

REFERENCE: U-2525C

PROJECT: 34821

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2525C	1	6

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4-5	EXISTING GROUND PROFILES ALONG MSE WALL AT EB1 AND EB2
6	LAB SUMMARY SHEET

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY GUILFORD

PROJECT DESCRIPTION GREENSBORO EASTERN LOOP
I-85 BYPASS (-L-) FROM US 29 NORTH OF
GREENSBORO TO EAST OF LAWDALE DRIVE

SITE DESCRIPTION MSE WALLS AT END BENT 1 AND
END BENT 2 - SITE NO. 4 (STRUCTURE NO. 6) -
BRIDGE NO. 1245 ON SR 2523 (YANCEYVILLE
ROAD) (-Y4-) OVER I-85 BYPASS (-L-)

RETAINING WALL INVESTIGATION

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 (ON-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON 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

RIGGS, Jr., A. F.

WEAVER, L. A.

COGAR, T. E.

TURNAGE, J. R.

INVESTIGATED BY TERRACON CONSULTANTS

DRAWN BY FIELDS, W. D.

CHECKED BY RIGGS, Jr., A. F.

SUBMITTED BY TERRACON CONSULTANTS

DATE OCTOBER 2017

Terracon
Consulting Engineers & Scientists

2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869



DocuSigned by:

Abner Riggs Jr.

10/9/2017

5228073BBA4F482

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

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, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

Table with columns for GENERAL CLASS., GRANULAR MATERIALS (≤ 35% PASSING #200), SILT-CLAY MATERIALS (> 35% PASSING #200), and ORGANIC MATERIALS. Includes symbols for various soil types and their corresponding AASHTO groupings.

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

Table showing consistency ranges for primary soil types (generally granular material, generally silt-clay material) based on unconfined compressive strength and penetration resistance.

TEXTURE OR GRAIN SIZE

Table showing U.S. STD. SIEVE SIZE and corresponding grain size ranges for boulder, cobble, gravel, coarse sand, fine sand, silt, and clay.

SOIL MOISTURE - CORRELATION OF TERMS

Table correlating soil moisture scale (Atterberg limits) with field moisture description (saturated, wet, moist, dry) and plasticity limits (LL, PL, OM, SL).

PLASTICITY

Table showing plasticity index (PI) and corresponding dry strength (very low, slight, medium, high) for non-plastic, slightly plastic, moderately plastic, and highly plastic soils.

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

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.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

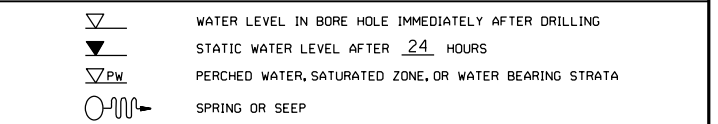
COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE LL < 31
MODERATELY COMPRESSIBLE LL = 31 - 50
HIGHLY COMPRESSIBLE LL > 50

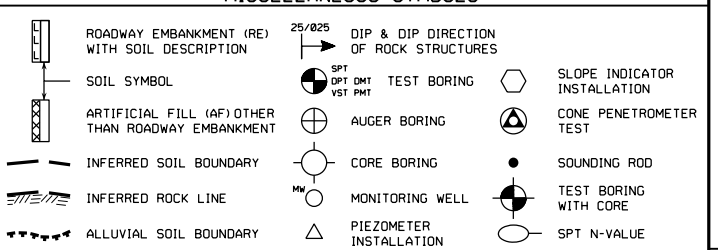
PERCENTAGE OF MATERIAL

Table showing percentages of organic material, granular soils, silt-clay soils, and other material.

