Section 2.2

SOILS AND FOUNDATIONS

2.2.1 PURPOSE

To establish requirements for maintaining and publishing the Department’s Soils and Foundations Handbook.

2.2.2 AUTHORITY

Section 334.044(2), Florida Statutes

2.2.3 SCOPE

The Soils and Foundation Handbook is used by geotechnical engineers doing geotechnical work for the Department. DOT staff using the handbook include District Materials Engineers, District Geotechnical Engineers, the State Geotechnical Engineer in Tallahassee and the Geotechnical Materials Engineer in Gainesville. The Handbook is referenced in the Scope of Services for Geotechnical Consultant work on Road and Bridge Construction Contracts.

2.2.4 GENERAL

The purpose of the Soils and Foundation Handbook is to provide geotechnical engineers with a guide to the tasks which should be performed when doing geotechnical work for the Department. State-of-the-art exploration, testing and analysis methods applicable within the state of Florida are described. Guidelines are provided on the extent of explorations and the methods of data presentation which are preferred. Both roadway soil surveys and structure foundation investigations are addressed. These guidelines are outlined in the Soils and Foundations Handbook. This handbook supercedes the Soils and Foundations Manual, Topic No. 675-020-012-d, dated February 18, 1999.

The State Materials Office, in conjunction with the State Structures Design Office, is responsible for maintaining and publishing the Handbook.

2.2.5 REVIEW AND APPROVAL

This is a technical handbook which is reviewed by District Materials Engineers,
District Geotechnical Engineers, the State Geotechnical Engineer in Tallahassee, and the Geotechnical Materials Engineer in Gainesville. Any proposed changes must be submitted to the Geotechnical Materials Engineer to be distributed for review and, if deemed necessary, incorporated into the handbook. Approval is by the State Materials Engineer.

All revisions and updates will be coordinated with the Organization and Procedures Office to ensure conformance with and incorporation into the Department's Standard Operating System.

2.2.6 UPDATE SCHEDULE

The Soils and Foundations Handbook is continuously updated as deemed necessary. Reasons for revision include changes in Department geotechnical practices and the incorporation of changes in the state-of-the-art techniques. Revisions are made by the issuance of replacement and/or additional pages.

2.2.7 DISTRIBUTION

The Soils and Foundations Handbook and subsequent revisions are issued to Department geotechnical personnel, other Department personnel requiring knowledge of the geotechnical process, and consultants performing geotechnical work for the Department. The State Materials Engineer oversees the issuance of all copies of the manual and any revisions.

Additional copies of the handbook are available for purchase from the following address:

Maps and Publications Sales
Mail Station 12
605 Suwannee Street
Tallahassee, Florida 32399-0450

Phone: (850) 414-4050 or SC994-4050
FAX: (850)414-4915

Department employees may obtain the handbook from the above office at no charge. The handbook is also available on the Structures Design Office web site at www.dot.state.fl.us/structures under the Geotechnical Services menu.

2.2.8 TRAINING

There is no training required for this handbook.
2.2.9 FORMS

The following forms are referenced in the Soils and Foundations Handbook:

<table>
<thead>
<tr>
<th>Form No.</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>675-020-12</td>
<td>Field Boring Log</td>
</tr>
<tr>
<td>675-020-13</td>
<td>Field Boring Log (Metric)</td>
</tr>
<tr>
<td>675-020-14</td>
<td>Field Reconnaissance Report</td>
</tr>
</tbody>
</table>

The above forms are available in the Department’s Forms Library.
<table>
<thead>
<tr>
<th>ELEV. (FT.)</th>
<th>DEPTH (FT.)</th>
<th>S.P.T. BLOWS</th>
<th>MATERIAL DESCRIPTION</th>
<th>SAMPLES</th>
<th>CON. NO.</th>
<th>REC. (%)</th>
<th>TESTS</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sampler Conditions:**

