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REFERENCE: U-2579AA

PROJECT: 34839

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY FORSYTH
PROJECT DESCRIPTION WINSTON-SALEM NORTHERN
BELTWAY EASTERN SECTION (FUTURE I-74)
FROM US 311 TO I-40
SITE DESCRIPTION BRIDGE NO. 732 ON -Y1- (STA. 30+69.44)
(HIGH POINT RD.) OVER FUTURE I-74

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5-7	CROSS SECTIONS
8-15	BORING LOGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AA	1	15

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 CONTRACTOR 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

HPC
ECS
GOODNIGHT, D.W.

INVESTIGATED BY GOODNIGHT, D.W.
DRAWN BY HILL, M.J.
CHECKED BY HAMM, J.R.
SUBMITTED BY FALCON ENG.
DATE AUGUST 2019



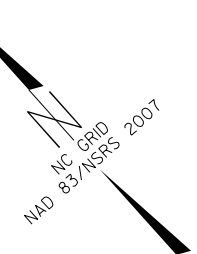
Designed by:
W. Scott Hunsberger

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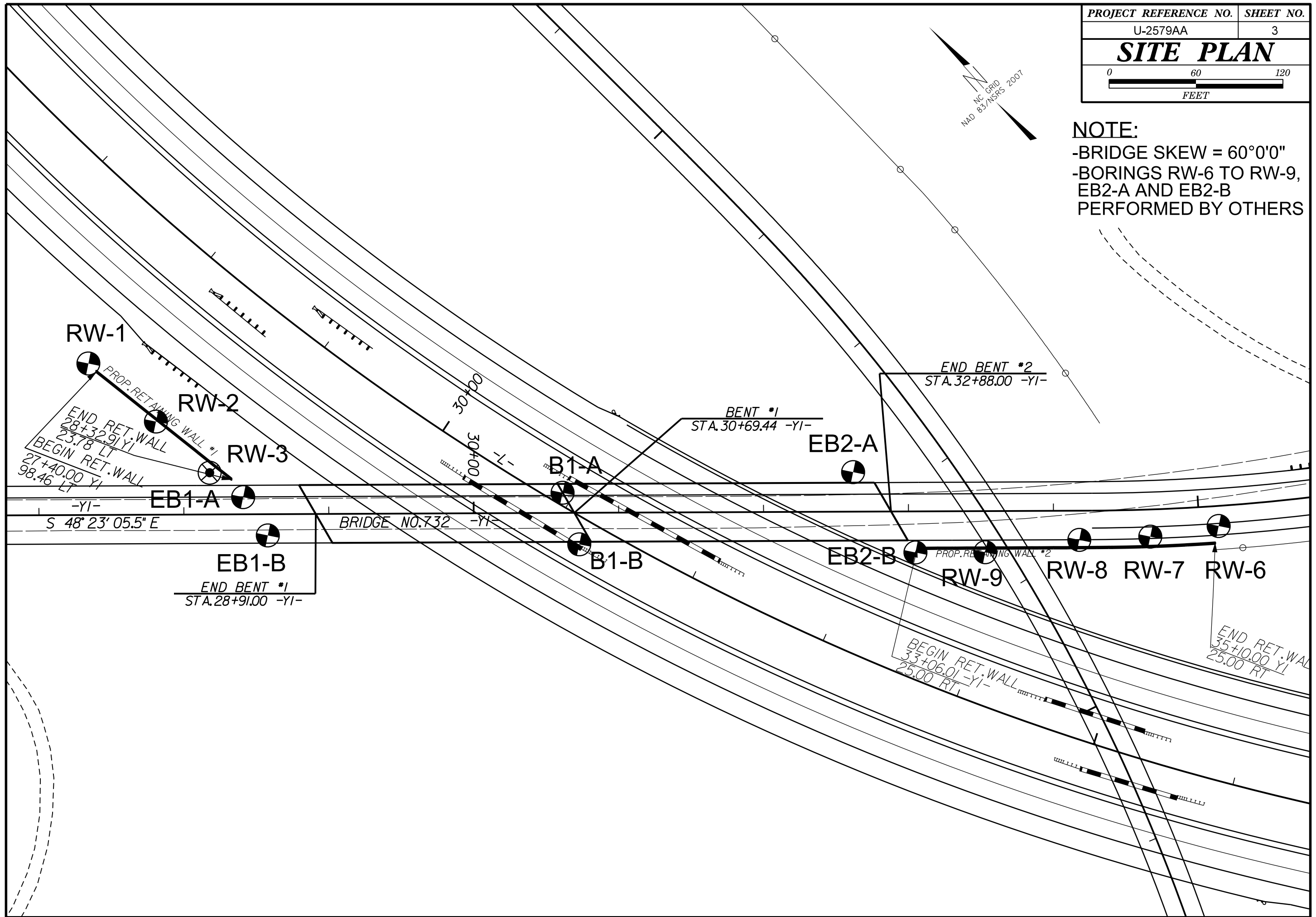
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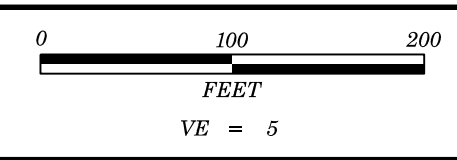
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

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 208, 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>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>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, 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 0.1 FOOT PER 60 BLOWS 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:</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 DISLOADED 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 (ROD) - 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 (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 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 style="text-align: center;">SOIL LEGEND AND AASHTO CLASSIFICATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>GENERAL CLASS.</th> <th colspan="5">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="5">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="5">ORGANIC MATERIALS</th> </tr> <tr> <th>GROUP CLASS.</th> <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 colspan="5"></th> </tr> <tr> <th>SYMBOL</th> <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></td> <td></td> <td></td> </tr> <tr> <th>% PASSING #10 #40 #200</th> <td>50 MX 30 MX 15 MX</td> <td>50 MX 25 MX</td> <td>51 MN 35 MX 35 MX</td> <td>35 MX 35 MX</td> <td>35 MX 35 MX</td> <td>35 MX 35 MX</td> <td>36 MN 36 MN</td> <td>36 MN 36 MN</td> <td>36 MN 36 MN</td> <td>36 MN 36 MN</td> <td>36 MN 36 MN</td> <td>GRANULAR SOILS</td> <td>SILT-CLAY SOILS</td> <td>MUCK, PEAT</td> <td colspan="3"></td> </tr> <tr> <th>MATERIAL PASSING #40 LL PI</th> <td colspan="11"></td> <td colspan="5">SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> <td colspan="5">HIGHLY ORGANIC SOILS</td> </tr> <tr> <th>GROUP INDEX</th> <td colspan="11"></td> <td colspan="5">FAIR TO POOR</td> <td colspan="5">POOR</td> </tr> <tr> <th>USUAL TYPES OF MAJOR MATERIALS</th> <td colspan="11">STONE FRAGS. 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ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p style="text-align: center;">WEATHERING</p> <p>FRESH: ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p> <p>VERY SLIGHT (IV SLI.): 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.</p> <p>SLIGHT (SLI.): 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.</p> <p>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.</p> <p>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></p> <p>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, WOULD YIELD SPT N VALUES > 100 BPF</i></p> <p>VERY SEVERE (IV SEV.): 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></p> <p>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.</p>										<p style="text-align: center;">GROUND WATER</p> <p> WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING</p> <p> STATIC WATER LEVEL AFTER 24 HOURS</p> <p> PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA</p> <p> SPRING OR SEEP</p>									
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<p style="text-align: center;">INDURATION</p> <p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <p>FRIABLE: RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</p> <p>MODERATELY INDURATED: GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</p> <p>INDURATED: GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</p> <p>EXTREMELY INDURATED: SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>										<p style="text-align: center;">FRACATURE SPACING</p> <p>VERY WIDE: MORE THAN 10 FEET WIDE: 3 TO 10 FEET MODERATELY CLOSE: 1 TO 3 FEET CLOSE: 0.16 TO 1 FOOT VERY CLOSE: LESS THAN 0.16 FEET</p>										<p style="text-align: center;">BEDDING</p> <p>VERY THICKLY BEDDED: 4 FEET THICKLY BEDDED: 1.5 - 4 FEET THINLY BEDDED: 0.16 - 1.5 FEET VERY THINLY BEDDED: 0.03 - 0.16 FEET THICKLY LAMINATED: 0.008 - 0.03 FEET THINLY LAMINATED: < 0.008 FEET</p>																																																																																																																																																																																																																								
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ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p> <p>VERY SLIGHT (IV SLI.): 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.</p> <p>SLIGHT (SLI.): 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.</p> <p>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.</p> <p>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></p> <p>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, WOULD YIELD SPT N VALUES > 100 BPF</i></p> <p>VERY SEVERE (IV SEV.): 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></p> <p>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.</p>										<p style="text-align: center;">TERMS AND DEFINITIONS</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 DISLOADED 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 (ROD) - 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 (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 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 style="text-align: center;">PLASTICITY</p> <p>NON PLASTIC: 0-5 SLIGHTLY PLASTIC: 6-15 MODERATELY PLASTIC: 16-25 HIGHLY PLASTIC: 26 OR MORE</p>										<p style="text-align: center;">DRILL UNITS:</p> <p><input type="checkbox"/> CME-45C <input type="checkbox"/> CME-55 <input checked="" type="checkbox"/> CME-550 <input type="checkbox"/> VANE SHEAR TEST <input type="checkbox"/> PORTABLE HOIST</p>										<p style="text-align: center;">ADVANCING TOOLS:</p> <p><input 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 checked="" type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input checked="" type="checkbox"/> TRICONE <input type="checkbox"/> 2 1/2" * STEEL TEETH <input type="checkbox"/> TRICONE <input type="checkbox"/> * TUNG-CARB. <input type="checkbox"/> CORE BIT</p>										<p style="text-align: center;">WEATHERING</p> <p>FRESH: ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p> <p>VERY SLIGHT (IV SLI.): 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.</p> <p>SLIGHT (SLI.): 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.</p> <p>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.</p> <p>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></p> <p>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, WOULD YIELD SPT N VALUES > 100 BPF</i></p> <p>VERY SEVERE (IV SEV.): 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></p> <p>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.</p>										<p style="text-align: center;">TERMS AND DEFINITIONS</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 APP</p>																																																																																																																																																																																																				



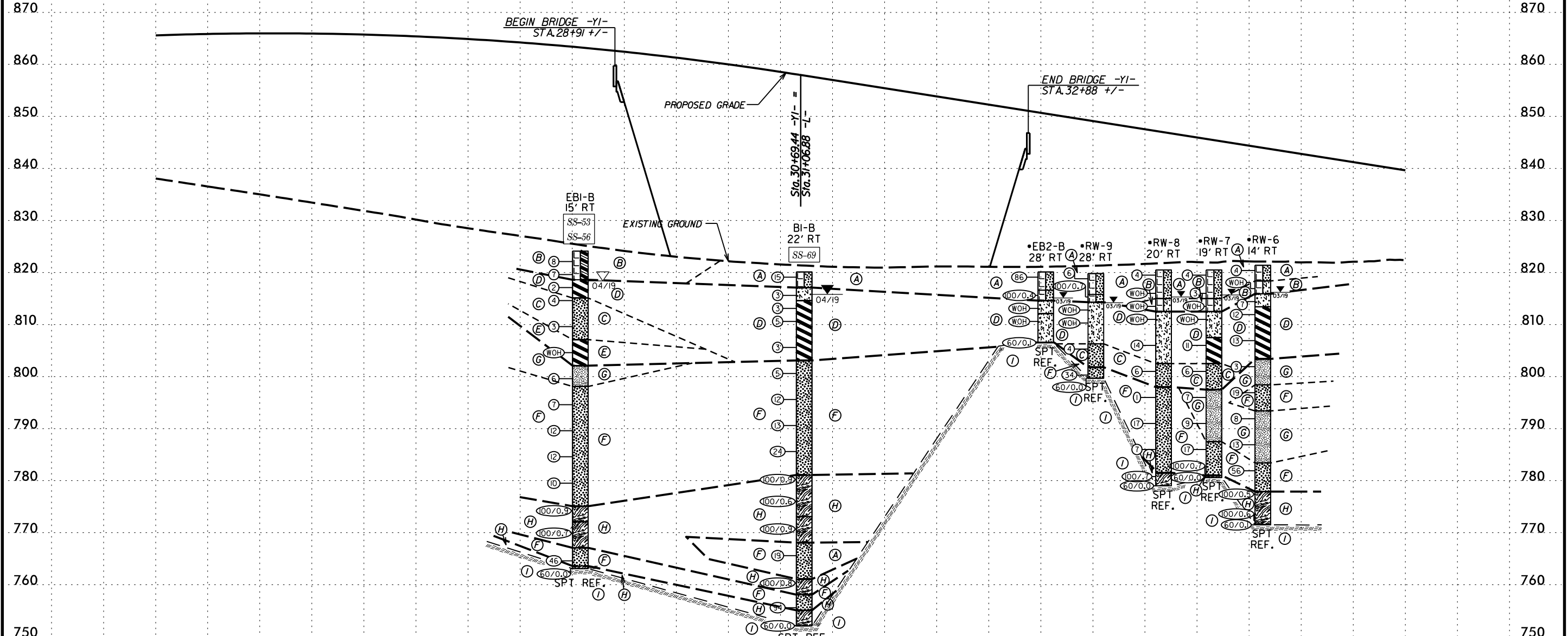
NOTE:
 -BRIDGE SKEW = 60°0'0"
 -BORINGS RW-6 TO RW-9, EB2-A AND EB2-B PERFORMED BY OTHERS





