STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2827B	1	287

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

SUBSURFACE INVESTIGATION

COUNTY FORSYTH

PROJECT DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH TO EAST OF CHURCH STREET

INVENTORY

REFERENCE: U-2827B

PROJECT: 34872

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CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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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PERSONNEL

D. RACEY
C. WANG
M. ELLIS
D. TIGNOR
M. RENZA
S. DAVIS
W. SHENBERGER

INVESTIGATED BY F&R Inc.
DRAWN BY T.T. WALKER
CHECKED BY P. ALTON
SUBMITTED BY P. ALTON
DATE JANUARY 2016

DocuSigned by:
W. Patrick Alton
A270EF78A6DF442...

1/7/2016

SIGNATURE DATE

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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
N.C.	U-2827B	1A

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

SUBSURFACE INVESTIGATION

INVENTORY SECTION A

REFERENCE: U-2827B

PROJECT: 34872

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WPA
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1/7/2016
DATE

SECTION 1

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2827B	1	120

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY FORSYTH

PROJECT DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH TO EAST OF CHURCH STREET

INVENTORY

REFERENCE: U-2728B

PROJECT: 34872

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2	LEGEND
3-10	PLANSHEETS
11-117	BORE LOG(S), CORE REPORT(S), & CORE PHOTO(S)
118-119	SOIL TEST RESULTS
120	ROCK TEST RESULTS

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INVESTIGATED BY F&R Inc.
DRAWN BY T.T. WALKER
CHECKED BY P. ALTON
SUBMITTED BY P. ALTON
DATE DECEMBER 2015

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER W. PATRICK ALTON

DocuSigned by:
W. Patrick Alton
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1/7/2016

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PROJECT REFERENCE NO.	SHEET NO.
U-2827B	2

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

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
#40	30 MX	50 MX	51 MN											
#200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
MATERIAL PASSING #40 LL	—		—	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PI	6 MX		NP	10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	NO MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4

TEXTURE OR GRAIN SIZE

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

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)

GRAIN SIZE MM: 305 | 75 | 2.0 | 0.25 | 0.05 | 0.005
GRAIN SIZE IN.: 12 | 3

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT PLASTIC RANGE (PI) PL — PLASTIC LIMIT	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
OM — OPTIMUM MOISTURE SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

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

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

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT DPT DMT VST PMT TEST BORING
- AUGER BORING
- CORE BORING
- MW MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

RECOMMENDATION SYMBOLS

- 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

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
γ - UNIT WEIGHT
γ_d - 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

DRILL UNITS:
- [ ] CME-45C
- [X] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE ____" STEEL TEETH
- [ ] TRICONE ____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [X] MANUAL

CORE SIZE:
- [ ] -B _____ [ ] -H _____
- [X] -N Q3

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [X] 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:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
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-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V 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.
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.
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.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
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.
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 PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED 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.

FRACTURE SPACING

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

BEDDING

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

INDURATION

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.

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 DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - 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-154, N:855337.5460, E: 1632659.9920

ELEVATION: 890.17 FEET

NOTES:

BL-154=BRIDGES -Y10 & -Y11B-

REMAINING BRIDGES SURVEYED USING A SURVEY-GRADE GPS UNIT

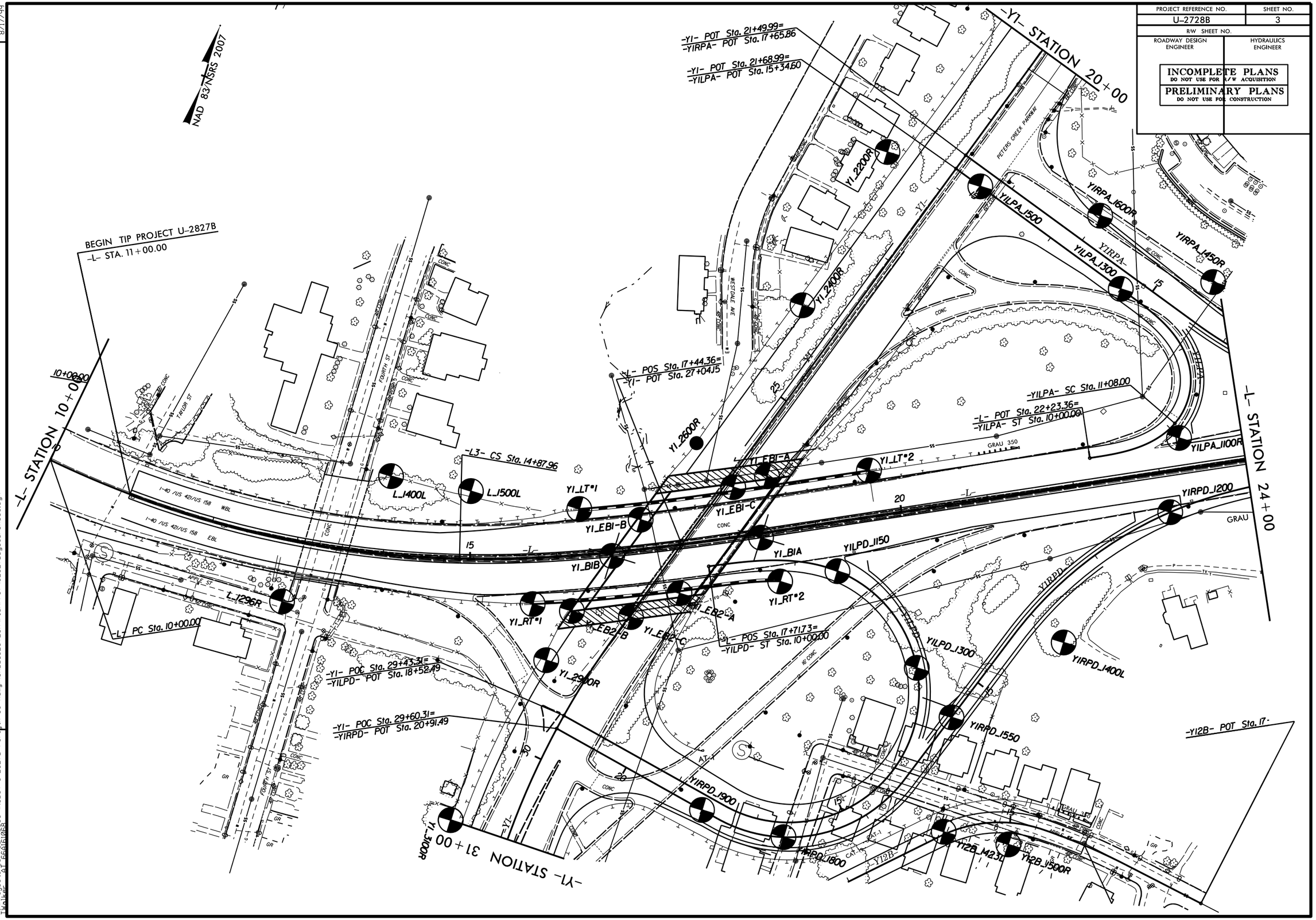
ROADWAY AND RETAINING WALL BORING ELEVATIONS OBTAINED USING TIN FILE

DATE: 8-15-14

PROJECT REFERENCE NO.	SHEET NO.
U-2728B	3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

8/17/99

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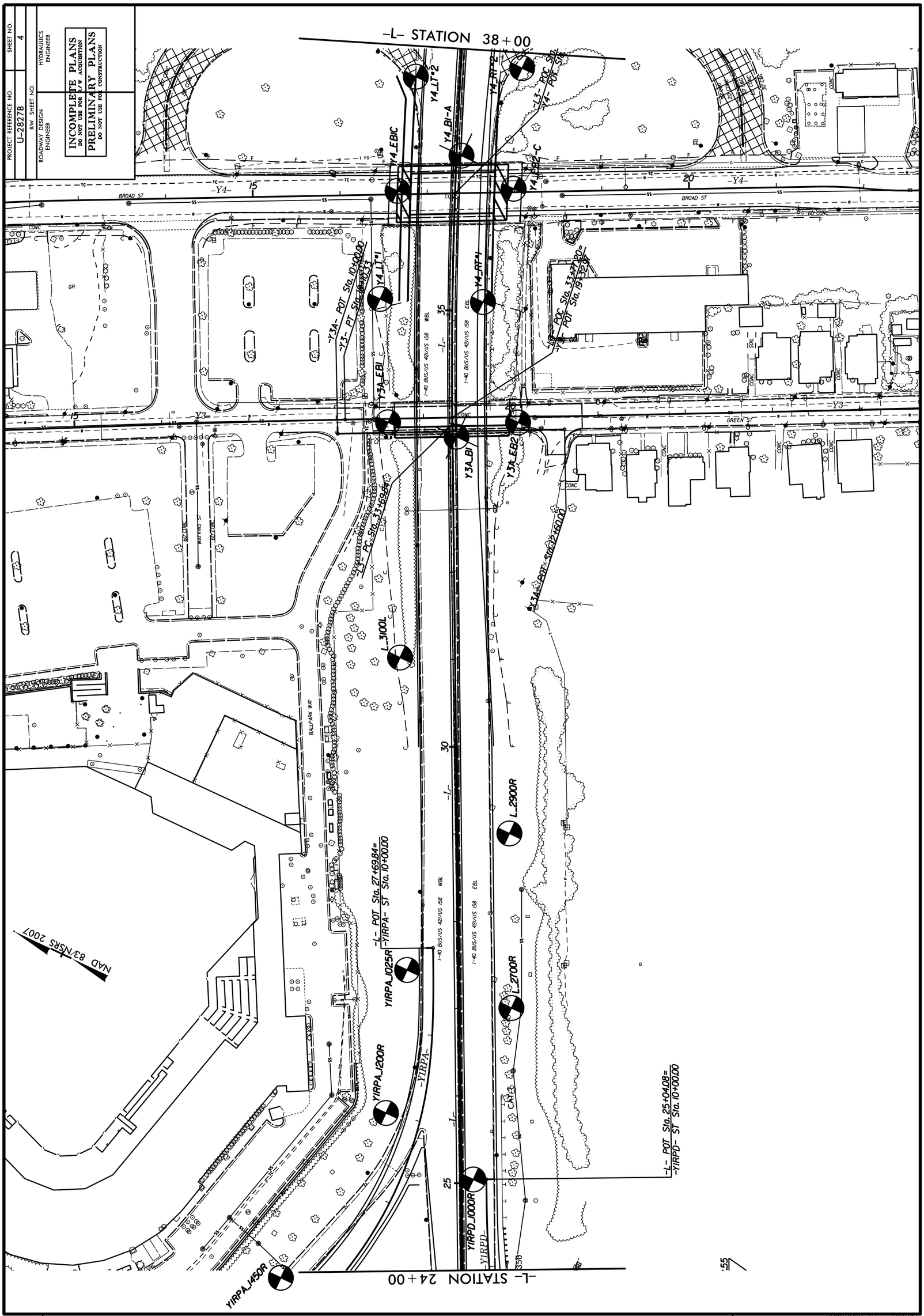
Walker, B. Eastridge



REVISIONS

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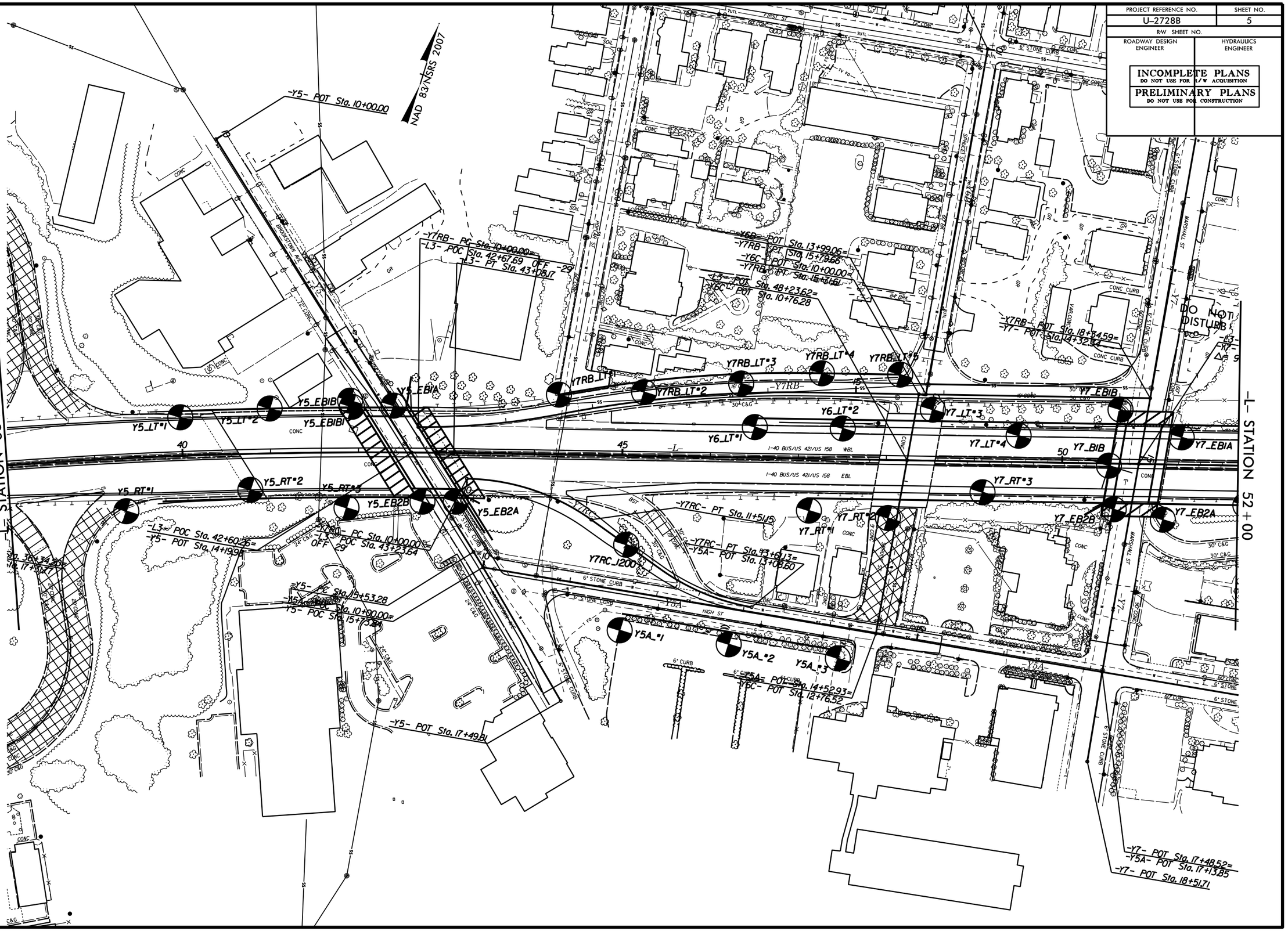
Twalker AT 66616108

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-2728B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

8/17/99

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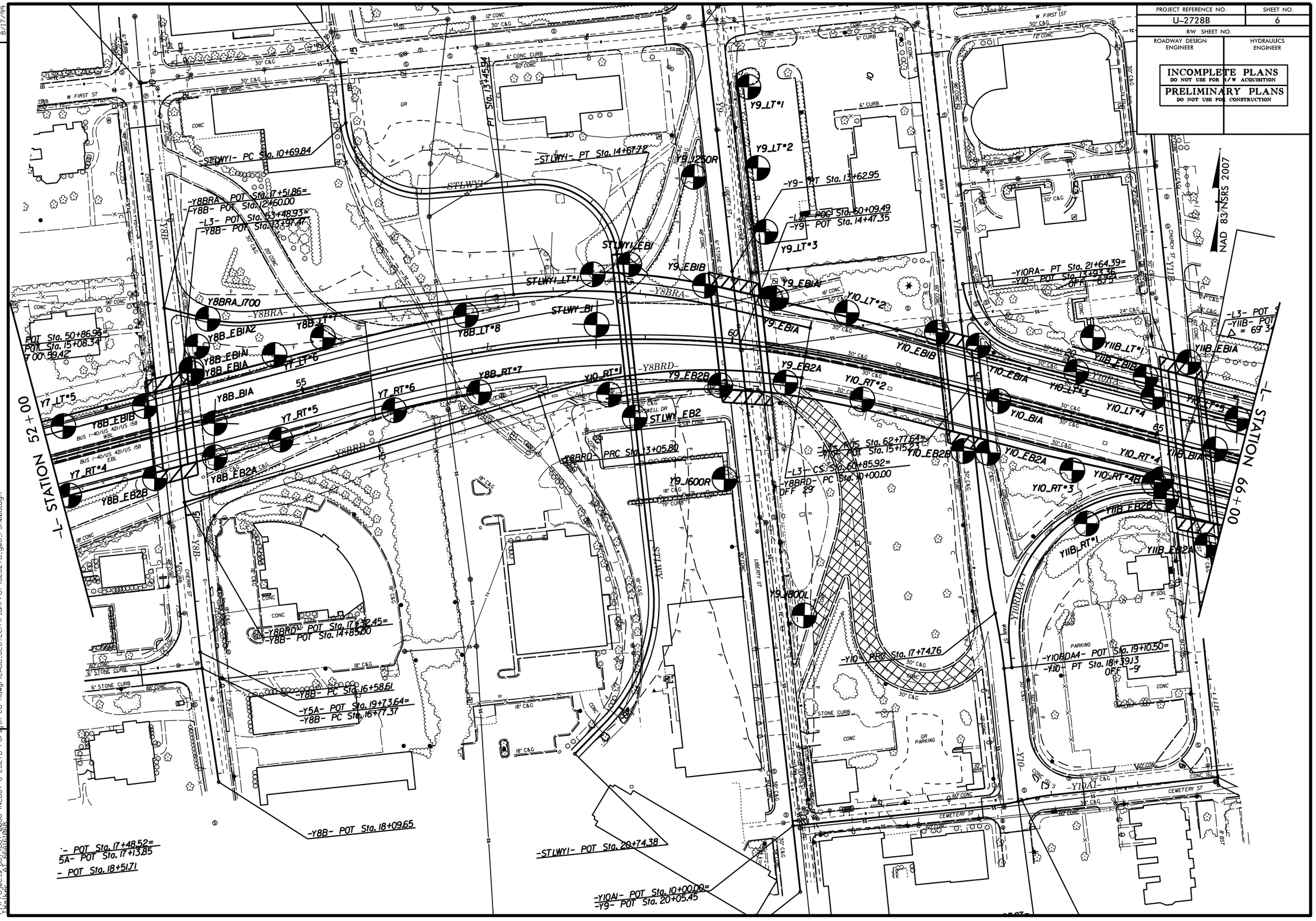
Walker, B. Aguilar

PROJECT REFERENCE NO.	SHEET NO.
U-2728B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/17/99
REVISIONS
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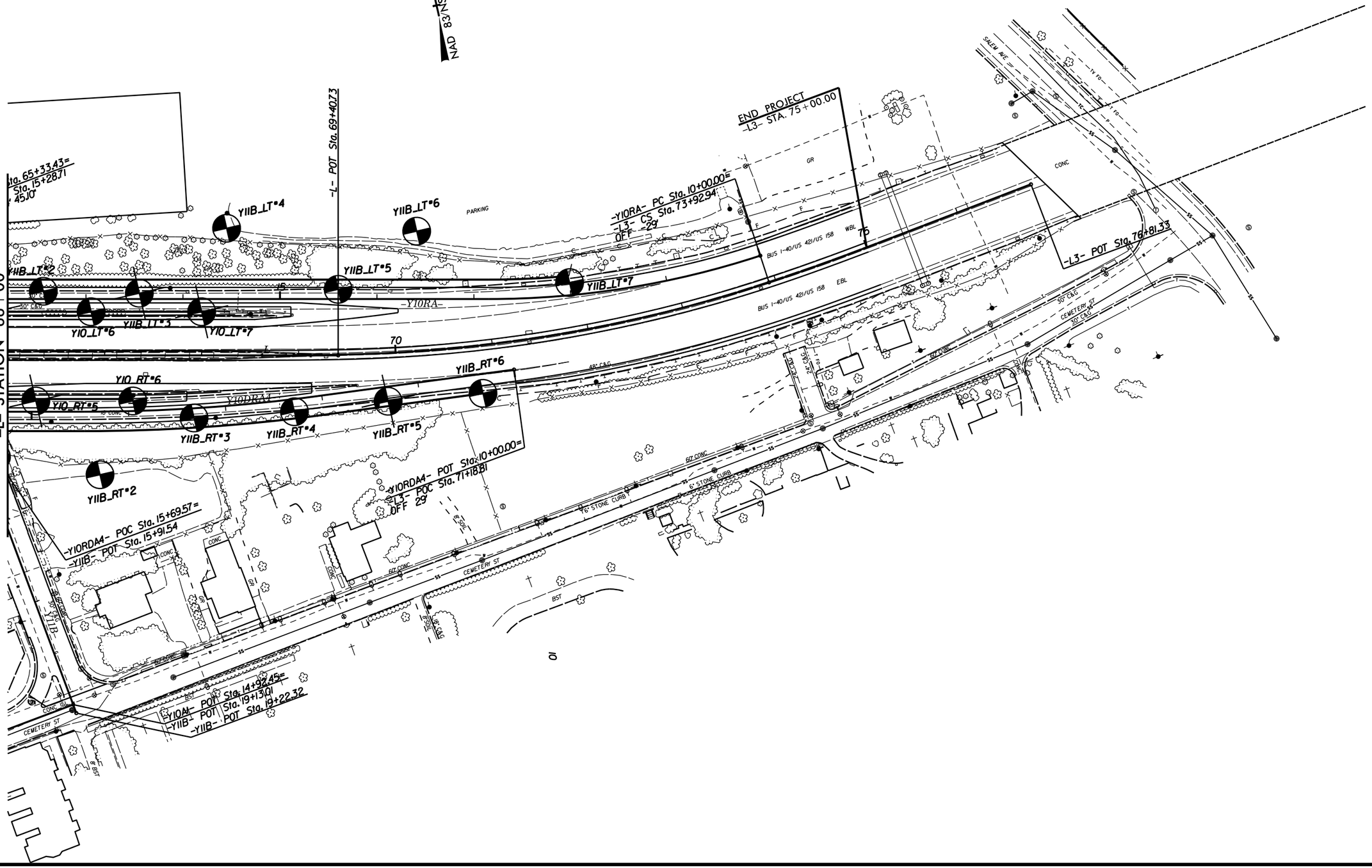
TWalker AT 66A161068

PROJECT REFERENCE NO.	SHEET NO.
U-2728B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

8/17/99

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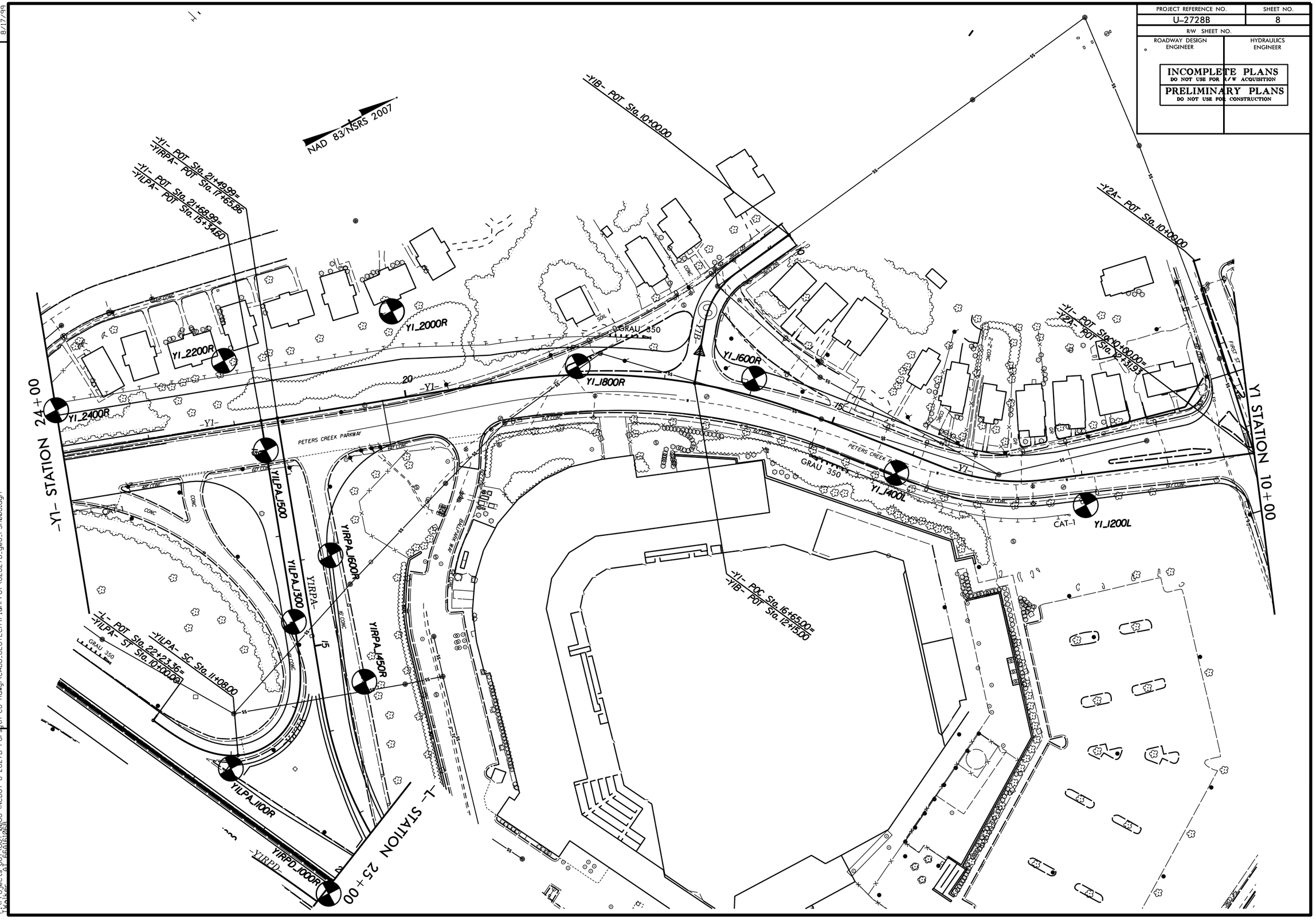
Walker, Al Eastern

PROJECT REFERENCE NO.	SHEET NO.
U-2728B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

8/17/99

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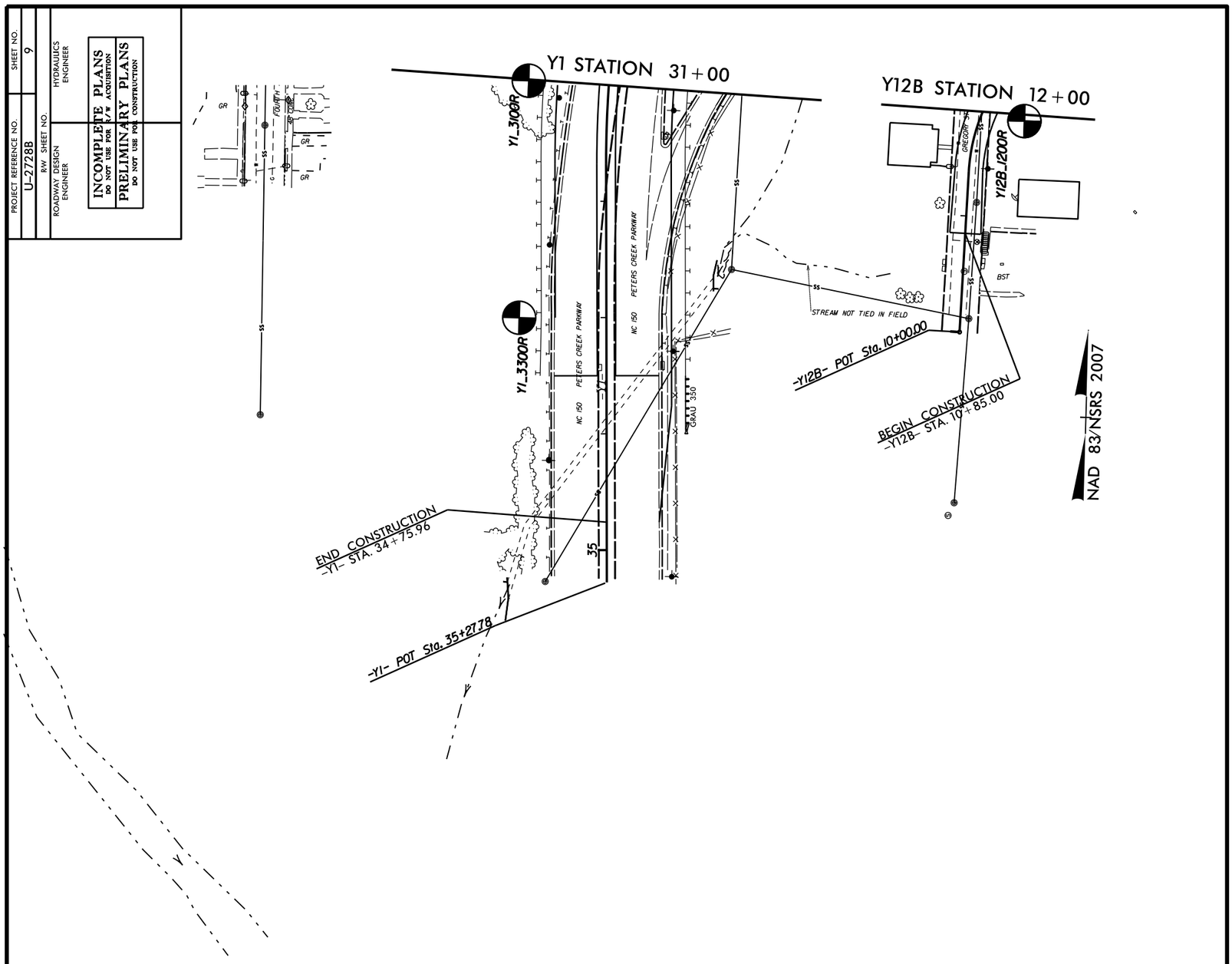
Walker, Al (Al)



REVISIONS

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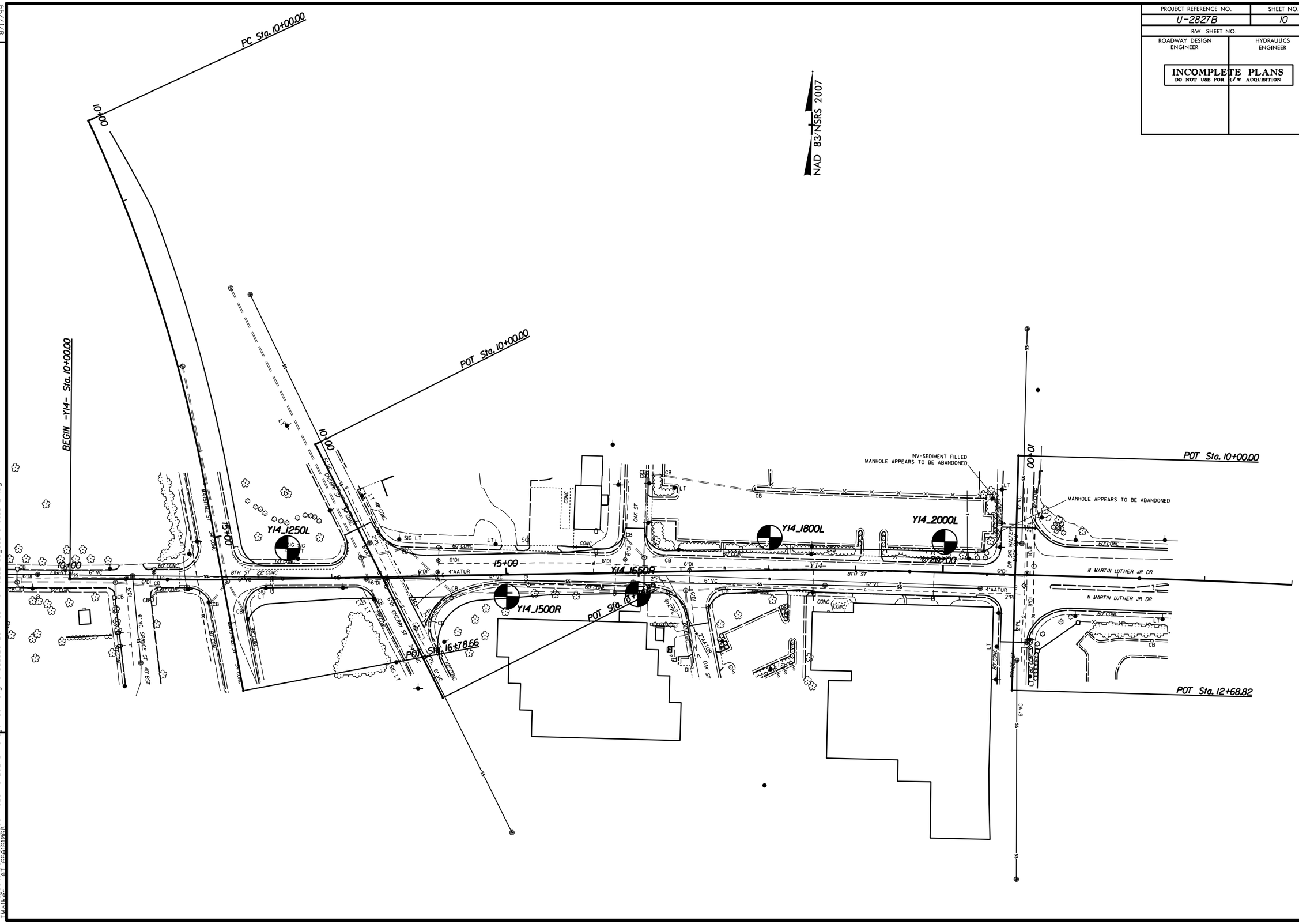
TWalker AT 66016106B

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-2827B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



REVISIONS

8/17/99

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Walker, BT EARTHWORK

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. L_1296R	**STATION** 12+96	**OFFSET** 71 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 826.4 ft	**TOTAL DEPTH** 23.6 ft	**NORTHING** 853,657	**EASTING** 1,628,040 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
830											
										826.4 GROUND SURFACE	0.0
825	825.5	0.9								825.5 1" OF ASPHALT AND 9" CONCRETE	0.9
			5	3	3	6		M		**ROADWAY EMBANKMENT** RED AND BROWN, SILTY CLAY (A-7-5) WITH TRACE FINE SAND AND ORGANICS	
	822.9	3.5								823.4	3.0
			8	7	9	16		M		**RESIDUAL** GRAY AND BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL, MICACEOUS	
820											
	817.9	8.5									
			15	28	25	53		M			
815											
	812.9	13.5									
			1	2	1	3		M			
810											
	807.9	18.5									
			5	4	5	9		M			
805										806.0	20.4
										WEATHERED ROCK GRAY AND WHITE (MICA SCHIST)	
	802.9	23.5								802.9	23.5
			100/0.1			100/0.1				802.8 **CRYSTALLINE ROCK** (MICA SCHIST)	23.6
										Boring Terminated with Standard Penetration Test Refusal at Elevation 802.8 ft in CRYSTALLINE ROCK (MICA SCHIST)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. L_1400L	**STATION** 14+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 838.2 ft	**TOTAL DEPTH** 34.5 ft	**NORTHING** 853,832	**EASTING** 1,628,117 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/27/15	**COMP. DATE** 07/27/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
840										
	838.2	0.0								838.2 GROUND SURFACE 0.0
			4	8	9	17		M		**RESIDUAL** RED-ORANGE-BROWN, FINE SANDY CLAY (A-6) WITH TRACE ORGANICS
835	834.7	3.5								
			6	5	5	10		M		
830	829.7	8.5								831.2 7.0
			3	4	4	8		M		TAN-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA
825	824.7	13.5								824.2 14.0
			6	8	7	15		M		WHITE BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA
820	819.7	18.5								
			6	7	7	14		M		
815	814.7	23.5								
			4	6	7	13		M		
810	809.7	28.5								
			4	6	6	12		M		
805	804.7	33.5								
			10	100/0.5		100/0.5				804.2 34.0
										803.7 34.5 **WEATHERED ROCK** GRAY AND BROWN (MICA SCHIST)
										Boring Terminated at Elevation 803.7 ft in WEATHERED ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. L_1500L	**STATION** 15+00	**OFFSET** 78 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 830.6 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 853,843	**EASTING** 1,628,210	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/27/15	**COMP. DATE** 07/27/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
835											
830	830.6	0.0	2	5	7	12		M		830.6 GROUND SURFACE	0.0
										RESIDUAL RED-ORANGE-BROWN, FINE SANDY CLAY (A-6) WITH TRACE ORGANICS	
	827.1	3.5	8	9	8	17		M		828.6 RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS AND MICA	2.0
825											
	822.1	8.5	4	3	4	7		M			
820											
	817.1	13.5	3	3	11	14		M			
815										813.6 GRAY AND BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA	17.0
	812.1	18.5	8	12	12	24		M			
810											
	807.1	23.5	5	7	7	14		M			
805											
	802.1	28.5	23	29	20	49		M		800.6 Boring Terminated at Elevation 800.6 ft in RESIDUAL (SAND)	30.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. L_2700R	**STATION** 27+00	**OFFSET** 60 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 843.8 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,218	**EASTING** 1,629,346	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/30/15	**COMP. DATE** 07/30/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
845										
	843.8	0.0								843.8 GROUND SURFACE 0.0
			2	3	3	6		M		**RESIDUAL** ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS AND GRAVEL
840	840.3	3.5	5	6	6	12		M		
835	835.3	8.5	3	5	6	11		M		833.8 Boring Terminated at Elevation 833.8 ft in RESIDUAL (SILT) 10.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. L_2900R	**STATION** 29+00	**OFFSET** 60 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 856.1 ft	**TOTAL DEPTH** 14.0 ft	**NORTHING** 854,305	**EASTING** 1,629,526	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/30/15	**COMP. DATE** 07/30/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
860											
	856.1	0.0								856.1 GROUND SURFACE	0.0
855			4	9	7	16		M		**ARTIFICIAL FILL** RED-ORANGE-BROWN, FINE SANDY SILTY CLAY (A-7-5) WITH TRACE MICA AND ORGANICS	
	852.6	3.5								853.1	3.0
850			4	3	12	15		M		GRAY-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL AND ORGANICS	
	847.6	8.5								849.1	7.0
845			1	2	2	4		W		ORANGE-BROWN, FINE SANDY CLAYEY SILT (A-5)	
										844.1	12.0
	842.6	13.5	100/0.5			100/0.5				**WEATHERED ROCK** TAN AND BROWN (MICA SCHIST)	
										842.1	14.0
										Boring Terminated at Elevation 842.1 ft in WEATHERED ROCK (MICA SCHIST)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. L_3100L	**STATION** 31+03	**OFFSET** 63 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 882.3 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 854,505	**EASTING** 1,629,655	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
	882.3	0.0								882.3 GROUND SURFACE 0.0
880			4	5	6	11	SS-325	12%		**RESIDUAL** RED-TAN, FINE TO COARSE SANDY SILTY CLAY (A-7-6) WITH TRACE ROOTS, MICACEOUS
	878.8	3.5								
875			4	5	6	11		M		
	873.8	8.5								873.4 8.9
870			3	4	4	8		M		GRAY-TAN, SILTY FINE SAND (A-2-4), SAPROLITIC
	868.8	13.5								
			6	10	8	18		M		867.3 15.0
										Boring Terminated at Elevation 867.3 ft in RESIDUAL (SAND)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_1200L	**STATION** 12+00	**OFFSET** 35 ft LT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 900.6 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,154	**EASTING** 1,629,167 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/29/15	**COMP. DATE** 07/29/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
905											
900	900.6	0.0	5	8	9	17	SS-334	32%		900.6 GROUND SURFACE	0.0
										RESIDUAL RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE ROOTS AND FINE TO COARSE SAND	
	897.1	3.5	9	12	14	26		M			
895										893.6	7.0
	892.1	8.5	3	3	6	9		M		ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE ROOTS	
										890.6	10.0
										Boring Terminated at Elevation 890.6 ft in RESIDUAL (SILT)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_1400L	**STATION** 14+10	**OFFSET** 26 ft LT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 892.6 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,979	**EASTING** 1,629,031 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/04/15	**COMP. DATE** 08/04/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
895											
	892.1	0.5								892.6 GROUND SURFACE	0.0
			28	16	9	25		D		891.4 0.5' ASPHALT AND 0.7' ABC STONE	1.2
890										890.1 **ROADWAY EMBANKMENT** RED-BROWN-GRAY, FINE SANDY SILTY CLAY (A-7-5)	2.5
	889.1	3.5	5	9	9	18		M		**RESIDUAL** RED-TAN, FINE SANDY SILT (A-4)	
885											
	884.1	8.5	3	5	5	10		M		882.6	10.0
										Boring Terminated at Elevation 882.6 ft in RESIDUAL (SILT)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_1600R	**STATION** 16+00	**OFFSET** 20 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 883.4 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,886	**EASTING** 1,628,858 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/29/15	**COMP. DATE** 07/29/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
885											
	883.4	0.0								883.4 GROUND SURFACE	0.0
			4	11	9	20		D		**RESIDUAL** BROWN, FINE SANDY CLAY (A-6) WITH TRACE ROOTS	
880	879.9	3.5								880.4 ORANGE-BROWN, FINE SANDY SILT (A-4)	3.0
			4	4	5	9		M			
875	874.9	8.5									
			3	5	6	11		M		873.4	10.0

