

7/2/98

REFERENCE: R-5812

PROJECT: 46981

CONTENTS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-8	BORE LOGS

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY GREENE
 PROJECT DESCRIPTION US 13 BYPASS FROM NC 58
(KINGOLD BOULEVARD) TO NC 91
 SITE DESCRIPTION RETAINING WALL ALONG -L- STA
42+49.99 (33.48' LT) TO -L- STA 39+00.00 (35.00' LT)

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5812	1	8

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. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT 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 (IN-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 THE 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.

- NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 2. 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.

PERSONNEL

S. ABERNATHY

CATLIN INC.

-

-

-

-

-

INVESTIGATED BY J. CRENSHAW

DRAWN BY J. CRENSHAW

CHECKED BY E. HOWEY

SUBMITTED BY D. WAINWRIGHT

DATE FEBRUARY, 2019



Jared K. Crenshaw 3/5/2019

SIGNATURE DATE

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

7/2/98

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
 SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS																																																																																																																																																																																																																			
<p>SOIL IS CONSIDERED 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 (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i></p> <p>SOIL LEGEND AND AASHTO CLASSIFICATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="5">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="4">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="3">ORGANIC MATERIALS</th> </tr> <tr> <th>A-1</th> <th>A-3</th> <th>A-2</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th>A-1, A-2</th> <th>A-3</th> <th>A-4, A-5</th> <th>A-6, A-7</th> <th></th> <th></th> <th></th> </tr> <tr> <td>GROUP CLASS.</td> <td>A-1-a</td> <td>A-1-b</td> <td>A-2-4</td> <td>A-2-5</td> <td>A-2-6</td> <td>A-2-7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SYMBOL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>% PASSING</td> <td>50 MX</td> <td>30 MX</td> <td>15 MX</td> <td>50 MX</td> <td>51 MN</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>36 MN</td> <td>36 MN</td> <td>36 MN</td> <td>36 MN</td> <td></td> </tr> <tr> <td>MATERIAL PASSING #10</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MATERIAL PASSING #40</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MATERIAL PASSING #200</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>GROUP INDEX</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>4 MX</td> <td>8 MX</td> <td>12 MX</td> <td>16 MX</td> <td>NO MX</td> <td></td> <td></td> <td></td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td>STONE FRAGS. GRAVEL, AND SAND</td> <td>FINE SAND</td> <td>SILTY OR CLAYEY GRAVEL AND SAND</td> <td>SILTY SOILS</td> <td>CLAYEY SOILS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> <td>HIGHLY ORGANIC SOILS</td> </tr> <tr> <td>GEN. RATING AS SUBGRADE</td> <td colspan="3">EXCELLENT TO GOOD</td> <td colspan="4">FAIR TO POOR</td> <td>FAIR TO POOR</td> <td>POOR</td> <td colspan="5">UNSATURABLE</td> </tr> <tr> <td colspan="14" style="text-align: center;">PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30</td> </tr> </table> <p>WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.</p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p> <p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p> <p>SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50</p> <p>ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE</p> <p>ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. 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. 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. 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. 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> 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, WOULD YIELD SPT N VALUES > 100 BPF</i> ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</i> 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.</p> <p>ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY</p> <p>DIP & DIP DIRECTION OF ROCK STRUCTURES SPT DMT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD TEST BORING WITH CORE SPT N-VALUE</p> <p>UNDERCUT SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL</p> <p>AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HL - HIGHLY MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLL. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY VST - VANE SHEAR TEST WEA. - WEATHERED % - UNIT WEIGHT % - DRY UNIT WEIGHT S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO</p> <p>DRILL UNITS: <input type="checkbox"/> CME-45C <input type="checkbox"/> CME-55 <input type="checkbox"/> CME-55B <input type="checkbox"/> VANE SHEAR TEST <input type="checkbox"/> PORTABLE HOIST <input checked="" type="checkbox"/> CME-45B</p> <p>ADVANCING TOOLS: <input checked="" type="checkbox"/> CLAY BITS <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG.-CARBIDE INSERTS <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input type="checkbox"/> TRICONE _____" STEEL TEETH <input type="checkbox"/> TRICONE _____" TUNG.-CARB. <input type="checkbox"/> CORE BIT</p> <p>HAMMER TYPE: <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL CORE SIZE: <input type="checkbox"/> -B _____ <input type="checkbox"/> -H _____ <input type="checkbox"/> -N _____</p> <p>HAND TOOLS: <input type="checkbox"/> POST HOLE DIGGER <input checked="" type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST</p> <p>FRATURE SPACING <table border="1"> <tr> <th>TERM</th> <th>SPACING</th> <th>TERM</th> <th>THICKNESS</th> </tr> <tr> <td>VERY WIDE</td> <td>MORE THAN 10 FEET</td> <td>VERY THICKLY BEDDED</td> <td>4 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 10 FEET</td> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.16 TO 1 FOOT</td> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.16 FEET</td> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td></td> <td></td> <td>THINLY LAMINATED</td> <td>< 0.008 FEET</td> </tr> </table> <p>BEDDING</p> <p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p> <p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. 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. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. 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. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. 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. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. 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. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N 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 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - 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. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p> <p>BENCH MARK: SEE NOTE BELOW</p> <p>ELEVATION: _____ FEET</p> <p>NOTES: BORING AND GROUND SURFACE ELEVATIONS OBTAINED FROM 'R5812.ls.tin.tin' FILE DATED 12/8/2017 FIAD - Filled Immediately After Drilling <input type="checkbox"/> Pavement / ABC Stone</p> <p>PLASTICITY</p> <table border="1"> <tr> <th>PLASTICITY INDEX (PI)</th> <th>DRY STRENGTH</th> </tr> <tr> <td>0-5</td> <td>VERY LOW</td> </tr> <tr> <td>6-15</td> <td>SLIGHT</td> </tr> <tr> <td>16-25</td> <td>MEDIUM</td> </tr> <tr> <td>26 OR MORE</td> <td>HIGH</td> </tr> </table> <p>COLOR</p> <p>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.