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News Letter

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Message from the Director

Taro Uchimura
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I am pleased to write a message for this IPA News Letter. I have been involved in the IPA since 2006, when IPA was established. I really respect the creativity and activity brought out by the member of IPA as well as engineers developing press-in technology.

My life as a researcher started with topics on reinforcement soil technique. The main principle of soil reinforcement is mechanical interaction between the ground and reinforcement members. Therefore, it was natural for me to be familiar with the Press-in technology. Specially, I was interested in the process of piles pressed into the ground very adjacent to existing underground structures. The compact-sized machines with self-moving feature allow construction works to be carried out in places with limited access or in the areas where environmental disruption is prohibited. However, construction of the piles might push the ground toward existing underground structures, as like walls and pipes, and cause serious damages. I made scaled model tests on such situations and observed the force applied on the wall and pipes. I also conducted some full-scale tests with support by Giken LTD. Finally, I concluded that the excessive earth pressure on the underground structures due to piles pressed-in nearby is limited and temporary, if the pile does not hit the structures directly. In addition, it was also found that the press-in force on the top of pile is not affected by the existence of underground structures nearby. This was unexpected and an interesting result for me. The installation of pile affects the earth pressure on the underground structures, but its reaction does not return to the press-in force on the pile! There are still many unknow mechanisms around press-in technology.

For the recent decade, I am working on mitigation of slope failure disasters. Our group developed low-cost and real-time slope monitoring equipment to establish an early warning method for slope failures due to heavy rainfall. Press-in technology should be also suitable for mechanical stabilization of slopes to prevent disasters, because most of such construction works must be conducted in a limited space on the slope grounds. I think it is needed to develop more compact and light weight press-in machines which can be easily operated in mountainous areas. The cost is also an important factor, as most of the mitigation works for slope failure disasters are conducted with very limited budget. I am interested in such application of press-in technology.

◆ A brief CV of Assoc. Prof. Taro Uchimura

Dr. Taro Uchimura is an associate professor in Saitama University, Japan. He graduated from the University of Tokyo with Bachelor in Civil Engineering and took the Doctoral Degree in the University of Tokyo in 2003. He has taken on the research and development on the reinforced soil structures for many years, including topics on mechanical interaction between structures and ground. His interests on the press-in technologies are also related to these topics. In the recent decades, he is also working on mitigation of slope failure disasters, developing monitoring and early warning systems.

Message from the Director

Pastsakorn Kittiyodom

Deputy Managing Director
Geotechnical & Foundation Co., Ltd

I am pleased to write a message for the present issue of IPA Newsletter. My association with GIKEN LTD. and IPA started when I attended conference for Japanese Construction Technology at Embassy of Japan in Thailand in 2015. One of GIKEN staffs gave an interesting talk on Press-in Technology that could be applied in South East Asia region. I and IPA began to make a conversation from time to time.

In 2016, I was invited to give a discussion of road retaining flood defense wall with IPA at Drainage and Sewerage department of The Bangkok Metropolitan Administration (BMA). There were some problems of road settlement alongside of irrigation canal in rural area of Thailand. A Road alongside irrigation canal has been used for transportation of agricultural products from plantation to a market. Nowadays, however, some of irrigation canals are utilized as flood drainage. Many failure and settlement of roads have been reported due to low bearing capacity of soil. In addition, the main reason for road settlement comes from water level inside a canal. During drought season, soils under canals show large settlement due to lowering of groundwater levels. In addition, slope of canal tends to increase due to water erosion. As a result, canal is vulnerable to collapse when water level is decreasing. To tackle this issue, steel sheet pile wall has been proposed for permanently solving the problem. I also held the seminar between IPA and King Monkut's University of Technology Thonburi to exchange the knowledge of academic researches.

From 2016 to present, I attend the annually IPA seminar in Kochi Japan. I went to many interesting construction sites of Tsunami protection using Press-in Technology. I was impressed to see the working machine alongside the road without interruption any transportation. In addition, the new wall could be installed without removal of existing conventional wall. In May 2018, IPA seminar on Press-in Technology was held in Thailand. The seminar speakers included lectures from both Thailand and Japan. Expert contractors who have experienced in Press-in shared examples of many completed projects in Thailand. I was the chairman of the seminar local committee and there were around 120 participants joined the event.

I recently work as a project design manager of underground transportation project in the central part of Bangkok. Press-in Technology shows many great advantages for narrow working space, environment and aesthetics. I am looking forward to support many further advances in construction technology under the International Press-in Association.

◆ A brief CV of Dr. Pastsakorn Kittiyodom

Dr. Pastsakorn Kittiyodom is a Deputy Managing Director at Geotechnical & Foundation Co., Ltd. The company is one of the biggest consultants in the field of underground construction in Thailand. He graduated from SIIT Thammasat University, Thailand with bachelor in Civil Engineering and took the Master and Doctoral Degree in Kanazawa University, Japan. He used to work as an Assistant Professor at Kanazawa University. He also has experiences in analysis and construction supervision in soil and geotechnical work, slope stability, site investigation, design and propose the method to cope with the slope stability problem, design and preparation of standard drawings of mechanically stabilized earth wall, retaining wall, gabion and soil nail and deformation analysis of concrete face slab and Thermal analysis of concrete plug using FEM.

Special Contribution

Rapid Load Test of Piles

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Rapid load test of piles (RLT) is an alternative to the conventional static load test (SLT) and is widely used in Japan because of its time and cost effectivenss. In this article, history of the standardization of RLT in Japan, interpretation methods of RLT signals, newly dveloped RLT device, and a case of comprison of th results of RLT and SLT on an open-ended steel pipe pile are introduced.

Keywords: load-displacement relation, falling mass rapid load test method, interpretation method, standards

1. History of Rapid Load Test in Japan

The first rapid load test (RLT) in Japan was carried out by Takenaka Corporation in 1992 on a cast-in-place concrete pile. The Statnamic was employed in the test. The well-known method of rapid load testing, Statnamic, was developed by the collaboration of TNO in the Netherlands and Berminghammer Co. in Canada (Middendorp et al., 1993) [1].

A private research group for RLT was launched in 1993 led by Prof. Osamu Kusakabe (Prof. of Tokyo Institute of Technology at that time, and the president of IPA at present). The research group was composed of general contractors, piling contractors, pile load test companies, pile manufactures and academics. The objectives of the research group were 1) to compile the existing knowledge of RLT, 2) to examine basic characteristics and applicability of RLT to Japanese soils, and 3) to establish interpretation methods of RLT. The outcomes of the activity of the research group were presented in the 1st International Statnamic Seminar (1995) [2] held in Vancouver, Canada.

