



SOIL CLASSIFICATION

AASHTO

| | |
|----|-----------------------------------|
| A1 | Gravel and Sand |
| A3 | Fine Sand |
| A2 | Silty or Clayey Gravel and Sand |
| A4 | Silty Soil - Low Compressibility |
| A5 | Silty Soil - Highly Compressible |
| A6 | Clayey Soil - Low Compressibility |
| A7 | Clayey Soil - Highly Compressible |

COMMONLY USED SYMBOLS

| | |
|-------|---|
| ▼ | Water Elevation |
| ⊕ | Standard Penetration Boring |
| ⊗ | Auger Boring |
| ⊙ | Rod Sounding |
| S | Sample |
| N | Standard Penetration Test Blow Count Per 300 mm For: 50.8 mm O.D. Sampler 35.0 mm I.D. Sampler Hammer Weight Of 63.5 kg. Hammer Fall Of 762 mm |
| VS | Field Vane Shear Test |
| US | Undisturbed Soil Sample |
| B | Blast |
| DC | Diamond Core |
| MD | Mud Drill |
| WA | Wash Ahead |
| HSA | Hollow Stem Auger |
| AX | Core Size 30.1mm |
| BX | Core Size 42.0 mm |
| NX | Core Size 54.7 mm |
| M | Double Tube Core Barrel Used |
| LL | Liquid Limit |
| PL | Plastic Limit |
| PI | Plasticity Index |
| NP | Non Plastic |
| w | Moisture Content (Dry Wgt. Basis) |
| D | Dry |
| M | Moist |
| MTW | Moist To Wet |
| W | Wet |
| Sat | Saturated |
| Bo | Boulder |
| Gr | Gravel |
| Sa | Sand |
| SI | Silt |
| Cl | Clay |
| HP | Hardpan |
| Le | Ledge |
| NLTD | No Ledge To Depth |
| CNPF | Can Not Penetrate Further |
| TLOB | To Ledge Or Boulder |
| NR | No Recovery |
| Rec. | Recovery |
| %Rec. | Percent Recovery |
| RQD | Rock Quality Designation |
| CBR | California Bearing Ratio |
| < | Less Than |
| > | Greater Than |
| R | Refusal (N > 100) |

ROCK QUALITY DESIGNATION

| R.Q.D. (%) | ROCK DESCRIPTION |
|------------|------------------|
| <25 | Very Poor |
| 25 to 50 | Poor |
| 51 to 75 | Fair |
| 76 to 90 | Good |
| >90 | Excellent |

SHEAR STRENGTH

| UNDRAINED SHEAR STRENGTH IN kPa | CONSISTENCY |
|---------------------------------|-------------|
| <12 | Very Soft |
| 12-24 | Soft |
| 24-48 | Med. Stiff |
| 48-96 | Stiff |
| 96-192 | Very Stiff |
| >192 | Hard |

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

| DENSITY (GRANULAR SOILS) | | CONSISTENCY (COHESIVE SOILS) | |
|--------------------------|------------------|------------------------------|------------------|
| N | DESCRIPTIVE TERM | N | DESCRIPTIVE TERM |
| <5 | Very Loose | <2 | Very Soft |
| 5-10 | Loose | 2-4 | Soft |
| 11-24 | Med. Dense | 5-8 | Med. Stiff |
| 25-50 | Dense | 9-15 | Stiff |
| >50 | Very Dense | 16-30 | Very Stiff |
| | | 31-60 | Hard |
| | | >60 | Very Hard |

