

PROJECT: 34554 REFERENCE: R-3833C

**CONTENTS**

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

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY IREDELL  
 PROJECT DESCRIPTION NORTH OF BRAWLEY SCHOOL ROAD BETWEEN CITATION DRIVE AND ROUNDKEEP LANE  
 SITE DESCRIPTION NOISE WALL 2 ON (BRAWLEY SCHOOL ROAD) STATION -L- 36+00.33 -63.08' LT / -NW2- 10+00.00 TO -L- 52+99.95 -54.50' LT / -NW2- 20+05.00

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3833C	1	6

**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:

- 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.
- 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

GOODNIGHT, D.J.

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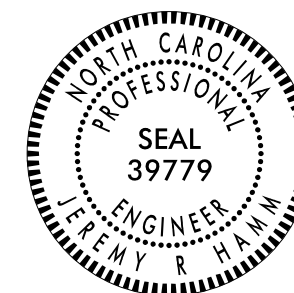
INVESTIGATED BY FALCON ENG.

DRAWN BY HILL, M.J.

CHECKED BY HUNSGERGER, W.S.

SUBMITTED BY FALCON

DATE SEPTEMBER 2021



DocuSigned by:

*Jeremy R Hamm*

9/7/2021

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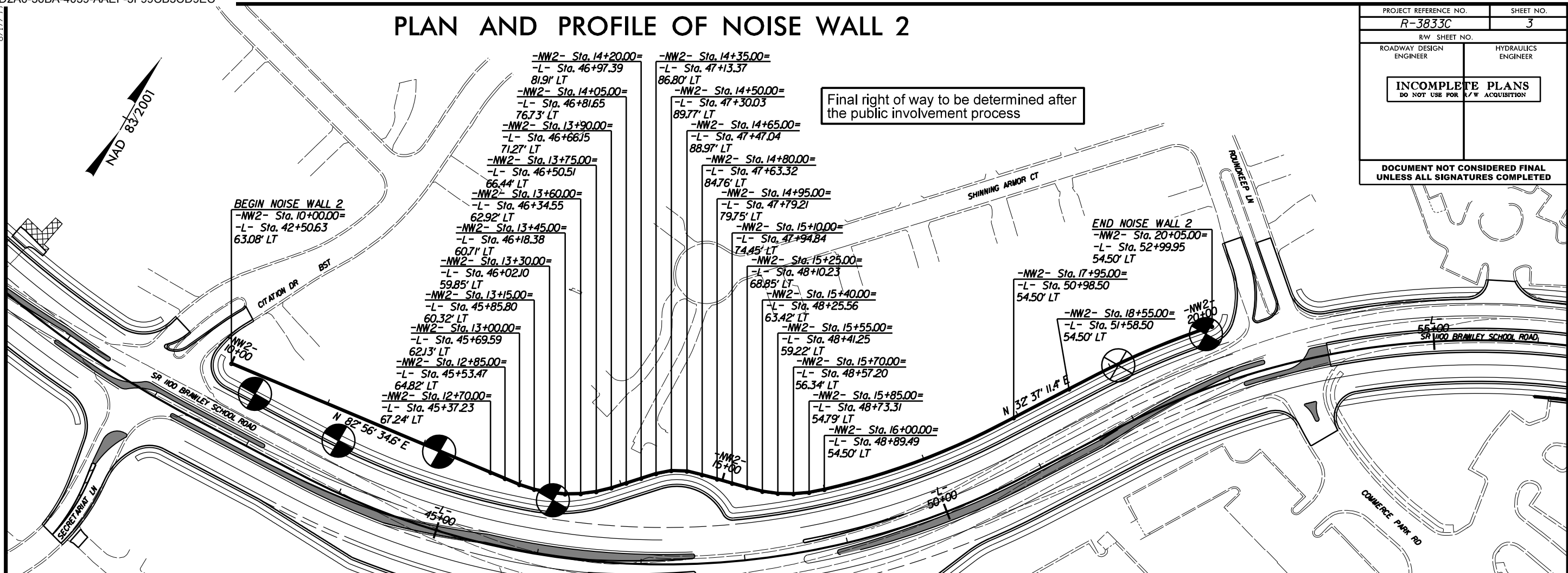
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**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT  
SUBSURFACE INVESTIGATION  
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