The research committee for RLT was formed in Japanese Geotechnical Society (JGS) in 1997, based on the activity of the research group, with research targets of 1) definition of rapid load test, 2) interpretation methods, 3) preparation of testing manual and 4) standardization of testing method. The outcomes of the research committee were presented in the 2nd International Statnamic Seminar (1998) [3] held in Tokyo, Japan. The research committee was upgraded to the standardization committee of JGS in 1998. JGS 1815-2002: Method for Rapid Load Test of Single Piles [4] was standardized in 2002. JGS 1815-2002 is the first standard for RLT in the world. After the standardization of RLT, use of RLT has been widened in Japan.

2. Definition of Rapid Load Test in JGS 1815-2002

JGS 1815-2002 clearly defines RLT. Fig. 1 shows an illustration of loading duration and characteristic curves of a stress-wave propagating in a pile having a length, L. Loading duration, t_L, in impact load test (ILT) is 5 to 10 ms, while t_L in RLT ranges typically from 50 to 100 ms. Stress-wave caused at the pile head propagates up and down in the pile with a propagation speed, c. Relative loading duration, R_T, is defined as

$$R_T = t_L/(2L/c) \qquad (1)$$

R_T is the number of return traveling of the stress-wave in the pile during the loading duration, t_L. If R_T is equal or greater 5, the influence of the wave propagation in the pile could be negligible (Nishimura et al., 1998) [5] so that the pile body could be assumed as a rigid, although the inertial force of the pile body needs to be considered. Dynamic load tests with the condition of $R_T \geq 5$ is defined as RLT.

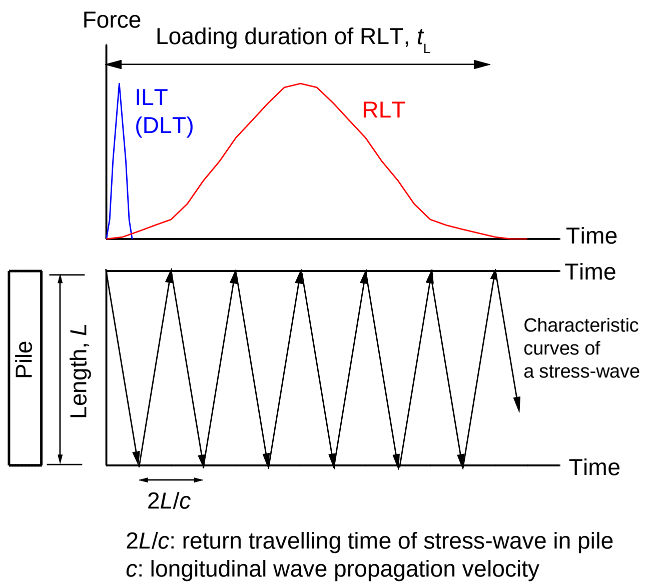


Fig. 1. Comparison of loading duration [4]

3. **Rapid Load Test Devices**

Loading mechanism of the well-known Statnamic device is launching a reaction mass placed on the pile head by the gas explosion pressure. At the same time, the gas explosion force pushes the pile gently downward. The maximum acceleration of the reaction mass caused during loading is about 5g. Hence, weight of the reaction mass is about 20% of the planned maximum load. An advantage of the Statnamic is high loading capacity up to 60 MN. However, repeated loading is difficult in the Statnamic.

Another type of RLT device is a falling-mass type device. Fig. 2 is an example of falling-mass type device, called Hybridnamic, developed by Jibanshikenjo Co. Ltd. In the falling-mass type device, a hammer mass is free-dropped from a certain height onto the pile head through a soft cushion on it. Relatively wide ranges of the loading duration and the maximum force can be realised by adjusting combination of the stiffness of the cushion and the hammer mass. A great advantage of the Hybridnamic is that repeated loading is conducted very easily. It is possible to conduct 10 blows (tests) on a pile in a day. It is a common practice in the Hybridnamic to apply several blows on a pile with increasing the drop height of the falling hammer.

Fig. 2. Falling-mass device with soft cushion (provided by Jibanshikenjo Co., Ltd.)

4. Interpretation method of RLT signals

Generally, force applied to the pile head, F_{rapid}, is measured via a load cell, and acceleration at the pile head, α, is measured via accelerometers. The velocity of the pile, v, is obtained from time integration of the measured α. An optical displacement meter is employed to measure the pile head displacement, w.

If $T_r = t_L/(2L/c) \geq 5$, the pile body could be treated as a rigid body having a mass of M. Fig. 3 shows a modelling of pile and soil during RLT. F_{rapid} is the sum of inertia of the pile, R_a, and the soil resistance, R_{soil} (Eq. 1). It is assumed that soil resistance, R_{soil}, is the sum of the static soil resistance, R_w, and the dynamic soil resistance, R_v (Eq. 2). R_d is assumed to be proportional to the pile velocity, v, with a constant value of damping factor, C. Hence, R_{soil} is readily obtained from the measured F_{rapid} and α (Eq. 2).

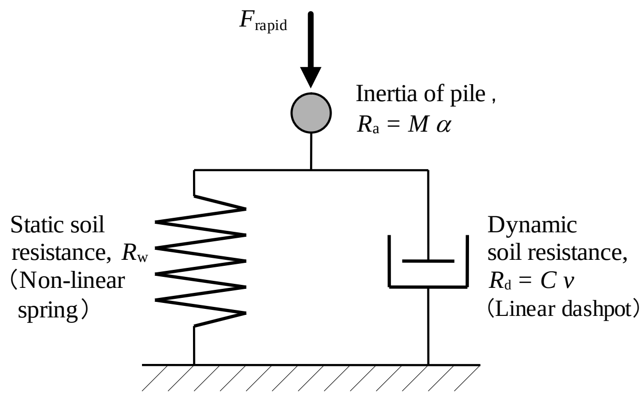


Fig. 3. Modelling of pile and soil during RLT [1, 6]

$$F_{rapid} = R_a + R_{soil} = M\alpha + R_{soil} \qquad (1)$$

$$R_{soil} = R_w + R_v = R_w + Cv = F_{rapid} - M\alpha \qquad (2)$$

$$C = (R_{soil\,max} - R_{w\,ULP})/v^* \qquad (3)$$

$$R_w = R_{soil} - Cv \qquad (4)$$

Fig. 4 is an example of thus obtained R_{soil} vs w. The point at the maximum displacement, w_{max}, is call Unloading Point (ULP). The velocity of the pile, v, is zero at ULP. Hence, R_{soil} at ULP is regarded as the maximum of the static soil resistance, $R_{w\,ULT}$. The damping factor, C, is estimated from the difference of $R_{soil\,max}$ and $R_{w\,ULT}$ (Eq. 3). Finally, R_w vs w is obtained using C and v (Eq. 4). R_w vs w is called "derived static load-displacement curve".

