

EFFECT OF PLATE LOAD TEST CURVE SHAPE ON MODULUS OF SUBGRADE REACTION OF COMPACTED SUBBASE SOIL

Zuhair Kadhim JahanGer, M. Sc (C.E.) * Dr. Azad Abbas Ahmed, Ph. D (C. E.) **
Qais Kadhim JahanGer, M. Sc (C.E.)

Abstract

The pressure-settlement test curves which obtain from nine (9) field sites of fifty one (51) plate load tests with dimensions of (50.46 cm diameter , 2.5 cm thickness), carried out on silty clay soil stratum ,as well as on compacted sub base soil layer with different thickness varies between 75 cm up to 200 cm , are discussed in this research. These field tests provide an opportunity to examine the applicability of existing theories on the shape of pressure –settlement curves obtained from plate load test on compacted sub base soil layers up on achieving 95 % relative compaction or more, and their effect on determination of modulus of subgrade reaction. The shape of pressure-settlement curve for plate load test on compacted sub-base soil layer (with relative compaction exceeding 95%), are concave up, which reflects the fact that the modulus of the sub-grade reaction increases with increment of applied pressure. Oppositely, for the cohesive soils, the curve would concaves down with the increment of applied pressure, indicating a significant deterioration in the modulus of sub-grade reaction magnitude. The settlement did not exceed 12.5mm during the plate load tests process on the compacted sub base soils loaded to 250 kPa stresses in the test. This is due to the densifications state in the tested soil as a result of the development of thick shear layer below the testing plate which in return reduces the account of settlement, pushing the unsaturated tested soil to behave in a brittle-like manner.