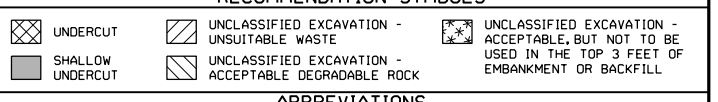
GROUND WATER



MISCELLANEOUS SYMBOLS



RECOMMENDATION SYMBOLS



ABBREVIATIONS

- 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
UNIT WEIGHT
DRY UNIT WEIGHT
SAMPLE ABBREVIATIONS
S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

Form with checkboxes for equipment used: DRILL UNITS (CME-45C, CME-55, CME-550, VANE SHEAR TEST, ACKER, D-50), ADVANCING TOOLS (CLAY BITS, AUGERS, HARD FACED FINGER BITS, TUNG-CARBIDE INSERTS, CASING, TRICONE, CORE BIT, HOLLOW STEM AUGER), HAMMER TYPE (AUTOMATIC, MANUAL), CORE SIZE (-B, -H, -N), HAND TOOLS (POST HOLE DIGGER, HAND AUGER, SOUNDING ROD, VANE SHEAR TEST).

ROCK DESCRIPTION

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:

Table describing rock types: WEATHERED ROCK (WR), CRYSTALLINE ROCK (CR), NON-CRYSTALLINE ROCK (NCR), and COASTAL PLAIN SEDIMENTARY ROCK (CP).

WEATHERING

Table describing weathering conditions: FRESH, VERY SLIGHT (IV SLI), SLIGHT (SLI), MODERATE (MOD), MODERATELY SEVERE (MOD. SEV.), SEVERE (SEV), VERY SEVERE (IV SEV.), COMPLETE.

ROCK HARDNESS

Table describing rock hardness levels: VERY HARD, HARD, MODERATELY HARD, MEDIUM HARD, SOFT, VERY SOFT.

FRACTURE SPACING

Table showing fracture spacing terms (VERY WIDE, WIDE, MODERATELY CLOSE, CLOSE, VERY CLOSE) and corresponding spacing ranges.

BEDDING

Table showing bedding terms (VERY THICKLY BEDDED, THICKLY BEDDED, THINLY BEDDED, VERY THINLY BEDDED, THICKLY LAMINATED, THINLY LAMINATED) and corresponding thickness ranges.

INDURATION

Table describing induration levels: FRIABLE, MODERATELY INDURATED, INDURATED, EXTREMELY INDURATED.

TERMS AND DEFINITIONS

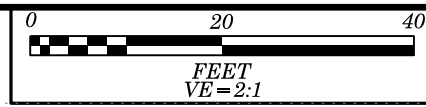
- ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
AQUIFER - A WATER BEARING FORMATION OR STRATA.
ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION 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.

