

Dynamic Deformation Properties of Geotextile-Reinforced Sands

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Abstract - Resonant column and hollow cylinder torsional shear tests were carried out on geotextile-reinforced sand to investigate shear modulus and damping characteristics of the reinforced sands. The tests were carried out on unreinforced and reinforced specimens with 2, 3 and 4 geotextile sheets under various confining pressures. Test results show that geotextile makes sand stiffer, in such a manner that shear modulus increases with number of geotextile sheets. A power function can describe increase of maximum shear modulus with confining pressure and number of geotextile sheets. On the other hand, damping ratio increases with number of geotextile sheets, and decreases with confining pressure. In addition, scale effect is investigated by extrapolating the lab results to in-situ conditions.

Keywords: Geotextile, Sand, Shear Modulus, Damping Ratio, Scale Effect.