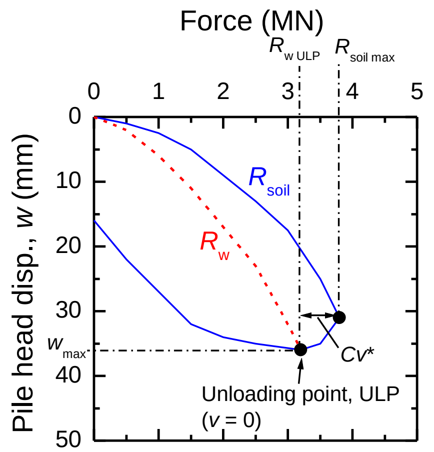


Fig. 4. Unloading Point Method (ULPM) for obtaining static load-displacement curve

If multiple blows with increasing the drop height of hammer are carried, interpretation of RLT signals becomes easier, as shown in the next section.

5. Comparative SLT and RLT on an Open-ended Steel Pipe Pile

Results of comparative SLT and RLT on an open-ended steel pipe pile (Hoshino et al., 2012) [7] are briefly introduced in this section.

The pile having a length of 15.5 m, an outer diameter of 1.0 m and a wall thickness of 14 mm was installed in the sandy ground by a water jet vibratory installation method (Fig. 5). The bottom 4.5 m section of the pile was embedded into the sand rock layer having SPT *N*-values greater than 50.

The conventional SLT was carried out for the pile with a loading sequence shown in Fig. 6. It took 6 hours to complete five loading cycles of the SLT. Each load step was maintained for one hour, and finally the maximum load of 9000 kN was applied.

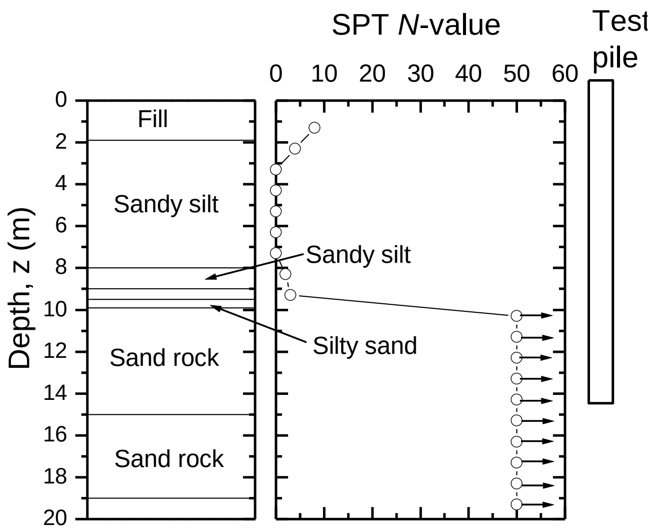


Fig. 5. Soil profile at the test site

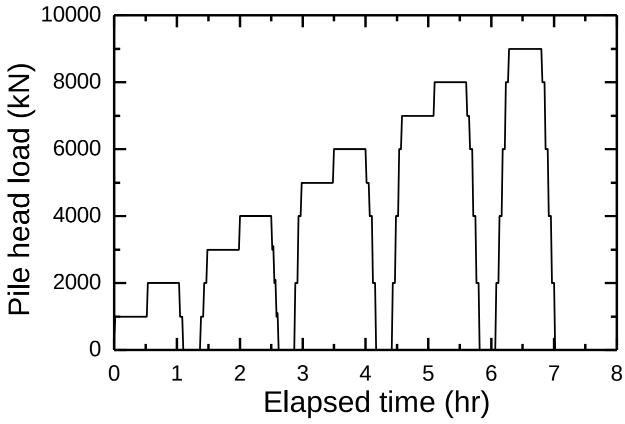


Fig. 6. Loading sequence in SLT

RLT of the pile was carried out subsequently to the SLT. A total of 8 blows were applied to the pile using a hammer mass of 22 tonnes. Fig. 7 shows F_{rapid} vs time in the last blow. The loading duration, t_L, was 60 ms that resulted in the relative loading duration $T_r = t_L/(2L/c) = 9.7$ ($c = 5000$ m/s). As mentioned above, $T_r = 9.7 \geq 5$ satisfies the criterion for RLT.

Fig. 8 shows F_{soil} vs w in all the 8 blows. The red line is the connection of ULPs which can be regarded as the static load-displacement curve.

Static load-displacement curves from the SLT and the RLTs are compared in Fig. 9. Note here again that the RLTs were conducted after the 5th loading cycle in the SLT.

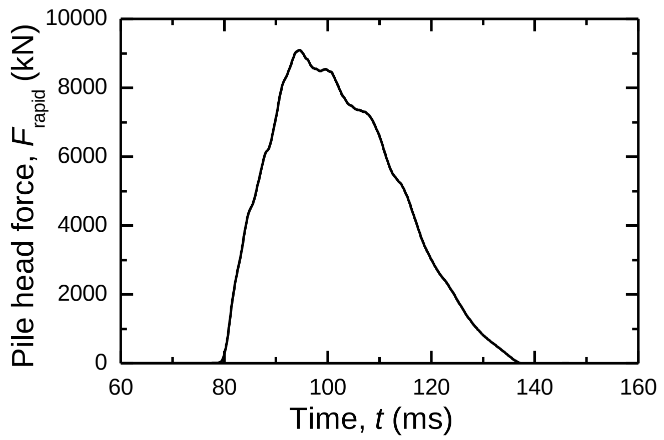


Fig. 7. An example of RLT load

Load-displacement curve in the 5th loading cycle of the SLT and F_{soil} vs w from the RLTs are shown in Fig. 10, in which the pile head displacement at the start of loading was zeroed for comparison purpose. It is seen that the curve derived from the RLT is almost equal to that obtained from the SLT.

