

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-------|-----------------------------|-----------|--------------|
| N.C.  | 38528.1.1 (B-4756)          | 1         | 16           |

**STATE OF NORTH CAROLINA**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**GEOTECHNICAL ENGINEERING UNIT**

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

PROJ. REFERENCE NO. 38528.1.1 (B-4756) F.A. PROJ. BRSTP-2128(1)  
COUNTY GUILFORD  
PROJECT DESCRIPTION BRIDGE NO. 120 ON SR 2128 OVER  
REEDY FORK CREEK

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**CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (ON-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

**PERSONNEL**  
**TRIGON EXP.**

J. STROHMEYER  
J. WHITT  
S. KITTS

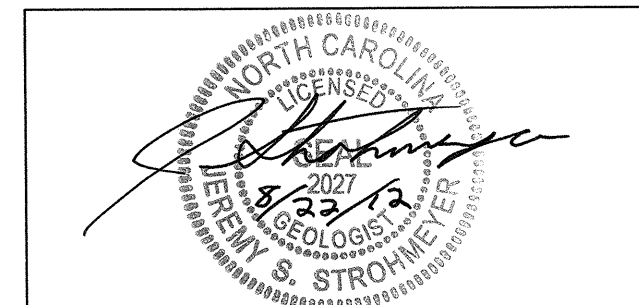
INVESTIGATED BY J. WHITT  
CHECKED BY J. STROHMEYER  
SUBMITTED BY J. STROHMEYER  
DATE AUGUST 2012

**PROJECT: 38528.1.1**  
**ID: B-4756**

DRAWN BY: S. KITTS

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.




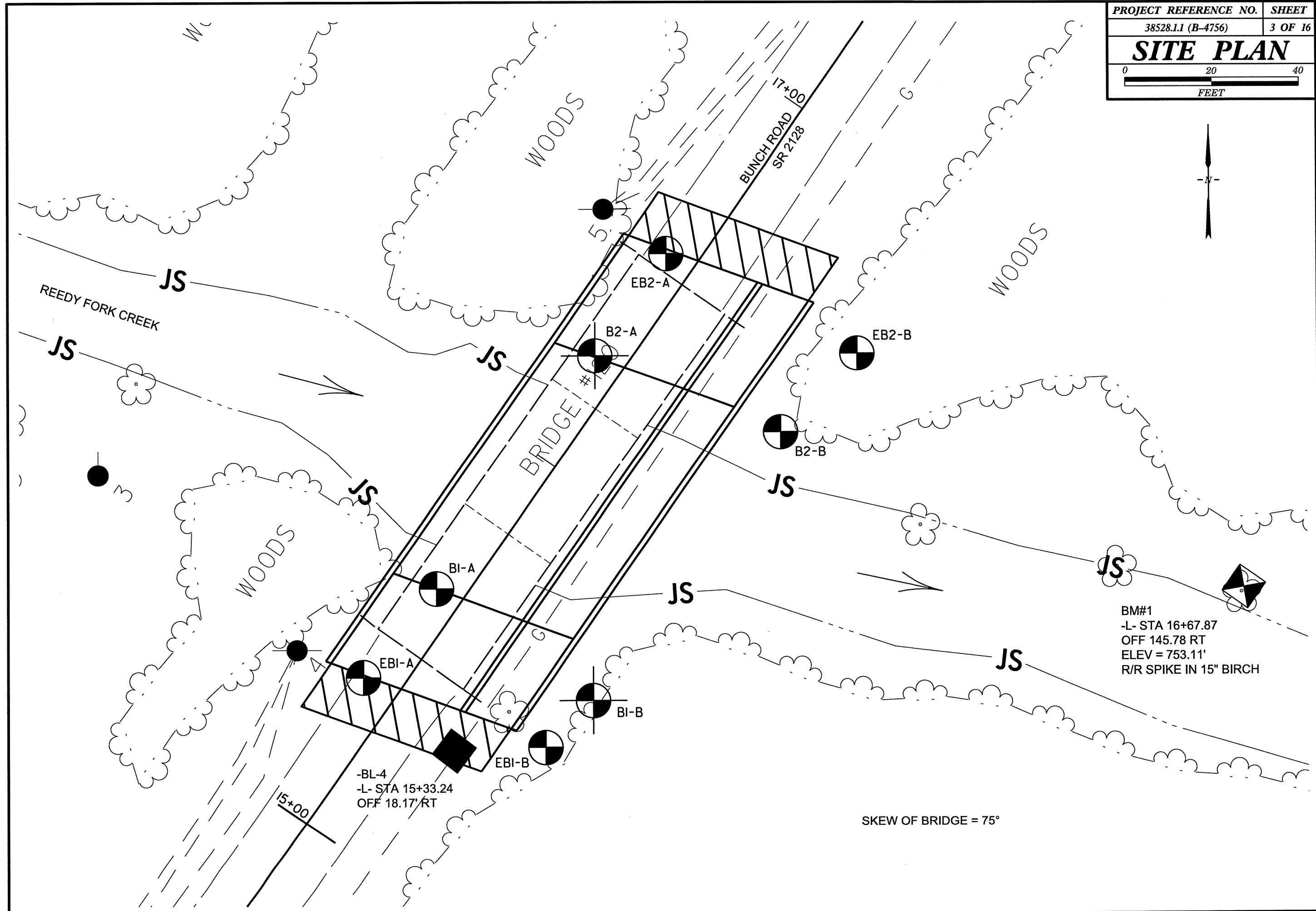
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT

PROJECT REFERENCE NO. 38528.1I(B-4756) SHEET NO. 2 OF 16

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

| SOIL DESCRIPTION   |  | GRADATION   |  | ROCK DESCRIPTION   |  | TERMS AND DEFINITIONS  |  |   |  |  |  |
|--|--|---|--|--|--|--|--|---|--|--|--|
| SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLES:<br><i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i> |  | WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.<br>UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)<br>DAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.                            |  | HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 60 BLOWS PER FOOT IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:<br>  |  | ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.<br>AQUIFER - A WATER BEARING FORMATION OR STRATA.<br>ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.<br>ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.<br>ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.<br>CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.<br>COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.<br>CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.<br>DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.<br>DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.<br>DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.<br>FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.<br>FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.<br>FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL.<br>FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.<br>FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.<br>JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.<br>LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.<br>LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.<br>MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.<br>PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.<br>RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.<br>ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.<br>SAPROLITE (SAP) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.<br>SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.<br>SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.<br>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS IN OR BPF OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 60 BLOWS PER FOOT.<br>STRATA CORE RECOVERY (SREC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.<br>STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.<br>TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. |  |   |  |  |  |
| SOIL LEGEND AND AASHTO CLASSIFICATION  |  | MINERALOGICAL COMPOSITION   |  | WEATHERING   |  | ROCK HARDNESS  |  |   |  |  |  |
| GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS   |  | MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.   |  | FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.<br>VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.<br>SLIGHT (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.<br>MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.<br>MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i><br>SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, YIELDS SPT N VALUES &gt; 100 BPF</i><br>VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES &lt; 100 BPF</i><br>COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE. |  | COMPRESSIBILITY<br>SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31<br>MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50<br>HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50  |  | VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.<br>HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.<br>MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.<br>MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.<br>SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.<br>VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL. |  | SAPROLITE (SAP) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.<br>SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.<br>SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.<br>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS IN OR BPF OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 60 BLOWS PER FOOT.<br>STRATA CORE RECOVERY (SREC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.<br>STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.<br>TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. |  |
| PERCENTAGE OF MATERIAL   |  | GROUND WATER  |  | ROCK HARDNESS  |  | ROCK HARDNESS  |  |   |  |  |  |
| ORGANIC MATERIAL GRANULAR SOILS SILT-CLAY SOILS OTHER MATERIAL   |  | WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING<br>STATIC WATER LEVEL AFTER 24 HOURS<br>PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA<br>SPRING OR SEEP  |  | VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.<br>HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.<br>MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.<br>MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.<br>SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.<br>VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.  |  | MISCELLANEOUS SYMBOLS<br>ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION<br>SOIL SYMBOL<br>ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT<br>INFERRED SOIL BOUNDARY<br>INFERRED ROCK LINE<br>ALLUVIAL SOIL BOUNDARY<br>DIP & DIP DIRECTION OF ROCK STRUCTURES  |  | MISCELLANEOUS SYMBOLS<br>SPT TEST BORING<br>AUGER BORING<br>CORE BORING<br>MONITORING WELL<br>PIEZOMETER INSTALLATION<br>SLOPE INDICATOR INSTALLATION<br>CONE PENETROMETER TEST<br>SOUNDING ROD   |  | MISCELLANEOUS SYMBOLS<br>SPT TEST BORING<br>AUGER BORING<br>CORE BORING<br>MONITORING WELL<br>PIEZOMETER INSTALLATION<br>SLOPE INDICATOR INSTALLATION<br>CONE PENETROMETER TEST<br>SOUNDING ROD  |  |
| CONSISTENCY OR DENSENESS   |  | ABBREVIATIONS   |  | FRACTURE SPACING   |  | BEDDING  |  |   |  |  |  |
| PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT <sup>2</sup> )   |  | AR - AUGER REFUSAL<br>BT - BORING TERMINATED<br>CL - CLAY<br>CPT - CONE PENETRATION TEST<br>CSE - COARSE<br>DMT - DILATOMETER TEST<br>DPT - DYNAMIC PENETRATION TEST<br>e - VOID RATIO<br>F - FINE<br>FOSS. - FOSSILIFEROUS<br>FRAC. - FRACTURED, FRACTURES<br>w - MOISTURE CONTENT<br>HI. - HIGHLY |  | TERM SPACING<br>VERY WIDE MORE THAN 10 FEET<br>WIDE 3 TO 10 FEET<br>MODERATELY CLOSE 1 TO 3 FEET<br>CLOSE 0.16 TO 1 FEET<br>VERY CLOSE LESS THAN 0.16 FEET   |  | TERM THICKNESS<br>VERY THICKLY BEDDED > 4 FEET<br>THICKLY BEDDED 1.5 - 4 FEET<br>THINLY BEDDED 0.16 - 1.5 FEET<br>VERY THINLY BEDDED 0.03 - 0.16 FEET<br>THICKLY LAMINATED 0.008 - 0.03 FEET<br>THINLY LAMINATED < 0.008 FEET  |  |   |  |  |  |
| TEXTURE OR GRAIN SIZE  |  | EQUIPMENT USED ON SUBJECT PROJECT   |  | INDURATION   |  | INDURATION   |  |   |  |  |  |
| U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.76 2.00 0.42 0.25 0.075 0.053   |  | DRILL UNITS: MOBILE B- BK-51 CME-45C CME-550 PORTABLE HOIST CME - 850 CME - 55  |  | FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.<br>FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.<br>MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.<br>INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.<br>EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.   |  | INDURATION RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.<br>MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.<br>INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.<br>EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.   |  |   |  |  |  |
| SOIL MOISTURE - CORRELATION OF TERMS   |  | EQUIPMENT USED ON SUBJECT PROJECT   |  | INDURATION   |  | INDURATION   |  |   |  |  |  |
| SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION   |  | ADVANCING TOOLS: CLAY BITS 6" CONTINUOUS FLIGHT AUGER 8" HOLLOW AUGERS HARD FACED FINGER BITS TUNG.-CARBIDE INSERTS CASING w/ ADVANCER TRICONE 6" STEEL TEETH TRICONE TUNG.-CARB. CORE BIT  |  | HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: B N-02 H HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST   |  | INDURATION RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.<br>MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.<br>INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.<br>EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.   |  |   |  |  |  |
| PLASTICITY   |  | EQUIPMENT USED ON SUBJECT PROJECT   |  | INDURATION   |  | INDURATION   |  |   |  |  |  |
| NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY  |  | EQUIPMENT USED ON SUBJECT PROJECT   |  | INDURATION   |  | INDURATION   |  |   |  |  |  |
| COLOR  |  | EQUIPMENT USED ON SUBJECT PROJECT   |  | INDURATION   |  | INDURATION   |  |   |  |  |  |
| DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.   |  | EQUIPMENT USED ON SUBJECT PROJECT   |  | INDURATION   |  | INDURATION   |  |   |  |  |  |