BENCH MARK: BL-31; N: 873,138; E: 1,770,787 - 36" REBAR WITH ALUMINUM CAP

ELEVATION: 837.00 FEET

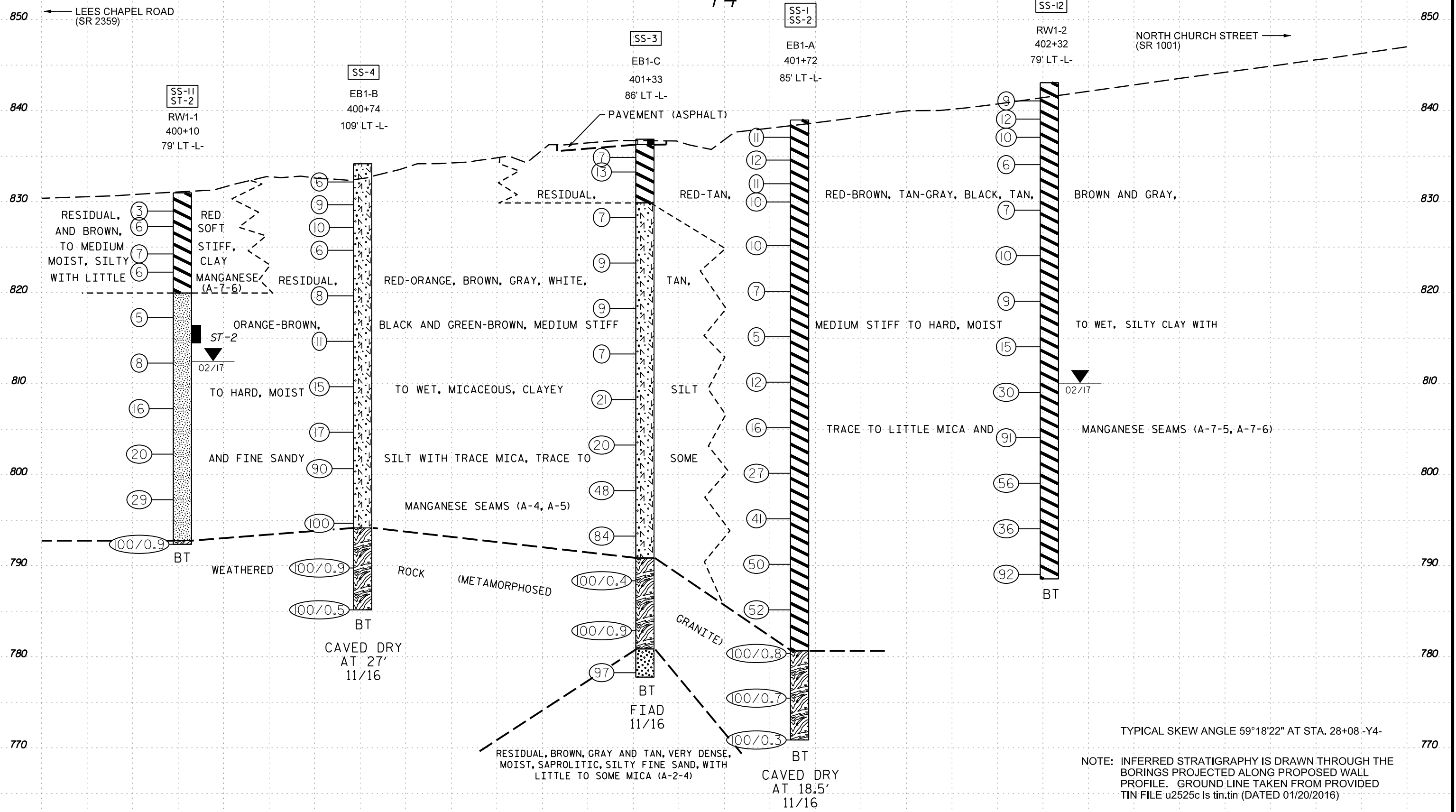
NOTES:

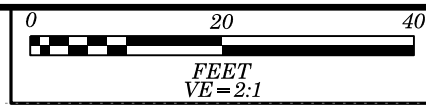
FIAD - FILLED IMMEDIATELY AFTER DRILLING