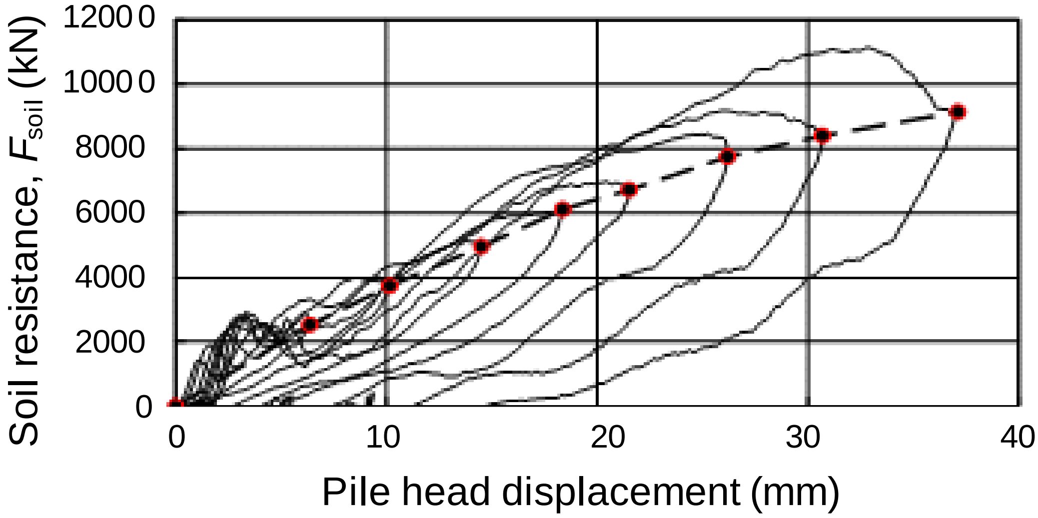


Fig. 8. F_{soil} vs w from RLTs with different falling height of hammer, and ULPs

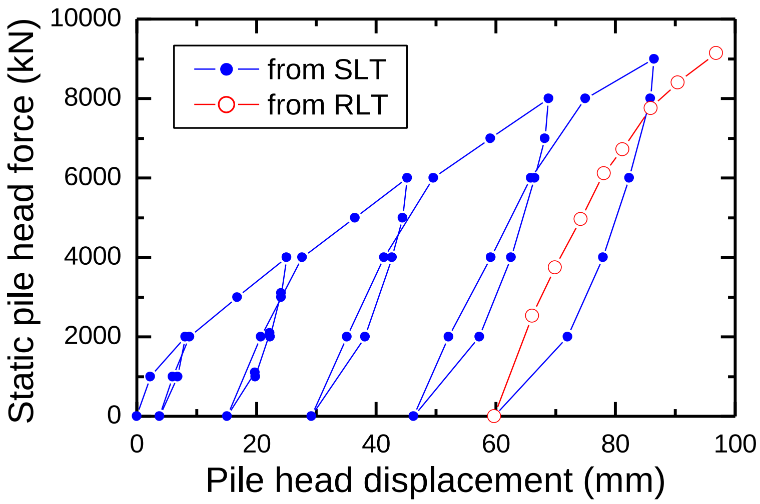


Fig. 9. Load-displacement curve in SLT and F_{soil} vs w from RLTs

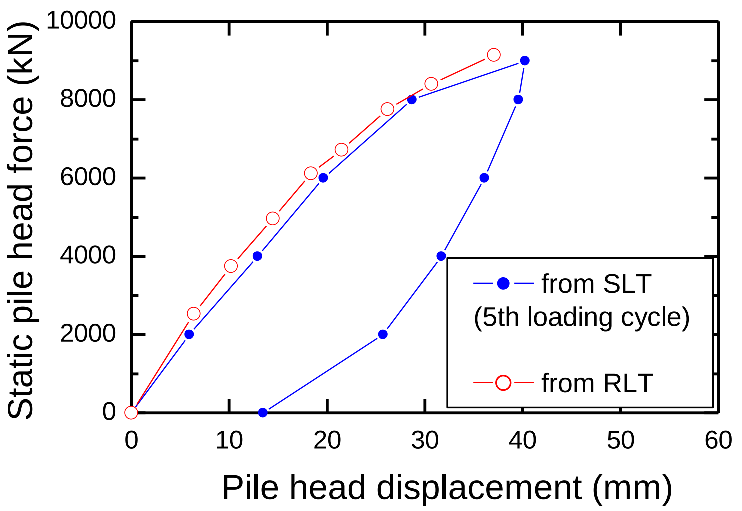
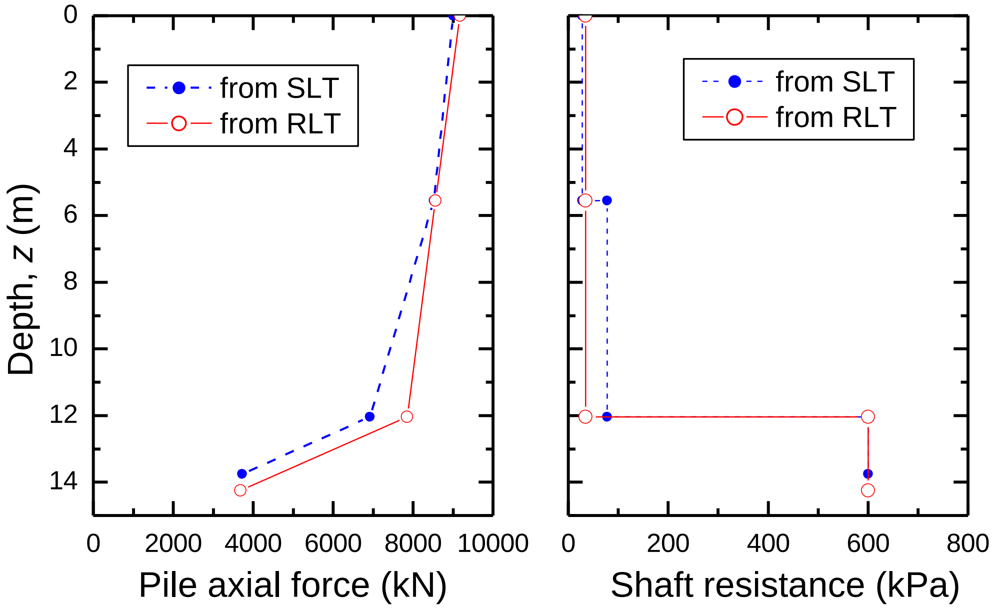


Fig. 10. Comparison of static load-displacement curves from SLT and RLT

Fig. 11 shows the axial forces in the pile measured in the SLT and the RLTs at the maximum pile head load of 9000 kN, and the distributions of the shaft resistance estimated from the axial forces in the pile. The results from the SLT and the RLT are comparable, showing that RLT is an alternative to the conventional SLT.



(a) Axial forces in pile

(b) Shaft resistance

Fig. 11. Axial forces in pile and shaft resistance

The above case study was carried out for the sandy ground. Brown (2009) [8] pointed out that the static load-displacement curve derived using UPM (Unloading Point Method) is still influenced by the strain rate effects of the surround soils, especially in clay ground. The initial parts of the static curves (working load range) from SLT and RLT are comparable, while the ultimate load derived from ULM is overestimated by 50% in maximum. This information is useful when RLT is used for design purpose of piles in clayey grounds.

