Proposal of High-stability Countermeasures Against Construction of Widening of Embankments on Soft Ground

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The improvement rate of the countermeasures adopted in constructing the second track on the embankment on soft ground is determined empirically due to unknown factors such as deformation properties of soft ground. In this study, centrifuge model tests were performed to grasp deformation properties of soft ground for such construction case mentioned above and to propose a high-stability countermeasure. Based on the test result, we have proposed a new countermeasure having high horizontal support performance, which combine the deep mixing wall type ground improvement and cement-mixed gravel. The proposed method having the same improvement rate as deep mixing has been confirmed able to reduce deformation of the embankment and the surrounding ground. Furthermore, we have proposed a design method of the proposed countermeasure and shown that the design method makes possible to determine improvement rate to meet the required performance and the ground condition.