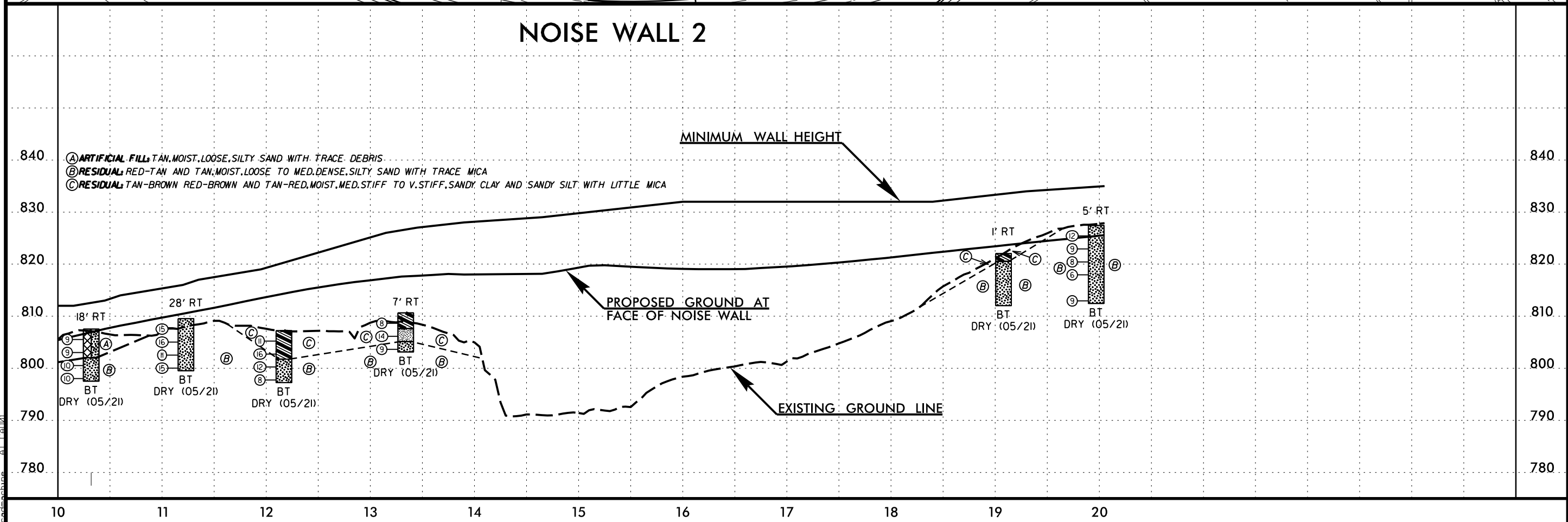
SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS									
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>										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.										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:										ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (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.									
<b>SOIL LEGEND AND AASHTO CLASSIFICATION</b>										<b>ANGULARITY OF GRAINS</b>										<b>WEATHERED ROCK (WR)</b>										<b>CRYSTALLINE ROCK (CR)</b>									
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS										THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.										NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.										FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.									
<b>MINERALOGICAL COMPOSITION</b>										<b>MINERALOGICAL COMPOSITION</b>										<b>NON-CRYSTALLINE ROCK (NCR)</b>										<b>COASTAL PLAIN SEDIMENTARY ROCK (CP)</b>									
MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.										MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.										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 SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.									
<b>COMPRESSION</b>										<b>COMPRESSION</b>										<b>WEATHERING</b>										<b>WEATHERING</b>									
SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50										SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50										FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. 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. 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. 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. VERY SEVERE (V 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. 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.										FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. 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. 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. 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. VERY SEVERE (V 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. 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.									
<b>PERCENTAGE OF MATERIAL</b>										<b>PERCENTAGE OF MATERIAL</b>										<b>GROUND WATER</b>										<b>GROUND WATER</b>									
ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE										ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE										WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP										WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP									
<b>MISCELLANEOUS SYMBOLS</b>										<b>MISCELLANEOUS SYMBOLS</b>										<b>RECOMMENDATION SYMBOLS</b>										<b>RECOMMENDATION SYMBOLS</b>									
ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY										DIP & DIP DIRECTION OF ROCK STRUCTURES SPT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION										UNDERCUT SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL										UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL									
<b>TEXTURE OR GRAIN SIZE</b>										<b>TEXTURE OR GRAIN SIZE</b>										<b>ABBREVIATIONS</b>										<b>ABBREVIATIONS</b>									
U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.75 2.00 0.42 0.25 0.075 0.053										U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.75 2.00 0.42 0.25 0.075 0.053										AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY VST - VANE SHEAR TEST WEA. - WEATHERED W - UNIT WEIGHT Wg - DRY UNIT WEIGHT										VST - VANE SHEAR TEST WEA. - WEATHERED W - UNIT WEIGHT Wg - DRY UNIT WEIGHT									
<b>SOIL MOISTURE - CORRELATION OF TERMS</b>										<b>SOIL MOISTURE - CORRELATION OF TERMS</b>										<b>FRACURE SPACING</b>										<b>FRACURE SPACING</b>									
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION										SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION										TERM SPACING 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										TERM THICKNESS 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									
LL - LIQUID LIMIT PL - PLASTIC LIMIT OM - OPTIMUM MOISTURE SHRINKAGE LIMIT										LL - LIQUID LIMIT PL - PLASTIC LIMIT OM - OPTIMUM MOISTURE SHRINKAGE LIMIT										<b>BEDDING</b>										<b>BEDDING</b>									
- SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE										- SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE										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										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									
- WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE										- WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE										<b>INDURATION</b>										<b>INDURATION</b>									
- MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE										- MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE										FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.										FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.									
<b>PLASTICITY</b>										<b>PLASTICITY</b>										<b>EQUIPMENT USED ON SUBJECT PROJECT</b>										<b>EQUIPMENT USED ON SUBJECT PROJECT</b>									
NON PLASTIC 0-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH										NON PLASTIC 0-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH										DRILL UNITS: <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										ADVANCING TOOLS: <input type="checkbox"/> CLAY BITS <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input checked="" type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input type="checkbox"/> TRICONE * STEEL TEETH <input type="checkbox"/> TRICONE * TUNG-CARB. <input type="checkbox"/> CORE BIT									
<b>COLOR</b>										<b>COLOR</b>										<b>DRILL UNITS</b>										<b>DRILL UNITS</b>									
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.										DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.										<input type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL CORE SIZE: <input type="checkbox"/> -B <input type="checkbox"/> -H <input type="checkbox"/> -N HAND TOOLS: <input type="checkbox"/> POST HOLE DIGGER <input type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST										<input type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL CORE SIZE: <input type="checkbox"/> -B <input type="checkbox"/> -H <input type="checkbox"/> -N HAND TOOLS: <input type="checkbox"/> POST HOLE DIGGER <input type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST									

