2579A REFERENCE **CONTENTS** 

**DESCRIPTION** 

LEGEND (SOIL & ROCK)

PLAN & PROFILE SHEETS

TITLE SHEET

BORELOGS

SHEET NO.

3-6

34839

#### STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

## **STRUCTURE** SUBSURFACE INVESTIGATION

COUNTY FORSYTH
PROJECT DESCRIPTION WINSTON-SALEM BELTWAY
FROM US 421/I-40 BUS TO I-40
SITE DESCRIPTION SOUND WALL 24/25

STATE PROJECT REFERENCE NO. U-2579AB

#### **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 (1999) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

CENERAL 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 (MH-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 NIDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE TRUDE 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 SATISTY 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.

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TOTAL DEPTH DRILLING

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DATE JULY 2021

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kelly de Montbrun 7/13/2021

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**UNLESS ALL SIGNATURES COMPLETED** 

PROJECT REPERENCE NO. SHEET NO.

U-2579AB

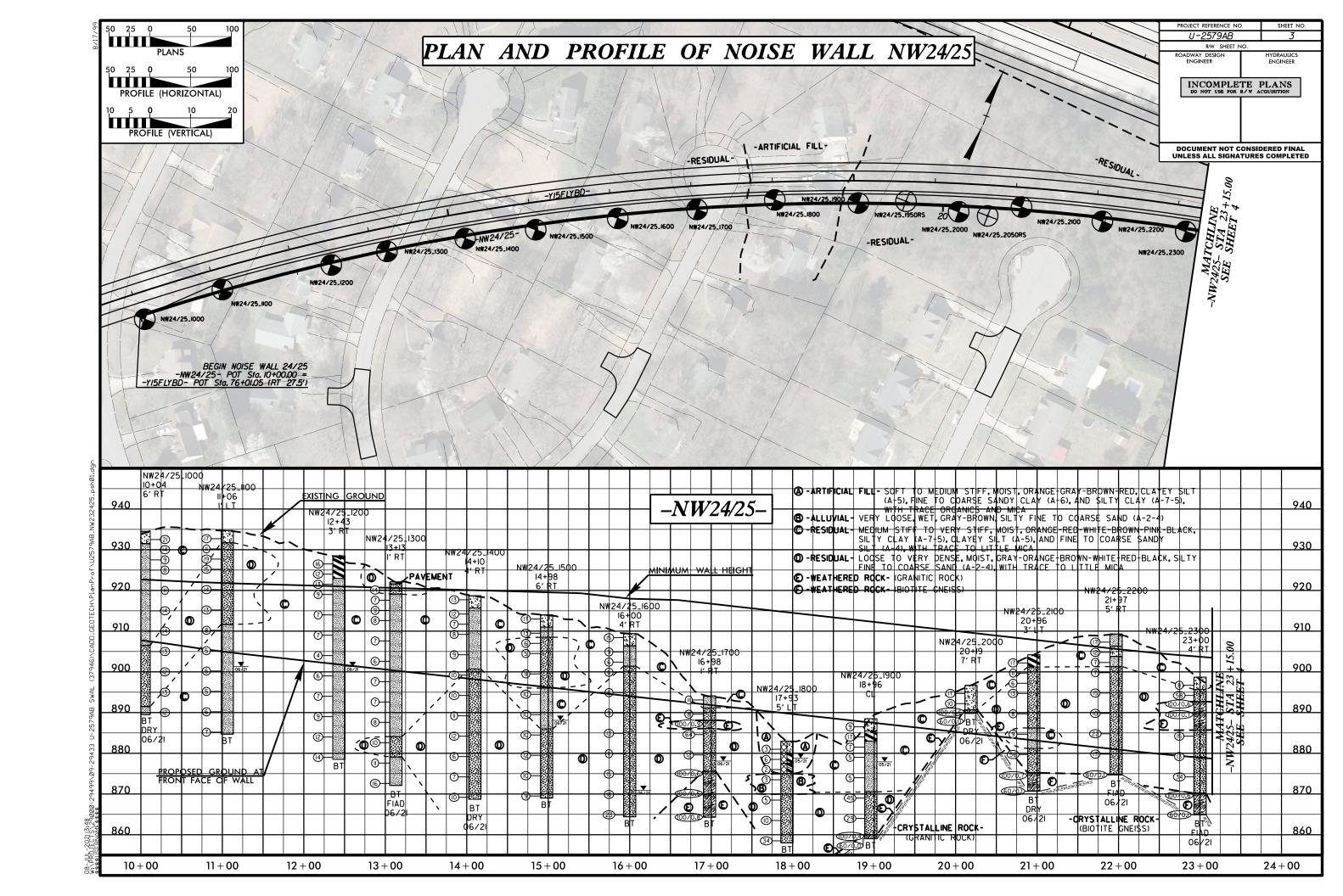
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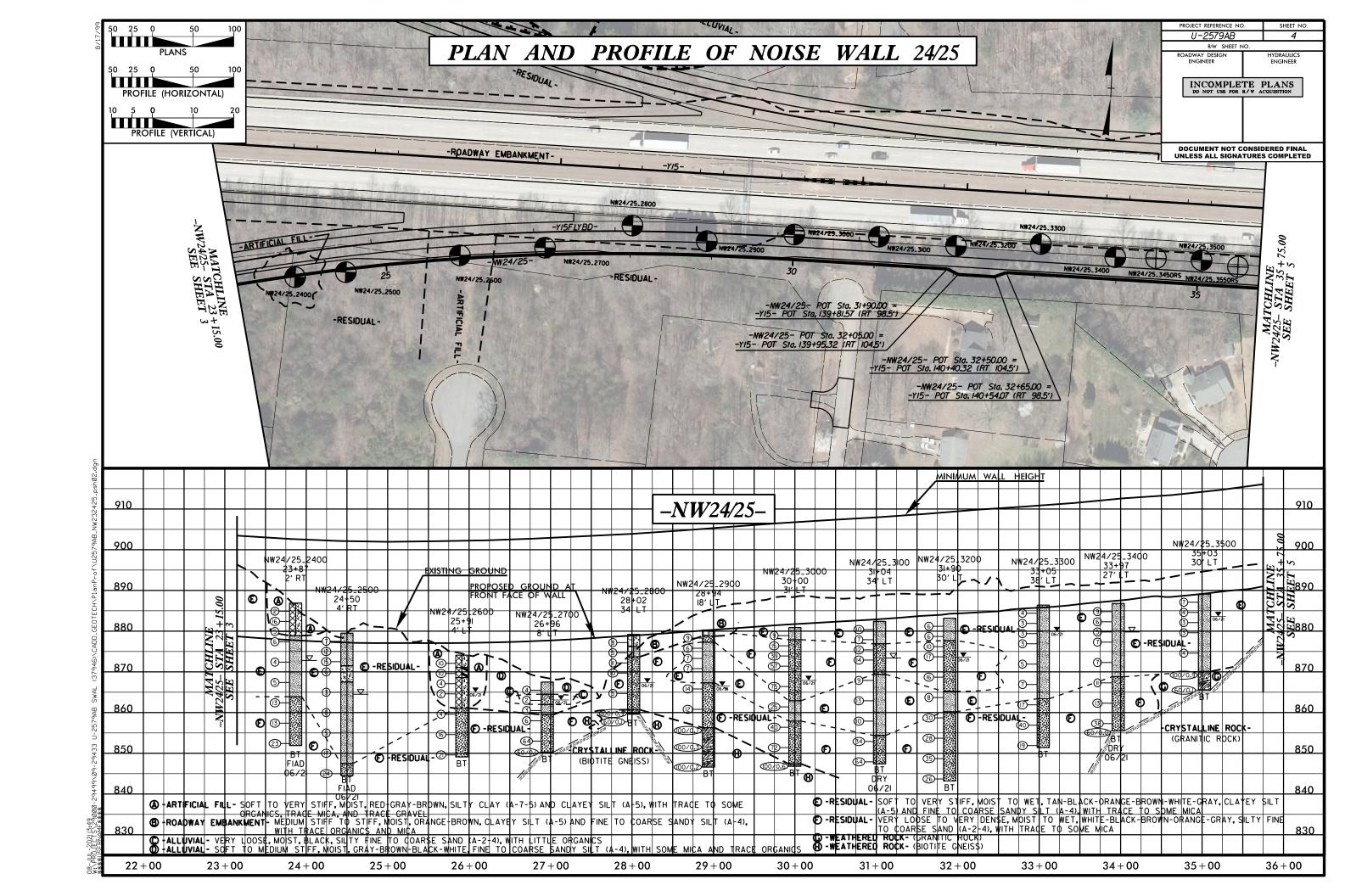
# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