Boring Terminated at Elevation 873.4 ft in RESIDUAL (SILT)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_1800R	**STATION** 18+00	**OFFSET** 10 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 874.5 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,714	**EASTING** 1,628,750 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/29/15	**COMP. DATE** 07/29/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
875										
	874.5	0.0								874.5 GROUND SURFACE 0.0
			5	5	8	13		D		872.5 **ARTIFICIAL FILL** TAN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE ROOTS, GRAVEL, AND ASPHALT FRAGMENTS 2.0
870	871.0	3.5								**RESIDUAL** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC
			16	19	18	37		M		
865	866.0	8.5								
			13	22	58	80		M		864.5 10.0

Boring Terminated at Elevation 864.5 ft in RESIDUAL (SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_2000R	**STATION** 20+00	**OFFSET** 100 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 840.1 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 854,555	**EASTING** 1,628,593 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/31/15	**COMP. DATE** 07/31/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
845											
840	840.1	0.0								840.1 GROUND SURFACE	0.0
			3	4	4	8		M		839.1 **RESIDUAL** RED-BROWN, SILTY FINE SAND (A-2-4)	1.0
	836.6	3.5								TAN-RED, FINE SANDY SILT (A-4) WITH TRACE MICA	
835			9	13	12	25		M			
	831.6	8.5									
830			12	21	22	43		M			
	826.6	13.5									
			11	9	10	19		M		825.1 Boring Terminated at Elevation 825.1 ft in RESIDUAL (SILT)	15.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_2200R	**STATION** 22+00	**OFFSET** 75 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 840.3 ft	**TOTAL DEPTH** 7.3 ft	**NORTHING** 854,357	**EASTING** 1,628,552 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/30/15	**COMP. DATE** 07/30/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
845										
840	840.3	0.0								840.3 GROUND SURFACE 0.0
			2	7	6	13		M		**RESIDUAL** RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL AND ORGANICS
										838.3 2.0 TAN-RED, FINE SANDY SILT (A-4) WITH TRACE MICA
	836.8	3.5								
			5	8	33	41		M		835.7 4.6
835										835.2 5.1 GRAY-BLACK, FINE TO COARSE SAND (A-2-4) WITH HIGH AMOUNT OF GRAVEL
										WEATHERED ROCK GRAY-BLACK (MICA SCHIST)
										833.3 7.0
	833.0	7.3								833.0 7.3 **CRYSTALLINE ROCK** GRAY-BLACK (MICA SCHIST)
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 833.0 ft in CRYSTALLINE ROCK (MICA SCHIST)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_2400R	**STATION** 24+00	**OFFSET** 50 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 836.4 ft	**TOTAL DEPTH** 17.2 ft	**NORTHING** 854,160	**EASTING** 1,628,511 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/29/15	**COMP. DATE** 07/29/15	**SURFACE WATER DEPTH** N/A

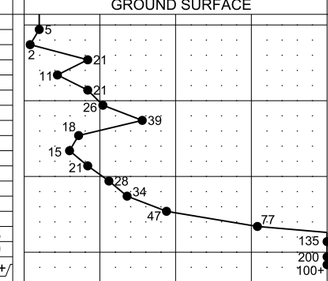
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
840											
	836.4	0.0								836.4 GROUND SURFACE	0.0
835			3	4	4	8		M		834.9 **ARTIFICIAL FILL** RED, SILTY CLAY (A-7-5) WITH TRACE BRICK FRAGMENTS, ORGANICS, AND GRAVEL	1.5
	832.9	3.5	20	29	22	51		D		**RESIDUAL** GRAY-TAN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL	
830										829.4 BROWN-RED, FINE SANDY SILT (A-4), MICACEOUS	7.0
	827.9	8.5	4	4	4	8		M			
825										824.4 BROWN-RED, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL, MICACEOUS AND SAPROLITIC	12.0
	822.9	13.5	40	28	14	42		M			
820											
	819.2	17.2	60/0.0			60/0.0				819.2 Boring Terminated with Standard Penetration Test Refusal at Elevation 819.2 ft on CRYSTALLINE ROCK (MICA SCHIST)	17.2

GEOTECHNICAL BORING REPORT
PENETROMETER LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. ELLIS
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_2600R	**STATION** 26+00	**OFFSET** 55 ft RT	**ALIGNMENT** -Y1- / **0 HR.** N/A
COLLAR ELEV. 805.7 ft	**TOTAL DEPTH** 16.5 ft	**NORTHING** 853,972	**EASTING** 1,628,442 / **24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Rod Sounding	**HAMMER TYPE** Manual
DRILLER D.Tignor	**START DATE** 09/21/15	**COMP. DATE** 09/21/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	BLOW COUNT 0.5ft	BLOW COUNT TOTAL	SAMP. NO.	MOI	LOG	ORIGIN	SOIL AND ROCK DESCRIPTION
810										
805		0.0								GROUND SURFACE
		1.0	2	3	5					
		2.0	1	1	2					
		3.0	15	6	21					
		4.0	6	5	11					
		5.0	7	14	21					
800		6.0	10	16	26					
		7.0	28	11	39					
		8.0	9	9	18					
		9.0	8	7	15					
		10.0	10	11	21					
795		11.0	13	15	28					
		12.0	15	19	34					
		13.0	19	28	47					
		14.0	34	43	77					
		15.0	65	70	135					
790		16.0	100	100	200					
		16.5	100+		100+					

BLOWS PER FOOT: 0, 25, 50, 75, 100



NCDOT BORE SINGLE U2728B_GEO_BH.GPJ NC_DOT.GDT 9/28/15

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_2900R	**STATION** 29+00	**OFFSET** 50 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 813.2 ft	**TOTAL DEPTH** 14.4 ft	**NORTHING** 853,683	**EASTING** 1,628,351 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
815											
	813.2	0.0	4	4	4	8		M		813.2 GROUND SURFACE	0.0
810	809.7	3.5	2	3	2	5		M		**RESIDUAL** RED-TAN TO DARK BROWN, FINE SANDY SILT (A-4), MICACEOUS	
805	804.7	8.5	4	12	34	46		M		803.9 GRAY AND WHITE, SILTY FINE TO COARSE SAND (A-2-4), SAPROLITIC	9.3
800	799.7	13.5								799.7	13.5
	798.8	14.4	100/0.3 60/0.1			100/0.3 60/0.1				799.2 **WEATHERED ROCK** GRAY-BROWN-WHITE (MICA SCHIST) 798.8	14.0 14.4
										CRYSTALLINE ROCK GRAY-WHITE-BLACK (MICA SCHIST) Boring Terminated with Standard Penetration Test Refusal at Elevation 798.8 ft in CRYSTALLINE ROCK (MICA SCHIST)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_3100R	**STATION** 31+01	**OFFSET** 69 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 810.4 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 853,474	**EASTING** 1,628,300 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
815										
810	810.4	0.0	1	5	7	12		M		810.4 GROUND SURFACE 0.0
805	806.9	3.5	8	8	8	16		M		807.4 **ARTIFICIAL FILL** RED-BROWN, FINE SANDY CLAY (A-6) WITH TRACE GRAVEL, DEBRIS, AND ORGANICS 3.0 **RESIDUAL** RED-BROWN, FINE SANDY CLAY (A-6) WITH TRACE ORGANICS 7.0
800	801.9	8.5	8	10	10	20		M		803.4 ORANGE-BROWN AND WHITE, SILTY FINE TO COARSE SAND (A-2-4)
	796.9	13.5	10	30	27	57		M		795.4 15.0 Boring Terminated at Elevation 795.4 ft in RESIDUAL (SAND)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_3300R	**STATION** 33+00	**OFFSET** 75 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 788.6 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 853,270	**EASTING** 1,628,298 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
790											
	788.6	0.0								788.6 GROUND SURFACE	0.0
			WOH	WOH	2	2		M		MULCH (WOOD, GRAVEL, AND DEBRIS)	
										786.6	2.0
785	785.1	3.5	4	3	4	7		W		**ARTIFICIAL FILL** RED, BROWN, AND GRAY, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE GRAVEL AND ORGANICS	
780	780.1	8.5	1	1	1	2	SS-20	26%			
775	775.1	13.5	3	4	6	10		W		773.6	15.0
										Boring Terminated at Elevation 773.6 ft in ARTIFICIAL FILL (CLAY)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1RPA_1025R	**STATION** 10+25	**OFFSET** 30 ft RT	**ALIGNMENT** -Y1RPA- / **0 HR.** Dry
COLLAR ELEV. 852.8 ft	**TOTAL DEPTH** 9.0 ft	**NORTHING** 854,345	**EASTING** 1,629,335 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
855										
	852.8	0.0								852.8 GROUND SURFACE 0.0
			7	71	29/0.1	100/0.6		D		852.2 **RESIDUAL** TAN, FINE SANDY SILT (A-4) WITH TRACE ROOTS 0.6
850	849.3	3.5	2	2	3	5		M		849.8 **WEATHERED ROCK** GRAY-BLACK (MICA SCHIST) 3.0
										846.3 **RESIDUAL** RED-TAN, FINE SANDY SILT (A-4) 6.5
845	844.3	8.5	100/0.5			100/0.5				843.8 **WEATHERED ROCK** GRAY-BLACK (MICA SCHIST) 9.0
										Boring Terminated at Elevation 843.8 ft in WEATHERED ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y1RPA_1200R	**STATION** 12+00	**OFFSET** 40 ft RT	**ALIGNMENT** -Y1RPA-	**0 HR.** Dry
COLLAR ELEV. 843.2 ft	**TOTAL DEPTH** 14.2 ft	**NORTHING** 854,297	**EASTING** 1,629,176	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
845											
	843.2	0.0								843.2 GROUND SURFACE	0.0
			2	5	14	19		D		**ARTIFICIAL FILL** RED-TAN-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE ROOTS, BRICK FRAGMENTS, ASPHALT FRAGMENTS, AND GLASS FRAGMENTS	
840	839.7	3.5									
			5	6	7	13		M			
										836.2	7.0
835	834.7	8.5								**RESIDUAL** BROWN, CLAYEY SILT (A-5) WITH TRACE FINE SAND, MICACEOUS	
			4	4	4	8		M			
										830.7	12.5
830	829.7	13.5								**CRYSTALLINE ROCK** GRAY-WHITE (MICA SCHIST)	
	829.0	14.2	60/0.1			60/0.1 60/0.0				829.0	14.2
			60/0.0							Boring Terminated with Standard Penetration Test Refusal at Elevation 829.0 ft in CRYSTALLINE ROCK (MICA SCHIST)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y1RPA_1450R	**STATION** 14+50	**OFFSET** 50 ft RT	**ALIGNMENT** -Y1RPA-	**0 HR.** Dry
COLLAR ELEV. 841.2 ft	**TOTAL DEPTH** 14.7 ft	**NORTHING** 854,326	**EASTING** 1,628,954	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 07/29/15	**COMP. DATE** 07/29/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
845										
	841.2	0.0								841.2 GROUND SURFACE 0.0
			4	10	9	19		D		**RESIDUAL** TAN AND RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE ROOTS AND GRAVEL, MICACEOUS
840	837.7	3.5								
			3	4	3	7		M		
835	832.7	8.5								833.2 8.0
			27	11	4	15		D		832.2 9.0 GRAY-WHITE, COARSE TO FINE SANDY GRAVEL (A-1-a) / RED-BROWN, FINE SANDY SILT (A-4), MICACEOUS
830	827.7	13.5						M		
	826.5	14.7	5	100/0.4		100/0.4 60/0.0				827.2 14.0
			60/0.0							826.5 14.7 **WEATHERED ROCK** GRAY-WHITE-BLACK (MICA SCHIST)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 826.5 ft on CRYSTALLINE ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1RPA_1600R	**STATION** 16+00	**OFFSET** 35 ft RT	**ALIGNMENT** -Y1RPA- / **0 HR.** Dry
COLLAR ELEV. 851.2 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,360	**EASTING** 1,628,807 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/29/15	**COMP. DATE** 07/29/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
855											
	851.2	0.0								851.2 GROUND SURFACE	0.0
850			3	4	6	10		D		**RESIDUAL** RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE ROOTS, MICACEOUS	
	847.7	3.5	6	7	8	15		M			
845											
	842.7	8.5	4	4	6	10		M		841.2	10.0

Boring Terminated at Elevation 841.2 ft in RESIDUAL (SILT)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1LPA_1100R	**STATION** 11+00	**OFFSET** 15 ft RT	**ALIGNMENT** -Y1LPA- / **0 HR.** Dry
COLLAR ELEV. 826.8 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,143	**EASTING** 1,628,970 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
830										
	826.8	0.0								826.8 GROUND SURFACE 0.0
825			5	12	16	28		D		**ROADWAY EMBANKMENT** RED-TAN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE ROOTS AND GRAVEL
	823.3	3.5	3	5	4	9		M		
820										819.8 7.0
	818.3	8.5	3	3	4	7		W		RED-BROWN, FINE SANDY CLAYEY SILT (A-5) WITH TRACE ORGANICS, MICACEOUS 816.8 10.0

Boring Terminated at Elevation 816.8 ft in ROADWAY EMBANKMENT (SILT)

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/2/15

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y1LPA_1300	**STATION** 13+00	**OFFSET** CL	**ALIGNMENT** -Y1LPA-	**0 HR.** Dry
COLLAR ELEV. 839.9 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,286	**EASTING** 1,628,855	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
840										839.9 GROUND SURFACE	0.0
	839.9	0.0	4	4	5	●9		M		**ROADWAY EMBANKMENT** RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE CLAY, GRAVEL AND ROOTS	
	836.4	3.5								836.4	3.5
835			8	7	14	●21		D		GRAY-WHITE, COARSE TO FINE SANDY GRAVEL (A-1-a)	
										832.4	7.5
	831.4	8.5								RED-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE GRAVEL	
830			4	4	5	●9		W		829.9	10.0
										Boring Terminated at Elevation 829.9 ft in ROADWAY EMBANKMENT (CLAY)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y1LPA_1500	**STATION** 15+00	**OFFSET** CL	**ALIGNMENT** -Y1LPA-	**0 HR.** Dry
COLLAR ELEV. 857.0 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,351	**EASTING** 1,628,666	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 08/03/15	**COMP. DATE** 08/03/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
860										857.0 GROUND SURFACE 0.0
										0.8' ASPHALT AND 1.0' ABC STONE
	856.4	0.6								855.4 1.6
855			19	15	4	●19		D		854.5 **ROADWAY EMBANKMENT** 2.5
	853.5	3.5								RED-BROWN-GRAY, FINE SANDY SILT (A-4)
			3	6	6	●12	SS-360	32%		
										RED, FINE SANDY SILTY CLAY (A-7-5) WITH TRACE COARSE SAND
850										850.0 7.0
	848.5	8.5								**RESIDUAL** GRAY-TAN-RED, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL
			12	17	14	●31		M		847.0 10.0
										Boring Terminated at Elevation 847.0 ft in RESIDUAL (SAND)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y1RPD_1000R	**STATION** 10+00	**OFFSET** 15 ft RT	**ALIGNMENT** -Y1RPD-	**0 HR.** Dry
COLLAR ELEV. 837.8 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 854,174	**EASTING** 1,629,150	**24 HR.** 5.9
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 07/30/15	**COMP. DATE** 07/30/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
840											
	837.8	0.0								837.8 GROUND SURFACE	0.0
835			1	2	5	7		M		**ARTIFICIAL FILL** ORANGE-BROWN AND GRAY, FINE SANDY SILT (A-4) WITH TRACE GRAVEL, WOOD FRAGMENTS, AND GLASS	
	834.3	3.5	5	3	2	5		M			
830	829.3	8.5	WOH	WOH	1	1		W			
825	824.3	13.5	5	8	10	18		W		824.8 **RESIDUAL** ORANGE AND YELLOW, SILTY FINE SAND (A-2-4)	13.0
										822.8 Boring Terminated at Elevation 822.8 ft in RESIDUAL (SAND)	15.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y1RPD_1200	**STATION** 12+00	**OFFSET** CL	**ALIGNMENT** -Y1RPD-	**0 HR.** Dry
COLLAR ELEV. 825.1 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 854,058	**EASTING** 1,628,986	**24 HR.** 11.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 07/30/15	**COMP. DATE** 07/30/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
830										
825	825.1	0.0								825.1 GROUND SURFACE 0.0
			WOH	2	2	4		M		824.1 **ARTIFICIAL FILL** ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS 1.0
	821.6	3.5	3	4	5	9		W		822.1 RED-BROWN, FINE SANDY CLAY (A-6) WITH TRACE ORGANICS 3.0
820										**RESIDUAL** ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA
	816.6	8.5	3	2	2	4		M		
815	811.6	13.5	2	2	3	5		W		810.1 Boring Terminated at Elevation 810.1 ft in RESIDUAL (SILT) 15.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1RPD_1400L	**STATION** 14+00	**OFFSET** 50 ft LT	**ALIGNMENT** -Y1RPD- / **0 HR.** Dry
COLLAR ELEV. 822.2 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 853,879	**EASTING** 1,628,913 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/28/15	**COMP. DATE** 07/29/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
825											
	822.2	0.0	2	6	7	13		M		822.2 GROUND SURFACE	0.0
820										**ARTIFICIAL FILL** RED AND BROWN, FINE SANDY CLAY (A-6) WITH TRACE ORGANICS	
	818.7	3.5	3	3	3	6		M			
815										815.2 GRAY-BROWN, SILTY CLAY (A-7-5) WITH TRACE ORGANICS AND GRAVEL	7.0
	813.7	8.5	3	3	3	6		W			
810										810.2 ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND ORGANICS	12.0
	808.7	13.5	3	3	3	6		M			
805											
	803.7	18.5	3	5	5	10		M			
800											
	798.7	23.5	2	6	7	13		M		797.2 Boring Terminated at Elevation 797.2 ft in ARTIFICIAL FILL (SILT)	25.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1RPD_1550	**STATION** 15+50	**OFFSET** CL	**ALIGNMENT** -Y1RPD- / **0 HR.** Dry
COLLAR ELEV. 815.5 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 853,758	**EASTING** 1,628,815 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
820											
	815.5	0.0	2	4	6	10		M		815.5 GROUND SURFACE	0.0
815										**ARTIFICIAL FILL** RED-BROWN AND GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS, CLAY, AND MICA	
	812.0	3.5	9	10	13	23		M			
810											
	807.0	8.5	4	6	8	14		M			
805											
	802.0	13.5	5	5	6	11		M			
800											
	797.0	18.5	3	3	4	7		M		795.5 Boring Terminated at Elevation 795.5 ft in ARTIFICIAL FILL (SILT)	20.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1RPD_1800	**STATION** 18+00	**OFFSET** CL	**ALIGNMENT** -Y1RPD- / **0 HR.** Dry
COLLAR ELEV. 806.6 ft	**TOTAL DEPTH** 11.4 ft	**NORTHING** 853,569	**EASTING** 1,628,672 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/29/15	**COMP. DATE** 07/29/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
810										
										806.6 GROUND SURFACE 0.0
805										0.1'ASPHALT, 0.7' CONCRETE, AND VOID FROM 0.8'-2.2' 804.4 2.2
	803.1	3.5	WOH	WOH	WOH	0	SS-31	25%		**ARTIFICIAL FILL** BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE GRAVEL AND MICA 799.6 7.0
800										
	798.1	8.5	9	7	5	12		M		**RESIDUAL** GRAY-BROWN, SILTY FINE SAND (A-2-4) 795.3 11.3
	795.2	11.4	60/0.0			60/0.0				795.2 11.4 **CRYSTALLINE ROCK** (MICA SCHIST) Boring Terminated with Standard Penetration Test Refusal at Elevation 795.2 ft in CRYSTALLINE ROCK (MICA SCHIST)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1RPD_1900	**STATION** 19+00	**OFFSET** CL	**ALIGNMENT** -Y1RPD- / **0 HR.** Dry
COLLAR ELEV. 790.0 ft	**TOTAL DEPTH** 4.3 ft	**NORTHING** 853,571	**EASTING** 1,628,573 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/29/15	**COMP. DATE** 07/29/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
790										
										790.0 GROUND SURFACE 0.0
	790.0	0.0	1	1	2	3		M		**RESIDUAL** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS AND GRAVEL 787.0 3.0
	786.5	3.5								
	785.7	4.3	100/0.4			100/0.4				785.7 4.3 **WEATHERED ROCK** GRAY (MICA SCHIST)
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 785.7 ft on CRYSTALLINE ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y1LPD_1150	**STATION** 11+50	**OFFSET** CL	**ALIGNMENT** -Y1LPD-	**0 HR.** 14.0
COLLAR ELEV. 807.7 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 853,880	**EASTING** 1,628,640	**24 HR.** 12.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
810											
	807.7	0.0								807.7 GROUND SURFACE	0.0
			4	5	10	15		M		**ARTIFICIAL FILL** BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE ROOTS AND GRAVEL / RED-BROWN, FINE SANDY SILTY CLAY (A-7-5) WITH TRACE GRAVEL — 805.7	2.0
805	804.2	3.5	2	2	2	4		W			
800	799.2	8.5	6	11	8	19		W		RED, CLAYEY SILT (A-5) WITH TRACE GRAVEL AND ASPHALT AND CONCRETE FRAGMENTS — 800.7	7.0
795	794.2	13.5	1	1	3	4		Sat.		**ALLUVIAL** GRAY-TAN-RED, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE ROOTS — 795.7	12.0
790	789.2	18.5	1	1	3	4		Sat.		787.7	20.0

Boring Terminated at Elevation 787.7 ft in ALLUVIAL (SAND)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y1LPD_1300	**STATION** 13+00	**OFFSET** CL	**ALIGNMENT** -Y1LPD-	**0 HR.** Dry
COLLAR ELEV. 806.3 ft	**TOTAL DEPTH** 11.8 ft	**NORTHING** 853,801	**EASTING** 1,628,760	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
810										
	806.3	0.0								806.3 GROUND SURFACE 0.0
805			2	5	6	11		M		**RESIDUAL** RED AND BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL AND ORGANICS
	802.8	3.5								
800			9	8	9	17		M		
	797.8	8.5								
795			10	9	7	16		M		795.9 10.4
	794.5	11.8	60/0.0			60/0.0				794.5 **WEATHERED ROCK** WHITE (MICA SCHIST) 11.8

Boring Terminated with Standard Penetration Test Refusal at Elevation 794.5 ft on CRYSTALLINE ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_EB1-A	**STATION** 25+83	**OFFSET** 33 ft LT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 822.9 ft	**TOTAL DEPTH** 34.2 ft	**NORTHING** 853,960	**EASTING** 1,628,530 / **24 HR.** 27.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/06/15	**COMP. DATE** 08/06/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
825										
	822.9	0.0								822.9 GROUND SURFACE 0.0
			2	1	1	2		M		**ROADWAY EMBANKMENT** BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA
820	819.4	3.5	2	2	3	5		M		
815	814.4	8.5	2	2	2	4		W		815.9 7.0 RED-BROWN, CLAYEY FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA
810	809.9	13.0	10	23	29	52		M		810.9 12.0 RED-YELLOW, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA 809.0 13.9
805	804.4	18.5	4	8	6	14		M		**RESIDUAL** GRAY-YELLOW TO BROWN AND WHITE, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC
800	799.4	23.5	13	11	8	19		M		
795	794.4	28.5	30	31	19	50		M		
790	789.4	33.5								789.4 33.5
	788.7	34.2	100/0.2			100/0.2				788.7 34.2 **WEATHERED ROCK** GRAY-BLACK (MICA SCHIST)
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 788.7 ft on CRYSTALLINE ROCK (MICA SCHIST)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_EB1-C	**STATION** 26+16	**OFFSET** 9 ft LT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 816.2 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 853,937	**EASTING** 1,628,497 / **24 HR.** 21.8
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/06/15	**COMP. DATE** 08/06/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
820										
	816.2	0.0								816.2 GROUND SURFACE 0.0
815			1	1	1	2		M		**ROADWAY EMBANKMENT** 814.2 2.0 BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA AND ORGANICS
	812.7	3.5								
810			1	2	3	5		M		811.7 4.5 BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA
	807.7	8.5								809.2 7.0 RED, FINE SANDY SILTY CLAY (A-7-5) WITH TRACE MICA
805			1	2	3	5		W		806.7 9.5 RED-YELLOW-BROWN, CLAYEY FINE SANDY SILT (A-4) WITH TRACE MICA
	802.7	13.5								RED-YELLOW, SILTY CLAY (A-7-5) WITH TRACE MICA AND ORGANICS
800			3	5	7	12		M		
	797.7	18.5								798.2 18.0
795			23	26	11	37		M		797.0 19.2 **RESIDUAL** DARK BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA
	792.7	23.5								GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND SOME GRAVEL, SAPROLITIC
790			4	6	6	12		W		
	787.7	28.5								787.7 28.5
	786.2	30.0	100/0.4			100/0.4				786.5 29.7 **WEATHERED ROCK** YELLOW-WHITE (MICA SCHIST)
			60/0.0			60/0.0				786.2 30.0 **CRYSTALLINE ROCK** (MICA SCHIST)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 786.2 ft in CRYSTALLINE ROCK (MICA SCHIST)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_EB1-B	**STATION** 27+09	**OFFSET** 55 ft RT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 808.9 ft	**TOTAL DEPTH** 20.1 ft	**NORTHING** 853,869	**EASTING** 1,628,406	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/15/15	**COMP. DATE** 08/15/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
810										808.9 GROUND SURFACE	0.0
	807.7	1.2								807.7 ASPHALT AND CONCRETE	1.2
			4	2	2	4		M		**ROADWAY EMBANKMENT** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA	
805	805.4	3.5	8	5	3	8		M		804.9	4.0
										RED-BROWN, SILTY CLAY (A-7-5) WITH SOME GRAVEL AND TRACE ORGANICS	
800	800.4	8.5	4	3	8	11		M		800.9 GRAY-BROWN AND BLACK, CLAYEY COARSE TO FINE SANDY SILT (A-4) WITH TRACE GRAVEL, ORGANICS, AND CONCRETE	8.0
795	795.4	13.5	1	2	2	4		M			
790	790.4	18.5	20	28	72/0.1	100/0.6				790.9 **WEATHERED ROCK** GRAY-BROWN (MICA SCHIST)	18.0
	788.8	20.1	60/0.0			60/0.0				788.9 788.8 **CRYSTALLINE ROCK** (MICA SCHIST)	20.0 20.1
										Boring Terminated with Standard Penetration Test Refusal at Elevation 788.8 ft in CRYSTALLINE ROCK (MICA SCHIST)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_B1A	**STATION** 26+44	**OFFSET** 69 ft LT	**ALIGNMENT** -Y1- / **0 HR.** N/A
COLLAR ELEV. 808.5 ft	**TOTAL DEPTH** 56.8 ft	**NORTHING** 853,891	**EASTING** 1,628,545 / **24 HR.** 15.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/11/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
810											
										808.5 GROUND SURFACE	0.0
	807.5	1.0								807.0 0.0'-1.0' ASPHALT, CONCRETE, AND 0.5' ABC STONE	1.5
805	805.0	3.5	7	4	3	7		M		**ROADWAY EMBANKMENT**	
			5	7	5	12		M		804.6 RED-BROWN, FINE TO COARSE SANDY CLAYEY SILT (A-5) WITH TRACE MICA, GRAVEL, AND ORGANICS	3.9
800	800.0	8.5								RED-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA, GRAVEL, AND ORGANICS	
			2	2	4	6		M		799.0	9.5
795	795.0	13.5								796.5 BROWN-RED, FINE TO COARSE SANDY SILT (A-4) WITH LITTLE CLAY AND TRACE MICA AND GRAVEL	12.0
			1	2	1	3				**RESIDUAL** BROWN-RED, FINE TO COARSE SANDY SILT (A-4) HIGHLY MICACEOUS, SAPROLITIC	
790	790.0	18.5									
			1	1	2	3		W			
785	785.0	23.5									
			3	7	6	13		W			
780	780.0	28.5									
			11	28	69	97		M			
775	775.0	33.5									
			10	12	12	24		M			
770	770.0	38.5								771.8	36.7
	769.7	38.8	60/0.0			60/0.0				**WEATHERED ROCK** (MICA SCHIST) 769.7	38.8
			60/0.0			60/0.0	RS-5			**CRYSTALLINE ROCK** (MICA SCHIST)	
765											
760											
755										751.7	56.8
										Boring Terminated at Elevation 751.7 ft in CRYSTALLINE ROCK (MICA SCHIST)	

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/18/15

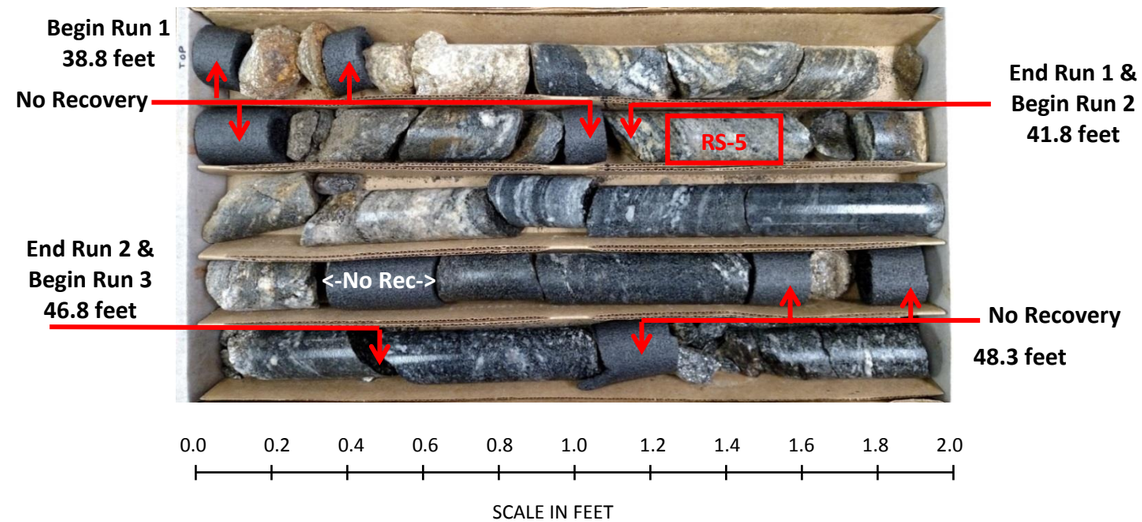
GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_B1A	**STATION** 26+44	**OFFSET** 69 ft LT	**ALIGNMENT** -Y1- / **0 HR.** N/A
COLLAR ELEV. 808.5 ft	**TOTAL DEPTH** 56.8 ft	**NORTHING** 853,891	**EASTING** 1,628,545 / **24 HR.** 15.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/11/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 18.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
769.7											Begin Coring @ 38.8 ft	
	769.7	38.8	3.0	5:42/1.0 2:59/1.0 2:02/1.0	(2.3) 77%	(0.3) 10%		(15.5) 86%	(8.4) 47%		769.7 **CRYSTALLINE ROCK** GRAY-BROWN AND WHITE, MODERATELY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD MICA SCHIST WITH CLOSE TO MODERATELY CLOSE FRACTURE SPACING RS-5: 41.8'-42.1', qu= 5,475 psi, R1=4, R2=8, R3=10, R4=20, R5=7 RMR= 49, ROCK TYPE= E	38.8
	766.7	41.8										
765			5.0	2:28/1.0 1:31/1.0 2:31/1.0 1:56/1.0 1:42/1.0	(4.2) 84%	(2.3) 46%	RS-5					
	761.7	46.8										
760			5.0	1:52/1.0 2:03/1.0 1:05/1.0 1:48/1.0 1:43/1.0	(4.2) 84%	(2.4) 48%						
	756.7	51.8										
755			5.0	1:46/1.0 1:42/1.0 1:44/1.0 2:07/1.0 1:53/1.0	(4.8) 96%	(3.4) 68%						
	751.7	56.8									751.7	56.8
											Boring Terminated at Elevation 751.7 ft in CRYSTALLINE ROCK (MICA SCHIST)	

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/18/15

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth Street to east of Church Street, Y1_B1A: -Y1- Station 26+44, 69' LT



GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_B1B	**STATION** 27+62	**OFFSET** 57 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 809.2 ft	**TOTAL DEPTH** 26.9 ft	**NORTHING** 853,820	**EASTING** 1,628,387 / **24 HR.** 1.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/11/15	**COMP. DATE** 08/11/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
810										809.2 GROUND SURFACE	0.0
	808.2	1.0								807.6 1.0' ASPHALT, CONCRETE, AND 0.6' ABC STONE	1.6
			8	4	3	7		M		806.2 **ROADWAY EMBANKMENT** RED-BROWN, CLAYEY SILT (A-5) WITH TRACE MICA AND GRAVEL	3.0
805	805.7	3.5									
			3	4	5	9		M		BROWN-DARK GRAY, SILTY CLAY (A-7-6) WITH TRACE GRAVEL AND ORGANICS	7.0
										802.2 **RESIDUAL** YELLOW-RED, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA	
800	800.7	8.5									
			8	10	18	28		M			
	795.7	13.5									
795	795.3	13.9	60/0.1			60/0.1				795.3 **CRYSTALLINE ROCK** GRAY-WHITE (BIOTITE GNEISS)	13.9
			60/0.0			60/0.0					
790							RS-1				
785										782.3 Boring Terminated at Elevation 782.3 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	26.9

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/2/15

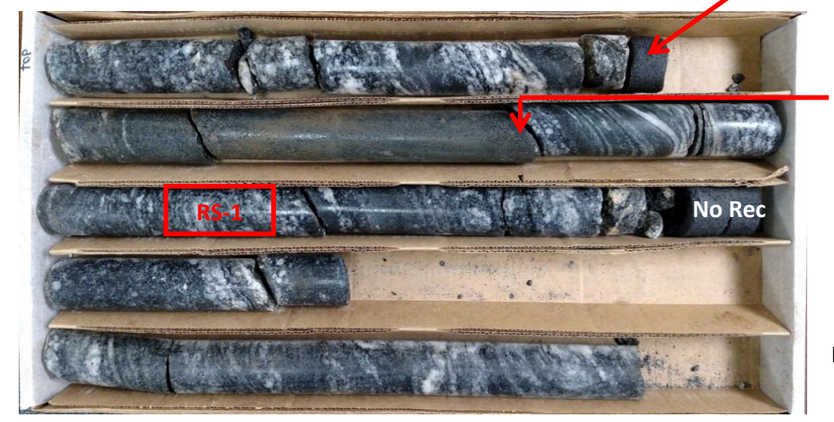
GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_B1B	**STATION** 27+62	**OFFSET** 57 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 809.2 ft	**TOTAL DEPTH** 26.9 ft	**NORTHING** 853,820	**EASTING** 1,628,387 / **24 HR.** 1.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/11/15	**COMP. DATE** 08/11/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 13.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
795.3											Begin Coring @ 13.9 ft	
	795.3	13.9	3.0	3:22/1.0 3:42/1.0 2:47/1.0	(2.9) 97%	(2.5) 83%		(12.4) 95%	(9.4) 72%		795.3 **CRYSTALLINE ROCK** GRAY-WHITE, SLIGHTLY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD BIOTITE GNEISS, VERY CLOSE TO MODERATELY CLOSE FRACTURE SPACING RS-1: 18.0'-18.3', qu= 8,447 psi, R1=7, R2=13, R3=10, R4=12, R5=7 RMR=49, ROCK TYPE=E	13.9
	792.3	16.9	5.0	2:48/1.0 2:36/1.0 2:19/1.0 2:28/1.0 2:51/1.0	(4.8) 96%	(3.9) 78%	RS-1					
790	787.3	21.9	5.0	2:42/1.0 2:45/1.0 3:24/1.0 4:00/1.0 3:30/1.0	(4.7) 94%	(3.0) 60%						
785	782.3	26.9									782.3 Boring Terminated at Elevation 782.3 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	26.9

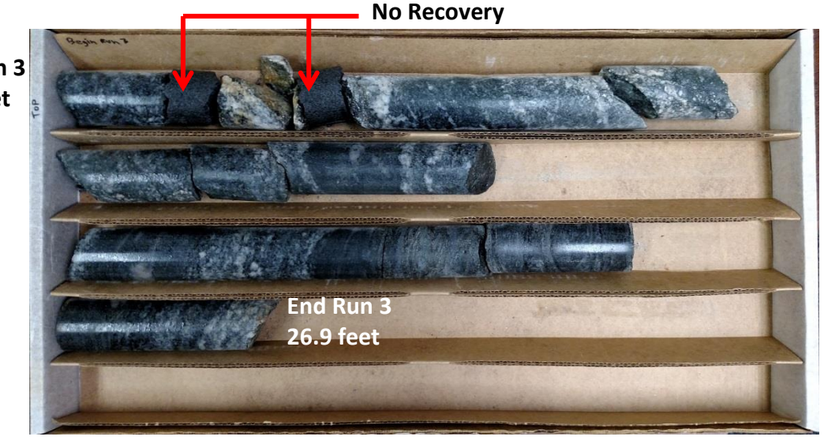
NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/2/15

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth Street to east of Church Street, Y1_B1B: -Y1- Station 27+62, 57' RT



0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET



0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_EB2-A	**STATION** 27+51	**OFFSET** 31 ft LT	**ALIGNMENT** -Y1- / **0 HR.** 29.0
COLLAR ELEV. 817.7 ft	**TOTAL DEPTH** 32.3 ft	**NORTHING** 853,802	**EASTING** 1,628,474 / **24 HR.** 26.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/03/15	**COMP. DATE** 08/03/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
820											
	817.7	0.0								817.7 GROUND SURFACE	0.0
			WOH	1	3	4		M		**ROADWAY EMBANKMENT** RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA	
815	814.2	3.5								813.2	4.5
			5	4	5	9		M		RED-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE GRAVEL AND MICA	
810	809.2	8.5								808.8	8.9
			2	6	24	30		M		807.7 RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH HIGH AMOUNT OF GRAVEL AND TRACE MICA	10.0
805	804.2	13.5								803.7 BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND GRAVEL	14.0
			2	3	2	5		M		800.7 RED-BROWN, CLAYEY FINE SANDY SILT (A-4) WITH TRACE GRAVEL AND MICA	17.0
800	799.2	18.5								RED, SILTY FINE SANDY CLAY (A-6) WITH TRACE GRAVEL, MICACEOUS	
			1	1	2	3		W		795.7	22.0
795	794.2	23.5								BROWN-GRAY-RED, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL AND MICA	
			1	2	1	3		W		793.1	24.6
790										**ALLUVIAL** BROWN AND BLACK, FINE SANDY SILT (A-4) WITH TRACE TO HIGH AMOUNT OF GRAVEL AND TRACE ORGANICS	
	789.2	28.5									
			5	1	1	2		Sat.			
	786.3	31.4								786.4	31.3
	785.4	32.3	60/0.1			60/0.1				785.4 **CRYSTALLINE ROCK** GRAY-BLACK (MICA SCHIST)	32.3
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 785.4 ft in CRYSTALLINE ROCK (MICA SCHIST)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_EB2-C	**STATION** 28+06	**OFFSET** 2 ft LT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 826.4 ft	**TOTAL DEPTH** 35.7 ft	**NORTHING** 853,759	**EASTING** 1,628,429 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/04/15	**COMP. DATE** 08/04/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
830										
	826.4	0.0								826.4 GROUND SURFACE 0.0
825			1	4	4	8		M		**ROADWAY EMBANKMENT** RED AND BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL 824.4 2.0
	822.9	3.5								
820			2	3	4	7		M		RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE FINE SAND AND MICA 819.4 7.0
	817.9	8.5								
815			2	3	4	7		M		RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH LITTLE CLAY AND GRAVEL 814.4 12.0
	812.9	13.5								
810			3	3	6	9		M		RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE FINE SAND, MICA, AND ORGANICS 809.4 17.0
	807.9	18.5								
805			5	6	6	12		M		**RESIDUAL** GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL, MICACEOUS HARD DRILLING NOTED FROM 22.3' TO 23.0' 803.4 23.0
	802.9	23.5								
800			1	7	7	14		W		GRAY, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL 799.4 27.0
	797.9	28.5								
795			3	5	14	19		W		RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE FINE SAND, SAPROLITIC 796.7 29.7
										GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) 792.4 34.0
	792.9	33.5								
			16	82	18/0.0	100/0.5				**WEATHERED ROCK** GRAY-BROWN (MICA SCHIST) 790.7 35.7
	790.7	35.7								
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 790.7 ft on CRYSTALLINE ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_EB2-B	**STATION** 28+40	**OFFSET** 57 ft RT	**ALIGNMENT** -YI- / **0 HR.** Dry
COLLAR ELEV. 810.9 ft	**TOTAL DEPTH** 13.7 ft	**NORTHING** 853,746	**EASTING** 1,628,362 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/27/15	**COMP. DATE** 07/27/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
815											
	810.9	0.0								810.9 GROUND SURFACE	0.0
810			3	8	7	15		D		**RESIDUAL** RED-TAN, CLAYEY FINE TO COARSE SANDY SILT (A-4) WITH TRACE ROOTS AND MICA	
	807.4	3.5	4	3	3	6		M			
805										803.9	7.0
	802.4	8.5	15	17	11	28		M		GRAY AND WHITE, SILTY FINE TO COARSE SAND (A-2-4), SAPROLITIC	
800										798.4	12.5
	797.4	13.5								797.4 **WEATHERED ROCK** GRAY-WHITE-BLACK (MICA SCHIST)	13.5
	797.2	13.7	60/0.0			60/0.0				797.2 **CRYSTALLINE ROCK** (MICA SCHIST)	13.7
			60/0.0							Boring Terminated with Standard Penetration Test Refusal at Elevation 797.2 ft in CRYSTALLINE ROCK (MICA SCHIST)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_LT#1	**STATION** 16+30	**OFFSET** 53 ft LT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 881.9 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 853,860	**EASTING** 1,628,335 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
	881.9	0.0								881.9 GROUND SURFACE 0.0
880			WOH	1	2	3		M		**RESIDUAL** RED-ORANGE-BROWN, FINE SANDY CLAY (A-6) WITH TRACE ORGANICS, MICA, AND GRAVEL
	878.4	3.5	4	3	4	7		M		877.4 4.5
875										ORANGE-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA
	873.4	8.5	3	3	2	5		W		
870										
	868.4	13.5	8	11	60	71		W		866.9 15.0
										Boring Terminated at Elevation 866.9 ft in RESIDUAL (SAND)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_LT#2	**STATION** 19+70	**OFFSET** 53 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 866.4 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,001	**EASTING** 1,628,640	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/30/15	**COMP. DATE** 07/30/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
870											
	866.4	0.0								866.4 GROUND SURFACE	0.0
865			1	2	3	5		M		864.4 **RESIDUAL** RED-BROWN, FINE TO COARSE SANDY SILT CLAY (A-7-5) WITH TRACE MICA	2.0
	862.9	3.5	3	5	4	9		M		RED-BROWN, CLAYEY FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL, MICACEOUS, SAPROLITIC	
860											
	857.9	8.5	3	3	4	7		W		856.4	10.0