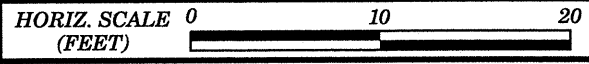
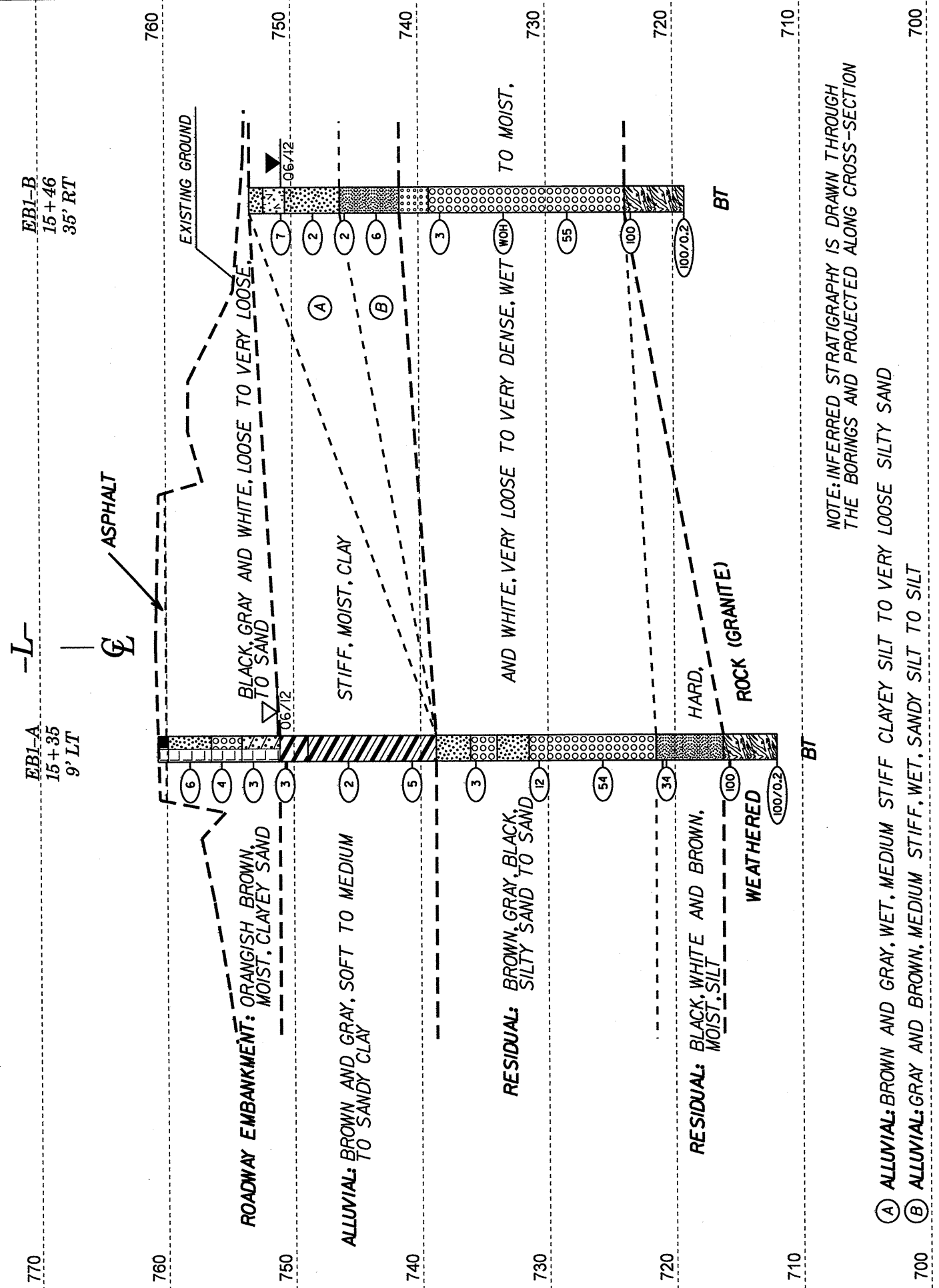
BM#1  
 -L- STA 16+67.87  
 OFF 145.78 RT  
 ELEV = 753.11'  
 R/R SPIKE IN 15" BIRCH

SKEW OF BRIDGE = 75°

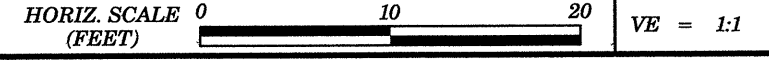
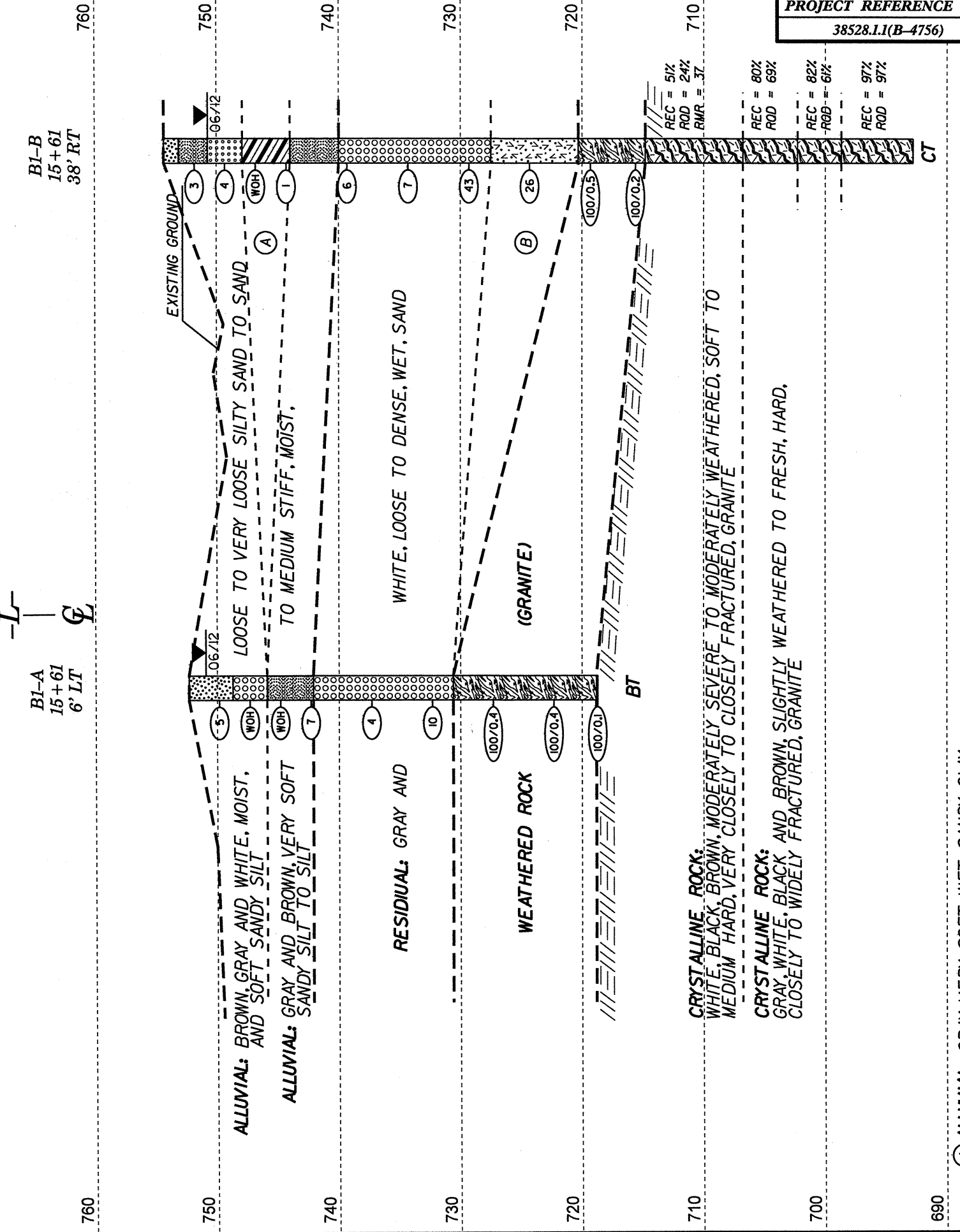
-BL-4  
 -L- STA 15+33.24  
 OFF 18.17' RT