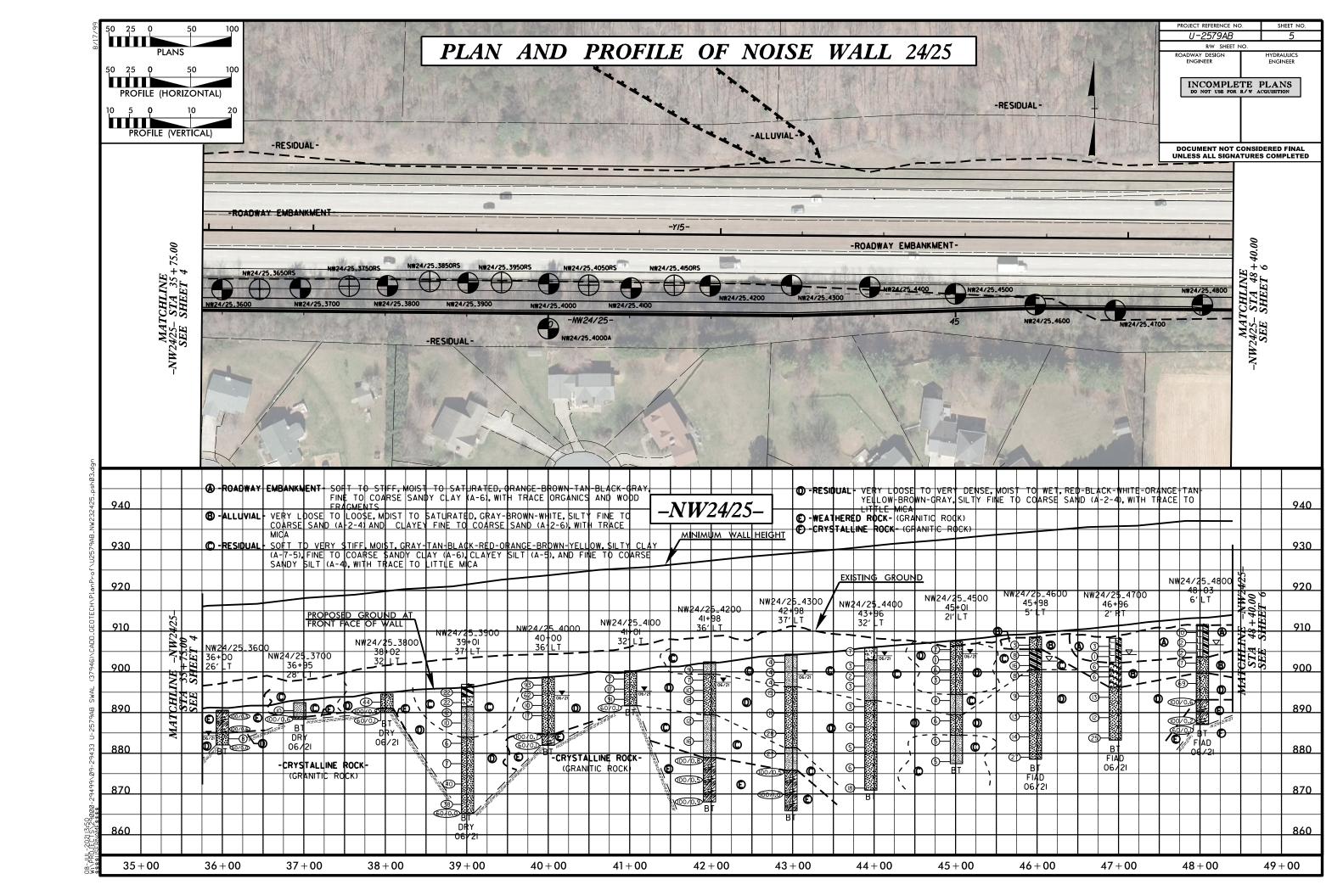
# SUBSURFACE INVESTIGATION

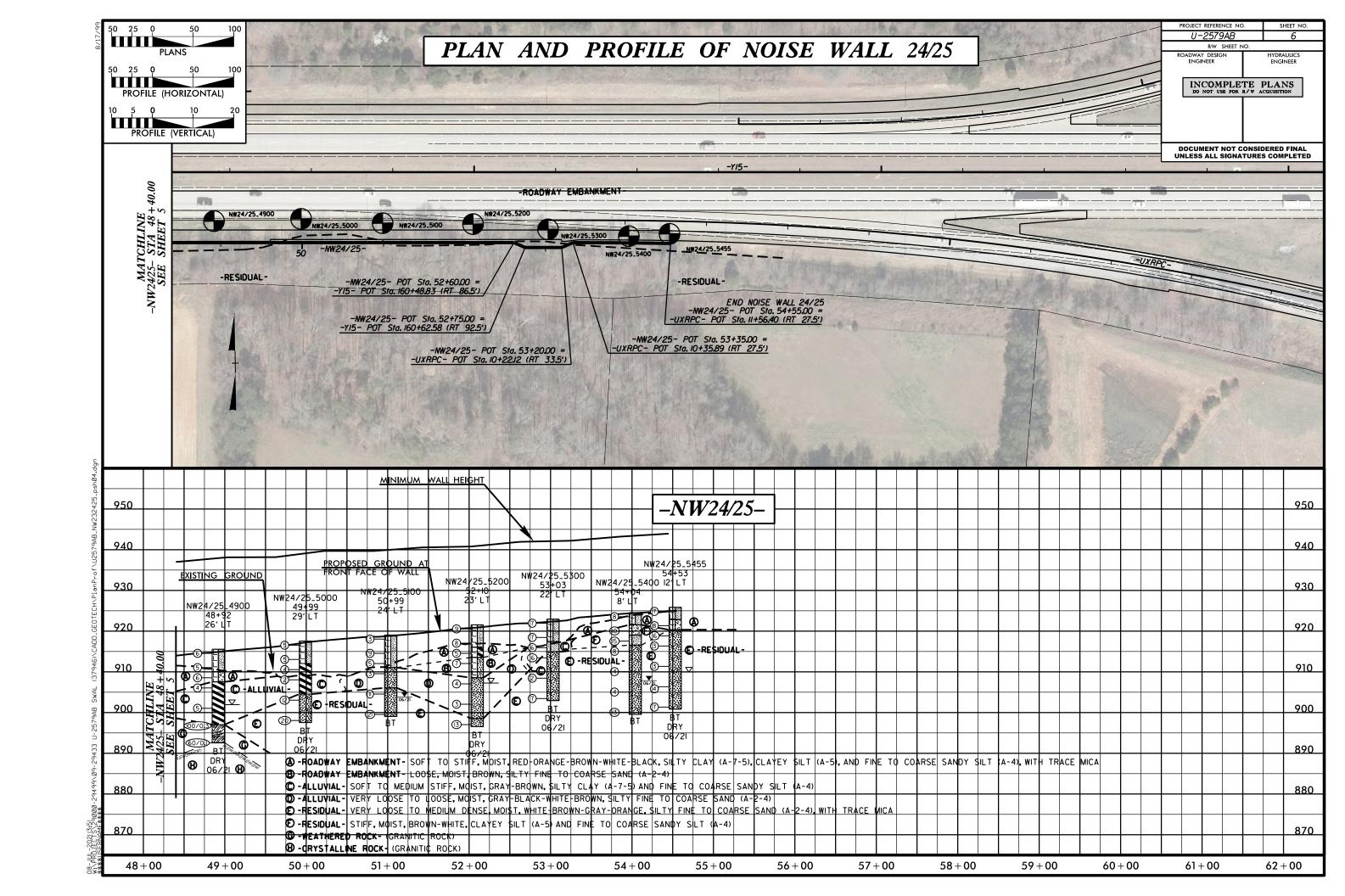
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS			
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	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.	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.	ALLUYIUM (ALLUY.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.			
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	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	AQUIFER - A WATER BEARING FORMATION OR STRATA.			
IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK.	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.			
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	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	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.			
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR. SUBROUNDED, OR ROUNDED.	WEATHERED // NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT			
CEMERAL CRAMIII AR MATERIALS SILT-CLAY MATERIALS	MINERALOGICAL COMPOSITION	FINE TO COARSE CRAIN IGNEOUS AND METAMORPHIC POCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND			
CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	CRYSTALLINE ROCK (CR)  WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.	SURFACE.			
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 A-6 A-7	ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.			
00000000000 #17-6 H-2-6 H-2-7 H-2-6 H-2-7	COMPRESSIBILITY  SLIGHTLY COMPRESSIBLE LL < 31	ROCK (NCR) SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.			
SYMBOL 00000d0000d	MODERATELY COMPRESSIBLE LL = 31 − 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED			
7. PASSING SILT-	HIGHLY COMPRESSIBLE LL > 50  PERCENTAGE OF MATERIAL	SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.	BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.			
*10 50 MX   GRANULAR   CLAY   MUCK,	GRANULAR SILT - CLAY	WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.			
*200   15 MX   25 MX   10 MX   35 MX   35 MX   35 MX   36 MN   36 MN   36 MN   36 MN   36 MN	ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE			
MATERIAL PASSING *40	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%  LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20%	HAMMER IF CRYSTALLINE.	HORIZONTAL.			
1	MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, (V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE			
PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 11 MN 11 MN MODERATE NEGATION	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.			
GROUP INDEX U U 4 MX 8 MX 12 MX 16 MX NU MX AMUUNTS UF SOILS	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.			
USUAL TYPES STONE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER	✓ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.			
