

Slope Stability

Civil Engineering

What holds a slope up, and what does not.

A slope stands while shear strength along a potential slip surface exceeds the shear stress driving it.

TYPICAL DESIGN FACTOR
1.3 to 1.5

OLD LANDSLIP IN CLAY
Use residual ϕ'

- Factor of safety is resisting over driving
- Rain raises pore pressure and cuts strength
- Rapid drawdown leaves pore pressure high
- Cutting the toe removes the resistance
- Loading the crest adds driving force
- Clay slopes creep long before they slide

LOOK FOR IT

A stable cutting fails after a wet winter: pore pressure changed, geometry did not.

Educational reference. Slope assessment needs ground investigation, monitoring and a qualified geotechnical engineer.