Seismic Reinforcement Method for Existing Pile Foundations by Installing Sheet Piles around Footing and Connecting them Together

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Many old foundations, which need to be reinforced because of being poor in seismic performance, are still in use. Seismic performance of these old existing foundations could be improved by installing sheet piles around footing and connecting them together. Based on this idea, the authors have proposed a new seismic reinforcing method. The following outcomes have been found out. (1) Reduction in the sectional force of the existing pile has been confirmed by adopting the proposed method. This improvement can be expected not only at pile cap, but also at the position deeper than sheet pile depth. (2) Subgrade reaction of the existing pile may be reduced because the sheet pile installed around the footing mainly bears lateral reaction force acting on the foundation replacing piles.