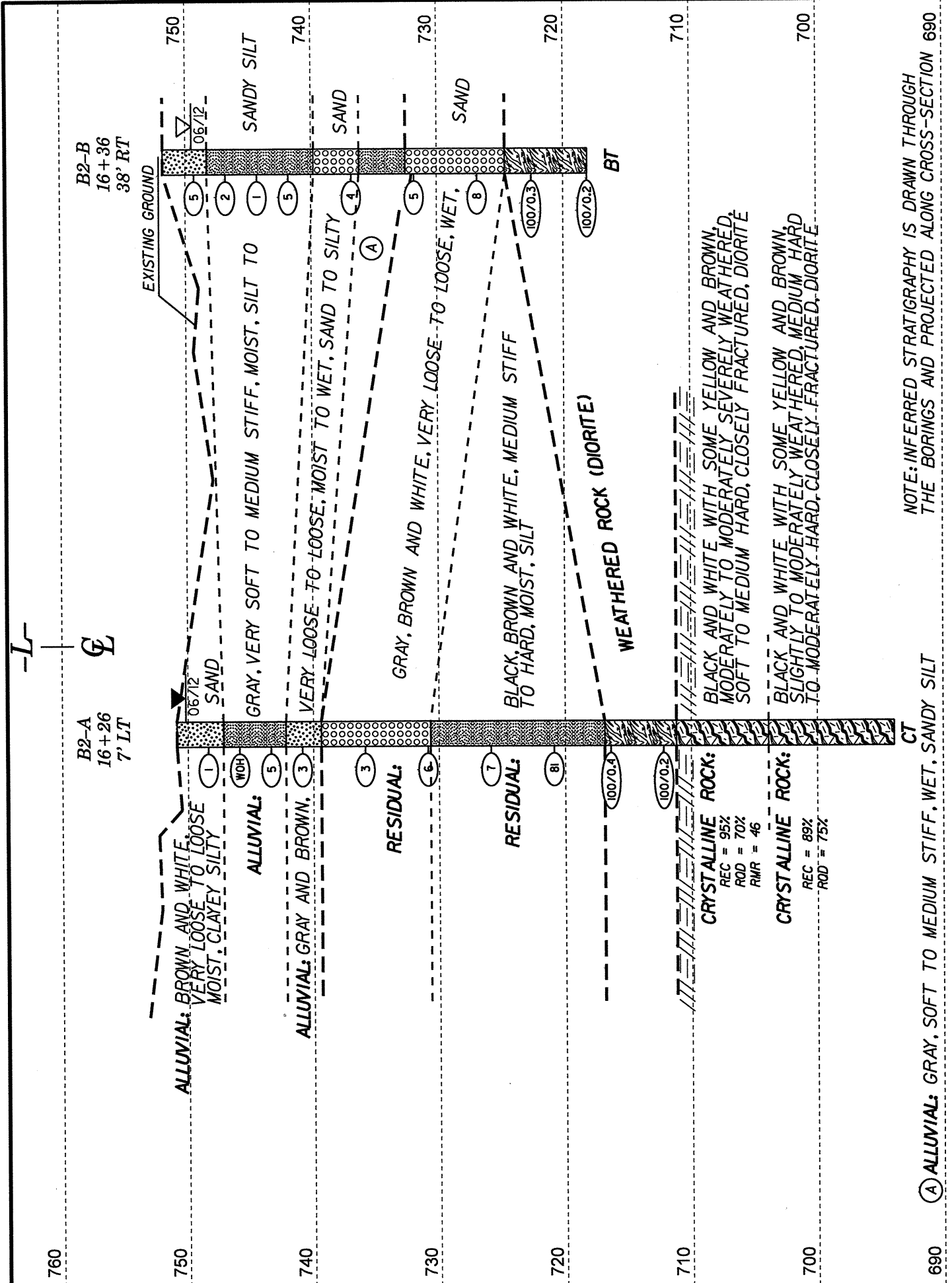


CROSS SECTION THROUGH END BENT 1



CROSS SECTION THROUGH BENT 1

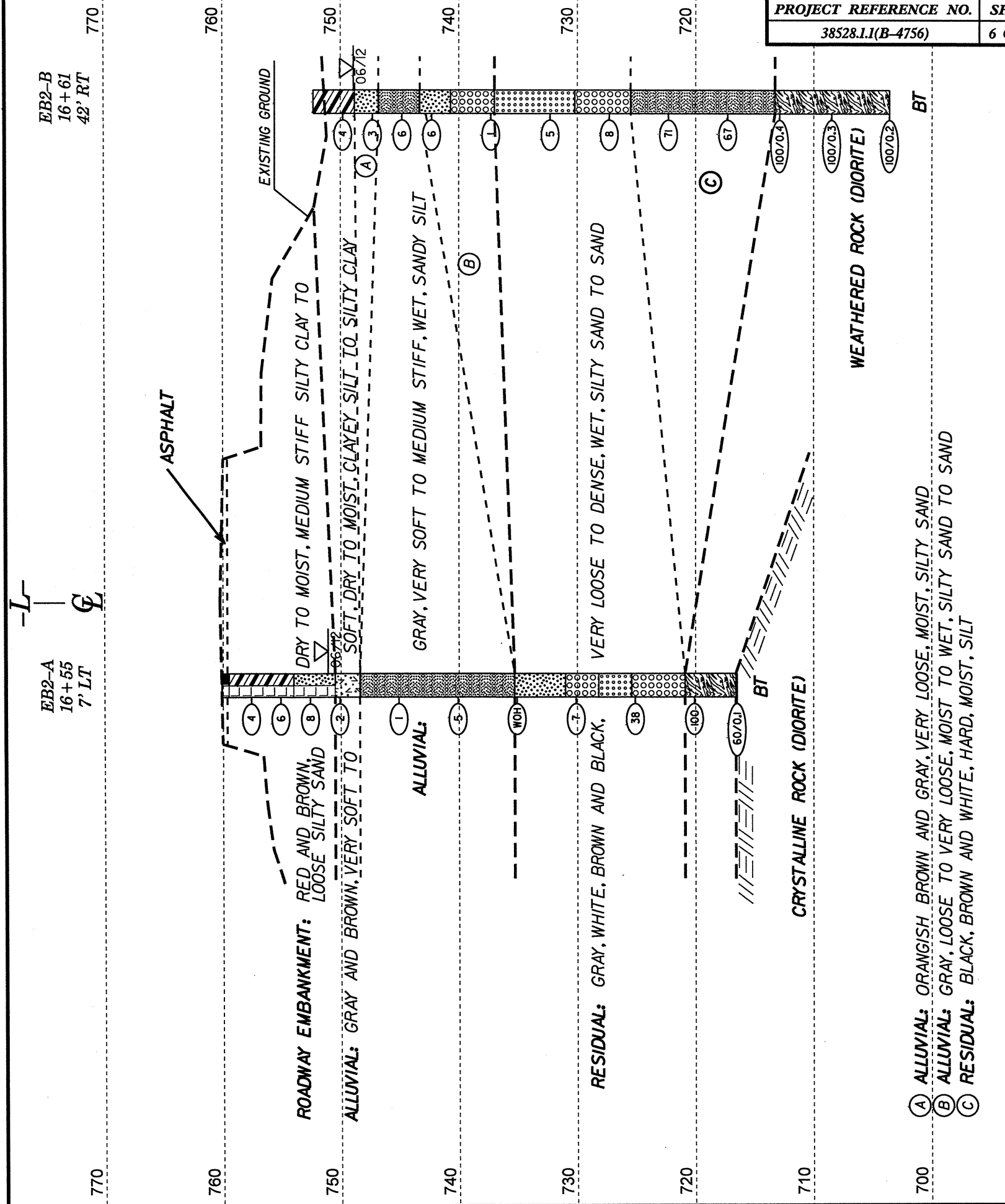
- (A) ALLUVIAL: GRAY, VERY SOFT, WET, SANDY CLAY
- (B) RESIDUAL: BLACK, BROWN AND WHITE, VERY STIFF, WET, CLAYEY SILT