SOIL TEST RESULTS

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-53	15' RT	28+58	6.0'-7.5'	A-7-5	50	17	20	27	17	36	100	87	58	35	-
SS-56	15' RT	28+58	18.5'-20.0'	A-7-5	72	30	13	21	26	40	99	92	72	72	-
SS-69	22' RT	30+73	13.5'-15.0'	A-7-6	43	20	10	32	16	42	100	97	63	34	-



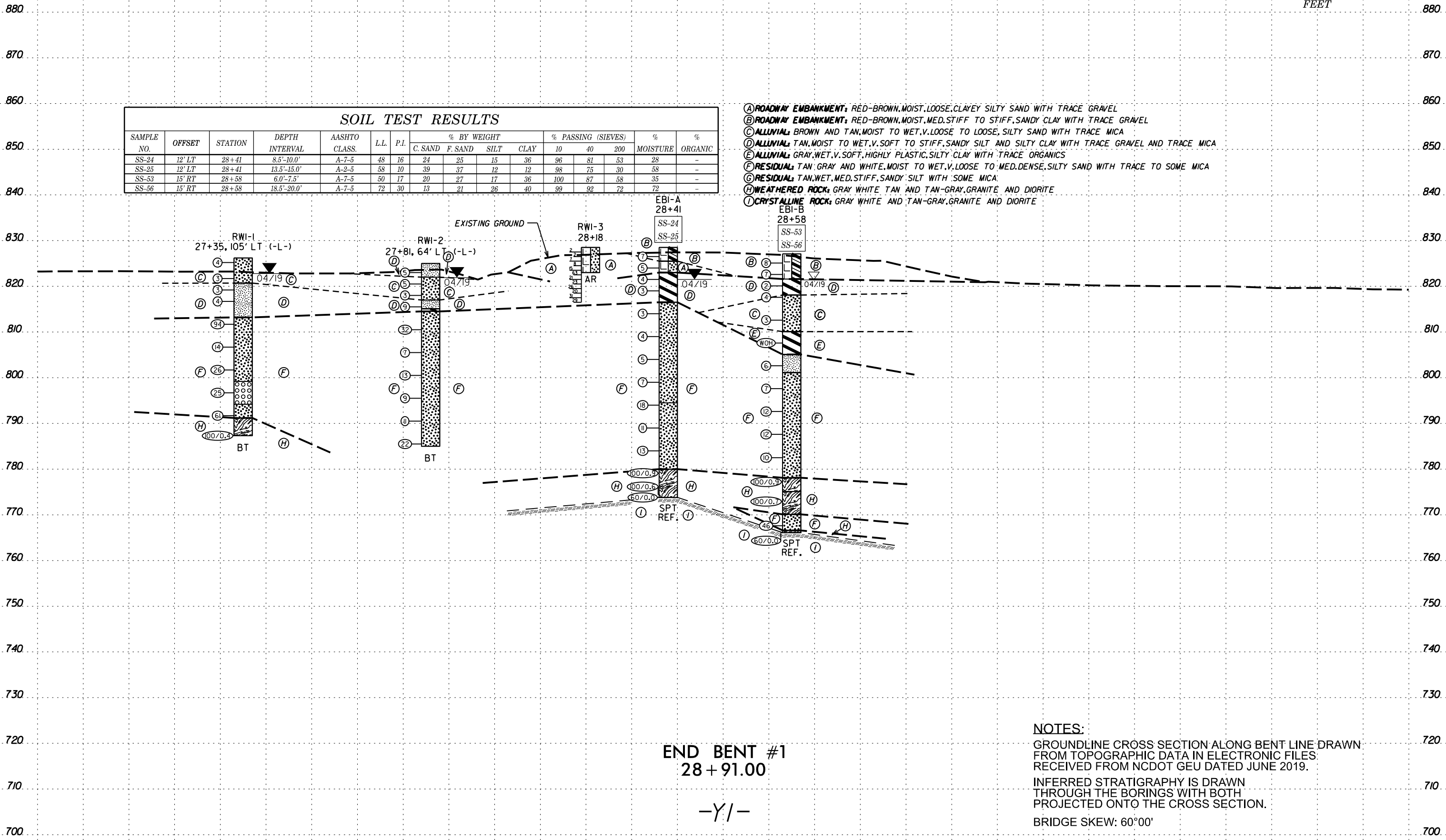
- (A) ROADWAY EMBANKMENT: TAN ORANGE BROWN WHITE RED AND BROWN, MOIST, LOOSE TO V. DENSE, SILTY SAND WITH TRACE GRAVEL, TRACE MICA AND TRACE ORGANICS
- (B) ROADWAY EMBANKMENT: RED-BROWN RED GRAY AND BROWN, MOIST TO WET, V. SOFT TO MED. STIFF, SANDY CLAY AND CLAYEY SILT WITH TRACE GRAVEL AND TRACE MICA
- (C) ALLUVIAL: TAN AND GRAY, WET TO SAT, V. LOOSE TO LOOSE, SILTY SAND WITH TRACE TO LITTLE MICA AND TRACE ORGANICS
- (D) ALLUVIAL: TAN BROWN GRAY RED AND ORANGE, MOIST TO WET, V. SOFT TO STIFF, SILTY CLAY AND CLAYEY SILT WITH TRACE MICA AND TRACE ORGANICS
- (E) ALLUVIAL: GRAY, WET, V. SOFT, HIGHLY PLASTIC SILTY CLAY WITH TRACE ORGANICS
- (F) RESIDUAL: TAN WHITE GRAY BROWN BLACK AND ORANGE, MOIST TO WET, V. LOOSE TO V. DENSE, SILTY SAND WITH TRACE TO SOME MICA AND TRACE ORGANICS
- (G) RESIDUAL: TAN ORANGE BLACK WHITE AND ORANGE-BROWN, WET, SOFT TO STIFF, SANDY SILT WITH TRACE TO SOME MICA
- (H) WEATHERED ROCK: TAN WHITE GRAY ORANGE AND BROWN, GRANITE AND DIORITE
- (I) CRYSTALLINE ROCK: TAN WHITE GRAY ORANGE AND BROWN, GRANITE AND DIORITE

NOTES:
 GROUNDLINE PROFILE DRAWN ALONG CENTERLINE OF STRUCTURE. GENERATED FROM TIN FILE: u2579aa_LS_TIN.tin DATED JUNE, 2019.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
 BORINGS RW-6 TO RW-9 AND EB2-B PERFORMED BY OTHERS
 EB2-B LABELED AS RW-10 BY OTHERS
 BRIDGE SKEW: 60°0'

8/23/99

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

0 20 40
FEET



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-24	12' LT	28+41	8.5'-10.0'	A-7-5	48	16	24	25	15	36	96	81	53	28	-
SS-25	12' LT	28+41	13.5'-15.0'	A-2-5	58	10	39	37	12	12	98	75	30	58	-
SS-53	15' RT	28+58	6.0'-7.5'	A-7-5	50	17	20	27	17	36	100	87	58	35	-
SS-56	15' RT	28+58	18.5'-20.0'	A-7-5	72	30	13	21	26	40	99	92	72	-	-

- (A) ROADWAY EMBANKMENT: RED-BROWN, MOIST, LOOSE, CLAYEY SILTY SAND WITH TRACE GRAVEL
- (B) ROADWAY EMBANKMENT: RED-BROWN, MOIST, MED. STIFF TO STIFF, SANDY CLAY WITH TRACE GRAVEL
- (C) ALLUVIAL: BROWN AND TAN, MOIST TO WET, V. LOOSE TO LOOSE, SILTY SAND WITH TRACE MICA
- (D) ALLUVIAL: TAN, MOIST TO WET, V. SOFT TO STIFF, SANDY SILT AND SILTY CLAY WITH TRACE GRAVEL AND TRACE MICA
- (E) ALLUVIAL: GRAY, WET, V. SOFT, HIGHLY PLASTIC, SILTY CLAY WITH TRACE ORGANICS
- (F) RESIDUAL: TAN, GRAY AND WHITE, MOIST TO WET, V. LOOSE TO MED. DENSE, SILTY SAND WITH TRACE TO SOME MICA
- (G) RESIDUAL: TAN, WET, MED. STIFF, SANDY SILT WITH SOME MICA
- (H) WEATHERED ROCK: GRAY WHITE TAN AND TAN-GRAY, GRANITE AND DIORITE
- (I) CRYSTALLINE ROCK: GRAY WHITE AND TAN-GRAY, GRANITE AND DIORITE

END BENT #1
28+91.00

-Y/-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM NCDOT GEU DATED JUNE 2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 60°00'

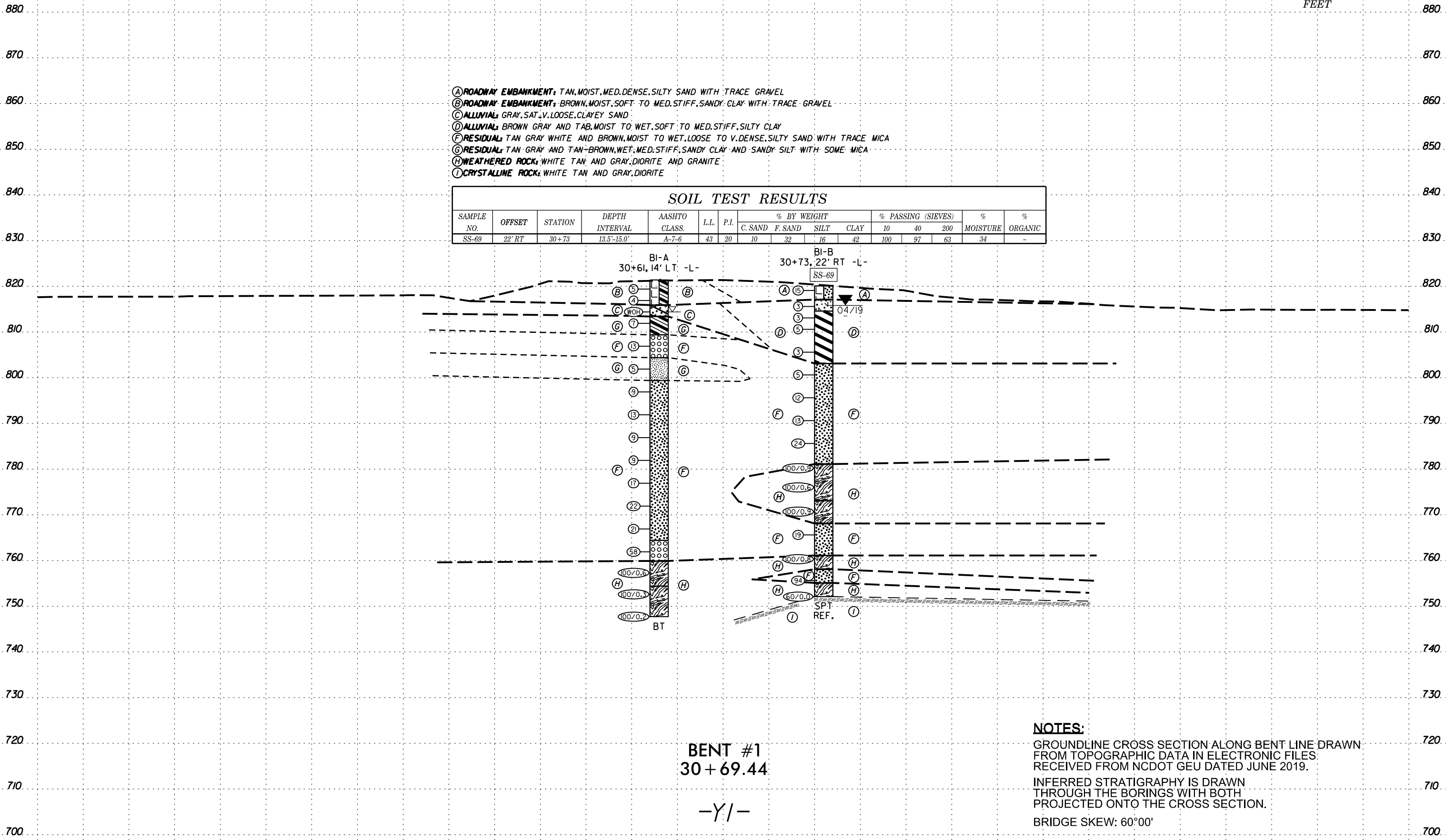
8/23/99

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

8/23/99

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

0 20 40
FEET



- (A) ROADWAY EMBANKMENT: TAN, MOIST, MED. DENSE, SILTY SAND WITH TRACE GRAVEL
- (B) ROADWAY EMBANKMENT: BROWN, MOIST, SOFT TO MED. STIFF, SANDY CLAY WITH TRACE GRAVEL
- (C) ALLUVIAL: GRAY, SAT., V. LOOSE, CLAYEY SAND
- (D) ALLUVIAL: BROWN GRAY AND TAN, MOIST TO WET, SOFT TO MED. STIFF, SILTY CLAY
- (E) RESIDUAL: TAN GRAY WHITE AND BROWN, MOIST TO WET, LOOSE TO V. DENSE, SILTY SAND WITH TRACE MICA
- (F) RESIDUAL: TAN GRAY AND TAN-BROWN, WET, MED. STIFF, SANDY CLAY AND SANDY SILT WITH SOME MICA
- (H) WEATHERED ROCK: WHITE TAN AND GRAY, DIORITE AND GRANITE
- (I) CRYSTALLINE ROCK: WHITE TAN AND GRAY, DIORITE