MATERIALS SAND SAND GRAVEL AND SAND SOILS SOILS	▼ STATIC WATER LEVEL AFTER 24 HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM			
GEN. RATING EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITAB	PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	(MOD.) 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	PARENT MATERIAL.			
AS SUBSIGNADE POUR	SPRING OR SEEP	WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.			
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ;PI OF A-7-6 SUBGROUP IS > LL - 30	-	MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.			
CONSISTENCY OR DENSENESS  RANGE OF STANDARD RANGE OF UNCONFINED	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK, ROCK GIVES "CLUNK" SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.			
PRIMARY SOIL TYPE COMPACTINESS OR PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	IF TESTED, WOULD YIELD SPT REFUSAL	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO			
W-AHOE) (TOWS/FT)	₩ITH SOIL DESCRIPTION FROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT	ITS LATERAL EXTENT.			
GENERALLY VERY LOOSE < 4  CONTROL   VERY LOOSE	SOIL SYMBOL  OPT DMT TEST BORING  SLOPE INDICATOR INSTALLATION	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.			
GHANDLAR MEDIUM DENSE 10 TO 30 N/A	<b>】</b> 图	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.			
(NON-COHESIVE) DENSE 30 TO 50  VERY DENSE > 50	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT  AUGER BORING  CONE PENETROMETER TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE			
VERY SOFT < 2 < 0.25	— INFERRED SOIL BOUNDARY — CORE BORING SOUNDING ROD	(V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.			
GENERALLY SOFT 2 TO 4 0.25 TO 0.5	TEST BORING	VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES &lt; 100 BPF</u>	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.			
SILT-CLAY         MEDIUM STIFF         4 TO 8         0.5 TO 1.0           MATERIAL         STIFF         8 TO 15         1 TO 2	INFERRED ROCK LINE MONITORING WELL WITH CORE	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	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF			
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4 HARD > 30 > 4	↑▼▼▼▼↑ ALLUVIAL SOIL BOUNDARY △ PIEZOMETER INSTALLATION — SPT N-VALUE	ALSO AN EXAMPLE.	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.			
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT			
		VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	ROCK.			
U.S. STD. SIEVE SIZE 4 10 40 60 200 270 OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	UNSUITABLE WASTE	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.  HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED	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			
COARCE	SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.			
BOULDER COBBLE GRAVEL SAND SILT CLAY (BLDR.) (COB.) (GR.) (CCF. CD.) (F. CD.) (SL.) (CL.)		MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT			
