

Backward Erosion Piping through Vertically Layered Sands

Authors : K. Vandenboer, L. Dolphen, A. Bezuijen

Abstract : Backward erosion piping is an important failure mechanism for water-retaining structures, a phenomenon that results in the formation of shallow pipes at the interface of a sandy or silty foundation and a cohesive cover layer. This paper studies the effect of two soil types on backward erosion piping; both in case of a homogeneous sand layer, and in a vertically layered sand sample, where the pipe is forced to subsequently grow through the different layers. Two configurations with vertical sand layers are tested; they both result in wider pipes and higher critical gradients, thereby making this an interesting topic in research on measures to prevent backward erosion piping failures.

Keywords : backward erosion piping, embankments, physical modeling, sand

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