SOIL TEST RESULTS															
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-69	22' RT	30+73	13.5'-15.0'	A-7-6	43	20	10	32	16	42	100	97	63	34	-

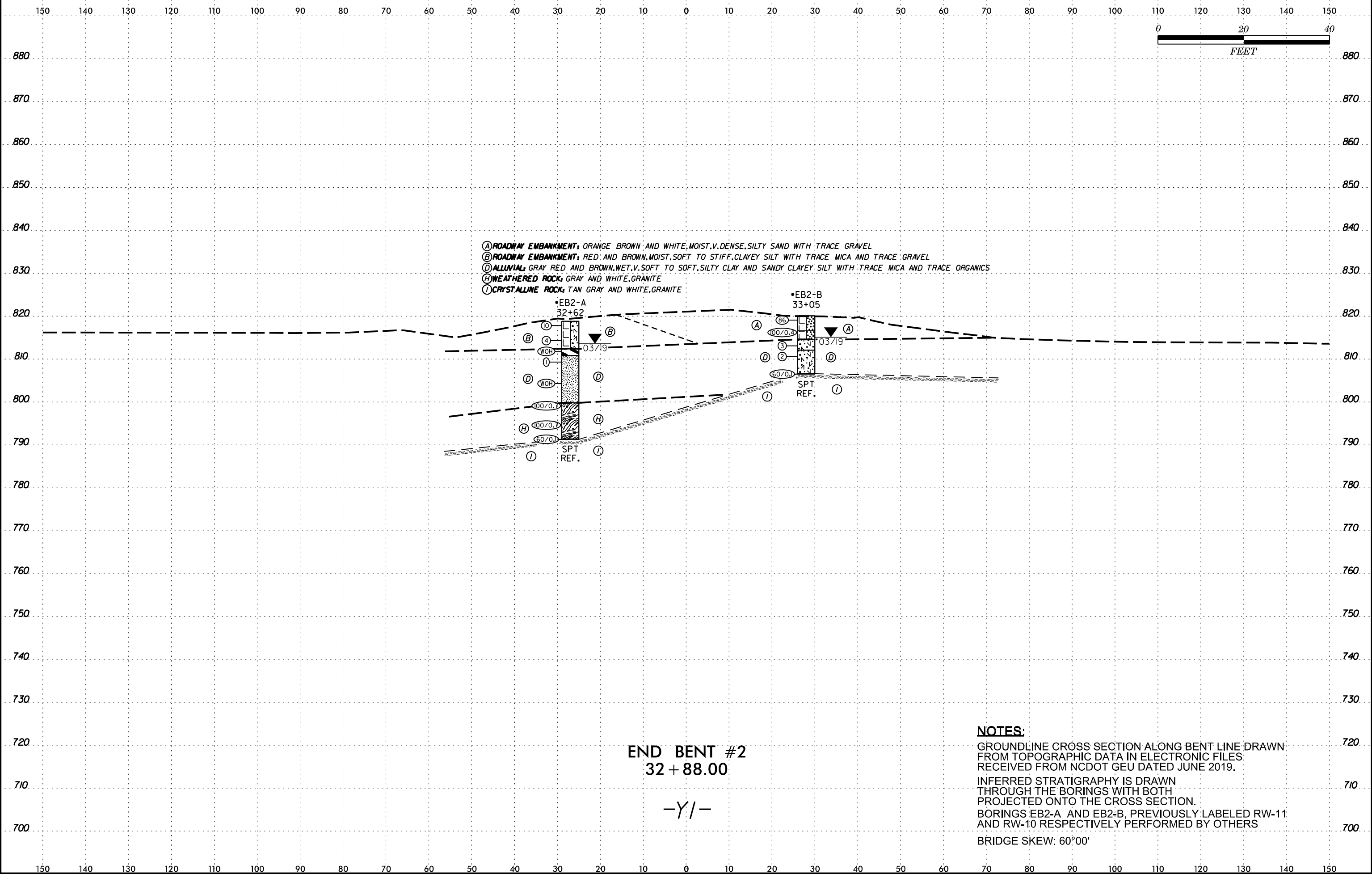
BENT #1
30+69.44
-Y/-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM NCDOT GEU DATED JUNE 2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 60°00'

8/23/99

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

8/23/99



- (A) ROADWAY EMBANKMENT: ORANGE BROWN AND WHITE, MOIST, V. DENSE, SILTY SAND WITH TRACE GRAVEL
- (B) ROADWAY EMBANKMENT: RED AND BROWN, MOIST, SOFT TO STIFF, CLAYEY SILT WITH TRACE MICA AND TRACE GRAVEL
- (D) ALLUVIAL: GRAY RED AND BROWN, WET, V. SOFT TO SOFT, SILTY CLAY AND SANDY CLAYEY SILT WITH TRACE MICA AND TRACE ORGANICS
- (H) WEATHERED ROCK: GRAY AND WHITE, GRANITE
- (I) CRYSTALLINE ROCK: TAN GRAY AND WHITE, GRANITE

END BENT #2
32 + 88.00

-Y/-

NOTES:

GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM NCDOT GEU DATED JUNE 2019.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
 BORINGS EB2-A AND EB2-B, PREVIOUSLY LABELED RW-11 AND RW-10 RESPECTIVELY PERFORMED BY OTHERS
 BRIDGE SKEW: 60°00'

8/23/99

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST GOODNIGHT, D. J.										
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD OVER FUTURE I-74							GROUND WTR (ft)									
BORING NO. RW1-1		STATION 27+35		OFFSET 105 ft LT		ALIGNMENT -Y1-										
COLLAR ELEV. 823.2 ft		TOTAL DEPTH 38.9 ft		NORTHING 842,191		EASTING 1,660,939										
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 87% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER ODOM, C.		START DATE 04/29/19		COMP. DATE 04/29/19		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						
825																
	823.2	0.0	2	2	2								M	0.5' TOPSOIL	0.0	
	819.7	3.5	2	1	2								M	ALLUVIAL BROWN, VERY LOOSE TO LOOSE, SILTY SAND (A-2-4) WITH TRACE MICA		
	817.2	6.0	2	1	2								M	TAN, SOFT TO MEDIUM STIFF, SANDY SILT (A-4) WITH TRACE MICA	5.5	
	814.7	8.5	1	2	2								M			
	809.7	13.5	23	43	51								M	RESIDUAL TAN GRAY AND WHITE, MEDIUM TO VERY DENSE, SILTY SAND (A-2-4) WITH A LITTLE MICA	13.0	
	804.7	18.5	4	6	8								W			
	799.7	23.5	10	12	14								M			
	794.7	28.5	15	13	12								W	GRAY AND TAN, MEDIUM DENSE, SLIGHTLY SILTY SAND (A-1-b) WITH LITTLE MICA	27.0	
	789.7	33.5	5	19	42								M	WHITE AND GRAY, VERY DENSE, SILTY SAND (A-2-4)	32.0	
	784.7	38.5											M	WEATHERED ROCK WHITE AND TAN, GRANITE	35.0	
															38.9	
															Boring Terminated at Elevation 784.3 ft IN WEATHERED ROCK: GRANITE	

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST GOODNIGHT, D. J.										
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD OVER FUTURE I-74							GROUND WTR (ft)									
BORING NO. RW1-2		STATION 27+81		OFFSET 64 ft LT		ALIGNMENT -Y1-										
COLLAR ELEV. 822.0 ft		TOTAL DEPTH 40.0 ft		NORTHING 842,130		EASTING 1,660,947										
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 87% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER ODOM, C.		START DATE 04/29/19		COMP. DATE 04/29/19		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						
825																
	822.0	0.0													0.4' TOPSOIL	0.0
	819.0	3.0												ALLUVIAL TAN, MEDIUM STIFF, F. SANDY SILT (A-4) WITH TRACE MICA	3.0	
	817.0	5.0												TAN, VERY LOOSE TO LOOSE, SILTY SAND (A-2-4)		
	814.0	8.0												TAN, MEDIUM STIFF, SANDY SILT (A-4) WITH TRACE GRAVEL	8.0	
	812.1	9.9												GRAY, SOFT, SILTY CLAY (A-7)	9.9	
	811.5	10.5												RESIDUAL WHITE AND TAN, LOOSE TO DENSE, SILTY SAND (A-2-4) WITH TRACE TO SOME MICA	10.5	
	808.5	13.5	15	15	17											
	803.5	18.5	2	2	5											
	798.5	23.5	3	5	8											
	793.5	28.5	3	3	6											
	788.5	33.5	3	4	7											
	783.5	38.5	4	9	13											
															Boring Terminated at Elevation 782.0 ft IN RESIDUAL: SILTY SAND	40.0

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GEOTECHNICAL BORING REPORT BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST GOODNIGHT, D. J.											
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD OVER FUTURE I-74							GROUND WTR (ft)										
BORING NO. RW1-3		STATION 28+18		OFFSET 29 ft LT		ALIGNMENT -Y1-											
COLLAR ELEV. 825.5 ft		TOTAL DEPTH 5.5 ft		NORTHING 842,079		EASTING 1,660,951											
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD Hand Auger		HAMMER TYPE N/A													
DRILLER ODOM, C.		START DATE 04/30/19		COMP. DATE 04/30/19		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							
830																	
825																825.5	0.0
820																820.0	5.5
																Boring Terminated at Elevation 820.0 ft IN ROADWAY EMBANKMENT: SILTY SAND	

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GEOTECHNICAL BORING REPORT BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST GOODNIGHT, D. J.												
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD (-Y1-) OVER FUTURE I-74						GROUND WTR (ft)												
BORING NO. EB1-A		STATION 28+41		OFFSET 12 ft LT		ALIGNMENT -Y1-												
COLLAR ELEV. 825.5 ft		TOTAL DEPTH 54.7 ft		NORTHING 842,051		EASTING 1,660,957												
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 87% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic														
DRILLER ODOM, C.		START DATE 04/15/19		COMP. DATE 04/15/19		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	ELEV. (ft)	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100								
830																		
825	824.5	1.0	3	3	4								M		825.5	0.0	0.5' TOPSOIL	
820	822.0	3.5	4	2	3								M		822.5	3.0	ROADWAY EMBANKMENT RED-BROWN, MEDIUM STIFF, SANDY CLAY (A-6) WITH TRACE GRAVEL	
	819.5	6.0	2	2	2								M		820.0	5.5	RED-BROWN, LOOSE, CLAYEY SILTY SAND (A-2-5) WITH TRACE GRAVEL	
815	817.0	8.5	2	1	2								SS-24	28%	813.5	12.0	ALLUVIAL TAN, SOFT TO MEDIUM STIFF, SILTY CLAY (A-7-5)	
	812.0	13.5	1	2	1								SS-25	58%	813.5	12.0	RESIDUAL TAN, VERY LOOSE TO LOOSE, SILTY SAND (A-2-5) WITH LITTLE MICA	
810	807.0	18.5	2	1	3								W					
805	802.0	23.5	2	2	3								W					
800	797.0	28.5	2	3	4								W					
795	792.0	33.5	3	6	12								W					
790	787.0	38.5	8	5	6								W		791.5	34.0	WHITE GRAY AND TAN, MEDIUM DENSE, SILTY FINE TO COARSE SAND (A-2-4) WITH LITTLE MICA	
785	782.0	43.5	4	5	8								W					
780	777.0	48.5	20	80/0.4									W		777.0	48.5	WEATHERED ROCK TAN-GRAY, GRANITE	
775	772.0	53.5													770.8	54.7	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 770.8 ft ON CRYSTALLINE ROCK: GRANITE	
	770.8	54.7	50	50/0.1											770.8	54.7		
		60/0.0																

