STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	33727 (B-4490)	1	26

ID: B-4490

CONTRACT: 33727

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	12+35-25+00	4-7	17	
-L-	25+00-39+00	7-10	18	21-25
-L-	39+00-42+75	10	19	
-Y3-	12+15-30+50	6, 11-14	20	

BORE LOGS
SHEET 26

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 33727.1.1 (B-4490) F.A. PROJ. BRNHS-0024(24)

COUNTY CUMBERLAND

PROJECT DESCRIPTION REPLACE BRIDGE NO. 116 OVER CSX RR, NORFOLK SOUTHERN RR, & HILLSBORO ST. ON NC 24/210

INVENTORY-REVISION

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

PERSONNEL

J.R. SWARTLEY
R.E. SMITH
H.R. CONLEY
J.R. MATULA
H.L. FROATS
O.B. OTI
S&ME, INC.

INVESTIGATED BY J.R. SWARTLEY
CHECKED BY N.T. ROBERSON
SUBMITTED BY N.T. ROBERSON
DATE JUNE 2015

NORTH CAROLINA LICENSED SEAL 2296 GEOLOGIST JARETT SWARTLEY

DocuSigned by:
Jarett Swartley 7/1/2015
7F355C29F75A413...
SIGNATURE DATE

DRAWN BY: T.T. WALKER, J.R. SWARTLEY

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

PROJECT REFERENCE NO.	SHEET NO.
B-4490	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 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
MATERIAL PASSING #40 LL PI	— 6 MX		— NP	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
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
	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 EXCAVATION
- 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
- ☐ CME-55
- ☐ CME-550
- ☐ VANE SHEAR TEST
- ☐ PORTABLE HOIST
- ■ CME-55
- ☐ _____

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

HAMMER TYPE:
- ■ AUTOMATIC ☐ MANUAL

CORE SIZE:
- ☐ -B _____ ☐ -H _____
- ☐ -N _____

HAND TOOLS:
- ☐ POST HOLE DIGGER
- ■ HAND AUGER
- ☐ SOUNDING ROD
- ☐ VANE SHEAR TEST
- ■ SAMPLER PROBE

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:

ELEVATION: FEET

NOTES:

DATE: 8-15-14

09/08/99

TIP PROJECT: B-4490

CONTRACT: 33727

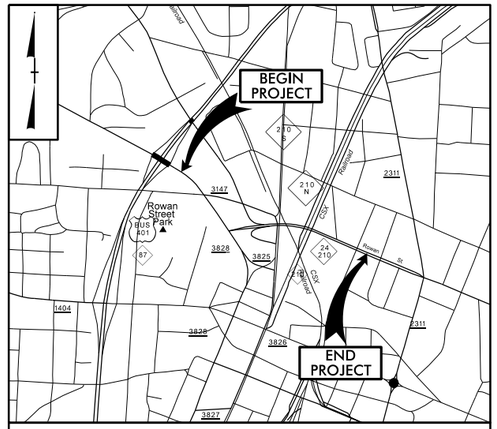
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

