

Paper (1)

Effect of Random Variability of Elastic Modulus on the Ground Subsidence Due To Dewatering: Stochastic Study

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ABSTRACT

Before construction of any underground project, the hydraulic conductivity (K) and modulus of elasticity (E) of the soil must be determined. Hydraulic conductivity, and modulus of elasticity, E, may exhibit variations from one point to another due to heterogeneity of soil. Thorough field measurements are expensive and therefore, a very limited number of readings are usually obtained. Few measurements do not give a complete picture of the existing natural variability in K and E. in the design procedure, either an average or a maximum magnitude of K is used.

Steps of study:

The first step in this research work is to calculate the piezometric heads using a mode developed using the programming language MATLAB. The second step in this research is to compute the piezometric heads with changing the K, creating the random values of T will be changed from the well to the other. The third step, compute the subsidence of ground surface by using model in the 2-D dimension. In this step, the K will be fixed and the E be changed for every well in the studying area by creating the random values by MONTE CARLO SIMULATION for the modulus of elasticity.