</p> </p>	GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS			A-1	A-3	A-2	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7				GROUP CLASS.	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7									SYMBOL															% PASSING	50 MX	30 MX	15 MX	50 MX	51 MN	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN		MATERIAL PASSING #10															MATERIAL PASSING #40															MATERIAL PASSING #200															GROUP INDEX	0	0	0	0	0	0	4 MX	8 MX	12 MX	16 MX	NO MX				USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND	FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND	SILTY SOILS	CLAYEY SOILS								SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER	HIGHLY ORGANIC SOILS	GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD			FAIR TO POOR				FAIR TO POOR	POOR	UNSATURABLE					PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30														TERM	SPACING	TERM	THICKNESS	VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED	4 FEET	WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET	MODERATELY CLOSE	1 TO 3 FEET	THINLY BEDDED	0.16 - 1.5 FEET	CLOSE	0.16 TO 1 FOOT	VERY THINLY BEDDED	0.03 - 0.16 FEET	VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET			THINLY LAMINATED	< 0.008 FEET	PLASTICITY INDEX (PI)	DRY STRENGTH	0-5	VERY LOW	6-15	SLIGHT	16-25	MEDIUM	26 OR MORE	HIGH
GENERAL CLASS.		GRANULAR MATERIALS (≤ 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS																																																																																																																																																																																																											
	A-1	A-3	A-2	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7																																																																																																																																																																																																											
GROUP CLASS.	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7																																																																																																																																																																																																																
SYMBOL																																																																																																																																																																																																																						
% PASSING	50 MX	30 MX	15 MX	50 MX	51 MN	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN																																																																																																																																																																																																									
MATERIAL PASSING #10																																																																																																																																																																																																																						
MATERIAL PASSING #40																																																																																																																																																																																																																						
MATERIAL PASSING #200																																																																																																																																																																																																																						
GROUP INDEX	0	0	0	0	0	0	4 MX	8 MX	12 MX	16 MX	NO MX																																																																																																																																																																																																											
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND	FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND	SILTY SOILS	CLAYEY SOILS								SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER	HIGHLY ORGANIC SOILS																																																																																																																																																																																																								
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD			FAIR TO POOR				FAIR TO POOR	POOR	UNSATURABLE																																																																																																																																																																																																												
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30																																																																																																																																																																																																																						
TERM	SPACING	TERM	THICKNESS																																																																																																																																																																																																																			
VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED	4 FEET																																																																																																																																																																																																																			
WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET																																																																																																																																																																																																																			
MODERATELY CLOSE	1 TO 3 FEET	THINLY BEDDED	0.16 - 1.5 FEET																																																																																																																																																																																																																			
CLOSE	0.16 TO 1 FOOT	VERY THINLY BEDDED	0.03 - 0.16 FEET																																																																																																																																																																																																																			
VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET																																																																																																																																																																																																																			
		THINLY LAMINATED	< 0.008 FEET																																																																																																																																																																																																																			
PLASTICITY INDEX (PI)	DRY STRENGTH																																																																																																																																																																																																																					
0-5	VERY LOW																																																																																																																																																																																																																					
6-15	SLIGHT																																																																																																																																																																																																																					
16-25	MEDIUM																																																																																																																																																																																																																					
26 OR MORE	HIGH																																																																																																																																																																																																																					