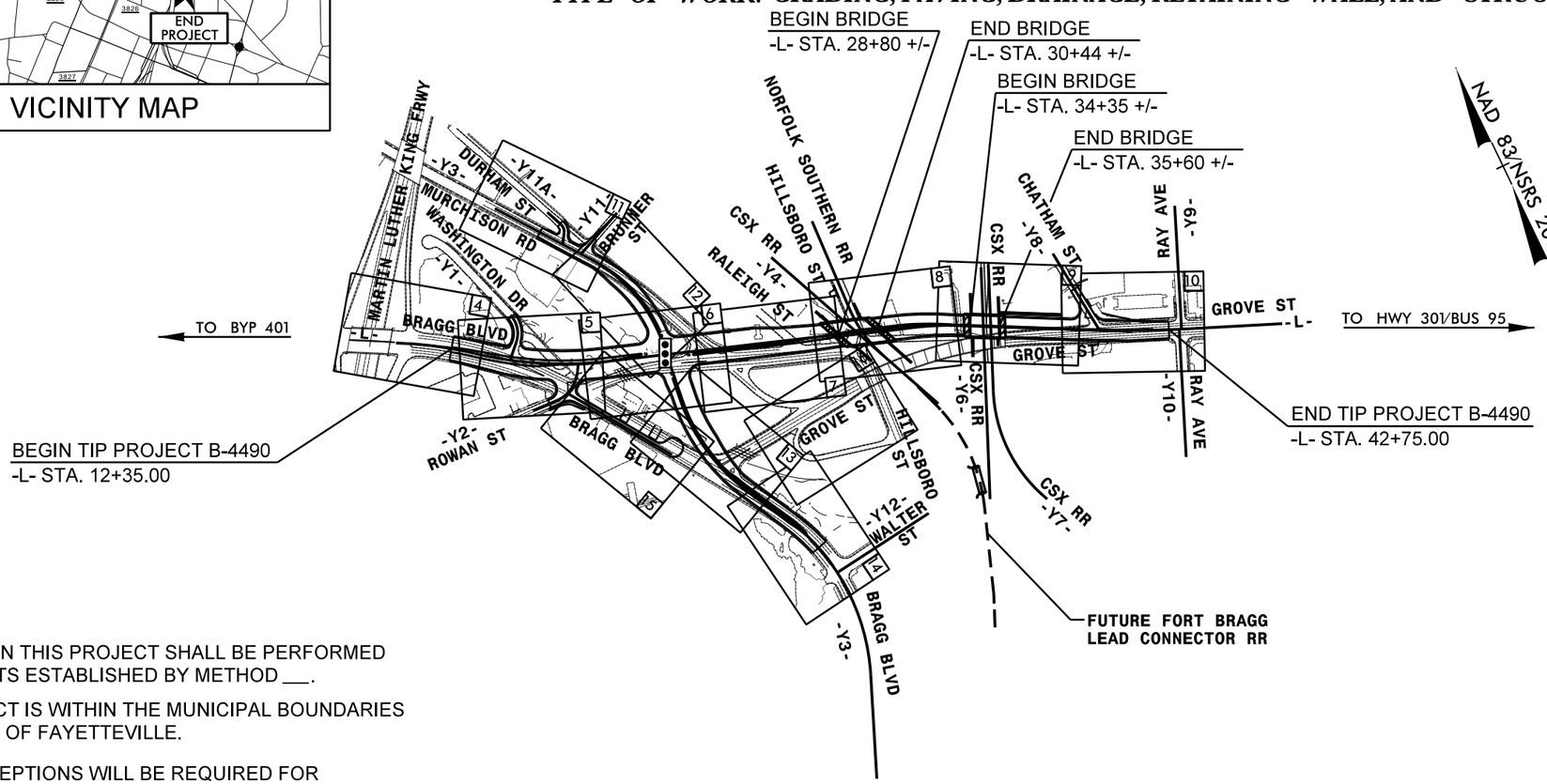
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4490	2A	26
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33727.1.1	BRNHS-0024(24)	P.E.	

LOCATION: BRIDGE NO. 116 OVER CSX RR, NORFOLK SOUTHERN RR, AND HILLSBORO STREET ON NC 24/210

TYPE OF WORK: GRADING, PAVING, DRAINAGE, RETAINING WALL, AND STRUCTURE



VICINITY MAP



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ___.

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF FAYETTEVILLE.

DESIGN EXCEPTIONS WILL BE REQUIRED FOR EXCEEDING MAXIMUM GRADE ON -L- AND THE SUPERELEVATION ALONG -L- THROUGH THE INTERSECTION WITH -Y3-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS: 20 10 0 20 40

PROFILE (HORIZONTAL): 20 10 0 20 40

PROFILE (VERTICAL): 4 2 0 4 8

DESIGN DATA

ADT 2015 = 34,813
ADT 2035 = 47,596
DHV = 10 %
D = 55 %
T = 3 % *
V = 40 MPH
(* TTST 1% + DUAL 2%)
FUNC CLASS = URBAN PRINCIPAL ARTERIAL REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4490	=	0.522 MILES
LENGTH STRUCTURE TIP PROJECT B-4490	=	0.054 MILES
TOTAL LENGTH TIP PROJECT B-4490	=	0.576 MILES

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

PLANS PREPARED FOR:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr.
Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DECEMBER 20, 2013

