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News Letter

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Messages
From the Immediate Past President

Chun Fai Leung
Emeritus Professor, National University of Singapore

In June 2020, I took over as the President of IPA from Prof Osamu Kusakabe during the height of COVID-19 epidemic. Time flies, I now complete my term as IPA President during the Board meeting held in Singapore on 2 July 2024. Allow me to recap the events that took place during the period from mid-2020 to mid-2024. For the first two years of my term, the epidemic affected the activities of IPA significantly. Many of the activities including the Board of Directors meetings and other IPA committee meetings had to be held online. Despite the epidemic, I am happy to report that IPA had successfully organized the Second International Conference on Press-in Engineering online in June 2021 which attracted a large number of online delegates worldwide, thanks to the earnest efforts of the ICPE2021 Organizing Committee led by Prof. T. Matsumoto. During this period, IPA had also published the Press-in Engineering Handbook in several languages and initiated the Terminology Technical Committee to publish the IPA Terminology Database on Press-in Engineering.

Photo 1. Press-in Handbook in multilingual languages

For the first time in 3 years, I managed to attend the IPA Board Meeting in person in Tokyo in July 2022 together with other board members from Japan, while the other directors from outside Japan attended online. The experience was a special one whereby I had to take the COVID test before leaving Singapore and went through a series of counters on checking my COVID vaccination certificate and review of other documents upon arrival at Haneda Airport. The hotel I stayed near the IPA Headquarter in Shinagawa did not have many guests. I still felt the strong atmosphere and heavy dose of epidemic situation.

The epidemic situation quickly diminished in many parts of the world after mid-2022. In November 2022, IPA managed to organize its Board of Directors Meeting physically and a face-to-face Seminar on Press-in Engineering in Singapore. The site visit for the seminar delegates on installation of sheet piles right next to an adjacent building using press-in technique was certainly a revelation for many delegates. The year 2023 was indeed a memorable year as the Board Meeting was held in Akaoka, Kochi in July at the newly opened RED HILL 1967, a facility dedicated to expanding the awareness of the superiority of press-in technologies, by GIKEN LTD. which organized a dinner at its Kochi Head Office to host the IPA directors to further facilitate technical exchanges in press-in works. IPA Press-in Handbook was

Photo 2. Board Members in RED Hill 1967

translated into more languages, now available in over ten languages.

The highlight of 2024 is certainly the ICPE2024 held at the National University of Singapore, Singapore, from 3 to 5 July 2024. Over 200 delegates from over 17 countries attended the conference physically with two keynote speakers, three theme lectures and about 60 oral presentations. The feedback from the delegates was generally positive with most of them happy with the proceedings and the conference banquet to renew friendship with old friends and meeting new friends. Despite the heavy downpour at the beginning of the site visit on 5 July at the Headquarter of Guan Chuan Engineering Pte Ltd, the spirit of the 140 participants was high as they could visualize the demonstration of ZERO PILER™ on installing sheet piles right next to a wall, and installation of steel tubular tubes into hard materials by GYRO PILER™. In addition, the conference saw the launch of Press-in Terminology Database by IPA.

Last but not least, I wish to thank Prof. Osamu Kusakabe, IPA Past President and Executive Director, for his tireless efforts and tremendous help in providing very useful inputs and guides for the operation of IPA in the past 4 years; to Mr. D. Hirose, Secretary General of IPA, for his detailed and well-planned execution of various IPA activities and meetings; and to Mr. T. Nozaki, Ms. HJ. He, and Ms. M. Kato of the IPA Secretariat for their efforts in executing the ICPE2024. I also wish our incoming President, Prof. Ken Gavin, to further bring IPA to a greater height and wishing him all the best for the success of ICPE2027 to be held in the Netherlands.

Messages
From the New President

Kenneth Gavin

Professor, Delft University of Technology

It is with great honor and responsibility that I serve as the President of the International Press-in Association (IPA). I extend my deepest gratitude to Prof. Chun Fai Leung, the Immediate Past President, for his exemplary leadership and significant contributions to our organization. Prof. Leung's tenure has seen remarkable growth and achievements, solidifying the foundation upon which we will continue to build.

As we look to the future, our mission remains steadfast: to advance press-in engineering through international cooperation among practitioners, project owners, and academia, promoting environmentally considerate construction, and thereby contributing to the development of society. We will vigorously promote the expansion of our network, emphasizing collaboration and innovation in press-in engineering. This approach will not only broaden our reach but also enhance the implementation of our research into practical, societal applications.

One of my primary goals as the new President is to strengthen and expand our global network. By fostering closer ties between our members and facilitating greater collaboration across borders, we can drive the development and application of press-in engineering to new heights. This will involve not only expanding our membership but also increasing the number and scope of our technical committees and their activities. Furthermore, I am committed to advancing our research initiatives by organizing committees and working groups of engineers and academia from various disciplines interested in press-in engineering. We will place a strong emphasis on projects that contribute to societal implementation, providing solutions that address real-world challenges and improve the quality of life for communities around the globe.

Our upcoming events, including international conferences, symposia, lectures, and seminars related to press-in engineering, will serve as platforms to showcase our collective progress and share our knowledge with a broader audience. Despite the challenges posed by the current global situation, we are adapting and finding innovative ways to continue our work and maintain the momentum of our activities.

I am also grateful for the continued support of Prof. Chun Fai Leung, who will remain an invaluable member of our Board. His wealth of experience and unwavering dedication will be crucial as we navigate the path ahead. Together, with the support and active participation of our members, I am confident that we can achieve our goals and continue to advance press-in engineering for the betterment of society. Let us move forward with renewed vigor and a shared commitment to excellence. Thank you for your trust and support.

Messages
From New Director

Marawan M. Shahien

Professor of Geotechnical Engineering and Foundations
Tanta University

The African continent has many special features that make it so special to geotechnical engineering; 1) it is located in the heart or central part of the world, 2) it has one of the most ancient parts of the world where geotechnical engineering was all began, 3) it is a virgin continent in most of its land. It holds vast potential for geotechnical engineering. This is because it has diverse geological formations, it has many environmental challenges and it has renewable energy potential. It has essential needs for water resources management, capacity building and knowledge transfer. Furthermore, the rapid urbanization and economic growth across Africa require extensive infrastructure development. Thus, there is a room for technologies such as the press-in piling technology. It is still gaining traction in Africa, its benefits in terms of environmental sustainability, adaptability to local soil conditions, and efficiency make it a promising option for infrastructure development across the continent. As awareness and demand for sustainable construction practices grow, the adoption of technologies like the press-in piling is likely to increase in African construction projects.

◆ A brief CV of Prof. Marawan M. Shahien

Marawan M. Shahien is the vice president of the Int. Society of Soil Mechanics and Geotechnical Engineering for Africa (2022-2026). He is currently Professor of Geotechnical Engineering and Foundations in Tanta University. He has been serving as head of geotechnical engineering department in Hamza Associates since 2005. He is registered geotechnical engineering consultant in the Egyptian Syndicate of Engineers. He has wide spectrum of interests and experience in several fields of geotechnical engineering based on his involvement in practice, research and academia for more than 35 years. His interest includes but not limited to geotechnical investigations and characterization, construction in soft ground, settlement analysis, stability analysis, ports and water front structures, underground construction, ground water control, instrumentation and monitoring, geo-environmental engineering, ground improvement, soil dynamics and liquefaction, deep foundations, bearing capacity of foundations of offshore structures, foundations of solar power plants and wind farms and geotechnical aspects of preservation of antiquities. In 2004, he received Norman Medal Award of the American Society of Civil Engineers (ASCE). In 2020, he was recognized by Canadian Geotechnical Society as Honorable Mention of the R.M. Quigley Award. While in University of Illinois, he was honored to be fellow of both S.D. Wilson and R. B. Peck. In 2009, he was the Secretary General of the 17th International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE) in Alexandria. He served as a member of two Committees of the Egyptian Code of Practice 1) Deep Excavations and 2) Laboratory and Insitu Testing.

Special Contribution

Rapid Load Test on a Gyropress Steel Pipe Pile for Design Purpose

Tatsunori Matsumoto

Emeritus Professor
Kanazawa University, Kanazawa, Japan

Reiki Bridge, an old bridge in Gunma Prefecture, Japan, was rebuilt in 2022. Steel pipe piles (SPPs) constructed using the Gyropress Method were used for the pile foundations of the abutments of the new bridge. The piles were designed preliminarily based on the empirical equations specified in Guidelines for design and construction of Gyropress steel pipe piles retaining walls. However, as the number of applications of Gyropress pile is not enough so far, the Hybridnamic rapid load test was carried out on one of the constructed piles for the purpose of pile design.

Keywords: Gyropsess pile, design, load-displacement relation, rapid load test, case study

1. Introduction

Reiki Bridge crossing Name-kawa River in Gunma Prefecture, Japan was replaced by a new bridge in 2022 [1]. The old Reiki Bridge (Fig. 1a), a two-span rolled steel beams and reinforced concrete slab bridge, had a span length of 28.09 m and a width of 3.7 m. The width of the new bridge (Fig. 1b), a single-span simple beam composite floor bridge with a span length of 26.90 m, was widened to 7.5 m to accommodate increased traffic. The old bridge's pier foundation was removed, making the river's flow smooth and mitigating the risk of floods.

Steel pipe piles (SPPs) were adopted for the foundations of the abutments of the new bridge. Because of narrow site conditions, limited access (as shown in Fig. 1a and 1b), mitigation of noise and vibration, and shortening of the construction period, Gyropress Method (Rotary Cutting Press-in Method) was employed to construct the SPPs. In the Gyropress Method, an open-ended steel pipe pile with cutting bits at the pile tip is pressed into the ground with rotation as shown in Fig. 2. The piles were designed preliminarily based on the empirical equations specified in Guidelines for design and construction of Gyropress steel pipe piles retaining walls (IPA, 2014) [2]. However, as the number of applications of Gyropress pile is not enough so far, it was determined to carry out a load test on the constructed pile.

Fig. 1a The old Reiki bridge

Fig. 1b The new Reiki bridge

The constraints of the narrow space made the conventional static load test (SLT) impractical. And, the construction period needed to be shortened. Hence, the Hybridnamic Rapid Load Test (Hybridnamic RLT) (Kamei et al., 2022) [3] was carried out on one of the constructed SPPs to obtain "static" load-displacement curve. The Hybridnamic RLT requires less space and test period, compared with SLT.

2 Outline of Rapid Load Test

2.1 Site condition

Fig. 3 shows the results of borehole investigations and the embedment of the instrumented test pile. Beneath the top filled layer, there exists a very hard gravel layer with SPT *N*-values ≥ 50. Because the borehole terminated at a depth of 10 m, the soil layer below this depth was assumed to be a gravel layer similar to the shallower gravel layer.

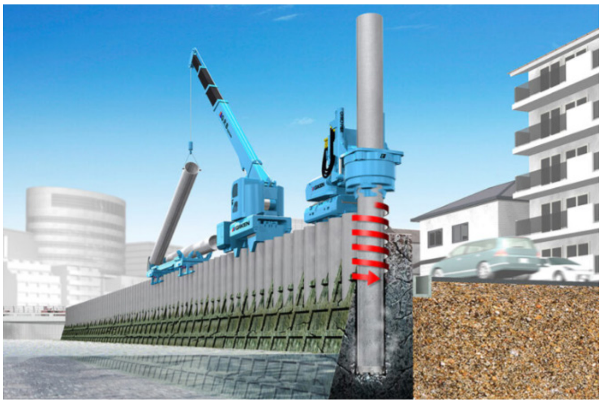

Fig. 2 GYRO PILER™
(https://www.giken.com/en/solutions/gyro/)

2.2 Pile specifications

Table 1 shows the specifications of the test steel pipe pile (SPP). The SPP was installed using the Gyropress Method. The test pile was instrumented with two pairs of strain gages and accelerometers near the pile head for the Hybridnamic RLT (see Fig. 3).