Boring Terminated at Elevation 856.4 ft in RESIDUAL (SILT)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_RT#1	**STATION** 15+70	**OFFSET** 53 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 883.9 ft	**TOTAL DEPTH** 9.9 ft	**NORTHING** 853,740	**EASTING** 1,628,317	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/27/15	**COMP. DATE** 07/27/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
885											
	883.9	0.0								883.9 GROUND SURFACE	0.0
			6	7	6	13		M		**RESIDUAL**	
880	880.4	3.5	19	21	9	30		M		881.9 RED-TAN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE CLAY AND ROOTS	2.0
								M		GRAY AND WHITE, SILTY FINE TO COARSE SAND (A-2-4) SAPROLITIC	
875	875.4	8.5	2	6	100/0.4	100/0.4				876.9 DARK BROWN, FINE SANDY SILT (A-4), MICACEOUS	7.0
										874.4	9.5
										874.0 **WEATHERED ROCK** GRAY AND BROWN (MICA SCHIST)	9.9

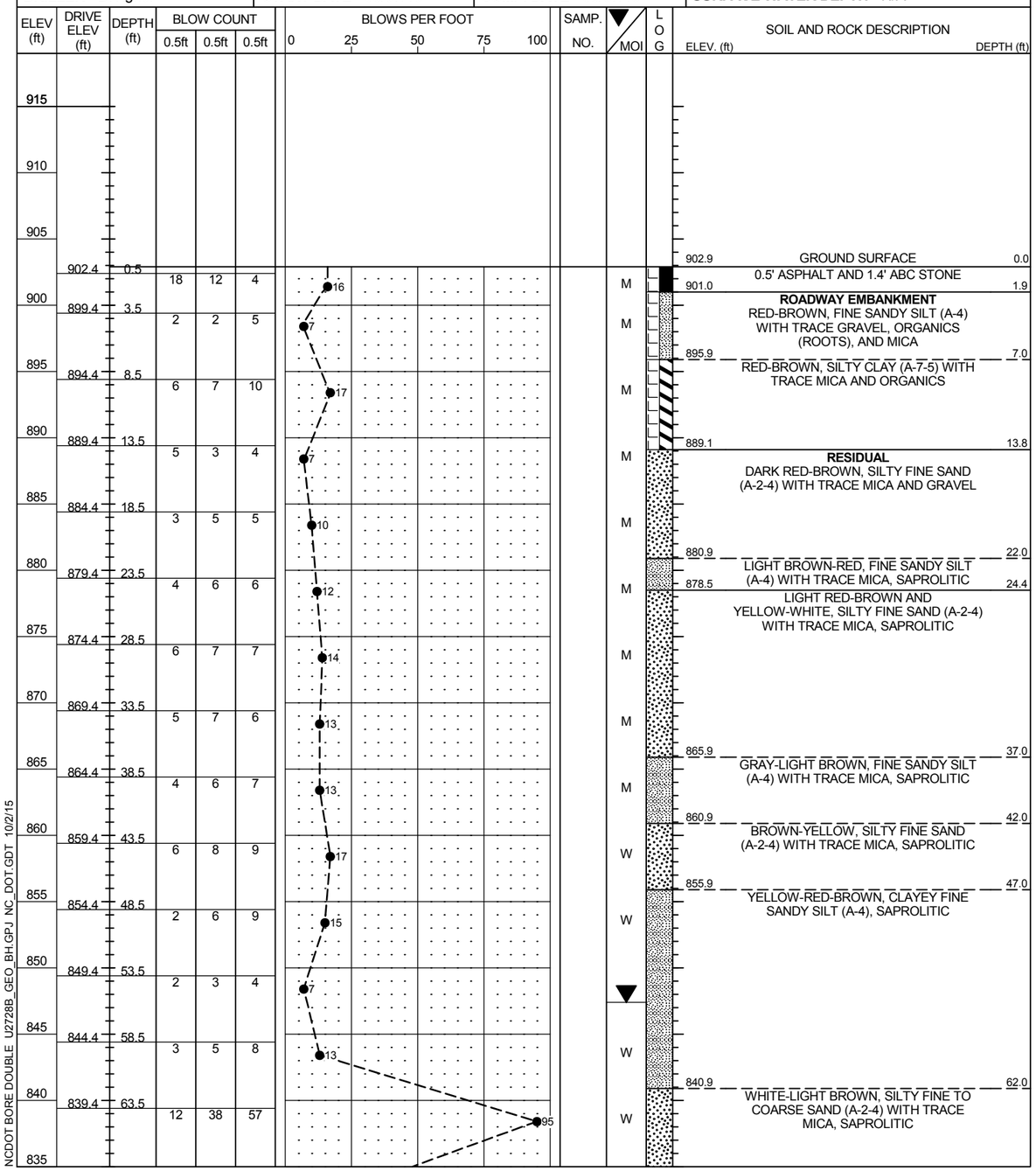
Boring Terminated at Elevation 874.0 ft in WEATHERED ROCK (MICA SCHIST)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y1_RT#2	**STATION** 18+50	**OFFSET** 58 ft RT	**ALIGNMENT** -L- / **0 HR.** 15.0
COLLAR ELEV. 863.3 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 853,849	**EASTING** 1,628,581 / **24 HR.** 12.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/28/15	**COMP. DATE** 07/28/15	**SURFACE WATER DEPTH** N/A

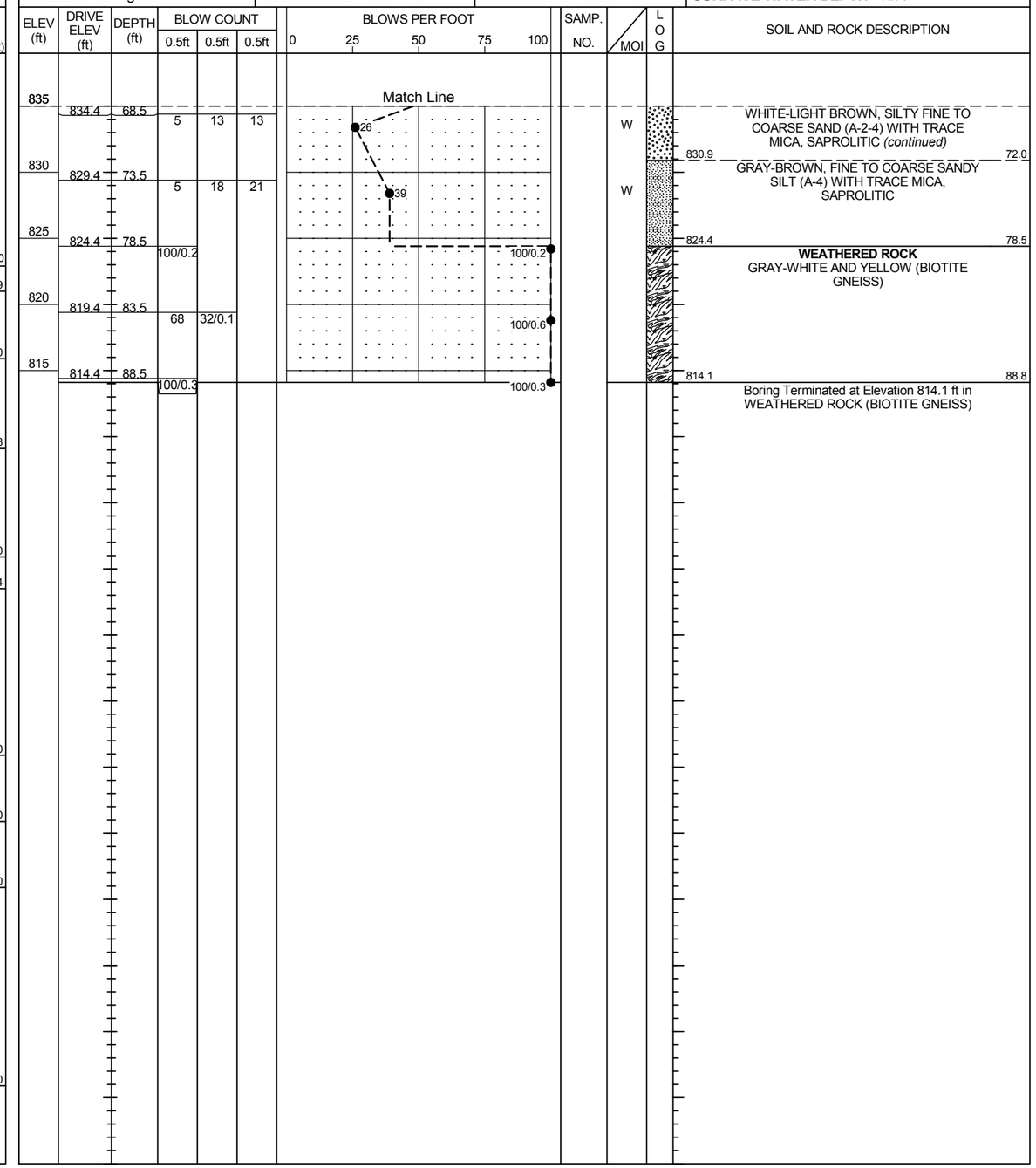
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
865										
	863.3	0.0								863.3 GROUND SURFACE 0.0
			2	2	2	4		W		**ARTIFICIAL FILL**
860	859.8	3.5								861.3 RED-TAN, SILTY FINE SAND (A-2-4) WITH TRACE BRICK AND ASPHALT FRAGMENTS 2.0
			1	2	2	4		M		RED, FINE TO COARSE SILTY CLAY (A-7-6) WITH TRACE BRICK FRAGMENTS
855	854.8	8.5								
			WOH	1	2	3	SS-309	32%		
								▼		851.3 12.0
850	849.8	13.5								**ALLUVIAL**
			2	1	3	4	SS-310	25%		GRAY-TAN,SILTY FINE TO COARSE SANDY CLAY (A-7-6) WITH TRACE GRAVEL AND ORGANICS
845	844.8	18.5								846.3 17.0
			2	1	2	3		W		**RESIDUAL** BROWN AND WHITE, FINE SANDY SILT (A-4), MICACEOUS
840	839.8	23.5								
			1	2	2	4		W		
835	834.8	28.5								
			2	4	6	10		W		833.3 30.0
										Boring Terminated at Elevation 833.3 ft in RESIDUAL (SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y3A_EB1	**STATION** 10+58	**OFFSET** 12 ft LT	**ALIGNMENT** -Y3A- / **0 HR.** 56.6
COLLAR ELEV. 902.9 ft	**TOTAL DEPTH** 88.8 ft	**NORTHING** 854,632	**EASTING** 1,629,893 / **24 HR.** 55.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/07/15	**COMP. DATE** 08/07/15	**SURFACE WATER DEPTH** N/A



WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y3A_EB1	**STATION** 10+58	**OFFSET** 12 ft LT	**ALIGNMENT** -Y3A- / **0 HR.** 56.6
COLLAR ELEV. 902.9 ft	**TOTAL DEPTH** 88.8 ft	**NORTHING** 854,632	**EASTING** 1,629,893 / **24 HR.** 55.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/07/15	**COMP. DATE** 08/07/15	**SURFACE WATER DEPTH** N/A

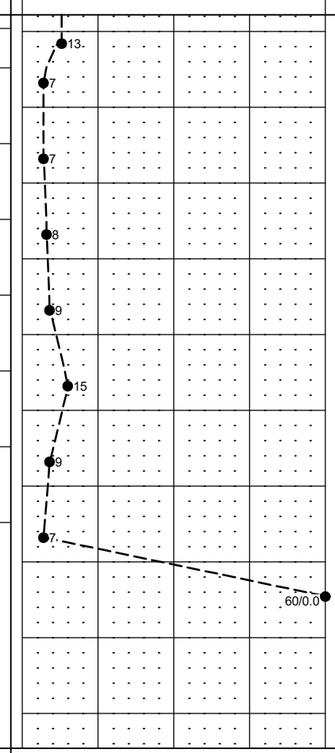


NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/2/15

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y3A_B1	**STATION** 11+36	**OFFSET** 6 ft RT	**ALIGNMENT** -Y3A- / **0 HR.** N/M
COLLAR ELEV. 886.1 ft	**TOTAL DEPTH** 48.4 ft	**NORTHING** 854,554	**EASTING** 1,629,912 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/10/15	**COMP. DATE** 08/12/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
890									
									886.1 GROUND SURFACE 0.0
885	885.2	0.9							885.2 0.1' ASPHALT AND 0.8' CONCRETE 0.9
			7	7	6		M		**ROADWAY EMBANKMENT** ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL, CONCRETE, AND MICA
	882.6	3.5							
			4	4	3		M		
880									
	877.6	8.5							
			3	3	4		M		876.8 9.3 **RESIDUAL** TAN-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA
875									
	872.6	13.5							
			3	4	4		M		
870									
	867.6	18.5							
			4	4	5		M		
865									
	862.6	23.5							
			6	7	8		M		
860									
	857.6	28.5							
			3	4	5		M		
855									
	852.6	33.5							
			3	3	4		M		
850									
	847.7	38.4	60/0.0						847.7 38.4 **CRYSTALLINE ROCK** GRAY (BIOTITE GNEISS)
845									
840						RS-6			837.7 48.4 Boring Terminated at Elevation 837.7 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)



NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/18/15

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y3A_B1	**STATION** 11+36	**OFFSET** 6 ft RT	**ALIGNMENT** -Y3A- / **0 HR.** N/M
COLLAR ELEV. 886.1 ft	**TOTAL DEPTH** 48.4 ft	**NORTHING** 854,554	**EASTING** 1,629,912 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/10/15	**COMP. DATE** 08/12/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 10.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS (ELEV. (ft) / DEPTH (ft))
847.7											Begin Coring @ 38.4 ft
	847.7	38.4	3.0	4:02/1.0 3:52/1.0 3:15/1.0	(2.9) 97%	(2.9) 97%		(9.9) 99%	(9.9) 99%		847.7 38.4 **CRYSTALLINE ROCK** GRAY, SLIGHTLY WEATHERED TO FRESH, MODERATELY HARD TO HARD (BIOTITE GNEISS) WITH CLOSE TO MODERATELY CLOSE FRACTURE SPACING RS-6: 45.7'-46.0', qu=13,911 psi, R1=7, R2=20, R3=20, R4=20, R5=7 RMR=74, ROCK TYPE=E
845	844.7	41.4									
			5.0	3:45/1.0 5:30/1.0 5:15/1.0 6:30/1.0 5:50/1.0	(5.0) 100%	(5.0) 100%					
840	839.7	46.4					RS-6				
			2.0	6:00/1.0 5:40/1.0	(2.0) 100%	(2.0) 100%					
	837.7	48.4									837.7 48.4 Boring Terminated at Elevation 837.7 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/18/15

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth Street to east of Church Street, Y3A_B1: -Y3A- Station 11+36, 6' RT

Begin Run 1
38.4 feet

End Run 1 &
Begin Run 2
41.4 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

Begin Run 3
46.4 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y3A_EB2	**STATION** 12+07	**OFFSET** 9 ft LT	**ALIGNMENT** -Y3A- / **0 HR.** Dry
COLLAR ELEV. 900.8 ft	**TOTAL DEPTH** 28.5 ft	**NORTHING** 854,497	**EASTING** 1,629,957 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/30/15	**COMP. DATE** 07/30/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
905											
900	900.5	0.3	7	3	2	5		M		900.8 GROUND SURFACE	0.0
										899.7 0.3' ASPHALT AND 0.8' ABC	1.1
	897.3	3.5	4	2	1	3		M		**ROADWAY EMBANKMENT** RED-BROWN AND ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, GRAVEL, AND ORGANICS	
895											
	892.3	8.5	8	6	5	11		M		891.3	9.5
890										**RESIDUAL** RED AND BROWN, SILTY CLAY (A-7-5)	
	887.3	13.5	3	3	3	6		M		887.8 TAN-ORANGE, SILTY FINE SAND (A-2-4), SAPROLITIC	13.0
885											
	882.3	18.5	2	2	2	4		M			
880											
	877.3	23.5	3	6	9	15		M		875.3	25.5
875										**WEATHERED ROCK** (BIOTITE GNEISS)	
	872.4	28.4	60/0.0			60/0.0				873.1 / 872.3 **CRYSTALLINE ROCK** (BIOTITE GNEISS)	27.7 / 28.5
										Boring Terminated with Standard Penetration Test Refusal at Elevation 872.3 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y4_EB1C	**STATION** 16+66	**OFFSET** 4 ft LT	**ALIGNMENT** -Y4- / **0 HR.** Dry
COLLAR ELEV. 901.5 ft	**TOTAL DEPTH** 45.2 ft	**NORTHING** 854,735	**EASTING** 1,630,138 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/01/15	**COMP. DATE** 09/01/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
905										
	901.5	0.0								901.5 GROUND SURFACE 0.0
900			WOH	WOH	3	3		M		900.7 **ROADWAY EMBANKMENT** RED, FINE SANDY SILT (A-4) WITH TRACE GRAVEL 0.8
	898.0	3.5	4	4	4	8		M		**RESIDUAL** YELLOW-RED-BROWN, CLAYEY FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC
895										
	893.0	8.5	2	3	4	7		M		889.5 12.0
890										RED-YELLOW AND BROWN, FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC
	888.0	13.5	5	5	6	11		M		
885										
	883.0	18.5	4	6	7	13		M		
880										
	878.0	23.5	4	6	5	11		M		874.5 27.0
875										LIGHT BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC
	873.0	28.5	4	6	7	13		M		
870										
	868.0	33.5	6	6	5	11		M		
865										864.5 37.0
	863.0	38.5	10	12	13	25		M		RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC
860										
	858.0	43.5	78	22/0.1		100/0.6				858.0 43.5
	856.3	45.2	60/0.0			60/0.0				856.3 **WEATHERED ROCK** DARK GRAY (MICA SCHIST) 45.2
										Boring Terminated with Standard Penetration Test Refusal at Elevation 856.3 ft on CRYSTALLINE ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y4_B1-A	**STATION** 17+40	**OFFSET** 43 ft LT	**ALIGNMENT** -Y4- — **0 HR.** N/M
COLLAR ELEV. 890.5 ft	**TOTAL DEPTH** 51.4 ft	**NORTHING** 854,686	**EASTING** 1,630,205 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/11/15	**COMP. DATE** 08/13/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
895											
890										890.5 GROUND SURFACE	0.0
	889.5	1.0								889.5 0.1' ASPHALT AND 0.9' CONCRETE	1.0
	887.0	3.5	5	6	6	12		M		**RESIDUAL** ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL	
885			2	3	6	9		M			
	882.0	8.5	3	5	4	9		M			
880											
	877.0	13.5	5	5	8	13		M			
875											
	872.0	18.5	22	36	34	70		M		872.5 GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4), SAPROLITIC	18.0
870											
	867.0	23.5	29	26	27	53		M			
865											
	862.0	28.5	60/0.1			60/0.1				862.5 **CRYSTALLINE ROCK** GRAY (BIOTITE GNEISS)	28.0
860											
	859.1	31.4	60/0.0			60/0.0				859.1 **CRYSTALLINE ROCK** GRAY (BIOTITE GNEISS)	31.4
855											
850							RS-4				
845											
840										839.1 Boring Terminated at Elevation 839.1 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	51.4

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/18/15

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y4_B1-A	**STATION** 17+40	**OFFSET** 43 ft LT	**ALIGNMENT** -Y4- — **0 HR.** N/M
COLLAR ELEV. 890.5 ft	**TOTAL DEPTH** 51.4 ft	**NORTHING** 854,686	**EASTING** 1,630,205 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/11/15	**COMP. DATE** 08/13/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 20.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
859.1											Begin Coring @ 31.4 ft	
	859.1	31.4	5.0	1:25/1.0 1:30/1.0 1:30/1.0 1:30/1.0 1:28/1.0	(1.5) 30%	(0.0) 0%		(15.8) 79%	(9.6) 48%		859.1 **CRYSTALLINE ROCK** GRAY, MODERATELY WEATHERED TO FRESH, MODERATELY HARD TO HARD BIOTITE GNEISS WITH VERY CLOSE TO MODERATELY CLOSE FRACTURE SPACING RS-4: 38.7'-39.0', qu=14,248 psi, R1=7, R2=8, R3=10, R4=20, R5=7 RMR=52, ROCK TYPE=E	31.4
855												
	854.1	36.4	5.0	1:27/1.0 1:50/1.0 1:50/1.0 1:40/1.0 1:40/1.0	(4.9) 98%	(2.6) 52%	RS-4					
850												
	849.1	41.4	5.0	2:20/1.0 1:20/1.0 1:30/1.0 1:35/1.0 2:05/1.0	(4.4) 88%	(2.0) 40%						
845												
	844.1	46.4	5.0	2:10/1.0 2:05/1.0 2:00/1.0 2:00/1.0 2:25/1.0	(5.0) 100%	(5.0) 100%						
840												
	839.1	51.4									839.1 Boring Terminated at Elevation 839.1 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	51.4

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/18/15

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth Street to east of Church Street, Y4_B1A: -Y4- Station 17+40, 43' LT

Begin Run 1
31.4 feet

End Run 1 &
Begin Run 2
36.4 feet

End Run 2
41.4 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

Begin Run 3
41.4 feet

End Run 3 &
Begin Run 4
46.4 feet

End Run 4
51.4 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y4_EB2-C	**STATION** 17+99	**OFFSET** 4 ft LT	**ALIGNMENT** -Y4- / **0 HR.** Dry
COLLAR ELEV. 903.1 ft	**TOTAL DEPTH** 54.9 ft	**NORTHING** 854,616	**EASTING** 1,630,196 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 09/01/15	**COMP. DATE** 09/01/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
905											
	903.1	0.0	1	2	3	5		M		903.1 GROUND SURFACE	0.0
900	899.6	3.5	8	9	7	16		M		**RESIDUAL** ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4)	
895	894.6	8.5	3	3	4	7		M			
890	889.6	13.5	9	16	8	24		M		890.1 GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL, SAPROLITIC	13.0
885	884.6	18.5	6	8	11	19		M			
880	879.6	23.5	10	10	14	24		M			
875	874.6	28.5	17	38	33	71		M			
870	869.6	33.5	22	27	20	47		M			
865	864.6	38.5	17	28	37	65		M			
860	859.6	43.5	35	36	64/0.4	100/0.9				859.1 **WEATHERED ROCK** GRAY, BROWN (BIOTITE GNEISS)	44.0
855	854.6	48.5	16	21	32	53		M		856.1 **RESIDUAL** GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4), SAPROLITIC	47.0
850	849.6	53.5	100/0.2			100/0.2				849.6	53.5
	848.2	54.9	60/0.0			60/0.0				848.2 **WEATHERED ROCK** GRAY (BIOTITE GNEISS) Boring Terminated with Standard Penetration Test Refusal at Elevation 848.2 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)	54.9

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y4_LT#1	**STATION** 35+12	**OFFSET** 83 ft LT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 904.5 ft	**TOTAL DEPTH** 29.7 ft	**NORTHING** 854,700	**EASTING** 1,630,017 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/31/15	**COMP. DATE** 08/31/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
905											
	904.5	0.0	2	5	7	12		M		904.5 GROUND SURFACE	0.0
900	901.0	3.5	6	8	12	20	SS-483	26%		**ROADWAY EMBANKMENT** RED-BROWN, FINE SANDY SILT (A-4) WITH LITTLE CLAY, TRACE GRAVEL, AND ORGANICS	902.5 2.0
895	896.0	8.5	3	4	6	10		M		RED, FINE SANDY SILTY CLAY (A-7-5) WITH TRACE MICA AND ORGANICS	897.5 7.0
890	891.0	13.5	3	6	5	11		M		**RESIDUAL** WHITE-GRAY, SILTY FINE SAND (A-2-4) WITH TRACE MICA	892.5 12.0
885	886.0	18.5	2	4	5	9		M		DARK RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC	
880	881.0	23.5	6	4	6	10		M			
875	876.0	28.5	96	4/0.0		100/0.5				876.0	28.5
	874.8	29.7	60/0.0			60/0.0				874.8 **WEATHERED ROCK** GRAY-WHITE (MICA SCHIST) Boring Terminated with Standard Penetration Test Refusal at Elevation 874.8 ft on CRYSTALLINE ROCK (MICA SCHIST)	29.7

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y4_LT#2	**STATION** 37+65	**OFFSET** 51 ft LT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 887.2 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,772	**EASTING** 1,630,265 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/04/15	**COMP. DATE** 08/04/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
890											
	887.2	0.0								887.2 GROUND SURFACE	0.0
885			1	1	2	3		M		**ROADWAY EMBANKMENT** RED-ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA	
	883.7	3.5								884.2	3.0
			2	4	3	7		M		**RESIDUAL** RED-ORANGE-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	
880											
	878.7	8.5									
			2	3	3	6		M		877.2	10.0
										Boring Terminated at Elevation 877.2 ft in RESIDUAL (SAND)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y4_RT#1	**STATION** 35+10	**OFFSET** 35 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 887.9 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 854,592	**EASTING** 1,630,064 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/14/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
890											
										887.9 GROUND SURFACE	0.0
	886.8	1.1								886.8 ASPHALT AND CONCRETE	1.1
885			9	7	9	16		M		**ROADWAY EMBANKMENT** RED-ORANGE, FINE SANDY SILT (A-4), WITH TRACE COARSE SAND	
	884.4	3.5								884.9	3.0
			4	6	4	10		M		**RESIDUAL** BROWN-ORANGE, FINE SANDY SILT (A-4), SAPROLITIC	
880										881.4	6.5
	879.4	8.5								**WEATHERED ROCK** GRAY (BIOTITE GNEISS)	
			100/0.5			100/0.5				876.6	11.3
875										**RESIDUAL** GRAY, SILTY FINE SAND (A-2-4)	
	874.4	13.5									
			33	35	27	62		D			
870										870.9	17.0
	869.4	18.5								GRAY-TAN, FINE SANDY SILT (A-4)	
			11	13	13	26		M		867.9	20.0
										Boring Terminated at Elevation 867.9 ft in RESIDUAL (SILT)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y4_RT#2	**STATION** 37+82	**OFFSET** 70 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 887.1 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,666	**EASTING** 1,630,326	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/30/15	**COMP. DATE** 07/30/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
890											
	887.1	0.0								887.1 GROUND SURFACE	0.0
885			1	6	6	12		M		**RESIDUAL** ORANGE-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL AND ORGANICS	
	883.6	3.5	3	5	6	11		M		884.1 ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS	3.0
880										879.1 TAN, SILTY FINE SAND (A-2-4)	8.0
	878.6	8.5	4	4	4	8		M		877.1 Boring Terminated at Elevation 877.1 ft in RESIDUAL (SAND)	10.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y5_EB1A	**STATION** 13+64	**OFFSET** 11 ft LT	**ALIGNMENT** -Y5-	**0 HR.** 16.0
COLLAR ELEV. 846.5 ft	**TOTAL DEPTH** 63.6 ft	**NORTHING** 854,934	**EASTING** 1,630,716	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 08/04/15	**COMP. DATE** 08/04/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
850										
										846.5 GROUND SURFACE 0.0
845	845.7	0.8								845.7 ASPHALT 0.8
			3	4	6	10		M		**ARTIFICIAL FILL** RED-BROWN, FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA
	843.0	3.5	3	6	6	12		M		842.0 ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL 4.5
840										
	838.0	8.5	3	5	6	11		M		
835										833.5 ORANGE-BROWN, FINE SANDY CLAY (A-6) 13.0
	833.0	13.5	2	3	2	5		W		
830										828.5 **RESIDUAL** GRAY-BROWN, FINE TO COARSE SAND (A-1-b) WITH TRACE MICA 18.0
	828.0	18.5	6	9	9	18		W		
825										
	823.0	23.5	2	3	3	6		W		822.4 GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC 24.1
820										
	818.0	28.5	2	1	4	5		Sat.		
815										813.5 GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC 33.0
	813.0	33.5	2	2	2	4		W		
810										
	808.0	38.5	2	16	26	42		W		
805										802.5 **WEATHERED ROCK** GRAY (MICA SCHIST) 44.0
	803.0	43.5	24	100/0.2		100/0.2				802.0 **RESIDUAL** GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC 44.5
800										
	798.0	48.5	14	20	23	43				
795										793.0 **WEATHERED ROCK** GRAY (MICA SCHIST) 53.5
	793.0	53.5	100/0.2			100/0.2				
790										789.5 **CRYSTALLINE ROCK** (MICA SCHIST) 57.0
	788.0	58.5	100/0.1			100/0.1				
785										
	783.0	63.5	100/0.1			100/0.1				782.9 Boring Terminated with Standard Penetration Test Refusal at Elevation 782.9 ft in CRYSTALLINE ROCK (MICA SCHIST) 63.6

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/2/15

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y5_EB1B	**STATION** 13+33	**OFFSET** 28 ft RT	**ALIGNMENT** -Y5-	**0 HR.** 27.0
COLLAR ELEV. 845.1 ft	**TOTAL DEPTH** 58.5 ft	**NORTHING** 854,925	**EASTING** 1,630,667	**24 HR.** 15.8
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 09/11/15	**COMP. DATE** 09/11/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
850											
845	845.1	0.0								845.1 GROUND SURFACE	0.0
			4	10	7	17		M		**ROADWAY EMBANKMENT** 843.1 BROWN, SILTY FINE SAND (A-2-4) WITH LITTLE GRAVEL	2.0
	841.6	3.5								RED-BROWN AND YELLOW-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA AND GRAVEL	
840			2	1	2	3		M			
	836.6	8.5									
835			1	2	2	4		W			
										833.1 DARK BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL	12.0
	831.6	13.5									
830			3	3	5	8		W			
										828.1 **ALLUVIAL**	17.0
	826.6	18.5								826.1 BLACK, SILTY CLAY (A-7-5) WITH TRACE ORGANICS, ORGANIC ODOR, AND TRACE GRAVEL	19.0
825			5	7	18	25		W			
	821.6	23.5								821.6 LIGHT BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA NAD GRAVEL	23.5
820			1	2	5	7		W		**RESIDUAL** DARK-BROWN-WHITE, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	
	816.6	28.5									
815			7	9	12	21		W			
	811.6	33.5									
810			7	8	9	17		W			
	806.6	38.5									
805			17	20	33	53		W			
	801.6	43.5									
800			15	18	18	36		W			
	796.6	48.5								796.6 **WEATHERED ROCK** DARK BROWN (BIOTITE GNEISS)	48.5
795			100/0.3			100/0.3					
	791.6	53.5								791.6 **CRYSTALLINE ROCK** (BIOTITE GNEISS)	53.5
790			60/0.0			60/0.0					
	786.6	58.5								786.6 Boring Terminated with Standard Penetration Test Refusal at Elevation 786.6 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	58.5
			60/0.0			60/0.0					

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y5_EB1B1	**STATION** 13+40	**OFFSET** 30 ft RT	**ALIGNMENT** -Y5-	**0 HR.** N/M
COLLAR ELEV. 844.9 ft	**TOTAL DEPTH** 14.0 ft	**NORTHING** 854,919	**EASTING** 1,630,671	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 08/04/15	**COMP. DATE** 08/04/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
845											
	844.9	0.0	7	13	5	18		M		844.9 GROUND SURFACE	0.0
										ARTIFICIAL FILL GRAY-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL	
	841.4	3.5								841.9 ORANGE-GRAY-BROWN, FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA AND GRAVEL	3.0
840			1	1	1	2		W			
	836.4	8.5									
835			2	WOH	1	1		M			
										830.9 Boring Terminated at Elevation 830.9 ft DUE TO POTENTIAL UTILITY	14.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5_EB2A	**STATION** 14+94	**OFFSET** 13 ft LT	**ALIGNMENT** -Y5- / **0 HR.** N/M
COLLAR ELEV. 848.1 ft	**TOTAL DEPTH** 74.3 ft	**NORTHING** 854,851	**EASTING** 1,630,816 / **24 HR.** 19.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/03/15	**COMP. DATE** 08/03/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
865											
860											
855											
850											
	847.3	0.8								848.1 GROUND SURFACE	0.0
			3	10	9	19				847.3 0.4' ASPHALT AND 0.4' CONCRETE	0.8
845	844.6	3.5						M		**ROADWAY EMBANKMENT**	
			3	2	2	4				845.1 RED AND BROWN, FINE TO COARSE SANDY CLAY (A-6) WITH TRACE GRAVEL	3.0
840								M		**RESIDUAL** ORANGE AND BROWN, FINE SANDY SILT (A-4) WITH TRACE CLAY, GRAVEL, AND MICA	
	839.6	8.5									
			2	2	3	5		M			
835	834.6	13.5									
			1	1	2	3		M			
830	829.6	18.5									
			3	1	2	3		W			
825	824.6	23.5								825.1 ORANGE-BROWN AND GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	23.0
			2	4	3	7		Sat.			
820	819.6	28.5									
			2	3	10	13		Sat.			
815	814.6	33.5									
			2	4	6	10		Sat.			
810	809.6	38.5									
			6	9	15	24		W			
805	804.6	43.5									
			13	22	24	46		W			
800	799.6	48.5									
			10	11	16	27		W			
795	794.6	53.5									
			34	24	22	46		W			
790	789.6	58.5									
			10	11	14	25		W			
785											

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5_EB2A	**STATION** 14+94	**OFFSET** 13 ft LT	**ALIGNMENT** -Y5- / **0 HR.** N/M
COLLAR ELEV. 848.1 ft	**TOTAL DEPTH** 74.3 ft	**NORTHING** 854,851	**EASTING** 1,630,816 / **24 HR.** 19.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/03/15	**COMP. DATE** 08/03/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
785						Match Line				
	784.6	63.5	28	24	44	68		W		ORANGE-BROWN AND GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC *(continued)*
780										780.7 67.4
	779.6	68.5	43	42	58/0.5	100/1.0				**WEATHERED ROCK** GRAY (MICA SCHIST)
775										
	774.6	73.5								774.6 73.5
	773.8	74.3	60/0.0			60/0.0				773.8 74.3 **CRYSTALLINE ROCK** (MICA SCHIST)
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 773.8 ft in CRYSTALLINE ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5_EB2B	**STATION** 14+74	**OFFSET** 19 ft RT	**ALIGNMENT** -Y5- / **0 HR.** Dry
COLLAR ELEV. 848.1 ft	**TOTAL DEPTH** 77.5 ft	**NORTHING** 854,840	**EASTING** 1,630,780 / **24 HR.** 19.3
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/05/15	**COMP. DATE** 08/05/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
865											
860											
855											
850											
	848.1	0.0								848.1 GROUND SURFACE	0.0
845			4	2	2	4		M		**ROADWAY EMBANKMENT** RED-BROWN, FINE TO COARSE SANDY CLAY (A-6) WITH TRACE ORGANICS, GRAVEL, AND BRICK FRAGMENTS	
	844.6	3.5									
840			2	2	2	4		M			
	839.6	8.5								838.6	9.5
835			4	4	4	8		M		**RESIDUAL** ORANGE-BROWN, FINE SANDY CLAY (A-4) WITH TRACE GRAVEL AND MICA	
	834.6	13.5									
830			3	2	2	4		M			
	829.6	18.5									
825			1	1	1	2		W			
	824.6	23.5									
820			1	2	2	4		Sat.			
	819.6	28.5									
815			2	2	3	5		Sat.			
	814.6	33.5								813.9	34.2
810			6	6	7	13		Sat.		GRAY-BROWN, SILTY FINE SAND (A-2-4), SAPROLITIC	
	809.6	38.5									
805			4	5	10	15		Sat.			
	804.6	43.5									
800			8	13	14	27		Sat.			
	799.6	48.5									
795			6	10	23	33		Sat.			
	794.6	53.5									
790			8	7	14	21		Sat.			
	789.6	58.5									
785			5	14	22	36		Sat.			

