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COMPARATIVE STUDY OF CONVENTIONAL RETAINING WALL AND MECHANICALLY STABILIZED EARTH WALL USING PLAXIS 2D

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Abstract: ***Mechanically Stabilized Earth (MSE) wall system is retention system used for highway design. In conventional system, cast in place concrete structure is used that cannot accommodate significant differential settlement especially with poor sub-grade condition. MSE wall systems are economical earth retaining structure which can tolerate more settlement over traditional retaining wall systems. The comparative study between MSE wall and conventional retaining wall is done using geotechnical software 'PLAXIS 2D'. The simulation models of conventional and MSE retaining walls subjected to conditions of no surcharge as well as variable surcharge both in at rest and active state are created and analyzed using Plaxis 2D software. The comparative study of models of both types is done by creating and studying total stress, effective stress, deformed shape, variation in stress at different point, shear force and bending moment. The performance of conventional and MSE wall is evaluated to identify their suitability for the purpose of retaining soil in location having differential settlement. The results obtained from simulation are also supported with manual calculation for the above said conditions. The aim of the study is to predict the behavior of both the type of retaining walls under different loading condition which will further help to choose the appropriate type of wall among the above two walls.***

Keyword-MSE, CRE, PLAXIS2D.