

## SUBSURFACE CHARACTERIZATION OF A LEVEE SEGMENT

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There are numerous levees in the Mississippi Embayment area that protect adjacent land from frequent and pervasive flooding. Failure of levees cause severe economic and environmental damage, and must be closely monitored and periodically maintained. Failure potential within a short levee segment can be quantified if internal variations and their causes can be identified and incorporated into the geomechanical models. However, lengths of these linear structures make this mission impossible using conventional site investigation methods. This study aims to present a case study demonstrating how a combination of geophysical methods can be used to make the levee characterization as viable objective. For the purposes of this study, a short segment of the Coldwater River levee near Crenshaw, MS was selected as the application site. The geophysical methods utilized in the study include ground penetrating radar (GPR), seismic refraction and vertical electrical sounding (VES). These methods were employed to define the key internal features and flaws of the levee segment studied. The ground model constructed from these surveys was used as the basis for geomechanical modeling to determine the conditions under which the levee segment may experience failure, including seismic shaking and high groundwater levels.