COLOR

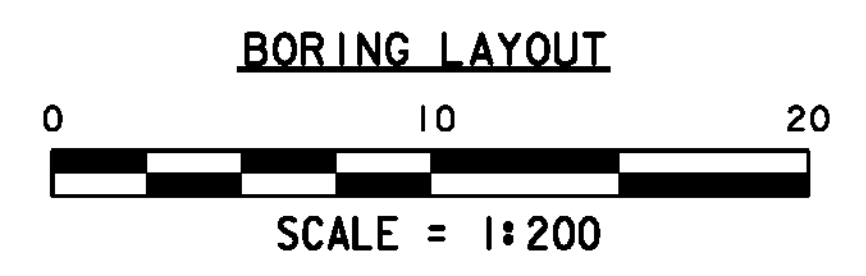
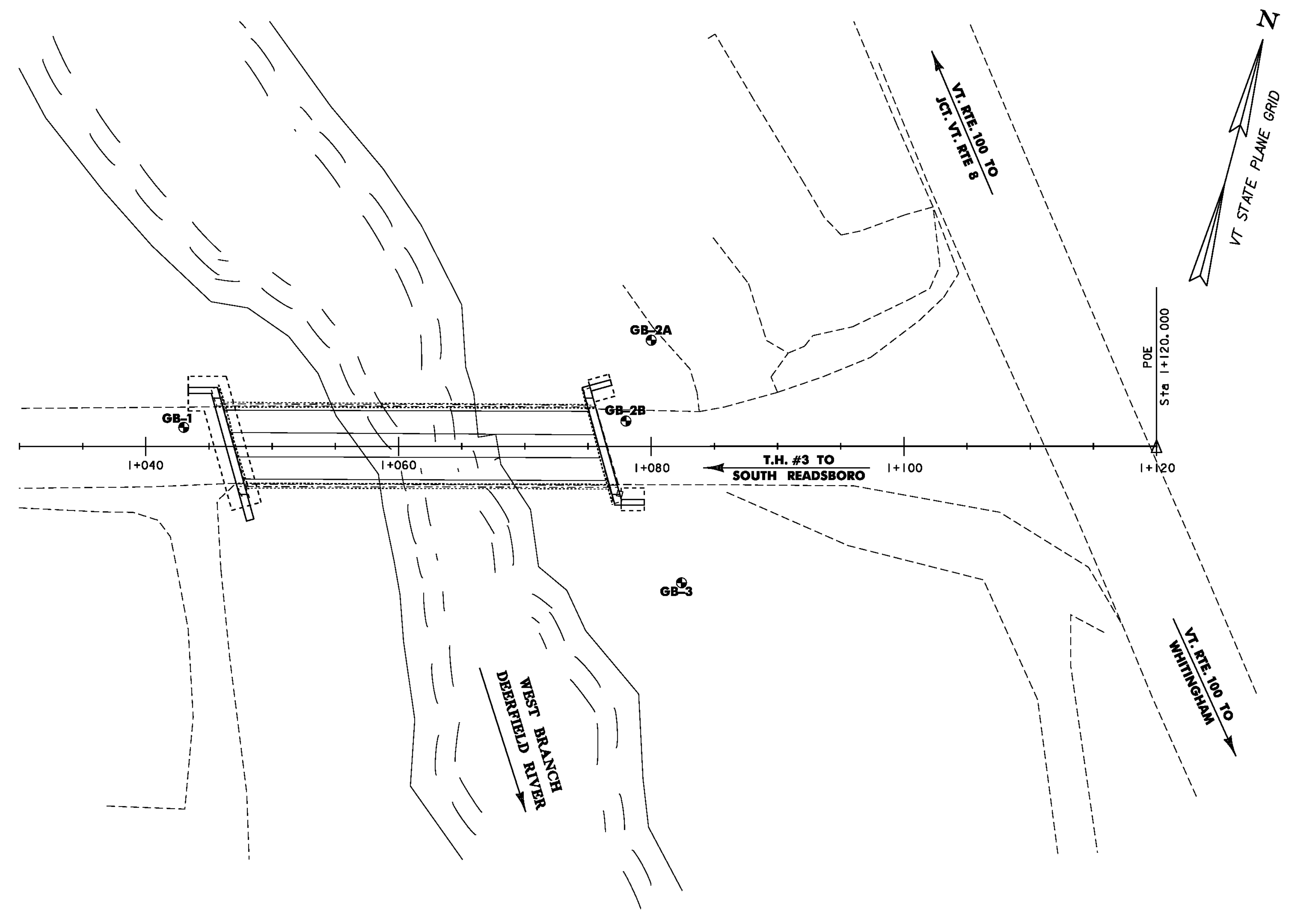
| | | | |
|-----|--------|------|--------------|
| blk | Black | pnk | Pink |
| bl | Blue | pu | Purple |
| brn | Brown | rd | Red |
| dk | Dark | tn | Tan |
| gry | Gray | wh | White |
| gn | Green | yel | Yellow |
| lt | Light | mitc | Multicolored |
| or | Orange | | |

DEFINITIONS (AASHTO)

| | |
|---|---|
| BEDROCK (LEDGE) - Rock in its native location of indefinite thickness. | VARVED - Alternate layers of silt and clay. |
| BOULDER - A rock fragment with an average dimension > 304.8 mm. | HARDPAN - Extremely dense soil, cemented layer, not softened when wet. |
| COBBLE - Rock fragments with an average dimension between 76.2 and 304.8 mm. | MUCK - Soft organic soil (containing > 10% organic material). |
| GRAVEL - Rounded particles of rock < 76.2 mm and > 2 mm (#10 sieve). | MOISTURE CONTENT - Weight of water divided by dry weight of soil. |
| SAND - Particles of rock < 2 mm (#10 sieve) and > 75 μm (#200 sieve). | FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod. |
| SILT - Soil < 75 μm (#200 sieve), non or slightly plastic and exhibits no strength when air-dried. | STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane. |
| CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried. | DIP - Inclination of bed with a horizontal plane. |

GENERAL NOTES

- The subsurface explorations shown herein were made between April 22 and May 2, 2002 by the Agency.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.



| BORING NO. | STATION | OFFSET |
|------------|---------|-----------|
| GB-1 | 1+043 | 1.50m LT |
| GB-2A | 1+080 | 8.40m LT |
| GB-2B | 1+078 | 2.00m LT |
| GB-3 | 1+084.4 | 10.80m RT |

| | |
|--|----------------------------|
| PROJECT: READSBORO | PROJECT NO.: BRO 1441 (25) |
| DESIGN FILE NAME: 94\070\structures\sj070bor.dgn | PLOT DATE: 05-JAN-2010 |
| IPARM FILE NAME: sj070bor.i | DRAWN BY: H. I. SALLS |
| DESIGNED BY: H. I. SALLS | CHECKED BY: R. S. YOUNG |
| SQUAD LEADER: C. P. WILLIAMS | SHEET: 13 OF 60 |
| BORING LAYOUT SHEET | |