

Performance Evaluation of Reinforced Concrete Roadbed on Clay Subgrade

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A high bearing capacity is essential for subgrade to avoid excessive settlement upon constructing slab tracks on earth structures. However, soft diluvial clay layer was visible on a route under planning of a Tohoku-Shinkansen line adjacent to a local town named Shichinohe, and a double-line-integrated reinforced concrete roadbed was developed. We carried out detailed ground investigations to construct slab track on the soft diluvial clay to evaluate the performance of the concrete roadbed. We further carried out on-site cyclic loading tests with application of vibration exciting machinery. Based on the foregoing results, the authors carried out FEM analysis to evaluate deformation characteristics of the concrete roadbed. It was clear that the double-line-integrated reinforced concrete roadbed was able to support properly slab track on the soft diluvial clay subgrade.