6. Concluding Remark

The author's belief is that the performance of a pile installed using Press-in Method is higher than that of the same pile installed using the other installation methods. This belief, however, needs to be verified through load testing on constructed piles. A handy load test may be possible using the Press-in machines, although the maximum load is limited to 3 MN. The rapid pile load testing is one of useful tools to conduct load tests on many piles, because of its time and cost effectiveness as well as a reasonable reliability.

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◆ A brief CV of Prof. Tatsunori Matsumoto

Professor Tatsunori Matsumoto obtained his Bachelor of Engineering and Master of Science from Kanazawa University, Japan. He joined the Department of Civil Engineering of Kanazawa University in 1981 as research associate. He became an Associate Professor in 1991 and promoted to a Professor from August in 1999.

He retains an active involvement in research into pile dynamics and deformation of pile foundations including piled rafts subjected to load combinations. He has published more than 200 technical papers including more than 45 Journal papers.

He was the Chairman of IS-Kanazawa 2012: The 9th International Conference on Testing and Design Methods for Deep Foundations held in Kanazawa, Japan, from 18 to 20 September, 2012.

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Series Report: Reports from USA (Part 2)

Riverine Levee Improvements in Densely Populated Areas with Press-in Piling Method

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ABSTRACT

Levees are protecting people's lives and properties from flooding worldwide. However, they need to be improved according to the changes in their performance requirements and/or applicable design codes. Steel sheet piles are used for retrofitting many existing earthen levees for their speedy constructability, stable quality, high strength, and lasting durability. This paper will study two riverine levee improvement projects in densely populated areas that utilized pressed-in sheet piles in order to control noise and vibration associated with pile driving.

ADAVANTAGES OF THE PRESS-IN PILING METHOD

The most common press-in piling machines such as Giken's Silent Pilers use hydraulic force to press piles into the ground by holding onto a few previously installed piles. To summarize the advantages of the press-in piling of this type over other methods:

1. It generates very low noise and is practically vibration free (White et al., 2002).
2. The press-in piling machine is relatively small and its clamping points are much lower than those with other piling methods. The lower clamping points enable the equipment to work in physically tight working conditions, horizontally and vertically, such as an area under railway girders (Takuma et al., 2015) or right next to existing sensitive structures (Takuma et al., 2013).
3. With attachments, it can deal with hard soil conditions very effectively (Takuma et al., 2018).
4. It can achieve much more accurate pile installation due to a combination of the machine's better control of the piles and low clamping points.

A high pressure jetting or continuous flight auger attachment will be coupled with a press-in piling machine when installing piles in hard soil conditions. The water jet attachment is good for dense sand and silt layers, while the auger attachment facilitates pile installation into stiff clay, gravels, cobbles, boulders and soft rock. These attachments work simultaneously with pile driving, minimizing settlement of the surrounding ground.

In the case that access to a piling location is very limited, the Giken Reaction Base (or GRB) System may provide a solution with a Clamp Crane, which clamps onto and moves on previously driven piles; and Pile Runner, which travels also on the driven piles between the Clamp Crane and a faraway material supply point. The piling operation can be done without an access road with this system. See Fig. 1 for the concept of the GRB system in the case of a pipe pile application.

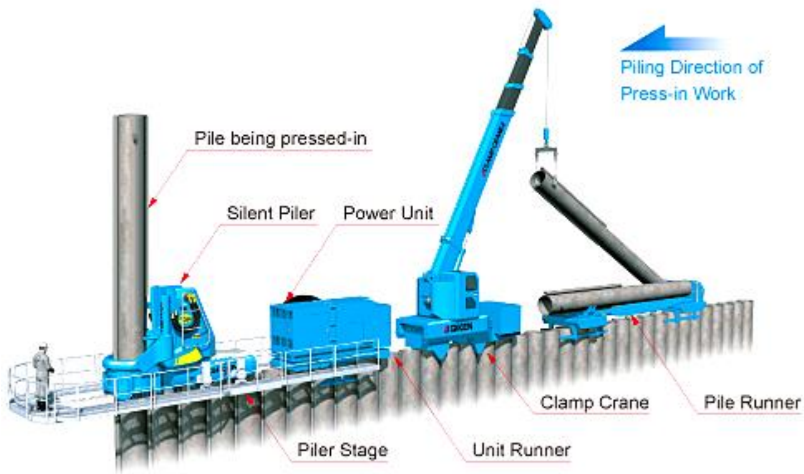

Fig. 1. GRB System Operation without an Access Road

GARDERE CANAL IMPROVEMENTS – PHASE 2 IN HARVEY, LOUISIANA

The Gardere Canal is located in the New Orleans southern suburb of Harvey in Jefferson Parish on the west bank of the Mississippi River while majority of the City of New Orleans is on the other side. This SELA-06 Gardere Canal Phase 2 project was part of the multi-year Southeast Louisiana Urban Flood Control Project (abbreviated as the SELA Project) by the US Army Corps of Engineers and the Sewerage and Water Board of New Orleans to enhance the flood control ability in New Orleans and its surrounding areas. The entire SELA project was authorized by the United States Congress in 1996, prompted by the May 1995 Louisiana Flood and worked on in segments and phases. The construction of this particular section started in March, 2007. Approximately 4,000 pairs of PZ35 sheet piles were installed to form a wider concrete-lined drainage channel for a higher discharge capability. See Fig. 2 for its typical cross section. The press-in piling was specified to minimize the noise and vibration levels of the sheet pile installation work since the canal ran through densely populated residential and commercial areas. As shown in the boring data (Fig. 3), the soil was mostly soft clay except a silty fine sand layer with the SPT value of about 30 between 5.5m and 7.0m below the GL.