# PLAN AND PROFILE OF NOISE WALL 2

PROJECT REFERENCE NO. <b>R-3833C</b>	SHEET NO. <b>3</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	



## NOISE WALL 2



P:\JUN-2021\0834... 7:11 PM 6/18/2021 10:03:00 Stantec R-3833C Brawley School Road Iredell County, NC DOT, Electronic File Tree \Geotech\InvestigationDesign\R3833C\_GEO\_ROW\CADD\GEO\TECH\Site&Sub\NoiseWall\R3833C\_NW2\_GEO\_plan\_eng.plt

# GEOTECHNICAL BORING REPORT BORE LOG

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.									
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)									
BORING NO. NW2-1		STATION 10+32		OFFSET 18 ft RT		ALIGNMENT -NW2-									
COLLAR ELEV. 807.0 ft		TOTAL DEPTH 10.0 ft		NORTHING 670,031		EASTING 1,451,217									
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 82% 12/18/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Kiker, J.		START DATE 05/11/21		COMP. DATE 05/11/21		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					
810															
805	806.0	1.0	5	5	4								M	0.2' TOPSOIL	0.0
	803.5	3.5	5	5	4								M	ARTIFICIAL FILL TAN, LOOSE, SILTY SAND (A-2-4) WITH TRACE DEBRIS	
800	801.0	6.0	3	5	5								M	RESIDUAL TAN, LOOSE TO MEDIUM DENSE, SILTY SAND (A-2-4)	5.5
	798.5	8.5	4	4	6								M	Boring Terminated at Elevation 797.0 ft IN RESIDUAL: SILTY SAND	10.0

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.									
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)									
BORING NO. NW2-2		STATION 11+23		OFFSET 28 ft RT		ALIGNMENT -NW2-									
COLLAR ELEV. 809.5 ft		TOTAL DEPTH 10.0 ft		NORTHING 670,032		EASTING 1,451,309									
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 82% 12/18/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Kiker, J.		START DATE 05/11/21		COMP. DATE 05/11/21		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					
810															
	808.5	1.0	4	6	9								M	809.5 0.3' TOPSOIL	0.0
805	806.0	3.5	7	8	8								M	RESIDUAL TAN, MEDIUM DENSE, SILTY SAND (A-2-4)	
	803.5	6.0	5	5	6								M		
800	801.0	8.5	5	7	8								M	Boring Terminated at Elevation 799.5 ft IN RESIDUAL: SILTY SAND	10.0