8/17/09

PROJECT REFERENCE NO. <i>R-5812</i>	SHEET NO. <i>3</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

END RETAINING WALL
 -W_L- POT Sta. 13+50.00
 -L- POT Sta. 39+00.00
 OFFSET 35.00' LT

BEGIN RETAINING WALL
 -W_L- POT Sta. 10+00.00 =
 -L- POT Sta. 42+49.99
 OFFSET 33.48' LT

-W_L- PI Sta. 10+90.00

-L- POT Sta. 39+18.07 =
 -YISPUR- POT Sta. 10+00.00

40

45

ALLUVIAL

ALLUVIAL

WOODEN FOOT BRIDGE

IS LOG CABIN

CONTENTNEA CREEK

WOODS

WOODS

S 53° 32' 25.7" W c -W L-

S 54° 30' 19.1" W c

ROADWAY EMBANKMENT

TO SNOW HILL

TO GREENVILLE

WI-1

WI-2

WI-3

WI-4

WI-5

WI-6

WI-7

S 36° 27' 34.3" E

-YISPUR- PC Sta. 10+79.73

ROADWAY EMBANKMENT

ALLUVIAL

ALLUVIAL

-YI- POC Sta. 17+35.66 =
 -YISPUR- PT Sta. 12+20.55

ALLUVIAL

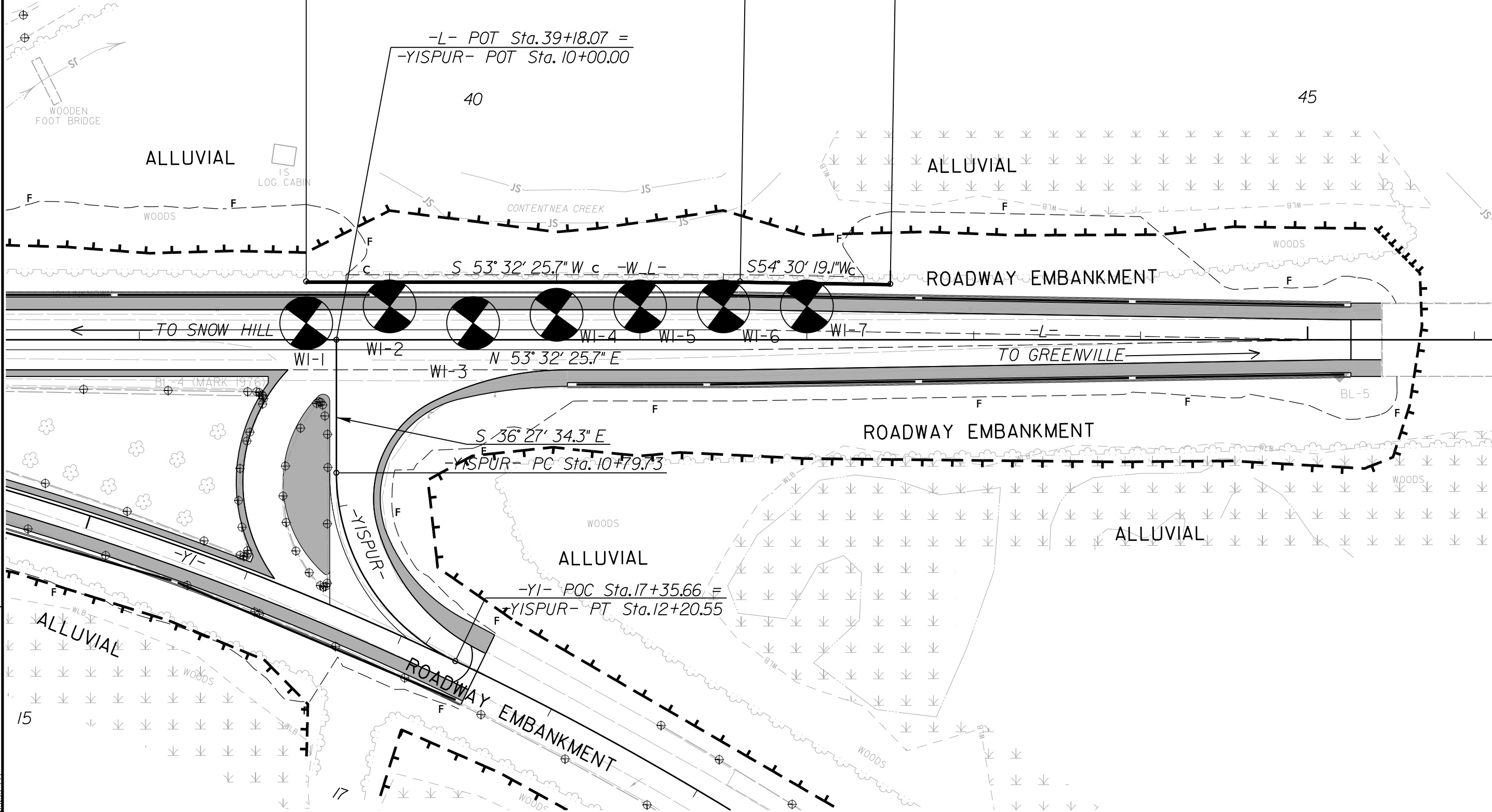
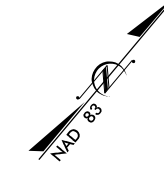
ROADWAY EMBANKMENT

