

VISHVESVARAYA TECHNOLOGICAL UNIVERSITY,

BELGAUM-590014



A project report on

SOIL STABILISATION BY LIQUID POLYMER

A project report submitted in partial fulfillment of the requirement for the award of degree of

CIVIL ENGINEERING

Approved by

**KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
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(An Autonomous Institution Affiliated to VTU, Belgaum)

SYNOPSIS

Infrastructure in India is progressing at a very fast pace. Due to expensive construction activities in the last decade, it has become quite difficult to find land having suitable soil properties at the desired Locations. Hence, it has become necessary to make use of the available land even with the poor soil Condition for the constructions. Long term performance of the pavement often depends on the Stability of the underlying soil. Thus, soil stabilization becomes increasingly important the strength and load bearing capacity of weak soil. The twin city of Hubli- Dharwad has nearly 50% of its area under corporation limits covered with the black cotton soils and also Black cotton soil is abundantly encountered in the area of North Karnataka in the district of Bijapur, Belgaum and Gulbarga.

The black cotton soil is loose soft and uncompressible soil. It considerably swells and shrinks due to variation in water content. These are typical formation generally found in poorly drained localities, where there are wet and dry seasons. Black cotton soils are highly expansive, sticky have great affinity and have very high swelling and shrinkage characteristics. Therefore the structures on Black Cotton soil experience large scale damages.

In this project an attempt is made to study the geotechnical properties of Black cotton and Red soil in Hubli region, check the suitability latest stabilizer (RBI grade-81), find the locally available stabilizer (Liquid polymer) which is superior than the latest stabilizer and also total chemical analysis of soil is done before and after the stabilization to know the possible reason for increases in the engineering performance of soil.

In this project an attempt is made to design the highway on natural Black cotton soil crust, RBI stabilized crust and Liquid polymer stabilized crust. Estimation and comparison of cost is done to show the suitability of newly identified locally available stabilizer (Epoxy resin).