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST GOODNIGHT, D. J.											
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD (-Y1-) OVER FUTURE I-74						GROUND WTR (ft)											
BORING NO. EB1-B		STATION 28+58		OFFSET 15 ft RT		ALIGNMENT -Y1-											
COLLAR ELEV. 824.1 ft		TOTAL DEPTH 61.0 ft		NORTHING 842,020		EASTING 1,660,952											
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 87% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER ODOM, C.		START DATE 04/16/19		COMP. DATE 04/16/19		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	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
825																	
820	823.1	1.0	3	3	5										824.1	0.0	0.5' TOPSOIL
	820.6	3.5	11	4	3								M		818.6	5.5	ROADWAY EMBANKMENT RED-BROWN, MEDIUM STIFF TO STIFF, SANDY CLAY (A-6) WITH TRACE GRAVEL
815	818.1	6.0	2	1	1								SS-53	35%	815.1	9.0	ALLUVIAL TAN, VERY SOFT TO MEDIUM STIFF, SILTY CLAY (A-7-5)
	815.6	8.5	2	2	2								W		815.1	9.0	TAN, VERY LOOSE, SILTY SAND (A-2-4)
810	810.6	13.5	2	1	2								W				
805	805.6	18.5	WOH	WOH	WOH								SS-56	72%	807.1	17.0	GRAY, VERY SOFT, HIGHLY PLASTIC SILTY CLAY (A-7-5) WITH TRACE ORGANICS
800	800.6	23.5	2	2	4								W		802.1	22.0	RESIDUAL TAN, MEDIUM STIFF, SANDY SILT (A-4) WITH SOME MICA
795	795.6	28.5	2	3	4								W		798.1	26.0	TAN AND WHITE, LOOSE TO MEDIUM DENSE, SILTY SAND (A-2-4) WITH SOME MICA
790	790.6	33.5	3	5	7								W				
785	785.6	38.5	2	5	7								W				
780	780.6	43.5	2	2	8								W				
775	775.6	48.5	33	58	42/0.4								W		775.1	49.0	WEATHERED ROCK TAN AND WHITE, GRANITE
770	770.6	53.5	47	53/0.2											772.1	52.0	GRAY AND WHITE, DIORITE
765	765.6	58.5	17	20	26										767.1	57.0	RESIDUAL GRAY AND WHITE, DENSE, SILTY SAND (A-2-4)
	763.1	61.0	60/0.0												763.6	60.5	WEATHERED ROCK GRAY AND WHITE, DIORITE
		60/0.0													763.1	61.0	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 763.1 ft ON CRYSTALLINE ROCK: GRANITE

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST GOODNIGHT, D. J.									
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD (-Y1-) OVER FUTURE I-74						GROUND WTR (ft)									
BORING NO. B1-A		STATION 30+61		OFFSET 14 ft LT		ALIGNMENT -Y1-									
COLLAR ELEV. 821.4 ft		TOTAL DEPTH 73.7 ft		NORTHING 841,906		EASTING 1,661,123									
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 87% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER ODOM, C.		START DATE 04/16/19		COMP. DATE 04/16/19		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					
825															
820	820.4	1.0	3	2	3								M	0.6' TOPSOIL	0.0
	817.9	3.5	2	2	2								M	ROADWAY EMBANKMENT BROWN, SOFT TO MEDIUM STIFF, SANDY CLAY (A-6) WITH TRACE GRAVEL	
815	815.4	6.0	WOH	WOH	WOH								W	ALLUVIAL GRAY, VERY LOOSE, CLAYEY SAND (A-2-6)	5.5
	812.9	8.5											W	RESIDUAL TAN AND GRAY, MEDIUM STIFF, SANDY CLAY (A-6)	8.0
810	807.9	13.5	2	3	4								M	TAN, MEDIUM DENSE, SILTY SAND (A-1-b)	12.0
	802.9	18.5	2	2	3								W	TAN-BROWN, MEDIUM STIFF, SANDY SILT (A-4) WITH SOME MICA	17.0
800	797.9	23.5	3	4	5								M	GRAY WHITE AND TAN, LOOSE TO MEDIUM DENSE, SILTY FINE SAND (A-2-4) WITH TRACE MICA	22.0
795	792.9	28.5	4	5	8								M		
790	787.9	33.5	4	3	6								W		
785	782.9	38.5	3	3	6								W		
780	777.9	43.5	4	7	10								W		
775	772.9	48.5	4	8	14								W		
770	767.9	53.5	6	9	12								W		
765	762.9	58.5	15	26	32								W	WHITE AND TAN, VERY DENSE, SILTY FINE TO COARSE SAND (A-1-b)	57.0
760	757.9	63.5	70	30/0.1									W	WEATHERED ROCK TAN AND WHITE, GRANITE	61.5
755	752.9	68.5	100/0.3										W	TAN GRAY AND WHITE, DIORITE	67.0
750	747.9	73.5	100/0.2										W	Boring Terminated at Elevation 747.7 ft IN WEATHERED ROCK: DIORITE	73.7

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WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST GOODNIGHT, D. J.									
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD (-Y1-) OVER FUTURE I-74						GROUND WTR (ft)									
BORING NO. B1-A		STATION 30+61		OFFSET 14 ft LT		ALIGNMENT -Y1-									
COLLAR ELEV. 821.4 ft		TOTAL DEPTH 73.7 ft		NORTHING 841,906		EASTING 1,661,123									
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 87% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER ODOM, C.		START DATE 04/16/19		COMP. DATE 04/16/19		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					
745															
															NOTE: BEGINNING TO ADVANCE AUGERS AT 73.5 FEET IN HARD DRILLING AND AUGER STRING BROKE. AUGERS RECOVERED AND BORING ABANDONED.

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST GOODNIGHT, D. J.									
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD (-Y1-) OVER FUTURE I-74						GROUND WTR (ft)									
BORING NO. B1-B		STATION 30+73		OFFSET 22 ft RT		ALIGNMENT -Y1-									
COLLAR ELEV. 820.1 ft		TOTAL DEPTH 68.0 ft		NORTHING 841,872		EASTING 1,661,108									
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 87% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER ODOM, C.		START DATE 04/29/19		COMP. DATE 04/29/19		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					
825															
820	820.1	0.0													820.1
815	816.6	3.5	7	7	8								M	ROADWAY EMBANKMENT TAN, MEDIUM DENSE, SILTY SAND (A-2-4) WITH TRACE GRAVEL	3.0
	814.1	6.0	2	1	2								W	ALLUVIAL BROWN, SOFT, CLAYEY SILT (A-5) BROWN GRAY AND TAN, SOFT TO MEDIUM STIFF, SILTY CLAY (A-7-5)	5.5
810	811.6	8.5	3	1	2								W		
	811.6	8.5	2	2	3								W		
805	806.6	13.5	2	1	2								SS-69	34%	
	801.6	18.5	2	2	3								M	RESIDUAL TAN BROWN AND WHITE, LOOSE TO MEDIUM DENSE, SILTY SAND (A-2-4)	17.0
800	796.6	23.5	3	3	9								M		
795	791.6	28.5	5	5	8								M		
	786.6	33.5	12	12	12								M		
785	781.6	38.5	22	45	55/0.4								M		
780	776.6	43.5	70	30/0.1									M	WEATHERED ROCK WHITE AND TAN, GRANITE	39.0
775	771.6	48.5	40	60/0.4									M	TAN AND GRAY, DIORITE	47.0
770	766.6	53.5	4	7	12								M	RESIDUAL TAN AND WHITE, MEDIUM DENSE, SILTY SAND (A-2-4)	52.0
765	761.6	58.5	23	40	60/0.3								M	WEATHERED ROCK TAN AND GRAY, DIORITE	59.0
760	756.6	63.5	28	34	60								M	RESIDUAL TAN AND GRAY, VERY DENSE, SILTY SAND (A-2-4)	62.0
755	752.1	68.0											M	WEATHERED ROCK TAN AND GRAY, DIORITE	65.0
														Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 752.1 ft ON CRYSTALLINE ROCK: DIORITE	68.0

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WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST Akins, G.									
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD (-Y1-) OVER FUTURE I-74						GROUND WTR (ft)									
BORING NO. EB2-A		STATION 32+62		OFFSET 27 ft LT		ALIGNMENT -Y1-									
COLLAR ELEV. 818.8 ft		TOTAL DEPTH 27.5 ft		NORTHING 841,783		EASTING 1,661,282									
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER N/A		START DATE 03/18/19		COMP. DATE 03/19/19		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					
820															
	818.8	0.0													818.8
815	815.3	3.5	1	2	2								M	ROADWAY EMBANKMENT RED AND BROWN, CLAYEY SILT (A-5) TRACE MICA AND GSRF?	6.0
	812.8	6.0	1	2	2								W	ALLUVIAL GRAY, SILTY CLAY (A-7-5) TRACE ORG. GRAY F. TO CSE. SANDY SILT (A-4) TRACE ORGANICS, TRACE MICA	6.4
810	810.3	8.5	1	1	1								W		8.0
	805.3	13.5	1	1	1								W		
805	800.3	18.5	26	74/0.2									W	WEATHERED ROCK GRAY AND WHITE, GRANITIC ROCK	19.0
800	795.3	23.5	26	74/0.2									W		
	791.4	27.4	60/0.1										W	CRYSTALLINE ROCK TAN AND GRAY, GRANITIC ROCK Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 791.3 ft IN CRYSTALLINE ROCK (GRANITIC ROCK)	27.4
															27.5

NOTE: BORING DRILLED PREVIOUSLY BY OTHERS AND ORIGINALLY NAMED RW-11

GEOTECHNICAL BORING REPORT BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST Akins, G.											
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD (-Y1-) OVER FUTURE I-74							GROUND WTR (ft)										
BORING NO. EB2-B		STATION 33+05		OFFSET 28 ft RT		ALIGNMENT -Y1-											
COLLAR ELEV. 820.1 ft		TOTAL DEPTH 13.6 ft		NORTHING 841,713		EASTING 1,661,277											
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER N/A		START DATE 03/11/19		COMP. DATE 03/11/19		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	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
825																	
820	820.1	0.0													820.1	0.0	GROUND SURFACE
			2	3	83												ROADWAY EMBANKMENT ORANGE BROWN AND WHITE, SILTY F. TO CSE. SAND (A-2-4), TRACE GSRF WITH POSSIBLE BOULDER
815	816.6	3.5	100/0.4												814.6	5.5	ALLUVIAL RED AND BROWN, CLAYEY SILT (A-5) TRACE MICA
	814.1	6.0	WOH	1	2										812.1	8.0	ALLUVIAL RED AND BROWN, CLAYEY SILT (A-5) TRACE MICA
	811.6	8.5	WOH	1	1										806.6	13.5	ALLUVIAL TRF AND GRAY, CLAYEY SILT (A-5) TRACE MICA, TRACE ORGANICS
810															806.6	13.5	CRYSTALLINE ROCK TAN AND WHITE, GRANITIC ROCK
	806.6	13.5	60/0.1												806.5	13.6	CRYSTALLINE ROCK TAN AND WHITE, GRANITIC ROCK
																	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 806.5 ft IN CRYSTALLINE ROCK (GRANITIC ROCK)
																	NOTE: BORING DRILLED PREVIOUSLY BY OTHERS AND ORIGINALLY NAMED RW-10