Table 1. Specifications of test piles

Item	Value
Pile length, L (m)	15.0
Embedment length, L_d (m)	14.0
Outer diameter, D_o (mm)	1200
Inner diameter, D_i (mm)	1176
Wall thickness, t_w (mm)	12.0
Cross-sectional area, A (m^2)	0.045
Young's modulus, E (GPa)	206.8
Density, ρ (ton/m^3)	7.88
Bar wave velocity, c (m/s)	5123
Mass, m (ton)	4.94

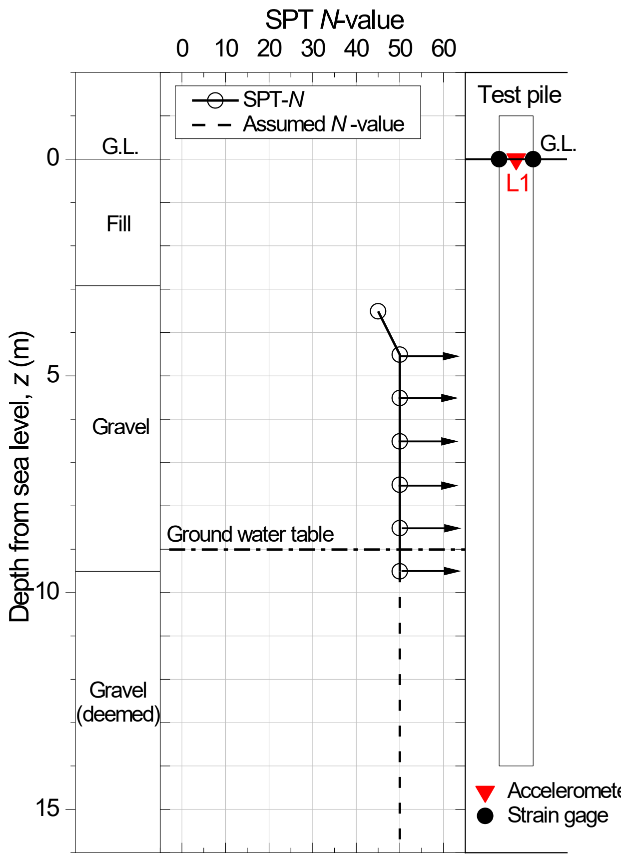

Fig. 3 Profiles of soil layers and SPT *N*-values

2.3 Preliminary pile design

Table 2 lists the design working loads on the pile, the factor of safety and the corresponding required pile capacity. The action 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 test is the high loading capacity which can be as high as 60 MN. However, repeated loading is difficult in the Statnamic test.

The ultimate bearing capacity of the pile was preliminarily calculated using the empirical formulas listed in Table 3.

Using N = 50, the following values of ultimate resistance were roughly obtained:

q_d = 2400 kPa, total tip resistance Q_d = 2714 kN
f_s = 100 kPa, total shaft resistance Q_s = 2740 kN
Total pile capacity $Q = Q_d + Q_s$ = 5454 kN

Table 2. Design loads, factor of safety and required pile capacity

State	Working load	Factor of safety	Required pile capacity
Usual	1305 kN	3	3915 kN
L1 earthquake	1440 kN	2	2880 kN

While the estimated total pile capacity sufficiently exceeds the required capacity, the limited number of Gyropress pile applications raises concerns about the reliability of empirical formulas used to estimate tip and shaft resistance. Hence, it was determined to carry out a load test on one of the constructed piles. As mentioned earlier, the narrow site conditions rendered the conventional SLT impractical. For these reasons, it was determined to carry out the Hybridnamic RLT to confirm that the pile has a bearing capacity greater than 3915 kN.

3. Interpretation Methods of RLT Signals

3.1 ULPC method

The ULPC (UnLoading Point Connection) method (Kamei et al., 2022) [3] is an extension method of UnLoading Point (ULP) method. In the Hybridnamic RLT, generally, 5 to 7 blows are applied to the pile with increasing the fall height of hammer h. In each blow, the time variation of the soil resistance R_{soil}(t) is obtained using Eq. (1).

$$R_{\mathrm{soil}}(t) = F_{\mathrm{rapid}}(t) - M\alpha(t) \qquad (1)$$

where F_{rapid} is the measured applied force, α is the measured pile head acceleration and M is the pile mass.

R_{soil} contains dynamic soil resistance depending on the pile penetration velocity $v(t)$. At the maximum pile displacement (UnLoading Point, ULP), the pile velocity v = 0. Hence, R_{soil} at ULT is thought to be the static soil resistance. By connecting ULPs from multiple blows, static load-displacement relation is easily constructed.

Table 3. Empirical formulas to estimate tip and shaft resistance (IPA, 2014)

Soil type	Tip resistance q_d (kPa)	Shaft resistance f_s (kPa)
Sand	60 N (≤ 2,400 kPa)	2 N (≤ 100 kPa)
Gravel		

3.2 ULPC_CM method

The Case method (Raushe et al., 1985) [4] is a method based on the one-dimensional stress-wave theory, in which the penetration resistance R_t (= R_{soil}) of a pile during driving is estimated. First, the downward traveling wave F_d and the upward traveling wave F_u are calculated from the measured dynamic signals (axial force F and pile velocity v) using of Eq. (2) and Eq. (3), respectively. Then, by using Eq. (4), the time variation of $R_t(t)$ (= $R_{\mathrm{soil}}(t)$) is obtained (Fig. 4).

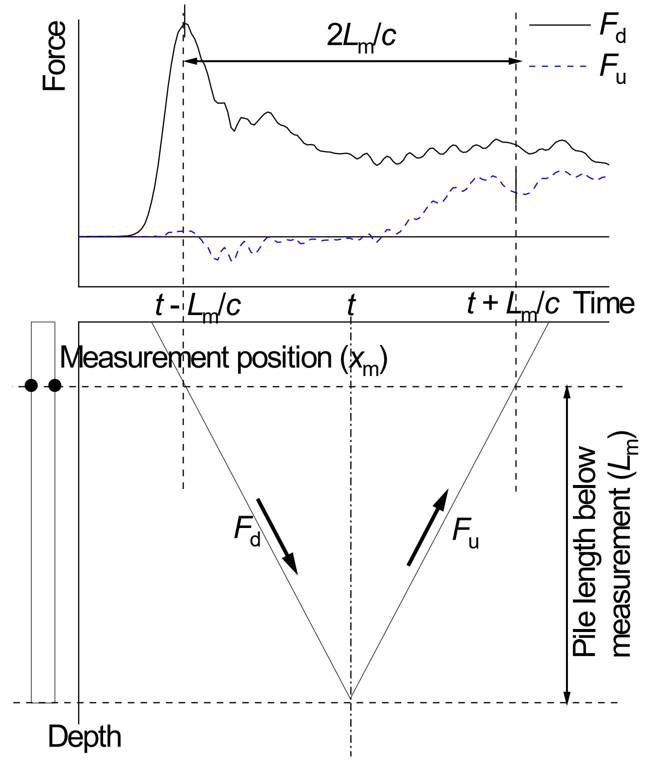

Fig. 4 Case method (Raushe et al. 1985)

$$F_d(x_m, t) = \frac{F(x_m, t) + Z \cdot v(x_m, t)}{2} \qquad (2)$$

$$F_u(x_m, t) = \frac{F(x_m, t) - Z \cdot v(x_m, t)}{2} \qquad (3)$$

$$R_t(x_m, t) = F_d\left(x_m, t - \frac{L_m}{c}\right) + F_u\left(x_m, t + \frac{L_m}{c}\right) \qquad (4)$$

where, x: Coordinate along the pile axis (pile head = 0), x_m: Measurement position, v: Pile velocity,
L_m: Pile length from measurement position to pile tip, F: Axial force, F_d: Downward force wave, F_u: Upward force wave,
Z: Impedance (=EA/c), c: Bar wave velocity, E: Young's modulus of pile, A: Cross-sectional area of pile.

In the ULPC_CM method, multiple blows (rapid load tests) are applied to a pile. The time variation of soil resistance R_{soil} is obtained from the Case method, and the time variation of pile displacement w is directly measured. Hence, $R_{\mathrm{soil}} - w$ relation is easily obtained. R_{soil} at the maximum pile displacement can be regarded as the static resistance R_w. Similar to the ULPC method, a static load-displacement curve is constructed by connecting ULPs from the multiple blows.

As the ULPC_CM method is based on the one-dimensional stress-wave theory, it has the advantage of not requiring correction for pile inertia R_a. Hence, the ULPC_CM method would be applied to RLTs on piles with relative loading duration $T_r = t_L/(2L/c) < 5$ (t_L is the loading duration).

4 Rapid load test at the site

4.1 Outline of RLT

Fig. 5 is the Hybridnamic RLT device used at the site. As seen from the figure, the usual reaction system such as reaction piles and rection beams are not required and the testing space is very narrow.

Fig. 5 Hybridnamic RLT device used in the site

RLTs were carried out using the device with a hammer mass m_h = 9.5 tons. A total of 6 blows (RLTs) were applied to the pile with increasing drop height h from 0.30 to 1.80 m. The target maximum load was 4083 kN which was greater than the required pile capacity of 3915 kN. The test was completed within 3 days including preparation, testing and dismounting of the device.

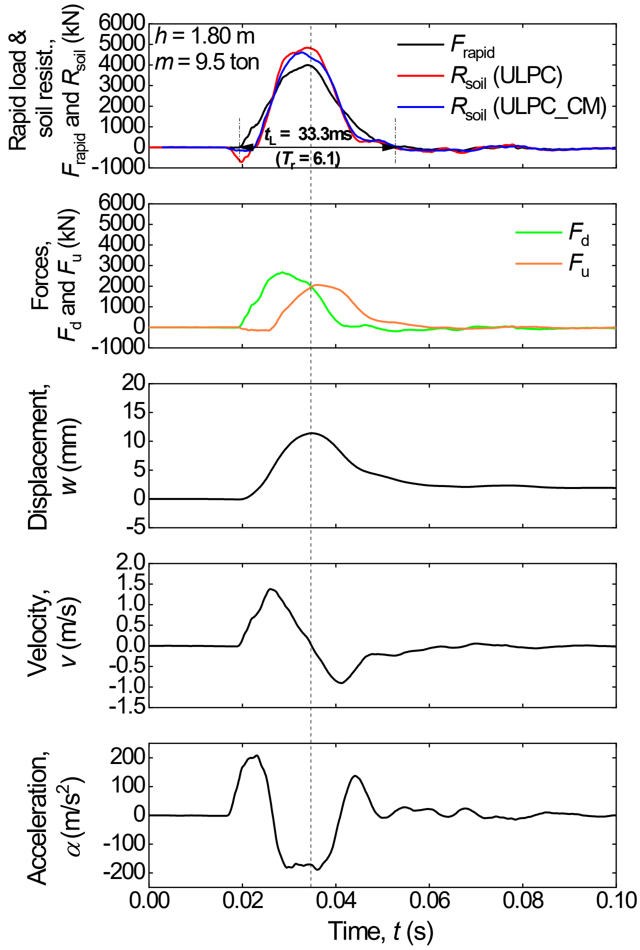

Fig. 6 RLT signals (h = 1.80 m)

4.2 Test results

The measured test signals were interpreted using two methods, ULPC and ULPC_CM. Fig. 6 shows the measured dynamic signals, rapid load F_{rapid}, pile head displacement w, velocity v and acceleration α, in the RLT at h = 1.80 m. In the figure, soil resistance R_{soil} (ULPC) from the ULPC method and R_{soil} (ULPC_CM) from the ULPC_CM method are shown together with F_{rapid}. Furthermore, F_d and F_u are also shown.

