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EFFECT OF FLY ASH ON SOIL SUBGRADE STABILIZATION

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ABSTRACT : Soil stabilization has been found to be very effective in upgrading the bearing capacity of weak soil subgrade. The stabilizing agent, for cost efficiency, ought to provide a cheaper alternative to other possible processes. With the rapid industrialization efforts around the globe, enormous quantities of waste materials are generated and there has not been adequate mechanism for recycling and re-use of such wastes to reduce the consequent environmental problems and hazardous situations created as a result. The objective of the study is to upgrade subgrade soilfrom generally available in Haryana State using fly ash. The laboratory investigation carried out on the natural soils shows that these falls under silt of low plasticity (ML type) and silty sand (SM types) using Indian Standard Classification System, after that testing program conducted on natural soil samples and mixed with different percentages of fly ash included Atterberg limits, specific gravity, modified proctor test and CBR test. It was found that liquid limit of both soil decreased with addition of fly ashand plasticity index of ML type soil decreased also but SM type is a non-plastic soil. The results obtained show that the increase in fly ash content increase in OMC but decrease the MDD. Also, the CBR value of both soils is considerably improved with fly ash content. So in order to achieve both the need of improving the properties of soil subgrade and also to make use of the industrial wastes the present experimental study has been taken up.

Keywords: Materials, Fly Ash and Soil Stabilization.

1 INTRODUCTION

1.1 General

An extensive and good quality road network is one of the majorparameters for the development of a country's social and economic condition. The basic necessity for a good quality road structure is good and strong subgrade over which the road is constructed.But in many parts of the country, the sub-soil is of poor quality due to low strength and high compressibility. So there is a necessity for improving properties of soil subgrade which can improve the bearing strength of the subgrade soil by using admixtures like fly ash and lime etc. With the ever increasing demand and consumption of cement and in the backdrop of waste management, scientists and researchers all over the world are always in quest for developing alternate binders that are environment friendly and contribute towards sustainable management. Fly ash which is an industrial waste can be used as a stabilizer.