LETTING DATE: DECEMBER 15, 2015

TIM HAYES, PE
PROJECT ENGINEER

BRIAN LUSK, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: BRENDA MOORE, PE, CPM

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

24-JUN-2015 13:48
L:\Raleigh Investigation\TIP\B4490_GEO_RDWY_REV\CADD_GEOTECH\PlanProf\B-4490_rdy_tsh.dgn
jrsworthey AT GEJ277225

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

June 24, 2015

STATE PROJECT: 33727.1.1
FEDERAL PROJECT: BRNHS-0024 (24)
COUNTY: Cumberland
DESCRIPTION: Replace Bridge No. 116 over CSX RR, Norfolk Southern RR, & Hillsboro St. on NC 24/210

SUBJECT: Geotechnical Report – Inventory – **Revision**

The Geotechnical Engineering Unit has completed a subsurface investigation for this project and presents the following inventory. **This report supersedes the previous one dated October, 2013 to show additional borings between -L- Sta. 28+50 and 33+00 which were requested by the Geotechnical Engineer for slope stability. Additional borings were performed in an alluvial region and artificial fill pile to find a more precise volume of these areas.** Plans, profiles, and cross sections will be submitted for this roadway project.

Project Description

This project lies along NC 24/210 (Rowan St.) within the city limits of Fayetteville in Cumberland County. The project begins at Bragg Blvd east of the interchange with US 401 (Martin Luther King Jr. Fwy.) and extends eastward where it merges with Rowan St. Rowan St. (-L-) will be realigned to the north to accommodate the two new replacement structures over CSX railroad, Norfolk Southern railroad, and Hillsboro St. A new intersection with Murchison Rd (NC 210) and the southern end of Bragg Blvd. occurs as –Y3-.

One NCDOT drill crew and geologist was used to assist in the subsurface investigation during September of 2013. A track mounted CME-55 was used during the field investigation. Additional borings were done in April of 2014 that were drilled by S&ME and logged by an NCDOT geologist. Standard Penetration Tests were performed at selected locations and additional borings were advanced using continuous flight augers and hand augers. In April of 2015 the Geotechnical Engineering Unit completed additional borings to delineate an Artificial Fill pile and alluvial region of soft silt. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by the Materials and Tests Unit.

The following alignments, totaling 0.923 miles, were investigated. Subsurface profiles and/or cross sections of these alignments are included in this report.

Line	Stations		
-L-	12+35	to	42+75
-Y3-	12+15	to	30+50

Areas of Special Geotechnical Interest

1) Highly plastic clays (PI>20) were encountered on the project at the following locations:

Line	Station	Offset (ft)
-L-	31+76	155 RT
-L-	37+30	53 LT
-L-	37+70	53 LT
-L-	38+20	60 LT
-L-	40+50	40 LT

2) The following section(s) contains relatively soft, organic soils, which have the potential for subgrade/embankment stability and/or long term settlement problems:

Line	Station	Offset (ft)
-L-	26+00	70 LT
-L-	31+76	155 RT
-L-	33+00	155 RT
-L-	35+85 to 36+75	50 LT to 90 LT

3) Artificial Fill: One area of artificial fill occurs at the following location:

Line	Station	Offset (ft)
-L-	36+70 to 37+85	60 LT to 100 LT

Physiography and Geology

The project is located in the western Coastal Plain physiographic province of North Carolina. A mixture of trees, shrubs, existing roads/driveways and fields are located along the project corridor. The project corridor is predominantly urban with commercial businesses located adjacent to the corridor. Topography along the project is flat to gently rolling with one steep slope at the eastern end slope of Bridge No. 116

The entire project is underlain by undivided coastal plain sediments and older Cretaceous aged soils belonging to the Cape Fear formation.

Soil Properties

Soils encountered at the project site include artificial fill, alluvial, Undivided Coastal Plain soils, and Cape Fear formational soils.

Artificial Fill is present left of -L- Sta. 36+70 to 37+85. This fill consists of orange, stiff, sandy clay with broken concrete fragments ranging in size up to 3 feet. Hand augers performed in the fill pile refused at 3.5’ to 4.0’. The fill pile is approximately 25-45 feet wide and 6-8 feet high.

