

## Report

### Site Visit on the Keihin Canal Seawall heled by TC1

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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 Gyopress 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