

Compression tests of geogrid reinforced soil

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Abstract

The compressive behavior of Ottawa sand mass reinforced with a horizontally placed PET geogrid layer is studied by using a large-scale plane strain compression device. The geogrid and soil composite are subjected to vertical load and horizontal confining pressure through rigid platens. This study presents the test device, test material, test set-up and data acquisition. A large-scale direct shear test is conducted on several interfaces to determine the appropriate one that is placed between test specimen and device to reduce the boundary influence. The repeatability of the test device is also verified. A series of compression tests using varying test material and test condition are conducted. Through the comparison of compression behavior of pure sand and reinforcement composite, it is found that the inclusion of geogrid is effective in increasing the strength and ductility of composite.

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