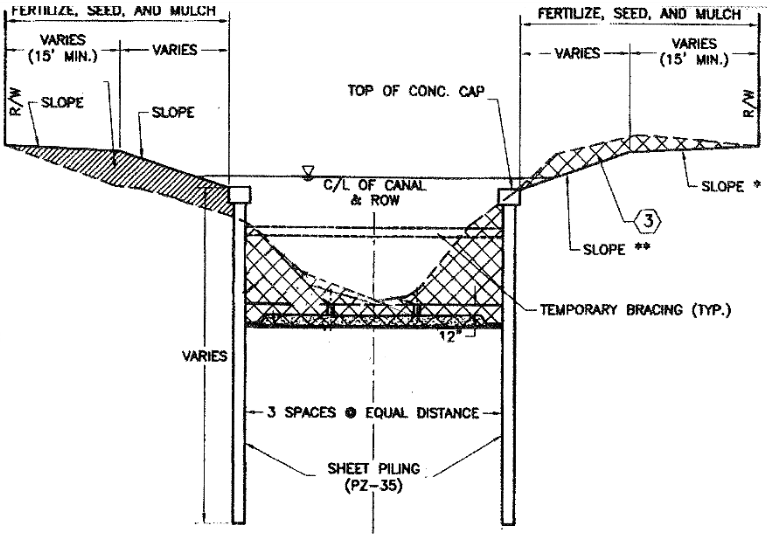

Fig. 2. Typical Cross Section

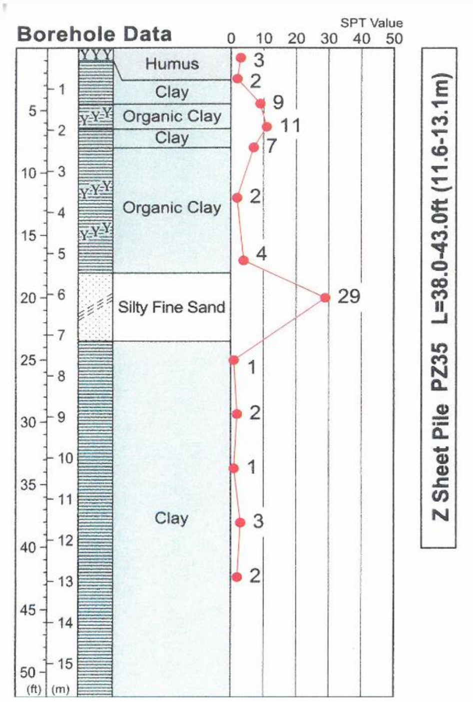

Fig. 3. Soil Conditions and Sheet Pile Location

Fig. 4 shows the canal's typical conditions prior to improvement. As can be noted, the levees on both sides were bordering with backyards of the area's houses. Two units of Silent Pilers were used to facilitate progress of the sheet pile installation. A small caterpillar-mounted service crane was hoisting the sheets to both equipment as shown in Fig. 5. The construction noise and vibration were successfully mitigated.

Fig. 4. Gardere Canal before Improvement

Fig. 5. Two Silent Pilers at Work

Giken America Corp. (Giken's U.S. subsidiary) and later Blue Iron Foundations and Shoring LLC took care of the press-in piling work under B&K Construction Company, Inc. of Mandeville, Louisiana. The press-in sheet pile installation was completed in the spring of 2010. Fig. 6 shows the completed levee improvement work. There have been an increased number of projects with the press-in piling specified in this region including other SELA projects since this one.

Fig. 6. Completed Gardere Canal Improvement

SANDALWOOD CANAL IMPROVEMENTS IN JACKSONVILLE, FLORIDA

Sandalwood Canal In-channel Improvements Project (Hodges Blvd. from Beach Blvd. to Atlantic Blvd., Project No. P-80-01) was to repair the damaged earthen levees by an earlier flooding as well as to increase the drainage capacity of an existing canal by widening/deepening with sheet piles installed in the levees located in a densely populated residential area of Jacksonville, Florida. Fig. 7 illustrates its typical cross section with the broken line showing the existing ground.

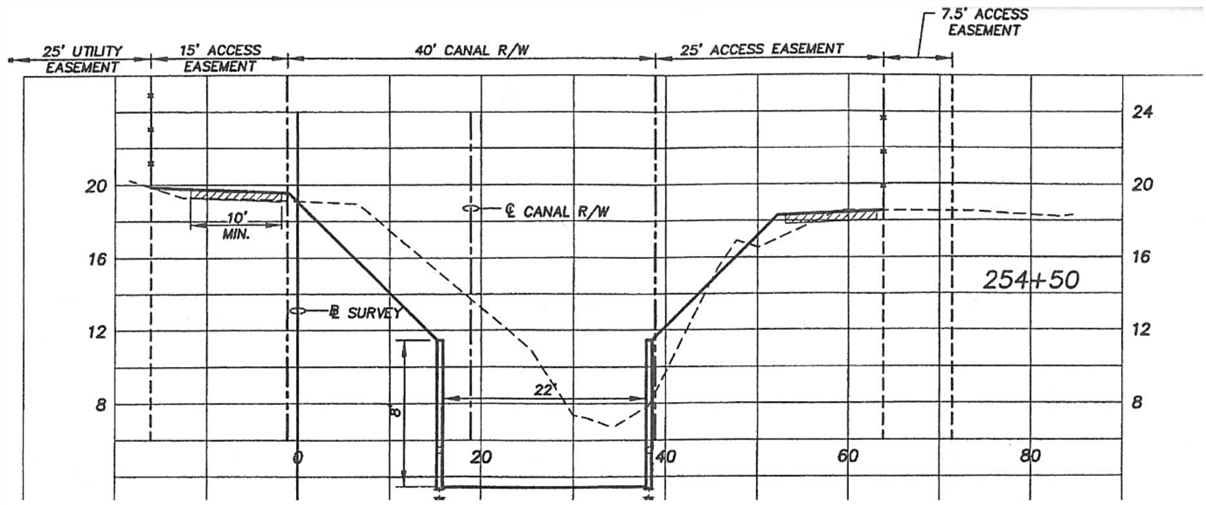

Fig. 7. Typical Cross Section

In order to minimize noise/vibration and also to reduce in-stream exposure time of piling equipment during construction, two units of Silent Pilers were used, so the work was to be done only during the dry season of winter. The soil conditions were primarily sandy with the SPT values of between 10 and 45 as shown in Fig. 8.

The noise and vibration levels during the sheet pile driving were limited by the project specifications that stated: "The hydraulic press-in equipment shall not produce more than 70dB of noise, at a distance of 25 feet from the equipment, while in operation. It shall not produce any measurable vibration at the ground surface, at a distance of 25 feet from the equipment, while in operation."

The project was started off with clearing of vegetation overgrown on the levees. Fig. 9 shows the conditions after the vegetation removal. As can be seen, the widths of the levee's shoulders were too narrow (approximately 3m on the wider side) for a truck crane to maneuver through. Therefore, a 10ton-capacity Clamp Crane was used with small flatbed trucks delivering sheet piles to the crane by driving on the levee's wider shoulder. A weir was first built with pressed-in sheet piles as shown in Fig. 10.

