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Improvement of Bearing Capacity of Soft Clay Using Geo-Cells

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Abstract : Soft clayey soil possesses poor bearing capacity and high compressibility because of which foundations cannot be directly placed over soft clay. Normally pile foundations are constructed to carry the load through the soft soil up to the hard stratum below. Pile construction is costly and time consuming. In order to increase the properties of soft clay, many ground improvement techniques like stone column, preloading with and without sand drains/band drains, etc. are in vogue. Time is a constraint for successful application of these improvement techniques. Another way to improve the bearing capacity of soft clay and to reduce the settlement possibility is to apply geocells below the foundation. The geocells impart rigidity to the foundation soil, reduce the net load intensity on soil and thus reduce the compressibility. A well designed geocell reinforced soil may replace the pile foundation. The present paper deals with the applicability of geocells on improvement of the bearing capacity. It is observed that a properly designed geocell may increase the bearing capacity of soft clay up to two and a half times.

Keywords : bearing capacity, geo-cell, ground improvement, soft clay
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