Soil Stabilization Using Chemical Additive: An Experimental Approach (93-EL-200)(Soil Mech. & Found. Engg)

ABSTRACT

Soil stabilization is a process of altering properties of soil with the aim of improving its strength and durability for the construction of pavement.. A number of techniques are used for soil stabilization, mainly by using additives.

Global Engineering technology has, however, offered modern chemical solutions to the problem. Most of the modern chemical techniques used for soil stabilization are non-toxic and cost effective. PROTECTA RGS-300, a chemical accredited by IRC meets such standards. PROTECTA RGS-300 was used in the experimental study named SOIL STABILIZATION USING CHEMICAL ADDITIVE: AN EXPERIMENTAL APPROACH carried on at Makarorh Sahib, Moonak, Distt. Sangrur,Punjab

The purpose of the study was to study the effects of PROTECTA RGS-300 on MDD and Atterberg's limits, to study the effect of PROTECTA RGS-300 on C.B.R. value and the cost analysis using PROTECTA RGS-300 in the pavement construction.

The study was carried out in two phases; one, the experimental work, and two, the analysis of results.

In the first phase comprising the experimental work consisted of BIS classification, Grain size analysis, Atterberg's limits determination, moisture content, dry density and CBR value. The results were: OMC decreased from 13.1% to 12.9 %, MDD increased from 1.92 g/cm3 to 1.95 g/cm3 of the soil, soaked C.B.R. value of soil sample increased from 4.% to 6.% with the use of chemical PROTECTA RGS-300. The Chemical analysis of PROTEKTA RGS-300 was got done from Sophisticated Analytical Instrumentation Facility Punjab University, Chandigarh.

In the second phase, it was noted that soaked C.B.R. value of soil sample increases from 4% to 6% with the use of chemical PROTECTA RGS-300. As per IRC 37, if C.B.R. value increases from 4% to 6%, the pavement thickness reduces from 560mm to 470mm. The resulting 90mm reduction in pavement thickness brings large savings in aggregate consumption and transportation. Hence, natural resources are conserved, making the technique environment friendly.

The cost benefit analysis shows saving of Rs.6.25 lacs per km for the construction of 5.50m new road by using this chemical. Thus, it will save the nation from financial burden.

It is suggested that consolidation characteristics of clay soil may be studied after adding Use of chemical PROTECTA RGS-300. The effect of the chemical on permeability of soil may also be studied in future.

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