HORIZ. SCALE 0 10 20 (FEET)

VE = 1:1

CROSS SECTION THROUGH BENT 2



HORIZ. SCALE 0 10 20 (FEET)

VE = 1:1

CROSS SECTION THROUGH END BENT 2

- (A) ALLUVIAL: ORANGISH BROWN AND GRAY, VERY LOOSE, MOIST, SILTY SAND
- (B) ALLUVIAL: GRAY, LOOSE TO VERY LOOSE, MOIST TO WET, SILTY SAND TO SAND
- (C) RESIDUAL: BLACK, BROWN AND WHITE, HARD, MOIST, SILT

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS AND PROJECTED ALONG CROSS-SECTION



# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

| WBS 38528.1.1   |                 | TIP B-4756          |            | COUNTY GUILFORD         |       | GEOLOGIST J. Whitt      |                 |    |    |           |         |                           |            |      |
|---|-----------------|---------------------|------------|-------------------------|-------|-------------------------|-----------------|----|----|-----------|---------|---------------------------|------------|------|
| SITE DESCRIPTION Bridge No. 120 on SR 2128 (Bunch Road) over Reedy Fork Creek |                 |                     |            |                         |       |                         | GROUND WTR (ft) |    |    |           |         |                           |            |      |
| BORING NO. EB1-A  |                 | STATION 15+35       |            | OFFSET 9 ft LT          |       | ALIGNMENT -L-           |                 |    |    |           |         |                           |            |      |
| COLLAR ELEV. 760.7 ft   |                 | TOTAL DEPTH 48.7 ft |            | NORTHING 885,523        |       | EASTING 1,732,177       |                 |    |    |           |         |                           |            |      |
| DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 70% 12/08/2011                      |                 |                     |            | DRILL METHOD Mud Rotary |       | HAMMER TYPE Automatic   |                 |    |    |           |         |                           |            |      |
| DRILLER R. Toothman   |                 | START DATE 06/20/12 |            | COMP. DATE 06/20/12     |       | SURFACE WATER DEPTH N/A |                 |    |    |           |         |                           |            |      |
| ELEV (ft)   | DRIVE ELEV (ft) | DEPTH (ft)          | BLOW COUNT |                         |       | BLOWS PER FOOT          |                 |    |    | SAMP. NO. | LOG MOI | SOIL AND ROCK DESCRIPTION | DEPTH (ft) |      |
|   |                 |                     | 0.5ft      | 0.5ft                   | 0.5ft | 0                       | 25              | 50 | 75 |           |         |                           |            | 100  |
| 765   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
| 760   | 759.7           | 1.0                 | 3          | 3                       | 3     |                         |                 |    |    |           |         |                           | 760.7      | 0.0  |
|   | 757.2           | 3.5                 | 3          | 2                       | 2     |                         |                 |    |    |           |         |                           | 759.9      | 0.8  |
| 755   | 754.7           | 6.0                 | 2          | 1                       | 2     |                         |                 |    |    |           |         |                           | 756.5      | 4.2  |
|   | 752.2           | 8.5                 | 2          | 1                       | 2     |                         |                 |    |    |           |         |                           | 754.1      | 6.6  |
| 750   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           | 751.1      | 9.6  |
|   | 747.2           | 13.5                | 1          | 1                       | 1     |                         |                 |    |    |           |         |                           | 748.9      | 11.8 |
| 745   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
|   | 742.2           | 18.5                | 2          | 2                       | 3     |                         |                 |    |    |           |         |                           |            |      |
| 740   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
|   | 737.2           | 23.5                | 1          | 1                       | 2     |                         |                 |    |    |           |         |                           | 738.8      | 21.9 |
| 735   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           | 736.1      | 24.6 |
|   | 732.2           | 28.5                | 8          | 7                       | 5     |                         |                 |    |    |           |         |                           | 734.0      | 26.7 |
| 730   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           | 731.5      | 29.2 |
|   | 727.2           | 33.5                | 14         | 18                      | 36    |                         |                 |    |    |           |         |                           |            |      |
| 725   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
|   | 722.2           | 38.5                | 14         | 14                      | 20    |                         |                 |    |    |           |         |                           | 721.5      | 39.2 |
| 720   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
|   | 717.2           | 43.5                | 21         | 77                      | 23    |                         |                 |    |    |           |         |                           | 716.2      | 44.5 |
| 715   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
|   | 712.2           | 48.5                | 100/0.2    |                         |       |                         |                 |    |    |           |         |                           | 712.0      | 48.7 |

| WBS 38528.1.1   |                 | TIP B-4756          |            | COUNTY GUILFORD         |       | GEOLOGIST J. Whitt      |                 |    |    |           |         |                           |            |      |
|---|-----------------|---------------------|------------|-------------------------|-------|-------------------------|-----------------|----|----|-----------|---------|---------------------------|------------|------|
| SITE DESCRIPTION Bridge No. 120 on SR 2128 (Bunch Road) over Reedy Fork Creek |                 |                     |            |                         |       |                         | GROUND WTR (ft) |    |    |           |         |                           |            |      |
| BORING NO. EB1-B  |                 | STATION 15+46       |            | OFFSET 35 ft RT         |       | ALIGNMENT -L-           |                 |    |    |           |         |                           |            |      |
| COLLAR ELEV. 753.3 ft   |                 | TOTAL DEPTH 34.2 ft |            | NORTHING 885,507        |       | EASTING 1,732,219       |                 |    |    |           |         |                           |            |      |
| DRILL RIG/HAMMER EFF./DATE TRI0472 CME-850 67% 12/08/2011                     |                 |                     |            | DRILL METHOD Mud Rotary |       | HAMMER TYPE Automatic   |                 |    |    |           |         |                           |            |      |
| DRILLER R. Toothman   |                 | START DATE 06/22/12 |            | COMP. DATE 06/22/12     |       | SURFACE WATER DEPTH N/A |                 |    |    |           |         |                           |            |      |
| ELEV (ft)   | DRIVE ELEV (ft) | DEPTH (ft)          | BLOW COUNT |                         |       | BLOWS PER FOOT          |                 |    |    | SAMP. NO. | LOG MOI | SOIL AND ROCK DESCRIPTION | DEPTH (ft) |      |
|   |                 |                     | 0.5ft      | 0.5ft                   | 0.5ft | 0                       | 25              | 50 | 75 |           |         |                           |            | 100  |
| 755   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
|   | 752.3           | 1.0                 | 3          | 3                       | 4     |                         |                 |    |    |           |         |                           | 753.3      | 0.0  |
| 750   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           | 752.2      | 1.1  |
|   | 749.8           | 3.5                 | 2          | 1                       | 1     |                         |                 |    |    |           |         |                           | 750.5      | 2.8  |
|   | 747.3           | 6.0                 | WOH        | WOH                     | 2     |                         |                 |    |    |           |         |                           |            |      |
| 745   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           | 746.2      | 7.1  |
|   | 744.8           | 8.5                 | WOH        | 3                       | 3     |                         |                 |    |    |           |         |                           |            |      |
|   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
| 740   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           | 741.5      | 11.8 |
|   | 739.8           | 13.5                | 3          | 2                       | 1     |                         |                 |    |    |           |         |                           | 739.2      | 14.1 |
| 735   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
|   | 734.8           | 18.5                | WOH        | WOH                     | WOH   |                         |                 |    |    |           |         |                           |            |      |
|   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
| 730   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
|   | 729.8           | 23.5                | 19         | 29                      | 26    |                         |                 |    |    |           |         |                           |            |      |
| 725   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
|   | 724.8           | 28.5                | 40         | 65                      | 35    |                         |                 |    |    |           |         |                           | 723.8      | 29.5 |
|   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
| 720   |                 |                     |            |                         |       |                         |                 |    |    |           |         |                           |            |      |
|   | 719.8           | 33.5                | 57         | 100/0.2                 |       |                         |                 |    |    |           |         |                           | 719.1      | 34.2 |