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5_EB2B	**STATION** 14+74	**OFFSET** 19 ft RT	**ALIGNMENT** -Y5- / **0 HR.** Dry
COLLAR ELEV. 848.1 ft	**TOTAL DEPTH** 77.5 ft	**NORTHING** 854,840	**EASTING** 1,630,780 / **24 HR.** 19.3
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/05/15	**COMP. DATE** 08/05/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
785						Match Line				
	784.6	63.5	6	21	35	56		Sat.		GRAY-BROWN, SILTY FINE SAND (A-2-4), SAPROLITIC *(continued)*
										781.3 / 66.8
780	779.6	68.5	100/0.2			100/0.2				**WEATHERED ROCK** GRAY AND BROWN (MICA SCHIST)
775	774.6	73.5	60/0.1			60/0.1				774.6 / 73.5 **CRYSTALLINE ROCK** GRAY (MICA SCHIST)
	770.7	77.4	60/0.1			60/0.1				770.6 / 77.5 Boring Terminated with Standard Penetration Test Refusal at Elevation 770.6 ft in CRYSTALLINE ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5_LT#1	**STATION** 39+99	**OFFSET** 44 ft LT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 880.0 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 854,849	**EASTING** 1,630,488 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/15/15	**COMP. DATE** 08/15/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
880										880.0 GROUND SURFACE	0.0
	878.7	1.3								878.7 ASPHALT	1.3
			2	2	2	4		W		**ROADWAY EMBANKMENT** RED-ORANGE-BROWN, CLAYEY FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL	
	876.5	3.5									
875			3	2	2	4		M			
	871.5	8.5								872.0	8.0
870			2	2	2	4	SS-134	30%		RED-BROWN AND GRAY, SILTY FINE TO COARSE SANDY CLAY (A-7-6) WITH TRACE ORGANICS	
	866.5	13.5									
865			2	1	2	3		W			
	863.0	17.0								**RESIDUAL** RED-ORANGE-BROWN, FINE SANDY SILT (A-4)	
	861.5	18.5									
860			3	4	4	8		M		860.0 Boring Terminated at Elevation 860.0 ft in RESIDUAL (SILT)	20.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5_LT#2	**STATION** 41+00	**OFFSET** 51 ft LT	**ALIGNMENT** -L- / **0 HR.** N/M
COLLAR ELEV. 848.0 ft	**TOTAL DEPTH** 63.9 ft	**NORTHING** 854,889	**EASTING** 1,630,582 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/28/15	**COMP. DATE** 08/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
850										
	848.0	0.0								848.0 GROUND SURFACE 0.0
			1	3	10	13	SS-215	19%		**ARTIFICIAL FILL** GRAY-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE ORGANICS AND GRAVEL
845	844.5	3.5								
			1	2	3	5		M		
840	839.5	8.5								
			WOH	WOH	1	1		W		
835	834.5	13.5								835.0 13.0
			1	2	1	3		W		**RESIDUAL** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC
830	829.5	18.5								
			WOH	1	1	2		W		
825	824.5	23.5								
			1	1	2	3		W		
820	819.5	28.5								
			2	3	5	8		W		
815	814.5	33.5								
			2	3	6	9		W		
810	809.5	38.5								
			5	9	9	18		W		
805	804.5	43.5								805.0 43.0
			19	26	41	67		W		GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4)
800	799.5	48.5								
			25	27	42	69		W		
795	794.5	53.5								
			15	27	35	62		W		
790	789.5	58.5								789.0 59.0
			42	51	49/0.5	100/1.0				**WEATHERED ROCK** (MICA SCHIST)
785	784.5	63.5								784.1 63.9
			100/0.4			100/0.4				Boring Terminated at Elevation 784.1 ft in WEATHERED ROCK (MICA SCHIST)

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/18/15

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5_RT#1	**STATION** 39+33	**OFFSET** 60 ft RT	**ALIGNMENT** -L-	**0 HR.** FIAD
COLLAR ELEV. 881.2 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,729	**EASTING** 1,630,461	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/12/15	**COMP. DATE** 08/12/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
885											
	881.2	0.0								881.2 GROUND SURFACE	0.0
880			1	5	5	10		M		**ROADWAY EMBANKMENT** ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL AND ASPHALT	
	877.7	3.5								878.2 RED-ORANGE-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA, GRAVEL, AND ORGANICS	3.0
875			2	3	3	6	SS-111	24%			
	872.7	8.5									
			5	6	6	12		M		871.2	10.0
										Boring Terminated at Elevation 871.2 ft in ROADWAY EMBANKMENT (CLAY)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5_RT#2	**STATION** 40+76	**OFFSET** 41 ft RT	**ALIGNMENT** -L-	**0 HR.** FIAD
COLLAR ELEV. 875.1 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 854,794	**EASTING** 1,630,589	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/12/15	**COMP. DATE** 08/12/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
880										
875										875.1 GROUND SURFACE 0.0
										0.8' ASPHALT AND 1.0' ABC STONE
	873.3	1.8								873.3 1.8
			5	4	3	7		M		**ROADWAY EMBANKMENT** RED-ORANGE-BROWN, CLAYEY FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA, GRAVEL, AND ASPHALT
	871.6	3.5								
870			2	2	2	4		M		
	866.6	8.5								
865			1	2	2	4		M		
	861.6	13.5								
860			2	2	1	3		M		
	856.6	18.5								
855			2	2	3	5		M		
	851.6	23.5								
			2	3	3	6		M		850.1 25.0
										Boring Terminated at Elevation 850.1 ft in ROADWAY EMBANKMENT (SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5_RT#3	**STATION** 41+86	**OFFSET** 63 ft RT	**ALIGNMENT** -L- / **0 HR.** N/A
COLLAR ELEV. 839.4 ft	**TOTAL DEPTH** 63.6 ft	**NORTHING** 854,807	**EASTING** 1,630,699 / **24 HR.** 17.3
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/31/15	**COMP. DATE** 08/31/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
840											
	839.4	0.0	2	2	2	4		M		839.4 GROUND SURFACE	0.0
835	835.9	3.5	7	12	9	21		M		**ARTIFICIAL FILL** GRAY-BROWN AND BLACK, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL, ORGANICS, AND PLASTIC	
830	830.9	8.5	1	2	1	3		M			
825	825.9	13.5	WOH	WOH	1	1		M		826.4 **ALLUVIAL** BLACK-GRAY, FINE TO COARSE SANDY CLAY (A-7-5) WITH TRACE ORGANICS AND ORGANIC ODOR	13.0
820	820.9	18.5	17	2	3	5		W		821.4 **RESIDUAL** GRAY-BROWN AND ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC	18.0
815	815.9	23.5	2	3	2	5		W			
810	810.9	28.5	11	11	17	28		W		811.4 TAN-BROWN, SILTY FINE TO COARSE SAND (A-2-4)	28.0
805	805.9	33.5	3	4	5	9		W		806.4 GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA	33.0
800	800.9	38.5	5	6	8	14		W			
795	795.9	43.5	6	9	14	23		W			
790	790.9	48.5	4	6	10	16		W			
785	785.9	53.5	75	25/0.2		100/0.7				787.4 **WEATHERED ROCK** GRAY-BROWN (MICA SCHIST)	52.0
780	780.9	58.5	23	100/0.5		100/0.5					
	775.9	63.5	60/0.1			60/0.1				775.8 Boring Terminated with Standard Penetration Test Refusal at Elevation 775.8 ft on CRYSTALLINE ROCK (MICA SCHIST)	63.6

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5A_#1	**STATION** 11+65	**OFFSET** 45 ft RT	**ALIGNMENT** -Y5A- / **0 HR.** Dry
COLLAR ELEV. 862.1 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 854,767	**EASTING** 1,631,037 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/31/15	**COMP. DATE** 08/31/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
865										
	862.1	0.0	1	3	2	5		M		862.1 GROUND SURFACE 0.0
860	858.6	3.5	1	2	2	4		M		**ROADWAY EMBANKMENT** RED-BROWN, FINE SANDY SILTY CLAY (A-7-5)
855	853.6	8.5	1	1	1	2	SS-225	16%		854.1 ORANGE-BROWN, SILTY CLAYEY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL 8.0
850	848.6	13.5	4	5	6	11		W		847.1 Boring Terminated at Elevation 847.1 ft in ROADWAY EMBANKMENT (SAND) 15.0

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/2/15

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5A_#2	**STATION** 12+90	**OFFSET** 40 ft RT	**ALIGNMENT** -Y5A- / **0 HR.** Dry
COLLAR ELEV. 874.1 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,789	**EASTING** 1,631,160 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/31/15	**COMP. DATE** 08/31/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
875											
	873.8	0.3								874.1 / 873.8 GROUND SURFACE	0.0 / 0.3
			4	3	3	6		M		ASPHALT	
870	870.6	3.5								**ROADWAY EMBANKMENT** RED-BROWN, SILTY CLAY (A-7-5)	
			4	4	3	7		M			
865	865.6	8.5								866.1 RED-BROWN, FINE TO COARSE SANDY CLAY (A-6)	8.0
			4	6	5	11		M		864.1	10.0

Boring Terminated at Elevation 864.1 ft in ROADWAY EMBANKMENT (CLAY)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y5A_#3	**STATION** 14+15	**OFFSET** 35 ft RT	**ALIGNMENT** -Y5A- / **0 HR.** Dry
COLLAR ELEV. 884.4 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,811	**EASTING** 1,631,283 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/31/15	**COMP. DATE** 08/31/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
	884.0	0.4								884.4 / 884.0 GROUND SURFACE / ASPHALT 0.0 / 0.4
			4	3	3	6	SS-222	21%		
880	880.9	3.5								881.4 **ROADWAY EMBANKMENT** RED-BROWN, FINE SANDY SILTY CLAY (A-7-5) 3.0
			3	4	5	9		M		ORANGE-RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL AND MICA
875	875.9	8.5								876.4 8.0
			7	12	15	27		M		**RESIDUAL** ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH SOME GRAVEL 874.4 10.0

Boring Terminated at Elevation 874.4 ft in RESIDUAL (SILT)

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/2/15

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y6_LT#1	**STATION** 46+50	**OFFSET** 35 ft LT	**ALIGNMENT** -L-
COLLAR ELEV. 859.1 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,034	**EASTING** 1,631,115
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/15/15	**COMP. DATE** 08/15/15	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft): 0 HR. Dry; 24 HR. FIAD

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
860										859.1 GROUND SURFACE	0.0
	858.0	1.1								858.0 ASPHALT AND CONCRETE	1.1
			7	3	5	8		M		**RESIDUAL** ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA	
855	855.6	3.5	4	4	4	8		M			
850	850.6	8.5	2	4	6	10		M		849.1	10.0

Boring Terminated at Elevation 849.1 ft in RESIDUAL (SILT)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y6_LT#2	**STATION** 47+50	**OFFSET** 35 ft LT	**ALIGNMENT** -L-
COLLAR ELEV. 861.5 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,062	**EASTING** 1,631,211
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/14/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft): 0 HR. Dry; 24 HR. FIAD

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
865										861.5 GROUND SURFACE 0.0
860	860.4	1.1								859.9 0.1' ASPHALT, 1.0' CONCRETE, AND 0.5' ABC STONE 1.6
			5	4	3	7		M		
	858.0	3.5								858.0 **ROADWAY EMBANKMENT** ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA 3.5
			2	10	9	19		M		**RESIDUAL** ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA
855	853.0	8.5	5	7	8	15		M		851.5 10.0

Boring Terminated at Elevation 851.5 ft in RESIDUAL (SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_LT#3	**STATION** 48+52	**OFFSET** 58 ft LT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 886.5 ft	**TOTAL DEPTH** 10.2 ft	**NORTHING** 855,113	**EASTING** 1,631,302 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/04/15	**COMP. DATE** 08/04/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
890											
										886.5 GROUND SURFACE	0.0
885	885.8	0.7	3	3	2	5		W		885.8 CONCRETE 0.0'-0.7'	0.7
	883.0	3.5	3	1	2	3		W		**ROADWAY EMBANKMENT** RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE CLAY AND SOME GRAVEL	
880	879.3	7.2								879.5	7.0
	878.0	8.5	42	58/0.0		100/0.5				878.0 **WEATHERED ROCK** GRAY-WHITE (BIOTITE GNEISS)	8.5
	876.3	10.2	12 / 60/0.0	25	100/0.4	100/0.4 60/0.0		D		877.0 **RESIDUAL** RED-YELLOW, SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL	9.5
										876.3 **WEATHERED ROCK** GRAY-WHITE (BIOTITE GNEISS)	10.2
										Boring Terminated with Standard Penetration Test Refusal at Elevation 876.3 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_LT#4	**STATION** 49+50	**OFFSET** 30 ft LT	**ALIGNMENT** -L- / **0 HR.** N/M
COLLAR ELEV. 871.5 ft	**TOTAL DEPTH** 5.9 ft	**NORTHING** 855,114	**EASTING** 1,631,404 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/14/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
875										
										871.5 GROUND SURFACE 0.0
870	870.5	1.0								870.0 0.1' ASPHALT, 0.9' CONCRETE, AND 0.5' ABC STONE 1.5
	868.0	3.5	9	13	7	20		M		868.0 **ROADWAY EMBANKMENT** GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL AND MICA 3.5
	865.6	5.9	100/0.5 / 60/0.0			100/0.5 60/0.0				865.7 865.6 **WEATHERED ROCK** GRAY AND TAN (MICA SCHIST) 5.8 5.9
										CRYSTALLINE ROCK (MICA SCHIST)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 865.6 ft in CRYSTALLINE ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_LT#5	**STATION** 52+23	**OFFSET** 34 ft LT	**ALIGNMENT** -L- / **0 HR.** N/M
COLLAR ELEV. 885.3 ft	**TOTAL DEPTH** 7.7 ft	**NORTHING** 855,196	**EASTING** 1,631,664 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/14/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
890											
885										885.3 GROUND SURFACE	0.0
	884.4	0.9								884.4 0.1' ASPHALT AND 0.8' CONCRETE	0.9
			7	8	5	13		M		**ROADWAY EMBANKMENT** BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE ORGANICS AND MICA	
	881.8	3.5									
880			2	5	8	13		M			
	877.7	7.6	60/0.1			60/0.1				877.8	7.5
										877.6 **CRYSTALLINE ROCK** (MICA SCHIST)	7.7

Boring Terminated with Standard Penetration Test Refusal at Elevation 877.6 ft in CRYSTALLINE ROCK (MICA SCHIST)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_LT#6	**STATION** 54+79	**OFFSET** 51 ft LT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 895.5 ft	**TOTAL DEPTH** 11.9 ft	**NORTHING** 855,285	**EASTING** 1,631,905 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/02/15	**COMP. DATE** 09/02/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
900										
895	895.5	0.0								895.5 GROUND SURFACE 0.0
			2	4	8	12		M		**ROADWAY EMBANKMENT** RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL, MICA, AND ORGANICS 893.5 2.0
	892.0	3.5								
			5	20	75	95		M		RED, CLAYEY SILT (A-5) WITH LITLE FINE SAND, TRACE MICA, AND ORGANICS 891.4 4.1
890										**RESIDUAL** BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND GRAVEL, SAPROLITIC 887.0 8.5
	887.0	8.5	100/0.3			100/0.3				
885										
	883.6	11.9	60/0.0			60/0.0				**WEATHERED ROCK** BROWN (BIOTITE GNEISS) 883.6 11.9

Boring Terminated with Standard Penetration Test Refusal at Elevation 883.6 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y8B_LT#7	**STATION** 55+38	**OFFSET** 56 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 894.7 ft	**TOTAL DEPTH** 21.7 ft	**NORTHING** 855,306	**EASTING** 1,631,960	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 09/08/15	**COMP. DATE** 09/08/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
895											
	894.7	0.0	3	5	6	11		M		894.7 GROUND SURFACE	0.0
										ROADWAY EMBANKMENT BROWN, SILTY FINE SANDY CLAY (A-6) WITH LITTLE GRAVEL AND TRACE ORGANICS	
	891.2	3.5	3	4	2	6		M		891.7	3.0
890										RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL	
										887.7	7.0
	886.2	8.5	15	19	40	59		M		**RESIDUAL** RED-BROWN-GRAY, SILTY FINE SAND (A-2-4) WIH TRACE MICA, SAPROLITIC	
885											
	881.2	13.5	88	12/0.0		100/0.5				881.2	13.5
880										**WEATHERED ROCK** WHITE-GRAY-BROWN (BIOTITE GNEISS)	
	876.2	18.5	60/0.0			60/0.0				876.2	18.5
875										**CRYSTALLINE ROCK** (BIOTITE GNEISS)	
	873.0	21.7	60/0.0			60/0.0				873.0	21.7
										Boring Terminated with Standard Penetration Test Refusal at Elevation 873.0 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y8B_LT#8	**STATION** 57+00	**OFFSET** 45 ft LT	**ALIGNMENT** -L-	**0 HR.** 24.8
COLLAR ELEV. 856.5 ft	**TOTAL DEPTH** 28.0 ft	**NORTHING** 855,337	**EASTING** 1,632,124	**24 HR.** 14.0
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 08/07/15	**COMP. DATE** 08/07/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
860											
	856.3	0.2								856.5 GROUND SURFACE	0.0
										ASPHALT	0.2
855			7	5	7	12		M		**ARTIFICIAL FILL** ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL	
	853.0	3.5								853.5	3.0
			6	4	3	7		M		GRAY-BROWN, FINE TO COARSE SANDY CLAY (A-6) WITH TRACE ORGANICS AND GRAVEL	
850										848.5	8.0
	848.0	8.5	7	8	6	14		M		GRAY-BROWN, SILTY CLAY (A-7-5) WITH TRACE WOOD FRAGMENTS	
845											
	843.0	13.5	1	1	11	12		W		843.5	13.0
										GRAY-BROWN, COARSE SAND (A-1-b) WITH SOME GRAVEL, CLAY, AND TRACE ORGANICS	
840										838.5	18.0
	838.0	18.5	32	42	16	58		Sat.		**RESIDUAL** GRAY-BROWN, COARSE SAND (A-1-b) WITH SOME GRAVEL	
835											
	833.0	23.5	1	11	100/0.4	100/0.4				832.0	24.5
										WEATHERED ROCK GRAY AND BROWN (BIOTITE GNEISS)	
830										828.9	27.6
	828.5	28.0	60/0.0			60/0.0				828.5 **CRYSTALLINE ROCK** GRAY AND BROWN (BIOTITE GNEISS)	28.0
										Boring Terminated with Standard Penetration Test Refusal at Elevation 828.5 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y7_RT#1	**STATION** 47+13	**OFFSET** 59 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 867.4 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 854,962	**EASTING** 1,631,202	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 08/31/15	**COMP. DATE** 08/31/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
870											
	867.4	0.0								867.4 GROUND SURFACE	0.0
			2	7	5	12		M		**ROADWAY EMBANKMENT**	
865										865.4 DARK BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL, BRICK, CLAY AND ORGANICS	2.0
	863.9	3.5	11	12	19	31		D		RED, FINE TO COARSE SANDY SILTY CLAY (A-7-5) WITH TRACE GRAVEL	
860										860.4 **RESIDUAL**	7.0
	858.9	8.5	6	5	6	11		M		RED-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA AND GRAVEL	
855											
	853.9	13.5	11	14	14	28		M		852.4	15.0
										Boring Terminated at Elevation 852.4 ft in RESIDUAL (SAND)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y7_RT#2	**STATION** 48+03	**OFFSET** 66 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 884.3 ft	**TOTAL DEPTH** 15.2 ft	**NORTHING** 854,981	**EASTING** 1,631,290	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 09/09/15	**COMP. DATE** 09/09/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
	884.1	0.2								884.3 GROUND SURFACE 0.0
			8	4	3	7		M		883.1 0.2' ASPHALT AND 1.0' ABC STONE 1.2
										882.3 **ROADWAY EMBANKMENT** 2.0
880	880.8	3.5	3	3	2	5		W		GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL
										RED-BROWN, FINE SANDY CLAY (A-6) WITH TRACE GRAVEL AND ORGANICS
										877.3 7.0
875	875.8	8.5	5	6	8	14		M		RED-BROWN, CLAYEY FINE TO COARSE SAND (A-2-6) WITH LITTLE GRAVEL
	870.8	13.5								870.8 13.5
870			49	51/0.2		100/0.7				
	869.1	15.2	60/0.0			60/0.0				869.1 **WEATHERED ROCK** 15.2
										GRAY-BROWN (BIOTITE GNEISS)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 869.1 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_RT#3	**STATION** 49+10	**OFFSET** 35 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 869.0 ft	**TOTAL DEPTH** 2.6 ft	**NORTHING** 855,034	**EASTING** 1,630,983	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/14/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
870											
										869.0 GROUND SURFACE	0.0
										ASPHALT AND CONCRETE	
	868.2	0.8	7	5	100/0.2			M		868.2	0.8
										ROADWAY EMBANKMENT RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE COARSE SAND AND GRAVEL	
						100/0.2				867.2	1.8
										866.9 **WEATHERED ROCK** GRAY (BIOTITE GNEISS)	2.1
	866.4	2.6	60/0.0			60/0.0				866.4 **CRYSTALLINE ROCK** (BIOTITE GNEISS)	2.6
										Boring Terminated at Elevation 866.4 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_RT#4	**STATION** 52+09	**OFFSET** 45 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 885.7 ft	**TOTAL DEPTH** 8.4 ft	**NORTHING** 855,116	**EASTING** 1,631,673	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/17/15	**COMP. DATE** 09/17/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
890										
										885.7 GROUND SURFACE 0.0
885	885.7	0.0	WOH	4	20	24		M		884.9 **ROADWAY EMBANKMENT** 0.8 RED-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE CLAY AND GRAVEL
	882.2	3.5	11	9	10	19		M		**RESIDUAL** GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL, AND MICA, SAPROLITIC
880	877.3	8.4	60/0.0			60/0.0				877.3 8.4
										Boring Terminated with Standard Penetration Test Refusal at Elevation 877.3 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_RT#5	**STATION** 54+61	**OFFSET** 45 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 892.3 ft	**TOTAL DEPTH** 10.3 ft	**NORTHING** 855,187	**EASTING** 1,631,915 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/18/15	**COMP. DATE** 09/18/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
895											
	892.3	0.0								892.3 GROUND SURFACE	0.0
			4	4	11	15		M		**ROADWAY EMBANKMENT** RED-BROWN, CLAYEY FINE SAND (A-2-6) WITH TRACE GRAVEL	
890										890.3 GRAY-DARK BROWN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL	2.0
	888.8	3.5	38	92	8/0.0	100/0.5				888.3 **WEATHERED ROCK** BROWN-WHITE (BIOTITE GNEISS)	4.0
885										885.3 **RESIDUAL** RED-DARK BROWN, SILTY FINE SAND (A-2-4) WITH LITTLE MICA, SAPROLITIC	7.0
	883.8	8.5	8	18	100/0.4			M		882.8 **WEATHERED ROCK** BROWN (BIOTITE GNEISS)	9.5
	882.0	10.3	60/0.0			100/0.4 60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 882.0 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)	10.3

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_RT#6	**STATION** 55+97	**OFFSET** 45 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 880.4 ft	**TOTAL DEPTH** 15.4 ft	**NORTHING** 855,194	**EASTING** 1,632,001 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/18/15	**COMP. DATE** 09/18/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
880	880.4	0.0								880.4 GROUND SURFACE 0.0
			8	19	10	29		M		**ROADWAY EMBANKMENT** RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH LITTLE GRAVEL, TRACE ORGANICS
	876.9	3.5								875.8 4.6
875			4	6	6	12		M		**RESIDUAL** DARK RED TO LIGHT BROWN-GRAY, SILTY FINE SAND (A-2-4) WITH LITTLE MICA AND TRACE TO LITTLE GRAVEL, SAPROLITIC
	871.9	8.5								
870			30	9	7	16		M		
	866.9	13.5								866.4 14.0
865	865.0	15.4	7	32	68/0.3	100/0.8				865.0 **WEATHERED ROCK** LIGHT BROWN (BIOTITE GNEISS) 15.4
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 865.0 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y8B_RT#7	**STATION** 57+00	**OFFSET** 45 ft RT	**ALIGNMENT** -L- / **0 HR.** N/M
COLLAR ELEV. 853.5 ft	**TOTAL DEPTH** 40.0 ft	**NORTHING** 855,245	**EASTING** 1,632,131 / **24 HR.** 13.0
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/20/15	**COMP. DATE** 08/20/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
855											
	853.4	0.1								853.5 GROUND SURFACE	0.0
			12	4	4	8		M		852.9 0.1' ASPHALT AND 0.5' ABC STONE	0.6
850	850.0	3.5								**ARTIFICIAL FILL** RED-ORANGE-BROWN, FINE SANDY CLAYEY SILT (A-5) WITH TRACE ORGANICS AND MICA	850.5 3.0
			4	5	6	11		M		ORANGE-GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA	845.5 8.0
845	845.0	8.5								**RESIDUAL** GRAY-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE ORGANICS	
			1	1	1	2	SS-160	32%			
840	840.0	13.5								ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA	840.5 13.0
			2	1	2	3		Sat.			
835	835.0	18.5									
			2	3	3	6		W			
830	830.0	23.5									
			2	4	4	8		W			
825	825.0	28.5									
			2	2	12	14		W			
820	820.0	33.5								820.0 **WEATHERED ROCK** GRAY-BROWN (BIOTITE GNEISS)	33.5
			42	52	48/0.2	100/0.7					
815	815.0	38.5								816.0 **RESIDUAL** ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL	37.5
			8	10	17	27		Sat.		813.5 Boring Terminated at Elevation 813.5 ft in RESIDUAL (SILT)	40.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_EB1A	**STATION** 14+70	**OFFSET** 43 ft LT	**ALIGNMENT** -Y7- / **0 HR.** 18.3
COLLAR ELEV. 882.1 ft	**TOTAL DEPTH** 44.9 ft	**NORTHING** 855,168	**EASTING** 1,631,581 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/14/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
										882.1 GROUND SURFACE 0.0
	881.0	1.1								881.0 ASPHALT AND CONCRETE 1.1
880			6	13	11	24		M		**ROADWAY EMBANKMENT** ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH SOME GRAVEL 879.1 3.0
	878.6	3.5								
			15	12	7	19		M		GRAY-TAN-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH LITTLE GRAVEL, TRACE MICA, AND ORGANICS
875										
	873.6	8.5								
			3	5	7	12		M		
870										
	868.6	13.5								869.1 13.0 **RESIDUAL** GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA
			5	5	8	13		W		
865										
	863.6	18.5								
			3	3	4	7		Sat.		
860										
	858.6	23.5								
			4	9	13	22		Sat.		
855										
	853.6	28.5								853.1 29.0 **WEATHERED ROCK** GRAY-BROWN (BIOTITE GNEISS)
			21	70	30/0.1	100/0.6				
850										
	848.6	33.5								849.1 33.0 **RESIDUAL** GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA
			23	23	23	46		Sat.		
845										
	843.6	38.5								
			7	8	15	23		Sat.		
840										
	838.6	43.5								839.1 43.0 **WEATHERED ROCK** GRAY-BROWN (BIOTITE GNEISS) 837.4 44.7
	837.2	44.9	100/0.3			100/0.3				837.2 44.9 **CRYSTALLINE ROCK** (BIOTITE GNEISS)
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 837.2 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_EB1B	**STATION** 14+51	**OFFSET** 31 ft RT	**ALIGNMENT** -Y7- / **0 HR.** 41.6
COLLAR ELEV. 902.2 ft	**TOTAL DEPTH** 55.4 ft	**NORTHING** 855,177	**EASTING** 1,631,505 / **24 HR.** 33.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/08/15	**COMP. DATE** 09/08/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
905										
	902.2	0.0								902.2 GROUND SURFACE 0.0
900			1	2	2	4		M		**ROADWAY EMBANKMENT** RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, CLAY, TRACE TO LITTLE GRAVEL, AND TRACE ORGANICS
	898.7	3.5	3	3	3	6		M		
895										
	893.7	8.5	2	3	3	6		M		
890										
	888.7	13.5	2	1	3	4		M		
885										885.2 17.0
	883.7	18.5	3	4	5	9		M		**RESIDUAL** DARK-BROWN-BLACK, SILTY FINE SAND (A-2-4) WITH TRACE MICA AND GRAVEL, SAPROLITIC
880										
	878.7	23.5	7	6	6	12		M		
875										
	873.7	28.5	4	7	7	14		M		
870										
	868.7	33.5	6	7	8	15		W		
865										
	863.7	38.5	4	6	19	25		W		
860										
	858.7	43.5	9	9	17	26		W		
855										
	853.7	48.5	22	28	41	69		W		
850										
	848.7	53.5	12	40	100/0.2	100/0.2				847.7 54.5
	846.8	55.4	60/0.0			60/0.0				846.8 55.4 **WEATHERED ROCK** BROWN (BIOTITE GNEISS)

Boring Terminated with Standard Penetration Test Refusal at Elevation 846.8 ft on CRYSTALLINE ROCK (BIOTITE GNEISS AND SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_B1-B	**STATION** 15+16	**OFFSET** 33 ft RT	**ALIGNMENT** -Y7- / **0 HR.** Dry
COLLAR ELEV. 881.0 ft	**TOTAL DEPTH** 31.4 ft	**NORTHING** 855,113	**EASTING** 1,631,512 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/13/15	**COMP. DATE** 08/13/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
885											
880	879.9	1.1								881.0 GROUND SURFACE	0.0
			7	11	8	19 26		M		879.9 ASPHALT AND CONCRETE	1.1
	877.5	3.5	3	10	16			M		878.0 **ROADWAY EMBANKMENT** YELLOW-BROWN-GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL AND MICA	3.0
875										**RESIDUAL** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC	8.2
	872.5	8.5	60/0.1			60/0.1				872.8	
870										871.5 **CRYSTALLINE ROCK** DARK BROWN (BIOTITE GNEISS)	9.5
	868.6	12.4	60/0.0			60/0.0				869.7 **RESIDUAL** DARK BROWN, FINE SAND (A-3)	11.3
865							RS-3			868.6 **CRYSTALLINE ROCK** (BIOTITE GNEISS) (BIOTITE GNEISS)	12.4
860											
855											
850										849.6 Boring Terminated at Elevation 849.6 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	31.4

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/5/15

GEOTECHNICAL BORING REPORT
CORE LOG

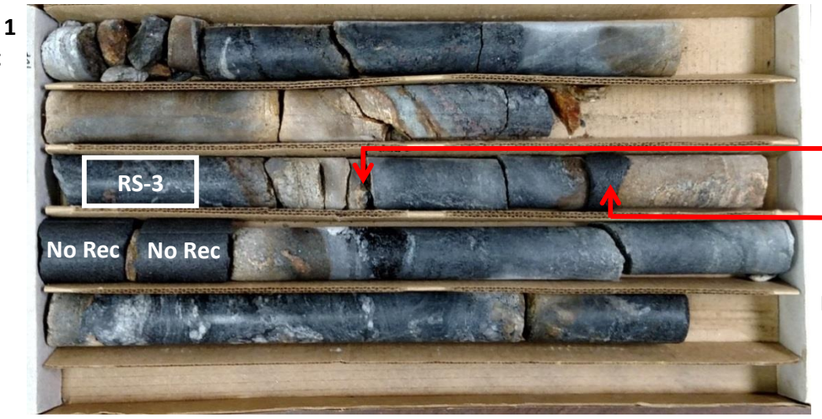
WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_B1-B	**STATION** 15+16	**OFFSET** 33 ft RT	**ALIGNMENT** -Y7- / **0 HR.** Dry
COLLAR ELEV. 881.0 ft	**TOTAL DEPTH** 31.4 ft	**NORTHING** 855,113	**EASTING** 1,631,512 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/13/15	**COMP. DATE** 08/13/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 19.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
868.6											Begin Coring @ 12.4 ft	
	868.6	12.4	4.0	2:55/1.0 2:58/1.0 3:03/1.0 2:36/1.0	(3.8) 95%	(2.2) 55%		(16.8) 88%	(14.1) 74%		868.6 GRAY, SLIGHTLY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD BIOTITE GNEISS WITH CLOSE TO MODERATELY CLOSE FRACTURE SPACING RS-3: 16.0'-16.3', qu=7,225 psi, R1=4, R2=13, R3=10, R4=20, R5=7 RMR=54, ROCK TYPE=E	12.4
865	864.6	16.4										
			5.0	2:16/1.0 1:46/1.0 1:54/1.0 2:19/1.0 2:29/1.0	(4.3) 86%	(3.6) 72%	RS-3					
860	859.6	21.4										
			5.0	2:39/1.0 3:09/1.0 3:34/1.0 2:39/1.0 2:37/1.0	(3.7) 74%	(3.4) 68%						
855	854.6	26.4										
			5.0	3:10/1.0 3:15/1.0 3:48/1.0 4:19/1.0 3:31/1.0	(5.0) 100%	(4.9) 98%						
850	849.6	31.4									849.6 Boring Terminated at Elevation 849.6 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	31.4

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/5/15

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth Street to east of Church Street, Y7_B1B: -Y7- Station 15+16, 33' RT

Begin Run 1
12.4 feet



End Run 1 &
Begin Run 2
16.4 feet

No Recovery

End Run 2
21.4 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

Begin Run 3
21.4 feet

End Run 3 &
Begin Run 4
26.4 feet

End Run 4
31.4 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_EB2A	**STATION** 15+66	**OFFSET** 38 ft LT	**ALIGNMENT** -Y7- / **0 HR.** 36.0
COLLAR ELEV. 901.3 ft	**TOTAL DEPTH** 53.6 ft	**NORTHING** 855,072	**EASTING** 1,631,589 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/17/15	**COMP. DATE** 09/17/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
905											
	901.3	0.0								901.3 GROUND SURFACE	0.0
900			8	13	13	26		M		**ROADWAY EMBANKMENT** RED-BROWN, SILTY FINE SAND (A-2-4) WITH LITTLE CLAY, TRACE TO SOME GRAVEL, AND TRACE ORGANICS	
	897.8	3.5									
			3	2	3	5		M			
895											
	892.8	8.5									
			2	4	3	7		M			
890											
	887.8	13.5									
			1	2	1	3		M			
885										884.3	17.0
	882.8	18.5								RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE CLAY, MICA, AND ORGANICS	
			2	1	2	3		M			
880											
	877.8	23.5									
			1	1	3	4		M			
875										874.3	27.0
	872.8	28.5								**RESIDUAL** DARK BROWN TO YELLOW-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITC	
			13	21	28	49		M			
870											
	867.8	33.5									
			8	10	11	21		W			
865											
	862.8	38.5									
			9	9	11	20		W			
860											
	857.8	43.5								857.3	44.0
			34	40	60/0.3	100/0.8				**WEATHERED ROCK** YELLOW-BROWN (BIOTITE GNEISS)	
855											
	852.8	48.5									
			40	80	20/0.1	100/0.6					
850											
	847.8	53.5								847.8 / 847.7	53.5 / 53.6
			60/0.1			60/0.1				**CRYSTALLINE ROCK** (BIOTITE GNEISS) Boring Terminated with Standard Penetration Test Refusal at Elevation 847.7 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7_EB2B	**STATION** 15+64	**OFFSET** 19 ft RT	**ALIGNMENT** -Y7- / **0 HR.** Dry
COLLAR ELEV. 899.2 ft	**TOTAL DEPTH** 26.2 ft	**NORTHING** 855,067	**EASTING** 1,631,532 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/09/15	**COMP. DATE** 09/09/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
900											
	899.2	0.0								899.2 GROUND SURFACE	0.0
			2	3	3	6		M		**ROADWAY EMBANKMENT** DARK BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE TO SOME GRAVEL, TRACE MICA, AND ROOTS	
895	895.7	3.5									
			1	2	1	3		M			
890	890.7	8.5									
			2	3	2	5		M			
885	885.7	13.5									
			2	1	2	3		M			
880	880.7	18.5									
			4	4	2	6		M			
875	875.7	23.5									
			3	3	3	6		M			
	873.0	26.2	60/0.0			60/0.0				873.0	26.2
										Boring Terminated with Standard Penetration Test Refusal at Elevation 873.0 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7RB_LT#1	**STATION** 11+65	**OFFSET** 22 ft LT	**ALIGNMENT** -Y7RB- / **0 HR.** Dry
COLLAR ELEV. 862.5 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,002	**EASTING** 1,630,891 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/28/15	**COMP. DATE** 08/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
865											
	862.5	0.0								862.5 GROUND SURFACE	0.0
			5	9	9	18		D		**ROADWAY EMBANKMENT** BROWN, SILTY FINE SAND (A-2-4) WITH TRACE ROOTS	
860										860.5	2.0
	859.0	3.5	6	14	14	28		D		RED, FINE TO COARSE SANDY SILTY CLAY (A-7-5) WITH TRACE GRAVEL	
855										855.5	7.0
	854.0	8.5	8	6	7	13		M		**RESIDUAL** RED-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA	
										852.5	10.0

Boring Terminated at Elevation 852.5 ft in RESIDUAL (SAND)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7RB_LT#2	**STATION** 12+60	**OFFSET** 10 ft LT	**ALIGNMENT** -Y7RB- / **0 HR.** Dry
COLLAR ELEV. 864.8 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,034	**EASTING** 1,630,983 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/27/15	**COMP. DATE** 08/27/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
865										
	864.0	0.8								864.8 GROUND SURFACE 0.0
			7	3	4	7		M		864.0 ASPHALT AND CONCRETE 0.8
	861.3	3.5								**ROADWAY EMBANKMENT** RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND GRAVEL
860			2	1	2	3		M		
										857.8 7.0
	856.3	8.5								**RESIDUAL** GRAY-DARK BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC
855			5	6	8	14		M		854.8 10.0

Boring Terminated at Elevation 854.8 ft in RESIDUAL (SAND)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7RB_LT#3	**STATION** 13+70	**OFFSET** 11 ft LT	**ALIGNMENT** -Y7RB- / **0 HR.** Dry
COLLAR ELEV. 873.7 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 855,076	**EASTING** 1,631,085 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/27/15	**COMP. DATE** 08/27/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
875										873.7 GROUND SURFACE	0.0
	872.9	0.8								872.9 ASPHALT AND CONCRETE	0.8
			7	5	5	10		M		**ROADWAY EMBANKMENT**	
870	870.2	3.5								870.7 RED-YELLOW, FINE SANDY SILT (A-4) WITH TRACE GRAVEL	3.0
			4	4	4	8		M		**RESIDUAL**	
865	865.2	8.5								RED-YELLOW, SILTY FINE SAND (A-2-4) WITH TRACE MICA AND GRAVEL	
			4	5	6	11		M			
860	860.2	13.5									
			5	7	7	14		M		858.7 Boring Terminated at Elevation 858.7 ft in RESIDUAL (SAND)	15.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7RB_LT#4	**STATION** 14+61	**OFFSET** 22 ft LT	**ALIGNMENT** -Y7RB- / **0 HR.** Dry
COLLAR ELEV. 882.0 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 855,115	**EASTING** 1,631,169 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/28/15	**COMP. DATE** 08/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
	882.0	0.0								882.0 GROUND SURFACE 0.0
			2	3	6	9		M		**ROADWAY EMBANKMENT**
880										880.0 RED, FINE SANDY SILT (A-4) WITH LITTLE TO SOME CLAY, TRACE ROOTS, AND MICA 2.0
	878.5	3.5								878.0 4.0
			3	6	9	15	SS-476	37%		RED, FINE SANDY SILTY CLAY (A-7-5) WITH TRACE MICA AND ORGANICS
875										875.0 7.0
	873.5	8.5								**RESIDUAL**
			4	6	6	12		M		RED-BROWN, CLAYEY FINE SANDY SILT (A-4) WITH TRACE MICA
870										YELLOW-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC
	868.5	13.5								
			4	6	9	15		M		867.0 15.0 Boring Terminated at Elevation 867.0 ft in RESIDUAL (SAND)

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/2/15

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7RB_LT#5	**STATION** 15+50	**OFFSET** 22 ft LT	**ALIGNMENT** -Y7RB- / **0 HR.** Dry
COLLAR ELEV. 887.3 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,140	**EASTING** 1,631,254 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/28/15	**COMP. DATE** 08/28/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
890											
	887.3	0.0								887.3 GROUND SURFACE	0.0
			3	9	4	13		M		**ROADWAY EMBANKMENT** BROWN, FINE TO COARSE SANDY CLAY (A-6) WITH TRACE ORGANICS AND BRICK FRAGMENTS	
885	883.8	3.5	6	6	7	13		M			
880	878.8	8.5	6	9	12	21		M		880.3 **RESIDUAL** BROWN-RED, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	7.0
										877.3 Boring Terminated at Elevation 877.3 ft in RESIDUAL (SAND)	10.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y7RC_1200	**STATION** 12+00	**OFFSET** CL	**ALIGNMENT** -Y7RC- / **0 HR.** Dry
COLLAR ELEV. 859.9 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 854,863	**EASTING** 1,631,015 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/31/15	**COMP. DATE** 07/31/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
860											
	859.9	0.0	1	5	7	12		M		859.9 GROUND SURFACE	0.0
	856.4	3.5								**ROADWAY EMBANKMENT** GRAY AND BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS	
855			6	4	4	8		M		856.9 **RESIDUAL** ORANGE-BROWN, FINE SANDY SILT (A-4)	3.0
850	851.4	8.5	5	4	5	9		M		849.9 Boring Terminated at Elevation 849.9 ft in RESIDUAL (SILT)	10.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y8B_EB1A	**STATION** 13+38	**OFFSET** 24 ft LT	**ALIGNMENT** -Y8B- / **0 HR.** Dry
COLLAR ELEV. 908.2 ft	**TOTAL DEPTH** 21.7 ft	**NORTHING** 855,261	**EASTING** 1,631,811 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/01/15	**COMP. DATE** 09/01/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
910											
	908.2	0.0								908.2 GROUND SURFACE	0.0
			3	3	3	6		W		**ROADWAY EMBANKMENT** BROWN-BLACK AND RED, FINE SANDY SILT (A-4) WITH TRACE GRAVEL AND ORGANICS	906.2 / 2.0
905	904.7	3.5	WOH	2	1	3		W		RED, SILTY CLAY (A-7-5) WITH TRACE GRAVEL AND MICA	
900	899.7	8.5	WOH	WOH	2	2		W		898.3	9.9
										DARK RED, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL AND CLAY	
895	894.7	13.5	3	4	5	9		W			
890	889.7	18.5	2	2	2	4		W		886.5	21.7
										Boring Terminated at Elevation 886.5 ft on CONCRETE Note: Boring terminated on possible retaining wall footing	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y8B_EB1A1	**STATION** 13+33	**OFFSET** 24 ft LT	**ALIGNMENT** -Y8B- / **0 HR.** Dry
COLLAR ELEV. 908.5 ft	**TOTAL DEPTH** 23.5 ft	**NORTHING** 855,266	**EASTING** 1,631,810 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/01/15	**COMP. DATE** 09/01/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
910										
	908.5	0.0								908.5 GROUND SURFACE 0.0
			2	3	4	7		M		**ROADWAY EMBANKMENT** BROWN, SILTY FINE SAND (A-2-4) WITH TRACE CLAY AND ROOTS 905.5 / 3.0
905	905.0	3.5	WOH	1	1	2		M		RED-YELLOW, SILTY CLAY (A-7-5) WITH TRACE GRAVEL
900	900.0	8.5	2	1	3	4		M		
895	895.0	13.5	20	24	23	47		M		895.5 / 13.0 RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND LITTLE TO SOME GRAVEL
890	890.0	18.5	5	2	2	4		M		887.0 21.5
885	885.0	23.5	60/0.0			60/0.0				885.0 23.5
										Boring Terminated with Standard Penetration Test Refusal at Elevation 885.0 ft in CONCRETE Notes: 1. Boring terminated on possible retaining wall footing 2. 2nd Attempt at boring Y8B_EB1A

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/19/15

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y8B_EB1A2	**STATION** 13+08	**OFFSET** 33 ft LT	**ALIGNMENT** -Y8B- / **0 HR.** Dry
COLLAR ELEV. 908.6 ft	**TOTAL DEPTH** 22.5 ft	**NORTHING** 855,292	**EASTING** 1,631,815 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/04/15	**COMP. DATE** 09/04/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
910											
	908.6	0.0								908.6 GROUND SURFACE	0.0
			4	7	9	16		M		**ROADWAY EMBANKMENT** BROWN, SILTY FINE SANDY CLAY (A-6) WITH TRACE MICA AND ORGANICS	
905	905.1	3.5	6	7	5	12		M			
900	900.1	8.5	5	6	7	13		M		900.6 **RESIDUAL** RED-BROWN TO DARK BROWN-YELLOW, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	8.0
895	895.1	13.5	7	11	15	26		M			
890	890.1	18.5	19	53	47/0.4	100/0.9				889.6 **WEATHERED ROCK** RED-BROWN (BIOTITE GNEISS)	19.0
	886.1	22.5	60/0.0			60/0.0				886.1 Boring Terminated with Standard Penetration Test Refusal at Elevation 886.1 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)	22.5