GRAIN MM 305 75 2,0 0,25 0,005 0,005	ABBREVIATIONS  AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.	OR SLIP PLANE.  STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF			
SIZE IN. 12 3	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL			
SOIL MOISTURE - CORRELATION OF TERMS	CL CLAY MOD MODERATELY 7 - UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.			
SOIL MOISTURE SCALE FIELD MOISTURE	CPT - CONE PENETRATION TEST NP - NON PLASTIC CSE COARSE ORG ORGANIC	POINT OF A GEOLOGIST'S PICK.  SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK, CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY			
(ATTERBERG LIMITS)  DESCRIPTION  GUIDE FOR FIELD MOISTURE DESCRIPTION	DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST <u>SAMPLE ABBREVIATIONS</u>	FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.			
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	PIECES CAN BE BROKEN BY FINGER PRESSURE.	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			
(SAT.) FROM BELOW THE GROUND WATER TABLE	F - FINE SL SILT, SILTY ST - SHELBY TUBE	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.			
PLASTIC SEMICOLID. REQUIRES DRYING TO	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.			
	FRAGS FRAGMENTS $\omega$ - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	BENCH MARK: N/A			
(P) PL PLASTIC LIMIT ATTAIN OPTIMUM MOISTURE	HI HIGHLY V - VERY RATIO	TERM SPACING TERM THICKNESS  VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET				
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	ELEVATION: N/A FEET			
SL SHRINKAGE LIMIT	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:  CME-45C CLAY BITS X AUTOMATIC MANUAL	MODERATELY CLOSE	NOTES:			
- DRY - (D) REQUIRES ADDITIONAL WATER TO		VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	ROADWAY DESIGN FILES, .TIN, AND GPK FILE PROVIDED BY NCDOT			
ATTAIN OPTIMUM MOISTURE	CME-55  G' CONTINUOUS FLIGHT AUGER  CORE SIZE:	THINLY LAMINATED < 0.008 FEET				
PLASTICITY	X 8' HULLOW AUGERS   L-B L-H	INDURATION	NORTHING AND EASTING OBTAINED USING A TRIMBLE GEO7X.			
PLASTICITY INDEX (PI) DRY STRENGTH	☐ CME-550 ☐ HARD FACED FINGER BITS ☐ -N	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	ELEVATIONS OBTAINED USING PROVIDED SURVEY INFORMATION.			
NON PLASTIC 0-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT	TUNGCARBIDE INSERTS	FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.				
MODERATELY PLASTIC 16-25 MEDIUM	CASING W/ ADVANCER POST HOLE DIGGER	CDAING CAN BE CEDADATED EDOM CAMBLE WITH CIEF DROPE.	FIAD=FILLED IN AFTER DRILLING			
HIGHLY PLASTIC 26 OR MORE HIGH	To annual to the state of the s	MODERATELY INDURATED  BREAKS EASILY WHEN HIT WITH HAMMER.				
	PORTABLE HOIST TRICONE*STEEL TEETH HAND AUGER					
COLOR	TRICONE TUNG-CARR.	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE;				
	<b>□</b>					