NCDOT BORE DOUBLE B-4756\_GEO\_BH.GPJ NC\_DOT.GDT 8/21/12



|   |                     |                         |                         |
|---|---------------------|-------------------------|-------------------------|
| WBS 38528.1.1   | TIP B-4756          | COUNTY GUILFORD         | GEOLOGIST J. Whitt      |
| SITE DESCRIPTION Bridge No. 120 on SR 2128 (Bunch Road) over Reedy Fork Creek |                     |                         | GROUND WTR (ft)         |
| BORING NO. B1-B   | STATION 15+61       | OFFSET 38 ft RT         | ALIGNMENT -L-           |
| COLLAR ELEV. 754.3 ft   | TOTAL DEPTH 61.5 ft | NORTHING 885,518        | EASTING 1,732,230       |
| DRILL RIG/HAMMER EFF./DATE TRI0472 CME-850 67% 12/08/2011                     |                     | DRILL METHOD Mud Rotary | HAMMER TYPE Automatic   |
| DRILLER R. Toothman   | START DATE 06/21/12 | COMP. DATE 06/21/12     | SURFACE WATER DEPTH N/A |

| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT |         |       | BLOWS PER FOOT |    |    |    |     | SAMP. NO. | LOG | SOIL AND ROCK DESCRIPTION  | DEPTH (ft) |
|-----------|-----------------|------------|------------|---------|-------|----------------|----|----|----|-----|-----------|-----|--|------------|
|           |                 |            | 0.5ft      | 0.5ft   | 0.5ft | 0              | 25 | 50 | 75 | 100 |           |     |  |            |
| 755       |                 |            |            |         |       |                |    |    |    |     |           |     | 754.3 GROUND SURFACE 0.0   |            |
| 750       | 753.3           | 1.0        | 1          | 1       | 2     |                |    |    |    |     |           | M   | 753.1 ALLUVIAL DARK BROWN AND BROWN AND WHITE, SILTY FINE TO COARSE GRAINED SAND 1.2 |            |
|           | 750.8           | 3.5        | 2          | 2       | 2     |                |    |    |    |     |           |     | 750.7 BROWN, SANDY SILT 3.6  |            |
|           | 748.3           | 6.0        | WOH        | WOH     | WOH   |                |    |    |    |     |           |     | 747.9 REDDISH BROWN, FINE TO MEDIUM GRAINED SAND 6.4                                 |            |
|           | 745.8           | 8.5        | WOH        | WOH     | 1     |                |    |    |    |     |           | W   | 744.0 GRAY, SANDY CLAY 10.3  |            |
|           | 740.8           | 13.5       | 4          | 4       | 2     |                |    |    |    |     |           | M   | 740.0 BROWN AND ORANGISH BROWN, SILT 14.3  |            |
|           | 735.8           | 18.5       | 2          | 4       | 3     |                |    |    |    |     |           | W   | RESIDUAL GRAY AND WHITE, FINE TO COARSE GRAINED SAND                                 |            |
|           | 730.8           | 23.5       | 9          | 17      | 26    |                |    |    |    |     |           | W   |  |            |
|           | 725.8           | 28.5       | 9          | 12      | 14    |                |    |    |    |     |           | W   | 727.5 BLACK AND BROWN AND WHITE, CLAYEY SILT, WITH TRACE SAND 26.8                   |            |
|           | 720.8           | 33.5       | 18         | 100/0.5 |       |                |    |    |    |     |           | W   | 720.3 WEATHERED ROCK (GRANITE) 34.0  |            |
|           | 715.8           | 38.5       | 100/0.2    |         |       |                |    |    |    |     |           |     | 714.8 CRYSTALLINE ROCK (GRANITE) REC=51% RQD=24% RMR=37 39.5                         |            |
|           |                 |            |            |         |       |                |    |    |    |     |           |     | 706.8 CRYSTALLINE ROCK (GRANITE) REC=80% RQD=69% 47.5                                |            |
|           |                 |            |            |         |       |                |    |    |    |     |           |     | 702.3 CRYSTALLINE ROCK (GRANITE) REC=82% RQD=61% 52.0                                |            |
|           |                 |            |            |         |       |                |    |    |    |     |           |     | 698.7 CRYSTALLINE ROCK (GRANITE) REC=97% RQD=97% 55.6                                |            |
|           |                 |            |            |         |       |                |    |    |    |     |           |     | 692.8 Boring Terminated at Elevation 692.8 ft in Crystalline Rock, Granite. 61.5     |            |

NCDOT BORE SINGLE B-4756\_GEO\_BH.GPJ NC\_DOT.GDT 8/31/12

|   |                     |                         |                         |
|---|---------------------|-------------------------|-------------------------|
| WBS 38528.1.1   | TIP B-4756          | COUNTY GUILFORD         | GEOLOGIST J. Whitt      |
| SITE DESCRIPTION Bridge No. 120 on SR 2128 (Bunch Road) over Reedy Fork Creek |                     |                         | GROUND WTR (ft)         |
| BORING NO. B1-B   | STATION 15+61       | OFFSET 38 ft RT         | ALIGNMENT -L-           |
| COLLAR ELEV. 754.3 ft   | TOTAL DEPTH 61.5 ft | NORTHING 885,518        | EASTING 1,732,230       |
| DRILL RIG/HAMMER EFF./DATE TRI0472 CME-850 67% 12/08/2011                     |                     | DRILL METHOD Mud Rotary | HAMMER TYPE Automatic   |
| DRILLER R. Toothman   | START DATE 06/21/12 | COMP. DATE 06/21/12     | SURFACE WATER DEPTH N/A |

| ELEV (ft) | RUN ELEV (ft) | DEPTH (ft) | RUN (ft) | DRILL RATE (Min/ft)  | RUN     |         | SAMP. NO. | STRATA  |         | LOG | DESCRIPTION AND REMARKS   | DEPTH (ft) |
|-----------|---------------|------------|----------|--|---------|---------|-----------|---------|---------|-----|---|------------|
|           |               |            |          |  | REC (%) | RQD (%) |           | REC (%) | RQD (%) |     |   |            |
| 715.6     |               |            |          |  |         |         |           |         |         |     | Begin Coring @ 38.7 ft  |            |
| 715       | 715.6         | 38.7       | 2.8      | 0:54/0.8<br>1:26/1.0   | (0.0)   | (0.0)   |           | (4.1)   | (1.9)   |     | WEATHERED ROCK (continued)  | 39.5       |
|           | 712.8         | 41.5       | 5.0      | 0:35/1.0<br>1:11/1.0<br>3:52/1.0<br>1:59/1.0<br>1:33/1.0<br>2:17/1.0             | (3.3)   | (1.9)   | RS-1      | 51%     | 24%     |     | CRYSTALLINE ROCK<br>WHITE AND BLACK AND BROWN, SLIGHTLY TO VERY SLIGHTLY WEATHERED, SOFT, CLOSELY FRACTURED, GRANITE<br>R1=2, R2=3, R3=10, R4=15, R5=7<br>RMR=37, ROCK TYPE E, CLASS IV (POOR ROCK) |            |
|           | 707.8         | 46.5       | 5.0      | 1:26/1.0<br>2:15/1.0<br>4:23/1.0<br>5:43/1.0<br>7:21/1.0                         | (4.0)   | (2.9)   |           | 80%     | 58%     |     | CRYSTALLINE ROCK<br>GRAY AND BLACK AND BROWN, SLIGHTLY TO VERY SLIGHTLY WEATHERED, HARD, WIDELY TO VERY WIDELY FRACTURED, GRANITE   | 47.5       |
|           | 702.8         | 51.5       | 5.0      | 3:22/1.0<br>2:17/1.0<br>2:31/1.0<br>2:02/1.0<br>5:30/1.0                         | (4.1)   | (2.9)   |           | 80%     | 69%     |     | CRYSTALLINE ROCK<br>GRAY AND BLACK AND BROWN, SLIGHTLY TO VERY SLIGHTLY WEATHERED, HARD, WIDELY TO VERY WIDELY FRACTURED, GRANITE   | 52.0       |
|           | 697.8         | 56.5       | 5.0      | 2:31/1.0<br>2:02/1.0<br>5:03/1.0<br>5:37/1.0<br>7:12/1.0<br>7:37/1.0<br>9:03/1.0 | (5.0)   | (5.0)   |           | 82%     | 61%     |     | CRYSTALLINE ROCK<br>WHITE AND GRAY AND BLACK, VERY SLIGHTLY WEATHERED, HARD, CLOSELY TO MODERATELY CLOSELY FRACTURED, GRANITE   | 55.6       |
|           | 692.8         | 61.5       | 5.0      |  | 100%    | 100%    |           | 97%     | 97%     |     | CRYSTALLINE ROCK<br>GRAY AND BLACK AND BROWN, VERY SLIGHTLY WEATHERED TO FRESH, HARD, MODERATELY CLOSELY FRACTURED, GRANITE   | 61.5       |
|           |               |            |          |  |         |         |           |         |         |     | Boring Terminated at Elevation 692.8 ft in Crystalline Rock, Granite.   |            |

