

**Proposal of Seismic Design Method of the Reinforcement of the Existing Pile Foundations
by Installing Sheet Piles around Footing and Connecting them Together in the Liquefied Ground**

Kazuhide TODA Taisuke SANAGAWA Hidetoshi NISHIOKA
Shunichi HIGUCHI Kosuke MATSUURA
Shinji TAENAKA Kazutaka OTSUSHI

If the liquefaction has occurred during an earthquake, it may cause severe damage to the foundation structures. Since the existing reinforcement method requires significant widening of footing size, and the execution of the reinforcement work is difficult, in case the peripheral structure exists closely. Therefore, in this study, we examined the applicability of the Sheet-Pile reinforcement method which can be executed with a slight foot widening and excellent economy. The reinforcing effect was verified by the model experiment, and further the validity of 2D beam-spring system as a numerical analysis model was confirmed, Sheet-pile foundation was designed based on these results, and it was confirmed that the proposal method is more economical than the existing reinforcement method (Additional Pile System).