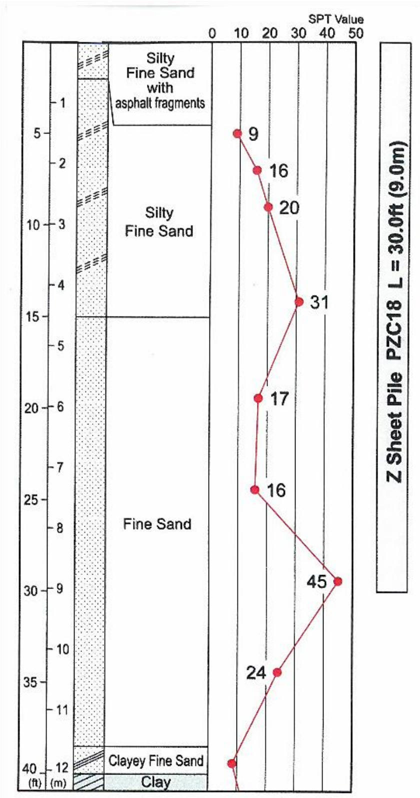

Fig. 8. Soil Conditions and Sheet Pile Location

Fig. 9. Sandalwood Canal after Removal of Vegetation

Fig. 10. Sheet Piles Installation for Weir

The Clamp Crane was hoisting sheet piles to both Silent Pilers (Fig. 11). Approximately 950 pairs of 7.0m to 9.0m-long PZC18 sheet piles were installed without causing damage to nearby homes. Fig. 12 shows the completed section of sheet pile walls. The project's owner was the City of Jacksonville with its design consultant being CDM's Jacksonville office. Giken America Corp. pressed in all the sheet piles under Felix Associates, LLC located at Stuart, Florida. The duration of sheet pile installation was between November 2007 and February 2008.

Fig. 11. Clamp Crane Pitching Sheet Piles to Silent Piler

Fig. 12. Completed Sheet Pile Installation

CONCLUSIONS

Sheet piles are commonly used for improvement work of existing levees. Noise and vibration associated with conventional sheet pile installation can be easily mitigated with the use of press-in piling as exemplified by the case study projects. The GRB system in combination with press-in piling enables sheet pile installation where supplying sheet piles to the piling location is otherwise extremely difficult due to lack of sufficient access. Many levee improvement projects in various parts of the U.S. have been and will be increasingly adopting pressed-in sheet piles next to residential/commercial properties and to other sensitive structures like underground utilities and bridge foundations.

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White, D., Finlay, T., Bolton, M. and Bearss, G. (2002), “Press-in Piling: Ground Vibration and Noise During Piling Installation”, Proceedings of the International Deep Foundation Congress, ASCE Special Publication 116

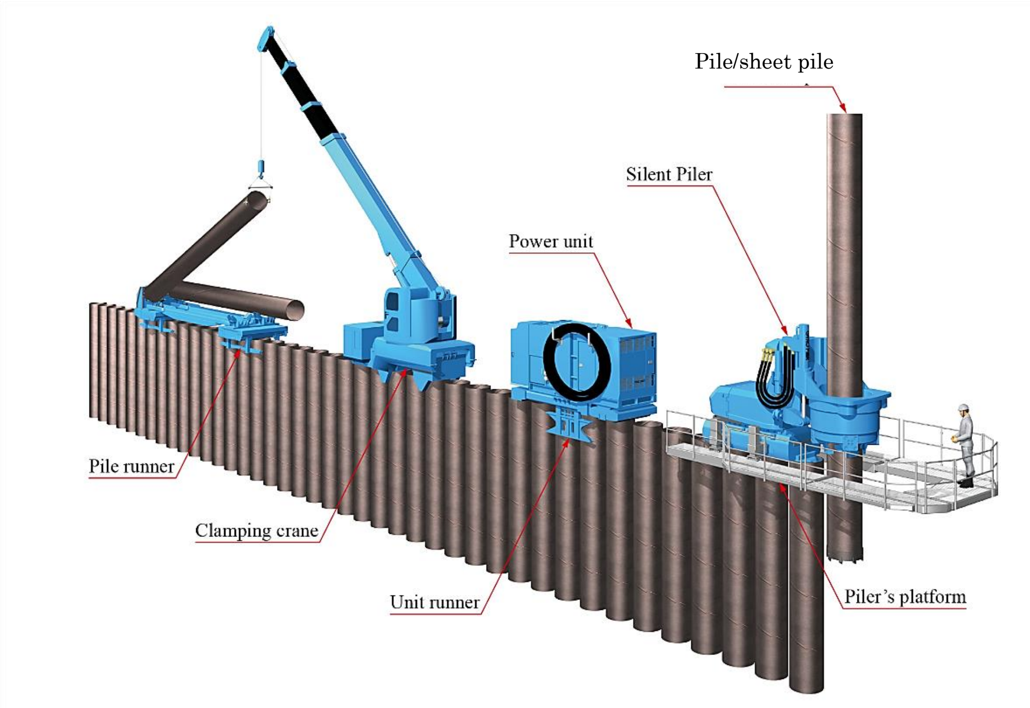
Serial Report

Terminologies in Press-in Engineering (Part 5)

IPA Editorial Committee

Following Terminologies Press-in Engineering (Part 4) in Volume 4, Issue 1, Part 5 presents "Non-staging system" and related piles" as follows:

Non-staging system



Non-staging system	a press-in system that enables all the piling machineries necessary for the press-in operation to move by itself (self-walking) on the previously installed piles/sheet piles
counter weight	weight to be placed on the reaction stand to obtain reaction force to commence the press-in operation
reaction stand	a stand for counter weights obtaining reaction force for the installation of ~~a~~ an initial few piles/sheet piles to commence press-in operation
Unit runner	one of the components of the Non-staging system with clumping mechanism to carry a power unit and travels on the previously installed piles/sheet piles
Pile runner	one of the components of the Non-staging system with clamping mechanism to transport piles/sheet piles and travels on the previously installed piles/sheet piles
Clamping crane	crane grips the previously installed piles/sheet piles with a clamping mechanism. An element of the Non-Staging system with self-walking function
pile(s) / sheet pile(s)	piles and/or sheet piles to be installed.

(to be continued on Part 6)

Report

Site Visit on the Keihin Canal Seawall heled by TC1

Naoki Suzuki

Member, IPA TC1

IPA Technical Committee TC1 (Application of cantilever type steel tubular pile wall embedded to stiff ground, Chair: Associate Professor Jiro Takemura) is working to propose a more reasonable design method of cantilever walls. TC1 conducted an on-site visit for the purpose of understanding the characteristics of the rotary press-in method, which is often used for piling large-diameter piles into stiff ground, and fostering young engineers, on Feb. 20, 2019.

On the site, the Keihin Canal seawall is to be developed for the purpose of countermeasures against earthquake, tsunami and storm surge based on “Port of Tokyo Coastal Preservation Facility Preparation Plan”. A cantilevered quay wall with steel tubular piles and steel tubular sheet piles will be built next to existing sheet pile quay wall with vertical pile anchorage, which was constructed in 1963. The main issues are the presence of common duct, low-level work under a girder (Photo 1), a surface rubble layer and a deep gravel layer (maximum N value is over 150), and the rotary press-in method has been adopted to overcome these concerns.