Note:
1. 3rd Attempt at boring Y8B_EB1A due to previous borings terminating on possible retaining wall footing

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y8B_EB1B	**STATION** 13+70	**OFFSET** 34 ft RT	**ALIGNMENT** -Y8B- / **0 HR.** N/M
COLLAR ELEV. 890.0 ft	**TOTAL DEPTH** 4.7 ft	**NORTHING** 855,221	**EASTING** 1,631,757 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/14/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
890										890.0 GROUND SURFACE 0.0
	889.1	0.9								889.1 0.1' ASPHALT AND 0.8' CONCRETE 0.9
			7	12	15	27		M		**ROADWAY EMBANKMENT**
	886.5	3.5								886.5 BROWN, FINE TO COARSE SANDY SILT (A-4) WITH SOME GRAVEL 3.5
	885.3	4.7	100/0.4			100/0.4				885.3 4.7
			60/0.0			60/0.0				**WEATHERED ROCK** TAN AND GRAY (BIOTITE GNEISS)

Boring Terminated with Standard Penetration Test Refusal at Elevation 885.3 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y8B_B1A	**STATION** 13+98	**OFFSET** 44 ft LT	**ALIGNMENT** -Y8B- / **0 HR.** Dry
COLLAR ELEV. 901.4 ft	**TOTAL DEPTH** 16.2 ft	**NORTHING** 855,204	**EASTING** 1,631,838 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/12/15	**COMP. DATE** 08/12/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
905											
										901.4 GROUND SURFACE	0.0
900	900.4	1.0								900.4 ASPHALT AND CONCRETE	1.0
			5	10	9	19				**ROADWAY EMBANKMENT** RED-BROWN, CLAYEY SILT (A-5) WITH LITTLE GRAVEL, TRACE ROOTS/WOOD FRAGMENTS, AND MICA	
	897.9	3.5								897.9	3.5
			14	100/0.4		100/0.4					
895	895.2	6.2	60/0.0			60/0.0				895.4 BROWN-GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL (POSSIBLE BOULDER)	6.0
							RS-7			895.2 **CRYSTALLINE ROCK** (BIOTITE GNEISS)	6.2
890										**CRYSTALLINE ROCK** (BIOTITE GNEISS)	
										885.2	16.2
										Boring Terminated at Elevation 885.2 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/2/15

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y8B_B1A	**STATION** 13+98	**OFFSET** 44 ft LT	**ALIGNMENT** -Y8B- / **0 HR.** Dry
COLLAR ELEV. 901.4 ft	**TOTAL DEPTH** 16.2 ft	**NORTHING** 855,204	**EASTING** 1,631,838 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/12/15	**COMP. DATE** 08/12/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 10.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
895.2											Begin Coring @ 6.2 ft	
	895.2	6.2	5.0	4:10/1.0 3:00/1.0 2:58/1.0 3:06/1.0 2:33/1.0	(4.7) 94%	(4.3) 86%	RS-7	(9.7) 97%	(9.3) 93%		895.2 **CRYSTALLINE ROCK** GRAY, SLIGHTLY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD BIOTITE GNEISS WITH VERY CLOSE TO MODERATELY CLOSE FRACTURE SPACING RS-7: 7.5'-7.8', qu=11,291 psi, R1=7, R2=20, R3=10, R4=20, R5=7 RMR=64, ROCK TYPE=E	6.2
890	890.2	11.2										
			5.0	3:47/1.0 3:24/1.0 2:52/1.0 3:08/1.0 2:53/1.0	(5.0) 100%	(5.0) 100%						
	885.2	16.2									885.2	16.2
											Boring Terminated at Elevation 885.2 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/2/15

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth Street to east of Church Street, Y8B_B1A: -Y8B- Station 13+98, 44' LT

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y8B_EB2A	**STATION** 14+37	**OFFSET** 40 ft LT	**ALIGNMENT** -Y8B- / **0 HR.** Dry
COLLAR ELEV. 895.4 ft	**TOTAL DEPTH** 6.4 ft	**NORTHING** 855,165	**EASTING** 1,631,840 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/17/15	**COMP. DATE** 09/17/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
900											
895	895.4	0.0	4	6	7	13		M		895.4 GROUND SURFACE	0.0
										893.4 **ROADWAY EMBANKMENT** RED-BROWN, CLAYEY FINE SAND (A-2-6) WITH TRACE ROOTS AND MICA	2.0
	891.9	3.5	22	30	29	59		M		**RESIDUAL** GRAY-LIGHT BROWN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL	
890	889.0	6.4	60/0.0			60/0.0				889.0 Boring Terminated with Standard Penetration Test Refusal at Elevation 889.0 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)	6.4

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y8B_EB2B	**STATION** 14+54	**OFFSET** 31 ft RT	**ALIGNMENT** -Y8B- / **0 HR.** Dry
COLLAR ELEV. 887.3 ft	**TOTAL DEPTH** 8.7 ft	**NORTHING** 855,139	**EASTING** 1,631,771 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/21/15	**COMP. DATE** 09/21/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
890											
	887.3	0.0	5	4	6	10		M		887.3 GROUND SURFACE	0.0
885										885.3 **ROADWAY EMBANKMENT** RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH LITTLE GRAVEL AND TRACE ORGANICS	2.0
	883.8	3.5	13	13	8	21		M		**RESIDUAL** GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	
880	878.8	8.5								881.3	6.0
	878.6	8.7	60/0.0			60/0.0				878.8 **WEATHERED ROCK** LIGHT GRAY (BIOTITE GNEISS)	8.5
			60/0.0							878.6 **CRYSTALLINE ROCK** (BIOTITE GNEISS)	8.7
										Boring Terminated with Standard Penetration Test Refusal at Elevation 878.6 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y8BRA_1700	**STATION** 17+00	**OFFSET** CL	**ALIGNMENT** -Y8BRA-	**0 HR.** Dry
COLLAR ELEV. 907.1 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,324	**EASTING** 1,631,827	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 09/08/15	**COMP. DATE** 09/08/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
910											
	907.1	0.0								907.1 GROUND SURFACE	0.0
905			4	9	10	19	SS-521	18%		**ROADWAY EMBANKMENT** 905.1 BROWN-RED, FINE TO COARSE SANDY SILTY CLAY (A-7-6) WITH TRACE GRAVEL, MICA, AND ROOTS	2.0
	903.6	3.5	5	5	7	12		D		BROWN, SILTY FINE SAND (A-2-4) WITH TRACE ROOTS AND CLAY	
900										900.1 YELLOW-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC	7.0
	898.6	8.5	9	8	9	17		D		897.1 Boring Terminated at Elevation 897.1 ft in ROADWAY EMBANKMENT (SILT)	10.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis	
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. STLWY1_EB1	**STATION** 14+81	**OFFSET** 13 ft LT	**ALIGNMENT** -STLWY1-	**0 HR.** 27.4
COLLAR ELEV. 881.8 ft	**TOTAL DEPTH** 50.9 ft	**NORTHING** 855,401	**EASTING** 1,632,310	**24 HR.** 27.2
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 09/15/15	**COMP. DATE** 09/15/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
	881.8	0.0								881.8 GROUND SURFACE 0.0
880			WOH	1	WOH	1		M		**ROADWAY EMBANKMENT** RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL
	878.3	3.5	2	3	3	6		M		
875										874.8 RED-BROWN, COARSE TO FINE SANDY SILT (A-4) WITH TRACE GRAVEL, CLAY, AND BRICK FRAGMENTS 7.0
	873.3	8.5	2	2	2	4		M		
870										
	868.3	13.5	3	4	4	8		M		
865										864.8 BROWN, FINE TO COARSE SANDY SILTY CLAY (A-7-5) 17.0
	863.3	18.5	2	3	4	7		M		
860										859.8 **RESIDUAL** BROWN-GRAY, FINE SANDY SILT (A-4) WITH TRACE MICA 22.0
	858.3	23.5	4	3	4	7		M		
855										
	853.3	28.5	2	2	2	4		W		
850										849.8 GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND GRAVEL 32.0
	848.3	33.5	5	7	8	15		W		
845										
	843.3	38.5	8	7	10	17		W		
840										
	838.3	43.5	13	35	63	98		M		
835										
	833.3	48.5	40	100/0.3		100/0.3				832.8 49.0
	831.0	50.8	60/0.1			60/0.1				830.9 **WEATHERED ROCK** GRAY (MICA SCHIST) 50.9
										Boring Terminated with Standard Penetration Test Refusal at Elevation 830.9 ft in CRYSTALLINE ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. STLWY_B1	**STATION** 15+46	**OFFSET** 32 ft RT	**ALIGNMENT** -STLWY1- / **0 HR.** N/M
COLLAR ELEV. 898.5 ft	**TOTAL DEPTH** 60.7 ft	**NORTHING** 855,330	**EASTING** 1,632,275 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/21/15	**COMP. DATE** 09/16/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
900											
	898.5	0.0								898.5 GROUND SURFACE	0.0
			16	6	10	16		M		896.9 0.2' ASPHALT AND 1.4' ABC STONE	1.6
895	895.0	3.5								**ARTIFICIAL FILL** RED-BROWN, FINE SANDY CLAYEY SILT (A-5) WITH TRACE GRAVEL, BRICK FRAGMENTS, AND ORGANICS	
			3	1	1	2		W			
890	890.0	8.5								890.5	8.0
			8	6	4	10		W		RED-BROWN-GRAY, FINE TO COARSE SANDY CLAYEY SILT (A-4) WITH TRACE GRAVEL	
885	885.0	13.5								885.5	13.0
			1	4	7	11		W		**RESIDUAL** GRAY AND BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC	
880	880.0	18.5									
			1	3	4	7		W			
875	875.0	23.5									
			2	4	6	10		W			
870	870.0	28.5								870.5	28.0
			15	16	13	29		W		GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA	
865	865.0	33.5									
			3	6	10	16		W			
860	860.0	38.5								861.5	37.0
	859.8	38.7	60/0.1			60/0.1 60/0.0				859.8 **WEATHERED ROCK** (MICA SCHIST)	38.7
			60/0.0							858.3 **CRYSTALLINE ROCK** (MICA SCHIST)	40.2
855										(MICA SCHIST)	
850											
845							RS-11			845.5 (BIOTITE GNEISS)	53.0
										843.2 (BIOTITE GNEISS)	55.3
840											
										837.8 Boring Terminated at Elevation 837.8 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	60.7

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/18/15

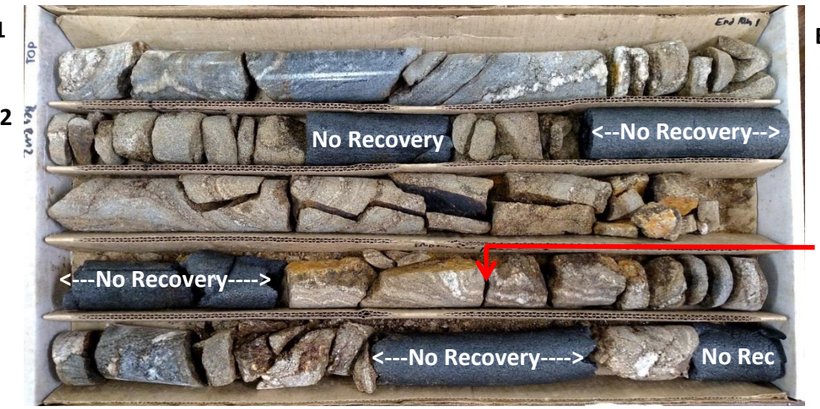
GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. STLWY_B1	**STATION** 15+46	**OFFSET** 32 ft RT	**ALIGNMENT** -STLWY1- / **0 HR.** N/M
COLLAR ELEV. 898.5 ft	**TOTAL DEPTH** 60.7 ft	**NORTHING** 855,330	**EASTING** 1,632,275 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/21/15	**COMP. DATE** 09/16/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ	**TOTAL RUN** 22.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
859.8											Begin Coring @ 38.7 ft	
	859.8	38.7	2.0	2:59/1.0 1:53/1.0	(2.0) 100%	(0.7) 35%		(1.5) 100%	(0.7) 47%		859.8 **CRYSTALLINE ROCK**	38.7
	857.8	40.7									858.3 GRAY, WHITE, AND BROWN, MODERATELY TO SLIGHTLY WEATHERED, MODERATELY HARD MICA SCHIST WITH CLOSE FRACTURE SPACING	40.2
855			5.0	1:58/1.0 2:00/1.0 2:09/1.0 1:35/1.0 1:49/1.0	(3.6) 72%	(0.0) 0%		(9.3) 73%	(1.1) 9%		BROWN AND WHITE, MODERATELY SEVERE TO MODERATELY WEATHERED, SOFT TO MODERATELY HARD MICA SCHIST, VERY CLOSE TO CLOSE FRACTURE SPACING	
	852.8	45.7										
850			5.0	2:17/1.0 1:02/1.0 1:25/1.0 1:57/1.0 1:45/1.0	(3.0) 60%	(0.3) 6%						
	847.8	50.7										
845			5.0	2:01/1.0 1:29/1.0 1:48/1.0 2:26/1.0 2:08/1.0	(5.0) 100%	(1.8) 36%					845.5	53.0
							RS-11	(2.3) 100%	(1.0) 43%		GRAY AND WHITE, SLIGHTLY TO VERY SLIGHTLY WEATHERED, HARD BIOTITE GNEISS, CLOSE FRACTURE SPACING	
	842.8	55.7									843.2 RS-11: 53.6-53.9, qu=13,833 psi, R1=7, R2=8, R4=8, R3=5, R4=6, R5=7 RMR=33, ROCK TYPE=E	55.3
840			5.0	2:45/1.0 1:25/1.0 1:83/1.0 1:52/1.0 1:47/1.0	(1.8) 36%	(0.4) 8%		(2.3) 43%	(0.4) 7%		GRAY, WHITE, AND BROWN, MODERATELY WEATHERED, MODERATELY HARD TO HARD BIOTITE GNEISS, VERY CLOSE TO CLOSE FRACTURE SPACING	
	837.8	60.7									837.8 Boring Terminated at Elevation 837.8 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	60.7

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/18/15

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth St. to east of Church St., STLWY_B1: -STLWY1- Station 15+46, 32' RT



0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. STLWY_EB2	**STATION** 16+57	**OFFSET** CL	**ALIGNMENT** -STLWY1- / **0 HR.** N/A
COLLAR ELEV. 858.5 ft	**TOTAL DEPTH** 59.0 ft	**NORTHING** 855,225	**EASTING** 1,632,322 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/05/15	**COMP. DATE** 08/05/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
860										
	858.5	0.0								858.5 GROUND SURFACE 0.0
			2	4	20	24		M		857.7 0.2' ASPHALT AND 0.6' ABC STONE 0.8
855	855.0	3.5								**ARTIFICIAL FILL** RED-ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE ASPHALT FRAGMENTS 855.5 3.0
			6	13	4	17		M		TAN-GRAY-BROWN, FINE SANDY CLAY (A-6) WITH TRACE ORGANICS 850.5 8.0
850	850.0	8.5								**ALLUVIAL** GRAY-BROWN, SILTY FINE SANDY CLAY (A-6)
			1	2	2	4		Sat.		
845	845.0	13.5								845.5 13.0 **RESIDUAL** GRAY-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA
			WOH	1	2	3		W		
840	840.0	18.5								
			1	1	2	3		Sat.		
835	835.0	23.5								
			4	5	7	12		Sat.		
830	830.0	28.5								829.4 29.1 GRAY-BROWN, SILTY FINE SAND (A-2-4)
			7	9	10	19		W		
825	825.0	33.5								825.5 33.0 GRAY-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4)
			4	5	4	9		W		
820	820.0	38.5								819.5 39.0 GRAY, SILTY FINE SAND (A-2-4), SAPROLITIC
			4	8	12	20		W		
815	815.0	43.5								
			11	15	24	39		Sat.		
810	810.0	48.5								809.5 49.0 **WEATHERED ROCK** GRAY AND BROWN (MICA SCHIST)
			14	42	58/0.5	100/1.0				
805	805.0	53.5								
			29	47	53/0.3	100/0.8				
800	800.0	58.5								799.5 59.0 Boring Terminated at Elevation 799.5 ft in WEATHERED ROCK (MICA SCHIST)
			100/0.5			100/0.5				

NOTE: A LAYER OF ASPHALT, BOLTS, METAL AND OTHER DEBRIS ENCOUNTERED FROM 2' TO 3'

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y9_1250R	**STATION** 12+50	**OFFSET** 32 ft RT	**ALIGNMENT** -Y9- / **0 HR.** Dry
COLLAR ELEV. 882.3 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,504	**EASTING** 1,632,382 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/06/15	**COMP. DATE** 08/06/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
	882.3	0.0								882.3 GROUND SURFACE 0.0
			2	7	8	15		M		**ROADWAY EMBANKMENT** RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE GRAVEL 879.3 3.0
880	878.8	3.5								**RESIDUAL** ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL
			2	2	3	5		M		
875	873.8	8.5								
			5	6	4	10		M		872.3 10.0 Boring Terminated at Elevation 872.3 ft in RESIDUAL (SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y9_1600R	**STATION** 16+00	**OFFSET** 35 ft RT	**ALIGNMENT** -Y9- / **0 HR.** N/A
COLLAR ELEV. 853.6 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 855,157	**EASTING** 1,632,427 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/07/15	**COMP. DATE** 08/07/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
855										
	853.1	0.5	3	10	6	16		M		853.6 GROUND SURFACE 0.0; 853.1 0.1' ASPHALT AND 0.4' ABC STONE 0.5; 852.0 **ARTIFICIAL FILL** RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE GRAVEL AND BRICK DEBRIS 1.6
850	850.1	3.5	4	17	18	35		W		849.6 GRAY-BROWN, FINE SANDY SILT (A-4) 4.0; **RESIDUAL** GRAY-BROWN, GRAVEL (A-1-a) WITH FINE TO COARSE SAND 7.0
845	845.1	8.5	1	2	3	5		W		846.6 ORANGE AND BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA
840	840.1	13.5	3	6	6	12		Sat.		
835	835.1	18.5	6	10	10	20		Sat.		834.6 GRAY AND BROWN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL AND MICA 19.0
830	830.1	23.5	5	6	8	14		Sat.		
825	825.1	28.5	12	12	7	19		Sat.		823.6 30.0 Boring Terminated at Elevation 823.6 ft in RESIDUAL (SAND)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y9_1800L	**STATION** 17+66	**OFFSET** 39 ft LT	**ALIGNMENT** -Y9- / **0 HR.** Dry
COLLAR ELEV. 867.2 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,003	**EASTING** 1,632,523 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/06/15	**COMP. DATE** 08/06/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
870										
	867.2	0.0	1	10	12	22	SS-94	31%		867.2 GROUND SURFACE 0.0; **ROADWAY EMBANKMENT** RED-BROWN, FINE TO COARSE SANDY CLAY (A-6) WITH TRACE GRAVEL AND ORGANICS 3.0
865	863.7	3.5	4	6	6	12		M		864.2 **RESIDUAL** RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE MICA 8.0
860	858.7	8.5	5	5	4	9		M		859.2 ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA 10.0; 857.2 Boring Terminated at Elevation 857.2 ft in RESIDUAL (SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y9_EB1A	**STATION** 13+99	**OFFSET** 40 ft LT	**ALIGNMENT** -Y9- / **0 HR.** Dry
COLLAR ELEV. 885.5 ft	**TOTAL DEPTH** 21.8 ft	**NORTHING** 855,366	**EASTING** 1,632,474 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/19/15	**COMP. DATE** 08/19/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
890											
885										885.5 GROUND SURFACE	0.0
	884.5	1.0								884.5 ASPHALT AND CONCRETE	1.0
			2	2	2	4		M		**ROADWAY EMBANKMENT**	
	882.0	3.5								882.5 RED AND BROWN, FINE TO COARSE SANDY CLAY (A-6) WITH TRACE GRAVEL AND MICA	3.0
880			2	3	2	5		M		RED-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA AND GRAVEL	
	877.0	8.5								877.5 BROWN, FINE SANDY SILT (A-4) WITH TRACE BRICK FRAGMENTS AND GRAVEL, HIGHLY MICACEOUS	8.0
			2	1	2	3		M			
875											
	872.0	13.5									
			2	1	2	3		M			
870											
	867.0	18.5									
			2	3	3	6		W			
865										864.4	21.1
	863.9	21.6								863.7 CONCRETE	21.8
			100/0.7			100/0.7				Boring Terminated at Elevation 863.7 ft DUE TO POSSIBLE BRIDGE FOUNDATION	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y9_EB1A1	**STATION** 13+99	**OFFSET** 47 ft LT	**ALIGNMENT** -Y9- / **0 HR.** 40.0
COLLAR ELEV. 885.4 ft	**TOTAL DEPTH** 60.1 ft	**NORTHING** 855,367	**EASTING** 1,632,481 / **24 HR.** 28.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/19/15	**COMP. DATE** 08/19/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
890										
885										885.4 GROUND SURFACE 0.0
	884.4	1.0								884.4 ASPHALT AND CONCRETE 1.0
			3	4	3	7		M		**ROADWAY EMBANKMENT**
	881.9	3.5								882.4 RED-BROWN, FINE SANDY CLAY (A-6) WITH TRACE GRAVEL 3.0
880			2	2	2	4		M		RED-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE CLAY AND GRAVEL
	876.9	8.5								877.4 BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL, CLAY, AND ORGANICS 8.0
			2	2	2	4		M		
875										
	871.9	13.5								
			1	1	2	3		M		
870										
	866.9	18.5								867.4 18.0
			4	6	6	12		M		**RESIDUAL** BROWN, SILTY FINE SAND (A-2-4), HIGHLY MICACEOUS
865										
	861.9	23.5								862.4 23.0
			2	4	3	7		W		YELLOW-LIGHT BROWN, FINE SANDY SILT (A-4), HIGHLY MICACEOUS, SAPROLITIC
860										
	856.9	28.5								
			1	2	3	5		W		855.9 29.5
855										BLACK-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND LITTLE GRAVEL
	851.9	33.5								852.4 33.0
			1	2	3	5		W		GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND LITTLE GRAVEL, SAPROLITIC
850										
	846.9	38.5								
			1	3	3	6		W		
845										
	841.9	43.5								
			2	3	4	7		W		
840										
	836.9	48.5								
			6	36	44	80		M		
835										
	831.9	53.5								831.9 53.5
			100/0.2			100/0.2				**WEATHERED ROCK** GRAY-BROWN (BIOTITE GNEISS)
830										
										828.5 56.9
	826.9	58.5								**CRYSTALLINE ROCK** DARK GRAY (BIOTITE GNEISS)
			60/0.1			60/0.1				
	825.3	60.1								825.3 60.1
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 825.3 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

Note:
1. 2nd Attempt at boring Y9_EB1A due to previous boring terminating on possible bridge foundation

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/18/15

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y9_EB1B	**STATION** 13+76	**OFFSET** 33 ft RT	**ALIGNMENT** -Y9-	**0 HR.** 20.8
COLLAR ELEV. 872.6 ft	**TOTAL DEPTH** 68.8 ft	**NORTHING** 855,379	**EASTING** 1,632,398	**24 HR.** 18.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 08/19/15	**COMP. DATE** 08/19/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
875											
	872.6	0.0								872.6 GROUND SURFACE	0.0
			2	3	4	7		M		**ARTIFICIAL FILL** RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS AND GRAVEL	
870	869.1	3.5	3	3	4	7		M			
865	864.1	8.5	3	3	3	6		M			
860	859.1	13.5	2	1	2	3		W		859.6 **RESIDUAL** TAN BROWN, FINE SANDY CLAYEY SILT (A-5)	13.0
855	854.1	18.5	2	3	3	6		W		854.6 ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL AND MICA	18.0
850	849.1	23.5	4	6	6	12		W			
845	844.1	28.5	8	9	10	19		W		844.6 GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL AND MICA	28.0
840	839.1	33.5	4	4	6	10		W			
835	834.1	38.5	8	7	11	18		W			
830	829.1	43.5	8	10	18	28		W			
825	824.1	48.5	20	25	30	55		W			
820	819.1	53.5	17	23	32	55		W			
815	814.1	58.5	100/0.4			100/0.4				814.1 **WEATHERED ROCK** GRAY-BROWN (MICA SCHIST)	58.5
810	809.1	63.5	43	100/0.3		100/0.3					
805	804.1	68.5	100/0.3			100/0.3				803.8 Boring Terminated at Elevation 803.8 ft in WEATHERED ROCK (MICA SCHIST)	68.8

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y9_EB2A	**STATION** 14+97	**OFFSET** 47 ft LT	**ALIGNMENT** -Y9-	**0 HR.** 31.0
COLLAR ELEV. 882.9 ft	**TOTAL DEPTH** 57.3 ft	**NORTHING** 855,270	**EASTING** 1,632,494	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 08/24/15	**COMP. DATE** 08/24/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
	881.8	1.1								882.9 GROUND SURFACE 0.0
			5	6	5	11		M		881.8 ASPHALT AND CONCRETE 1.1
880	879.4	3.5	3	2	1	3		M		**ROADWAY EMBANKMENT** RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA, GRAVEL, BRICK FRAGMENTS, AND TRACE TO LITTLE CLAY
875	874.4	8.5	2	2	2	4		M		
870	869.4	13.5	2	4	3	7		M		
865	864.4	18.5	3	3	3	6		M		865.9 **RESIDUAL** BROWN-YELLOW, FINE SANDY SILTY (A-4) WITH TRACE CLAY AND MICA 17.0
860	859.4	23.5	2	4	4	8		M		
855	854.4	28.5	2	3	4	7		W		
850	849.4	33.5	3	5	6	11		W		850.9 YELLOW-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE CLAY AND MICA 32.0
845	844.4	38.5	2	3	6	9		W		845.9 GRAY-BROWN-YELLOW, CLAYEY FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA 37.0
840	839.4	43.5	1	2	1	3		W		843.2 DARK-GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE CLAY AND MICA 39.7
835	834.4	48.5	2	3	4	7		W		840.9 YELLOW-BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL, CLAY, AND MICA 42.0
830	829.4	53.5	73	27/0.3		100/0.8				835.9 BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA 47.0
	825.6	57.3	60/0.0			60/0.0				829.9 **WEATHERED ROCK** GRAY-BLACK (MICA SCHIST) 53.0
										825.6 Boring Terminated with Standard Penetration Test Refusal at Elevation 825.6 ft on CRYSTALLINE ROCK (MICA SCHIST) 57.3

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y9_EB2B	**STATION** 14+92	**OFFSET** 28 ft RT	**ALIGNMENT** -Y9- / **0 HR.** 20.0
COLLAR ELEV. 866.5 ft	**TOTAL DEPTH** 68.7 ft	**NORTHING** 855,265	**EASTING** 1,632,419 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/06/15	**COMP. DATE** 08/06/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
870											
	865.9	0.6								866.5 GROUND SURFACE	0.0
865			1	15	14	29		M		865.9 CONCRETE	0.6
	863.0	3.5								**ROADWAY EMBANKMENT**	
			1	2	2	4		M		863.5 ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL	3.0
860										**RESIDUAL**	
	858.0	8.5								ORANGE-BROWN AND GRAY, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL, SAPROLITIC	
			2	2	4	6		M			
855											
	853.0	13.5									
			2	4	3	7		W			
850											
	848.0	18.5									
			3	3	2	5		W			
845											
	843.0	23.5									
			1	4	4	8		W			
840											
	838.0	28.5									
			4	6	8	14		Sat.			
835											
	833.0	33.5									
			2	8	10	18		Sat.			
830											
	828.0	38.5									
			4	5	8	13		Sat.			
825											
	823.0	43.5									
			5	7	9	16		Sat.			
820											
	818.0	48.5									
			5	7	10	17		Sat.			
815											
	813.0	53.5								813.5 GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL AND MICA	53.0
			10	17	22	39		Sat.			
810											
	808.0	58.5								807.5 **WEATHERED ROCK** GRAY AND BROWN (BIOTITE GNEISS)	59.0
			39	41	59/0.5	100/1.0					
805											
	803.0	63.5								803.0 **CRYSTALLINE ROCK** (BIOTITE GNEISS)	63.5
			60/0.1			60/0.1					
800											
	798.0	68.5								797.8 Boring Terminated at Elevation 797.8 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	68.7
			100/0.2			100/0.2					

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y9_LT#1	**STATION** 11+54	**OFFSET** 42 ft LT	**ALIGNMENT** -Y9- / **0 HR.** Dry
COLLAR ELEV. 889.5 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,609	**EASTING** 1,632,442 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/19/15	**COMP. DATE** 08/19/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
890											
	889.2	0.3								889.5 GROUND SURFACE	0.0
			3	5	5	10		M		889.2 ASPHALT	0.3
	886.0	3.5								**ARTIFICIAL FILL**	
885			3	4	5	9		M		886.5 RED-BROWN, FINE SANDY SILTY CLAY (A-7-5) WITH TRACE MICA	3.0
	881.0	8.5								RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA	
880			5	5	5	10		M		879.5 Boring Terminated at Elevation 879.5 ft in ARTIFICIAL FILL (SILT)	10.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y9_LT#2	**STATION** 12+48	**OFFSET** 42 ft LT	**ALIGNMENT** -Y9- / **0 HR.** Dry
COLLAR ELEV. 883.6 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 855,516	**EASTING** 1,632,455 / **24 HR.** 23.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/19/15	**COMP. DATE** 08/19/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
885											
	883.4	0.2								883.6 GROUND SURFACE	0.0
										883.4 ASPHALT	0.2
			3	3	4	7		M		**ARTIFICIAL FILL** RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA	
880	880.1	3.5									
			2	3	3	6		M			
875	875.1	8.5									
			2	4	5	9		M			
870	870.1	13.5								870.6	13.0
			4	7	7	14		M		**RESIDUAL** RED-GRAY-BROWN AND TAN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL AND MICA	
865	865.1	18.5									
			2	2	2	4		M			
860	860.1	23.5									
			1	1	1	2		W			
855	855.1	28.5								856.6	27.0
			7	8	9	17		W		GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4)	
										853.6	30.0
										Boring Terminated at Elevation 853.6 ft in RESIDUAL (SAND)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y9_LT#3	**STATION** 13+22	**OFFSET** 43 ft LT	**ALIGNMENT** -Y9- / **0 HR.** 28.5
COLLAR ELEV. 878.6 ft	**TOTAL DEPTH** 45.0 ft	**NORTHING** 855,443	**EASTING** 1,632,466 / **24 HR.** 19.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/19/15	**COMP. DATE** 08/19/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
880										
	878.0	0.6								878.6 GROUND SURFACE 0.0
										878.0 0.3' ASPHALT AND 0.3' ABC STONE 0.6
			4	2	2	4		M		**ARTIFICIAL FILL** RED-ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA
875	875.1	3.5								
			WOH	WOH	WOH	0		M		
870	870.1	8.5								870.6 8.0
			2	2	6	8	SS-148	21%		**RESIDUAL** ORANGE-BROWN-GRAY, CLAYEY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL AND SILT
865	865.1	13.5								
			2	4	6	10		M		
860	860.1	18.5								
			3	4	6	10		M		
855	855.1	23.5								855.6 23.0
			2	4	4	8		W		TAN-WHITE, FINE COARSE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC
850	850.1	28.5								
			2	2	2	4		W		
845	845.1	33.5								
			4	3	2	5		Sat.		
840	840.1	38.5								
			2	4	7	11		Sat.		
835	835.1	43.5								
			8	15	32	47		Sat.		834.1 44.5
										833.6 GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL 45.0
										Boring Terminated at Elevation 833.6 ft in RESIDUAL (SAND)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_EB1A	**STATION** 14+66	**OFFSET** 17 ft LT	**ALIGNMENT** -Y10- / **0 HR.** 36.5
COLLAR ELEV. 890.6 ft	**TOTAL DEPTH** 52.3 ft	**NORTHING** 855,319	**EASTING** 1,632,715 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/05/15	**COMP. DATE** 08/05/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
895											
890	890.1	0.5	20	15	14	29				890.6 GROUND SURFACE	0.0
										0.5' ASPHALT AND 2.1' ABC STONE	
	887.1	3.5	2	2	2	4		W		888.0 **ROADWAY EMBANKMENT** RED-BROWN, CLAYEY FINE SANDY SILT (A-4) WITH TRACE MICA	2.6
885											
	882.1	8.5	1	1	2	3		M		883.6 RED-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA AND LITTLE GRAVEL	7.0
880											
	877.1	13.5	2	2	2	4		M		878.6 RED AND BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA	12.0
875											
	872.1	18.5	5	100/0.3		100/0.3				871.6	19.0
										871.1 **WEATHERED ROCK** (BOULDER)	19.5
870										869.1 **CRYSTALLINE ROCK** (BOULDER)	21.5
	867.1	23.5	5	9	9	18		M		**RESIDUAL** BROWN AND BLACK, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL, SAPROLITIC	
865											
	862.1	28.5	5	6	7	13		M		863.6 BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL, SAPROLITIC	27.0
860											
	857.1	33.5	3	2	5	7		W		858.6 ORANGE AND RED, CLAYEY SILT (A-5) WITH TRACE FINE SAND AND MICA, SAPROLITIC	32.0
855											
	852.1	38.5	14	22	21	43		W		853.6 GRAY-BROWN AND BLACK, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND GRAVEL, SAPROLITIC	37.0
850											
	847.1	43.5	28	44	39	83		W			
845											
	842.1	48.5	27	26	100/0.3	100/0.3				841.1 **WEATHERED ROCK** BROWN AND BLACK (MICA SCHIST)	49.5
840										838.5	52.1
										838.3 **CRYSTALLINE ROCK** (MICA SCHIST)	52.3
										Boring Terminated by Auger Refusal at Elevation 838.3 ft in CRYSTALLINE ROCK (MICA SCHIST)	
										NOTE: BORING TERMINATED AT 52.3' DUE TO BROKEN AUGER	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_EB1B	**STATION** 14+46	**OFFSET** 29 ft RT	**ALIGNMENT** -Y10- / **0 HR.** N/A
COLLAR ELEV. 890.6 ft	**TOTAL DEPTH** 55.2 ft	**NORTHING** 855,333	**EASTING** 1,632,667 / **24 HR.** 37.6
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/20/15	**COMP. DATE** 08/20/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
895											
890	890.6	0.0	WOH	1	1	2		W		890.6 GROUND SURFACE	0.0
										ROADWAY EMBANKMENT RED-GRAY-BROWN, FINE TO COARSE, SANDY CLAYEY SILT (A-5) WITH TRACE GRAVEL, DEBRIS (METAL), BRICK FRAGMENTS AND ORGANICS	
	887.1	3.5	2	1	2	3		W			
885											
	882.1	8.5	1	1	1	2		M			
880											
	877.1	13.5	1	2	3	5		M			
875											
	872.1	18.5	5	2	3	5		M		871.4	19.2
870										**RESIDUAL** ORANGE-GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA	
	867.1	23.5	5	4	6	10		M			
865											
	862.1	28.5	3	5	5	10		M			
860											
	857.1	33.5	5	4	7	11		M			
855											
	852.1	38.5	35	45	55/0.1	100/0.6		M		852.3	38.3
850										**WEATHERED ROCK** GRAY-BROWN (MICA SCHIST)	
										849.1	41.5
	847.1	43.5	7	10	18	28		W		**RESIDUAL** GRAY-BROWN, FINE TO COARSE SANDY SILT (A-4), SAPROLITIC	
845											
	842.1	48.5	17	19	26	45		W			
840											
	837.1	53.5	100/0.2			100/0.2				837.1	53.5
	835.4	55.2	60/0.0			60/0.0				835.6 **WEATHERED ROCK** GRAY-BROWN (MICA SCHIST)	55.0
										835.4 **CRYSTALLINE ROCK** (MICA SCHIST)	55.2
										Boring Terminated with Standard Penetration Test Refusal at Elevation 835.4 ft in CRYSTALLINE ROCK (MICA SCHIST)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang	
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y10_B1A	**STATION** 15+32	**OFFSET** 33 ft LT	**ALIGNMENT** -Y10-	**0 HR.** 22.2
COLLAR ELEV. 872.0 ft	**TOTAL DEPTH** 49.5 ft	**NORTHING** 855,256	**EASTING** 1,632,740	**24 HR.** 17.4
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 08/13/15	**COMP. DATE** 08/13/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
875									
									872.0 / 0.0 GROUND SURFACE
	871.0	1.0							871.0 / 1.0 0.1' ASPHALT AND 0.9' CONCRETE
870			13	7	6		M		**RESIDUAL** ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA
	868.5	3.5							
			5	5	7		M		
865									
	863.5	8.5							
			3	5	6		M		
860									
	858.5	13.5							859.0 / 13.0 GRAY-BROWN, SILTY FINE SAND (A-2-4)
			23	45	37		M		
855									
	853.5	18.5							854.0 / 18.0 GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA
			5	7	11		M		
850									
	848.5	23.5							
			9	10	15		M		
845									
	843.5	28.5							
			7	11	13		W		
840									840.6 / 31.4 **WEATHERED ROCK** GRAY (MICA SCHIST)
	838.5	33.5							
			64	100/0.3					
835									
	833.5	38.5							
			100/0.3						
830									829.5 / 42.5 **RESIDUAL** TAN AND GRAY, SILTY FINE SAND (A-2-4) WITH TRACE COARSE SAND, SAPROLITIC
	828.5	43.5							
			24	39	44		M		
825									
	823.5	48.5							823.5 / 48.5
	822.5	49.5	100/0.1						822.5 / 49.5 **CRYSTALLINE ROCK** GRAY AND BROWN (MICA SCHIST)
			60/0.0						Boring Terminated with Standard Penetration Test Refusal at Elevation 822.5 ft in CRYSTALLINE ROCK (MICA SCHIST)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis	
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y10_EB2A	**STATION** 15+90	**OFFSET** 15 ft LT	**ALIGNMENT** -Y10-	**0 HR.** 44.5
COLLAR ELEV. 890.0 ft	**TOTAL DEPTH** 58.5 ft	**NORTHING** 855,196	**EASTING** 1,632,730	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 09/02/15	**COMP. DATE** 09/02/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
890									890.0 / 0.0 GROUND SURFACE
	889.5	0.5							888.1 / 1.9 0.5' ASPHALT AND 1.4' ABC STONE
			8	7	7		M		**ROADWAY EMBANKMENT** GRAY-RED-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE CLAY AND LITTLE TO SOME GRAVEL
	886.5	3.5							
885			3	3	4		M		
	881.5	8.5							
880			6	9	4		M		
	876.5	13.5							878.0 / 12.0 **RESIDUAL** GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL AND MICA, SAPROLITIC
875			3	5	6		M		
	871.5	18.5							
870			8	8	8		M		
	866.5	23.5							
865			5	5	12		M		
	861.5	28.5							
860			6	6	7		M		
	856.5	33.5							
855			12	12	11		W		
	851.5	38.5							
850			10	12	11		W		
	846.5	43.5							
845			17	29	22		W		844.9 / 45.1 **WEATHERED ROCK** GRAY-BROWN (BIOTITE GNEISS) 843.0 / 47.0 **RESIDUAL** GRAY-BROWN, SILTY FINE COARSE SAND (A-2-4) WITH TRACE GRAVEL AND MICA, SAPROLITIC
	844.3	45.7							
			100/0.4						
	841.5	48.5							
840			13	24	27		W		
	836.5	53.5							
835			16	23	100/0.4				835.5 / 54.5 **WEATHERED ROCK** GRAY (BIOTITE GNEISS)
	831.5	58.5							831.5 / 58.5
			60/0.0						Boring Terminated with Standard Penetration Test Refusal at Elevation 831.5 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_EB2B	**STATION** 15+85	**OFFSET** 13 ft RT	**ALIGNMENT** -Y10- / **0 HR.** Dry
COLLAR ELEV. 890.2 ft	**TOTAL DEPTH** 36.0 ft	**NORTHING** 855,197	**EASTING** 1,632,701 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/02/15	**COMP. DATE** 09/02/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
895											
890										890.2 GROUND SURFACE	0.0
	889.6	0.6								0.6' ASPHALT AND 1.5' ABC STONE	
			12	11	9	20				888.1	2.1
	886.7	3.5								**ROADWAY EMBANKMENT** GRAY-RED, SILTY FINE TO COARSE SAND (A-2-4) WITH LITTLE GRAVEL	
885			11	29	19	48		M			
										883.2	7.0
	881.7	8.5								**RESIDUAL** RED-GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA AND GRAVEL	
880			7	13	16	29		M			
	876.7	13.5								876.7	13.5
875			92	8/0.1		100/0.6				**WEATHERED ROCK** GRAY-BLACK (BIOTITE GNEISS)	
	871.7	18.5								871.7	18.5
870			60/0.1			60/0.1				**CRYSTALLINE ROCK** GRAY-WHITE-BROWN (BIOTITE GNEISS)	
	866.7	23.5								867.7	22.5
865			6	8	9	17		M		**RESIDUAL** BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	
	861.7	28.5								862.4	27.8
860	860.3	29.9	100/0.5			100/0.5				**WEATHERED ROCK** GRAY-BROWN AND BLACK (BIOTITE GNEISS)	
			100/0.2			100/0.2					
	856.7	33.5									
855			100/0.4			100/0.4					
	854.2	36.0	60/0.0			60/0.0				854.2	36.0
										Boring Terminated with Standard Penetration Test Refusal at Elevation 854.2 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. STLWY1_LT#1	**STATION** 58+43	**OFFSET** 76 ft LT	**ALIGNMENT** -L- / **0 HR.** 9.9
COLLAR ELEV. 861.1 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 855,388	**EASTING** 1,632,269 / **24 HR.** 7.2
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/15/15	**COMP. DATE** 09/15/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
865										
	861.1	0.0								861.1 GROUND SURFACE 0.0
860			3	6	7	13		M		**ROADWAY EMBANKMENT** DARK BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL, ORGANICS, AND PLASTIC
	857.6	3.5								858.1 3.0
855			4	4	3	7		W		856.4 4.7 BROWN, CLAYEY FINE SAND (A-2-6) WITH TRACE GRAVEL
	852.6	8.5								**RESIDUAL** YELLOW-BROWN, CLAYEY FINE SANDY SILT (A-4) WITH TRACE MICA
850			2	2	2	4		W		
	847.6	13.5								
845			2	1	3	4		W		
	842.6	18.5								
			2	2	4	6		W		841.1 20.0
										Boring Terminated at Elevation 841.1 ft in RESIDUAL (SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_LT#2	**STATION** 61+23	**OFFSET** 54 ft LT	**ALIGNMENT** -L- / **0 HR.** N/M
COLLAR ELEV. 883.2 ft	**TOTAL DEPTH** 35.0 ft	**NORTHING** 855,353	**EASTING** 1,632,562 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/21/15	**COMP. DATE** 08/21/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
885											
	883.2	0.0								883.2 GROUND SURFACE	0.0
			1	5	4	9		M		**ROADWAY EMBANKMENT** RED-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL AND ORGANICS	
880	879.7	3.5	10	6	4	10		M			
875	874.7	8.5	4	5	3	8		M			
870	869.7	13.5								870.2	13.0
			4	4	4	8	SS-177	18%		**RESIDUAL** RED-ORANGE-BROWN, CLAYEY SILTY COARSE TO FINE SAND (A-2-5) WITH TRACE GRAVEL AND MICA	
865	864.7	18.5	5	6	8	14		M			
860	859.7	23.5	4	5	5	10		W			
855	854.7	28.5	4	5	7	12		W			
850	849.7	33.5	6	8	11	19		W		848.2	35.0
										Boring Terminated at Elevation 848.2 ft in RESIDUAL (SAND)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_LT#3	**STATION** 63+93	**OFFSET** 51 ft LT	**ALIGNMENT** -L- / **0 HR.** 30.8
COLLAR ELEV. 888.5 ft	**TOTAL DEPTH** 50.0 ft	**NORTHING** 855,292	**EASTING** 1,632,829 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/25/15	**COMP. DATE** 08/25/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
890										
	887.7	0.8								888.5 GROUND SURFACE 0.0
			5	5	5	10		M		887.7 CONCRETE 0.8
885	885.0	3.5	4	3	4	7		M		**ROADWAY EMBANKMENT** RED-ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL
880	880.0	8.5	2	3	4	7		M		
875	875.0	13.5	4	2	4	6		M		
870	870.0	18.5	2	3	7	10		M		
865	865.0	23.5	4	7	8	15		M		865.5 23.0 **RESIDUAL** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL AND MICA
860	860.0	28.5	10	8	9	17		M		
855	855.0	33.5	7	6	8	14		W		
850	850.0	38.5	6	8	11	19		W		
845	845.0	43.5	12	14	17	31		W		845.5 43.0 GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA
840	840.0	48.5	12	12	12	24		W		838.5 50.0
										Boring Terminated at Elevation 838.5 ft in RESIDUAL (SAND)

