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Dilation Effect on 3D Passive Earth Pressure Coefficients for Retaining Wall

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Abstract : The 2D passive earth pressures acting on rigid retaining walls problem has been widely treated in the literature using different approaches (limit equilibrium, limit analysis, slip line and numerical computation), however, the 3D passive earth pressures problem has received less attention. This paper is concerned with the numerical study of 3D passive earth pressures induced by the translation of a rigid rough retaining wall for associated and non-associated soils. Using the explicit finite difference code FLAC3D, the increase of the passive earth pressures due to the decrease of the wall breadth is investigated. The results given by the present numerical analysis are compared with other investigation. The influence of the angle of dilation on the coefficients is also studied.

Keywords : numerical modeling, FLAC3D, retaining wall, passive earth pressures, angle of dilation
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