On the day, installation of steel tubular piles subsequent to excavation of rubbles and sands to make a working space for work-ships were implemented. We were explained about the construction plan and observed the press-in process of piling small diameter steel tubular piles. 14 participants who are TC1 members, students or young GIKEN Ltd. staffs visited the site (Photo 2). The following are the comments from the participants:

“We visited the site where the rotary press-in method is adopted. This was the first time for me to visit the site employing this method. I was able to observe a series of the construction of the rotary press-in method such as the press of steel tubular piles and the welding of joints. I was really impressed that there was no vibration, no noise in this construction, with various limitations such as the surface rubble layer, narrow working space with height restrictions, and sidewalks passing immediately near the site.” From Kohei Sawada, Secretary general of TC1

“In my opinion, the most challenging situation is the presence of the existing bridge over the site because the pile length was high and it will be difficult to cast the pile as a whole. I really appreciate their innovative way to cut the pile in small sections and cast those small sections one by one by the Gyropress method which is highly appropriate for the difficult situation like this. Besides that, the construction creates less noise, takes few times for casting and most interestingly takes less workspace which is highly appreciable.” From S M Shafi, M1 Student of Tokyo Institute of Technology

“Although I am studying on a reasonable design of cantilever type steel tubular pile walls mainly based on data analysis, I had not had the opportunity to visit a construction site of steel pile retaining walls, so I was not able to imagine an actual construction. Therefore, it was a very valuable experience for me to have the opportunity of this site visit. I have learned how steel tubular piles were installed by the rotary press-in there and this experience made me realized that my study and research work are closely related to actual constructions. I would like to express my sincere appreciation to have the valuable opportunity which gave me strong encouragement of my study before I proceed to the master's degree program.” From Koji Mochizuki, B4 Student of Tokyo Institute of Technology.

Finally, I really appreciate all the help that Bureau of Port and Harbour, Tokyo and Toyo Construction Co.,Ltd. have done for us.

Photo 1. Overview of the piling construction

Photo 2. Group photo

Announcements

Ordinary General Assembly 2019

IPA Secretariat

The IPA Ordinary General Assembly 2019 was held from 10 to 24 June, 2019. The total votes achieve the quorum and all presented Agendas were resolved in accordance with Article 22 of Cositution.

- Period: 10 to 24 June 2019
- Meeting place: IPA Website (on-line voting through the Members Site)
- Agendas: https://www.press-in.org/en/page/general_assemblies
- Numbers of members: 661
- Quorum: 332
- Total votes: 430

Votes on each Agenda:

	Agendas	Affirmative votes	Dissenting votes	Results
Agenda 1	Activity Report 2018	429	1	Approved
Agenda 2	Income & Expenditure Statement for the fiscal year 2018 (includes the brief Income & Expenditure Statement for ICPE2018)	429	1	Approved
Agenda 3	Activity Plan 2019	429	1	Approved
Agenda 4	Budget for the fiscal year 2019	429	1	Approved
Agenda 5	Election of the Directors and Auditors for the terms 2019–2020	429	1	Approved

The list below shows the outgoing and the incoming members of IPA Board members. May thanks go to the outgoing board members and auditors for their great contributions during the terms and very welcome goes to the new Board members.

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Prof. Alexis Philip A. Acacio (PHL)
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Announcement
IPA Library opened

IPA Secretariat

IPA Library was opened in June 2019 and aims to collect and store the documents and information in a wide range of specialized fields such as civil engineering, construction and machinery for research activities. There are around 400 books, including technical books and proceedings in English or Japanese. Please click the following URL for more details.

https://www.press-in.org/en/page/IPA_library

Event Diary

Title	Date	Venue
■ IPA Events https://www.press-in.org/en/event		
11th IPA Press-in Seminar 2019 in Tokyo	September 18, 2019	Tokyo, Japan
International Society for Soil Mechanics and Geotechnical Engineering http://www.issmge.org/events		
1ST MGS - GEOSS GEOTECHNICAL CONFERENCE 2019: "GEOTECHNICS IN URBAN INFRASTRUCTURE"	June 24-26, 2019	Petaling Jaya, Malaysia
7TH ASIA-PACIFIC CONFERENCE ON UNSATURATED SOILS	August 23-25, 2019	Nagoya, Japan
ECSMGE 2019 – XVII European Conference on Soil Mechanics and Geotechnical Engineering	September 1-6, 2019	Reykjavik, Iceland
THIRD INTERNATIONAL CONFERENCE "CHALLENGES IN GEOTECHNICAL ENGINEERING" CGE-2019	September 9-13, 2019	Zielona Gora, Poland
INTERNATIONAL SYMPOSIUM ON GEOTECHNICAL ASPECTS OF HERITAGE STRUCTURE	September 16-18, 2019	Chennai, India
■ Deep Foundations Institute http://www.dfi.org/dfievents.asp		
HPW-DFI Helical Piles-Tiebacks-Anchors Tradeshow and Educational Seminar	June 4-5, 2019	Cincinnati, United States
S3: Slope - Support - Stabilization	August 6-8, 2019	Minneapolis, United States
■ Construction Machinery Events		
BICES (Beijing International Construction Machinery Exhibition & Seminar) http://www.e-bices.org/engdefault.aspx	September 4 -7, 2019	Beijing, China
Infrastructure Vietnam http://www.confexhub.com/	July 25-26, 2019	Ho Chi Minh City, Vietnam
Maintenance and Resilience 2019 in Tokyo https://www.jma.or.jp/mente/index.html	July 24-29, 2019	Tokyo, Japan
■ International Geosynthetics Society http://www.geosyntheticssociety.org/calendar/		
7th ICEGE (International Conference on Earthquake Geotechnical Engineering) http://www.7icege.com/	June 17-20, 2019	Roma, Italy
■ Others		
INTERNATIONAL CONFERENCE ON LANDSLIDES AND SLOPE STABILITY (SLOPE 2019) https://www.slope2019.com/	September 25-29, 2019	Bali, Indonesia

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Editorial Remarks

The Editorial Board is pleased to publish Volume 4, No.2 issue on schedule. This issue contains messages from IPA Directors, Associate Prof. Uchimura and Dr. Kittiyodom. The special contribution titled "Rapid Pile Load Testing" written by Prof. Matsumoto (IPA director), and serial reports from USA and Terminologies are also included.

This issue also includes the report of the site visit which was held by TC 1 and announcements for results of General Assembly 2019 and opening of IPA Library. IPA hopes that the library will provide more research information to IPA members.

Please feel free to contact the Editorial board members below with email address or IPA Secretariat (tokyo@press-in.org) for your clarifications and/or suggestions.

Notice:

The Newsletter Vol.4, No.2 released on June 27, 2019 contained an error in the Special Contribution 'Rapid Load Test of Piles'. The corrected version was posted on the Web on July 2, 2019.