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/18/15

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_LT#4	**STATION** 64+86	**OFFSET** 45 ft LT	**ALIGNMENT** -L- / **0 HR.** N/M
COLLAR ELEV. 884.1 ft	**TOTAL DEPTH** 40.0 ft	**NORTHING** 855,266	**EASTING** 1,632,918 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/27/15	**COMP. DATE** 08/27/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
	883.3	0.8								884.1 GROUND SURFACE 0.0
			7	5	5	10		M		883.3 CONCRETE 0.8
880	880.6	3.5								**ROADWAY EMBANKMENT** RED-GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL 3.5
			3	6	6	12		M		880.6
										878.6 GRAY, ROCK FRAGMENTS (A-1-a) 5.5
875	875.6	8.5								GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL AND ORGANICS
			5	5	3	8		M		
870	870.6	13.5								
			3	2	2	4		M		
865	865.6	18.5								866.1 **RESIDUAL** GRAY-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA 18.0
			2	2	5	7		M		
860	860.6	23.5								
			6	8	12	20		M		
855	855.6	28.5								
			9	11	13	24		M		
850	850.6	33.5								
			5	9	13	22		M		
845	845.6	38.5								846.1 GRAY, SILTY FINE TO COARSE SAND (A-2-4) 38.0
			24	20	16	36		M		844.1 40.0
										Boring Terminated at Elevation 844.1 ft in RESIDUAL (SAND)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_LT#5	**STATION** 65+86	**OFFSET** 45 ft LT	**ALIGNMENT** -L- — **0 HR.** Dry
COLLAR ELEV. 881.3 ft	**TOTAL DEPTH** 33.5 ft	**NORTHING** 855,244	**EASTING** 1,633,015 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/26/15	**COMP. DATE** 08/26/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
885											
										881.3 GROUND SURFACE	0.0
880	880.5	0.8								880.5 CONCRETE	0.8
			7	6	4	10		M		**ROADWAY EMBANKMENT** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL	
	877.8	3.5									
			8	4	4	8		M			
875	874.5	6.8	60/0.0			60/0.0				874.5	6.8
										872.7 **CRYSTALLINE ROCK** (BOULDER)	8.6
870										**RESIDUAL** YELLOW-BROWN AND BLACK, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL, SAPROLITIC	
	869.3	12.0									
			4	4	4	8		M			
865	864.3	17.0									
			9	15	14	29		M			
860	859.3	22.0								858.9	22.4
			5	11	14	25		W		YELLOW-BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL, SAPROLITIC	
855										854.3	27.0
										YELLOW-BROWN-BLACK, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL	
850	849.3	32.0									
			12	17	31	48				847.8	33.5
										Boring Terminated at Elevation 847.8 ft in RESIDUAL (SAND)	

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/19/15

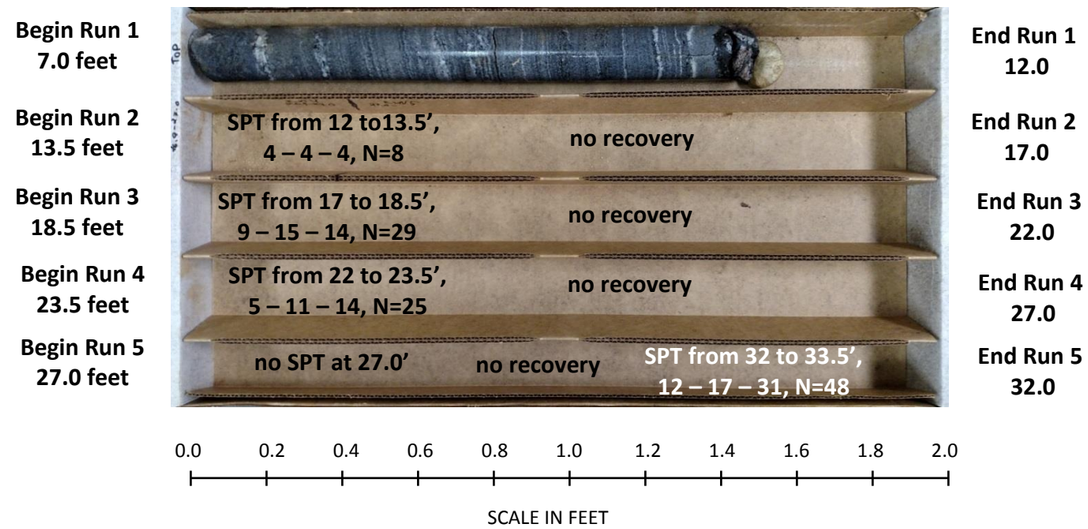
GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_LT#5	**STATION** 65+86	**OFFSET** 45 ft LT	**ALIGNMENT** -L- — **0 HR.** Dry
COLLAR ELEV. 881.3 ft	**TOTAL DEPTH** 33.5 ft	**NORTHING** 855,244	**EASTING** 1,633,015 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/26/15	**COMP. DATE** 08/26/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 20.5 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS — ELEV. (ft)	DEPTH (ft)
874.5											Begin Coring @ 6.8 ft	
	874.5	6.8	5.0	2:43/1.0 2:02/1.0 1:03/1.0 1:04/1.0 0:55/1.0	(1.6) 32%	(1.5) 30%		(1.6) 89%	(1.5) 83%		874.5 **CRYSTALLINE ROCK** (BOULDER)	6.8
											872.7	8.6
870	869.5	11.8						(0.0) 0%	(0.0) 0%		**RESIDUAL** YELLOW-BROWN AND BLACK, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL, SAPROLITIC	
	867.8	13.5		N=8								
			3.5	1:09/0.5 1:29/1.0 1:21/1.0 1:04/1.0	(0.0) 0%	(0.0) 0%						
865	864.3	17.0										
	862.8	18.5		N=29								
			3.5	1:04/0.5 2:09/1.0 2:09/1.0 1:40/1.0	(0.0) 0%	(0.0) 0%						
860	859.3	22.0									858.9	22.4
	857.8	23.5		N=25				(0.1) 2%	(0.0) 0%		YELLOW-BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL, SAPROLITIC	
			3.5	1:15/0.5 1:22/1.0 0:34/1.0 1:03/1.0	(0.1) 3%	(0.0) 0%						
855	854.3	27.0									854.3	27.0
			5.0	0:57/1.0 0:45/1.0 0:51/1.0 0:37/1.0 0:46/1.0	(0.0) 0%	(0.0) 0%		(0.0) 0%	(0.0) 0%		YELLOW-BROWN-BLACK, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL	
850	849.3	32.0										
				N=48							847.8	33.5
											Boring Terminated at Elevation 847.8 ft in RESIDUAL (SAND)	

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/19/15

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth Street to east of Church Street, Y10_LT#5: -L- Station 65+86, 45’ LT



WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_LT#6	**STATION** 66+86	**OFFSET** 45 ft LT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 878.8 ft	**TOTAL DEPTH** 8.1 ft	**NORTHING** 855,222	**EASTING** 1,633,113 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/26/15	**COMP. DATE** 08/26/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
880											
										878.8 GROUND SURFACE	0.0
	877.9	0.9								877.9 CONCRETE	0.9
			6	6	5	11		M		**RESIDUAL** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA	
875	875.3	3.5	6	6	2	8		M			
	870.7	8.1	60/0.0			60/0.0				870.7	8.1
										Boring Terminated with Standard Penetration Test Refusal at Elevation 870.7 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_LT#7	**STATION** 68+00	**OFFSET** 45 ft LT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 878.1 ft	**TOTAL DEPTH** 10.9 ft	**NORTHING** 855,196	**EASTING** 1,633,224 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/26/15	**COMP. DATE** 08/26/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
880											
										878.1 GROUND SURFACE	0.0
	877.2	0.9								876.8 0.9' CONCRETE AND 0.4' ABC STONE	1.3
			10	7	9	16		M		**ROADWAY EMBANKMENT**	
875	874.6	3.5								874.6 RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL AND MICA	3.5
			100/0.4			100/0.4					
	872.6	5.5				60/0.0				872.2	5.9
			60/0.0							**WEATHERED ROCK** GRAY-BROWN (BIOTITE GNEISS)	
870										**CRYSTALLINE ROCK** (BIOTITE GNEISS)	
							RS-9			867.2	10.9

Boring Terminated at Elevation 867.2 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

GEOTECHNICAL BORING REPORT
CORE LOG

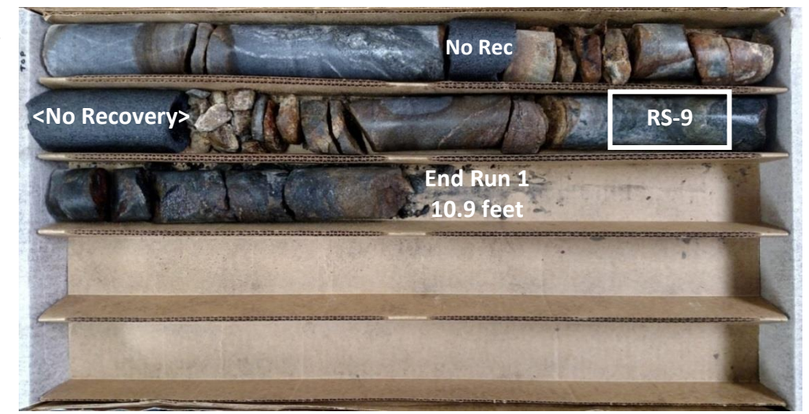
WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_LT#7	**STATION** 68+00	**OFFSET** 45 ft LT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 878.1 ft	**TOTAL DEPTH** 10.9 ft	**NORTHING** 855,196	**EASTING** 1,633,224 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/26/15	**COMP. DATE** 08/26/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 5.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
872.2											Begin Coring @ 5.9 ft	
	872.2	5.9	5.0	2:49/1.0 2:18/1.0 1:58/1.0 2:35/1.0 1:57/1.0	(4.2) 84%	(1.9) 38%		(4.2) 84%	(1.9) 38%		872.2 **CRYSTALLINE ROCK** GRAY-WHITE-BROWN, MODERATELY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD, (BIOTITE GNEISS) VERY CLOSE TO CLOSE FRACTURE SPACING	5.9
870											RS-9: 9.5'-9.8', qu=15,893 psi, R1=12, R2=8, R3=10, R4=12, R5=7 RMR=49, ROCK TYPE=E	
	867.2	10.9					RS-9				867.2	10.9

Boring Terminated at Elevation 867.2 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth Street to east of Church Street, Y10_LT#7: -L- Station 68+00, 45’ LT

Begin Run 1
5.9 feet



0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_RT#1	**STATION** 58+56	**OFFSET** 63 ft RT	**ALIGNMENT** -L- / **0 HR.** 9.5
COLLAR ELEV. 857.0 ft	**TOTAL DEPTH** 35.0 ft	**NORTHING** 855,251	**EASTING** 1,632,291 / **24 HR.** 5.8
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/05/15	**COMP. DATE** 08/05/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
860											
	857.0	0.0								857.0 GROUND SURFACE	0.0
855			2	3	3	6		M		**ARTIFICIAL FILL** BROWN-RED, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND GRAVEL	855.0 / 2.0
	853.5	3.5	2	1	1	2		M		BROWN-RED, FINE TO COARSE SANDY SILT (A-4) WITH TRACE CLAY, MICA, AND GRAVEL	850.0 / 7.0
850										**RESIDUAL** YELLOW-GRAY, FINE SANDY SILT (A-4) WITH TRACE MICA	
	848.5	8.5	2	2	3	5		M			
845										YELLOW-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA	845.0 / 12.0
	843.5	13.5	4	2	2	4		W			
840											
	838.5	18.5	WOH	1	1	2		Sat.			
835											
	833.5	23.5	WOH	2	1	3		Sat.			
830											
	828.5	28.5	1	2	2	4		Sat.			
825											
	823.5	33.5	4	5	7	12		Sat.		822.0 Boring Terminated at Elevation 822.0 ft in RESIDUAL (SAND)	35.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_RT#2	**STATION** 61+61	**OFFSET** 40 ft RT	**ALIGNMENT** -L / **0 HR.** 26.0
COLLAR ELEV. 879.0 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 855,254	**EASTING** 1,632,583 / **24 HR.** 24.3
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/09/15	**COMP. DATE** 09/09/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
880										
	879.0	0.0								879.0 GROUND SURFACE 0.0
875			2	2	5	7	SS-540	22%		**ROADWAY EMBANKMENT** YELLOW-RED, FINE TO COARSE SANDY SILTY CLAY (A-7-6) WITH TRACE GRAVEL, GLASS, AND BRICK FRAGMENTS
	875.5	3.5	4	5	5	10		M		
870										
	870.5	8.5	4	3	6	9		W		867.0 / 12.0
865										**RESIDUAL** DARK BROWN AND GRAY, FINE SANDY SILT (A-4) WITH TRACE MICA
	865.5	13.5	6	5	4	9		M		
860										
	860.5	18.5	2	3	5	8		M		857.0 / 22.0
855										DARK BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA
	855.5	23.5	3	4	5	9		W		
850										
	850.5	28.5	4	4	4	8		W		849.0 / 30.0 Boring Terminated at Elevation 849.0 ft in RESIDUAL (SAND)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_RT#3	**STATION** 64+17	**OFFSET** 60 ft RT	**ALIGNMENT** -L	**0 HR.** Dry
COLLAR ELEV. 883.4 ft	**TOTAL DEPTH** 21.9 ft	**NORTHING** 855,179	**EASTING** 1,632,827	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/14/15	**COMP. DATE** 09/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
885											
	883.4	0.0								883.4 GROUND SURFACE	0.0
			4	5	5	10		M		**ROADWAY EMBANKMENT** BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE CLAY, GRAVEL, AND ROOTS	2.0
880	879.9	3.5	4	5	5	10		M		**RESIDUAL** RED, BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA	7.0
875	874.9	8.5	12	13	16	29		M		GRAY-BROWN TO DARK BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL	
870	869.9	13.5	28	100/0.3		100/0.3				869.4 **WEATHERED ROCK** GRAY-BLACK (BIOTITE GNEISS)	14.0
865	864.9	18.5	5	8	10	18		M		866.4 **RESIDUAL** DARK BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC	17.0
	861.5	21.9	60/0.0			60/0.0				861.5 Boring Terminated with Standard Penetration Test Refusal at Elevation 861.5 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)	21.9

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_RT#4	**STATION** 65+19	**OFFSET** 44 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 884.8 ft	**TOTAL DEPTH** 10.4 ft	**NORTHING** 855,172	**EASTING** 1,632,930	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/25/15	**COMP. DATE** 08/25/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
	883.9	0.9								884.8 GROUND SURFACE 0.0
			5	5	5	10		M		883.9 CONCRETE 0.9
880	881.3	3.5	3	2	5	7		M		**ROADWAY EMBANKMENT** ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL
875	876.3	8.5	11	12	21	33		M		876.8 8.0 **RESIDUAL** GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL
	874.6	10.2	60/0.2			60/0.2				874.6 10.2 874.4 10.4 **CRYSTALLINE ROCK** (BIOTITE GNEISS) Boring Terminated with Standard Penetration Test Refusal at Elevation 874.4 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_RT#4B	**STATION** 65+12	**OFFSET** 51 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 884.7 ft	**TOTAL DEPTH** 10.3 ft	**NORTHING** 855,167	**EASTING** 1,632,922	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/25/15	**COMP. DATE** 08/25/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
	884.7	0.0	1	1	1	2		M		884.7 GROUND SURFACE 0.0
	884.2	0.5								MULCH
	881.2	3.5								**ROADWAY EMBANKMENT** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL
880			2	3	2	5		M		
	876.7	8.0								
	876.2	8.5								**RESIDUAL** GRAY, COARSE TO FINE SAND AND GRAVEL (A-1-a)
875	874.5	10.2	25	44	17	61		M		874.5 10.2
	874.4	10.3	60/0.1			60/0.1				**CRYSTALLINE ROCK** (BIOTITE GNEISS)

Boring Terminated with Standard Penetration Test Refusal at Elevation 874.4 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_RT#5	**STATION** 66+29	**OFFSET** 47 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 879.7 ft	**TOTAL DEPTH** 21.6 ft	**NORTHING** 855,145	**EASTING** 1,633,037 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/25/15	**COMP. DATE** 08/25/15	**SURFACE WATER DEPTH** N/A

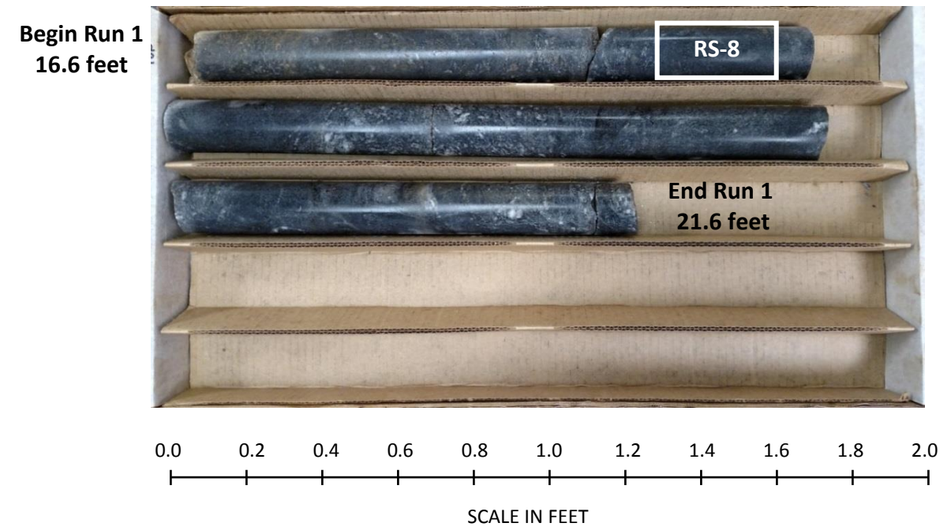
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
880										879.7 GROUND SURFACE	0.0
	879.0	0.7								878.5 0.0'-0.7' ASPHALT, CONCRETE, AND 0.5' ABC STONE	1.2
			7	8	9	17		M		876.7 **ROADWAY EMBANKMENT** RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND CLAY	3.0
	876.2	3.5									
875			3	4	3	7		M			
	871.2	8.5								RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL	
870			36	90	10/0.0	100/1.0				870.7 **WEATHERED ROCK** GRAY-BROWN (BIOTITE GNEISS)	9.0
	866.2	13.5								867.7 GRAY-BROWN-YELLOW, SILTY FINE SAND (A-2-4) WITH LITTLE GRAVEL	12.0
865			17	21	26	47		M			
	863.1	16.6								863.1 **CRYSTALLINE ROCK** (BIOTITE GNEISS)	16.6
860			60/0.0			60/0.0	RS-8			858.1 Boring Terminated at Elevation 858.1 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	21.6

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_RT#5	**STATION** 66+29	**OFFSET** 47 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 879.7 ft	**TOTAL DEPTH** 21.6 ft	**NORTHING** 855,145	**EASTING** 1,633,037 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/25/15	**COMP. DATE** 08/25/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 5.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
863.1											Begin Coring @ 16.6 ft	
	863.1	16.6	5.0	2:22/1.0 2:36/1.0 2:53/1.0 3:22/1.0 4:26/1.0	(4.7) 94%	(4.3) 86%	RS-8	(4.7) 94%	(4.3) 86%		863.1 **CRYSTALLINE ROCK** GRAY-BLUE, SLIGHTLY TO VERY SLIGHTLY WEATHERED, HARD (BIOTITE GNEISS), VERY CLOSE TO MODERATELY CLOSE FRACTURE SPACING	16.6
860												
	858.1	21.6									858.1 RS8: 18.0'-18.3', qu=13,698 psi, R1=7, R2=17, R3=20, R4=20, R5=7 RMR=71, ROCK TYPE=E	21.6
											Boring Terminated at Elevation 858.1 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth Street to east of Church Street, Y10_RT#5: -L- Station 66+29, 47’ RT



WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y10_RT#6	**STATION** 67+29	**OFFSET** 47 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 877.9 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 855,122	**EASTING** 1,633,134	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/25/15	**COMP. DATE** 08/25/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
880											
										877.9 GROUND SURFACE	0.0
	877.1	0.8								876.6 0.0'-0.8' ASPHALT, CONCRETE, AND 0.5' ABC STONE	1.3
875			34	14	11	25		M		**ROADWAY EMBANKMENT** RED-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL AND MICA	
	874.4	3.5	10	8	8	16		M			
870										870.9	7.0
	869.4	8.5	13	8	8	16		M		**RESIDUAL** BROWN-YELLOW-RED, SILTY FINE SAND (A-2-4) WITH TRACE MICA	
865										865.9	12.0
	864.4	13.5	8	6	7	13		M		BROWN-YELLOW, FINE SANDY SILT (A-4) WITH TRACE CLAY AND MICA	
860										860.9	17.0
	859.4	18.5	5	12	14	26		M		DARK BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	
										857.9	20.0
										Boring Terminated at Elevation 857.9 ft in RESIDUAL (SAND)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_EB1A	**STATION** 14+34	**OFFSET** 16 ft LT	**ALIGNMENT** -Y11B- / **0 HR.** 53.8
COLLAR ELEV. 898.5 ft	**TOTAL DEPTH** 75.2 ft	**NORTHING** 855,308	**EASTING** 1,632,958 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/03/15	**COMP. DATE** 09/03/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
905											
900											
	898.3	0.2								898.5 GROUND SURFACE	0.0
			1	1	1	2		M		CONCRETE	0.2
895	895.0	3.5	3	4	4	8		M		**RESIDUAL** DARK RED, SILTY FINE SAND (A-2-4) WITH TRACE ROOTS, MICA, AND GRAVEL SAPROLITIC	
890	890.0	8.5	6	9	9	18		M			
885	885.0	13.5	8	9	11	20		M			
										881.5 DARK RED, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC	17.0
880	880.0	18.5	7	9	10	19		M			
										876.5 YELLOW-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	22.0
875	875.0	23.5	12	14	14	28		M			
870	870.0	28.5	15	18	17	35		M			
865	865.0	33.5	10	15	19	34		M			
860	860.0	38.5	17	18	26	44		M			
										856.5 BROWN-GRAY, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC	42.0
855	855.0	43.5	8	11	11	22		M			
										851.5 BROWN-GRAY-YELLOW, SILTY FINE TO COARSE SAND (A-2-4) TRACE MICA, SAPROLITIC	47.0
850	850.0	48.5	6	10	11	21		W			
845	845.0	53.5	10	15	27	42		W			
840	840.0	58.5	28	36	27	63		W			
835	835.0	63.5	11	13	29	42		W			
830	830.0	68.5	24	100/0.3		100/0.3				829.5 **WEATHERED ROCK** BROWN (BIOTITE GNEISS)	69.0
825	825.0	73.5								825.0	73.5

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_EB1A	**STATION** 14+34	**OFFSET** 16 ft LT	**ALIGNMENT** -Y11B- / **0 HR.** 53.8
COLLAR ELEV. 898.5 ft	**TOTAL DEPTH** 75.2 ft	**NORTHING** 855,308	**EASTING** 1,632,958 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/03/15	**COMP. DATE** 09/03/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
825						Match Line				
	823.3	75.2	60/0.1			60/0.1				823.3 **CRYSTALLINE ROCK** GRAY-BROWN (BIOTITE GNEISS) 75.2
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 823.3 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_EB1B	**STATION** 14+46	**OFFSET** 35 ft RT	**ALIGNMENT** -Y11B- — **0 HR.** 38.0
COLLAR ELEV. 884.6 ft	**TOTAL DEPTH** 62.9 ft	**NORTHING** 855,289	**EASTING** 1,632,909 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/26/15	**COMP. DATE** 08/26/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										884.6 GROUND SURFACE 0.0
	883.7	0.9								883.7 CONCRETE 0.9
			6	7	5	12		M		**RESIDUAL** RED-ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL
	881.1	3.5								
880			10	9	11	20		M		
	876.1	8.5								
875			6	11	19	30		M		
	871.1	13.5								
870			8	10	9	19		M		
	866.1	18.5								
865			17	11	15	26		M		
	861.1	23.5								
860			9	13	13	26		M		
	856.1	28.5								
855			4	5	7	12		W		
	851.1	33.5								
850			5	7	7	14		W		
	846.1	38.5								
845			6	9	11	20		W		
	841.1	43.5								841.6 GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL 43.0
840			7	9	12	21		W		
	836.1	48.5								
835			10	12	14	26		W		
	831.1	53.5								
830			11	21	46	67		W		
	826.1	58.5								825.6 **WEATHERED ROCK** GRAY-BROWN (BIOTITE GNEISS) 59.0
825			32	42	58/0.5	100/1.0				
	821.7	62.9	60/0.0			60/0.0				822.0 / 821.7 **CRYSTALLINE ROCK** (BIOTITE GNEISS) 62.6 / 62.9

Boring Terminated with Standard Penetration Test Refusal at Elevation 821.7 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_B1A	**STATION** 15+37	**OFFSET** 36 ft LT	**ALIGNMENT** -Y11B- / **0 HR.** 18.2
COLLAR ELEV. 869.9 ft	**TOTAL DEPTH** 56.6 ft	**NORTHING** 855,208	**EASTING** 1,632,991 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/14/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	SAMP. NO.	MOI	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
870								
	868.8	1.1						869.9 / 0.0 GROUND SURFACE
			16	13	11			868.2 / 1.7 1.1' OF ASPHALT, CONCRETE, AND 0.6' ABC STONE
	866.4	3.5					M	866.9 / 3.0 **ROADWAY EMBANKMENT** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL AND MICA
865			100/0.4					GRAY-BROWN, FINE TO COARSE SAND (A-3) WITH SOME GRAVEL (POSSIBLE BOULDERS)
	861.4	8.5						DRILLER INDICATES SOFTER DRILLING FROM 6.3'-8.0' AND AT 10.5'
860			59	41/0.1				859.4 / 10.5 **RESIDUAL** YELLOW-BROWN, SAND (A-3)
	856.4	13.5						855.9 / 14.0 **WEATHERED ROCK** DARK BROWN-YELLOW (BIOTITE GNEISS)
855			20	42	58/0.3			852.9 / 17.0 GRAY-YELLOW-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC
	851.4	18.5						
850			17	31	35		W	
	846.4	23.5						
845			3	20	27		W	843.6 / 26.3 **WEATHERED ROCK** YELLOW-BROWN (BIOTITE GNEISS)
	841.4	28.5						
840			100/0.4					
	836.4	33.5						836.4 / 33.5 **CRYSTALLINE ROCK** (BIOTITE GNEISS)
835	836.3	33.6	60/0.0					836.3 / 33.6
			60/0.0					**CRYSTALLINE ROCK** (BIOTITE GNEISS)
830						RS-2		831.3 / 38.6 (BIOTITE GNEISS)
825								825.3 / 44.6 (BIOTITE GNEISS)
820								821.3 / 48.6 (BIOTITE GNEISS)
815								813.3 / 56.6 Boring Terminated at Elevation 813.3 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 12/21/15

GEOTECHNICAL BORING REPORT
CORE LOG

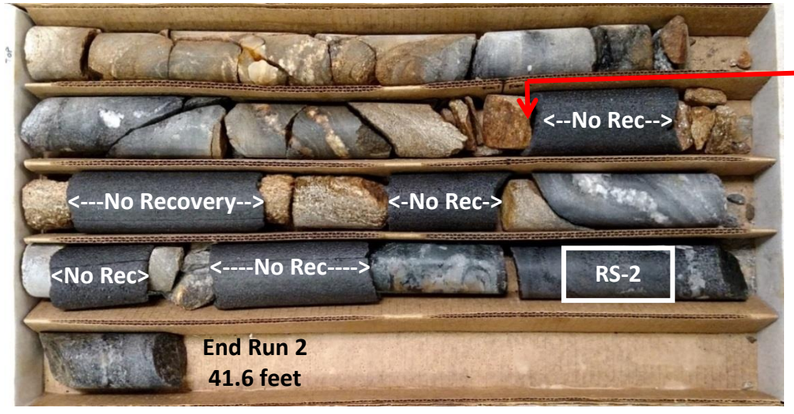
WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_B1A	**STATION** 15+37	**OFFSET** 36 ft LT	**ALIGNMENT** -Y11B- / **0 HR.** 18.2
COLLAR ELEV. 869.9 ft	**TOTAL DEPTH** 56.6 ft	**NORTHING** 855,208	**EASTING** 1,632,991 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/14/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 23.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	DESCRIPTION AND REMARKS (ELEV. (ft) / DEPTH (ft))
836.3										Begin Coring @ 33.6 ft
835	836.3	33.6	3.0	2:58/1.0 3:00/1.0 2:26/1.0	(3.0) 100%	(0.0) 0%		(3.8) 76%	(0.0) 0%	836.3 / 33.6 **CRYSTALLINE ROCK** GRAY, MODERATELY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD, (BIOTITE GNEISS) VERY CLOSE TO CLOSE FRACTURE SPACING
	833.3	36.6	5.0	1:38/1.0 2:13/1.0 3:40/1.0 3:35/1.0 3:00/1.0	(2.8) 56%	(1.0) 20%				831.3 / 38.6
830								(5.0) 83%	(3.3) 55%	GRAY, SLIGHTLY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD, (BIOTITE GNEISS) CLOSE TO MODERATELY CLOSE FRACTURE SPACING RS-2: 41.0'-41.3', qu=9,990 psi, R1=7, R2=13, R3=10, R4=12, R5=7 RMR=49, ROCK TYPE=E
	828.3	41.6					RS-2			
			5.0	2:36/1.0 2:50/1.0 3:07/1.0 2:13/1.0 1:31/1.0	(3.0) 60%	(2.3) 46%				825.3 / 44.6
825										
	823.3	46.6						(0.7) 18%	(0.0) 0%	GRAY, BROWN, MODERATELY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD, (BIOTITE GNEISS) VERY CLOSE TO CLOSE FRACTURE SPACING
			5.0	1:35/1.0 2:17/1.0 2:38/1.0 3:45/1.0 4:16/1.0	(3.7) 74%	(2.6) 52%				821.3 / 48.6
820								(8.0) 100%	(6.2) 78%	GRAY, SLIGHTLY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD, (BIOTITE GNEISS) CLOSE TO MODERATLEY CLOSE FRACTURE SPACING
	818.3	51.6								
			5.0	3:25/1.0 2:33/1.0 2:54/1.0 2:53/1.0 2:20/1.0	(5.0) 100%	(3.6) 72%				
815										
	813.3	56.6								813.3 / 56.6 Boring Terminated at Elevation 813.3 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 12/21/15

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth St. to east of Church St., Y11B_B1A: -Y11B- Station 15+37, 36' LT

Begin Run 1
33.6 feet



End Run 1 &
Begin Run 2
36.6 feet

End Run 2
41.6 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

Begin Run 3
41.6

End Run 3 &
Begin Run 4
46.6 feet

End Run 4
51.6 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

Begin Run 5
51.6 feet

End Run 5
56.6 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_EB2A	**STATION** 16+46	**OFFSET** 15 ft LT	**ALIGNMENT** -Y11B- / **0 HR.** Dry
COLLAR ELEV. 902.4 ft	**TOTAL DEPTH** 14.0 ft	**NORTHING** 855,097	**EASTING** 1,632,985 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/03/15	**COMP. DATE** 09/03/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
905											
										902.4 GROUND SURFACE	0.0
	901.9	0.5								0.5' ASPHALT AND 1.2' ABC STONE	
			13	7	3	10				900.7	1.7
900										**ROADWAY EMBANKMENT**	
	898.9	3.5						M		RED-BROWN, FINE SANDY CLAY (A-6) WITH TRACE MICA AND ORGANICS	
			7	53	27	80				898.5	3.9
								M		**RESIDUAL** YELLOW-GRAY, FINE SAND (A-3) WITH SOME GRAVEL	
895										893.9	8.5
	893.9	8.5								**CRYSTALLINE ROCK** GRAY-BLACK-YELLOW (BIOTITE GNEISS)	
			60/0.1			60/0.1					
890										890.4	12.0
	889.0	13.4								**WEATHERED ROCK** GRAY-WHITE (BIOTITE GNEISS)	
	888.4	14.0	100/0.2			100/0.2				888.4	14.0
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 888.4 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_EB2B	**STATION** 15+88	**OFFSET** 26 ft RT	**ALIGNMENT** -Y11B- / **0 HR.** Dry
COLLAR ELEV. 883.3 ft	**TOTAL DEPTH** 16.7 ft	**NORTHING** 855,149	**EASTING** 1,632,936 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/15/15	**COMP. DATE** 08/15/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
885											
										883.3 GROUND SURFACE	0.0
	882.5	0.8								882.5 CONCRETE	0.8
			5	6	16	22				881.5 **ROADWAY EMBANKMENT** GRAY AND RED, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL	1.8
880	879.8	3.5						M			
			5	9	12	21				**RESIDUAL** GRAY-BROWN, FINE SANDY SILT (A-4), HIGHLY MICACEOUS, SAPROLITIC	
								M		876.3	7.0
875	874.8	8.5								**WEATHERED ROCK** GRAY (MICA SCHIST)	
			100/0.5			100/0.5					
870	869.8	13.5								870.8	12.5
			28	40	35	75				**RESIDUAL** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC, SOME GRAVEL	
								M		866.8	16.5
	866.6	16.7								866.6 **CRYSTALLINE ROCK** GRAY (MICA SCHIST)	16.7
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 866.6 ft in CRYSTALLINE ROCK (MICA SCHIST)	

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/5/15

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_LT#1	**STATION** 19+79	**OFFSET** 36 ft RT	**ALIGNMENT** -Y10RA- / **0 HR.** 49.4
COLLAR ELEV. 900.8 ft	**TOTAL DEPTH** 50.0 ft	**NORTHING** 855,332	**EASTING** 1,632,847 / **24 HR.** 45.1
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/14/15	**COMP. DATE** 09/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
905											
900	900.8	0.0	6	11	11	22		M		900.8 GROUND SURFACE	0.0
	897.3	3.5	7	8	9	17		M		898.8 **ROADWAY EMBANKMENT** BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL AND ORGANICS (ROOTS)	2.0
895	892.3	8.5	5	5	6	11		M		**RESIDUAL** RED-YELLOW-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL	
890	887.3	13.5	10	18	13	31		M			
885	882.3	18.5	5	5	7	12		M			
880	877.3	23.5	6	7	5	12		M			
875	872.3	28.5	6	8	7	15		M			
870	867.3	33.5	7	9	10	19		M			
865	862.3	38.5	3	4	3	7		M			
860	857.3	43.5	5	6	7	13		▼			
855	852.3	48.5	5	8	11	19		W		850.8 Boring Terminated at Elevation 850.8 ft in RESIDUAL (SILT)	50.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_LT#2	**STATION** 17+44	**OFFSET** 8 ft RT	**ALIGNMENT** -Y10RA- / **0 HR.** Dry
COLLAR ELEV. 880.2 ft	**TOTAL DEPTH** 18.6 ft	**NORTHING** 855,253	**EASTING** 1,633,070 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/26/15	**COMP. DATE** 08/26/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
880	879.3	0.9	6	6	4	10		M		880.2 GROUND SURFACE 0.0; 879.3 CONCRETE 0.9
875	876.7	3.5	5	5	6	11		M		**RESIDUAL** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, AND GRAVEL, SAPROLITIC
870	871.7	8.5	5	5	5	10		M		
865	866.7	13.5	13	16	27	43		M		
	861.7	18.5	60/0.1			60/0.1				862.4 17.8; 861.6 **CRYSTALLINE ROCK** (BIOTITE GNEISS) 18.6; Boring Terminated with Standard Penetration Test Refusal at Elevation 861.6 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_LT#3	**STATION** 16+45	**OFFSET** 6 ft RT	**ALIGNMENT** -Y10RA- / **0 HR.** Dry
COLLAR ELEV. 877.9 ft	**TOTAL DEPTH** 12.4 ft	**NORTHING** 855,229	**EASTING** 1,633,166 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/26/15	**COMP. DATE** 08/27/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
880											
	877.0	0.9								877.9 GROUND SURFACE	0.0
			10	13	35	48		M		877.0 CONCRETE	0.9
875	874.4	3.5								**RESIDUAL**	
			14	5	20	25		M		874.4 GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL	3.5
870	870.5	7.4	60/0.0			60/0.0	RS-10			GRAY, FINE TO COARSE SAND AND ROCK FRAGMENTS (A-1-a) 870.5	7.4
										CRYSTALLINE ROCK (BIOTITE GNEISS) 865.5	12.4
										Boring Terminated at Elevation 865.5 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/5/15

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_LT#3	**STATION** 16+45	**OFFSET** 6 ft RT	**ALIGNMENT** -Y10RA- / **0 HR.** Dry
COLLAR ELEV. 877.9 ft	**TOTAL DEPTH** 12.4 ft	**NORTHING** 855,229	**EASTING** 1,633,166 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/26/15	**COMP. DATE** 08/27/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 5.0 ft		