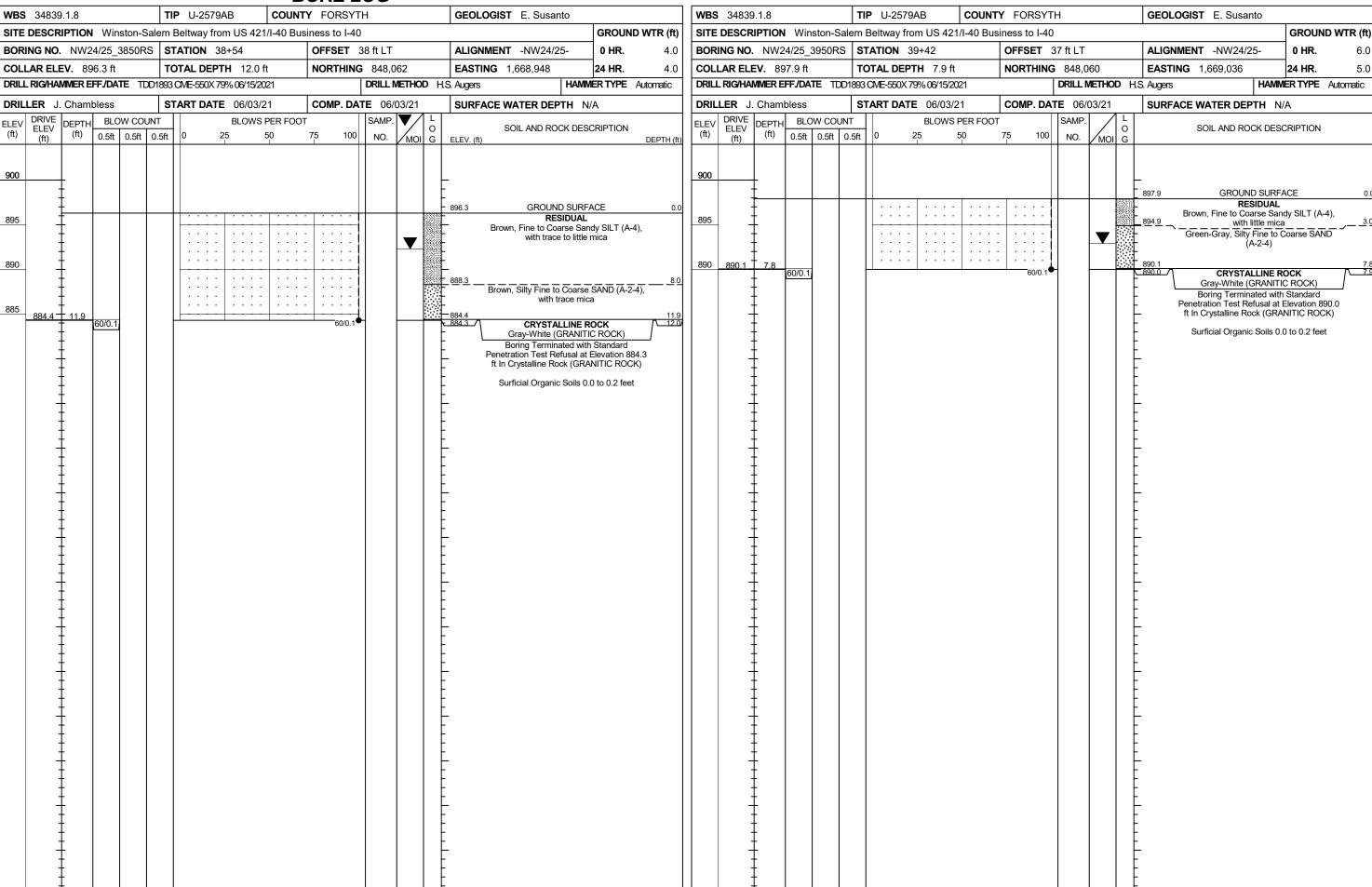


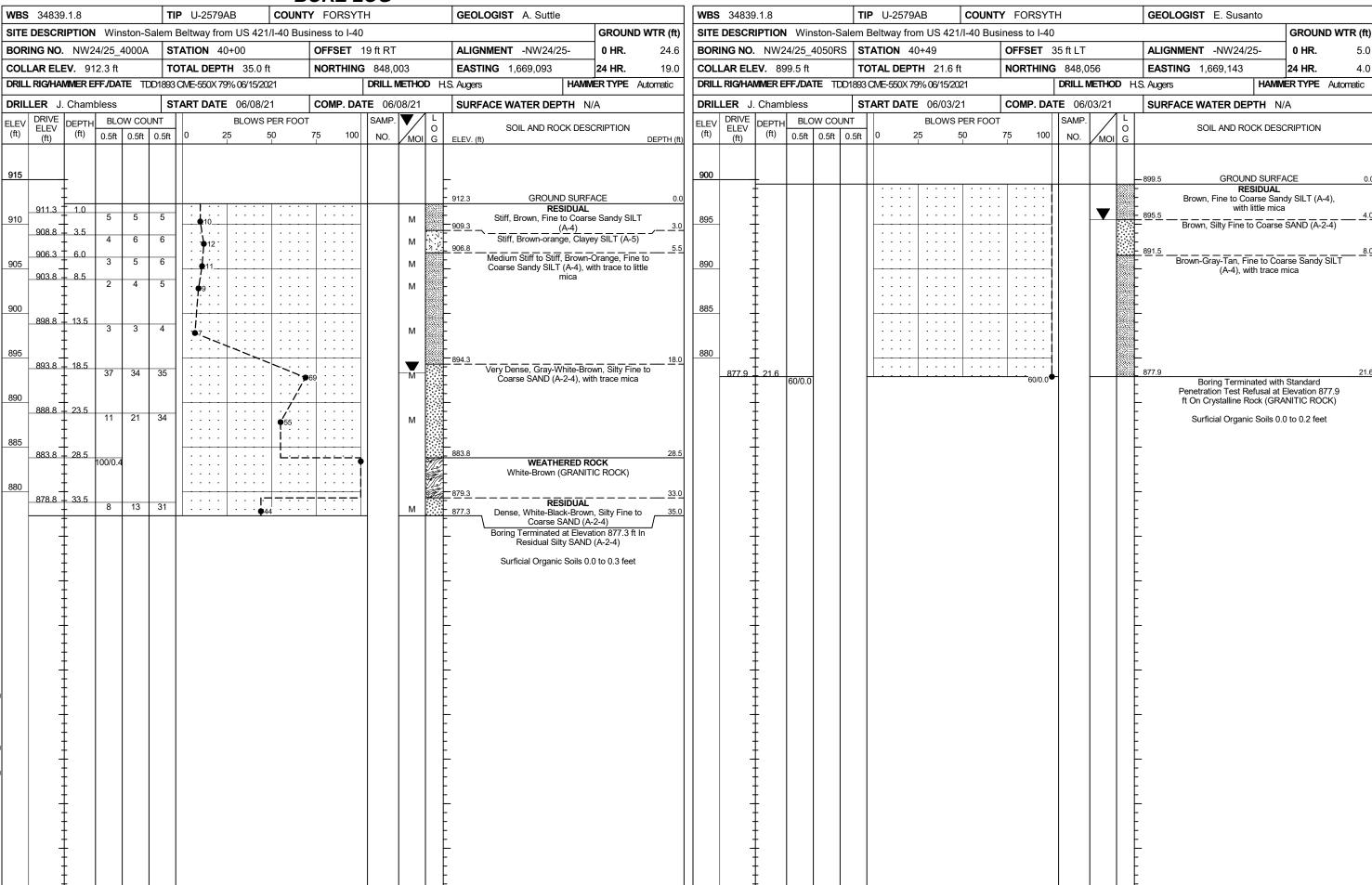




	BORE L						
<b>WBS</b> 34839.1.8	TIP U-2579AB COUNTY FORSYT		ST A. Suttle	<b>WBS</b> 34839.1.8		Y FORSYTH	GEOLOGIST A. Suttle
	alem Beltway from US 421/I-40 Business to I-40		GROUND WTR (ft)		alem Beltway from US 421/I-40 Bus		GROUND WTR (ft)
<b>BORING NO.</b> NW24/25_1950RS	STATION 19+54 OFFSET 3		NT -NW24/25- 0 HR. 19.7	<b>BORING NO.</b> NW24/25_2050RS	STATION 20+55	OFFSET 10 ft RT	ALIGNMENT -NW24/25- 0 HR. Dry
COLLAR ELEV. 892.5 ft	TOTAL DEPTH 28.3 ft NORTHING		I I	COLLAR ELEV. 900.0 ft	TOTAL DEPTH 3.7 ft	NORTHING 847,901	<b>EASTING</b> 1,667,167 <b>24 HR.</b> FIAD
DRILL RIG/HAMMER EFF/DATE TOD		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	DRILL RIG/HAMMER EFF/DATE TDD	D1893 CME-550X 79% 06/15/2021	DRILL METHOD H	I.S. Augers HAMMER TYPE Automatic
DRILLER J. Chambless	<del></del>		WATER DEPTH N/A	DRILLER J. Chambless	<b>START DATE</b> 05/27/21	COMP. DATE 05/27/21	SURFACE WATER DEPTH N/A
