

An Overview of 7.1 Pre-qualifications for Geotechnical Engineering Firms

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Pre-qualification Requirements under (7.1)

The Geotechnical Firm must have the following capabilities:

- **Geotechnical Engineering Services**

This work type consists of providing geotechnical engineering services.

- **Geotechnical Laboratory Services**

This work type consists of providing geotechnical laboratory services.

- **Geotechnical Drilling Services**

This work type consists of providing geotechnical drilling and sampling services

Geotechnical Engineering Services

- Geotechnical Engineering Services

All Geotechnical Engineering work shall be performed in accordance with the INDOT Geotechnical Manual, FHWA, AASHTO guidelines, generally accepted principles of sound engineering practice and all other pertinent state and federal regulations.

Geotechnical Engineering Services

Requirements:

The consultant firms must have at least one (1) full time employee that meets the following:

- A bachelor's **or** a master's degree in Civil Engineering **or** Geotechnical Engineering.
- A minimum of five (5) years experience in Geotechnical Engineering.
- A licensed professional engineer registered in the State of Indiana.
- The qualifying person (or firm) shall be on the INDOT Division of Geotechnical Engineering Qualified List.

Geotechnical Engineering Services

The qualifying person must have experience in the following:

- i. Deep foundations
- ii. Shallow foundations
- iii. Earthen structures and retaining walls
- iv. Pavement & roadways
- v. Sampling and laboratory testing
- vi. Subsurface exploration

Geotechnical Laboratory Services

Geotechnical Laboratory Services

This work type consists of providing geotechnical laboratory services.

Geotechnical Laboratory Services

Requirements:

- The consultant laboratory must pass one-time on-site inspection of the facility and equipment, conducted by a Division of Geotechnical Engineering representative.
- The laboratory must have laboratory QA/QC manual and AASHTO & ASTM Standard Specification (Internet access)

Geotechnical laboratory Services

- The laboratory must be capable of performing soil testing in accordance with the AASHTO, ASTM and INDIANA Test Methods (ITM's).
- The laboratory must use testing equipment's that meets the requirement of each test as performed in the laboratory.
- Testing equipment's shall be calibrated in accordance with the procedure mentioned in appropriate sections of AASHTO R-18

Geotechnical Laboratory Services

- Qualified person shall be responsible for all the test reports prepared in the laboratory.
- The laboratory must have accreditation of the test procedures cited here by the AASHTO re:source (Formerly known as AASHTO Materials Reference Laboratory (AMRL) prior to applying for INDOT approval.

Geotechnical Laboratory Services

Test Methods Accredited by the AASHTO re:source

Test Methods	AASHTO Designation
SOILS	
Dry preparation of samples	R 58-11
Particle Size Analysis of Soils by Hydrometer	AASHTOT 88
Liquid Limit of Soils (Atterberg Limits)	AASHTO T 89
Plastic Limit of Soils (Atterberg Limits)	AASHTO T 90
Moisture-Density (Proctor) of Soils, Standard Method	AASHTO T 99
Specific Gravity of Soils	AASHTO T 100
Unconfined Compression Strength of Soils	AASHTO T 208
Permeability of Granular Soils	AASHTO T 215

Geotechnical Laboratory Services

Test Methods Accredited by the AASHTO re:source

One-Dimensional Consolidation of Soils	AASHTO T 216
Moisture Content of Soils	AASHTO T 265
Organic Content in Soils by Loss on Ignition	AASHTO T 267
pH Testing of Soils	AASHTO T 289
Unconsolidated, Undrained Triaxial Compression	AASHTO T 296
Consolidated, Undrained Triaxial Compression	AASHTO T 297
Determination of Calcium/Magnesium Carbonate Content in Soils Using Sequential Loss on Ignition test	ITM No. 507-15T
Determining Sulfate content in soil BY Coloimetric	ITM No.510-13T

Geotechnical Laboratory Services

Test Methods	AASHTO Designation
AGGREGATES	
Fine Aggregate	AASHTO T 11
Coarse Aggregate	AASHTO T 27

Geotechnical Laboratory Services

Additional AASHTO Test Methods

Determining Minimum Laboratory Soil Resistivity	AASHTO T 288
Determining pH of Soil for use in Corrosion Testing	AASHTO T 289
Determining Water -Soluble Sulfate Ion Content in Soil	AASHTO T 290
Determining Water -Soluble Chloride Ion Content in Soil	AASHTO T 291

Geotechnical Laboratory Services

- **ON-SITE ASSESSMENT:**

Laboratory must participate in the on-site assessment program conducted by AASHTO re:source biannually.

Provide assessment report along with the Corrective Action Report (CAR) to the INDOT Division of Geotechnical Engineering for review.

- **PROFICIENCY TESTING**

Each year participation in the Proficiency Sampling Program (PSP) is mandatory for the following sample types:

- a. Soil Classification and Compaction
- b. Fine Aggregate
- c. Coarse Aggregate

Provide report along with the CAR to the INDOT Division of Geotechnical Engineering for review.

Geotechnical Drilling Services

Geotechnical Drilling Services

This work type consists of providing geotechnical drilling and sampling services.

Geotechnical Drilling services

Requirements:

- The qualifying person must hold an Indiana Well Driller License.
- Well drillers license must be valid.
- Drilling operation shall be performed by the Drillers holding Indiana Well Driller License.

Geotechnical Drilling Services

Equipment & Operation:

- SPT hammer efficiency record as calibrated per ASTM D 4633 within the last two years shall be provided.
- If the consultant firm leases the drilling equipment, lease agreement along with hammer calibration record shall be provided.

Geotechnical Drilling Services

The qualifying person must have a minimum of three years experience in geotechnical drilling operations.

The qualifying person should be able to demonstrate experience in the following:

- Geotechnical drilling operations
- Sampling
- Instrument installation
- Borehole logging



Thank You!