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST Akins, G.											
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD (-Y1-) OVER FUTURE I-74							GROUND WTR (ft)										
BORING NO. RW-9		STATION 33+53		OFFSET 28 ft RT		ALIGNMENT -Y1-											
COLLAR ELEV. 819.8 ft		TOTAL DEPTH 20.1 ft		NORTHING 841,681		EASTING 1,661,313											
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER N/A		START DATE 03/12/19		COMP. DATE 03/12/19		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	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
820															819.8	0.0	GROUND SURFACE
	819.8	0.0	1	2	4												ROADWAY EMBANKMENT RED-BROWN, SILTY F. TO CSE SAND (A-2-4) WITH POSSIBLE BOULDER
815	816.3	3.5	1	62	38/0.2										814.3	5.5	ALLUVIAL RED AND BROWN, CLAYEY SILT (A-5) TRACE MICA, TRACE ORG.
	813.8	6.0	WOH	WOH	WOH												ALLUVIAL RED AND BROWN, CLAYEY SILT (A-5) TRACE MICA, TRACE ORG.
810	811.3	8.5	WOH	WOH	WOH												ALLUVIAL RED AND BROWN, CLAYEY SILT (A-5) TRACE MICA, TRACE ORG.
	806.3	13.5	WOH	1	3										806.3	13.5	GRAY, SILTY F. TO CSE. SAND (A-2-4) TRACE MICA, TRACE ORG.
805															801.8	18.0	RESIDUAL TAN-GRAY, SILTY F. TO CSE. SAND (A-2-4) TRACE MICA, TRACE ORG.
	801.3	18.5	4	8	26										801.8	18.0	RESIDUAL TAN-GRAY, SILTY F. TO CSE. SAND (A-2-4) TRACE MICA, TRACE ORG.
800	799.7	20.1	60/0.0												799.7	20.1	RESIDUAL TAN-GRAY, SILTY F. TO CSE. SAND (A-2-4) TRACE MICA, TRACE ORG.
																	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 799.7 ft ON CRYSTALLINE ROCK (GRANITIC ROCK)
																	NOTE: BORING DRILLED PREVIOUSLY BY OTHERS

NCDOT BORE DOUBLE U2579AA_ECS_WALL_BORINGS.GPJ NC_DOT.GDT 6/24/19

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST Akins, G.											
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD (-Y1-) OVER FUTURE I-74							GROUND WTR (ft)										
BORING NO. RW-8		STATION 34+18		OFFSET 20 ft RT		ALIGNMENT -Y1-											
COLLAR ELEV. 820.5 ft		TOTAL DEPTH 41.5 ft		NORTHING 841,644		EASTING 1,661,367											
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER N/A		START DATE 03/12/19		COMP. DATE 03/12/19		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	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
825																	
820	820.5	0.0	WOH	2	2								M		820.5	0.0	
	817.0	3.5	WOH	WOH	WOH												
815	814.5	6.0	WOH	WOH	WOH								M		815.0	5.5	
	812.0	8.5	WOH	WOH	WOH										812.5	8.0	
810	807.0	13.5	WOH	WOH	WOH								W				
	802.0	18.5	2	5	9								W				
805	797.0	23.5	1	2	4								W		802.5	18.0	
	792.0	28.5	1	WOH	1								W		798.0	22.5	
795	792.0	28.5	7	7	10								W				
	787.0	33.5	5	4	3								W				
785	782.0	38.5	11	44	50/0.2								W		781.5	39.0	
780	779.0	41.5	60/0.0										W		779.0	41.5	

Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 779.0 ft ON CRYSTALLINE ROCK (GRANITIC ROCK)

NOTE: BORING DRILLED PREVIOUSLY BY OTHERS

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST Akins, G.											
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD (-Y1-) OVER FUTURE I-74							GROUND WTR (ft)										
BORING NO. RW-7		STATION 34+66		OFFSET 19 ft RT		ALIGNMENT -Y1-											
COLLAR ELEV. 820.5 ft		TOTAL DEPTH 39.9 ft		NORTHING 841,613		EASTING 1,661,405											
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER N/A		START DATE 03/12/19		COMP. DATE 03/12/19		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	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
825																	
820	820.5	0.0	WOH	1	3								M		820.5	0.0	
	817.0	3.5	11	2	1												
815	814.5	6.0	WOH	WOH	WOH								W		815.0	5.5	
	812.0	8.5	WOH	WOH	WOH								W		812.5	8.0	
810	807.0	13.5	3	4	7								W				
	802.0	18.5	WOH	1	5								W		802.5	18.0	
805	797.0	23.5	1	2	5								W		797.5	23.0	
	792.0	28.5	1	3	6								W				
795	787.0	33.5	3	6	11								W		787.5	33.0	
	782.0	38.5	20	80/0.2									W		781.0	38.5	
780	780.6	39.9	60/0.0										W		780.6	39.9	

Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 780.6 ft ON CRYSTALLINE ROCK (GRANITIC ROCK)

NOTE: BORING DRILLED PREVIOUSLY BY OTHERS

NCDOT BORE DOUBLE U2579AA_ECS_WALL_BORINGS.GPJ NC_DOT.GDT 6/24/19

GEOTECHNICAL BORING REPORT BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST Akins, G.	
SITE DESCRIPTION BRIDGE NO. 732 ON HIGH POINT ROAD (-Y1-) OVER FUTURE I-74							GROUND WTR (ft)
BORING NO. RW-6		STATION 35+13		OFFSET 14 ft RT		ALIGNMENT -Y1-	
COLLAR ELEV. 821.4 ft		TOTAL DEPTH 49.9 ft		NORTHING 841,587		EASTING 1,661,445	
DRILL RIG/HAMMER EFF./DATE N/A				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic	
DRILLER N/A		START DATE 03/18/19		COMP. DATE 03/18/19		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
825																
820	821.4	0.0	WOH	2	2								M	821.4	0.0	GROUND SURFACE
	817.9	3.5	WOH	WOH	WOH								▼	818.4	3.0	ROADWAY EMBANKMENT BROWN TAN AND RED, SILTY F. TO CSE. SAND (A-2-4) TRACE ORGANICS, MICA, GSRF?
815	815.4	6.0											W	815.9	5.5	RED BROWN AND GRAY, CLAYEY SILT (A-5) TRACE MICA
	812.9	8.5											W	813.4	8.0	ALLUVIAL RED BROWN AND GRAY, CLAYEY SILT (A-5) TRACE MICA
810													W			GRAY, SILTY CLAY (A-7-5) TRACE ORG., TRACE MICA
	807.9	13.5											W			
805													W			
	802.9	18.5											W	803.4	18.0	RESIDUAL ORANGE-BROWN, F. TO CSE. SANDY SILT (A-4) LITTLE MICA
800													W			
	797.9	23.5											W	798.4	23.0	ORANGE WHITE AND BROWN, SILTY F. TO CSE. SAND (A-2-4) TRACE MICA
795													W			
	792.9	28.5											W	793.4	28.0	BLACK WHITE AND ORANGE, F. TO CSE. SANDY SILT (A-4), LITTLE MICA
790													W			
	787.9	33.5											W			
785													W			
	782.9	38.5											W	783.4	38.0	TAN AND WHITE, SILTY F. TO CSE. SAND (A-2-4) TRACE MICA
780													W			
	777.9	43.5												777.9	43.5	WEATHERED ROCK TAN AND WHITE, GRANITIC ROCK
775																
	772.9	48.5												771.6	49.8	CRYSTALLINE ROCK TAN AND WHITE, GRANITIC ROCK Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 771.5 ft IN CRYSTALLINE ROCK (GRANITIC ROCK)
	771.6	49.8												771.5	49.9	

NCDOT BORE DOUBLE U2579AA_ECS_WALL_BORINGS.GPJ NC_DOT.GDT 6/24/19

NOTE: BORING DRILLED PREVIOUSLY BY OTHERS

REFERENCE: U-2579AA

PROJECT: 34839

CONTENTS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-7	BORE LOGS

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY FORSYTH
PROJECT DESCRIPTION WINSTON-SALEM NORTHERN
BELTWAY EASTERN SECTION (FUTURE I-74)
FROM US 311 TO I-40
SITE DESCRIPTION WALL NO. 3 AT BRIDGE NO. 729 ON
-Y2FLYCA-

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AA	1	7

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.

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- 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

A. SUTTLE
M&W DRILLING

INVESTIGATED BY ECS SOUTHEAST, LLP
DRAWN BY K. DE MONTBRUN, P.E.
CHECKED BY M. WALKO, P.E.
SUBMITTED BY ECS SOUTHEAST, LLP
DATE JUNE 2019