Fig. 7 shows the F_{rapid}, R_{soil} (ULPC) and R_w (ULPC) vs w from the ULPC method.

Fig. 8 also shows the F_{rapid}, R_{soil} (ULPC_CM) and R_w (ULPC_CM) vs w from the ULPC_CM method.

Fig. 9 shows the static load-displacement relations from ULPC and ULPC_CM. The 2 curves match quite well up to 6 mm displacement, but start to show some deviation as the displacement increases from 6 mm. Until the 3rd blow the pile head accelerations were relatively small. Hence the 2 curves match well. After the 4th blow large pile head upward (negative) acceleration was generated resulting in an overestimation of R_{soil} when ULPC interpretation method is employed. On the other hand, as mentioned earlier, because the ULPC_CM method is based on the one-dimensional stress-wave theory, it has the advantage of not requiring correction for pile inertia R_a. Therefore ULPC_CM is more reliable than ULPC.

Both of the result from each interpretation method satisfied the required capacity. The initial pile head stiffness K_h from each interpretation was almost same, K_h = 501 MN/m.

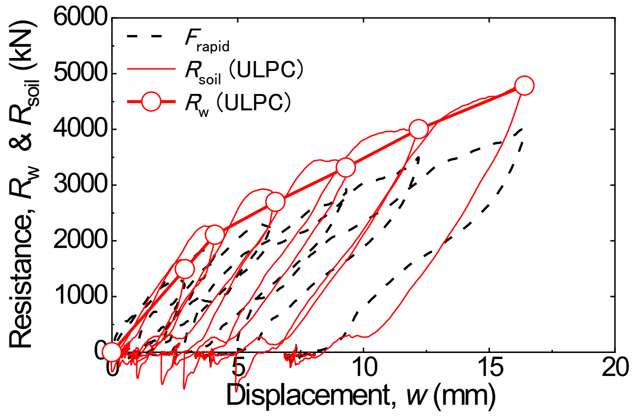

Fig. 7 F_{rapid}, R_{soil} and R_w vs w from ULPC

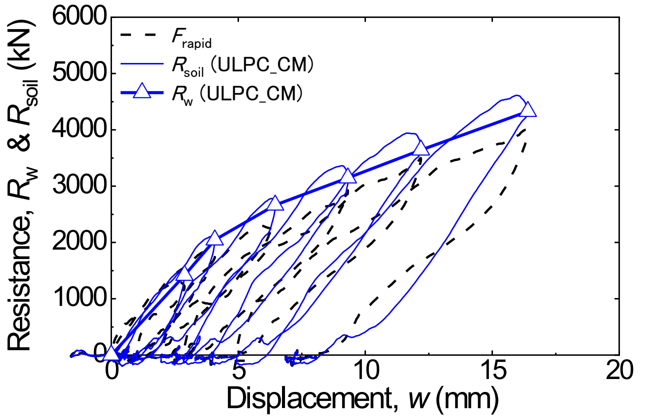

Fig. 8 F_{rapid}, R_{soil} and R_w vs w from ULPC_CM

5 Concluding Remark

Due to the low reliability of the empirical formulas for estimating tip and shaft resistance, RLT was carried out to confirm the required capacity of SPPs constructed using the Gyropress Method.

In this study, load-displacement relations of the pile were obtained from RLT with two interpretation methods, ULPC (the current JGS method) and ULPC_CM (a new and more reliable method). The load-displacement curves from both interpretation methods exceeded the required pile capacity with a pile head displacement of about 14 mm.

It is emphasized that the Hybridnamic rapid load testing was used as a reliable design tool.

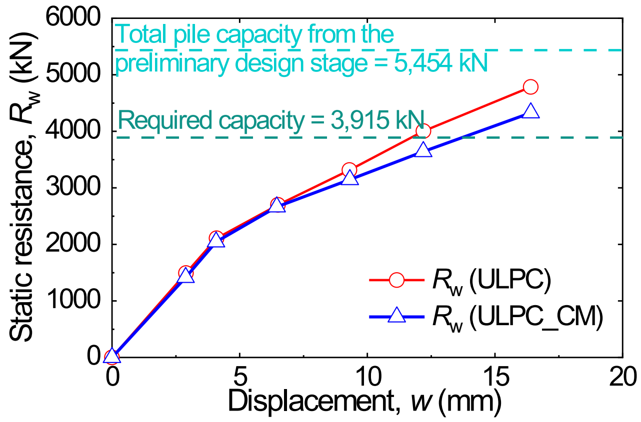

Fig. 9 Comparison of load-displacement curves from RLTs with ULPC and ULPC_CM

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◆ A brief CV of Prof. Tatsunori Matsumoto

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 retired from Kanazawa University in 2021 and became Emeritus Professor.

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 60 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. He was Vice-President Asia of IPA from 2019 to 2024.

Interview Report

Permanent steel-concrete composite retaining wall utilizing the press-in piling method

Tsunenobu Nozaki

General Manager
International Press-in Association

1. Forward

In the Japanese architectural field, retaining structure materials are specified as "RC, masonry or similar corrosion resistance materials" in the Building Standard Acts. Therefore, these materials are routinely and exclusively used for permanent retaining structures in the Japanese architectural field. On the other hand, steel walls, such as sheet pile walls and tubular pile walls, are normally used as temporary retaining structures in order to construct permanent RC substructures.
However, this traditional system often requires a relatively large amount of space for substructures. This is because the overall thickness of a substructure comprises a temporary retaining wall and a permanent structure. On the other hand, it is seen that applications of sheet pile walls and tubular pile walls for permanent retaining structures are gradually increasing mainly for the following reasons.
1) The recent development of more rigid and robust sheet piles.
2) The development of piling techniques for high modulus piles.
3) The expansion of composite design practices between steel and concrete in retaining wall design.
This report focuses on the future prospect of steel retaining walls for permanent use, based on recent case histories. These maximized land use by utilizing high modulus steel piles, state-of-the-art press-in piling technologies and composite retaining wall design practices.

<u>Overview of the project</u>
Project: Kyoto Higashiyama Project (Kyoyamato & Park Hyatt Kyoto)
Location: Masuyacho, Higashiyama-ku, Kyoto-shi, Kyoto, Japan
Interviewee：Takenaka Corporation (Owner & Developer, Project Planner, Designer and Building Contractor)

Mr. Toshio Sagara
Construction Project Manager
Hiroshima Branch Office
Takenaka Corporation

Mr. Naohiro Fujita
Associate Chief
Osaka Main Office
Takenaka Corporation

2. Scope of work

The project was the construction of new hotel buildings in Kyoto, the tourism capital of Japan. The buildings comprise 2-4 storey buildings and 1-2 level basements. The construction site was located on a steep slope with the height difference being approximately 30m and was adjacent to an existing building. Fig. 1 and Fig. 2 show the layout of the hotel complex. Due to the Kyoto City Landscape Policy, which was implemented in 2007 to retain Kyoto's magnificent landscapes for future generations, all building heights are restricted. Therefore, in order to provide enough hotel space, a relatively deep basement was required.

The requirement necessitated the construction of a retaining wall alongside the east boundary with a retained height of up to 13m. The working conditions were unfavorable for traditional retaining walls. As such, a solution using a high modulus permanent steel-concrete composite retaining wall and the press-in piling method were selected and approved.

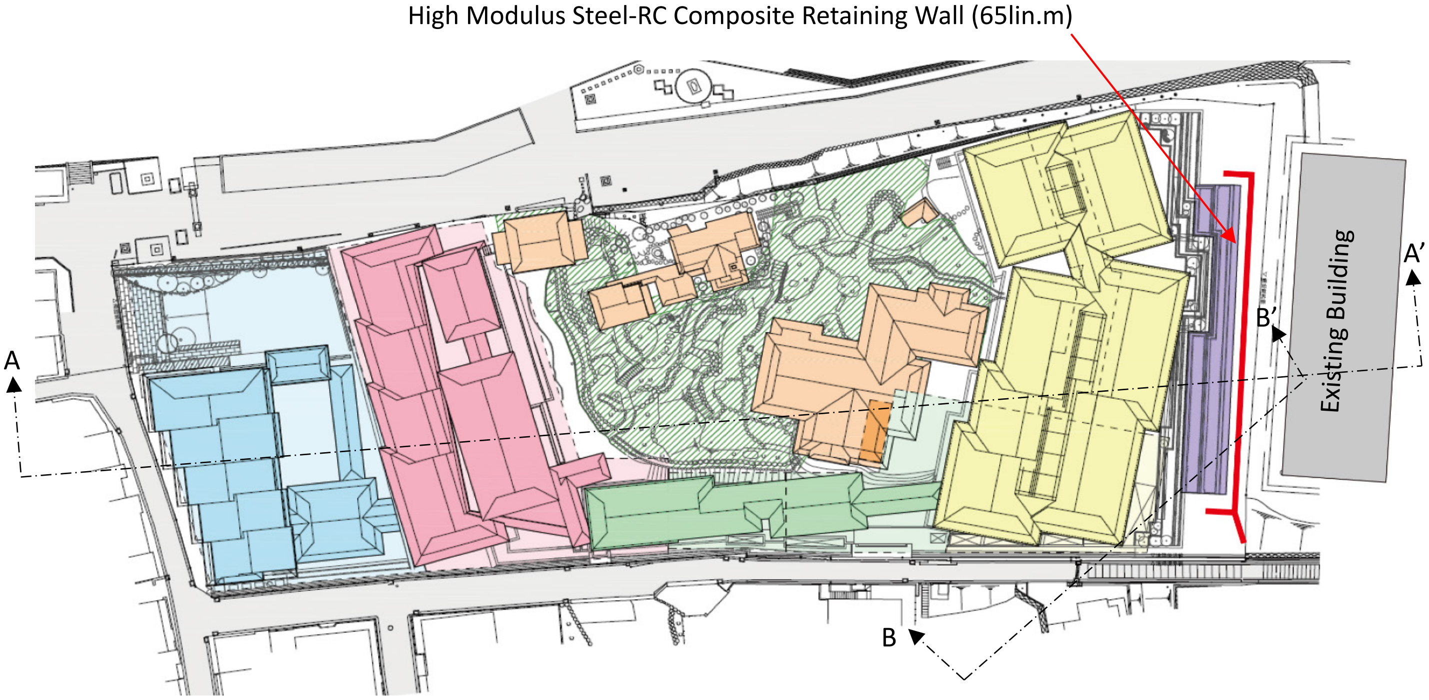

Fig. 1. Building Complex Layout Plan

<u>Overview of high modulus steel-concrete composite retaining wall</u>

- Temporary condition: 37no. steel tubular piles 1,500mm O.D. x 25mm w.t. L=27.6m (2 splices) + temporary ground anchors
- Permanent condition: Composite retaining wall (steel tubular pile wall + L-shaped RC retaining wall)