ELEV (ft) DEPTH BLOW COUNTY (ft) 0.5ft 0.5ft 0		SAMP. L O MOI G ELEV. (ft)	SOIL AND ROCK DESCRIPTION  DEPTH (ft)	ELEV (ft) DRIVE (LEV (ft) (ft) DEPTH BLOW COUL		75 100 NO. MOI G	SOIL AND ROCK DESCRIPTION
895		-	ODOLIND CUREACE	900			900.0 GROUND SURFACE 0.0  RESIDUAL Brown-Orange, Clayey SILT (A-5)
890		889.5 - 889.5	GROUND SURFACE 0.0  RESIDUAL  Red-Brown, Silty CLAY (A-7-5)  Orange-Brown, Clayey SILT (A-5)	896.4 3.6 60/0.1			BlownForange, Clayey SiL1 (A-3)
885		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ray, Silty Fine to Coarse SAND (A-2-4)				Boring Terminated with Standard Penetration Test Refusal at Elevation 896.3 ft In Crystalline Rock (GRANITIC ROCK)
880		880.5	12.0				Surficial Organic Soils 0.0 to 0.4 feet
		Gra	ay-Orange, Fine to Coarse Sandy SILT  (A-4), with trace mica				
875							- - - -
870		- - - -		+			
865 864.2 28.3 60/0.0	60/0.0	864.2	Boring Terminated with Standard				
		ft O	etration Test Refusal at Elevation 864.2 On Crystalline Rock (GRANITIC ROCK) Surficial Organic Soils 0.0 to 0.3 feet				-
				+			-
1. 6/22/21							
4C_DOT.GL							
							- - -
94B_SWAL							
UBLE U257							-  -  -  -
BORE DOI							
NCDO.							F