PROFILE ALONG MSE WALL AT END BENT 1

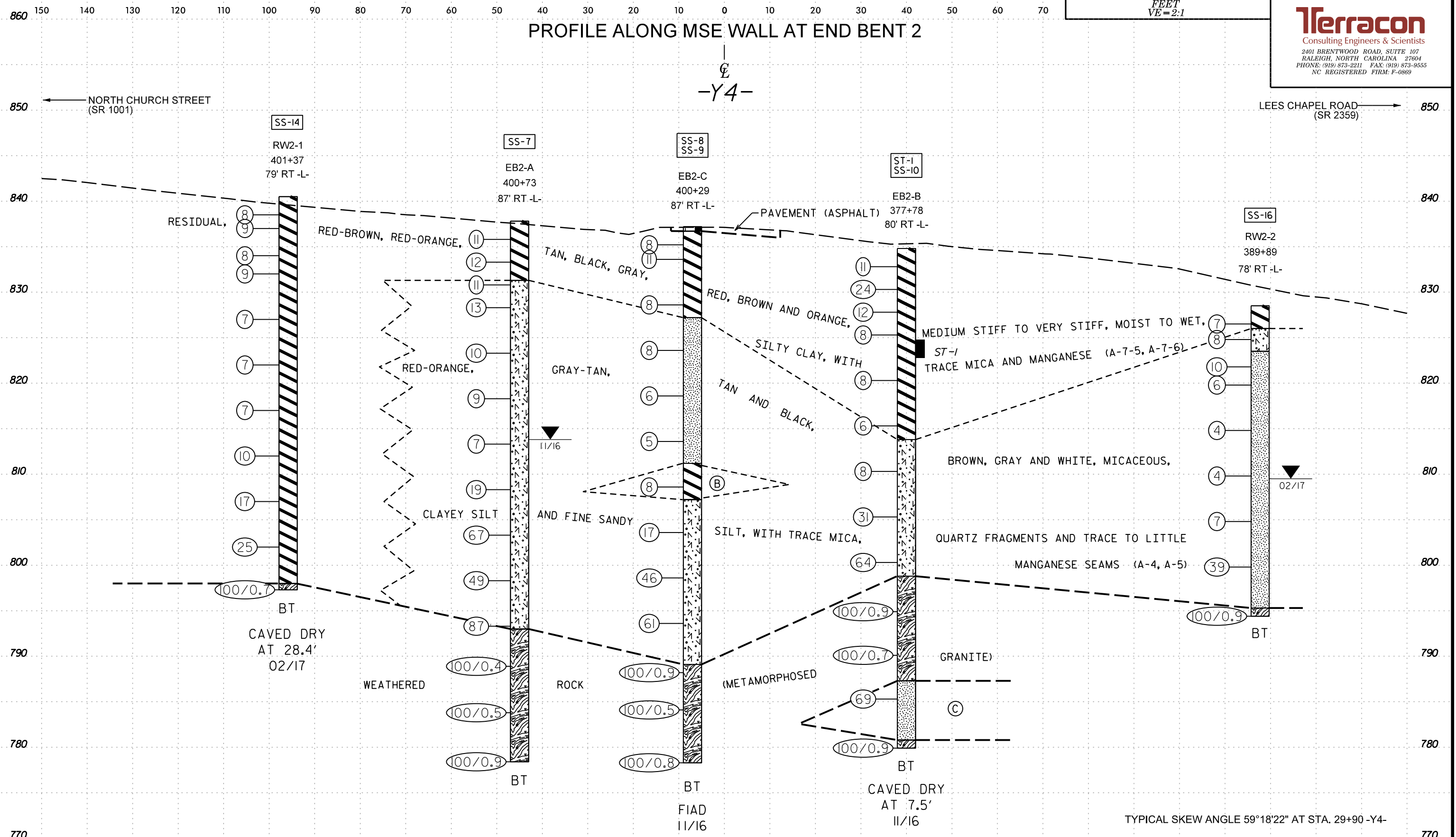
⊕
-Y4-





PROFILE ALONG MSE WALL AT END BENT 2

Y4-



- (B) RESIDUAL, TAN, ORANGE AND BLACK, STIFF, MOIST, SILTY CLAY, WITH TRACE TO LITTLE MICA (A-7-6)
- (C) RESIDUAL, GRAY, WHITE AND ORANGE, HARD, MOIST, SAPROLITIC, FINE SANDY SILT, WITH TRACE MICA (A-4)

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS PROJECTED ALONG PROPOSED WALL PROFILE. GROUND LINE TAKEN FROM PROVIDED TIN FILE u2525c_ls_tin.tin (DATED 01/20/2016)

TYPICAL SKEW ANGLE 59°18'22" AT STA. 29+90 -Y4-

LABORATORY TESTING SUMMARY

PROJECT NUMBER: 34821.1.1

TIP: U-2525C

COUNTY: GUILFORD

DESCRIPTION: SITE NO. 4 (STRUCTURE NO. 6) - BRIDGE NO. 1245 ON SR 2523 (YANCEYVILLE ROAD) (-Y4-) OVER I-85 BYPASS (-L-)