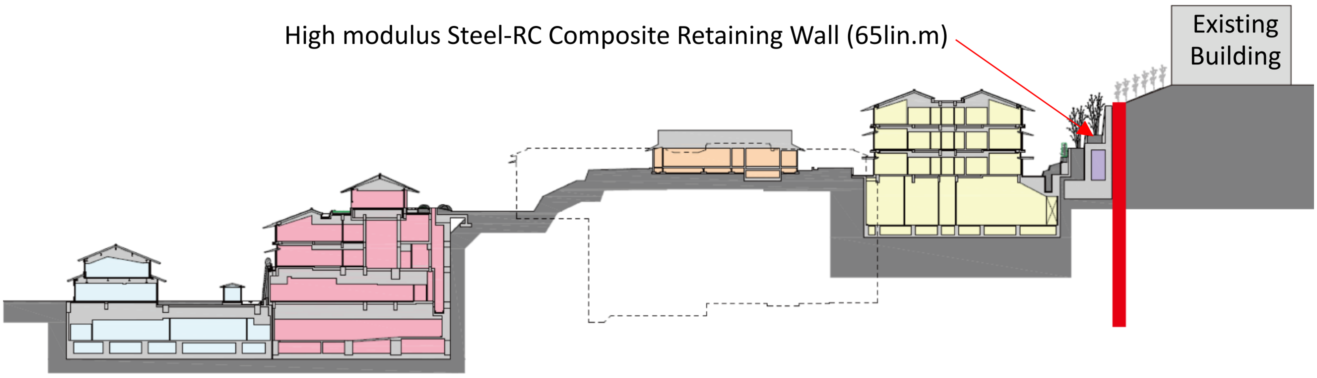

Fig. 2. Longitudinal Section of Building Complex (Section A-A')

3. Ground conditions

The project site is located on a diluvium formation. Underneath the surface soil layer of Fill (F), the following soil layers are underlying from the top.

1) Gravel mixed sandy clay (dt, SPT N=6-15)
2) Silt mixed sandy gravel (Dg2-c, SPT N=10-43)
3) Sandy clay (Dc-2, SPT N=15-24)
4) Clay mixed sandy gravel (Dg3-c, SPT N>60, maximum extrapolated SPT N=250)

At the design stage, as the proposed formation level was +34mAOD, it was expected that the retaining wall would need to be installed into the very dense sandy gravel layer (Dg3-c). Also, a relatively large earth pressure was anticipated since the Cu (undrained shear strength) of the approximately 10m thick sandy clay layer (dt) is rather low (32-82kN/m^2).

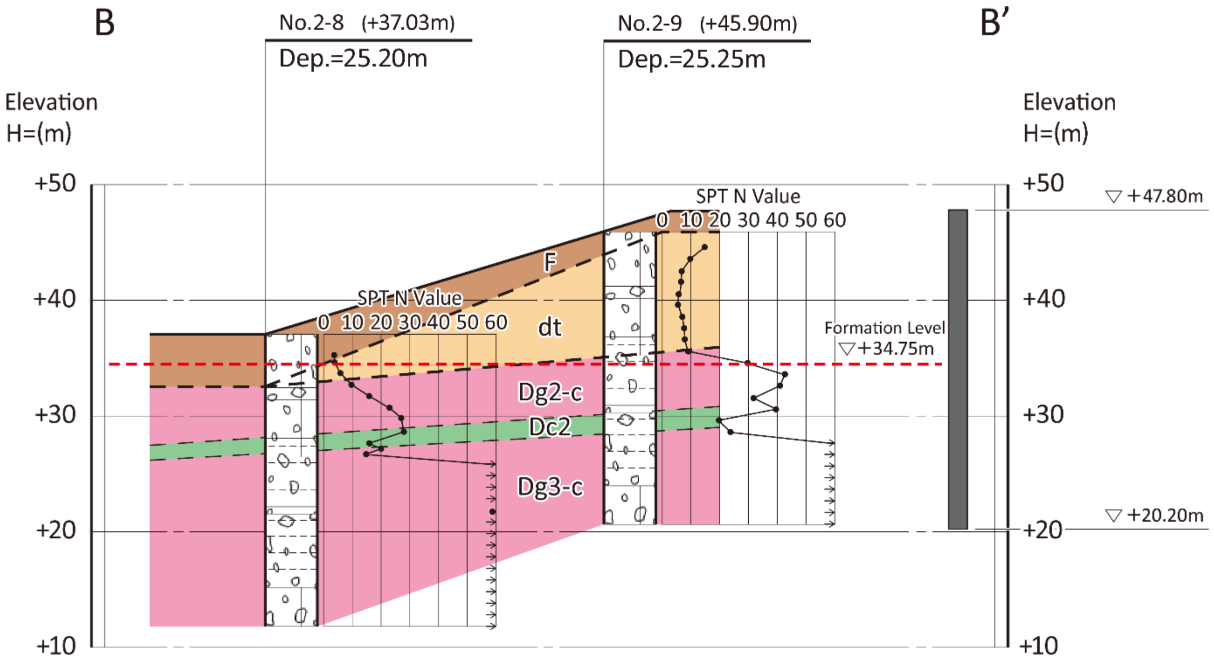

Fig. 3. Longitudinal Geographic Section (Section B-B')

4. Selection of retaining wall type and construction method

The construction of the new buildings required a retaining wall with a retained height of 13m along the east boundary. Due to difficult working conditions along the east boundary, it was not feasible to install a conventional king post pile wall as a temporary retaining wall. In order to satisfy the design criteria, a high modulus temporary/permanent dual use retaining wall composed of a steel tubular pile wall and an L-shaped RC wall was adopted (Fig. 4 and Fig. 5). Regarding the construction method, the Gyropress Method™ (Rotary Press-in Method) was selected to overcome the difficult conditions. On the project, the primary factors in selecting the retaining wall type and construction method were as follows.

1) A deeper basement than the depth of foundation piles of the adjacent building was required.
2) The use of permanent ground anchors was not permitted due to the presence of adjacent properties. Thus, the 13m free-standing retained height was required permanently since the ground anchors were removed after temporary use.
3) As the adjacent building was supported by a group-pile foundation, it was necessary to install ground anchors below the pile foundation. Due to this, it was not feasible to fix the most ideal position of the retaining wall i.e. the top of the retaining wall, with the ground anchors. Therefore, the ground anchors were attached to the retaining wall at the middle height of the retained height.
4) The construction site was designated as a "sediment disaster special alert area". It was necessary to circumvent the alert by constructing a high modulus retaining wall.
5) Due to 1) – 4) above, it was not possible to construct the basement using typical traditional retaining wall system i.e. a combination of a temporary soldier pile retaining wall with ground anchors and an L-shaped RC wall.
6) The construction site was located on a steep slope with the height difference being approximately 30m from top to bottom. Therefore, a construction technique which can be carried out on a slope commencing surface needed to be selected.

7) Due to the narrow access to the construction site and working space, firstly a construction technique to overcome these constraints needed to be considered.
8) The Gyropress Method was adopted in order to satisfy the requirements stated in 6) and 7) above.

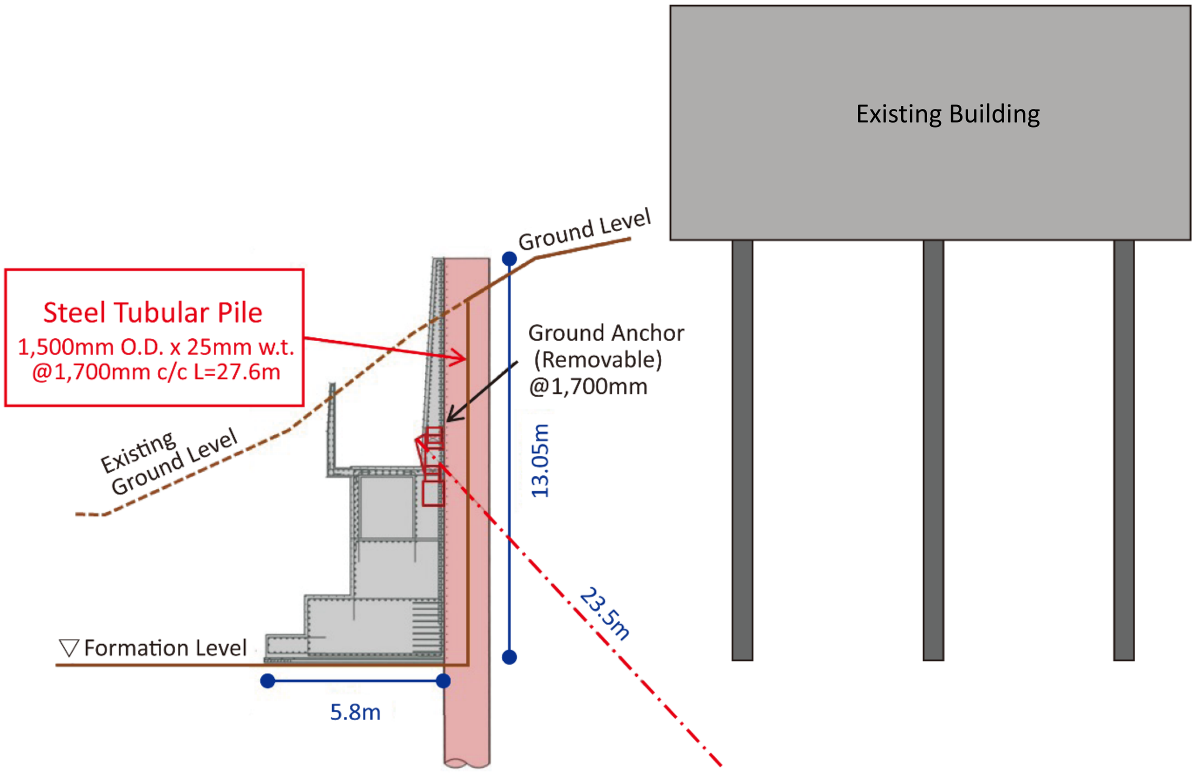

Fig. 4. Cross Section of High Modulus Steel-RC Composite Retaining Wall

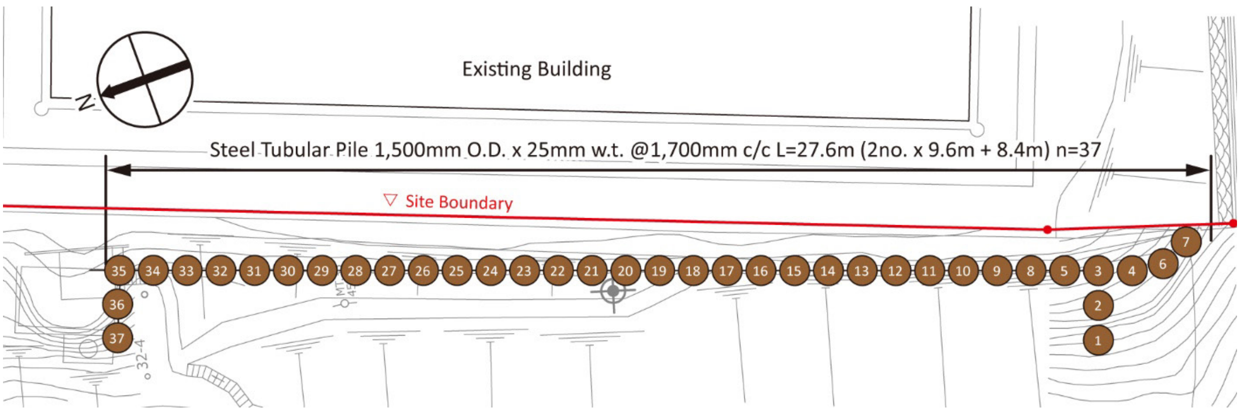

Fig. 5. Plan Layout of Steel Tubular Pile Wall

5. Design of high modulus steel-RC composite retaining wall

At the design stage, due to the required retained height of 13m, the proposed retaining wall was not considered to be a cantilevered wall, but one supported with temporary struts or ground anchors. Temporary struts were an unrealistic solution on the project taking into account location and orientation of the proposed retaining wall. Therefore, ground anchoring was the preferred option. However, due to the presence of the existing building supported by the group piles behind the proposed retaining wall, ground anchors were designed to be below the tips of the group piles. This resulted in the anchor head elevation not been set at the top of the retaining wall, but in the middle of the retained height. In order to avoid leaving ground anchors in place, removable ground anchors were used. (Fig. 5)

The retaining wall construction needed to satisfy the following criteria.

