ODOT- SUM-271-8.02
Slope Failure Investigation
Summit County, Ohio

Project Description

Client:
ODOT District 4
Richland Engineering Limited
29 North Park Street
Mansfield, OH 44902-1769

Contact:
Mr. Dean A. Palmer PE
(419) 524-0074

Performance Period:
January 2003 to Sep 2003

Project Costs:
$192,305 (Fee)

PGI's Role:
Subsurface Exploration
Instrumentation

Pro Geotech, Inc. (PGI) was retained by Richland Engineering Limited (REL) to provide geotechnical engineering services for the design and construction of the Ohio Department of Transportation Project SUM-271-8.02 Project. Part of the project plans called for the investigation of two areas of suspected embankment slope instability along I-271 in Boston Township, Summit County, Ohio. The sites of suspected slope instability were located along the north side of the I-271 southbound embankment in the vicinity of Bridge SUM-271-8.02 Left. Also included were investigations of potential instability of slopes along the proposed temporary access roads under construction traffic loads. Our scope of services included advancing a total of 13 test borings. Nine (9) embankment slope test borings were advanced and inclinometers were installed on areas of suspected embankment slope instability along I-271. Open standpipe piezometers were installed at two locations. Four (4) access road test borings were advanced to an approximate depth of 25 feet each below the existing ground surface for access road design purposes. The laboratory testing program consisted of performing engineering properties tests on selected soil samples, classifying the soils in accordance with the ODOT Soil Classification System, and testing unconfined compression and consolidated undrained triaxial compression of soils. Inclinometer measurements were taken weekly using a Digitilt Datamate Slope Indicator and Inclinometer Sensor. Based on the slope stability analyses and plotted depth vs. cumulative displacement graph, it was determined that shallow failure existed at the slope. PGI prepared a geotechnical engineering report which included recommendations and discussions pertaining to improve the Safety Factor of the slopes by reconfiguration of the slope angle to increase the resistance force at the bottom of the slope, and installation of a new drainage system design to divert I-271 surface runoff safely down slope using a closed pipe system.