Sample No.	Alignment	Station	Offset (feet)	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Retained #4 Sieve	% Passing (sieves)			% Moisture	% Organic	Ave. Wet Unit Wt. (pcf)	Shear Strength Values			
								Coarse Sand	Fine Sand	Silt	Clay		#10	#40	#200				Total Cohesion (psf)	Total Friction (φ)	Effective Cohesion (psf)	Effective Friction (φ')
SS-1	-L-	401+72	85 LT	17.8-19.3	A-7-5 (10)	52	14	5.0	45.5	36.3	13.2	0	100	99	67	40.6	N/D	N/D	N/D	N/D	N/D	N/D
SS-2	-L-	401+72	85 LT	42.8-44.3	A-7-6 (5)	41	12	23.2	32.6	35.2	9.0	0	100	85	54	23.4	N/D	N/D	N/D	N/D	N/D	N/D
SS-3	-L-	401+33	86 LT	2.6-4.1	A-7-5 (53)	91	49	1.7	17	29	52.3	0	100	99	88	44.8	N/D	N/D	N/D	N/D	N/D	N/D
SS-4	-L-	400+74	109 LT	13.5-15.0	A-5 (7)	51	9	5.5	44.8	40.5	9.2	0	100	97	65	34.8	N/D	N/D	N/D	N/D	N/D	N/D
SS-7	-L-	400+73	87 RT	3.5-5.0	A-7-5 (38)	78	37	3.0	18.8	31.2	47.0	1	99	98	84	33.1	N/D	N/D	N/D	N/D	N/D	N/D
SS-8	-L-	400+29	87 RT	2.6-4.1	A-7-5 (71)	106	61	1.6	8.4	17.7	72.3	0	100	99	93	49.4	N/D	N/D	N/D	N/D	N/D	N/D
SS-9	-L-	400+29	87 RT	27.6-29.1	A-7-6 (29)	65	36	6.3	28.2	49.2	16.3	0	100	97	76	54.9	N/D	N/D	N/D	N/D	N/D	N/D
SS-10	-L-	377+78	80 RT	18.5-20.0	A-7-5 (10)	47	12	7.1	34.2	48.2	10.5	0	100	96	73	42.3	N/D	N/D	N/D	N/D	N/D	N/D
ST-1	-L-	377+78	80 RT	10.0-12.0	A-7-5 (21)	81	29	1.7	48.6	32.4	17.3	0	100	99	64	28.4	N/D	92.5	534	10°	219	29°
SS-11	-L-	400+10	79 LT	2.7-4.2	A-7-6 (18)	50	24	7.2	25.5	21.2	46.1	0	99	95	74	37.2	N/D	N/D	N/D	N/D	N/D	N/D
SS-12	-L-	402+32	79 LT	8.0-9.5	A-7-5 (29)	74	26	1.4	26.0	41.6	31.0	0	100	99	84	45.3	N/D	N/D	N/D	N/D	N/D	N/D
SS-13	-L-	402+32	79 LT	28.0-29.5	A-7-5 (7)	55	16	8.5	52.6	31.2	7.7	0	100	98	52	50.7	N/D	N/D	N/D	N/D	N/D	N/D
SS-14	-L-	401+37	79 RT	2.5-4.0	A-7-5 (20)	62	23	5.9	28.9	31.7	33.5	0	100	98	74	26.0	N/D	N/D	N/D	N/D	N/D	N/D
SS-15	-L-	401+37	79 RT	2.5-4.0	A-7-5 (6)	47	11	11.7	40.3	38.2	9.8	0	99	95	58	40.4	N/D	N/D	N/D	N/D	N/D	N/D
SS-16	-L-	398+89	78 RT	12.7-14.2	A-4 (6)	38	6	4.2	30.2	48.8	16.8	0	100	98	78	37.1	N/D	N/D	N/D	N/D	N/D	N/D
ST-2	-L-	400+10	79 LT	14.5-16.5	A-4 (0)	30	NP	12.7	39.0	41.4	6.9	0	100	94	61	42.6	N/D	111.5	210	24°	0	32°

N/D - NOT DETERMINED
 LABORATORY TESTING OF SHELBY TUBE SAMPLES ST-1 AND ST-2 PERFORMED BY GEOTECHNICS

Stephanie H. Huffman

Certified Lab Technician Signature

114-01-1203
 Certification Number