15

17

REVISIONS

2/7/2009
 11:56:12 a.m.
 52:20:55

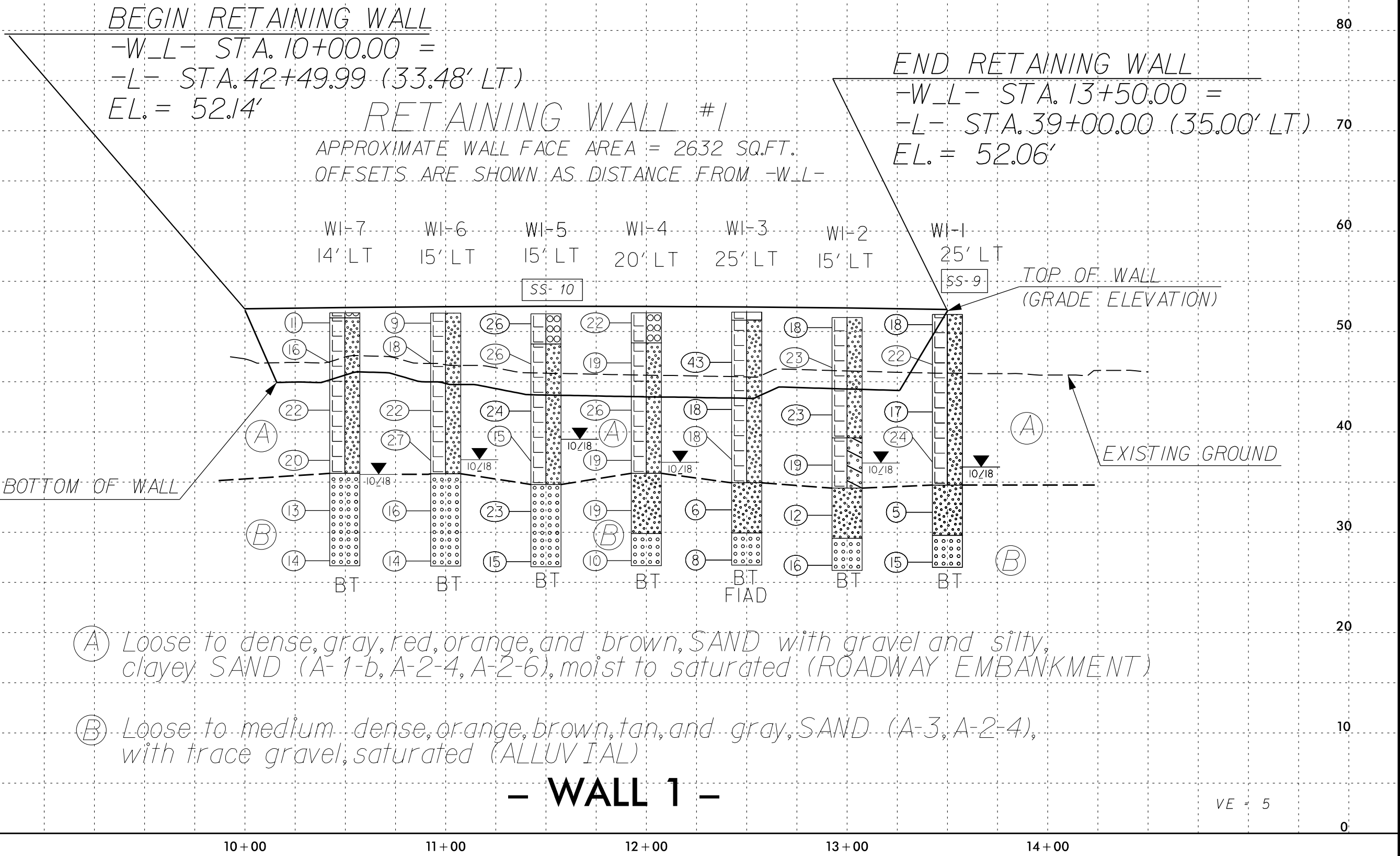


5/14/09

PROJECT REFERENCE NO. R-5812	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

GROUNDLINE PROFILE CREATED FROM R5812_Is_tin.tin FILE
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE WALL PROFILE

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-10	15' LT	11+50	13.7-15.2	A-2-4	25	6	13.7	66.0	3.2	17.1	100	97	23	25	-
SS-9	25' LT	13+50	8.7-10.2	A-2-4	21	4	44.3	37.2	5.3	13.1	100	78	21	17	-



2/22/2019 10:35:40 AM
R5812 GEO_WALL_PFL3.dgn

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 46981.1.1		TIP R-5812		COUNTY GREENE		GEOLOGIST S. Abernathy									
SITE DESCRIPTION Retaining Wall Along -L- STA 42+49.99 (33.48' LT) to -L- STA 39+00 (35.00' LT)							GROUND WTR (ft)								
BORING NO. W1-1		STATION 13+50		OFFSET 25 ft LT		ALIGNMENT -W_L-									
COLLAR ELEV. 51.7 ft		TOTAL DEPTH 25.2 ft		NORTHING 624,148		EASTING 2,393,837									
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 76% 07/10/2017				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER T. Chalmers		START DATE 10/02/18		COMP. DATE 10/02/18		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					
55															
	51.7	0.0	4	11	7									51.7	GROUND SURFACE
50	47.7	4.0	5	10	12										ROADWAY EMBANKMENT Medium dense, orange, brown, and tan, fine SAND (A-2-4), with trace gravel
45	43.0	8.7	8	8	9										
40	38.0	13.7	9	9	15										
35	33.0	18.7	3	2	3										
30	28.0	23.7	6	7	8										
														34.7	ALLUVIAL Loose to medium dense, orange, tan, and brown, fine to coarse SAND (A-2-4, A-3)
														29.7	
														26.5	Boring Terminated at Elevation 26.5 ft Boring terminated in SAND (A-3)