NCDOT BORE SINGLE B-4756\_GEO\_BH.GPJ NC\_DOT.GDT 8/31/12



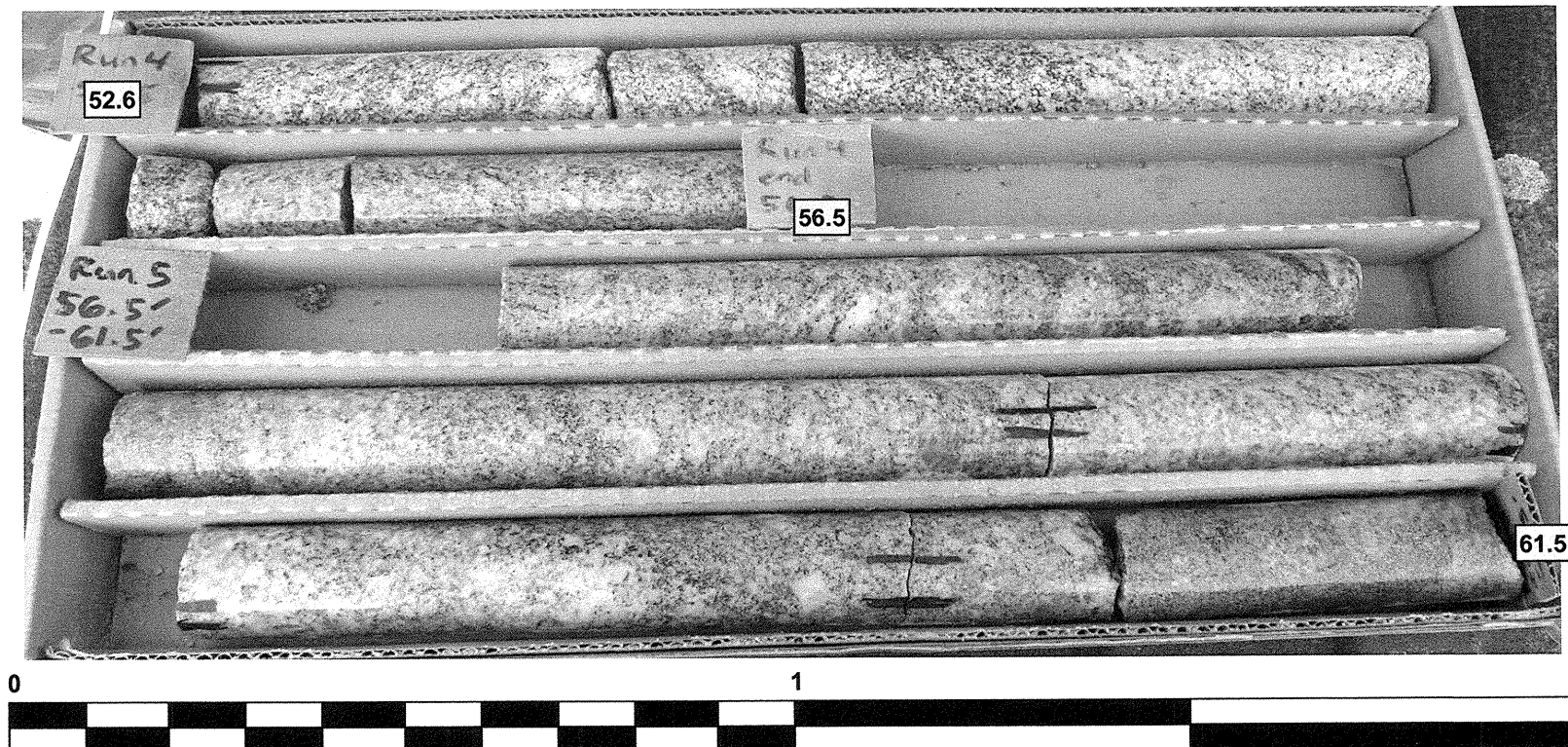
ROCK CORE PHOTOGRAPHS  
BRIDGE NO. 120 ON SR 2128 OVER REEDY FORK CREEK

B1-B  
BOX 1: 38.7 - 52.6 FEET



APPROXIMATE SCALE IN FEET

BOX 2: 52.6 - 61.5 FEET



APPROXIMATE SCALE IN FEET



| WBS 38528.1.1   |                 | TIP B-4756          |            | COUNTY GUILFORD         |         | GEOLOGIST J. Whitt      |                 |    |    |     |           |         |                           |            |  |
|---|-----------------|---------------------|------------|-------------------------|---------|-------------------------|-----------------|----|----|-----|-----------|---------|---------------------------|------------|--|
| SITE DESCRIPTION Bridge No. 120 on SR 2128 (Bunch Road) over Reedy Fork Creek |                 |                     |            |                         |         |                         | GROUND WTR (ft) |    |    |     |           |         |                           |            |  |
| BORING NO. B2-A   |                 | STATION 16+26       |            | OFFSET 7 ft LT          |         | ALIGNMENT -L-           |                 |    |    |     |           |         |                           |            |  |
| COLLAR ELEV. 750.9 ft   |                 | TOTAL DEPTH 57.0 ft |            | NORTHING 885,597        |         | EASTING 1,732,231       |                 |    |    |     |           |         |                           |            |  |
| DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 70% 12/08/2011                      |                 |                     |            | DRILL METHOD Mud Rotary |         | HAMMER TYPE Automatic   |                 |    |    |     |           |         |                           |            |  |
| DRILLER R. Toothman   |                 | START DATE 06/19/12 |            | COMP. DATE 06/19/12     |         | SURFACE WATER DEPTH N/A |                 |    |    |     |           |         |                           |            |  |
| ELEV (ft)   | DRIVE ELEV (ft) | DEPTH (ft)          | BLOW COUNT |                         |         | BLOWS PER FOOT          |                 |    |    |     | SAMP. NO. | LOG MOI | SOIL AND ROCK DESCRIPTION | DEPTH (ft) |  |
|   |                 |                     | 0.5ft      | 0.5ft                   | 0.5ft   | 0                       | 25              | 50 | 75 | 100 |           |         |                           |            |  |
| 755   |                 |                     |            |                         |         |                         |                 |    |    |     |           |         |                           |            |  |
| 750   | 749.9           | 1.0                 |            | 1                       | 1       | WOH                     |                 |    |    |     |           |         |                           |            |  |
|   | 747.4           | 3.5                 |            | 1                       | WOH     | WOH                     |                 |    |    |     |           |         |                           |            |  |
| 745   | 744.9           | 6.0                 |            | WOH                     | 2       | 3                       |                 |    |    |     |           |         |                           |            |  |
|   | 742.4           | 8.5                 |            | 2                       | 1       | 2                       |                 |    |    |     |           |         |                           |            |  |
| 740   |                 |                     |            |                         |         |                         |                 |    |    |     |           |         |                           |            |  |
|   | 737.4           | 13.5                |            | 3                       | 2       | 1                       |                 |    |    |     |           |         |                           |            |  |
| 735   |                 |                     |            |                         |         |                         |                 |    |    |     |           |         |                           |            |  |
|   | 732.4           | 18.5                |            | 2                       | 3       | 3                       |                 |    |    |     |           |         |                           |            |  |
| 730   |                 |                     |            |                         |         |                         |                 |    |    |     |           |         |                           |            |  |
|   | 727.4           | 23.5                |            | 2                       | 3       | 4                       |                 |    |    |     |           |         |                           |            |  |
| 725   |                 |                     |            |                         |         |                         |                 |    |    |     |           |         |                           |            |  |
|   | 722.4           | 28.5                |            | 22                      | 31      | 50                      |                 |    |    |     |           |         |                           |            |  |
| 720   |                 |                     |            |                         |         |                         |                 |    |    |     |           |         |                           |            |  |
|   | 717.4           | 33.5                |            | 53                      | 100/0.4 |                         |                 |    |    |     |           |         |                           |            |  |
| 715   |                 |                     |            |                         |         |                         |                 |    |    |     |           |         |                           |            |  |
|   | 712.4           | 38.5                |            | 100/0.2                 |         |                         |                 |    |    |     |           |         |                           |            |  |
| 710   |                 |                     |            |                         |         |                         |                 |    |    |     |           |         |                           |            |  |
| 705   |                 |                     |            |                         |         |                         |                 |    |    |     |           |         |                           |            |  |
| 700   |                 |                     |            |                         |         |                         |                 |    |    |     |           |         |                           |            |  |
| 695   |                 |                     |            |                         |         |                         |                 |    |    |     |           |         |                           |            |  |

NCDOT BORE SINGLE B-4756 GEO\_BH.GPJ NC\_DOT.GDT 8/21/12

| WBS 38528.1.1   |               | TIP B-4756          |          | COUNTY GUILFORD         |          | GEOLOGIST J. Whitt      |                 |          |         |     |                         |            |
|---|---------------|---------------------|----------|-------------------------|----------|-------------------------|-----------------|----------|---------|-----|-------------------------|------------|
| SITE DESCRIPTION Bridge No. 120 on SR 2128 (Bunch Road) over Reedy Fork Creek |               |                     |          |                         |          |                         | GROUND WTR (ft) |          |         |     |                         |            |
| BORING NO. B2-A   |               | STATION 16+26       |          | OFFSET 7 ft LT          |          | ALIGNMENT -L-           |                 |          |         |     |                         |            |
| COLLAR ELEV. 750.9 ft   |               | TOTAL DEPTH 57.0 ft |          | NORTHING 885,597        |          | EASTING 1,732,231       |                 |          |         |     |                         |            |
| DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 70% 12/08/2011                      |               |                     |          | DRILL METHOD Mud Rotary |          | HAMMER TYPE Automatic   |                 |          |         |     |                         |            |
| DRILLER R. Toothman   |               | START DATE 06/19/12 |          | COMP. DATE 06/19/12     |          | SURFACE WATER DEPTH N/A |                 |          |         |     |                         |            |
| CORE SIZE 2 inch  |               | TOTAL RUN 18.3 ft   |          |                         |          |                         |                 |          |         |     |                         |            |
| ELEV (ft)   | RUN ELEV (ft) | DEPTH (ft)          | RUN (ft) | DRILL RATE (Min/ft)     | RUN      |                         | SAMP. NO.       | STRATA   |         | LOG | DESCRIPTION AND REMARKS | DEPTH (ft) |
|   |               |                     |          |                         | REC. (%) | RQD (%)                 |                 | REC. (%) | RQD (%) |     |                         |            |
| 712.18  |               |                     |          |                         |          |                         |                 |          |         |     |                         |            |
|   | 712.2         | 38.7                | 3.3      | 2:06/1.0                | (2.0)    | (0.8)                   |                 |          |         |     |                         |            |
| 710   |               |                     |          | 2:54/1.0                | 61%      | 23%                     |                 | (6.9)    | (5.1)   |     | 711.2                   |            |
|   | 708.9         | 42.0                |          | 3:02/1.0                |          |                         |                 | 95%      | 70%     |     |                         |            |
|   |               |                     | 5.0      | 1:50/0.3                | (4.9)    | (4.3)                   |                 |          |         |     |                         |            |
|   |               |                     |          | 3:47/1.0                | 98%      | 86%                     |                 |          |         |     |                         |            |
| 705   |               |                     |          | 2:56/1.0                |          |                         |                 |          |         |     |                         |            |
|   | 703.9         | 47.0                |          | 3:05/1.0                |          |                         |                 |          |         |     |                         |            |
|   |               |                     | 5.0      | 3:26/1.0                |          |                         |                 |          |         |     |                         |            |
|   |               |                     |          | 3:14/1.0                |          |                         |                 |          |         |     |                         |            |
|   |               |                     |          | 3:53/1.0                | (3.9)    | (4.0)                   |                 | (8.9)    | (7.5)   |     |                         |            |
| 700   |               |                     |          | 3:54/1.0                | 78%      | 80%                     |                 |          |         |     |                         |            |
|   | 698.9         | 52.0                |          | 4:26/1.0                |          |                         |                 |          |         |     |                         |            |
|   |               |                     | 5.0      | 4:20/1.0                |          |                         |                 |          |         |     |                         |            |
|   |               |                     |          | 4:32/1.0                |          |                         |                 |          |         |     |                         |            |
|   |               |                     |          | 3:25/1.0                | (5.0)    | (3.6)                   |                 |          |         |     |                         |            |
| 695   |               |                     |          | 3:21/1.0                | 100%     | 72%                     |                 |          |         |     |                         |            |
|   | 693.9         | 57.0                |          | 3:48/1.0                |          |                         |                 |          |         |     |                         |            |
|   |               |                     |          | 4:08/1.0                |          |                         |                 |          |         |     |                         |            |
|   |               |                     |          | 4:58/1.0                |          |                         |                 |          |         |     |                         |            |