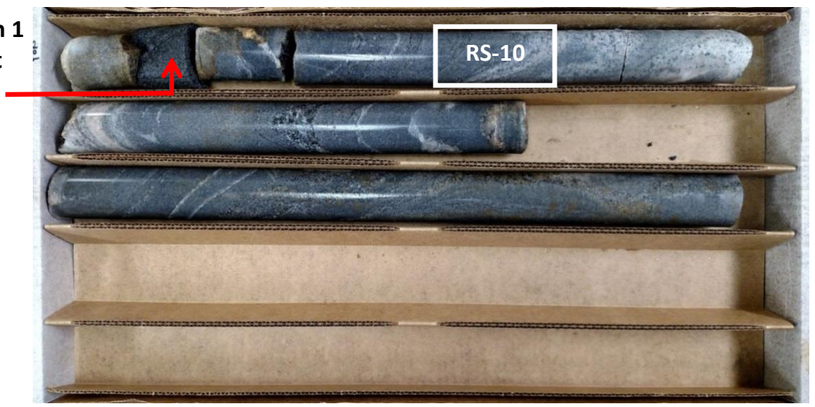
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
870.5											Begin Coring @ 7.4 ft	
870	870.5	7.4	5.0	3:45/1.0 4:09/1.0 3:56/1.0 4:19/1.0 3:44/1.0	(4.8) 96%	(4.0) 80%	RS-10	(4.8) 96%	(4.0) 80%		870.5 **CRYSTALLINE ROCK** GRAY-WHITE, SLIGHTLY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD (BIOTITE GNEISS), CLOSE TO MODERATELY CLOSE FRACTURE SPACING RS-10: 8.5'-8.8', qu=15,385 psi, R1=12, R2=17, R3=20, R4=20, R5=7 RMR=76, ROCK TYPE=E	7.4
	865.5	12.4									865.5 Boring Terminated at Elevation 865.5 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	12.4

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/5/15

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth St. to east of Church St., Y11B_LT#3: -Y10A- Station 16+45, 6' RT

Begin Run 1
7.4 feet

No Recovery



End Run 1
12.4 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_LT#4	**STATION** 15+55	**OFFSET** 73 ft RT	**ALIGNMENT** -Y10RA- / **0 HR.** Dry
COLLAR ELEV. 912.4 ft	**TOTAL DEPTH** 45.0 ft	**NORTHING** 855,275	**EASTING** 1,633,268 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/10/15	**COMP. DATE** 09/10/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
915											
	912.4	0.0								912.4 GROUND SURFACE	0.0
			3	8	9	17		M		**ROADWAY EMBANKMENT** BROWN AND LIGHT RED, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL, ORGANICS, AND CLAY	
910	908.9	3.5	21	16	16	32		M			
905	903.9	8.5	7	5	5	10		M		905.4 **RESIDUAL** LIGHT RED, SILTY FINE SAND (A-2-4) WITH TRACE MICA, CLAY, AND GRAVEL, SAPROLITIC	7.0
900	898.9	13.5	3	4	5	9		M			
895	893.9	18.5	100/0.3			100/0.3				893.9 **WEATHERED ROCK** GRAY-WHITE (BIOTITE GNEISS)	18.5
890	888.9	23.5	5	12	42	54		M		890.4 **RESIDUAL** RED-BROWN TO GRAY, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL, SAPROLITIC	22.0
885	886.1	26.3	62	38/0.2		100/0.7				886.1	26.3
	883.9	28.5	27	29	16	45				884.9 **WEATHERED ROCK** GRAY-WHITE (BIOTITE GNEISS) **RESIDUAL** GRAY-BROWN AND WHITE, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA , SAPROLITIC	27.5
880	878.9	33.5	15	18	37	55		M			
875	873.9	38.5	16	24	27	51		M			
870	868.9	43.5	13	14	23	37		M		867.4 Boring Terminated at Elevation 867.4 ft in RESIDUAL (SAND)	45.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_LT#5	**STATION** 14+40	**OFFSET** 10 ft RT	**ALIGNMENT** -Y10RA- / **0 HR.** Dry
COLLAR ELEV. 880.6 ft	**TOTAL DEPTH** 28.6 ft	**NORTHING** 855,188	**EASTING** 1,633,367 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/26/15	**COMP. DATE** 08/26/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
										880.6 GROUND SURFACE 0.0
880	879.3	1.3								879.3 ASPHALT AND CONCRETE 1.3
	877.1	3.5	7	7	5	12		M		877.6 **ROADWAY EMBANKMENT** RED-BROWN-YELLOW, FINE SANDY SILT (A-4) WITH TRACE MICA 3.0
875			5	7	18	25		M		**RESIDUAL** BROWN-YELLOW, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL AND MICA, SAPROLITIC
870	872.1	8.5	10	11	13	24		M		
865	867.1	13.5	8	9	11	20		M		
860	862.1	18.5	8	10	13	23		M		
855	857.1	23.5	25	35	65/0.4	100/0.9				856.6 24.0 **WEATHERED ROCK** DARK GRAY-BROWN (BIOTITE GNEISS)
	852.1	28.5	60/0.1			60/0.1				852.1 28.5 852.0 28.6 **CRYSTALLINE ROCK** GRAY-BROWN (BIOTITE GNEISS) Boring Terminated with Standard Penetration Test Refusal at Elevation 852.0 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_LT#6	**STATION** 13+59	**OFFSET** 70 ft RT	**ALIGNMENT** -Y10RA- / **0 HR.** Dry
COLLAR ELEV. 906.2 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 855,228	**EASTING** 1,633,459 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/10/15	**COMP. DATE** 09/11/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
910											
										906.2 GROUND SURFACE	0.0
905	905.9	0.3	9	7	6	13		M		905.2 0.3' ASPHALT AND 0.7' ABC STONE	1.0
	902.7	3.5	1	1	2	3		M		904.2 **ROADWAY EMBANKMENT** BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL	2.0
900										DARK BROWN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL AND WOOD FRAGMENTS	
	897.7	8.5	4	2	1	3	SS-554	28%		899.2 BROWN-BLACK, SILTY FINE TO COARSE SANDY CLAY (A-7-6) WITH LITTLE GRAVEL AND TRACE ORGANICS	7.0
895										894.2 DARK BROWN-BLACK PEAT (86% ORGANIC)	12.0
	892.7	13.5	1	2	1	3	SS-555	21%			
890										889.2 **RESIDUAL**	17.0
	887.7	18.5	3	5	5	10		M		887.4 DARK GRAY, CLAYEY SILT (A-7-5)	18.8
885										RED-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA	
	882.7	23.5	6	7	7	14		M			
880											
	877.7	28.5	7	8	10	18		M		876.2	30.0

Boring Terminated at Elevation 876.2 ft in RESIDUAL (SAND)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_LT#7	**STATION** 12+00	**OFFSET** 13 ft RT	**ALIGNMENT** -Y10RA- / **0 HR.** Dry
COLLAR ELEV. 890.8 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,141	**EASTING** 1,633,601 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/27/15	**COMP. DATE** 08/27/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
895										
890										890.8 GROUND SURFACE 0.0
	889.2	1.6								889.2 ASPHALT AND CONCRETE 1.6
			9	11	6	17	SS-208	10%		**RESIDUAL**
	887.3	3.5	3	6	4	10		M		ORANGE-BROWN, SILTY FINE TO COARSE SAND (A-2-4)
885										
	882.3	8.5	3	4	6	10		M		880.8 10.0

Boring Terminated at Elevation 880.8 ft in RESIDUAL (SAND)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_RT#1	**STATION** 17+00	**OFFSET** 17 ft LT	**ALIGNMENT** -Y10RDA4- / **0 HR.** Dry
COLLAR ELEV. 887.8 ft	**TOTAL DEPTH** 20.5 ft	**NORTHING** 855,118	**EASTING** 1,632,846 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/14/15	**COMP. DATE** 09/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
890											
	887.8	0.0								887.8 GROUND SURFACE	0.0
			1	3	3	6		M		**ROADWAY EMBANKMENT** 885.8 RED-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA AND GRAVEL	2.0
885	884.3	3.5	5	8	23	31		M		**RESIDUAL** RED-BROWN TO DARK BROWN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL, SAPROLITIC	
880	879.3	8.5	8	11	13	24		M			
875	874.3	13.5	8	9	9	18		M			
870	869.3	18.5	60/0.1			60/0.1				869.3	18.5
	867.3	20.5	60/0.0			60/0.0				867.3 **CRYSTALLINE ROCK** (BIOTITE GNEISS	20.5

Boring Terminated with Standard Penetration Test Refusal at Elevation 867.3 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_RT#2	**STATION** 14+30	**OFFSET** 65 ft LT	**ALIGNMENT** -Y10RDA4- / **0 HR.** Dry
COLLAR ELEV. 905.0 ft	**TOTAL DEPTH** 15.4 ft	**NORTHING** 855,056	**EASTING** 1,633,085 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/09/15	**COMP. DATE** 09/09/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
905										905.0 GROUND SURFACE	0.0
	904.8	0.2	12	11	9	20		M		903.9 0.2' ASPHALT AND 0.9' ABC STONE	1.1
										903.0 **ROADWAY EMBANKMENT** DARK RED-YELLOW, FINE SANDY SILTY CLAY (A-7-5)	2.0
900	901.5	3.5	5	5	5	10		M		**RESIDUAL** BROWN-YELLOW-RED, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	
895	896.5	8.5	11	12	33	45		D			
890	891.5	13.5	14	100/0.3		100/0.3				891.0	14.0
	889.6	15.4	60/0.0			60/0.0				889.6 **WEATHERED ROCK** GRAY-WHITE (MICA SCHIST)	15.4

Boring Terminated with Standard Penetration Test Refusal at Elevation 889.6 ft on CRYSTALLINE ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_RT#3	**STATION** 13+33	**OFFSET** 10 ft LT	**ALIGNMENT** -Y10RDA4- / **0 HR.** Dry
COLLAR ELEV. 880.3 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 855,091	**EASTING** 1,633,192 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/24/15	**COMP. DATE** 08/24/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
885											
880										880.3 GROUND SURFACE	0.0
	879.4	0.9	7	7	9	16		M		879.4 ASPHALT AND CONCRETE	0.9
	876.8	3.5	7	8	7	15		M		**RESIDUAL** TAN-BROWN AND GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC	
875											
	871.8	8.5	7	12	14	26		M			
870											
	866.8	13.5	9	12	7	19		M			
865											
	861.8	18.5	100/0.5			100/0.5				861.8	18.5
860										**WEATHERED ROCK** GRAY-BROWN (BIOTITE GNEISS)	
	856.8	23.5	22	7	43	50		M		857.3	23.0
										RESIDUAL GRAY, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL	
										855.3 Boring Terminated at Elevation 855.3 ft in RESIDUAL (SAND)	25.0

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_RT#4	**STATION** 12+30	**OFFSET** 13 ft LT	**ALIGNMENT** -Y10RDA4- / **0 HR.** Dry
COLLAR ELEV. 882.5 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 855,074	**EASTING** 1,633,295 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/24/15	**COMP. DATE** 08/24/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
885										
										882.5 GROUND SURFACE 0.0
	881.9	0.6	24	8	8	16		M		881.4 ASPHALT AND CONCRETE 1.1
880										**ROADWAY EMBANKMENT**
	879.0	3.5	7	9	8	17	SS-184	21%		879.5 RED-ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA 3.0
875										RED-BROWN,SILTY FINE TO COARSE SANDY CLAY (A-7-6) WITH TRACE GRAVEL AND ORGANICS
	874.0	8.5	7	6	12	18		M		874.5 8.0
										RESIDUAL
										872.5 TAN-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA 10.0
										Boring Terminated at Elevation 872.5 ft in RESIDUAL (SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_RT#5	**STATION** 11+33	**OFFSET** 15 ft LT	**ALIGNMENT** -Y10RDA4-	**0 HR.** Dry
COLLAR ELEV. 886.6 ft	**TOTAL DEPTH** 13.0 ft	**NORTHING** 855,064	**EASTING** 1,633,391	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/25/15	**COMP. DATE** 08/25/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
890											
										886.6 GROUND SURFACE	0.0
885	885.3	1.3								885.3 ASPHALT AND CONCRETE	1.3
			6	10	9	19		M		**ROADWAY EMBANKMENT** RED-ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL	
	883.1	3.5	10	7	7	14		M			
880	880.1	6.5	60/0.0			60/0.0				880.1 **CRYSTALLINE ROCK** (MICA SCHIST)	6.5
										877.6	9.0
875	875.0	11.6	5	5	7	12		Sat.		**RESIDUAL** BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL	
										873.6 Boring Terminated at Elevation 873.6 ft in RESIDUAL (SAND)	13.0

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/5/15

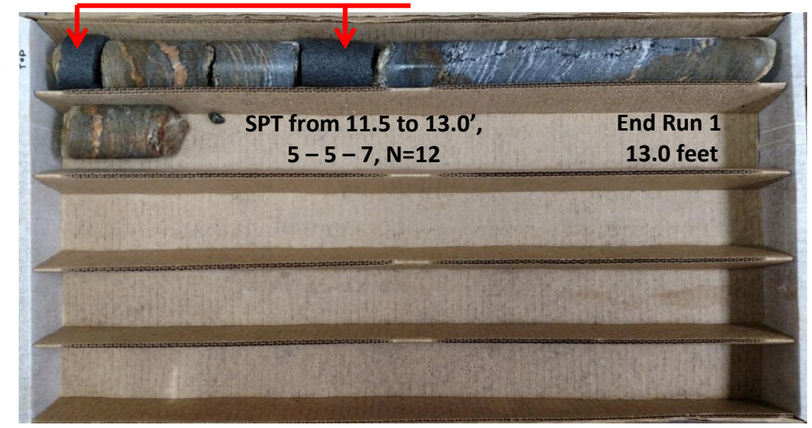
GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_RT#5	**STATION** 11+33	**OFFSET** 15 ft LT	**ALIGNMENT** -Y10RDA4-	**0 HR.** Dry
COLLAR ELEV. 886.6 ft	**TOTAL DEPTH** 13.0 ft	**NORTHING** 855,064	**EASTING** 1,633,391	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/25/15	**COMP. DATE** 08/25/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 5.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
880											Begin Coring @ 6.5 ft	
	880.1	6.5	5.0	*N=60/0.0* 3:08/1.0 2:36/1.0 1:31/1.0 0:28/1.0	(1.9) 38%	(0.9) 18%		(1.9) 76%	(0.9) 36%		880.1 **CRYSTALLINE ROCK** GRAY-WHITE, SLIGHTLY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD MICA SCHIST WITH VERY CLOSE TO MODERATELY CLOSE FRACTURE SPACING	6.5
											877.6	9.0
875	875.1	11.5		0:22/1.0 *N=12*				(0.0) 0%	(0.0) 0%		**RESIDUAL**	
											873.6 BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL	13.0
											Boring Terminated at Elevation 873.6 ft in RESIDUAL (SAND)	

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 10/5/15

CORE PHOTOGRAPHS: US 158/US 421/NC 150/Bus 40, west of Fourth St. to east of Church St., Y11B_RT#5: -Y10RDA4- Station 11+33, 15' LT



0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y11B_RT#6	**STATION** 10+35	**OFFSET** 20 ft LT	**ALIGNMENT** -Y10RDA4- / **0 HR.** Dry
COLLAR ELEV. 891.6 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 855,050	**EASTING** 1,633,488 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/25/15	**COMP. DATE** 08/25/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
895											
	891.6	0.0								891.6 GROUND SURFACE	0.0
890			7	4	4	8		M		**ROADWAY EMBANKMENT** ORANGE-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE ORGANICS AND BRICK FRAGMENTS	
	888.1	3.5	2	2	2	4		M			
885										883.6	8.0
	883.1	8.5	4	2	2	4		M		RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE BRICK FRAGMENTS	
880										878.6	13.0
	878.1	13.5	5	3	5	8		M		876.6 RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE ORGANICS	15.0
										Boring Terminated at Elevation 876.6 ft in ROADWAY EMBANKMENT (CLAY)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y12B_1200R	**STATION** 12+00	**OFFSET** 36 ft RT	**ALIGNMENT** -Y12B- / **0 HR.** Dry
COLLAR ELEV. 810.7 ft	**TOTAL DEPTH** 7.8 ft	**NORTHING** 853,452	**EASTING** 1,628,728 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/31/15	**COMP. DATE** 08/31/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
815											
	810.7	0.0								810.7 GROUND SURFACE	0.0
810			1	1	4	5		M		809.4 **ROADWAY EMBANKMENT** DARK BROWN, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS (ROOTS)	1.3
	807.2	3.5	13	19	16	35		M		**RESIDUAL** GRAY-RED-YELLOW, SILTY FINE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	
805										804.0	6.7
	802.9	7.8	60/0.0			60/0.0				802.9 **WEATHERED ROCK** (BIOTITE GNEISS)	7.8
										Boring Terminated with Standard Penetration Test Refusal at Elevation 802.9 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y12B_1423L	**STATION** 14+23	**OFFSET** 3 ft LT	**ALIGNMENT** -Y12B- / **0 HR.** Dry
COLLAR ELEV. 827.2 ft	**TOTAL DEPTH** 13.9 ft	**NORTHING** 853,360	**EASTING** 1,628,846 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/29/15	**COMP. DATE** 07/29/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
830											
	827.2	0.0								827.2 GROUND SURFACE	0.0
825			2	5	6	11		M		**ARTIFICIAL FILL** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS, CONCRETE, AND LITTLE GRAVEL	
	823.7	3.5	100/0.4			100/0.4				823.7 **WEATHERED ROCK** TAN AND GRAY (MICA SCHIST)	3.5
820											
	818.7	8.5	100/0.3			100/0.3					
815											
	813.7	13.5									
	813.3	13.9	100/0.2			100/0.2				813.3 Boring Terminated with Standard Penetration Test Refusal at Elevation 813.3 ft on CRYSTALLINE ROCK (MICA SCHIST)	13.9
			60/0.0			60/0.0					

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y12B_1500R	**STATION** 15+00	**OFFSET** 25 ft RT	**ALIGNMENT** -Y12B- / **0 HR.** Dry
COLLAR ELEV. 833.7 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 853,638	**EASTING** 1,628,921 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 07/29/15	**COMP. DATE** 07/29/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
835											
	833.7	0.0								833.7 GROUND SURFACE	0.0
			7	16	10	26		M		**ARTIFICIAL FILL** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS, GRAVEL, AND CONCRETE	
830	830.2	3.5	100/0.2			100/0.2				830.7 **WEATHERED ROCK** TAN AND GRAY (MICA SCHIST)	3.0
825	825.2	8.5									
	823.7	10.0	50	50/0.2		100/0.7				823.7 Boring Terminated with Standard Penetration Test Refusal at Elevation 823.7 ft on CRYSTALLINE ROCK (MICA SCHIST)	10.0
			60/0.0			60/0.0					

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y14_1250L	**STATION** 12+50	**OFFSET** 35 ft LT	**ALIGNMENT** -Y14-	**0 HR.** Dry
COLLAR ELEV. 910.3 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 859,263	**EASTING** 1,630,939	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 09/16/15	**COMP. DATE** 09/16/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
915											
910	910.3	0.0								910.3 GROUND SURFACE	0.0
			3	11	9	20		M		**ROADWAY EMBANKMENT** BROWN, SILTY FINE SAND (A-2-4) WITH TRACE ROOTS AND GRAVEL	
	906.8	3.5								906.3	4.0
905			12	10	13	23		M		**RESIDUAL** YELLOW-BROWN, SILTY FINE SAND (A-2-4) WITH LITTLE MICA, SAPROLITIC	
	901.8	8.5									
			5	8	9	17		M		900.3	10.0

Boring Terminated at Elevation 900.3 ft in RESIDUAL (SAND)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis	
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET				**GROUND WTR (ft)**
BORING NO. Y14_1500R	**STATION** 15+00	**OFFSET** 25 ft RT	**ALIGNMENT** -Y14-	**0 HR.** Dry
COLLAR ELEV. 923.9 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 859,212	**EASTING** 1,631,190	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D.Tignor	**START DATE** 09/15/15	**COMP. DATE** 09/15/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
925										
	923.9	0.0								923.9 GROUND SURFACE 0.0
			5	7	9	16		M		**ROADWAY EMBANKMENT** BROWN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL AND ROOTS
920	920.4	3.5								
			9	7	7	14		M		
										916.9 7.0
915	915.4	8.5								**RESIDUAL** RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE MICA
			3	5	8	13		M		913.9 10.0

Boring Terminated at Elevation 913.9 ft in RESIDUAL (CLAY)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y14_1650R	**STATION** 16+50	**OFFSET** 25 ft RT	**ALIGNMENT** -Y14- / **0 HR.** Dry
COLLAR ELEV. 936.9 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 859,217	**EASTING** 1,631,340 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/15/15	**COMP. DATE** 09/15/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
940											
	936.9	0.0								936.9 GROUND SURFACE	0.0
935			1	4	4	8		M		**ROADWAY EMBANKMENT** RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE ROOTS AND GRAVEL	934.9 / 2.0
	933.4	3.5	3	2	3	5		M		RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE CLAY, GRAVEL, AND LITTLE MICA	
930	928.4	8.5	1	8	6	14				**RESIDUAL** RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH LITTLE MICA, SAPROLITIC	927.9 / 9.0
925	923.4	13.5	12	13	19	32					921.9 / 15.0

Boring Terminated at Elevation 921.9 ft in RESIDUAL (SAND)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y14_1800L	**STATION** 18+02	**OFFSET** 37 ft LT	**ALIGNMENT** -Y14- / **0 HR.** Dry
COLLAR ELEV. 942.2 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 859,284	**EASTING** 1,631,491 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/16/15	**COMP. DATE** 09/16/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
945										
	942.1	0.1								942.2 GROUND SURFACE 0.0
			5	2	6	8		M		941.5 / 0.7 0.1' ASPHALT AND 0.6' ABC STONE
940	938.7	3.5	4	5	6	11		M		940.2 / 2.0 **ROADWAY EMBANKMENT** BROWN, FINE SANDY CLAY (A-6)
935	933.7	8.5	15	8	10	18		M		**RESIDUAL** YELLOW-RED, CLAYEY SILT (A-5) 935.2 / 7.0 DARK RED TO WHITE, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC 932.2 / 10.0

Boring Terminated at Elevation 932.2 ft in RESIDUAL (SAND)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. Y14_2000L	**STATION** 20+01	**OFFSET** 35 ft LT	**ALIGNMENT** -Y14-	**0 HR.** Dry
COLLAR ELEV. 950.8 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 859,282	**EASTING** 1,631,691	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/16/15	**COMP. DATE** 09/16/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
955											
										950.8 GROUND SURFACE	0.0
950	950.7	0.1								950.1 0.1' ASPHALT AND 0.6' ABC STONE	0.7
			9	8	7	15		M		948.8 **ROADWAY EMBANKMENT** RED, SILTY CLAY (A-7-5) WITH TRACE MICA	2.0
	947.3	3.5								**RESIDUAL** YELLOW-RED, SILTY FINE SAND (A-2-4) WITH TRACE CLAY AND MICA	
945			4	5	6	11		M		943.8 YELLOW DARK RED, FINE SANDY SILT (A-4) WITH TRACE MICA	7.0
	942.3	8.5								940.8 Boring Terminated at Elevation 940.8 ft in RESIDUAL (SILT)	10.0
			4	4	5	9		M			

North Carolina Department of Transportation
Division of Highways
Materials and Test Unit
Soils Laboratory

T.I.P. ID NO.: U-2827B
DESCRIPTION: US 158/US 421/NC 150/Business 40, West of Fourth Street to East of Church Street
Page 1 of 2

REPORT ON SAMPLES OF: SOIL FOR QUALITY

PROJECT: 34872.1.1 COUNTY: Forsyth
DATE SAMPLED: 7/15, 8/15 & 9/15 RECEIVED: 7/15, 8/15 & 9/15
SAMPLED FROM: Various REPORTED: 7/15, 8/15 & 9/15
SUBMITTED BY: P. Alton, PE BY: D. Jenks & M. Grabski
Cert No. 101-02-0603 53698

TEST RESULTS

PROJ. SAMPLE NO.	SS-325	SS-334	SS-20	SS-360	SS-31	SS-309	SS-310	SS-483	SS-134	SS-215	SS-111	SS-225	SS-222		SS-476
BORING NO.	L_3100L	Y1_1200L	Y1_3300R	Y1LPA_1500	Y1RPD_1800	Y1_RT#2	Y1_RT#2	Y4_LT#1	Y5_LT#1	Y5_LT#2	Y5_RT#1	Y5A#1	Y5A#3	Y8B_RT#7	Y7RB_LT#4
Retained #4 Sieve %	0.0	0.0	22.0	0.0	6.0	0.3	13.8	0.0	0.5	4.8	3.2	0.0	0.0	3.9	0.3
Passing #10 Sieve %	100.0	100.0	75.3	100.0	91.0	99.4	82.6	100.0	96.1	92.1	91.5	99.0	99.7	90.4	99.3
Passing #40 Sieve %	88.8	94.9	58.4	96.6	75.5	91.0	69.2	97.8	87.2	79.8	80.3	82.4	96.4	76.3	95.8
Passing #200 Sieve %	63.1	85.8	35.8	76.5	44.7	64.0	43.9	74.3	64.5	45.8	53.1	33.5	80.8	38.1	73.0
SOIL MORTAR - 100%															
Coarse Sand Ret - #60 %	17.8	6.7	32.8	7.9	27.3	16.4	25.3	6.6	15.3	25.0	20.5	34.5	6.3	30.3	9.0
Fine Sand Ret - #270 %	22.0	9.5	22.1	18.1	27.5	22.0	24.0	21.5	20.0	27.5	23.9	33.3	14.3	30.1	19.7
Silt 0.053 - 0.010 mm %	19.4	17.6	11.4	26.6	14.3	20.6	10.3	17.4	14.1	15.6	15.2	10.3	21.9	15.7	16.8
Clay < 0.010 mm %	40.8	66.2	33.7	47.4	30.9	41.0	40.4	54.5	50.6	31.9	40.4	21.9	57.5	23.9	54.5
L.L.	43	74	40	61	39	45	54	66	47	37	40	20	58	35	62
P.L.	27	47	23	34	27	29	26	40	25	26	24	17	30	24	41
P.I.	16	27	17	27	12	16	28	26	22	11	16	3	28	11	21
AASHTO Classification	A-7-6 (9)	A-7-5 (31)	A-6 (2)	A-7-5 (23)	A-6 (2)	A-7-6 (9)	A-7-6 (8)	A-7-5 (22)	A-7-6 (13)	A-6 (2)	A-6 (6)	A-2-4 (0)	A-7-5 (25)	A-6 (1)	A-7-5 (18)
Station	-L- 31+03	-Y1- 12+00	-Y1- 33+00	-Y1LPA- 15+00	-Y1RPD- 18+00	-L- 18+50	-L- 18+50	-L- 35+12	-L- 39+99	-L- 41+00	-L- 39+33	-Y5A- 11+65	-Y5A- 14+15	-L- 57+00	-Y7RB- 14+61
Offset	63' Lt.	35' Lt.	75' Rt.	CL	CL	58' Rt.	58' Rt.	83' Lt.	44' Lt.	51' Lt.	60' Rt.	45' Rt.	35' Rt.	45' Rt.	22' Lt.
Depth (ft)	0.2	0.2	8.5	3.5	3.5	8.5	13.5	3.5	8.5	0.2	3.5	8.5	0.4	8.5	3.5
to	1.5	1.5	10.0	5.0	5.0	10.0	15.0	5.0	10.0	1.5	5.0	10.0	1.9	10.0	4.0
Moisture Content (%)	12.3	31.8	25.8	32.4	25.3	31.5	24.9	25.8	30.1	18.9	23.7	15.8	20.9	31.6	36.6
Organic Content (%)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Specific Gravity	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

NP=Not plastic
NT=Not tested
ND = Not Determined
CL = Centerline

W.P. Alton, PE
Soils Engineer

North Carolina Department of Transportation
Division of Highways
Materials and Test Unit
Soils Laboratory

T.I.P. ID NO.: U-2827B
DESCRIPTION: US 158/US 421/NC 150/Business 40, West of Fourth Street to East of Church Street
Page 2 of 2

REPORT ON SAMPLES OF: SOIL FOR QUALITY

PROJECT: 34872.1.1
DATE SAMPLED: 7/15, 8/15 & 9/15
SAMPLED FROM: Various
SUBMITTED BY: P. Alton, PE

COUNTY: Forsyth
RECEIVED: 7/15, 8/15 & 9/15
REPORTED: 7/15, 8/15 & 9/15
BY: D. Jenks & M. Grabski
Cert No. 101-02-0603 53698

TEST RESULTS

PROJ. SAMPLE NO.	SS-521	SS-94	SS-148	SS-177	SS-540	SS-554	SS-555	SS-208	SS-184					
BORING NO.	Y8BRA_1700	Y9_1800L	Y9_LT#3	Y10_LT#2	Y10_RT#2	Y11B_LT#6	Y11B_LT#6	Y11B_LT#7	Y11B_RT#4					
Retained #4 Sieve %	0.8	16.3	0.0	2.1	3.1	29.1	NT	0.0	6.1					
Passing #10 Sieve %	98.0	78.9	100.0	92.7	94.8	69.8	NT	100.0	90.2					
Passing #40 Sieve %	91.2	65.3	95.8	76.3	79.5	63.3	NT	88.2	79.8					
Passing #200 Sieve %	62.2	35.0	26.5	28.6	53.5	37.0	NT	33.1	49.0					
SOIL MORTAR - 100%														
Coarse Sand Ret - #60 %	16.5	32.1	28.6	34.6	25.3	21.7	NT	29.2	23.6					
Fine Sand Ret - #270 %	22.2	28.9	50.2	38.9	20.7	27.3	NT	41.7	24.9					
Silt 0.053 - 0.010 mm %	15.8	2.2	7.7	16.0	16.2	14.1	NT	22.7	10.5					
Clay < 0.010 mm %	45.5	36.8	13.5	10.5	37.8	36.9	NT	6.4	41.0					
L.L.	46	36	28	45	46	44	NT	25	44					
P.L.	26	22	25	40	28	27	NT	24	24					
P.I.	20	14	3	5	18	17	NT	1	20					
AASHTO Classification	A-7-6 (11)	A-6 (1)	A-2-4 (0)	A-2-5 (0)	A-7-6 (7)	A-7-6 (2)	ND	A-2-4 (0)	A-7-6 (6)					
Station	-Y8BRA- 17+00	-Y9- 17+66	-Y9- 13+22	-L- 61+23	-L- 61+61	-Y10RA- 13+59	-Y10RA- 13+59	-Y10RA- 12+00	-Y10RDA4- 12+30					
Offset	CL	39' Lt.	43' Lt.	54' Lt.	40' Rt.	70' Rt.	70' Rt.	13' Rt.	13' Lt.					
Depth (ft)	0.3	0.1	8.5	13.5	0.4	8.5	13.5	1.6	3.5					
to	1.5	1.5	10.0	15.0	1.5	10.0	15.0	3.1	5.0					
Moisture Content (%)	18.0	30.5	21.0	18.4	22.3	27.7	209.9	10.4	20.8					
Organic Content (%)	NT	NT	NT	NT	NT	NT	85.7	NT	NT					
Specific Gravity	NT	NT	NT	NT	NT	NT	NT	NT	NT					

NP=Not plastic
NT=Not tested
ND = Not Determined
CL = Centerline

W.P. Alton, PE
Soils Engineer

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 34872.1.1
TIP NO.: U-2827B
COUNTY: Forsyth
DESCRIPTION: US 158/US 421/NC 150/Business 40, west of Fourth Street to east of Church Street

Sample #	Boring #	Alignment	Station	Offset	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-1	Y1_B1B	-Y1-	27+62	57' Rt.	18.0 - 18.3	Biotite Gneiss	CZbg	78%	3.54	1.77	170.0	8,447	ND	49
RS-2	Y11B_B1A	-Y11B-	15+37	36' Lt.	41.0 - 41.3	Biotite Gneiss	CZbg	20%	4.13	1.77	170.3	9,990	ND	49
RS-3	Y7_B1B	-Y7-	15+16	33' Rt.	16.0 - 16.3	Biotite Gneiss	CZbg	55%	3.78	1.77	171.7	7,225	ND	54
RS-4	Y4_B1A	-Y4-	17+40	43' Lt.	38.7 - 39.0	Biotite Gneiss	CZbg	52%	4.07	1.77	193.1	14,248	ND	52
RS-5	Y1_B1A	-Y1-	26+44	69' Lt.	41.8 - 42.1	Mica Schist	CZbg	46%	3.57	1.77	163.6	5,475	ND	49
RS-6	Y3A_B1	-Y3A-	11+36	6' Rt.	45.7 - 46.0	Biotite Gneiss	CZbg	100%	3.82	1.77	165.6	13,911	ND	74
RS-7	Y8B_B1A	-Y8B-	13+98	44' Lt.	7.5 - 7.8	Biotite Gneiss	CZbg	86%	3.78	1.77	166.9	11,291	ND	64
RS-8	Y10_RT#5	-L-	66+29	47' Rt.	18.0 - 18.3	Biotite Gneiss	CZbg	86%	3.93	1.77	169.8	13,698	ND	71
RS-9	Y10_LT#7	-L-	68+00	45' Lt.	9.5 - 9.8	Biotite Gneiss	CZbg	38%	4.01	1.77	172.7	15,893	ND	49
RS-10	Y11B_LT#3	-Y10RA-	16+45	6' Rt.	8.5 - 8.8	Biotite Gneiss	CZbg	80%	3.92	1.77	169.9	15,385	ND	76
RS-11	STLWY_B1	-STLWY1-	15+46	32' Rt.	53.6 - 53.9	Biotite Gneiss	CZbg	36%	3.96	1.77	165.5	13,833	ND	33

ND = Not Determined

SECTION 2

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2827B	1	8

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY FORSYTH

PROJECT DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH TO EAST OF CHURCH STREET

SITE DESCRIPTION BRIDGE ON -STLWY1- (STROLLWAY) OVER -L- (I-40 BUSINESS)

INVENTORY

REFERENCE: U-2728B

PROJECT: 34872

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	PLANSHEETS
4-7	BORE LOG(S), CORE REPORT(S), & CORE PHOTO(S)
8	ROCK TEST RESULTS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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

D. RACEY

C. WANG

M. ELLIS

D. TIGNOR

M. RENZA

S. DAVIS

W. SHENBERGER

INVESTIGATED BY F&R Inc.

DRAWN BY T.T. WALKER

CHECKED BY P. ALTON

SUBMITTED BY P. ALTON

DATE DECEMBER 2015

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER W. PATRICK ALTON

DocuSigned by: W. Patrick Alton
A270EF78A6DF442...

1/7/2016

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-2827B	2

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

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
#40	30 MX	50 MX	51 MN											
#200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
MATERIAL PASSING #40 LL	—		—	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PI	6 MX		NP	10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	NO MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4

TEXTURE OR GRAIN SIZE

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

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)

GRAIN SIZE MM: 305 | 75 | 2.0 | 0.25 | 0.05 | 0.005
GRAIN SIZE IN.: 12 | 3

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

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

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

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT DPT DMT VST PMT TEST BORING
- AUGER BORING
- CORE BORING
- MW MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

RECOMMENDATION SYMBOLS

- 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

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
γ - UNIT WEIGHT
γ_d - 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

DRILL UNITS:
- [ ] CME-45C
- [X] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE ____" STEEL TEETH
- [ ] TRICONE ____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B _____ [ ] -H _____
- [X] -N 03

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:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
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-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V 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.
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.
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.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
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.
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 PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED 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.

FRACTURE SPACING

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

BEDDING

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

INDURATION

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.

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 DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - 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: N/A

ELEVATION: N/A FEET

NOTES:

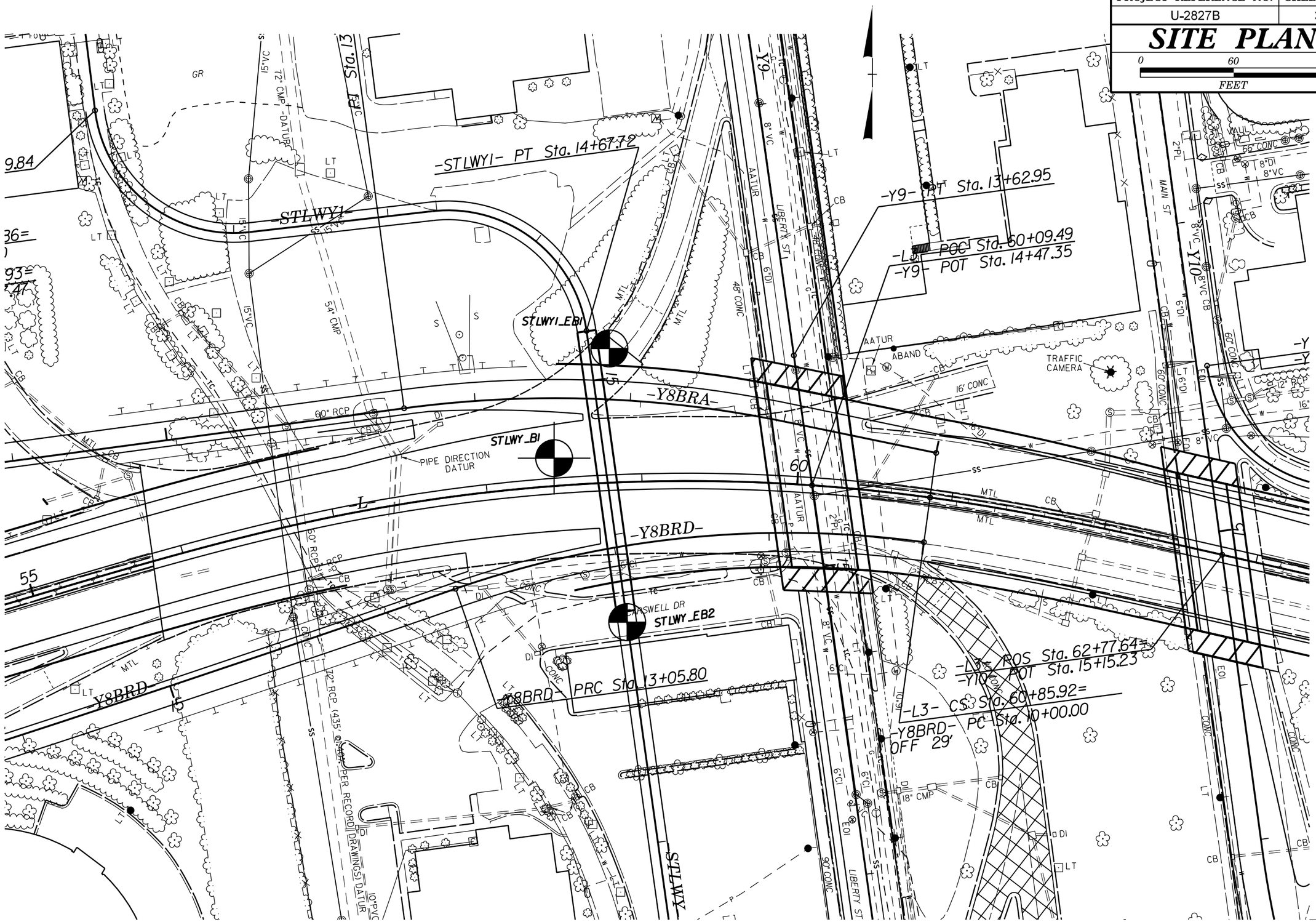
BRIDGE SURVEYED USING A SURVEY-GRADE GPS UNIT

DATE: 8-15-14

PROJECT REFERENCE NO.	SHEET NO.
U-2827B	3

SITE PLAN

0 60 120
FEET



WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION BRIDGE ON -STLWY1- (STROLLWAY OVER -L- (I-40 BUSINESS)			**GROUND WTR (ft)**
BORING NO. STLWY1_EB1	**STATION** 14+81	**OFFSET** 13 ft LT	**ALIGNMENT** -STLWY1- — **0 HR.** 27.4
COLLAR ELEV. 881.8 ft	**TOTAL DEPTH** 50.9 ft	**NORTHING** 855,401	**EASTING** 1,632,310 — **24 HR.** 27.2
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 09/15/15	**COMP. DATE** 09/15/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
885											
	881.8	0.0								881.8 GROUND SURFACE	0.0
880			WOH	1	WOH	1		M		**ROADWAY EMBANKMENT** RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL	
	878.3	3.5	2	3	3	6		M			
875										874.8	7.0
	873.3	8.5	2	2	2	4		M		RED-BROWN, COARSE TO FINE SANDY SILT (A-4) WITH TRACE GRAVEL, CLAY, AND BRICK FRAGMENTS	
870											
	868.3	13.5	3	4	4	8		M			
865										864.8	17.0
	863.3	18.5	2	3	4	7		M		BROWN, FINE TO COARSE SANDY SILTY CLAY (A-7-5)	
860										859.8	22.0
	858.3	23.5	4	3	4	7		M		**RESIDUAL** BROWN-GRAY, FINE SANDY SILT (A-4) WITH TRACE MICA	
855								▼			
	853.3	28.5	2	2	2	4		W			
850										849.8	32.0
	848.3	33.5	5	7	8	15		W		GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND GRAVEL	
845											
	843.3	38.5	8	7	10	17		W			
840											
	838.3	43.5	13	35	63	98		M			
835											
	833.3	48.5	40	100/0.3		100/0.3				832.8	49.0
	831.0	50.8	60/0.1			60/0.1				830.9 **WEATHERED ROCK** GRAY (MICA SCHIST)	50.9

