VISVESVARAYA TECHNOLOGICL UNIVERSITY,

BELAGAVI

A PROJECT REPORT ON

ANALYSIS AND EXPERIMENTAL STUDY ON EFFECT OF SOIL MOISTURE PATTERN AND INFILTRATION RATE OF SURFACE WATER STORAGE

Submitted in partial fulfilment for the award of Degree of,

BACHELOR OF ENGINEERING

In

CIVIL ENGINEERING

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CERTIFICATE

Certified that the project work entitled **"ANALYSIS AND EXPERIMENTAL STUDY ON EFFECT OF SOIL MOISTURE PATTERN AND INFILTRATION RATE OF SURFACE WATER STORAGE"** has been successfully completed by

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The bonafide students of Department of Civil Engineering ,Alva's Institute of Engineering and Technology in partial fulfilment for the award of BACHELOR OF ENGINEERING in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2021. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of seminar work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

The soil moisture content quickly reached a saturated state and presented a stable infiltration situation under the action of gravity and the gradient of soil water suction. As the initial moisture content increases, the initial infiltration rate decreases and the time to reach a stable infiltration rate becomes shorter. The drier the soil, the greater the initial infiltration rate and the higher the soil moisture content after infiltration stabilization. Permeable roads can greatly alleviate the pressure of urban drainage and reduce the risk of storms and floods.

Infiltration is a fundamental hydrological process, which determines the rate of runoff generation in an area. The present experimental work aims to determine the infiltration rate and discuss the various general physical parameters affecting on it. The special focus of the study has to identify the site suitability for application of direct surface recharge method. The single ring flooding infiltrometer has been used and quantitative determination of the infiltration rates has been made. For different seven sample locations, four field sites each have been taken to check the rate of infiltration on the basis of experimental work. For actual micro site selection for experiments, it has been considered all basic concerned aspects like slope of the surface land, thickness of the soil, percentage of sand, silt and clay in the soil etc. The average rate of infiltration varies between 2.65 and 6.73 cm/hrs. The range of maximum and minimum infiltration rate has been observed between 3.73 and 10.91 cm/hrs and 1.25 and 3.97 cm/hrs respectively. The rate of infiltration becomes more or less constant or showing rapid decline after completing an average period of 100 minutes. It has also observed that the rate of infiltration varies with time at an individual spot. It has concluded that four out of seven locations have strong potential, particularly for recharge variable method, which is one of the cost-effective and suitable artificial water recharge method. Rest of sites should go with other suitable artificial recharge method only.