- **DISBURSED**
- **GOOD**
- **LOST**
- **CORE SAMPLE**

**Sample Types:**

- **AUGER**
- **SPLIT BARREL**
- **SHELBY TUBE**
- **IN-SITU VANE TEST (TSF)**

**Test:**

- **W.C.: WATER CONTENT (%)**
- **T: TORVANE (TSF)**
- **V: IN-SITU VANE TEST (TSF)**

**NOTE:**

- **EXAMPLE**
### FIELD BORING LOG (METRIC)

**PROJECT NO.:**

**NAME:**

**COUNTY:**

**DISTRICT:**

**LOCATION:**

**TOWNSHIP:**

**RANGE:**

**SECTION:**

**ROAD NUMBER:**

**SURFACE ELEVATION:**

**EQUIPMENT TYPE:**

**RIG NO.:**

**BORING NO.:**

**DATE STARTED:**

**COMPLETED:**

**DRILLED BY:**

**LOGGED BY:**

**BORING TYPE:**

**WATER TABLE:**

**0 HR.:**

**24 HRS.:**

**HRS.:**

**SAMPLE CONDITIONS:**

**SAMPLE TYPES:**

<table>
<thead>
<tr>
<th>Disturbed</th>
<th>Good</th>
<th>Lost</th>
<th>Core Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUGER</td>
<td>SB</td>
<td>S</td>
<td>RC</td>
</tr>
</tbody>
</table>

**SAMPLES:**

**TESTS:**

**W.C.:**

**WATER CONTENT (%):**

**TORVANE (kPa):**

**IN-SITU VANE TEST (kPa):**

**S.P.T. BLOWS:**

**S.P.T. BLOWS:**

**MATERIAL DESCRIPTION:**

**SAMPLES:**

**CON NO. REC (%)**

**TESTS**

**REMARKS**

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**EXAMPLE**
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1. STATIONING | • WELL MARKED  
• POORLY MARKED (WE CAN WORK)  
• POORLY MARKED (WE MUST REMARK)  
• REQUEST TO REMARK |
| 2. BENCHMARKS | • IN PLACE  
• NO  
DISTANCE FROM WORKSITE: |
| 3. PROPERTY OWNERS | • GRANTED PERMISSION  
• NO  
REMARKS ON BACK |
| 4. UTILITIES | • WILL DRILLERS ENCOUNTER UNDERGROUND UTILITIES?  
• YES  
• NO  
AT WHICH AREA?  
WHAT TYPE? |
| 5. SURFACE SOILS | • SAND  
• CLAY  
• SILT  
• MUCK  
• SANDY  
• LOAM  
• SILT  
• GYPSUM  
• GRAY  |
| 6. GENERAL SITE DESCRIPTION | • LEVEL  
• ROLLING  
• HILLSIDE  
• VALLEY  
• SWAMP  
• GULLIED  
GROUND COVER  
• CLEATED  
• FARMED  
• BUILDINGS  
• HEAVY WOODS  
• LIGHT WOODS  
• OTHER  
REMARKS ON BACK |
| 7. SOIL SURVEY | • LENGTH  
• DRILL RIG (WHEELED)  
• DRILL RIG (WHEELED ATV)  
• DRILL RIG (TRACK) |
| 8. FOUNDATIONS | • REPLACING  
• WIDENING  
• RELOCATION  
• DRILL RIG (TRUCK MOUNTED)  
• DRILL RIG (WHEELED ATV)  
• DRILL RIG (TRACK)  
• SKID RIG  
• WATER TRUCK  
• SAND PUMP |
| 9. GROUND WATER TABLE DEPTH | |
| 10. SPECIAL EQUIPMENT NECESSARY | |
| 11. REMARKS ON ACCESS | • DESCRIBE ANY PROBLEMS ON ACCESS |
| 12. DEBRIS AND SANITARY DUMPS | • LOCATION  
• REMARKS |

**EXAMPLE**

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