Boring Terminated with Standard Penetration Test Refusal at Elevation 830.9 ft in CRYSTALLINE ROCK (MICA SCHIST)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. STLWY_B1	**STATION** 15+46	**OFFSET** 32 ft RT	**ALIGNMENT** -STLWY1- / **0 HR.** N/M
COLLAR ELEV. 898.5 ft	**TOTAL DEPTH** 60.7 ft	**NORTHING** 855,330	**EASTING** 1,632,275 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/21/15	**COMP. DATE** 09/16/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
900											
	898.5	0.0								898.5 GROUND SURFACE	0.0
			16	6	10	16		M		896.9 0.2' ASPHALT AND 1.4' ABC STONE	1.6
895	895.0	3.5								**ARTIFICIAL FILL** RED-BROWN, FINE SANDY CLAYEY SILT (A-5) WITH TRACE GRAVEL, BRICK FRAGMENTS, AND ORGANICS	
			3	1	1	2		W			
890	890.0	8.5								890.5 RED-BROWN-GRAY, FINE TO COARSE SANDY CLAYEY SILT (A-4) WITH TRACE GRAVEL	8.0
			8	6	4	10		W			
885	885.0	13.5								885.5 **RESIDUAL** GRAY AND BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA, SAPROLITIC	13.0
			1	4	7	11		W			
880	880.0	18.5									
			1	3	4	7		W			
875	875.0	23.5									
			2	4	6	10		W			
870	870.0	28.5								870.5 GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA	28.0
			15	16	13	29		W			
865	865.0	33.5									
			3	6	10	16		W			
860	860.0	38.5								861.5 **WEATHERED ROCK** (MICA SCHIST)	37.0
	859.8	38.7	60/0.1			60/0.1 60/0.0				859.8 **CRYSTALLINE ROCK** (MICA SCHIST)	38.7
			60/0.0							858.3 (MICA SCHIST)	40.2
855											
850											
845							RS-11			845.5 (BIOTITE GNEISS)	53.0
										843.2 (BIOTITE GNEISS)	55.3
840											
										837.8 Boring Terminated at Elevation 837.8 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	60.7

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/19/15

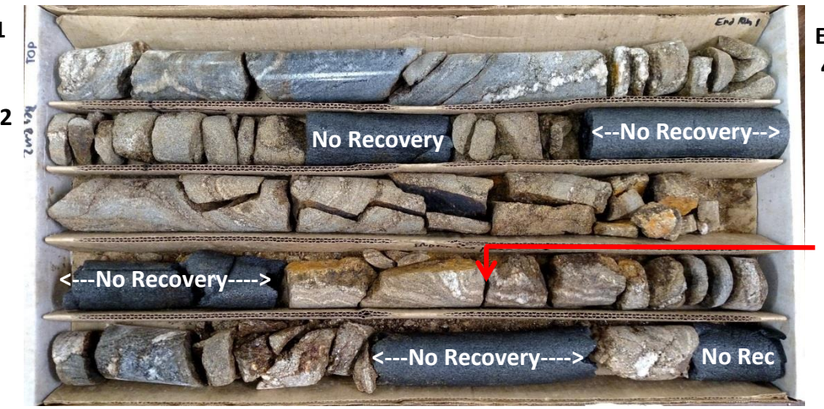
GEOTECHNICAL BORING REPORT
CORE LOG

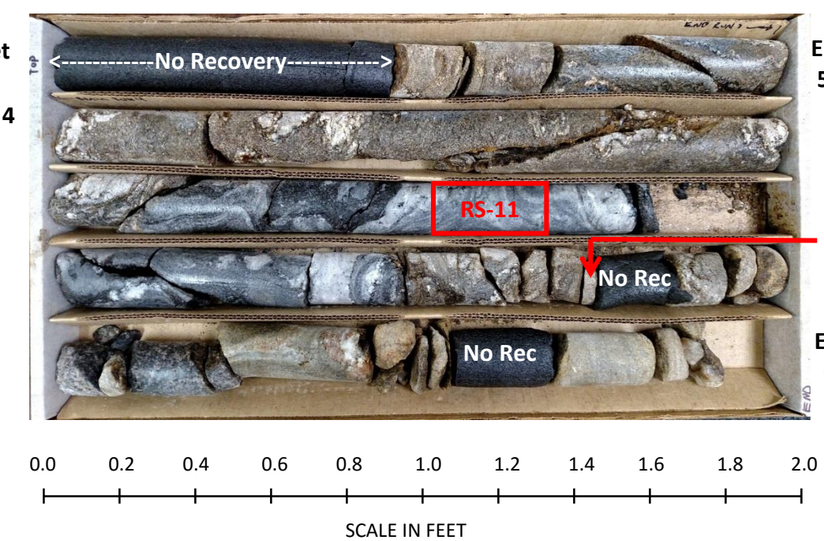
WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION US 158/US 421/NC 150/ BUSINESS 40, WEST OF FOURTH STREET TO EAST OF CHURCH STREET			**GROUND WTR (ft)**
BORING NO. STLWY_B1	**STATION** 15+46	**OFFSET** 32 ft RT	**ALIGNMENT** -STLWY1- / **0 HR.** N/M
COLLAR ELEV. 898.5 ft	**TOTAL DEPTH** 60.7 ft	**NORTHING** 855,330	**EASTING** 1,632,275 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/21/15	**COMP. DATE** 09/16/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ	**TOTAL RUN** 22.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
859.8											Begin Coring @ 38.7 ft	
	859.8	38.7	2.0	2:59/1.0	(2.0)	(0.7)		(1.5)	(0.7)		859.8 **CRYSTALLINE ROCK**	38.7
	857.8	40.7		1:53/1.0	100%	35%		100%	47%		858.3 GRAY, WHITE, AND BROWN, MODERATELY TO SLIGHTLY WEATHERED, MODERATELY HARD MICA SCHIST WITH CLOSE FRACTURE SPACING	40.2
855			5.0	1:58/1.0	(3.6)	(0.0)		(9.3)	(1.1)		BROWN AND WHITE, MODERATELY SEVERE TO MODERATELY WEATHERED, SOFT TO MODERATELY HARD MICA SCHIST, VERY CLOSE TO CLOSE FRACTURE SPACING	
				2:00/1.0	72%	0%		73%	9%			
				2:09/1.0								
	852.8	45.7		1:35/1.0								
				1:49/1.0								
850			5.0	2:17/1.0	(3.0)	(0.3)						
				1:02/1.0	60%	6%						
				1:25/1.0								
	847.8	50.7		1:57/1.0								
				1:45/1.0								
845			5.0	2:01/1.0	(5.0)	(1.8)					845.5	53.0
				1:29/1.0	100%	36%					GRAY AND WHITE, SLIGHTLY TO VERY SLIGHTLY WEATHERED, HARD BIOTITE GNEISS, CLOSE FRACTURE SPACING	
				1:48/1.0				(2.3)	(1.0)			
				2:26/1.0			RS-11	100%	43%			
	842.8	55.7		2:08/1.0							843.2 RS-11: 53.6-53.9, qu=13,833 psi, R1=7, R2=8, R4=8, R3=5, R4=6, R5=7 RMR=33, ROCK TYPE=E	55.3
840			5.0	2:45/1.0	(1.8)	(0.4)		(2.3)	(0.4)			
				1:25/1.0	36%	8%		43%	7%		GRAY, WHITE, AND BROWN, MODERATELY WEATHERED, MODERATELY HARD TO HARD BIOTITE GNEISS, VERY CLOSE TO CLOSE FRACTURE SPACING	
				1:83/1.0								
				1:52/1.0								
	837.8	60.7		1:47/1.0							837.8 Boring Terminated at Elevation 837.8 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	60.7

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 11/19/15

CORE PHOTOGRAPHS: Bridge on -STLWY1- (Strollway) over -L- (I-40 Business), STLWY_B1: -STLWY1- Station 15+46, 32' RT





WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION BRIDGE ON -STLWY1- (STROLLWAY OVER -L- (I-40 BUSINESS)			**GROUND WTR (ft)**
BORING NO. STLWY_EB2	**STATION** 16+57	**OFFSET** CL	**ALIGNMENT** -STLWY1- — **0 HR.** N/A
COLLAR ELEV. 858.5 ft	**TOTAL DEPTH** 59.0 ft	**NORTHING** 855,225	**EASTING** 1,632,322 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/05/15	**COMP. DATE** 08/05/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
860										
	858.5	0.0								858.5 GROUND SURFACE 0.0
			2	4	20	24		M		857.7 0.2' ASPHALT AND 0.6' ABC STONE 0.8
855	855.0	3.5								**ARTIFICIAL FILL**
			6	13	4	17		M		855.5 RED-ORANGE-BROWN, FINE SANDY SILT (A-4) WITH TRACE ASPHALT FRAGMENTS 3.0
										TAN-GRAY-BROWN, FINE SANDY CLAY (A-6) WITH TRACE ORGANICS
850	850.0	8.5								850.5 8.0
			1	2	2	4		Sat.		**ALLUVIAL** GRAY-BROWN, SILTY FINE SANDY CLAY (A-6)
845	845.0	13.5								845.5 13.0
			WOH	1	2	3		W		**RESIDUAL** GRAY-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA
840	840.0	18.5								
			1	1	2	3		Sat.		
835	835.0	23.5								
			4	5	7	12		Sat.		
830	830.0	28.5								
			7	9	10	19		W		829.4 29.1 GRAY-BROWN, SILTY FINE SAND (A-2-4)
825	825.0	33.5								825.5 33.0
			4	5	4	9		W		GRAY-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4)
820	820.0	38.5								819.5 39.0
			4	8	12	20		W		GRAY, SILTY FINE SAND (A-2-4), SAPROLITIC
815	815.0	43.5								
			11	15	24	39		Sat.		
810	810.0	48.5								809.5 49.0
			14	42	58/0.5	100/1.0				**WEATHERED ROCK** GRAY AND BROWN (MICA SCHIST)
805	805.0	53.5								
			29	47	53/0.3	100/0.8				
800	800.0	58.5								799.5 59.0
			100/0.5			100/0.5				Boring Terminated at Elevation 799.5 ft in WEATHERED ROCK (MICA SCHIST)

NOTE: A LAYER OF ASPHALT, BOLTS, METAL AND OTHER DEBRIS ENCOUNTERED FROM 2' TO 3'

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 34872.1.1
TIP NO.: U-2827B
COUNTY: Forsyth
DESCRIPTION: US 158/US 421/NC 150/Business 40, west of Fourth Street to east of Church Street
Bridge on -STLWY1- (Strollway) over -L- (I-40 Bus)

Sample #	Boring #	Alignment	Station	Offset	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-11	STLWY_B1	-STLWY1-	15+46	32' Rt.	53.6 - 53.9	Biotite Gneiss	CZbg	36%	3.96	1.77	165.5	13,833	ND	33

ND = Not Determined

SECTION 3

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2827B	1	12

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY FORSYTH

PROJECT DESCRIPTION US 158/US 421/NC 150/BUSINESS 40, WEST OF FOURTH TO EAST OF CHURCH STREET

SITE DESCRIPTION BRIDGE ON -Y1- (PETERS CREEK PKWY) OVER -L- (I-40 BUSINESS)

INVENTORY

REFERENCE: U-2728B

PROJECT: 34872

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4-11	BORE LOG(S), CORE REPORT(S), & CORE PHOTO(S)
12	ROCK TEST RESULTS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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

D. RACEY

C. WANG

M. ELLIS

D. TIGNOR

M. RENZA

S. DAVIS

W. SHENBERGER

INVESTIGATED BY F&R Inc.

DRAWN BY T.T. WALKER

CHECKED BY P. ALTON

SUBMITTED BY P. ALTON

DATE DECEMBER 2015

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER W. PATRICK ALTON

DocuSigned by:
W. Patrick Alton
A270EF78A6DF442...

1/7/2016

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-2827B	2

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

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
#40	30 MX	50 MX	51 MN											
#200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
MATERIAL PASSING #40 LL	—		—	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PI	6 MX		NP	10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	NO MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4

TEXTURE OR GRAIN SIZE

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

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)

GRAIN SIZE MM: 305 | 75 | 2.0 | 0.25 | 0.05 | 0.005
GRAIN SIZE IN.: 12 | 3

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

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

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

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- SY ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT DPT DMT VST PMT TEST BORING
- AUGER BORING
- CORE BORING
- MW MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

RECOMMENDATION SYMBOLS

- 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

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
γ - UNIT WEIGHT
γ_d - 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

DRILL UNITS:
- [ ] CME-45C
- [X] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE ____" STEEL TEETH
- [ ] TRICONE ____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B _____
- [ ] -H _____
- [X] -N 03

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:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
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-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V 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.
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.
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.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
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.
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 PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED 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.

FRACTURE SPACING

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

BEDDING

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

INDURATION

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.

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 DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - 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: N/A

ELEVATION: N/A FEET

NOTES:

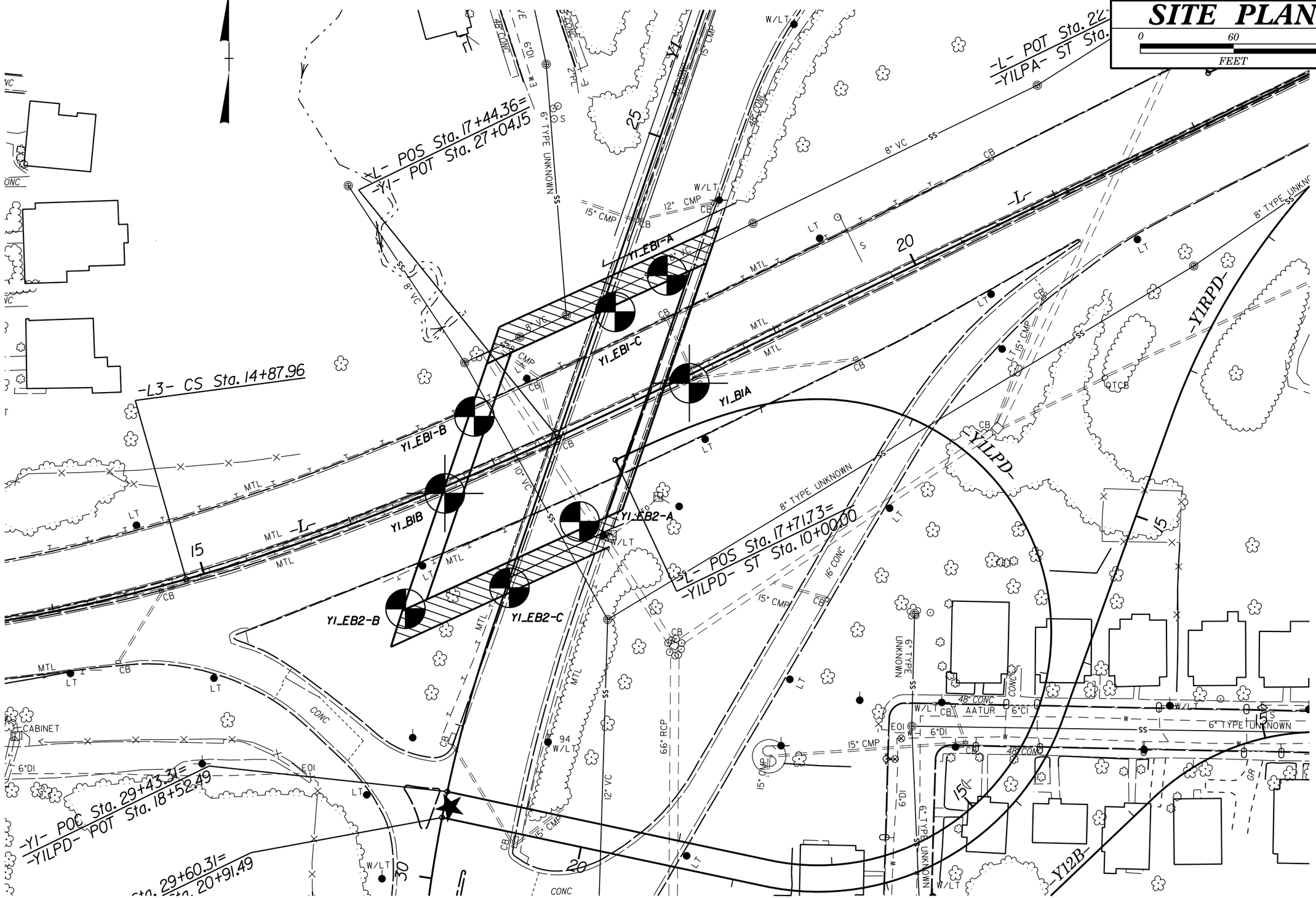
BRIDGES SURVEYED USING A SURVEY-GRADE GPS UNIT

DATE: 8-15-14

PROJECT REFERENCE NO.	SHEET NO.
U-2827B	3

SITE PLAN

0 60 120
FEET



GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION BRIDGE ON -Y1 (PETERS CREEK PARKWAY) OVER -L- (I-40 BUSINESS)			**GROUND WTR (ft)**
BORING NO. Y1_EB1-A	**STATION** 25+83	**OFFSET** 33 ft LT	**ALIGNMENT** -Y1- — **0 HR.** Dry
COLLAR ELEV. 822.9 ft	**TOTAL DEPTH** 34.2 ft	**NORTHING** 853,960	**EASTING** 1,628,530 — **24 HR.** 27.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/06/15	**COMP. DATE** 08/06/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
825											
	822.9	0.0								822.9 GROUND SURFACE	0.0
			2	1	1	2		M		**ROADWAY EMBANKMENT** BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA	
820	819.4	3.5									
			2	2	3	5		M			
815	814.4	8.5								815.9 RED-BROWN, CLAYEY FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA	7.0
			2	2	2	4		W			
810	809.9	13.0								810.9 RED-YELLOW, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA	12.0
			10	23	29	52		M		809.0 **RESIDUAL** GRAY-YELLOW TO BROWN AND WHITE, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, SAPROLITIC	13.9
805	804.4	18.5									
			4	8	6	14		M			
800	799.4	23.5									
			13	11	8	19		M			
795	794.4	28.5									
			30	31	19	50		M			
790	789.4	33.5								789.4	33.5
	788.7	34.2	100/0.2			100/0.2				788.7 **WEATHERED ROCK** GRAY-BLACK (MICA SCHIST)	34.2
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 788.7 ft on CRYSTALLINE ROCK (MICA SCHIST)	

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION BRIDGE ON -Y1 (PETERS CREEK PARKWAY) OVER -L- (I-40 BUSINESS)			**GROUND WTR (ft)**
BORING NO. Y1_EB1-C	**STATION** 26+16	**OFFSET** 9 ft LT	**ALIGNMENT** -Y1- — **0 HR.** Dry
COLLAR ELEV. 816.2 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 853,937	**EASTING** 1,628,497 — **24 HR.** 21.8
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/06/15	**COMP. DATE** 08/06/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
820										
	816.2	0.0								816.2 GROUND SURFACE 0.0
815			1	1	1	2		M		**ROADWAY EMBANKMENT** 814.2 BROWN, SILTY FINE SAND (A-2-4) WITH TRACE MICA AND ORGANICS 2.0
	812.7	3.5								
810			1	2	3	5		M		811.7 BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA 4.5
	807.7	8.5								809.2 RED, FINE SANDY SILTY CLAY (A-7-5) WITH TRACE MICA 7.0
805			1	2	3	5		W		806.7 RED-YELLOW-BROWN, CLAYEY FINE SANDY SILT (A-4) WITH TRACE MICA 9.5
	802.7	13.5								RED-YELLOW, SILTY CLAY (A-7-5) WITH TRACE MICA AND ORGANICS
800			3	5	7	12		M		
	797.7	18.5								798.2 18.0
795			23	26	11	37		M		797.0 **RESIDUAL** 19.2 DARK BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA
	792.7	23.5								GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND SOME GRAVEL, SAPROLITIC
790			4	6	6	12		W		
	787.7	28.5								787.7 28.5
	786.2	30.0	100/0.4			100/0.4				786.5 **WEATHERED ROCK** 29.7 YELLOW-WHITE (MICA SCHIST)
			60/0.0			60/0.0				786.2 **CRYSTALLINE ROCK** 30.0 (MICA SCHIST)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 786.2 ft in CRYSTALLINE ROCK (MICA SCHIST)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** C. Wang
SITE DESCRIPTION BRIDGE ON -Y1 (PETERS CREEK PARKWAY) OVER -L- (I-40 BUSINESS)			**GROUND WTR (ft)**
BORING NO. Y1_EB1-B	**STATION** 27+09	**OFFSET** 55 ft RT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 808.9 ft	**TOTAL DEPTH** 20.1 ft	**NORTHING** 853,869	**EASTING** 1,628,406	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 08/15/15	**COMP. DATE** 08/15/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (0 25 50 75 100)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
810										808.9 GROUND SURFACE	0.0
	807.7	1.2								807.7 ASPHALT AND CONCRETE	1.2
			4	2	2	4		M		**ROADWAY EMBANKMENT** GRAY-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA	
805	805.4	3.5	8	5	3	8		M		804.9	4.0
										RED-BROWN, SILTY CLAY (A-7-5) WITH SOME GRAVEL AND TRACE ORGANICS	
800	800.4	8.5	4	3	8	11		M		800.9	8.0
										GRAY-BROWN AND BLACK, CLAYEY COARSE TO FINE SANDY SILT (A-4) WITH TRACE GRAVEL, ORGANICS, AND CONCRETE	
795	795.4	13.5	1	2	2	4		M			
790	790.4	18.5								790.9	18.0
	788.8	20.1	20	28	72/0.1	100/0.6				**WEATHERED ROCK** GRAY-BROWN (MICA SCHIST) 788.9	20.0
			60/0.0			60/0.0				788.8 **CRYSTALLINE ROCK** (MICA SCHIST)	20.1
										Boring Terminated with Standard Penetration Test Refusal at Elevation 788.8 ft in CRYSTALLINE ROCK (MICA SCHIST)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION BRIDGE ON -Y1 (PETERS CREEK PARKWAY) OVER -L- (I-40 BUSINESS)			**GROUND WTR (ft)**
BORING NO. Y1_B1A	**STATION** 26+44	**OFFSET** 69 ft LT	**ALIGNMENT** -Y1- / **0 HR.** N/A
COLLAR ELEV. 808.5 ft	**TOTAL DEPTH** 56.8 ft	**NORTHING** 853,891	**EASTING** 1,628,545 / **24 HR.** 15.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/11/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
810											
	807.5	1.0								808.5 GROUND SURFACE	0.0
			7	4	3	7		M		807.0 0.0'-1.0' ASPHALT, CONCRETE, AND 0.5' ABC STONE	1.5
805	805.0	3.5								**ROADWAY EMBANKMENT**	
			5	7	5	12		M		804.6 RED-BROWN, FINE TO COARSE SANDY CLAYEY SILT (A-5) WITH TRACE MICA, GRAVEL, AND ORGANICS	3.9
800	800.0	8.5								RED-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA, GRAVEL, AND ORGANICS	
			2	2	4	6		M		799.0	9.5
795	795.0	13.5								796.5 BROWN-RED, FINE TO COARSE SANDY SILT (A-4) WITH LITTLE CLAY AND TRACE MICA AND GRAVEL	12.0
			1	2	1	3				**RESIDUAL** BROWN-RED, FINE TO COARSE SANDY SILT (A-4) HIGHLY MICACEOUS, SAPROLITIC	
790	790.0	18.5									
			1	1	2	3		W			
785	785.0	23.5									
			3	7	6	13		W			
780	780.0	28.5									
			11	28	69	97		M			
775	775.0	33.5									
			10	12	12	24		M			
770	770.0	38.5								771.8 **WEATHERED ROCK** (MICA SCHIST)	36.7
	769.7	38.8	60/0.0			60/0.0				769.7 **CRYSTALLINE ROCK** (MICA SCHIST)	38.8
			60/0.0			60/0.0					
765							RS-5				
760											
755										751.7 Boring Terminated at Elevation 751.7 ft in CRYSTALLINE ROCK (MICA SCHIST)	56.8

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 12/2/15

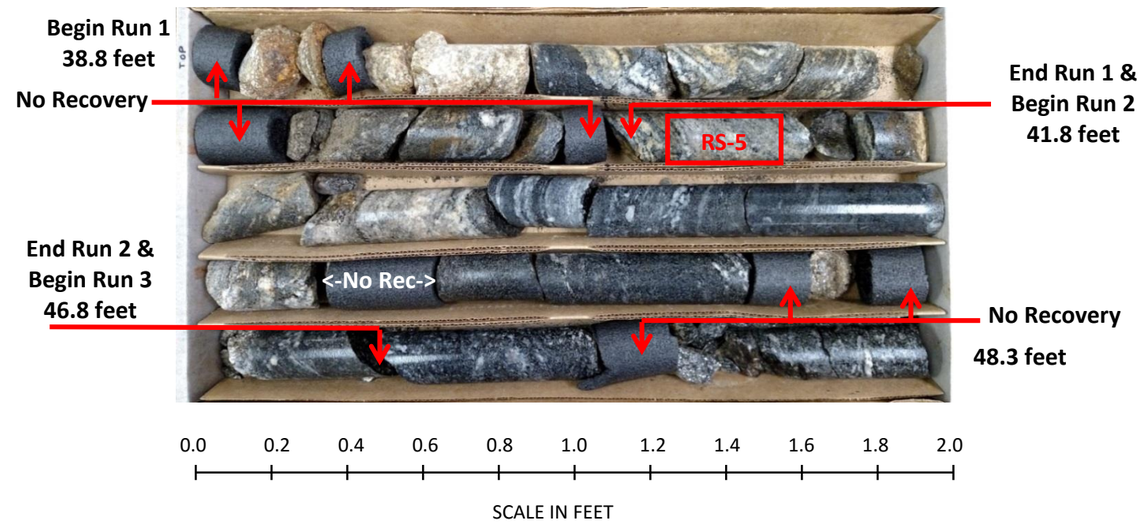
GEOTECHNICAL BORING REPORT
CORE LOG

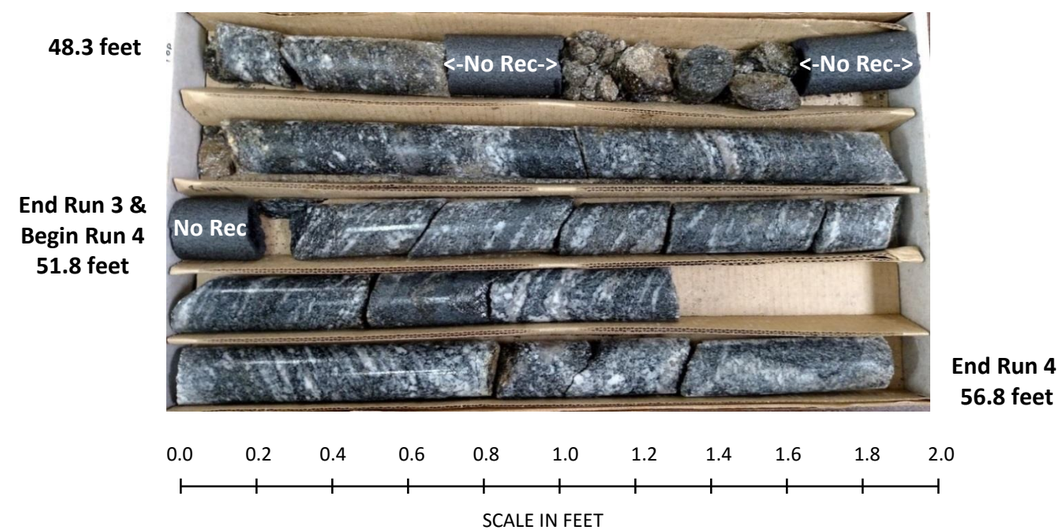
WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION BRIDGE ON -Y1 (PETERS CREEK PARKWAY) OVER -L- (I-40 BUSINESS)			**GROUND WTR (ft)**
BORING NO. Y1_B1A	**STATION** 26+44	**OFFSET** 69 ft LT	**ALIGNMENT** -Y1- / **0 HR.** N/A
COLLAR ELEV. 808.5 ft	**TOTAL DEPTH** 56.8 ft	**NORTHING** 853,891	**EASTING** 1,628,545 / **24 HR.** 15.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/11/15	**COMP. DATE** 08/14/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 18.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
769.7											Begin Coring @ 38.8 ft	
	769.7	38.8	3.0	5:42/1.0 2:59/1.0 2:02/1.0	(2.3) 77%	(0.3) 10%		(15.5) 86%	(8.4) 47%		769.7 **CRYSTALLINE ROCK** GRAY-BROWN AND WHITE, MODERATELY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD MICA SCHIST WITH CLOSE TO MODERATELY CLOSE FRACTURE SPACING RS-5: 41.8'-42.1', qu= 5,475 psi, R1=4, R2=8, R3=10, R4=20, R5=7 RMR= 49, ROCK TYPE= E	38.8
	766.7	41.8										
765			5.0	2:28/1.0 1:31/1.0 2:31/1.0 1:56/1.0 1:42/1.0	(4.2) 84%	(2.3) 46%	RS-5					
	761.7	46.8										
760			5.0	1:52/1.0 2:03/1.0 1:05/1.0 1:48/1.0 1:43/1.0	(4.2) 84%	(2.4) 48%						
	756.7	51.8										
755			5.0	1:46/1.0 1:42/1.0 1:44/1.0 2:07/1.0 1:53/1.0	(4.8) 96%	(3.4) 68%						
	751.7	56.8									751.7 Boring Terminated at Elevation 751.7 ft in CRYSTALLINE ROCK (MICA SCHIST)	56.8

NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 12/2/15

CORE PHOTOGRAPHS: Bridge on -Y1- (Peters Creek Parkway) over -L- (I-40 Business), Y1_B1A: -Y1- Station 26+44, 69' LT





GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION BRIDGE ON -Y1 (PETERS CREEK PARKWAY) OVER -L- (I-40 BUSINESS)			**GROUND WTR (ft)**
BORING NO. Y1_B1B	**STATION** 27+62	**OFFSET** 57 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 809.2 ft	**TOTAL DEPTH** 26.9 ft	**NORTHING** 853,820	**EASTING** 1,628,387 / **24 HR.** 1.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/11/15	**COMP. DATE** 08/11/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
810											
	808.2	1.0								809.2 GROUND SURFACE	0.0
			8	4	3	7		M		807.6 1.0' ASPHALT, CONCRETE, AND 0.6' ABC STONE	1.6
805	805.7	3.5	3	4	5	9		M		806.2 **ROADWAY EMBANKMENT** RED-BROWN, CLAYEY SILT (A-5) WITH TRACE MICA AND GRAVEL	3.0
										802.2 BROWN-DARK GRAY, SILTY CLAY (A-7-6) WITH TRACE GRAVEL AND ORGANICS	7.0
800	800.7	8.5	8	10	18	28		M		**RESIDUAL** YELLOW-RED, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE MICA	
795	795.7 / 795.3	13.5 / 13.9	60/0.1 / 60/0.0			60/0.1 / 60/0.0				795.3 **CRYSTALLINE ROCK** GRAY-WHITE (BIOTITE GNEISS)	13.9
790							RS-1				
785										782.3 Boring Terminated at Elevation 782.3 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	26.9

NCDOT BORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 12/2/15

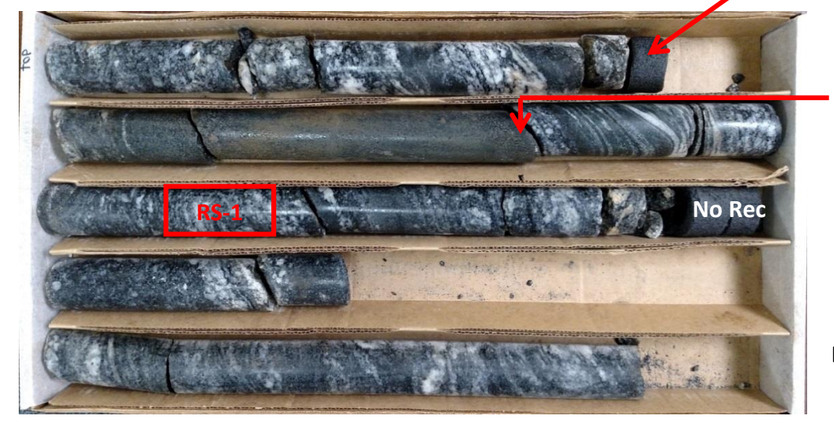
GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** M. Ellis
SITE DESCRIPTION BRIDGE ON -Y1 (PETERS CREEK PARKWAY) OVER -L- (I-40 BUSINESS)			**GROUND WTR (ft)**
BORING NO. Y1_B1B	**STATION** 27+62	**OFFSET** 57 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 809.2 ft	**TOTAL DEPTH** 26.9 ft	**NORTHING** 853,820	**EASTING** 1,628,387 / **24 HR.** 1.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 08/11/15	**COMP. DATE** 08/11/15	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 13.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
795.3											Begin Coring @ 13.9 ft	
	795.3	13.9	3.0	3:22/1.0 3:42/1.0 2:47/1.0	(2.9) 97%	(2.5) 83%		(12.4) 95%	(9.4) 72%		795.3 **CRYSTALLINE ROCK** GRAY-WHITE, SLIGHTLY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD TO HARD BIOTITE GNEISS, VERY CLOSE TO MODERATELY CLOSE FRACTURE SPACING RS-1: 18.0'-18.3', qu= 8,447 psi, R1=7, R2=13, R3=10, R4=12, R5=7 RMR=49, ROCK TYPE=E	13.9
	792.3	16.9	5.0	2:48/1.0 2:36/1.0 2:19/1.0 2:28/1.0 2:51/1.0	(4.8) 96%	(3.9) 78%	RS-1					
790	787.3	21.9	5.0	2:42/1.0 2:45/1.0 3:24/1.0 4:00/1.0 3:30/1.0	(4.7) 94%	(3.0) 60%						
785	782.3	26.9									782.3 Boring Terminated at Elevation 782.3 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	26.9

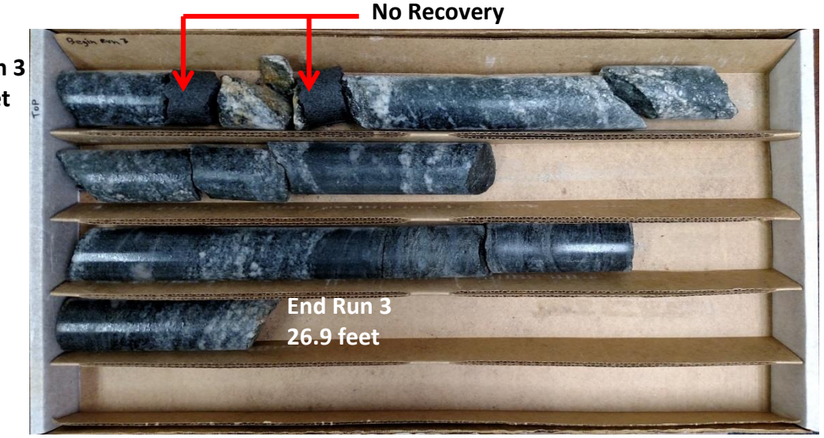
NCDOT CORE DOUBLE U2728B_GEO_BH.GPJ NC_DOT.GDT 12/2/15

CORE PHOTOGRAPHS: Bridge on -Y1- (Peters Creek Parkway) over -L- (I-40 Business), Y1_B1B: -Y1- Station 27+62, 57' RT



0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET



0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34872.1.1	TIP U-2827B	COUNTY FORSYTH	GEOLOGIST D. Racey	
SITE DESCRIPTION BRIDGE ON -Y1 (PETERS CREEK PARKWAY) OVER -L- (I-40 BUSINESS)				GROUND WTR (ft)
BORING NO. Y1_EB2-A	STATION 27+51	OFFSET 31 ft LT	ALIGNMENT -Y1-	0 HR. 29.0
COLLAR ELEV. 817.7 ft	TOTAL DEPTH 32.3 ft	NORTHING 853,802	EASTING 1,628,474	24 HR. 26.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic
DRILLER D.Tignor	START DATE 08/03/15	COMP. DATE 08/03/15	SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
820											
	817.7	0.0								817.7 GROUND SURFACE	0.0
			WOH	1	3	4		M		**ROADWAY EMBANKMENT** RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA	
815	814.2	3.5								813.2	4.5
			5	4	5	9		M		RED-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE GRAVEL AND MICA	
810	809.2	8.5								808.8	8.9
			2	6	24	30		M		807.7 RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH HIGH AMOUNT OF GRAVEL AND TRACE MICA	10.0
805	804.2	13.5								803.7 BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA AND GRAVEL	14.0
			2	3	2	5		M		800.7 RED-BROWN, CLAYEY FINE SANDY SILT (A-4) WITH TRACE GRAVEL AND MICA	17.0
800	799.2	18.5								RED, SILTY FINE SANDY CLAY (A-6) WITH TRACE GRAVEL, MICACEOUS	
			1	1	2	3		W		795.7	22.0
795	794.2	23.5								BROWN-GRAY-RED, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL AND MICA	
			1	2	1	3		W		793.1	24.6
790										**ALLUVIAL** BROWN AND BLACK, FINE SANDY SILT (A-4) WITH TRACE TO HIGH AMOUNT OF GRAVEL AND TRACE ORGANICS	
	789.2	28.5									
			5	1	1	2		Sat.			
	786.3	31.4								786.4	31.3
	785.4	32.3	60/0.1			60/0.1				785.4 **CRYSTALLINE ROCK** GRAY-BLACK (MICA SCHIST)	32.3
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 785.4 ft in CRYSTALLINE ROCK (MICA SCHIST)	

WBS 34872.1.1	TIP U-2827B	COUNTY FORSYTH	GEOLOGIST D. Racey	
SITE DESCRIPTION BRIDGE ON -Y1 (PETERS CREEK PARKWAY) OVER -L- (I-40 BUSINESS)				GROUND WTR (ft)
BORING NO. Y1_EB2-C	STATION 28+06	OFFSET 2 ft LT	ALIGNMENT -Y1-	0 HR. Dry
COLLAR ELEV. 826.4 ft	TOTAL DEPTH 35.7 ft	NORTHING 853,759	EASTING 1,628,429	24 HR. Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic
DRILLER D.Tignor	START DATE 08/04/15	COMP. DATE 08/04/15	SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
830										
	826.4	0.0								826.4 GROUND SURFACE 0.0
825			1	4	4	8		M		**ROADWAY EMBANKMENT** RED AND BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL 824.4 2.0
	822.9	3.5								
820			2	3	4	7		M		RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE FINE SAND AND MICA 819.4 7.0
	817.9	8.5								
815			2	3	4	7		M		RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH LITTLE CLAY AND GRAVEL 814.4 12.0
	812.9	13.5								
810			3	3	6	9		M		RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE FINE SAND, MICA, AND ORGANICS 809.4 17.0
	807.9	18.5								
805			5	6	6	12		M		**RESIDUAL** GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL, MICACEOUS HARD DRILLING NOTED FROM 22.3' TO 23.0' 803.4 23.0
	802.9	23.5								
800			1	7	7	14		W		GRAY, FINE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL 799.4 27.0
	797.9	28.5								
795			3	5	14	19		W		RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE FINE SAND, SAPROLITIC 796.7 29.7
										GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) 792.4 34.0
	792.9	33.5	16	82	18/0.0	100/0.5				**WEATHERED ROCK** GRAY-BROWN (MICA SCHIST) 790.7 35.7
	790.7	35.7	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 790.7 ft on CRYSTALLINE ROCK (MICA SCHIST)

WBS 34872.1.1	**TIP** U-2827B	**COUNTY** FORSYTH	**GEOLOGIST** D. Racey
SITE DESCRIPTION BRIDGE ON -Y1 (PETERS CREEK PARKWAY) OVER -L- (I-40 BUSINESS)			**GROUND WTR (ft)**
BORING NO. Y1_EB2-B	**STATION** 28+40	**OFFSET** 57 ft RT	**ALIGNMENT** -YI-	**0 HR.** Dry
COLLAR ELEV. 810.9 ft	**TOTAL DEPTH** 13.7 ft	**NORTHING** 853,746	**EASTING** 1,628,362	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 73% 02/15/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D.Tignor	**START DATE** 07/27/15	**COMP. DATE** 07/27/15	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
815										
810	810.9	0.0								810.9 GROUND SURFACE 0.0
			3	8	7	15		D		**RESIDUAL** RED-TAN, CLAYEY FINE TO COARSE SANDY SILT (A-4) WITH TRACE ROOTS AND MICA
	807.4	3.5	4	3	3	6		M		
805										803.9 7.0
	802.4	8.5	15	17	11	28		M		GRAY AND WHITE, SILTY FINE TO COARSE SAND (A-2-4), SAPROLITIC
800										798.4 12.5
	797.4	13.5								797.4 **WEATHERED ROCK** GRAY-WHITE-BLACK (MICA SCHIST) 13.5
	797.2	13.7	60/0.0			60/0.0				797.2 13.7
			60/0.0			60/0.0				**CRYSTALLINE ROCK** (MICA SCHIST)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 797.2 ft in CRYSTALLINE ROCK (MICA SCHIST)

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 34872.1.1
TIP NO.: U-2827B
COUNTY: Forsyth
DESCRIPTION: US 158/US 421/NC 150/Business 40, west of Fourth Street to east of Church Street
Bridge on -Y1- (Peters Creek Parkway) over -L- (I-40 Business)

Sample #	Boring #	Alignment	Station	Offset	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-1	Y1_B1B	-Y1-	27+62	57' Rt.	18.0 - 18.3	Biotite Gneiss	CZbg	78%	3.54	1.77	170.0	8,447	ND	49
RS-5	Y1_B1A	-Y1-	26+44	69' Lt.	41.8 - 42.1	Mica Schist	CZbg	46%	3.57	1.77	163.6	5,475	ND	49

ND = Not Determined