	BORE LOG					
	ITY FORSYTH GEOLOGIST E.		<b>WBS</b> 34839.1.8			GEOLOGIST E. Susanto
SITE DESCRIPTION Winston-Salem Beltway from US 421/I-40 Bu		GROUND WTR (ft)		alem Beltway from US 421/I-40 Busir		GROUND WTR (ft)
<b>BORING NO.</b> NW24/25_3450RS <b>STATION</b> 34+47	OFFSET 29 ft LT ALIGNMENT -N	W24/25- <b>0 HR.</b> 6.0	<b>BORING NO.</b> NW24/25_3550RS	S STATION 35+49	OFFSET 25 ft LT	<b>ALIGNMENT</b> -NW24/25- <b>0 HR.</b> 6.0
COLLAR ELEV. 887.7 ft TOTAL DEPTH 25.4 ft	NORTHING   848,060   EASTING   1,668		COLLAR ELEV. 889.4 ft			<b>EASTING</b> 1,668,642 <b>24 HR.</b> 6.4
DRILL RIG/HAMMER EFF/DATE TDD1893 CME-550X 79% 06/15/2021	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	DRILL RIG/HAMMER EFF/DATE TOD	D1893 CME-550X 79% 06/15/2021	DRILL METHOD H.S.	. Augers HAMMER TYPE Automatic
DRILLER J. Chambless START DATE 06/04/21	COMP. DATE 06/04/21 SURFACE WATE	R DEPTH N/A	DRILLER J. Chambless		<b>COMP. DATE</b> 06/04/21	SURFACE WATER DEPTH N/A
ELEV (ft)	OT	ND ROCK DESCRIPTION  DEPTH (ft)	DRIVE   DEPTH   BLOW COUNT   Count		75 100 NO. MOI G	SOIL AND ROCK DESCRIPTION  889.4 GROUND SURFACE 0.0
885 886 870 865 865 867 868 868 868 868 868 868 868 868 868	Brown-Orar SILT (A	RESIDUAL Ige-Tan, Fine to Coarse Sandy (-4), with trace to little mica  RYSTALLINE ROCK White (GRANITIC ROCK) Terminated with Standard Test Refusal at Elevation 862.3 Illine Rock (GRANITIC ROCK) Organic Soils 0.0 to 0.2 feet	885 880 875 872 3 17.1 60/0.1		▼	RESIDUAL Tan, Fine to Coarse Sandy SILT (A-4), with trace mica  872.3  872.2  CRYSTALLINE ROCK White-Gray (GRANITIC ROCK) Boring Terminated with Standard Penetration Test Refusal at Elevation 872.2 It In Crystalline Rock (GRANITIC ROCK) Surficial Organic Soils 0.0 to 0.2 feet





						D	ORE L	UG					
<b>WBS</b> 3483	9.1.8			TI	I <b>P</b> U-2579AB	COUNT	Y FORSYT	Н		GEOLO	GIST E. Susanto		
SITE DESCI	RIPTION	l Win	ston-S	Salem	Beltway from US 42	I/I-40 Bus	siness to I-40			•		GROUND	WTR (ft)
BORING NO	). NW2	4/25_4	4150R	RS S	<b>TATION</b> 41+54		OFFSET :	36 ft LT		ALIGNM	<b>ENT</b> -NW24/25-	0 HR.	6.0
COLLAR EL	. <b>EV</b> . 90	1.6 ft		T	OTAL DEPTH 16.4	ft	NORTHING	848,05	55	EASTIN	<b>G</b> 1,669,248	24 HR.	4.5
DRILL RIG/HA	AMMER E	FF./DA	ΤΕ ΤΙ	DD1893	3 CME-550X 79% 06/15/20	)21		DRILL M	ETHOD	H.S. Augers	HAN	MERTYPE AL	utomatic
DRILLER .	J. Cham	bless		S	TART DATE 06/03/2	21	COMP. DA	<b>TE</b> 06/0	3/21	SURFAC	E WATER DEPTH	N/A	
ELEV DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	0.5ft		4	PER FOOT	75 100	SAMP.	MOI G	ELEV. (ft)	SOIL AND ROCK DE	SCRIPTION	DEPTH (f
905	 										GROUND SUR	FACE	0.
900	<b>F</b>									1	RESIDUA	L	
895 893.1	8.5	2	3	4	• • • • • • • • • • • • • • • • • • •			_		- C	edium Stiff Tan-Brown-Bl oarse Sandy SILT (A-4), mica		е
888.1	13.5	19	73	27/0.1	1 :'+-:- :	- -:-:-:	1	,	777	<u>887.6</u>	WEATHERED	ROCK	14.
885.3	- 16.3	60/0.1					60/0.1				Gray-White (GRANI' CRYSTALLINE Gray-Brown (GRANI) Boring Terminated wi enetration Test Refusal a ft In Crystalline Rock (GR Surficial Organic Soils	ROCK TIC ROCK) th Standard tt Elevation 885.: ANITIC ROCK)	16. 16. 2

SHEET 12