

POSSIBILITY OF CDW IN STONE COLUMN TO IMPROVE BEARING CAPACITY OF CLAYEY SOIL

Name of Student : Kulvir Singh Mangat (1312127)

Deptt. : Geotech.

Guide : J. N. Jha & P. Garg

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ABSTRACT

Bearing capacity of the soil is very important factor in the engineering, as the construction of the structures depend on the foundations, type of foundations are decided after the evaluation of bearing capacity of soil. it is very significant to improve the bearing capacity of problematic soil like clay soil has low bearing capacity, hence the soil needs improvement for the construction of structures which can done in different ways like piles, caissons and piers and stone columns. Normally the natural aggregates used in stone columns, here in this study the possibility of concrete demolition waste(CDW) in stone columns in place of natural aggregates was determined whether it can be used or not. If it can be used then the problem of management of the concrete demolition waste could be solved up to some extent.

In this present study inorganic clay soil of medium plasticity was used for the possibility of CDW in stone columns. Soil was taken from the village Lohatbaddi distt. Ludhiana, Punjab. CDW passing from sieve of 5.6 mm was collected from the demolition of waste cubes in concrete laboratory of Guru Nanak Dev Engg. College Ludhiana Punjab. In present work of study the possibility of concrete demolition waste was checked by varying the length to diameter(L/D) ratios of the stone column in the Soil lab. of Guru Nanak Dev Engg. College Ludhiana Punjab. The study was attempt to improve the bearing capacity of soil by using CDW in stone columns at various L/D ratios of 3, 6 & 10. The number of columns were also varied from 1 to 5 for all L/D ratios of 3, 6 & 10. Bearing capacity for the L/D=6 observed was maximum as it was the optimum value for the L/D, so for this L/D ratio the columns encased by geogrid were also tested, which depicts improvement in the bearing capacity of the clayey soil, the bearing capacity was increased with increase in number of columns whether it is encased or uncased.