Work Type Definition and Submittal Requirements

Work Type: Materials Testing & Drilling

The first section, Work Type Definition, provides a detailed explanation of the work type. The second section, Work Type Submittal Requirements, identifies the requirements a firm must meet to become pre-qualified to perform this work type for Hennepin County.

Work Type Definition: Highway Materials Testing

I. Description

This type of work requires testing various materials in accordance with the proper procedure, reporting results compared to the corresponding specifications, and making recommendations for materials disposition (if required).

II. Standards and Specifications

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

A. Reporting must meet requirements of AASHTO R 18 and recommendations.

B. Trained personnel with calibrated equipment will perform all test procedures in accordance with the requested standard.

C. Electronic test data must be compatible with the current database structure of Hennepin County.

D. The laboratory, not the company, performing the testing must be accredited by the AASHTO Materials Reference Laboratory (AMRL) or a comparable laboratory accreditation program approved by MnDOT / Hennepin County and the FHWA for all test procedures performed. Use the website below to verify which laboratories are accredited in which tests, as the prequalification list is only for general approval. A list of the currently accredited laboratories and the tests in which they are accredited can be found at: www.amrl.net/amrlsitefinity/default/aap/r18labs.aspx.

III. Provided By Hennepin County

Information to be supplied by Hennepin County (if not available on MnDOT web site) for a project may include the following:

A. MnDOT Manuals (Laboratory, Concrete, Grading and Base, Bituminous), MnDOT Standard Specifications for Construction, and Special Provisions of the Contract
IV. Provided by Consultant

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

A. Final Materials Test Report meeting the requirements of AASHTO R 18 and recommendations (if required).

B. Final Materials Test Report (both paper and electronic) submitted to requestor upon completion and in conformance with the negotiated time requirements and frequency.

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Work Type Definition and Submittal Requirements  
Work Type: Materials Testing & Drilling

Work Type Definition: Geotechnical Laboratory Testing

I. Description

This type of work includes conducting tests on soil and rock for the purpose of classifying materials and identifying their physical properties. The tests in soil include moisture content, grain size, Atterberg limits, permeability, consolidation, unconfined compression, direct shear, and triaxial. Laboratories will be approved for Level 1, Level 2 or both as defined below.

A. Level 1 – Standard Tests

Level 1 Projects will include the following standard tests which need to be accredited by the AASHTO Materials Reference Laboratory (AMRL).

a. Moisture Content
b. Grain Size
c. Atterberg Limits
d. Unconfined Compression
e. Consolidation

B. Level 2 – Specialized Tests

Level 2 Projects will include the following specialized tests which need to be accredited by the AASHTO Materials Reference Laboratory (AMRL).

a. Permeability (Constant head and falling head)
b. Direct Shear
c. Triaxial (UU, CU, and CD)

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
Work Type Definition and Submittal Requirements
Work Type: Materials Testing & Drilling

III. Provided By Hennepin County

Information to be supplied by Hennepin County for a project may include the following:
   A. American Society for Testing and Materials (ASTM), American Association of State Highway & Transportation Officials (AASHTO), and MnDOT Standard Specifications.

IV. Provided by Consultant

Deliverables to be supplied by the consultant for a project may include the following:
Final laboratory test results with numerical and graphical output in a paper and electronic format.

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I. **Description**

Investigations will identify and locate, both horizontally and vertically, significant soil and rock types, ground water conditions, and establish the characteristics of the subsurface materials visually, by sampling, and by laboratory and in-situ testing. The methodology involved includes on-site investigations by performing Standard Penetration tests and rock coring. Specialized test equipment may also be required, such as the field vane shear, pressure meter, or dilatometer. This work type also includes the installation of instrumentation such as piezometers and slope indicators.

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. All investigations will be conducted in accordance with current Minnesota Department of Health Regulations. 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](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, and locations of the existing and proposed structures.

B. Information (plans) showing property ownership information for boring locations off of State Right-of-Way.

C. Bridge benchmark information for determining boring elevations.

D. American Society for Testing and Materials (ASTM), American Association of State Highway & Transportation Officials (AASHTO), and MnDOT Standard Specifications.

IV. **Provided by Consultant**

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

A. Final Standard Penetration Test (SPT) and/or Rock Coring Investigation Report

   i. Final Boring Logs in hard copy and electronic format (.gpj)

   ii. A copy of the driller’s field boring logs and samples if required.
iii. Weekly progress reports.
iv. SPT hammer calibration reports.
v. Minnesota Department of Health sealing records.

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Work Type Definition and Submittal Requirements

Work Type: Materials Testing & Drilling

Work Type Definition: Cone Penetration Test

I. Description

Investigations will identify and locate, both horizontally and vertically, significant soil types, ground water conditions, and establish the characteristics of the subsurface materials by in-situ testing. The methodology involved includes on-site investigations by performing Electronic Cone Penetration Tests.