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FIRM # F-1078

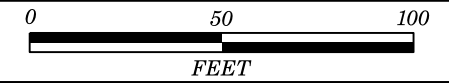


Michael J. Walko
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6/11/2019

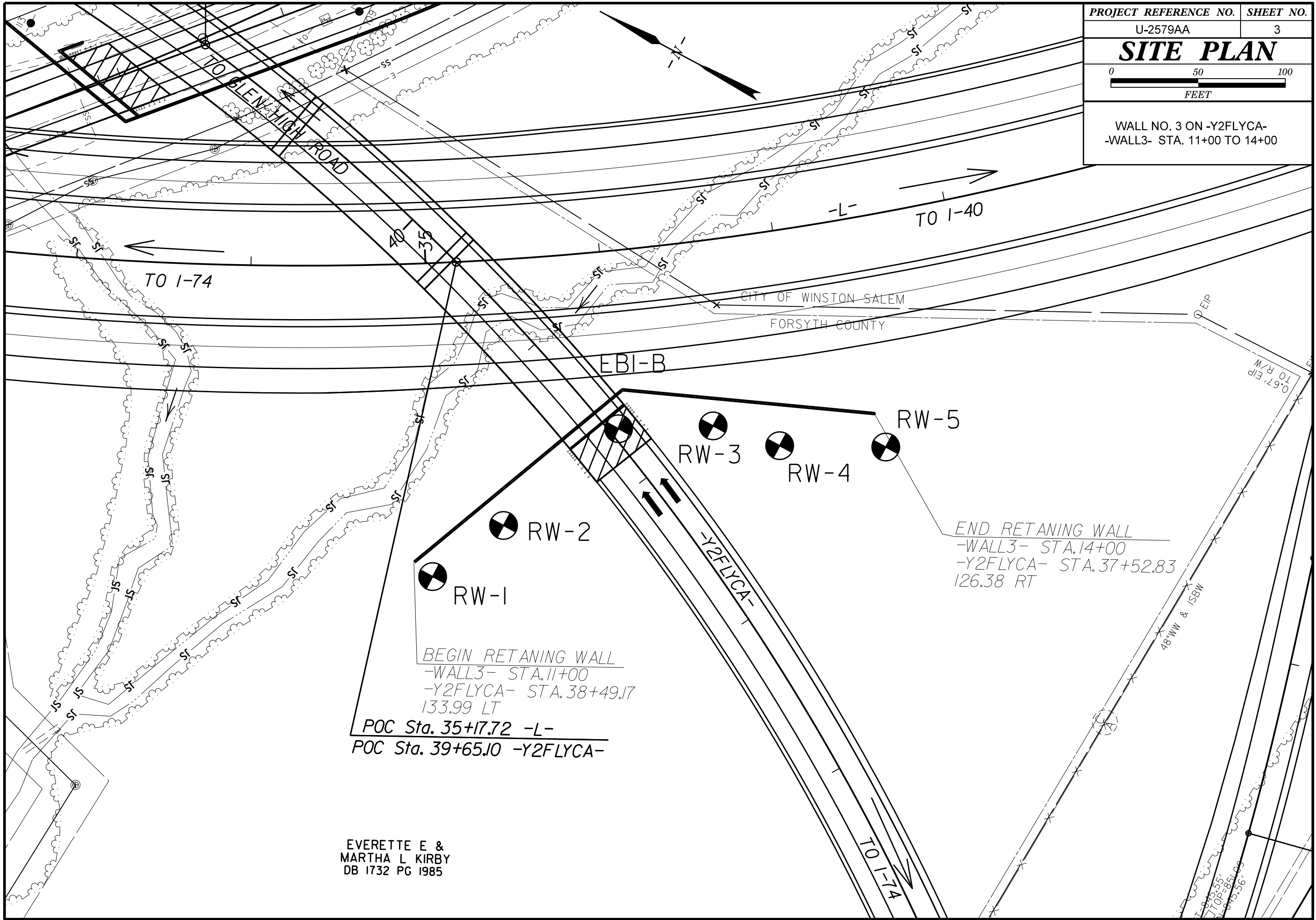
SIGNATURE DATE

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

SITE PLAN



WALL NO. 3 ON -Y2FLYCA-
-WALL3- STA. 11+00 TO 14+00



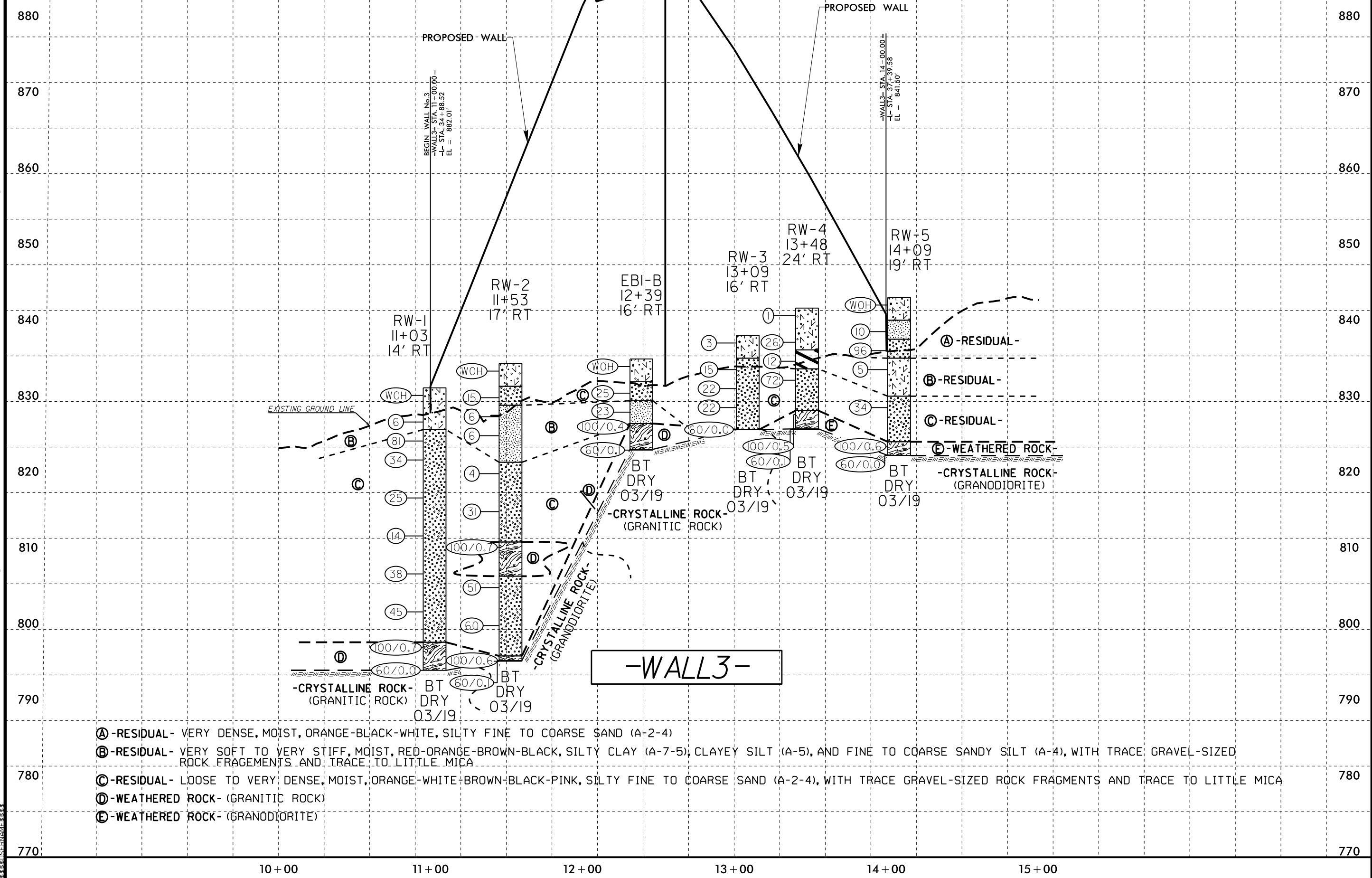
BEGIN RETANING WALL
 -WALL3- STA. 11+00
 -Y2FLYCA- STA. 38+49.17
 133.99 LT
 POC Sta. 35+17.72 -L-
 POC Sta. 39+65.10 -Y2FLYCA-

END RETANING WALL
 -WALL3- STA. 14+00
 -Y2FLYCA- STA. 37+52.83
 126.38 RT

EVERETTE E &
 MARTHA L KIRBY
 DB 1732 PG 1985

05:14/99
 D:\UN-2019\132-PROJECTS\13000-13900\13300\13399 - U-2579AA %
 Bridge 729 (Future I-74) from US 311 to I-40\CADD\GEO\TECH\Site&Sub\U-2579AA_GEO.pfi-wall32.dgn

-WALL3- PROFILE ALONG EXISTING GROUND LINE FROM ROADWAY DESIGN FILES PROVIDED BY V&M ON MAY 24, 2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE PROFILE.



GEOTECHNICAL BORING REPORT BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle									
SITE DESCRIPTION Wall No. 3 at Bridge No. 729 on -Y2FLYCA-							GROUND WTR (ft)								
BORING NO.	STATION	OFFSET	ALIGNMENT			0 HR.	Dry								
RW-1	11+03	14 ft RT	-WALL3-			24 HR.	Dry								
COLLAR ELEV.	TOTAL DEPTH	NORTHING	EASTING												
831.8 ft	37.2 ft	841,444	1,661,124												
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER G. Akins		START DATE 03/10/19	COMP. DATE 03/10/19	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					
835															
	831.8	0.0											831.8	GROUND SURFACE	0.0
830	828.3	3.5	WOH	WOH	WOH							M	RESIDUAL Very Soft to Medium Stiff, Red-Brown, Clayey SILT (A-5), with trace gravel-sized rock fragments		
	825.8	6.0	2	1	5							M			
825	823.3	8.5	16	44	37							M	Medium Dense to Very Dense, Orange-White-Brown, Silty Fine to Coarse SAND (A-2-4), with little mica	5.5	
	822.3	8.5	17	19	15							M			
820	818.3	13.5	5	11	14							M			
	813.3	18.5	4	8	6							M			
810	808.3	23.5	7	12	26							M			
	803.3	28.5	15	23	22							M			
800	798.3	33.5	58	42/0.2								M			
	794.6	37.2										M			
795	794.6	37.2	60/0.0												
Boring Terminated with Standard Penetration Test Refusal at Elevation 794.6 ft On Crystalline Rock (GRANITIC ROCK)															

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle								
SITE DESCRIPTION Wall No. 3 at Bridge No. 729 on -Y2FLYCA-							GROUND WTR (ft)							
BORING NO.	STATION	OFFSET	ALIGNMENT			0 HR.	Dry							
RW-2	11+53	17 ft RT	-WALL3-			24 HR.	Dry							
COLLAR ELEV.	TOTAL DEPTH	NORTHING	EASTING											
835.0 ft	39.2 ft	841,422	1,661,169											
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER G. Akins		START DATE 03/09/19	COMP. DATE 03/09/19	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				
835														
	835.0	0.0	WOH	WOH	WOH							M	GROUND SURFACE	0.0
	831.5	3.5										M	RESIDUAL Very Soft, Brown, Clayey SILT (A-5)	3.0
830	829.0	6.0	3	5	10							M	Medium Dense, Orange-Brown, Silty Fine to Coarse SAND (A-2-4)	5.5
	826.5	8.5	2	3	3							M	Medium Stiff, Orange-Brown-Black, Fine to Coarse Sandy SILT (A-4), with little mica	
825	821.5	13.5	2	2	4							M		
	816.5	18.5	1	1	3							M	Loose to Dense, Black-White-Brown-Orange, Silty Fine to Coarse SAND (A-2-4)	13.0
820	811.5	23.5	9	17	14							M		
	806.5	28.5	59	41/0.2								M	WEATHERED ROCK Black-White (GRANITIC ROCK)	23.5
810	801.5	33.5	26	29	22							M	RESIDUAL Very Dense, Black-White-Pink, Silty Fine to Coarse SAND (A-2-4)	28.0
	796.5	38.5	27	31	29							M		
800	795.8	39.2	64	36/0.1								M	WEATHERED ROCK Black-White-Pink (GRANITIC ROCK)	38.5
	794.6	39.2	60/0.1											
Boring Terminated with Standard Penetration Test Refusal at Elevation 795.8 ft In Crystalline Rock (GRANODIORITE)														

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle									
SITE DESCRIPTION Wall No. 3 at Bridge No. 729 on -Y2FLYCA-							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 12+39		OFFSET 16 ft RT		ALIGNMENT -WALL3-									
COLLAR ELEV. 835.6 ft		TOTAL DEPTH 12.0 ft		NORTHING 841,390		EASTING 1,661,249									
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER G. Akins		START DATE 03/09/19		COMP. DATE 03/09/19		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					
840															
835	835.6	0.0	WOH	WOH	WOH									835.6	0.0
	832.1	3.5												832.6	3.0
830	829.6	6.0												830.1	5.5
	827.1	8.5												827.1	8.5
825	823.7	11.9												823.7	11.9
														823.6	12.0

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle									
SITE DESCRIPTION Wall No. 3 at Bridge No. 729 on -Y2FLYCA-							GROUND WTR (ft)								
BORING NO. RW-3		STATION 13+09		OFFSET 16 ft RT		ALIGNMENT -WALL3-									
COLLAR ELEV. 838.7 ft		TOTAL DEPTH 12.4 ft		NORTHING 841,343		EASTING 1,661,276									
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER G. Akins		START DATE 03/09/19		COMP. DATE 03/09/19		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					
840															
	838.7	0.0	WOH	1	2									838.7	0.0
835	835.2	3.5												835.7	3.0
	832.7	6.0													
830	830.2	8.5													
	826.3	12.4												826.3	12.4

NCDOT BORE DOUBLE U-2579AA-BRIDGE 729.GPJ NC_DOT.GDT 6/6/19

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Wall No. 3 at Bridge No. 729 on -Y2FLYCA-							GROUND WTR (ft)									
BORING NO. RW-4		STATION 13+48		OFFSET 24 ft RT		ALIGNMENT -WALL3-										
COLLAR ELEV. 842.3 ft		TOTAL DEPTH 16.0 ft		NORTHING 841,304		EASTING 1,661,284										
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER G. Akins		START DATE 03/09/19		COMP. DATE 03/09/19		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						
845																
	842.3	0.0	WOH	1	0									842.3	GROUND SURFACE	0.0
840	838.8	3.5		4	11	15									RESIDUAL Very Soft to Very Stiff, Red-Brown-Black, Clayey SILT (A-5), with trace mica	
	836.3	6.0		2	2	10								836.8	Stiff, Red, Silty CLAY (A-7-5), with trace mica	5.5
835	833.8	8.5		5	36	36								834.3	Very Dense, Orange-White-Black, Silty Fine to Coarse SAND (A-2-4)	8.0
	828.8	13.5		100/0.5										828.8	WEATHERED ROCK Orange-White-Black (GRANODIORITE)	13.5
830	826.4	15.9		60/0.1										826.4	CRYSTALLINE ROCK Orange-White-Black (GRANODIORITE)	15.9
														826.3	Boring Terminated with Standard Penetration Test Refusal at Elevation 826.3 ft In Crystalline Rock (GRANODIORITE)	16.0

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Wall No. 3 at Bridge No. 729 on -Y2FLYCA-							GROUND WTR (ft)									
BORING NO. RW-5		STATION 14+09		OFFSET 19 ft RT		ALIGNMENT -WALL3-										
COLLAR ELEV. 843.7 ft		TOTAL DEPTH 20.8 ft		NORTHING 841,250		EASTING 1,661,312										
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER G. Akins		START DATE 03/09/19		COMP. DATE 03/09/19		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						
845																
	843.7	0.0	WOH	WOH	WOH									843.7	GROUND SURFACE	0.0
840	840.2	3.5		2	6	4									RESIDUAL Very Soft, Orange-Brown, Clayey SILT (A-5), with trace mica	3.0
	837.7	6.0		3	49	47								838.2	Stiff, Orange-Brown, Fine to Coarse Sandy SILT (A-4), with trace mica	5.5
835	835.2	8.5		2	2	3								835.7	Very Dense, Orange-Black-White, Silty Fine to Coarse SAND (A-2-4)	8.0
															Medium Stiff, Orange-Brown, Clayey SILT (A-5), with trace mica	
830	830.2	13.5		13	16	18								830.7	Dense, Orange-Black-White, Silty Fine to Coarse SAND (A-2-4)	13.0
825	825.2	18.5		10	19	81/0.1								824.7	WEATHERED ROCK Black-White (GRANODIORITE)	19.0
	822.9	20.8		60/0.0										822.9	Boring Terminated with Standard Penetration Test Refusal at Elevation 822.9 ft On Crystalline Rock (GRANODIORITE)	20.8

NCDOT BORE DOUBLE U-2579AA-BRIDGE 729.GPJ NC_DOT.GDT 6/6/19

REFERENCE: U-2579AA

PROJECT: 34839

CONTENTS

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

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY FORSYTH
PROJECT DESCRIPTION WINSTON-SALEM NORTHERN
BELTWAY EASTERN SECTION (FUTURE I-74)
FROM US 311 TO I-40
SITE DESCRIPTION RETAINING WALLS NO.1 & 2 AT
BRIDGE NO. 730 ON -Y2FLYCA-

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AA	1	11

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

A. SUTTLE
M&W DRILLING

INVESTIGATED BY ECS SOUTHEAST, LLP
DRAWN BY K. DE MONTBRUN, P.E.
CHECKED BY M. WALKO, P.E.
SUBMITTED BY ECS SOUTHEAST, LLP
DATE JUNE 2019

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Designed by:
Michael J. Walko
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6/11/2019