WBS 46981.1.1		TIP R-5812		COUNTY GREENE		GEOLOGIST S. Abernathy									
SITE DESCRIPTION Retaining Wall Along -L- STA 42+49.99 (33.48' LT) to -L- STA 39+00 (35.00' LT)							GROUND WTR (ft)								
BORING NO. W1-2		STATION 13+00		OFFSET 15 ft LT		ALIGNMENT -W_L-									
COLLAR ELEV. 51.5 ft		TOTAL DEPTH 25.2 ft		NORTHING 624,159		EASTING 2,393,887									
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 76% 07/10/2017				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER T. Chalmers		START DATE 10/02/18		COMP. DATE 10/02/18		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					
55															
	51.5	0.0	6	12	6									51.5	GROUND SURFACE
50	47.5	4.0	8	10	13										ROADWAY EMBANKMENT Medium dense, brown, tan, and gray, fine SAND and clayey SAND (A-2-4, A-2-6)
45	42.8	8.7	8	11	12										
40	37.8	13.7	9	8	11										
35	32.8	18.7	4	5	7										
30	27.8	23.7	7	9	7										
														39.5	12.0
														34.5	17.0
														29.5	22.0
														26.3	25.2
															Boring Terminated at Elevation 26.3 ft Boring terminated in SAND (A-3)

NCDOT BORE DOUBLE R-5812_SNOWHILL_GINT.GPJ_NC_DOT.GDT 11/29/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 46981.1.1		TIP R-5812		COUNTY GREENE		GEOLOGIST S. Abernathy									
SITE DESCRIPTION Retaining Wall Along -L- STA 42+49.99 (33.48' LT) to -L- STA 39+00 (35.00' LT)							GROUND WTR (ft)								
BORING NO. W1-3		STATION 12+50		OFFSET 25 ft LT		ALIGNMENT -W_L-									
COLLAR ELEV. 51.9 ft		TOTAL DEPTH 25.2 ft		NORTHING 624,149		EASTING 2,393,937									
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 76% 07/10/2017				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER T. Chalmers		START DATE 10/01/18		COMP. DATE 10/01/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)
55															
50	47.9	4.0	17	20	23									51.9 51.1	0.0 0.8
45	43.2	8.7	10	7	11										
40	38.2	13.7	12	10	8										
35	33.2	18.7	2	3	3										
30	28.2	23.7	4	3	5										

WBS 46981.1.1		TIP R-5812		COUNTY GREENE		GEOLOGIST S. Abernathy									
SITE DESCRIPTION Retaining Wall Along -L- STA 42+49.99 (33.48' LT) to -L- STA 39+00 (35.00' LT)							GROUND WTR (ft)								
BORING NO. W1-4		STATION 12+00		OFFSET 20 ft LT		ALIGNMENT -W_L-									
COLLAR ELEV. 51.9 ft		TOTAL DEPTH 25.2 ft		NORTHING 624,154		EASTING 2,393,987									
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 76% 07/10/2017				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER T. Chalmers		START DATE 10/01/18		COMP. DATE 10/01/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)
55															
50	51.9	0.0	4	14	8									51.9	0.0
45	47.9	4.0	3	10	9										
40	43.2	8.7	7	12	14										
35	38.2	13.7	11	10	9										
30	33.2	18.7	7	8	11										
	28.2	23.7	3	4	6										

