dongnai River delta, where, especially in the central districts, bored piles and barrettes for the high-rise buildings need to be large and socketed in alluvial deposits at large depths. Shaft-grouting technique has been recently applied to increase shaft resistance of the bored piles and barrettes. This paper briefly presents latest shaft grouting technique applied to bored piles and barrettes in the city. A database of head down and bidirectional tests on well-instrumented grouted and not-grouted bored piles and barrettes was analysed to evaluate the enhancement of shaft resistance. Correlations between the ultimate unit shaft resistance (ru) with the SPT N60 value indicated that the ru-value of grouted piles in both clayey and sandy soils was on average two times larger than that of not grouted piles. Estimated ru-values obtained from β-method recommended in practice compared well with those obtained from the instrumented piles.

Phung Duc Long , Der Wen Chang & T Hosoi

GEOTECHNICAL ENGINEERING

September 2019: Bengt Fellenius Issue

Guest Editor

Dr Phung Duc Long

Dr. Phung is President of the Vietnamese Society for Soil Mechanics and Geotechnical Engineering (VSSMGE). He received his Ph.D. degree at the Geotechnical Department, Chalmers University of Technology in Gothenburg, Sweden in 1993. He has worked at the Institute for Building Science & Technology (IBST) in Hanoi, Vietnam from 1975 to 1988; at the Swedish Geotechnical Institute (SGI) in Linköping, Sweden from 1988 to 1994; at Chalmers University of Technology from 1989 to 1993, at Skanska Sweden as Technical Manager from 1994 to 2002; at WSP Asia in Hong Kong as Associate Director from 2002-2003; at WSP Vietnam in Hanoi as General Director from 2003-2011; and at Long GeoDesign as Director since 2011.

Dr. Phung has 40 years of international experience. His expertise areas are: deep foundations and piled raft foundations for high-rise buildings, temporary and permanent support for deep excavations, tunneling, soil improvement, underpinning, pile dynamics, and numerical analysis of soil-structure interaction problems. He has worked with projects in many countries, as Sweden, Norway, Denmark, USA, England, Russia, Germany, India, Hong Kong, China and Vietnam, etc. Some of his highlight projects are: Uni-Storebrand Headquarter in Oslo with steel-core piles into rock; SL-10 South Link in Stockholm with sheet pile wall for deep cut & cover tunnel in soft clay; Fredriksberg Metro Station in Copenhagen, the world largest drilled-pile wall for deep excavation; soil stabilization with lime-cement columns for Highway I15, Salt Lake City, Utah, USA; Öresund Link between Sweden and Denmark; Årsta Bridge in Stockholm with pile foundations and sheet pile walls in deep water and soft clay; the peer-review of piled foundation for the ICC Tower, 118 floors, 490m high in Hong Kong, the No. 4 tallest high-rise in the world, and the Sailing Tower in Ho Chi Minh City, Vietnam. He is the author and co-author of more than 100 technical papers and books in English, Swedish and Vietnamese for different national, regional and international seminars, conferences, and technical journals. He is the chief editor of a number of publications, as the proceeding of the international conferences Geotec Hanoi 2011, and Geotec Hanoi 2013.

Prof Der Wen Chang

Prof. Der-Wen Chang teaches at The Department of Civil Engineering of Tamkang University (TKU), Taipei, Taiwan for over 19 years. He received Ph.D. in Civil Engineering at The University of Texas at Austin in 1991 and MS in Civil Engineering at Michigan State University in 1987. Prof. Chang has supervised the research work of over 60 Master Thesis and 3 Ph.D. Thesis at TKU, and published more than 160 articles as the Journal, Conf. papers and reports. Nearly all his research studies are related to numerical modeling and dynamic analyses for the geotechnical structures. His research experiences include NDT methods on pavements, seismic behaviors of the pile foundation, constitutive modeling of the soils, and recent study on the performance based design for the earth structures.

Prof. Chang is also the visiting Professor at University of Washington at Seattle, US in 2008 and LN Gumilyov Eurasian National University at Astana, Kazakhstan for research studies in 2010. Other than the research works, Prof. Chang devotes himself a great deal to serve the communities. He involves heavily and indeed shows his good performance in the public works related to education and constructions. Prof. Chang is now serving as the Secretary General of Chinese Taipei Geotechnical Society, GC member of SEAGS, Editorial Panel for SEAGS/AGSSEA J. of Geotechnical Engineering, Committee members for Public Construction and Hazard Prevention in Taipei City and Taipei County governments. He will continue to work in the academia and hoping that his studies can better improve the civil engr. technologies.

Dr. Hosoi Takeshi

Dr. Hosoi Takeshi is a Geotechnical Advisor at WSP Parsons Brinckerhoff, Singapore. He received his PhD with research focused on “Diaphragm Wall Design and Construction” from Kyoto University, Kyoto, Japan in the year 1995.

Dr. Hosoi has more than 50 years of experience in design and construction of underground structures, Tunneling, Bridge Foundations and Marine works. He is an international expert in shield tunneling, NATM tunneling, diaphragm wall and bored pile works and other complex geotechnical works.

He is a Professional Engineer (PE) in Japan Since 1983, Fellowship of Japanese Society of Civil Engineer and International Member of Japanese Geotechnical Society. He coordinated the Asian Ocean Seminar sponsored by Japanese Ministry of Port and Harbor for 10 years. He was also a national member in “E-Defence Project” in Japan. He served as a General Manager of Technical Research & Earthquake Technology Research Institute for 8 years and General Manager of Design Department of Nishimatsu Construction Co. Ltd. for 7 years.

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Edited by:

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ACKNOWLEDGEMENTS

Eighteen papers are contained in this issue. The Lead Guest Editor is Dr Phung Duc Long . No doubt the material contained herein would be most valuable to our profession. The editors have adequately described the contributions in the preface. They are to be congratulated for these contributions.

Dr. Teik Aun Ooi
Prof. San Shyan Lin
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GEOTECHNICAL ENGINEERING

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