NCDOT BORE DOUBLE GINT - G18063.GPJ NC\_DOT.GDT 6/15/21

# GEOTECHNICAL BORING REPORT BORE LOG

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.											
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)											
BORING NO. NW2-3		STATION 12+17		OFFSET CL		ALIGNMENT -NW2-											
COLLAR ELEV. 807.2 ft		TOTAL DEPTH 10.0 ft		NORTHING 670,071		EASTING 1,451,398											
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 82% 12/18/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER Kiker, J.		START DATE 05/11/21		COMP. DATE 05/11/21		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	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
810																	
805	806.2	1.0	5	5	6										807.2	0.0	0.5' TOPSOIL
	803.7	3.5	5	7	9												<b>RESIDUAL</b> TAN-BROWN, STIFF TO VERY STIFF, SANDY CLAY (A-6)
800	801.2	6.0	4	5	7										801.7	5.5	RED-TAN, LOOSE TO MEDIUM DENSE, SILTY SAND (A-2-4)
	798.7	8.5	3	3	5										797.2	10.0	Boring Terminated at Elevation 797.2 ft IN RESIDUAL: SILTY SAND

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.											
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)											
BORING NO. NW2-4		STATION 13+34		OFFSET 7 ft RT		ALIGNMENT -NW2-											
COLLAR ELEV. 810.5 ft		TOTAL DEPTH 7.5 ft		NORTHING 670,085		EASTING 1,451,516											
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 82% 12/18/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER Kiker, J.		START DATE 05/11/21		COMP. DATE 05/11/21		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	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
815																	
810	809.5	1.0	3	3	5										810.5	0.0	0.5' TOPSOIL
	807.0	3.5	4	6	8										807.5	3.0	<b>RESIDUAL</b> TAN-RED, MEDIUM STIFF TO STIFF, SANDY CLAY (A-6)
805	804.5	6.0	4	4	5										805.0	5.5	TAN-BROWN, STIFF, FINE SANDY SILT (A-4) WITH A LITTLE MICA
															803.0	7.5	TAN, LOOSE, SILTY SAND (A-2-4)
																	Boring Terminated at Elevation 803.0 ft IN RESIDUAL: SILTY SAND

NCDOT BORE DOUBLE GINT - G18063.GPJ NC\_DOT.GDT 6/15/21

## GEOTECHNICAL BORING REPORT BORE LOG

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.									
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)									
BORING NO. NW2-5		STATION 19+08		OFFSET 1 ft RT		ALIGNMENT -NW2-									
COLLAR ELEV. 821.9 ft		TOTAL DEPTH 10.0 ft		NORTHING 670,468		EASTING 1,451,922									
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD Hand Auger		HAMMER TYPE N/A											
DRILLER Goodnight, D.		START DATE 05/11/21		COMP. DATE 05/11/21		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													M	0.5' TOPSOIL	0.0
													M	RESIDUAL RED-BROWN, MEDIUM STIFF, SANDY CLAY (A-6)	1.5
													M	RED-TAN, LOOSE TO MEDIUM DENSE, SILTY SAND (A-2-4) WITH TRACE MICA	
815													M	Boring Terminated at Elevation 811.9 ft IN RESIDUAL: SILTY SAND	10.0

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.									
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)									
BORING NO. NW2-6		STATION 19+97		OFFSET 5 ft RT		ALIGNMENT -NW2-									
COLLAR ELEV. 827.1 ft		TOTAL DEPTH 15.0 ft		NORTHING 670,536		EASTING 1,451,980									
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 82% 12/18/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Kiker, J.		START DATE 05/11/21		COMP. DATE 05/11/21		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	826.1	1.0	4	6	6								M	0.4' TOPSOIL	0.0
	823.6	3.5	4	4	5								M	RESIDUAL RED-TAN, MEDIUM DENSE TO LOOSE, SILTY SAND (A-2-4)	
	821.1	6.0	2	4	4								M		
820	818.6	8.5	3	3	3								M		
815	813.6	13.5	3	4	5								M	Boring Terminated at Elevation 812.1 ft IN RESIDUAL: SILTY SAND	15.0

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