1) The retaining wall shall be rigid enough to maintain its lateral deflection to within 30mm using single level ground anchors.
2) Construction materials and equipment must be able to be delivered to the job site through the narrow access road.
3) The construction method shall be capable of installing the retaining wall into hard ground, with an extrapolated SPT N value of up to 250.
4) Construction works shall be carried out within the specified noise and vibration limits.
5) Construction works must be able to be carried out on a steep commencing surface.

To fully satisfy these criteria, a steel tubular pile retaining wall installed utilizing the Gyropress Method (Rotary Press-in Piling Method) was selected. Regarding the tubular pile profile, 1,500mm O.D. x 25mm w.t. was specified as the maximum applicable profile for the GYRO PILER™ (the press-in piling machine of the Gyropress Method), which can be delivered to the job site. However, the bending stiffness of the tubular pile wall was not sufficient against the maximum earth pressure after the ground anchors were removed. Therefore, a retaining wall design in a permanent condition with a steel-RC composite retaining wall (Fig. 6) was used. Therefore, a retaining wall in a permanent condition composed of steel tubular piles along with an RC composite retaining wall (Fig. 6) was designed. In addition, the RC structure was also designed as the base of the garden landscape as well as the structural component of the retaining wall. The bending moment acting on the steel tubular pile wall was effectively transferred to the RC structure by transferring shear force and tensile force using shear studs and reinforcing bars. As for the RC structure, an L-shaped RC wall was designed to spread the ground surcharge caused by the bending moment. It was assessed that the moment capacity of the composite wall would have an approximately 30% cushion as the actual stress ratio to the allowable stress of the reinforcing bars would be 76%.

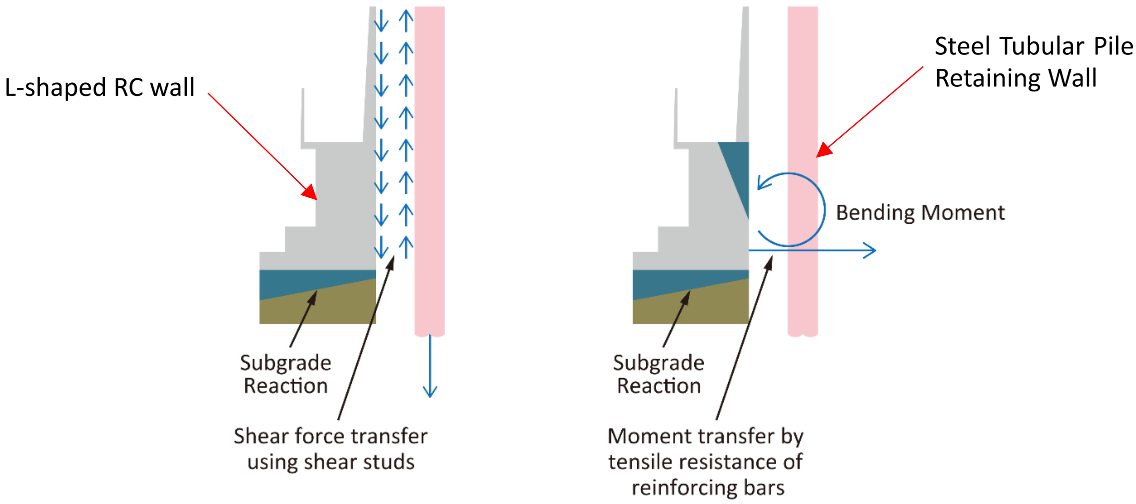

Fig. 6. Design Concept of the High Modulus Steel-RC Composite Retaining Wall

The maximum allowable lateral deflection of the proposed tubular pile retaining wall was specified at 30mm. (The general deflection limit used in Japanese building construction sites). The retaining wall was designed based on behavior analysis of the surrounding ground and the existing adjacent building. The design was approved after agreement with the owner of the existing adjacent building.

6. Construction of high modulus steel-RC composite retaining wall

1) Installation of tubular piles using the Gyropress Method

Due to the proximity of the proposed retaining wall to the site boundary line (2-4m apart), the press-in piling method was selected to minimize noise and vibration during pile installation. In addition, other defining points of the method selection were a) the press-in piling method is capable of installing piles on a steep commencing surface (Fig. 7) and b) the high exposed height of piles.

Among several press-in piling modes, the Gyropress Method (Rotary Press-in Piling Method) was selected as it is capable of installing tubular piles into hard ground.

Fig. 7. Before Tubular Pile Installation

The Gyropress Method (rotary press-in piling method) is used to install steel tubular piles. The Gyropress Method consists of axial press-in and rotation, that increases the efficiency of press-in piling. Depending on soil conditions, a suitable ring bit is attached onto the pile toe. This enables tubular piles to be installed into very hard ground and/or through underground obstacles. The GYRO PILER grasps a tubular pile with its hydraulic chuck and installs the pile using axial hydraulic press-in force and rotational torque. In order to reduce the rotational penetration resistance and prevent the forming of pile plugs, rotary press-in piling employs driving assistance using a water lubrication system. Fig. 8 and Fig. 9 below show the overview of the Gyropress Method and pile installation respectively.

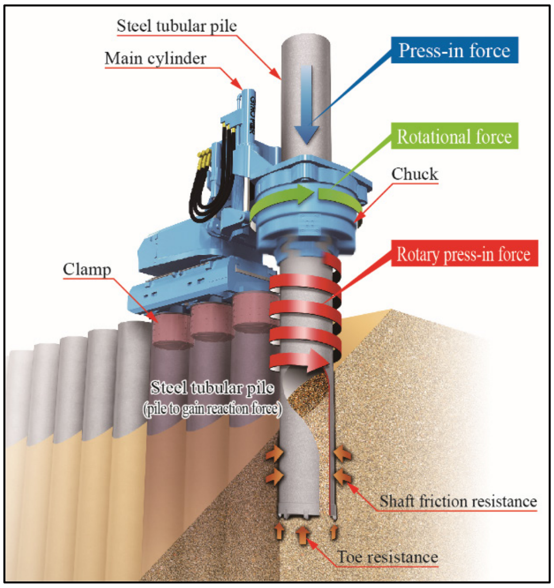

Fig. 8. Overview of Gyropress Method

Fig. 9. Pile Installation in Progress

As with other press-in piling modes, the GYRO PILER installs piles deriving its reaction force by gripping previously installed piles which are called reaction piles. The GYRO PILER can self-move above the reaction piles during pile installation. The process is shown below in Fig. 10.

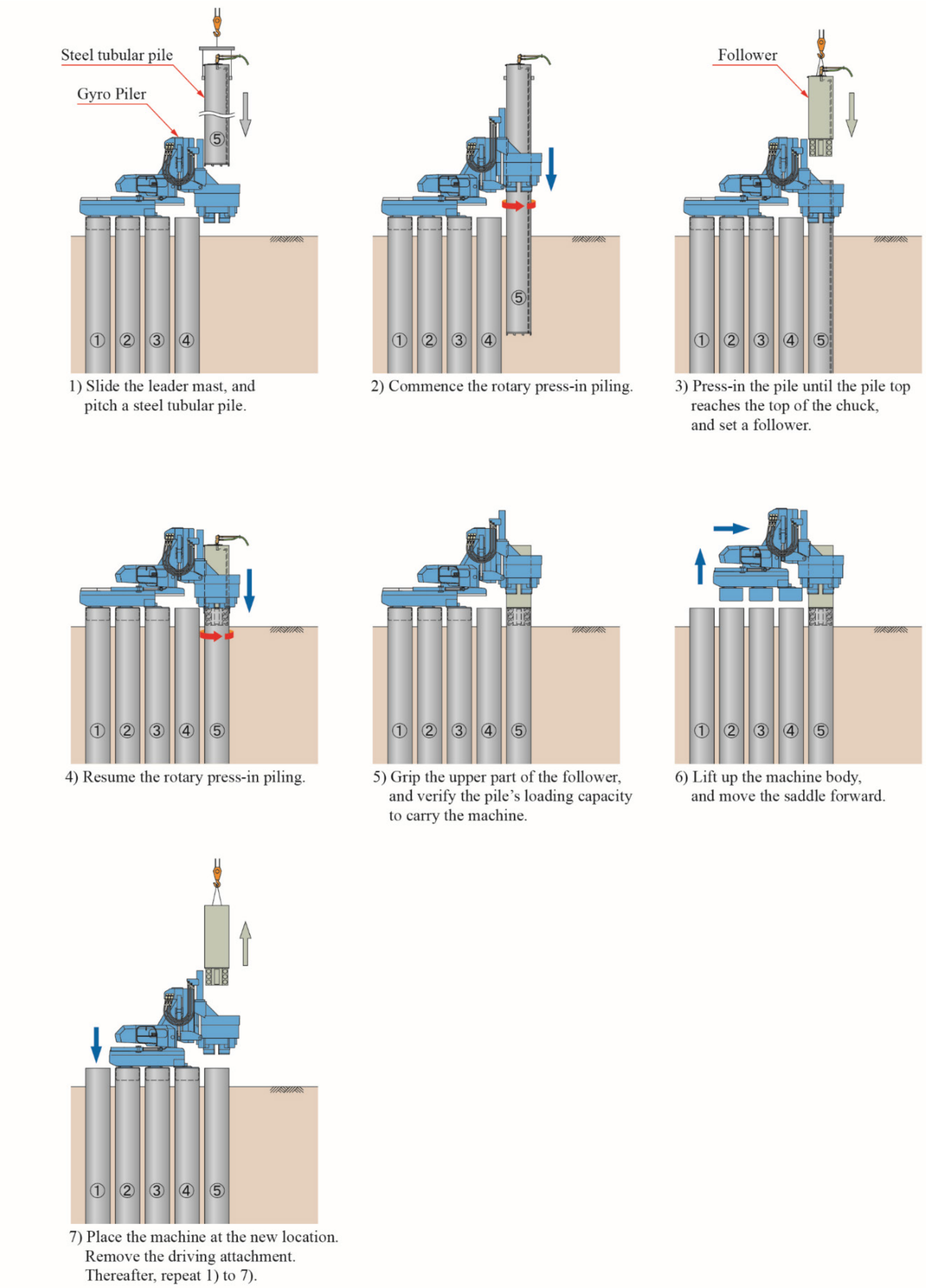

Fig. 10. Sequence of Gyropress Method

On this particular project, the required length of tubular pile was 27.6m. This exceeded the deliverable pile length, due to restricted site access. Therefore, piles were spliced on site as shown below in Fig. 11. Due to the restriction of the lay-down area, horizontal pile splicing was not feasible. Therefore, piles were spliced vertically during pile installation (bottom pile, middle pile and then upper pile). Circumference welding was used to splice piles, which were inspected using liquid penetrant testing on all splices, and ultrasonic testing on 1 in 20.