NCDOT CORE SINGLE B-4756 GEO\_BH.GPJ NC\_DOT.GDT 8/21/12

ROCK CORE PHOTOGRAPHS  
BRIDGE NO. 120 ON SR 2128 OVER REEDY FORK CREEK

B2-A  
BOX 1: 38.7 - 48.9 FEET



APPROXIMATE SCALE IN FEET

BOX 2: 48.9 - 57.0 FEET



APPROXIMATE SCALE IN FEET



**NCDOT GEOTECHNICAL ENGINEERING UNIT  
BORELOG REPORT**

|   |                     |                         |                         |
|---|---------------------|-------------------------|-------------------------|
| WBS 38528.1.1   | TIP B-4756          | COUNTY GUILFORD         | GEOLOGIST J. Whitt      |
| SITE DESCRIPTION Bridge No. 120 on SR 2128 (Bunch Road) over Reedy Fork Creek |                     |                         | GROUND WTR (ft)         |
| BORING NO. B2-B   | STATION 16+36       | OFFSET 38 ft RT         | ALIGNMENT -L-           |
| COLLAR ELEV. 751.8 ft   | TOTAL DEPTH 33.7 ft | NORTHING 885,579        | EASTING 1,732,274       |
| DRILL RIG/HAMMER EFF./DATE TRI0472 CME-850 67% 12/08/2011                     |                     | DRILL METHOD Mud Rotary | HAMMER TYPE Automatic   |
| DRILLER R. Toothman   | START DATE 06/22/12 | COMP. DATE 06/22/12     | SURFACE WATER DEPTH N/A |

| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT |         |       | BLOWS PER FOOT |    |    |    |     | SAMP. NO. | LOG | SOIL AND ROCK DESCRIPTION | DEPTH (ft) |  |      |
|-----------|-----------------|------------|------------|---------|-------|----------------|----|----|----|-----|-----------|-----|---------------------------|------------|--|------|
|           |                 |            | 0.5ft      | 0.5ft   | 0.5ft | 0              | 25 | 50 | 75 | 100 |           |     |                           |            |  |      |
| 755       |                 |            |            |         |       |                |    |    |    |     |           |     |                           |            |  |      |
|           |                 |            |            |         |       |                |    |    |    |     |           |     |                           | 751.8      | GROUND SURFACE   | 0.0  |
| 750       | 750.8           | 1.0        | 3          | 2       | 3     |                |    |    |    |     |           |     |                           |            | <b>ALLUVIAL</b><br>BROWN AND WHITE, SILTY FINE GRAINED SAND              |      |
|           | 748.3           | 3.5        | 2          | 1       | 1     |                |    |    |    |     |           |     |                           | 748.3      | GRAY, SANDY SILT   | 3.5  |
| 745       | 745.8           | 6.0        | WOH        | WOH     | 1     |                |    |    |    |     |           |     |                           |            |  |      |
|           | 743.3           | 8.5        | 2          | 2       | 3     |                |    |    |    |     |           |     |                           |            |  |      |
| 740       |                 |            |            |         |       |                |    |    |    |     |           |     |                           |            |  |      |
|           | 738.3           | 13.5       | 3          | 2       | 2     |                |    |    |    |     |           |     |                           | 739.8      | GRAY AND BROWN, FINE TO COARSE GRAINED SAND                              | 12.0 |
| 735       |                 |            |            |         |       |                |    |    |    |     |           |     |                           | 736.2      | GRAY, SANDY SILT   | 15.6 |
|           | 733.3           | 18.5       | WOH        | 2       | 3     |                |    |    |    |     |           |     |                           | 732.5      | <b>RESIDUAL</b><br>WHITE AND GRAY AND BROWN, FINE TO COARSE GRAINED SAND | 19.3 |
| 730       |                 |            |            |         |       |                |    |    |    |     |           |     |                           |            |  |      |
|           | 728.3           | 23.5       | 3          | 3       | 5     |                |    |    |    |     |           |     |                           |            |  |      |
| 725       |                 |            |            |         |       |                |    |    |    |     |           |     |                           |            |  |      |
|           | 723.3           | 28.5       | 63         | 100/0.3 |       |                |    |    |    |     |           |     |                           | 724.6      | <b>WEATHERED ROCK (DIORITE)</b>  | 27.2 |
| 720       |                 |            |            |         |       |                |    |    |    |     |           |     |                           |            |  |      |
|           | 718.3           | 33.5       | 00/0.2     |         |       |                |    |    |    |     |           |     |                           | 718.1      | Boring Terminated at Elevation 718.1 ft in Weathered Rock, Diorite.      | 33.7 |

NCDOT BORE SINGLE B-4756\_GEO\_BH.GPJ\_NC\_DOT.GDT\_8/21/12



**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

| WBS 38528.1.1   |                 | TIP B-4756   |            | COUNTY GUILFORD         |       | GEOLOGIST J. Whitt      |                 |    |    |     |           |         |                               |            |      |
|---|-----------------|--|------------|-------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|---------|-------------------------------|------------|------|
| SITE DESCRIPTION Bridge No. 120 on SR 2128 (Bunch Road) over Reedy Fork Creek |                 |  |            |                         |       |                         | GROUND WTR (ft) |    |    |     |           |         |                               |            |      |
| BORING NO. EB2-A  |                 | STATION 16+55  |            | OFFSET 7 ft LT          |       | ALIGNMENT -L-           |                 |    |    |     |           |         |                               |            |      |
| 0 HR. 9.0   |                 | TOTAL DEPTH 43.6 ft                                      |            | NORTHING 885,621        |       | EASTING 1,732,247       |                 |    |    |     |           |         |                               |            |      |
| COLLAR ELEV. 760.1 ft   |                 | TOTAL DEPTH 43.6 ft                                      |            | NORTHING 885,621        |       | EASTING 1,732,247       |                 |    |    |     |           |         |                               |            |      |
| 24 HR. FIAD   |                 | DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 70% 12/08/2011 |            | DRILL METHOD Mud Rotary |       | HAMMER TYPE Automatic   |                 |    |    |     |           |         |                               |            |      |
| DRILLER R. Toothman   |                 | START DATE 06/18/12                                      |            | COMP. DATE 06/18/12     |       | SURFACE WATER DEPTH N/A |                 |    |    |     |           |         |                               |            |      |
| ELEV (ft)   | DRIVE ELEV (ft) | DEPTH (ft)   | BLOW COUNT |                         |       | BLOWS PER FOOT          |                 |    |    |     | SAMP. NO. | LOG MOI | LOG SOIL AND ROCK DESCRIPTION | DEPTH (ft) |      |
|   |                 |  | 0.5ft      | 0.5ft                   | 0.5ft | 0                       | 25              | 50 | 75 | 100 |           |         |                               |            |      |
| 765   |                 |  |            |                         |       |                         |                 |    |    |     |           |         |                               |            |      |
| 760   | 759.1           | 1.0  | 2          | 2                       | 2     |                         |                 |    |    |     |           |         |                               | 760.1      | 0.0  |
|   | 756.6           | 3.5  | 2          | 2                       | 4     |                         |                 |    |    |     |           |         |                               | 759.5      | 0.8  |
| 755   | 754.1           | 6.0  | 4          | 4                       | 4     |                         |                 |    |    |     |           |         |                               | 754.0      | 6.1  |
|   | 751.6           | 8.5  | WOH        | 1                       | 1     |                         |                 |    |    |     |           |         |                               | 750.5      | 9.6  |
| 750   | 746.6           | 13.5   | WOH        | WOH                     | 1     |                         |                 |    |    |     |           |         |                               | 748.4      | 11.7 |
| 745   | 741.6           | 18.5   | 1          | 2                       | 3     |                         |                 |    |    |     |           |         |                               |            |      |
| 740   | 736.6           | 23.5   | WOR        | WOR                     | WOR   |                         |                 |    |    |     |           |         |                               |            |      |
| 735   | 731.6           | 28.5   | 2          | 2                       | 5     |                         |                 |    |    |     |           |         |                               |            |      |
| 730   | 726.6           | 33.5   | 14         | 11                      | 27    |                         |                 |    |    |     |           |         |                               |            |      |
| 725   | 721.6           | 38.5   | 37         | 40                      | 60    |                         |                 |    |    |     |           |         |                               |            |      |
| 720   | 716.6           | 43.5   | 60/0.1     |                         |       |                         |                 |    |    |     |           |         |                               | 60/0.1     |      |

