



## **Work Type Definition:** **Geotechnical Studies Soils Analysis & Recommendations**

### **I. Description – Geotechnical Studies**

A geotechnical study includes preparation of final boring logs and an analysis of subsurface conditions and materials, submitted in the form of a report. The report includes but is not limited to; bearing capacity for deep or shallow foundations, settlement analysis, slope stability analysis, locations of unsuitable soils, subcut depths and type of backfill, muck excavation limits and treatment, culvert treatments, pavement designs, and geologic recommendations. The report should also include definite foundation recommendations for providing a safe and cost-effective foundation system.

In addition, this work type may include hiring and managing Standard Penetration Test & Rock Coring, and/or Cone Penetration Test subcontractors.

### **II. Standards and specifications**

Standards and specifications required for a project under this work type may include the following:

- A. All tasks will be performed in accordance with current ASTM, AASHTO, and, for highway construction projects, MnDOT standards and specifications. The current Specifications for Subsurface Investigation & Geotechnical Analysis and Design Recommendations can be found at:

<http://www.mrr.dot.state.mn.us/geotechnical/foundations/tcontract/consultdrillreport.doc>

### **III. Provided by Hennepin County**

Information to be supplied by Hennepin County for a project may include the following:

- A. Plans showing existing topography, proposed alignments, locations of the existing and proposed structures and locations of borings.
- B. Completed boring logs in gINT format.
- C. American Society for Testing and Materials (ASTM), American Association of State Highway & Transportation Officials (AASHTO), and MnDOT Standard Specifications.

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### **IV. Provided by consultant**

**Deliverables to be supplied by the consultant for a project may include the following:**

- A. Final geotechnical report
  - a. Final boring logs in paper and electronic format.
  - b. Final logs using MnDOT's gINT templates.
  - c. Plotted boring plan and soils profile in electronic format (hard copy may be required).
  - d. Materials design recommendation (if required).
  - e. Weekly progress reports.
  - f. Final report summarizing the results of the testing along with recommendations and conclusions.

### **V. Description – Soils Analysis**

The purpose of this work type is to analyze field boring measurements and laboratory soils tests to develop recommendations that include but are not limited to muck excavation, subgrade excavation, embankment construction, subsurface drainage, infiltration tests, dewatering, ponding, berms, shrinkage factors, use of onsite materials and grading, base and surfacing design. The required outline for the Materials Design Recommendations Report can be found in Chapter 6 of the MnDOT Geotechnical and Pavement Design Manual.

### **VI. Standards and specifications**

**Standards and specifications required for a project under this work type may include the following:**

- A. All tasks will be performed in accordance with current ASTM, AASHTO, and, for highway construction projects, MnDOT standards, specifications, and manuals. The current MnDOT Specifications for Soils Surveys, Engineering Analysis, Laboratory, and Field Soils Tests can be found at:  
<http://www.mrr.dot.state.mn.us/pavement/PvmtDesign/Documentation/soilsinv.pdf>.

### **VII. Provided by Hennepin County**

**Information to be supplied by Hennepin County for a project may include the following:**

- A. Plans showing existing topography, proposed alignments, locations of the existing and proposed structures and locations of borings.
- B. Completed soils investigation including boring logs in electronic format (MnDOT's Soils Data Dictionary format).

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- C. Approved traffic forecast.
- D. American Society for Testing and Materials (ASTM), American Association of State Highway & Transportation Officials (AASHTO), MnDOT Geotechnical and Pavement Manual, MnDOT Standard Specifications and Technical Memoranda.

**VIII. Provided by consultant**

**Deliverables to be supplied by the consultant for a project may include the following:**

- A. Final materials design recommendation report.
  - a. Laboratory testing reports.
  - b. Plotted boring plan and soils profile in electronic format (hard copy may be required).
  - c. A Final Materials Design Recommendation Report (if required) summarizing the results of the investigation, testing, analyses, and recommendations.