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. All investigations will be conducted in accordance with current Minnesota Department of Health Regulations. MnDOT’s current Specifications for Subsurface Investigation & Geotechnical Analysis and Design Recommendations.

   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, and locations of the existing and proposed structures.

B. Information (plans) showing property ownership information for boring locations off of State Right-of-Way.

C. Bridge benchmark information for determining boring elevations.

D. American Society for Testing and Materials (ASTM), American Association of State Highway & Transportation Officials (AASHTO), and MnDOT Standard Specifications.

IV. Provided by Consultant

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

A. Final Cone Penetration Test Investigation Report

   i. Electronic data for data collection (.dat file) and final logs (.gpj file)

   ii. Hard copy of final logs (.pdf)

   iii. Weekly progress reports.

   iv. Minnesota Department of Health sealing records.
Work Type Definition and Submittal Requirements
Work Type: Materials Testing & Drilling

Work Type Definition: Solid Stem Auger Drilling

I. Description
The proposed work and services consist of taking solid stem borings and providing a detailed boring log. Investigations will identify and locate borings, both horizontally and vertically. Boring logs shall identify the in situ pavement structure, soils, rock, ground water conditions, and establish the characteristics of the subsurface materials visually, by sampling, and by laboratory testing according to MnDOT standards and specifications.

Note: Firms that do not do their own subsurface investigations do not qualify for this work type. Please refer to Work Type 6.9 Soils Analysis and Pavement Recommendations.

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 MnDOT standards and specifications. All investigations will be conducted in accordance with current Minnesota Department of Health Regulations as well as MnDOT Specifications. The current MnDOT Specifications for Soils Investigation can be found at: http://www.mrr.dot.state.mn.us/pavement/PvmtDesign/Documentation/soilsinv.pdf

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, existing and proposed profiles, and locations of the existing and proposed structures.
B. Information (plans) showing property ownership information for boring locations off of State Right-of-Way.
C. American Society for Testing and Materials (ASTM), American Association of State Highway & Transportation Officials (AASHTO), and MnDOT Manuals and Standard Specifications.

IV. Provided by Consultant
Deliverables to be supplied by the consultant for a project may include the following:
A. Boring plan, soils profile, electronic boring log, field notes (if required), laboratory samples, and cross sections (if required). All work shall be performed to the extent necessary for the design of the most economical, uniform and stable roadway.
   i. A copy of the driller’s field notes (if required).
   ii. Final boring logs in paper and electronic format using MnDOT’s “Soils Data Dictionary”.
   iii. Soil samples for laboratory testing when Requested.
   iv. Weekly progress reports.
   v. Minnesota Department of Health sealing records.
Work Type Definition and Submittal Requirements

Work Type: Materials Testing & Drilling

Work Type Definition: Materials Sampling & Testing - Field Sampling and Testing

I. Description

Materials sampling and testing includes the sampling and testing of all component materials used on the project and submittal of samples to the Hennepin County Materials Laboratory for testing or other laboratory if directed by Hennepin County. Field testing may include, but is not limited to, concrete (air tests, slump tests, cylinders, etc.), plant inspection, bituminous (asphalt cement samples, temperatures, quantity weigh tickets, gradations, etc.), grading and base materials (gradations, moisture, density, etc.), and pile driving (driving depth, etc.). Materials not meeting the designated criteria are to be rejected and not incorporated into the work.

II. Standards and Specifications

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

A. Materials testing will be done in accordance with current MnDOT Schedule of Materials Control and MnDOT Standard Specifications for Construction or as modified by the Contract special provisions.

B. Where the MnDOT Schedule of Materials Control specifies laboratory/Agency testing, those tests will be performed at the identified Hennepin County Materials Laboratory.

C. Consultant will be responsible for delivering the samples to the identified Hennepin County Materials Laboratory.

D. All testing is performed on testing equipment that is calibrated at least once per year, or at the specified intervals, in accordance with MnDOT’s Laboratory, Bituminous, Concrete and Grading and Base Manuals.

III. Provided By Hennepin County

Information to be supplied by Hennepin County for a project may include the most recent version of some or all of the following:

A. Contract Documents

B. MnDOT Schedule of Materials Control
Work Type Definition and Submittal Requirements

Work Type: Materials Testing & Drilling

C. MnDOT Standard Specifications for Construction

D. MnDOT Bituminous Manual

E. MnDOT Concrete Manual

F. MnDOT Laboratory Manual

G. MnDOT Contract Administration Manual

H. MnDOT Grading and Base Manual

I. MnDOT Bridge Construction Manual

J. MnDOT Bridge Standard Plans


L. MnDOT Standard Plates Manual

M. MnDOT Standard Signs Manual

N. MnDOT Technical Manual


P. MnDOT Labor Compliance Manual

Q. MnDOT Technical Certification Handbook

R. MnDOT Technical Memorandums

S. Staking Information Sheets

T. Minnesota Manual of Uniform Traffic Control Devices (MN MUTCD)

U. MnDOT Landscape Projects Manual

IV. Provided by Consultant

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

A. Materials Sampling and Testing—Field Sampling & Testing project-specific reports and documents.

B. Daily diaries, logs and records for a record of the Contractor’s progress

C. Documentation of materials sampling and testing
Work Type Definition and Submittal Requirements

Work Type: Materials Testing & Drilling

D. Necessary concrete, bituminous and grading and base reports.
Work Type: Highway Materials Testing Geotechnical Laboratory Testing, Geotechnical Laboratory Testing, Standard Penetration (SPT) & Rock Coring, Cone Penetration Test, Solid Stem Auger Drilling, and Materials Sampling & Testing - Field Sampling and Testing

NOTE: A consultant firm becomes pre-qualified based on the qualifications of the personnel that are employed by the firm.

| Minimum number of Key Personnel: | * At least one professional civil engineer with relevant experience  
* Sufficient production staff  
* For Standard Penetration (SPT) & Rock Coring, Cone Penetration Test and Solid Stem Auger Drilling: At least one employee with a Minnesota Department of Health License for Monitoring Well Contractor (or equivalent). One employee may be allowed if that person meets both of these requirements.  
For Materials Sampling & Testing- Field Sampling and Testing: At least one inspector with all the proper professional certifications listed below. |
## Work Type Definition and Submittal Requirements

**Work Type:** Materials Testing & Drilling

### Proof of Professional Certification/Licensure

(Submit in PDF format)

- Qualified professional civil engineer must be a licensed Civil Engineer with the Minnesota State Board of Professional Engineers.
- All certifications and licenses required by AASHTO R 18, “Establishing and Implementing a Quality System for Construction Materials Testing Laboratories” and technical certifications required by MnDOT specifications for the testing performed.

For Standard Penetration (SPT) & Rock Coring, Cone Penetration Test and Solid Stem Auger Drilling: Minnesota Department of Health (or equivalent) registered/licensed Monitoring Well Contractor.

For Materials Sampling & Testing- Field Sampling and Testing:
  - High school graduate
  - MnDOT Technical Certification, Concrete Field Level 1
  - MnDOT Technical Certification, Bituminous Street Level 1
  - MnDOT Technical Certification, Grading and Base Level 1

### Documentation Requirements
## I. Project Experience
Submit PDF of Form PQ1

A. Complete Parts 1 and 2 of Form PQ1
   Part 1: Fill out general information and names of personnel and specify which Level application is sought.

Qualifying experience of staff must be documented by personal experience histories of the firm's principals or key personnel. Personnel requirements of the qualified staff must be demonstrated by reference to completed qualifying requirements of AASHTO R 18.

Key Personnel must list experience on at least two projects (maximum of five) in the last ten years.

The laboratory, not the company, performing the testing must be accredited by the AASHTO Materials Reference Laboratory (AMRL) or a comparable laboratory accreditation program approved by Hennepin County and the FHWA for all test procedures performed. Sufficient production staff must also be documented.

*To be a part of this work type, firms do not have to be accredited laboratories in all fields.
A list of the currently accredited laboratories can be found at http://www.amrl.net/amrlsitefinity/default/aap/r18labs.aspx. Please verify with this site that your laboratory is currently accredited prior to applying for prequalification for this work type with Hennepin County.

## II. Example Projects Requirements
Submit PDF of Form PQ2

A. For Standard Penetration (SPT) & Rock Coring: Provide a description or submit a “project cut-sheet” as examples of at least one example for each proposed person. Example must be from a project completed within the last five years. Example must be a boring log.

B. For Cone Penetration Test: Submit one example performed by submitted personnel of a CPT log from a completed project within the last ten years.

## III. Supplemental Information
Submit PDF

List other professional and technical personnel used to support pre-qualification AND list and describe the lab. Responder must specify which accredited AMRL lab location will be utilized for project work under this work type.

## IV. Affidavit
Submit in PDF format

A. For Solid Stem Auger Drilling: Submit Affidavit for MnDOT’s Electronic Boring Log Standards form.
Work Type Definition and Submittal Requirements
Work Type: Materials Testing & Drilling

<table>
<thead>
<tr>
<th>Submittal Instructions</th>
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<tr>
<td>Each Work Type Submittal must include the following individual items submitted in the following order as a single PDF:</td>
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**File name:** FIRMNAME_WORKTYPENAME

1. Cover Letter
2. Form PQ1 - Project Experience
3. Form PQ2 – Project Description (or allowable equivalent)
4. Form PQ3 – Supplemental Information (if required)

Email the completed package to pwbiz@hennepin.us

**NOTE:** A separate Submittal is required for EACH Work Type.