

Effect of Elastic Modulus Varieties on Helical Pile Behavior in Sand

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Abstract : The compressive and tensile bearing capacity of helical piles in sand is investigated by means of numerical modeling. The analyses are carried out using two-dimensional finite-element software, Optum G2. The load-displacement behavior under compression and tension is compared in different relative densities for constant and various elastic modulus. The criterion used to find the ultimate axial load is the load corresponding to 5% of the helical diameter. The results show that relative density of sand plays an essential role in the response of ultimate capacities towards various condition. Increase in elastic modulus with depth is found to play a relatively more significant role to the increase in ultimate compressive load capacities, however tension bearing capacity decreases.

Keywords : helical piles, Optum G2, relative density, constant and various elastic modulus

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