

# *Stearns Road Overpass*

## *Cuyahoga County, Ohio*

### ***Project Description***

Pro Geotech, Inc. (PGI) was retained by TranSystems Corporation to provide subsurface exploration services for the design and construction of the Stearns Road Overpass in Olmsted Township, Ohio. The project plan called for the grade separation of Stearns Road from the Norfolk Southern Railroad (NS) with an overpass. The subsurface exploration services were conducted in 2 phases. In the first phase, two alternative routes were selected to conduct a subsurface exploration to relocate the existing Stearns Road. In the second phase, additional exploration was performed along the selected preferred alternative route based on the preliminary study in Phase 1. The project plan called for construction of a three (3) span bridge with earth approach embankments and access roads. A total of 17 test borings; 15 in 2008 and two (2) in 2011 were advanced at the project site. Six (6) of these test borings were advanced for pavement design purposes. These six (6) roadway test borings were advanced to approximate depths ranging from 13.5 to 21.0 feet below the Stearns Road pavement. Six (6) test borings were advanced for structural design purposes.

These six (6) structural test borings were advanced to approximate depths ranging from 20.0 to 32.0 feet below the ground surface. Five (5) test borings were advanced for embankment design purposes. These five (5) embankment test borings were advanced to approximate depths ranging from 14.5 to 19.5 feet below the ground surface. Where bedrock was encountered, all test borings were advanced and the rock was sampled using a type NQ series core barrel, water method. In addition, 9 pavement cores were obtained from the existing Stearns Road to evaluate the existing pavement conditions. Due to the proximity of the NS Railroad tracks, we were required to obtain Right of Way Permits from NS prior to field operations. The groundwater conditions were monitored during and upon completion of the drilling operations. PGI provided Maintenance of Traffic during the field operations.

Numerous soil and rock samples were obtained for testing purposes. The laboratory testing program consisted of performing Direct Shear, One-Dimensional Consolidation Properties of Soils, Unconfined Compressive Strength of Rock Core/Soil Specimens, soil classification and engineering properties tests on selected soil samples, and classifying the soils in accordance with the ODOT Soil Classification System. PGI prepared a detailed geotechnical engineering report which included, typed drilling logs and laboratory test results, and recommendations and discussions pertaining to spread and drilled pier foundations in accordance with the AASHTO LRFD Bridge Design Specifications, embankment design with waiting period including settlement and stability analyses, pavement design parameters, and preparation of Geotechnical Design Check List. Also, prepared were soil profile sheets in accordance with the ODOT Specifications.

#### **Client:**

Cuyahoga County  
c/o TranSystems Corporation  
55 Public Sq., Ste. 1900  
Cleveland, OH 44113-1901

#### **Contact:**

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#### **Performance Period:**

July to November 2008 and  
December 2011 to January 2012

#### **Project Costs:**

\$73,200 (Fee)

#### **PGI's Role:**

Geotechnical Exploration



Pro Geotech, Inc.