

Stability of Channel Slopes in Harris County, Texas

Ronald E. Langston, P. E.

Geotechnical Program Manager
Harris County Flood Control District (HCFCD), Houston, Texas 77092
Email: ron.langston@hcfcd.org

Abstract

The HCFCD is responsible for the design, construction, operation, and maintenance of flood control channels in Harris County, Texas. Slope failures occur at these channels resulting in an ongoing program to repair the failures. This presentation provides an evaluation of the mechanisms of these failures, weaknesses in currently used analytical methods to predict slope failures, and methods used for slope failure repair. One of the slope failure mechanisms that is a key contributor to the failures that occur, is the loss of shear strength with time in the expansive clays that are present in the county. The HCFCD has conducted numerous studies of slope failures and back-calculated failures in order to quantify the strength loss that occurs over time in these expansive clays. We are currently working on a program to develop a methodology for use by the engineering community in Harris County that will provide shear strength reduction factors for input into slope stability analytical models. It is hoped that the use of these strength reduction factors will improve the ability to predict slope failures in the county's expansive clays and thus reduce the costs of slope repairs.