

# Geotechnical Foundation Analysis



## BACKGROUND

Proposed projects that would alter or relocate any part of a levee may require foundation stability analysis. The analysis and report documenting the findings should be certified by a Professional Engineer and submitted to MCD.

## PROJECT REQUIREMENTS

### Geotechnical Exploration

Geotechnical/subsurface exploration, analysis, and documentation may be required to develop parameters for the embankment stability analysis and are the responsibility of the project owner.

### Stability Analysis

- Foundation analyses must be performed using OPF and effective FEMA base flood water surface elevations.
- Seepage evaluations should follow guidelines of U.S. Army Corps of Engineers ETL 1110-2-569, *Design Guidance for Levee Underseepage* (2005)
- Minimum factors of safety for analyzing the FEMA Base Flood are
  - Allowable Exit Gradients
    - At toe of levee – 0.5
    - At toe of seepage berm (150' beyond) – 0.8
  - Allowable factors of safety against piping
    - At toe – 2.0
    - 150' Beyond – 1.25
  - Allowable factors of safety against uplift/heave
    - Minimum 1.5
- OPF factors of safety will be project specific as determined by MCD.
- To achieve foundation stability requirements, additional measures including – but not limited to – soil modification, cut-off walls, toe berms, and toe drainage may be required.

## QUESTIONS

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