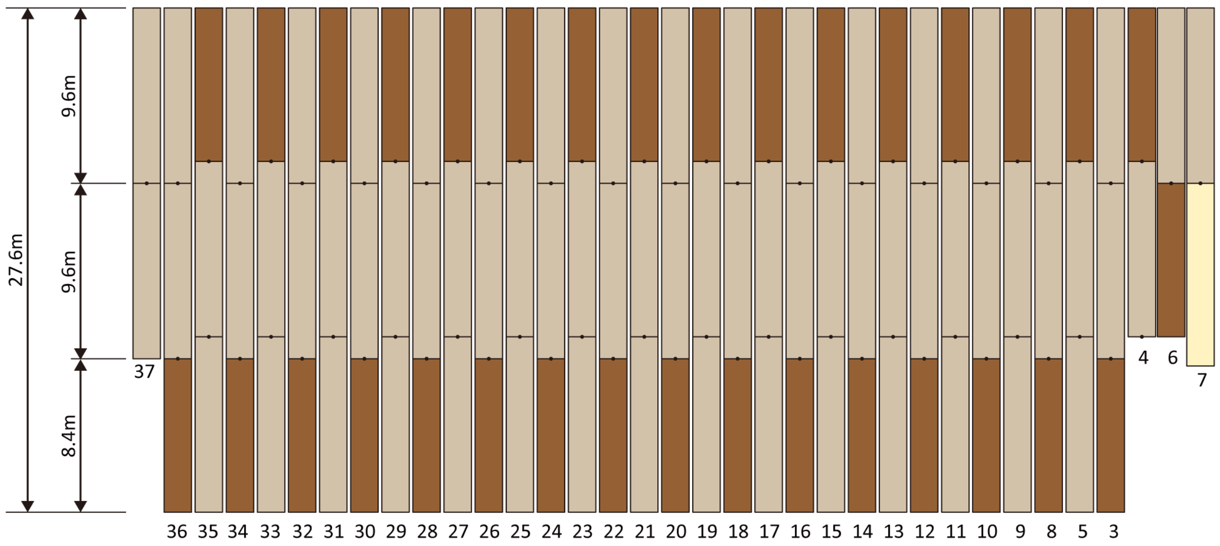

Fig. 11. Longitudinal Section of Tubular Pile Wall

In general, tubular piles are installed with a gap between adjacent piles to avoid the interference of adjacent piles and to enable the adjustment of installation tolerances. On this project, 1,500mm O.D. tubular piles were installed at 1,700mm intervals, which left a 200mm gap between piles. In order to prevent particle loss in the retained soil through the gaps, a closure pile is normally installed in each gap between piles. Equal angle section or small diameter pipe is normally used as the closure pile. On the project, equal angle sections (200mm x 200mm) were used. Fig. 12 shows the installation sequence of closure piles.

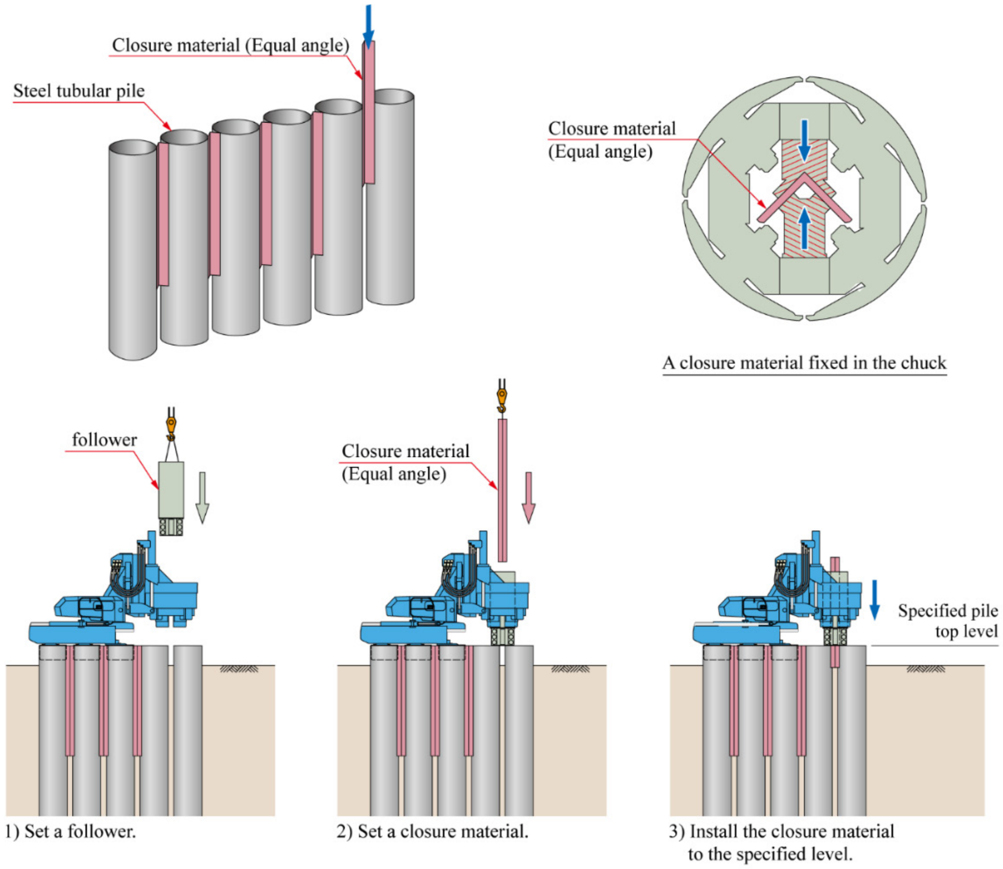

Fig. 12. Installation Sequence of Closure Pile

The installation period of the total of 37 piles was 51 days, including mobilization and demobilization of all equipment and pile materials. Regarding pile installation, the average daily production rate was 0.8 piles/day (2 splices each pile).

2) Excavation and installation of ground anchors

After installing the tubular pile retaining wall, a primary excavation was undertaken to establish the commencing surface for the installation of ground anchors. Ground anchors were then installed using an anchor drilling machine (Fig. 13).

Fig. 13. Installation of Ground Anchors

After the installation of all the ground anchors, a secondary excavation was carried out to establish the final formation level as shown in Fig. 15. Blinding concrete was then cast on the formation level. The lateral deflection of the tubular pile retaining wall was monitored throughout the excavation works in accordance with the allowable deflection limits shown in Table1. The maximum actual deflection was 28mm, which was less than the specified allowable deflection limit. Also, the actual axial force of ground anchors was less than the design axial force as shown in Table 2. These results prove the validity of the retaining wall design.

Table 1. Allowable Lateral Deflection of Tubular Pile Retaining Wall

Primary Reference Value	25.6mm (80%)
Secondary Reference Value	32mm (100%)

Table 2. Axial Force of Ground Anchors

Design Force	360kN/m
Actual Force	320kN/m

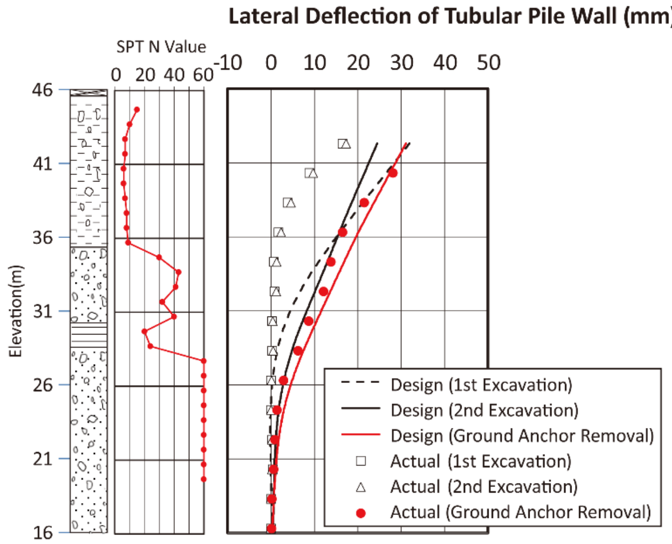

Fig. 14. Monitoring Results of Lateral Deflection

Fig. 15. Bulk Excavation after Ground Anchoring (left) and Completion of Excavation (right)

3) Welding of shear studs
After laying the blinding concrete, shear studs and reinforcing bars were welded onto the tubular piles utilizing stud welding guns. Regarding the weld inspection, additional weld inspections were carried out on finished stud welds, as the diameter of shear studs and reinforcing bars was 19mm. In Japan, weld inspections are exempted if the stud diameter is 16mm or smaller. Laboratory bend testing and tensile testing were carried out on the welded specimens. As for the on-site inspection, 100% visual inspection and 1/100 bend tests (displacing the head of the studs by striking them with a hammer) were conducted on the finished stud welds.

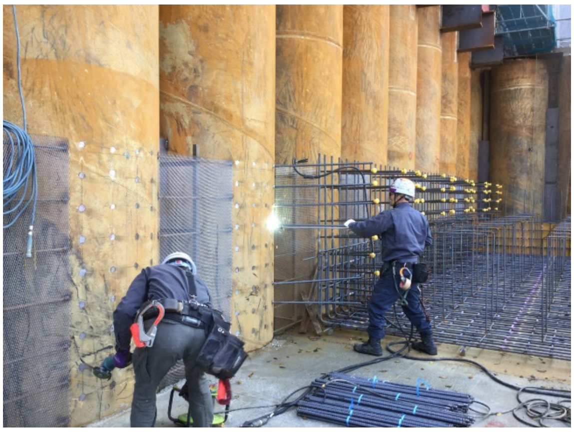


Fig. 16. Lower Stud Welding in Progress (left) and Completed Lower Stud Welding (right)

4) Formwork and concrete placement
After welding all the shear studs and reinforcing bars onto the tubular piles, formwork and scaffolding were set up (Fig. 17 and 18). The concrete retaining wall was then cast. Grade Fc24 concrete, with a standard service life of 65 years, was used on the project.

Fig. 17. Formwork and Scaffolding

Fig. 18. Perspective Aerial View of Excavation

5) Landscaping
Landscape gardening was included in the design of the L-shaped RC wall, as the wall is located in front of hotel guest rooms (Fig. 19).