SIGNATURE DATE

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

**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 208, 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, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</p>										<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>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. 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 0.1 FOOT PER 60 BLOWS 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:</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 DISLOADED 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 (ROD) - 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>									
SOIL LEGEND AND AASHTO CLASSIFICATION										ANGULARITY OF GRAINS										WEATHERED ROCK (WR)										NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.									
MINERALOGICAL COMPOSITION										CRYSTALLINE ROCK (CR)										FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.										NON-COASTAL PLAIN SEDIMENTARY ROCK (NCP)									
COMPRESSION										NON-CRYSTALLINE ROCK (NCR)										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.										COASTAL PLAIN SEDIMENTARY ROCK (CP)									
PERCENTAGE OF MATERIAL										FRESH										ROCK GENERALLY FRESH, JOINTS STAINED, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.																			
GROUND WATER										VERY SLIGHT (IV SLI.)										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.																			
MISCELLANEOUS SYMBOLS										SLIGHT (SLI.)										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.																			
TEXTURE OR GRAIN SIZE										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.																			
SOIL MOISTURE - CORRELATION OF TERMS										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. IF TESTED, WOULD YIELD SPT REFUSAL																			
PLASTICITY										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. IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF																			
COLOR										VERY SEVERE (IV SEV.)										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. IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF																			
RECOMMENDATION SYMBOLS										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.																			
ABBREVIATIONS										VERY HARD										CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.																			
EQUIPMENT USED ON SUBJECT PROJECT										HARD										CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.																			
FRACTURE SPACING										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.																			
BEDDING										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.																			
INDURATION										SOFT										CAN BE GROOVED 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.																			
										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 FINGERNAIL.																			
										BENCH MARK: N/A										ELEVATION: N/A FEET																			
										NOTES:										EXISTING GROUND SURFACE INFORMATION PROVIDED BY NCDOT ON APRIL 22, 2019.																			
																				SURVEYED BORING LOCATIONS PROVIDED BY VAUGHN & MELTON ON APRIL 3, 2019.																			



Prepared in the Office of:

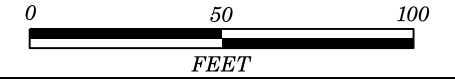
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NC REGISTERED
ENGINEERING
FIRM # F-1078

PROJECT REFERENCE NO. SHEET NO.

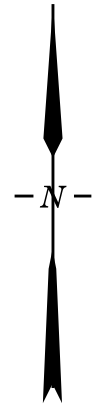
U-2579AA

3

SITE PLAN



RETAINING WALLS NO. 1 & 2
ON -Y2FLYCA-



10

END WALL NO.2
-Y2FLYCA- STA.34+50.75
-WALL2- STA.13+08.25

BEGIN WALL NO.2
-Y2FLYCA- STA.35+22.55
-WALL2- STA.11+74.33

POT Sta. 90+99.12 -Y2NBL-
ST Sta. 37+31.77 -Y2FLYAB-
12' LT
POT Sta. 91+65.82 -Y2-

TO RIDGEWOOD ROAD
-Y2NBL-

S 87° 25' 06.7" E

-Y2-

06

S 86° 55' 04.4" E

BEGIN RETAINING WALL NO.1
-Y2FLYCA- STA.27+79.45
-WALL1- STA.11+00.00

-Y2FLYCA-

-Y2RPC-

S 86° 24' 52.4" E
TO WALLBURGH ROAD



RW-2

EBI-A



RW-3



RW-4



RW-5

END RETAINING WALL NO.1
-Y2FLYCA- STA.28+72.25
-WALL1- STA.12+00.00

TO I-40

RW-6

RW-7

RW-8

RW-9

RW-10

-Y2FLYAB-

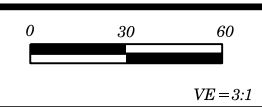
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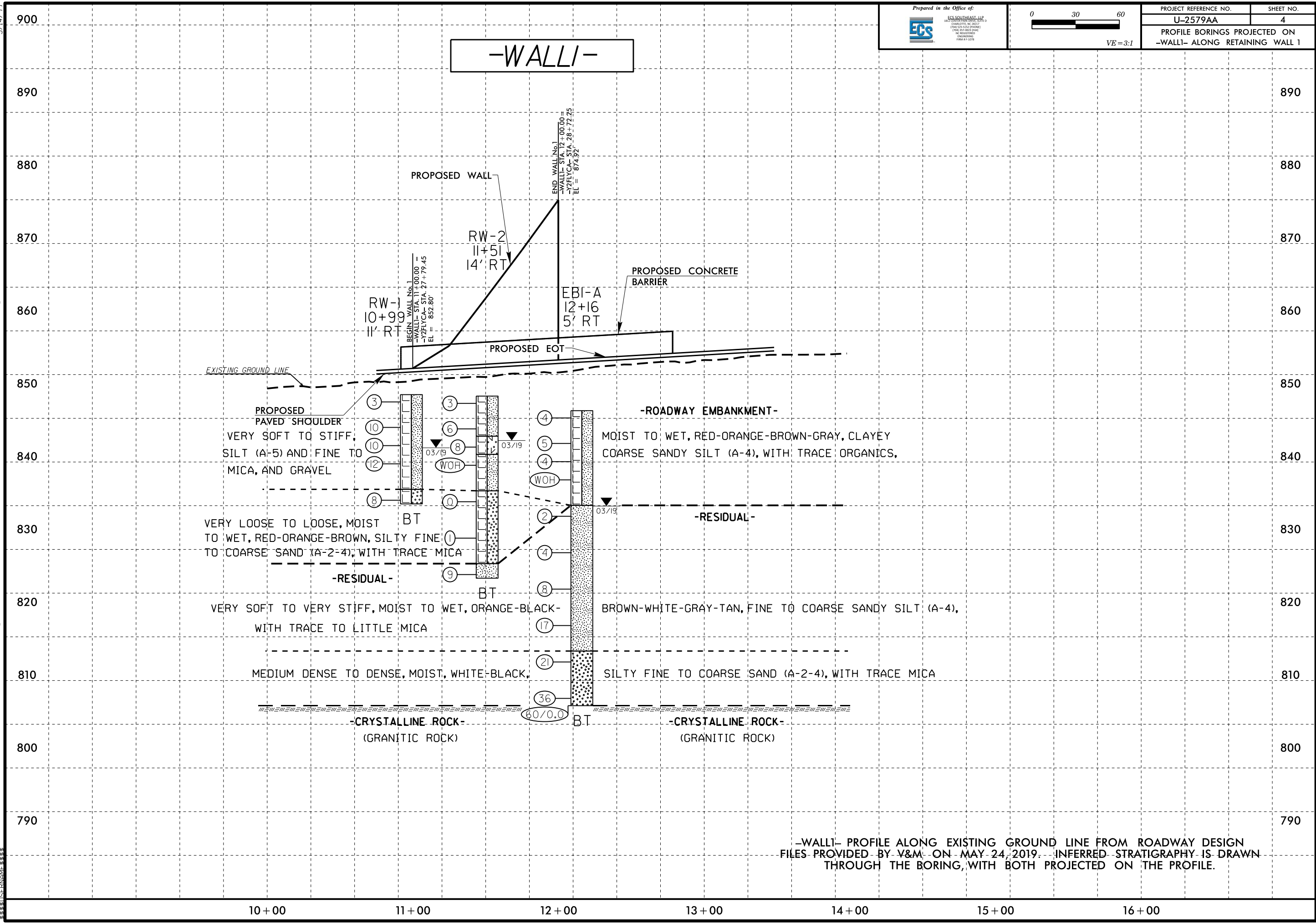
TO FUTURE
I-74

05-JUN-2019 14:37
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 Bridge 730 on Y2ELYCA over US 311\CADD\GEO\TECH\State\Sub\U-2579AA_GEO.prf_wal11.dgn

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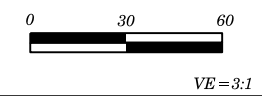
PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	4
PROFILE BORINGS PROJECTED ON -WALL1- ALONG RETAINING WALL 1	



-WALL1- PROFILE ALONG EXISTING GROUND LINE FROM ROADWAY DESIGN FILES PROVIDED BY V&M ON MAY 24, 2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE PROFILE.

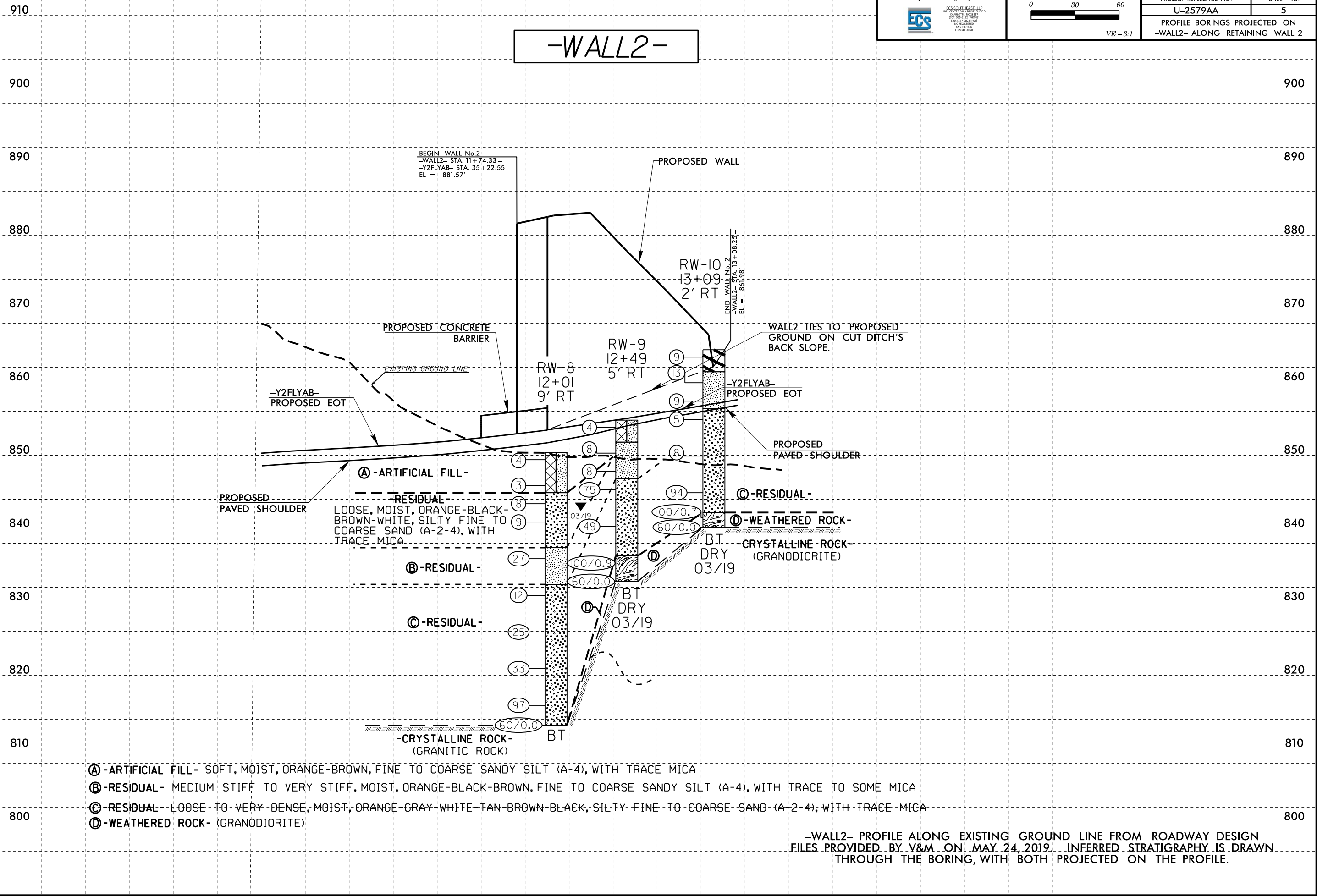
5/14/19

OC:\JUN-2019\1471\15\2579AA\133000\133000\133000\13384 - U-2579AA 0% Bridge 730 on Y2FLYCA over US 311\CADD_GEO\TECH\Site&Sub\U-2579AA_GEO.prf_wal12.dgn



PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	5
PROFILE BORINGS PROJECTED ON -WALL2- ALONG RETAINING WALL 2	

-WALL2-



BEGIN WALL No.2
-WALL2- STA. 11+74.33=
-Y2FLYAB- STA. 35+22.55
EL. = 881.57'

PROPOSED WALL

RW-10
13+09
2' RT
END WALL No.2
-WALL2- STA. 13+08.25=
EL. = 861.98'

PROPOSED CONCRETE BARRIER

EXISTING GROUND LINE

-Y2FLYAB- PROPOSED EOT

RW-8
12+01
9' RT

WALL2 TIES TO PROPOSED
GROUND ON CUT DITCH'S
BACK SLOPE.

