

# **FINITE ELEMENT ANALYSIS OF GEOTEXTILE TUBES**

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(ABSTRACT)

The three-dimensional behavior of geotextile tubes is studied using finite element modeling. Two initial shapes are investigated, one with a flat length-to-width ratio of 2:1 and the other with a flat length-to-width ratio of 5:1. The tubes are modeled resting on elastic foundations. For each initial shape, the elastic foundation is modeled using two different stiffnesses; one allows a minimum amount of “sinking” into the foundation and the other allows a considerable amount. The weight of the geotextile is included. Hydrostatic pressure is applied internally to each initially flat tube to model the pumped slurry. The shape of the tube is studied along with the contact region between the tube and its foundation, the stresses which develop in the geotextile along the planes of symmetry, and the relationship between the height of the tube and the amount of applied hydrostatic pressure.