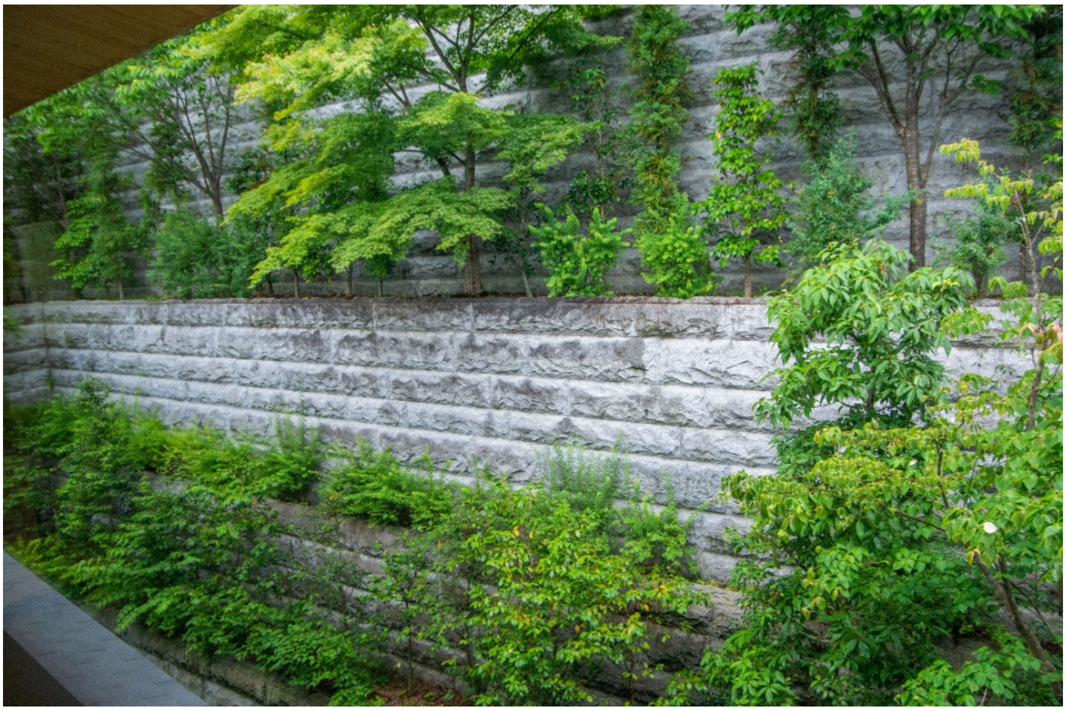

Fig. 19. L-shaped RC Wall and Landscaping

7. Conclusions

In retaining wall construction and basement construction projects, it is ideal if temporary retaining walls can also be used as permanent substructures. However, most temporary retaining walls currently used in Japan do not satisfy structural criteria of permanent substructure, which is required by the Japanese Building Standards Act. In addition, there is no such standard for temporary/permanent dual use retaining walls designated by the Architectural Institute of Japan at the moment. Therefore, temporary retaining walls and permanent substructures are generally unrelated entities in design and construction. Temporary/permanent dual use retaining walls can broadly be applied in the future construction scene in Japan, if their guidelines are authorized by the Architectural Institute of Japan. However, it normally takes a long time to approve the guideline. For the time being, it would be prudent for advocates of temporary/permanent dual use retaining walls to obtain a “Building Technology Performance Evaluation Certification” from the “General Building Research Corporation of Japan (GBRC)”, and submit it to a “District Construction Surveyor” on each project. In addition, it is also important to provide design & construction manuals and case histories, when disseminating new methodologies.

In contrast, temporary/permanent dual use retaining walls are widely used outside of Japan, regardless of whether they are steel or RC. However, like in Japan, steel-RC composite retaining walls are not common. In general, steel walls and RC walls are used alone, not as composites. If steel walls are covered with concrete liner walls, these concrete liners are normally non-structural members and applied for cosmetic reasons. Therefore, the design and construction guidelines of composite retaining walls also need to be standardized outside of Japan.

Needless to say, if a temporary retaining wall and a permanent substructure are composited, not only the stiffness of the completed substructure can be increased, but also both the structural performance and functions of the substructure can be compatible. In addition to structural optimization, the retaining wall material product range will be broadened and retaining wall material supply chain will be improved. We expect that the composite retaining wall structure will be recognized around the world.

REFERENCE

Kisoko Vol.46, No10, 2018.10

Report

IPA Board Meeting 2024 in Singapore

IPA Secretariat

The IPA Board Meeting on July 2nd 2024 was held in Singapore, with 23 directors participating in person and 4 directors submitted proxies, exceeding the quorum (Photo 1). The meeting began with a greeting from President Leung, who welcomed all attendees and introduced the ICPE2024 meeting which will be held on the next day of the Board meeting. He also mentioned the changeover in the IPA leadership. He will become the Immediate Past President, and the new president will be confirmed today.

Photo 1 Group photo

At the Board meeting, important matters related to the operation of the IPA were proposed, confirmed and approved, such as the appointment of a new president, vice presidents for FY2024-2025, the appointment and approval of Executive Director, the appointment of chairs and vice co-chairs of each Standing Committee, the confirmation of members, and the establishment of the Steering Committee. In addition, as a report item, the Chairs of each standing committee explained the activity plan for this year, and the information on the preparation status of ICPE2024 was shared with the members by Prof. Leung. Finally, the new President Prof. Gavin announced the next ICPE2027 will be held in the Netherlands. He acknowledged the challenge of organizing the conference in a region where the press-in piling industry is less established compared to Japan. He emphasized the need for the committee to gather suggestions, ideas, and mobilize people, particularly young participants, to ensure the conference's success (Photo 2). Following the Board meeting, each Standing Committee meeting was held to discuss this year's activity plan and specific measures.

Photo 2 New President Prof. Gavin introduced the next ICPE2027

After the Board Meeting, all directors visited the ICPE2024 Venue and National University of Singapore (NUS) New Centrifuge Laboratory (Photo 3 and Photo 4).

Photo 3 NUS New Centrifuge Laboratory

Photo 4 NUS New Centrifuge Laboratory

Event Report

Third International Conference on Press-in Engineering (ICPE2024) Held in Singapore

The International Press-in Association (IPA) is an academic organization founded in 2007 with the aim of scientifically elucidating and promoting press-in piling technologies for static penetration of steel sheet piles and piles into the ground. As of the end of June 2024, the IPA comprises 731 individual members and 48 corporate members from international entities. Japan has been leading the activities, hosting the first International Conference on Press-in Engineering in Kochi in 2018 and the second conference in Tokyo (online) in 2021.

The Third International Conference on Press-in Engineering (ICPE2024) was held from July 3 to 5, 2024, at the National University of Singapore (NUS). Organized by the IPA and co-organized by NUS, the Geotechnical Society of Singapore (GeoSS), and the Tunneling and Underground Construction Society Singapore (TUCSS), ICPE2024 focused on the theme "The Superiority of Press-in Piling towards Sustainable Construction in Tackling Climate Change for Infrastructure Development."

Under the theme "The Superiority of Press-in Piling towards Sustainable Construction in Tackling Climate Change for Infrastructure Development," ICPE2024 attracted 208 leading researchers and engineers in press-in engineering from 17 countries and regions, based on 64 general paper submissions. The conference featured keynote lectures, theme lectures, presentations across various fields, and a press-in piling live demonstration. The conference facilitated vigorous discussions and Q&A sessions, where challenges for sustainable development, the latest technologies, and research outcomes in press-in engineering were shared. These interactions provided valuable exchanges of opinions aimed at the future development of press-in engineering.

ICPE2024 provided a valuable opportunity for researchers and engineers in press-in engineering from around the world to gather, share the latest technologies and research achievements, and significantly contribute to the advancement of press-in engineering.

Conference Program

Opening Ceremony:

At the opening ceremony, Professor Chun Fai Leung of the National University of Singapore (NUS), Chair of the ICPE2024 Organizing Committee, spoke about the history and significance of the conference. He expressed his delight that the third conference was being held outside of Japan for the first time and welcomed participants from various regions, emphasizing the conference's important role in the international dissemination and development of press-in engineering.

Following his remarks, Dr. Jeyatharan Kumarasamy, Immediate Past President of TUCSS; Dr. Darren Chian, President of GeoSS; and Prof. Keh-Jian Shou, Vice President for Asia of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE), each gave addresses. They highlighted the evolution and successful case studies of press-in piling technology, the growing demand in urban environments, and the response to climate change and sustainability.


Prof. Chun Fai Leung


Dr. Jeyatharan Kumarasamy


Dr. Darren Chian


Prof. Keh-Jian Shou

ICPE Awards Ceremony:

Awards were presented to 15 winners in five categories, including the ICPE Best Paper Award for papers submitted to ICPE 2024.

•The ICPE Best Paper Award:	Mr. Ryuto Shikakura, Dr. S M Shafi, Dr. Kentaro Nakai Mr. Kazunori Toda, Mr. Kazuyuki Matsuzawa, Mr. Ram Krishna Mandal, Dr. Takeshi Yamazaki
•Outstanding Project Award:	City of Amsterdam, G-Kracht
•Distinguished Research Award:	Dr. Yukihiro Ishihara, Dr. Xi Xiong, Dr. Vijayakanthan Kunasegaram
•Life-long Contribution Award:	Dr. Osamu Kusakabe, Prof. Tatsunori Matsumoto
•Early Career Engineer Award:	Mr. Yusuke Mochida, Mr. Benjamin Bautista Buensuceso III

Keynote Lectures:
Two keynote lectures were delivered by distinguished scholars.

Keynote Lecture 1: **Shinobu Yume Yamaguchi** (Director, United Nations University Institute for the Advanced Study of Sustainability)
Keynote Lecture 2: **Kenneth Gavin** (Professor, Delft University of Technology, President, International Press-in Association)

Dr. Yamaguchi's lecture, titled "Progress of UN Sustainable Development Goals and the Synergy with Climate Change Actions," covered the current status of the SDGs, international efforts regarding climate change, the understanding of interrelated risks, and the implications and impacts of these issues.

Professor Gavin's lecture, titled "The Potential Use of Press-in Methods in the Offshore Renewables Industry," discussed the latest monopile design techniques, seabed modeling, and the handling of difficult soils for construction. He highlighted how press-in technology contributes to sustainable infrastructure development.


Keynote Lecture 1: Dr. Shinobu Yume Yamaguchi


Keynote Lecture 2: Prof. Kenneth Gavin

Theme Lectures and General Sessions:
ICPE 2024 featured presentations and questions from a wide range of perspectives.
In the theme session, Dr. Goh Teik Lim (Singapore), Mr. David Liaw (Singapore), and Mr. Tsunenobu Nozaki (Japan) gave presentations on the application of the press-in method in Southeast Asia, including Singapore. In the general session, a wide variety of topics were presented based on 64 papers submitted to ICPE, including the latest research results on press-in engineering and construction case studies.

Banquet:

On the evening of the first day of the conference, a banquet was held, attended by 175 participants who enjoyed a meal and exchanged ideas. During the banquet, commemorative plaques were presented to individuals and companies who contributed to ICPE2024, including the two keynote speakers, as a token of appreciation. The participants deepened their interactions in a relaxed atmosphere, making it a valuable opportunity to build future cooperative relationships.

Press-in Piling Live Demonstration:

On the third day of the conference, a press-in piling demonstration tour was held at the facilities of Guan Chuan Engineering Pte., Ltd., a sponsor company and a member of the ICPE2024 Organizing Committee. The demonstration featured the "GYRO PILERTM," introduced to Singapore for the first time last year by GIKEN LTD. of Japan. This press-in piling machine can install steel tubular piles through existing structures and underground obstacles. Additionally, two other machines were showcased: the "CRUSH PILERTM," which facilitates pile installation in hard ground such as sandy gravel and bedrock, and the "ZERO PILERTM," which allows for pile installation in close proximity to boundary lines and adjacent structures. Each machine's features were demonstrated, allowing attendees to observe the machines in action up close. This provided a deeper understanding of the technology and enabled participants to gain further specific knowledge through questions and answers.