Alluvial soils consist of black and gray, moist to wet, very soft to soft, sandy silt with trace organics. Moisture content of this soil type taken at -L- Sta. 36+09, 68 LT is 27 %. Organic content of this soil type taken at -L- Sta. 36+00, 60 LT is 4 %.

Undivided Coastal Plain soils consist of orange, tan and gray, moist to saturated, very loose to med. dense, sand and silty sand (A-3, A-2-4), brown, tan and gray, moist to wet, soft to stiff, sandy clay and silty clay (A-6, A-7-6) and brown, very soft to soft clayey silt and sandy silt with trace to moderate amounts of organic matter.

Cape Fear formational soils occur beneath the Undivided Coastal Plain sediments. These soils consist of gray, saturated, med. dense to very dense sand, silty sand and clayey sand (A-1-b, A-3, A-2-4, A-2-6) and gray, wet, stiff to hard sandy and silty clay (A-6, A-7-6).

Groundwater

Groundwater was encountered in most of the borings. Groundwater was generally found at an elevation between 90± and 95± feet. Groundwater near Cross Creek was found at or near the surface water elevation of Cross Creek. There is approximately 0.5’ of surface water located within an alluvial region of soft silt at -L- Sta. 35+85 to 36+75, 60 LT to 100 LT.

PROJECT REFERENCE NO.	SHEET NO.
B-4490	4

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

NAD 83/NSRS 2007

8/17/99

MARTIN LUTHER KING FRWY

MARTIN LUTHER KING FRWY

21' BST

16' BST

BST

-L- CURVE DATA

PI Sta 11+89.76	PI Sta 16+18.86
Δ = 10° 25' 53.3" (RT)	Δ = 20° 07' 11.6" (LT)
D = 3° 34' 51.6"	D = 3° 34' 51.6"
L = 291.30'	L = 561.85'
T = 146.05'	T = 283.85'
R = 1,600.00'	R = 1,600.00'
DS = 40 MPH	DS = 40 MPH
SE = exist.	SE = 2.0% *
RO = exist.	RO = 100'

* REQUIRES DESIGN EXCEPTION

LJ&T of FAYETTEVILLE,LLC
DB 6541 PG 681

VAIL FAMILY LIMITED PARTNERSHIP
DB 4594 PG 225

ISBKBUS

ISBLKBUS

BEGIN TIP PROJECT B-4490
-L- STA. 12+35.00

-BL- 1

-L- POT Sta. 10+00.00

S 61° 18' 41.7" E

-L- PC Sta. 10+43.71

BRAGG BLVD

-L-

60° CHL

PROPOSED 5' SIDEWALK

150' TRANSITION TO EXISTING

EXISTING R/W

25'

30° C&G

2'-6" C&G

2'-9" C&G (MED.)

GRASS MEDIAN

41.57'

33.03'

EXIST.

015

048

02

04

03

12'

14'

40' F TO F

SIZE & TYPE UNKNOWN

CONC

ECM

EOI

CB

18" RCP

15" RCP

24" C&G

+35

+85

+00

-L- PRC Sta. 13+35.01

300' TAPER

MATCH LINE SEE SHEET 5
-L- STA. 13+40.00

SEE SHEET No. 17 FOR -L- PROFILE

17-JUL-2014 08:38
L:\Raleigh Invest\region\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanPro\B-4490_geo_psh_04.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4490	5

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

-Y1- CURVE DATA
PI Sta 12+09.77
Δ = 62° 21' 15.4" (RT)
D = 51° 09' 25.0"
L = 121.89'
T = 67.77'
R = 112.00'
SE = n/a
RO = n/a

-Y2- CURVE DATA
PI Sta 11+24.19
Δ = 62° 03' 54.7" (RT)
D = 38° 11' 49.9"
L = 162.49'
T = 90.25'
R = 150.00'
SE = n/a
RO = n/a

-L- CURVE DATA
PI Sta 16+18.86
Δ = 20° 07' 11.6" (LT)
D = 3° 34' 51.6"
L = 561.85'
T = 283.85'
R = 1,600.00'
SE = 2.0% *
RO = 100'
DS = 40 MPH
* REQUIRES DESIGN EXCEPTION