-Y2FLYAB- PROPOSED EOT

PROPOSED PAVED SHOULDER

(A) -ARTIFICIAL FILL-

(B) -RESIDUAL-

(C) -RESIDUAL-

(D) -RESIDUAL-

(E) -RESIDUAL-

(F) -CRYSTALLINE ROCK-
(GRANITIC ROCK)

(G) -RESIDUAL-

(H) -WEATHERED ROCK-

(I) -CRYSTALLINE ROCK-
(GRANODIORITE)

(A) -ARTIFICIAL FILL- SOFT, MOIST, ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA

(B) -RESIDUAL- MEDIUM STIFF TO VERY STIFF, MOIST, ORANGE-BLACK-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE TO SOME MICA

(C) -RESIDUAL- LOOSE TO VERY DENSE, MOIST, ORANGE-GRAY-WHITE-TAN-BROWN-BLACK, SILTY-FINE TO COARSE SAND (A-2-4), WITH TRACE MICA

(D) -WEATHERED ROCK- (GRANODIORITE)

-WALL2- PROFILE ALONG EXISTING GROUND LINE FROM ROADWAY DESIGN FILES PROVIDED BY V&M ON MAY 24, 2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE PROFILE.

10+00 11+00 12+00 13+00

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Retaining Walls No. 1 & 2 at Bridge No. 730 on -Y2FLYCA-							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 12+16		OFFSET 5 ft RT		ALIGNMENT -WALL1-										
COLLAR ELEV. 847.1 ft		TOTAL DEPTH 40.5 ft		NORTHING 840,712		EASTING 1,660,593										
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER G. Akins		START DATE 03/05/19		COMP. DATE 03/05/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
850																
	847.1	0.0													847.1	0.0
			1	2	2											
845	843.6	3.5	3	3	2											
	841.1	6.0	3	2	2											
840	838.6	8.5	WOH	WOH	WOH											
835	833.6	13.5	WOH	1	1											
830	828.6	18.5	WOH	1	3											
825	823.6	23.5	2	5	3											
820	818.6	28.5	3	8	9											
815	813.6	33.5	4	11	10											
810	808.6	38.5	9	19	17											
	806.6	40.5	60/0.0												60/0.0	

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Retaining Walls No. 1 & 2 at Bridge No. 730 on -Y2FLYCA-							GROUND WTR (ft)									
BORING NO. RW-3		STATION 29+11		OFFSET 1 ft RT		ALIGNMENT -Y2FLYCA-										
COLLAR ELEV. 851.1 ft		TOTAL DEPTH 20.0 ft		NORTHING 840,725		EASTING 1,660,636										
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER G. Akins		START DATE 03/05/19		COMP. DATE 03/05/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
855																
	851.1	0.0													851.1	0.0
			WOH	2	2											
850	847.6	3.5	3	5	9											
845	845.1	6.0	2	4	4											
840	842.6	8.5	1	3	3											
835	837.6	13.5	2	2	0											
	832.6	18.5	2	3	2											

NCDOT BORE DOUBLE U-2579AA-BRIDGE 730.GPJ NC_DOT.GDT 6/6/19

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle									
SITE DESCRIPTION Retaining Walls No. 1 & 2 at Bridge No. 730 on -Y2FLYCA-							GROUND WTR (ft)								
BORING NO. RW-4		STATION 29+54		OFFSET 26 ft RT		ALIGNMENT -Y2FLYCA-									
COLLAR ELEV. 852.1 ft		TOTAL DEPTH 20.0 ft		NORTHING 840,723		EASTING 1,660,686									
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER G. Akins		START DATE 03/05/19		COMP. DATE 03/05/19		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					
855															
	852.1	0.0												852.1	0.0
			WOH	1	4										
850	848.6	3.5		3	4										
	846.1	6.0		5	6									846.6	5.5
845	843.6	8.5		2	2									844.1	8.0
840	838.6	13.5		1	1									839.1	13.0
835	833.6	18.5		1	3									832.1	20.0
Boring Terminated at Elevation 832.1 ft In Residual Sandy SILT (A-4)															

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle									
SITE DESCRIPTION Retaining Walls No. 1 & 2 at Bridge No. 730 on -Y2FLYCA-							GROUND WTR (ft)								
BORING NO. RW-5		STATION 29+94		OFFSET 56 ft RT		ALIGNMENT -Y2FLYCA-									
COLLAR ELEV. 852.5 ft		TOTAL DEPTH 35.0 ft		NORTHING 840,719		EASTING 1,660,737									
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER G. Akins		START DATE 03/04/19		COMP. DATE 03/04/19		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					
855															
	852.5	0.0												852.5	0.0
				1	1	2									
850	849.0	3.5		7	8	9									
	846.5	6.0		3	4	7								847.0	5.5
845	844.0	8.5		3	5	6									
840	839.0	13.5		2	2	4									
835	834.0	18.5		2	4	3								834.5	18.0
830	829.0	23.5		1	4	4								829.5	23.0
825	824.0	28.5		1	1	2									
820	819.0	33.5		13	16	19								819.5	33.0
														817.5	35.0
Boring Terminated at Elevation 817.5 ft In Residual Silty SAND (A-2-4)															

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.7				TIP U-2579AA				COUNTY FORSYTH				GEOLOGIST A. Suttle					
SITE DESCRIPTION Retaining Walls No. 1 & 2 at Bridge No. 730 on -Y2FLYCA-												GROUND WTR (ft)					
BORING NO. RW-6				STATION 32+63				OFFSET 40 ft LT				ALIGNMENT -Y2FLYCA-					
COLLAR ELEV. 849.7 ft				TOTAL DEPTH 40.0 ft				NORTHING 840,958				EASTING 1,660,895					
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018								DRILL METHOD H.S. Augers				HAMMER TYPE Automatic					
DRILLER G. Akins				START DATE 03/07/19				COMP. DATE 03/07/19				SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)		
850	849.7	0.0	1	3	6							M			849.7	GROUND SURFACE	
	846.2	3.5	4	5	7							M					
	843.7	6.0	3	5	6							M					
	841.2	8.5	4	5	9							M					
	836.2	13.5	4	3	6							M					
	831.2	18.5	7	8	11							M					
	826.2	23.5	2	6	7							M					
	821.2	28.5	3	4	8							M					
	816.2	33.5	3	6	9							M					
	811.2	38.5	3	5	10							M					
810												M				809.7	Boring Terminated at Elevation 809.7 ft In Residual Silty SAND (A-2-4)

WBS 34839.1.7				TIP U-2579AA				COUNTY FORSYTH				GEOLOGIST A. Suttle					
SITE DESCRIPTION Retaining Walls No. 1 & 2 at Bridge No. 730 on -Y2FLYCA-												GROUND WTR (ft)					
BORING NO. RW-7				STATION 32+99				OFFSET 3 ft LT				ALIGNMENT -Y2FLYCA-					
COLLAR ELEV. 850.5 ft				TOTAL DEPTH 40.0 ft				NORTHING 840,955				EASTING 1,660,946					
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018								DRILL METHOD H.S. Augers				HAMMER TYPE Automatic					
DRILLER G. Akins				START DATE 03/07/19				COMP. DATE 03/07/19				SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)		
855																	
850	850.5	0.0	2	3	7							M					
	847.0	3.5	3	4	6							M					
	844.5	6.0	2	3	4							M					
	842.0	8.5	1	2	4							M					
	837.0	13.5	1	3	4							M					
	832.0	18.5	1	3	4							M					
	827.0	23.5	1	2	3							M					
	822.0	28.5	1	2	3							M					
	817.0	33.5	3	6	8							M					
	812.0	38.5	5	7	10							M					
810												M				810.5	Boring Terminated at Elevation 810.5 ft In Residual Silty SAND (A-2-4)

NCDOT BORE DOUBLE U-2579AA-BRIDGE 730.GPJ NC_DOT.GDT 6/6/19

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Retaining Walls No. 1 & 2 at Bridge No. 730 on -Y2FLYCA-							GROUND WTR (ft)									
BORING NO. RW-8		STATION 12+01		OFFSET 9 ft RT		ALIGNMENT -WALL2-										
COLLAR ELEV. 850.4 ft		TOTAL DEPTH 37.2 ft		NORTHING 840,961		EASTING 1,661,023										
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER G. Akins		START DATE 03/07/19		COMP. DATE 03/07/19		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						
855																
850	850.4	0.0	WOH	1	3								M	850.4 GROUND SURFACE	0.0	
	846.9	3.5	WOH	1	2								M	ARTIFICIAL FILL Soft, Orange-Brown, Fine to Coarse Sandy SILT (A-4), with trace mica		
845	844.4	6.0		2	4								M	RESIDUAL Loose, Orange-Black-Brown-White, Silty Fine to Coarse SAND (A-2-4), with trace mica	5.5	
840	841.9	8.5		3	5								M			
	836.9	13.5		2	6								M	Very Stiff, Orange-Black-Brown, Fine to Coarse Sandy SILT (A-4), with trace mica	13.0	
835	831.9	18.5		7	6								M	Medium Dense to Very Dense, Orange-Gray-White-Brown-Black, Silty Fine to Coarse SAND (A-2-4), with trace mica	18.0	
830	826.9	23.5		5	10								M			
825	821.9	28.5		4	8								M			
820	816.9	33.5		4	15								M			
815	813.2	37.2											M			
														Boring Terminated with Standard Penetration Test Refusal at Elevation 813.2 ft On Crystalline Rock (GRANITIC ROCK)	37.2	

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Retaining Walls No. 1 & 2 at Bridge No. 730 on -Y2FLYCA-							GROUND WTR (ft)									
BORING NO. RW-9		STATION 12+49		OFFSET 5 ft RT		ALIGNMENT -WALL2-										
COLLAR ELEV. 854.8 ft		TOTAL DEPTH 22.0 ft		NORTHING 840,985		EASTING 1,661,065										
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER G. Akins		START DATE 03/08/19		COMP. DATE 03/08/19		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						
855																
	854.8	0.0	WOH	2	2								M	854.8 GROUND SURFACE	0.0	
	851.3	3.5		3	3								M	ARTIFICIAL FILL Soft, Orange-Brown, Fine to Coarse Sandy SILT (A-4), with trace mica	3.0	
850	848.8	6.0		2	4								M	RESIDUAL Medium Stiff, Brown-Orange-Black, Fine to Coarse Sandy SILT (A-4), with little to some mica		
	846.3	8.5		3	11								M	Dense to Very Dense, Tan-Brown, Silty Fine to Coarse SAND (A-2-4)	8.0	
845	841.3	13.5		14	29								M			
	836.3	18.5		11	89/0.4								M	WEATHERED ROCK Brown-Black-White (GRANODIORITE)	18.5	
835	832.8	22.0												Boring Terminated with Standard Penetration Test Refusal at Elevation 832.8 ft On Crystalline Rock (GRANODIORITE)	22.0	

NCDOT BORE DOUBLE U-2579AA-BRIDGE 730.GPJ NC_DOT.GDT 6/6/19

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.7		TIP U-2579AA		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Retaining Walls No. 1 & 2 at Bridge No. 730 on -Y2FLYCA-							GROUND WTR (ft)									
BORING NO. RW-10		STATION 13+09		OFFSET 2 ft RT		ALIGNMENT -WALL2-										
COLLAR ELEV. 864.4 ft		TOTAL DEPTH 24.2 ft		NORTHING 841,014		EASTING 1,661,117										
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER G. Akins		START DATE 03/08/19		COMP. DATE 03/08/19		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)		
865	864.4	0.0												864.4	0.0	GROUND SURFACE
860	860.9	3.5	1	4	5	9							M	861.4	3.0	RESIDUAL Stiff, Red-Brown, Silty CLAY (A-7-6), with trace mica
	858.4	6.0	3	6	7	13							M			Stiff, Red-Brown, Fine to Coarse Sandy SILT (A-4), with trace mica
855	855.9	8.5	2	4	5	9							M	856.4	8.0	Loose to Very Dense, Tan-White-Brown-Black, Silty Fine to Coarse SAND (A-2-4), with trace mica
	850.9	13.5	3	3	2	5							M			
845	845.9	18.5	3	4	4	8							M			
	842.2	22.2	22	28	66	94							M	842.2	22.2	WEATHERED ROCK Black-White (GRANODIORITE)
	840.2	24.2	62	38/0.2		100/0.7								840.2	24.2	Boring Terminated with Standard Penetration Test Refusal at Elevation 840.2 ft On Crystalline Rock (GRANODIORITE)
			60/0.0			60/0.0										

NCDOT BORE DOUBLE U-2579AA-BRIDGE 730.GPJ NC_DOT.GDT 6/6/19