Industry Collaboration Meeting:
On the afternoon of the second day of the conference, an informal industry collaboration meeting was held for the sponsor companies of ICPE2024, specifically involving press-in piling companies. The advancement of press-in engineering and the future expansion of press-in piling technology require collaboration between academia, industry, and government. Taking advantage of the ICPE opportunity, this session was organized to foster open dialogue from the perspective of press-in piling practitioners, explore the possibilities of building industry networks, and consider frameworks like Japan Press-in Association (JPA). Discussions covered not only the needs for the education and certification of press-in piling machine operators but also the possibilities for collaboration from a sustainability perspective.

Inauguration of the New IPA President and the Next ICPE Venue:
At the IPA Board Meeting held the day before ICPE2024, Professor Kenneth Gavin of Delft University of Technology in the Netherlands was inaugurated as the new President of the International Press-in Association (IPA). The next ICPE is planned to be held in the Netherlands in 2027.

[Supplementation]

Overview of the International Press-in Association (IPA):

The International Press-in Association (IPA) is a global academic organization dedicated to advancing "Press-in Engineering," a field that integrates geotechnical engineering, environmental engineering, mechanical engineering, measuring-surveying-monitoring engineering, and data and information processing. The IPA aims to combine theory and practice through industry-academia-government collaboration to elucidate the mechanisms of interaction between the ground and structures.

Since its establishment in 2007, the IPA has organized international conferences and workshops, published and awarded academic papers, and issued guidelines for press-in method design and construction as well as case studies of press-in piling technology applications. Particularly, the IPA has contributed to the advancement and dissemination of press-in piling technology by forming and maintaining an international network of academic interest in press-in piling technology, collecting and disseminating technical information, and providing venues for presenting research results and case studies.

Third International Conference on Press-in Engineering (ICPE2024) Conference Information

Organizers: - ICPE2024 Organizing Committee
- International Press-in Association (IPA)

Co-organizers: - Centre for Soft Ground Engineering, National University of Singapore (NUS)
- Geotechnical Society of Singapore (GeoSS)
- Tunneling and Underground Construction Society, Singapore (TUCSS)

Support: - The Asian Civil Engineering Coordinating Council (ACECC)

Sponsors: 17 companies from 6 countries/regions (listed in alphabetical order)

Platinum Sponsor: GIKEN LTD.

Gold Sponsors: Atsunew Giken Pte. Ltd./Oriental Castle
CHUEN CHANG ENTERPRISE CO.,LTD.
GIKEN SEKO CO., LTD.
GUAN CHUAN ENGINEERING CONSTRUCTION PTE LTD
JFE Steel Corporation
NIPPON STEEL CORPORATION
SATO JUKI Corporation/ENFIVE PTE. LTD.

Sliver Sponsors: Daesan Civil Technology
Kiso-Jiban Consultants Co., Ltd.
THAI FULLMORE CO.,LTD.

Bronze Sponsors: FUCHI Pte Ltd
JIAN MAN CONSTRUCTION PTE LTD
KAKUTO CORPORATION
Mlion Corporation Pte Ltd
Nippon Chemical Paint Co., Ltd.
Ozawa Civil Engineering and Construction Co.Ltd.

Young Members Column

Empirical Methods for Predicting Precast Jacked Pile Capacity – Case Studies in the Philippines

Benjamin B. Buensuceso III

MSCE, Managing Director
BRB Solutions Inc.

This paper details case studies of precast jacked piles tested with high-strain dynamic load pile tests in the Philippines. The study explores the relationship between pile slenderness ratio (L/D), ultimate capacity, and final jacking force (P_{jack}). It also evaluates empirical lower-bound predictions of capacity that utilize slenderness ratio and P_{jack}, and proposes lower-bound formulas more suitable for the collected data. 135 jacked, square, precast piles with slenderness ratios from 5 to 64 are included. The piles were installed using hydraulic static pile drivers that utilize dead weights for a reaction force, with the P_{jack} applied ranging from 132.5 to 378 tons.

The ratio of an ultimate capacity to P_{jack}, also known as pressure ratio, was found to be a function of the slenderness ratio. Pressure ratios generally exceeded 1.0 for piles with slenderness ratios above 30, as seen in Fig. 1. This increase in pressure ratios for more slender piles is likely due to the greater dependence of these longer piles on skin resistance, with long-term skin friction being significantly greater than the friction at the end of jacking.

Cases of pressure ratios below 1.0 were observed for L/D < 30. Zhang et al. (2006) hypothesized that the toe resistance mobilized for these lower slenderness piles estimated in load tests was less than the resistance mobilized during pile jacking. For lower slenderness piles with pressure ratios closer to or above 1.0 observed, may have had similar toe resistances during the load test and during installation, accompanied by some shaft resistance increase.

Actual pressure ratios and ultimate capacities were compared to two previously established empirical predictions from Zhang et al. (2006) and AS-2159 (2009). All 135 jacked piles had actual pressure ratios above the 95% confidence line predicted by Zhang et al. (2006), even when piles with relatively small sets during the dynamic load test (<2 mm needed for good correlations with static load test capacity estimates) are included. Furthermore, 125 of the 135 (93%) jacked piles in the case studies had actual capacities above a predicted geotechnical ultimate capacity (R_{UG}) from AS-2159, which was obtained using the final jacking force P_{jack} and empirical coefficients of jacking pressure (g_p).

Finally, two new lower-bound pressure ratio formulas that are a function of slenderness are proposed, particularly to deal with low-slenderness piles that cannot be adequately modeled by Zhang et al. (2006), which predicts negative pressure ratios for L/D < 10. These new lower-bound functions are presented in Equations 1 and 2 and are graphically illustrated in Fig. 1.

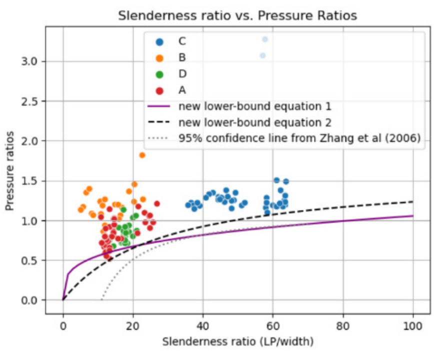

Fig 1. Alternative lower-bound formulas proposed for four cases studies

$$\alpha = 0.298\ (L/D)^{0.28} \tag{1}$$

$$g_2 = \alpha = \frac{x}{18.188+0.631x} \tag{2}$$

Announcement

Notice of Change in President, Vice Presidents, and Executive Director

We announce that the IPA Board of Directors meeting held on 2 July 2024, following the resolutions adopted at the Ordinary General Assembly 2024 held from 13-24 May 2024, has elected the President, Vice Presidents, and Executive Director for the 2024-2025 term.

New Organization:

- President: **Prof. Kenneth Gavin** - Newly Appointed (Professor, Delft University of Technology, Netherlands)
- Vice President: **Dr. Jiro Takemura** - Newly Appointed (Technical advisor, TAKEMURA INDUSTRY Co.,Ltd., Japan)
- Vice President: **Prof. Mounir Bouassida** - Newly Appointed (University of Tunis El Manar - National Engineering of School of Tunis, Tunisia)
- Vice President: **Dr. Andrew McNamara** - Reappointed (Senior Lecturer, City, University London, United Kingdom)
- Vice President: **Dr. Ramin Motamed** - Newly Appointed (Professor, University of Nevada Reno, United States)
- Vice President: **Dr. Nor Azizi Bin Yusoff** - Current (Senior Lecturer, Universiti Tun Hussein Onn Malaysia (UTHM), Malaysia)*Dr. Nor Azizi Bin Yusoff is currently in his second year as Vice President for the 2023- 2024 term
- Executive Director: **Dr. Osamu Kusakabe** - Reappointed (Professor Emeritus, Tokyo Institute of Technology, Japan)

※ For more positions, please visit the following website:

▼▼ URL ▼▼
https://www.press-in.org/en/page/organization

Publication of the "IPA Terminology Database on Press-in Engineering"

We are pleased to announce that the International Press-in Association (IPA) has compiled and is now publicly releasing the "IPA Terminology Database on Press-in Engineering."

This terminology database aims to deepen the understanding of press-in engineering and facilitate information exchange and knowledge sharing among stakeholders. Currently, it is available in English and Japanese, but we plan to expand its content and include multilingual support in the future. We welcome suggestions for new terms, updates to existing ones, and improvements to usability.

We hope that this glossary database will become a valuable resource for everyone involved in press-in engineering, supporting understanding and knowledge exchange in the field.

Please refer to the following URL to download the Terminology Database:

https://www.press-in.org/en/publication/index/1

Event Diary

Title	Date	Venue
IPA Events https://www.press-in.org/en/event		
IPA Press-in Seminar 2024 in Kanazawa	9 October 2024	Kanazawa, Japan
International Society for Soil Mechanics and Geotechnical Engineering http://www.issmge.org/events		
77th Canadian Geotechnical Conference and the 16th Joint CGS/IAH-CNC Groundwater Conference	15-18 September 2024	Montreal, Canada
Nordic Geotechnical Meeting - NGM 2024	18-20 September 2024	Göteborg, Sweden
IS-Grenoble 2024: International Symposium on Geomechanics from Micro to Macro	23-28 September 2024	Grenoble, France
The 4th International Symposium on Risk Assessment and Sustainable Stability Design of Slopes (ISRASSDS-Toronto 2024)	29 September -04 October 2024	Toronto, Canada
5th European Conference on Physical Modelling in Geotechnics	2-4 October 2024	Delft, Netherlands
XVIII AFRICAN REGIONAL CONFERENCE ON SOIL MECHANICS AND GEOTECHNICAL ENGINEERING	6-9 October 2024	Algiers, Algeria
10th ASIAN YOUNG GEOTECHNICAL ENGINEERS CONFERENCE PERTEMUAN ILMIAH TAHUNAN HATTI XXVIII	11-14 November 2024	Indonesia, Jakarta
The 2nd GeoMandu: Geotechnics for Sustainable Infrastructures	28-29 November 2024	Kathmandu, Nepal
Deep Foundations Institute https://www.dfi.org/events/		
DFI-India 2024: 13th Annual Conference	19-21 September 2024	Panaji, Goa, India
DFI 49th Annual Conference on Deep Foundations	7-10 October 2024	Aurora, Colorado

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Editorial Remarks from persons in charge

A warm welcome to the September 2024 IPA Newsletter (Vol. 9, Issue 3). Through the newsletter, the IPA continues to promote resilience and sustainability-led agendas by encouraging and facilitating research on Press-in Engineering as well as disseminate information on IPA activities. This issue immediately follows the 3rd International Conference on Press-in Engineering (ICPE2024) held from 3-5 July 2024 at the National University of Singapore (NUS). We extend our congratulations and appreciation to everyone involved in organizing ICPE2024 for a very successful conference.

Included in this issue of the Newsletter are articles on the use of the Rapid Load Test (RLT) applied to Steel Pipe Piles installed using the Gyropress Method and the development of empirical methods for predicting the axial capacity of pushed-in precast concrete piles based on test data obtained in the Philippines, and an interview report with the Takenaka Corporation. Also contained in this issue are messages from the Immediate Past President Prof. Leung Chun Fai, New President Prof. Kenneth G. Gavin, and New IPA Director Prof. Marwan Shahin.

On behalf of the Editorial Board, we would like express our gratitude to everyone involved with preparing this edition.

Mark Albert H. Zarco

Jignasha Panchal

Michael Doubrovsky