-Y1- PC Sta. 11+42.00
BEGIN CONSTRUCTION
-Y1- POC Sta. 11+50.00
50' TRANSITION TO EXISTING
MATCH LINE -Y1- STA. 11+80.00

MATCH LINE SEE INSET IN THIS SHEET -Y1- STA. 11+80.00
50' TRANSITION TO EXISTING
JAMES E. GARDNER DB 3418 PG 393
-Y1- PT Sta. 12+63.89
150' TAPER
PROPOSED 5' SIDEWALK
20' DR.
2'-6" C&G
34' F TO F
15' 15'
17' TO F
-BL- 2
-Y1- S 44°27'08.5" W WASHINGTON DR.
CR
WDO LLC DB 6203 PG 538
PROPOSED 5' SIDEWALK
ISBLKBUS
CROSS CREEK
NAD 83/NSRS 2007
MATCH LINE SEE SHEET 4 -L- STA. 13+40.00
2'-9" C&G (MED.)
42' F TO F
-L-
BRAGG BLVD
GRASS MEDIAN
CITY OF FAYETTEVILLE DB 6988 PG 738
-L- POC Sta. 17+75.00 = -Y2- POT Sta. 10+00.00
EDMUND GEORGE DB 2964 PG 369
-L- POC Sta. 14+87.16 = -Y1- POT Sta. 13+44.99
-Y2- PC Sta. 10+33.95
S 30°55'53.7" W
5' MONOLITHIC ISLAND (TYP.)
R=2'
2'-6" C&G
BRAGG BLVD 79 BST
300' TAPER
CHARLES WILLIAMS JR. DB 8226 PG 716 PB 7 PG 143
-Y2- PT Sta. 11+96.43
-Y2- POC Sta. 11+36.74 = -DR1- POT Sta. 10+00.00
R=53'
R=4'
R=23'
50' TAPER
END CONSTRUCTION -Y2- POT Sta. 12+25.00
-Y2- POT Sta. 13+00.00
-Y2-
N 87°00'11.5" W
ROWAN ST
S 33°56'43.6" E
9"X18" CONC. CURB
MATCH LINE SEE SHEET 6 -L- STA. 18+50.00
MATCH LINE SEE SHEET 15 -DR1- STA. 10+80.00

NC 24 & W ROWAN ST.
22,770 / 32,944 -L- 24,935 / 35,022
404 / 665
2570 / 2744
-Y2- 2974 / 3409

SEE SHEET No. 17 FOR -L- PROFILE
SEE SHEET No. 22 FOR -Y1- & -Y2- PROFILE
SEE SHEET No. 25 FOR -DR1- PROFILE

8/17/99
17-JUL-2014 08:40
L:\Raleigh Invest\region\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanProf\B-4490_geo_psh_05.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4490	6

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

-L- CURVE DATA
PI Sta 16+18.86
Δ = 20° 07' 11.6" (LT)
D = 3° 34' 51.6"
L = 561.85'
T = 283.85'
R = 1,600.00'
DS = 40 MPH
SE = 2.0 % *
RO = 100'

-Y3- CURVE DATA
PI Sta 17+09.63
Δ = 43° 13' 24.1" (RT)
D = 8° 48' 53.1"
L = 490.35'
T = 257.51'
R = 650.00'
DS = 40mph
SE = 4.0%
RO = 124'

* REQUIRES DESIGN EXCEPTION

NC 24 & ROWAN ST.
9548 / 12,152
-Y3-
2813 / 3596
4217 / 5261
24,934 / 85,021
-L-
-L-
34,173 / 46,956
-Y3-
3683 / 46,39
12,157 / 15,548
18,352 / 23,481

