

عنوان مقاله:

Numerical Modeling of the Cement Mixes Injection In Soil

محل انتشار:

نخستین کنفرانس بهسازی زمین (سال: 1380)

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خلاصه مقاله:

Injection in engineering practice is still considered an art rather than a science. Therefore, its successful application requires a great deal of experience, thorough knowledge of geological conditions, and an awareness of equipment capabilities and limitations. The aim of this paper is the strategy followed in modeling the injection of cement mixes to improve the mechanical characteristics of insitue soil for higher strength and permeability. Injection is defined as the grouting of fluidized materials into voids of the ground or spaces between the ground and adjacent structure, generally through bore holes and under pressure. This paper describes a new approach to modeling injecting domain based on a non-darcian flow and theory of consolidation. The proposed model utilizes the variation of the coefficient of permeability with respect to distance to bore hole axis to achieve a non-Darcian flow characteristics below certain hydraulic gradients. The potential of the proposed model is evaluated in prediction the extension of grouting for a single injection bore hole. The general comparison indicates that this approach is capable of solving injection boundary value problems and predict the extension of each grouting bore hole. A simple rule based on the percentage of overlapping two domains affected by two side by side injections bores is led to carry out the effective thickness of insolated cut-off wall. Accordingly, the priority of first injection bore hole and the provided impermibility of corresponding domain and the interaction of the second domain with the previous have been considered. This simple rule can lead the solution to carry out an average effective thickness of insolated wall upon the proposed model

کلمات کلیدی:

Numerical Modeling, Injection, Grouting, Hydraulic gradient, Permeability, Non-Darcian flow

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