NCDOT BORE DOUBLE R-5812_SNOWHILL_GINT.GPJ NC_DOT.GDT 11/29/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 46981.1.1		TIP R-5812		COUNTY GREENE		GEOLOGIST S. Abernathy										
SITE DESCRIPTION Retaining Wall Along -L- STA 42+49.99 (33.48' LT) to -L- STA 39+00 (35.00' LT)							GROUND WTR (ft)									
BORING NO. W1-5		STATION 11+50		OFFSET 15 ft LT		ALIGNMENT -W_L-										
COLLAR ELEV. 51.8 ft		TOTAL DEPTH 25.2 ft		NORTHING 624,159		EASTING 2,394,037										
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 76% 07/10/2017				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER T. Chalmers		START DATE 10/01/18		COMP. DATE 10/01/18		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						
55																
	51.8	0.0	4	15	11									51.8	GROUND SURFACE	0.0
50	47.8	4.0	8	12	14									48.8	ROADWAY EMBANKMENT Medium dense, brown, clayey SAND and SAND with gravel (A-2-4, A-1-b)	3.0
45	43.1	8.7	8	10	14											
40	38.1	13.7	9	6	9											
35	33.1	18.7	9	11	12									34.8	ALLUVIAL Medium dense, tan, fine to coarse SAND (A-3)	17.0
30	28.1	23.7	5	7	8									26.6	Boring Terminated at Elevation 26.6 ft Boring terminated in SAND (A-3)	25.2

WBS 46981.1.1		TIP R-5812		COUNTY GREENE		GEOLOGIST S. Abernathy										
SITE DESCRIPTION Retaining Wall Along -L- STA 42+49.99 (33.48' LT) to -L- STA 39+00 (35.00' LT)							GROUND WTR (ft)									
BORING NO. W1-6		STATION 11+00		OFFSET 15 ft LT		ALIGNMENT -W_L-										
COLLAR ELEV. 51.9 ft		TOTAL DEPTH 25.2 ft		NORTHING 624,159		EASTING 2,394,086										
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 76% 07/10/2017				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER T. Chalmers		START DATE 10/01/18		COMP. DATE 10/01/18		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						
55																
	51.9	0.0	4	5	4									51.9	GROUND SURFACE	0.0
50	47.9	4.0	3	8	10										ROADWAY EMBANKMENT Loose to medium dense, orange, brown, and white, fine SAND (A-2-4)	
45	43.2	8.7	9	10	12											
40	38.2	13.7	8	14	13											
35	33.2	18.7	7	8	8									35.9	ALLUVIAL Medium dense, orange and brown, fine to coarse SAND (A-3)	16.0
30	28.2	23.7	5	7	7									26.7	Boring Terminated at Elevation 26.7 ft Boring terminated in SAND (A-3)	25.2

NCDOT BORE DOUBLE R-5812_SNOWHILL_GINT.GPJ NC_DOT.GDT 11/29/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 46981.1.1		TIP R-5812		COUNTY GREENE		GEOLOGIST S. Abernathy										
SITE DESCRIPTION Retaining Wall Along -L- STA 42+49.99 (33.48' LT) to -L- STA 39+00 (35.00' LT)							GROUND WTR (ft)									
BORING NO. W1-7		STATION 10+50		OFFSET 14 ft LT		ALIGNMENT -W_L-	0 HR. 10.3									
COLLAR ELEV. 51.9 ft		TOTAL DEPTH 25.2 ft		NORTHING 624,159		EASTING 2,394,137	24 HR. 16.1									
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 76% 07/10/2017				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER T. Chalmers		START DATE 10/01/18		COMP. DATE 10/01/18		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
55																
	51.9	0.0	3	5	6	11							D		51.9	0.0
50	47.9	4.0	6	7	9	16							M	ROADWAY EMBANKMENT Medium dense, orange, brown, and white, fine to coarse SAND (A-2-4, A-1-b), contains trace silt		
45	43.2	8.7	7	10	12	22							M			
40	38.2	13.7	11	8	12	20										
35	33.2	18.7	6	6	7	13							Sat.	ALLUVIAL Medium dense, orange and tan, coarse SAND (A-3)		
30	28.2	23.7	5	7	7	14							Sat.	Boring Terminated at Elevation 26.7 ft Boring terminated in SAND (A-3)		

NCDOT BORE DOUBLE R-5812_SNOWHILL_GINT.GPJ NC_DOT.GDT 11/29/18