| WBS 38528.1.1   |                 | TIP B-4756  |            | COUNTY GUILFORD         |       | GEOLOGIST J. Whitt      |                 |    |    |     |           |         |                               |            |      |
|---|-----------------|---|------------|-------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|---------|-------------------------------|------------|------|
| SITE DESCRIPTION Bridge No. 120 on SR 2128 (Bunch Road) over Reedy Fork Creek |                 |   |            |                         |       |                         | GROUND WTR (ft) |    |    |     |           |         |                               |            |      |
| BORING NO. EB2-B  |                 | STATION 16+61   |            | OFFSET 42 ft RT         |       | ALIGNMENT -L-           |                 |    |    |     |           |         |                               |            |      |
| 0 HR. 3.4   |                 | TOTAL DEPTH 48.7 ft                                       |            | NORTHING 885,598        |       | EASTING 1,732,291       |                 |    |    |     |           |         |                               |            |      |
| 24 HR. N/A  |                 | DRILL RIG/HAMMER EFF./DATE TRI0472 CME-850 67% 12/08/2011 |            | DRILL METHOD Mud Rotary |       | HAMMER TYPE Automatic   |                 |    |    |     |           |         |                               |            |      |
| DRILLER R. Toothman   |                 | START DATE 06/25/12                                       |            | COMP. DATE 06/25/12     |       | SURFACE WATER DEPTH N/A |                 |    |    |     |           |         |                               |            |      |
| ELEV (ft)   | DRIVE ELEV (ft) | DEPTH (ft)  | BLOW COUNT |                         |       | BLOWS PER FOOT          |                 |    |    |     | SAMP. NO. | LOG MOI | LOG SOIL AND ROCK DESCRIPTION | DEPTH (ft) |      |
|   |                 |   | 0.5ft      | 0.5ft                   | 0.5ft | 0                       | 25              | 50 | 75 | 100 |           |         |                               |            |      |
| 755   |                 |   |            |                         |       |                         |                 |    |    |     |           |         |                               |            |      |
|   | 751.3           | 1.0   | 3          | 2                       | 2     |                         |                 |    |    |     |           |         |                               | 752.3      | 0.0  |
| 750   | 748.8           | 3.5   | 3          | 2                       | 1     |                         |                 |    |    |     |           |         |                               | 748.8      | 3.5  |
|   | 746.3           | 6.0   | 2          | 2                       | 4     |                         |                 |    |    |     |           |         |                               | 746.8      | 5.5  |
| 745   | 743.8           | 8.5   | WOH        | 3                       | 3     |                         |                 |    |    |     |           |         |                               | 743.3      | 9.0  |
|   | 738.8           | 13.5  | WOH        | WOH                     | 1     |                         |                 |    |    |     |           |         |                               | 740.7      | 11.6 |
| 740   | 733.8           | 18.5  | 2          | 2                       | 3     |                         |                 |    |    |     |           |         |                               | 737.0      | 15.3 |
| 735   | 728.8           | 23.5  | 3          | 3                       | 5     |                         |                 |    |    |     |           |         |                               | 730.2      | 22.1 |
| 730   | 723.8           | 28.5  | 18         | 26                      | 45    |                         |                 |    |    |     |           |         |                               | 725.5      | 26.8 |
| 725   | 718.8           | 33.5  | 25         | 29                      | 38    |                         |                 |    |    |     |           |         |                               | 713.3      | 39.0 |
| 720   | 713.8           | 38.5  | 19         | 100/0.4                 |       |                         |                 |    |    |     |           |         |                               |            |      |
| 715   | 708.8           | 43.5  | 100/0.3    |                         |       |                         |                 |    |    |     |           |         |                               |            |      |
| 710   | 703.8           | 48.5  | 100/0.2    |                         |       |                         |                 |    |    |     |           |         |                               |            |      |
| 705   |                 |   |            |                         |       |                         |                 |    |    |     |           |         |                               |            |      |

NCDOT BORE DOUBLE B-4756\_GEO\_BH.GPJ NC\_DOT.GDT 8/21/12

**BRIDGE NO. 120 ON SR 2128 OVER REEDY FORK CREEK**

**B1-B**

| <b>ROCK TEST RESULTS</b> |         |         |                     |              |                |                |                     |       |                   |                |                         |
|--------------------------|---------|---------|---------------------|--------------|----------------|----------------|---------------------|-------|-------------------|----------------|-------------------------|
| SAMPLE NO.               | STATION | OFFSET  | DEPTH INTERVAL (ft) | LENGTH (in.) | DIAMETER (in.) | AREA (sq. in.) | VOLUME              |       | UNIT WEIGHT (pcf) | COMPRESSIVE    | TESTING METHOD          |
|                          |         |         |                     |              |                |                | (in. <sup>3</sup> ) | (cf)  |                   | STRENGTH (psi) |                         |
| RS-1                     | 15+61   | 38FT RT | 42.9-43.3           | 4.144        | 1.972          | 3.054          | 12.657              | 0.007 | 153.388           | 2341           | ASTM D-7012-10 METHOD C |

**B2-A**

| <b>ROCK TEST RESULTS</b> |         |        |                     |              |                |                |                     |       |                   |                |                         |
|--------------------------|---------|--------|---------------------|--------------|----------------|----------------|---------------------|-------|-------------------|----------------|-------------------------|
| SAMPLE NO.               | STATION | OFFSET | DEPTH INTERVAL (ft) | LENGTH (in.) | DIAMETER (in.) | AREA (sq. in.) | VOLUME              |       | UNIT WEIGHT (pcf) | COMPRESSIVE    | TESTING METHOD          |
|                          |         |        |                     |              |                |                | (in. <sup>3</sup> ) | (cf)  |                   | STRENGTH (psi) |                         |
| RS-2                     | 16+26   | 7FT LT | 45.1-45.9           | 4.461        | 1.949          | 2.983          | 13.309              | 0.008 | 157.905           | 473            | ASTM D-7012-10 METHOD C |

*BJ E SA* Cont # 123-01-0509



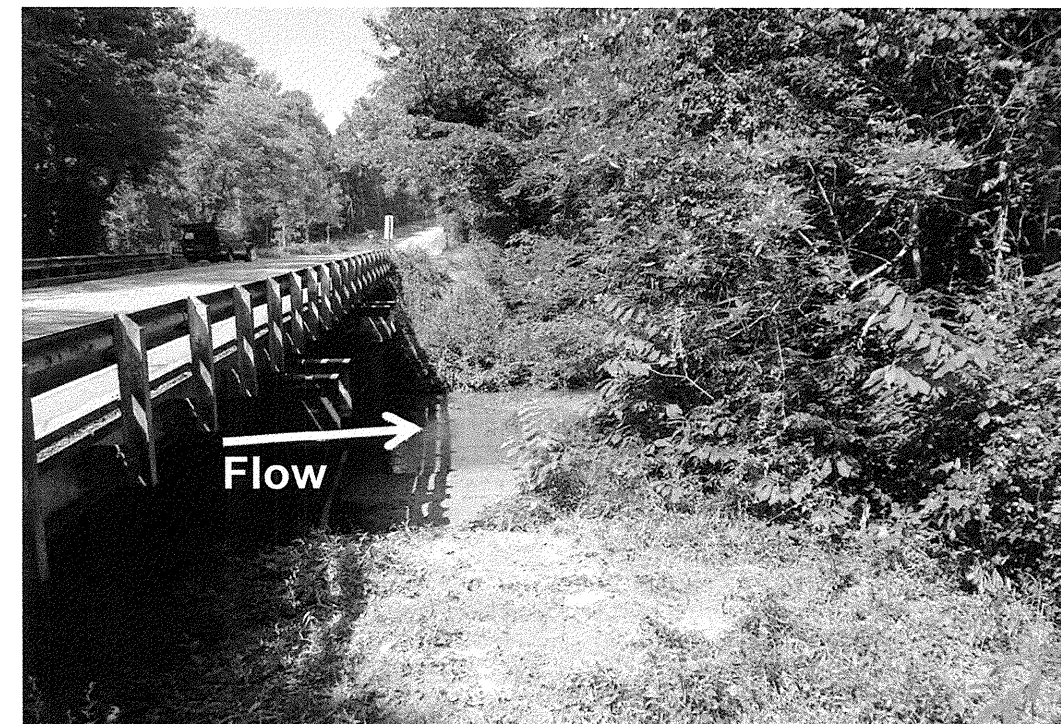
**SITE PHOTOGRAPHS**  
**BRIDGE NO. 120 ON SR 2128 OVER REEDY FORK CREEK**



**View of SR 2128 looking Northeast**



**View of Northwest side of Bridge No. 120 looking Northeast**



**View of Southeast side of Bridge No. 120 looking Northeast**