MATCH LINE SEE SHEET 12
-Y3- STA. 18+40.00

MATCH LINE SEE SHEET 5
-L- STA. 18+50.00

MATCH LINE SEE SHEET 7
-L- STA. 23+50.00

MATCH LINE SEE SHEET 15

MATCH LINE SEE SHEET 13
-Y3- STA. 21+80.00

ROSALIND W. WAITMAN
DB 5554 PG 248

NAD 83/NSRS 2007

MURCHISON RD

WYANE QUICK
DB 5096 PG 809

DB 7905 PG 58
TRACT 2

ROSSIE BAREFOOT
DB 5143 PG 37

NC DOT
DB 540 PG 155

UTLEY RENTALS, LLC
DB 7905 PG 58
TRACT 1

S.C. RANKIN EST
DB 468 PG 18

WEST ROWAN ST

-L- PT Sta. 18+96.87

-Y3- PT Sta. 19+42.48

-L- POT Sta. 21+50.00 =
-Y3- POT Sta. 19+84.71

S 13° 15' 10.2" E

S 71° 00' 00.0" E

S 69° 31' 14.4" E

S 6° 44' 03.3" W

CRAWL SPACE

ISBKBUS

ISMBUS

ISBLKBUS

CONC RETAINING WALL

CROSS CREEK

WOODS

★ PROPOSED SIGNAL

SEE SHEETS No. 17 & 18 FOR -L- PROFILE
SEE SHEET No. 23 FOR -Y3- PROFILE

17-JUL-2014 08:41
L:\Raleigh Invest\signing\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanProf\B-4490_geo_psh_06.dgn
jcwarren

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4490	7

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

BEGIN
RETAINING WALL
-L- STA. 27+93.27

NAD 83/NSRS 2007

MATCH LINE SEE SHEET 6
-L- STA. 23+50.00

MATCH LINE SEE SHEET 8
-L- STA. 28+00.00

ALEXANDER EVANS
DB 3501PG 409

P&S ENTERPRISES
DB 3118 PG 251

P&S ENTERPRISES INC
DB 3613 PG 50
PB 20 PG 40

DB 2389
PG 399

RALEIGH ST

CAT-1

WEST ROWAN ST SR 3147

GRAU 350 TL-3

S 71° 00' 00.0" E

-L-

-BY2-

-BL-4-

SEE SHEET No. 18 & 19 FOR -L- PROFILE

17-JUL-2014 08:43
L:\Raleigh Investigation\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanProf\B-4490_geo_psh_07.dgn
(rawson1) AT&T [PE2216A2]

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4490	8

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

NAD 83/NSRS 2007

MATCH LINE SEE SHEET 7 -L- STA. 28+00.00

MATCH LINE SEE SHEET 9 -L- STA. 33+40.00

WILLIAM JOSEPH BAGGETT DB 8074 PG 824

TALLY INVESTMENTS LLC DB 7779 PG 868

GEORGE SKENTERIS DB 826 PG 530

BEGIN RETAINING WALL -Y5- STA. 13+85.00

-Y5- PC Sta. 14+01.74

END BRIDGE 1 -L- Sta. 30+44+/-

BEGIN BRIDGE 1 -L- Sta. 28+80+/-

-L- POT Sta. 29+79.46 = -Y5- POC Sta. 15+12.30

-L- PC Sta. 31+47.54

-L- POT Sta. 29+51.01 = -Y4- POT Sta. 14+79.98

-Y4- PT Sta. 16+29.36 = -Y5- PC Sta. 16+47.98

END RETAINING WALL -Y4- STA. 16+07.65

END RETAINING WALL -Y4- STA. 17+40.00

-BL- 5 = -BY4

-BL- 6 = -BY5

S 25°09'04.8" E

S 14°14'57.9" E

S 2°29'59.7" W

S 71°00'00.0" E

S 69° 43' 49.8" E

HILLSBORO ST

ROWAN ST

GROVE ST

CSX RR

NS RR

-Y4-

-Y5-

-EY5-

-EY6-

-L-

200' SHIFT

160' SHIFT

333' MEDIAN TAPER

PROPOSED 5' SIDEWALK

2'-6" C&G

2'-9" C&G (MEDJ)

GRASS MEDIAN

STAMPED CONC. MEDIAN

5" MONOLITHIC ISLAND (TYP.)

TYPE-III

ISMTLBUS

ISBKBUS

ISBLKBUS

RR SIGNAL

RR LIGHT

RR ARM

SENSOR

POWER CABINET

TELEPHONE VAULT 3'X8'X6'

GAS TEST STATION

BRIDGE SEAT ELEV. 62.86'

SEABOARD COAST LINE RR

6' CAST IRON

16' CAST IRON

18" RCP

30" CMP

30" C&G

42" F TO F

+58.66

+47.54

+97.54

+108.66

+46.28

+89.38

+58.73

SEE SHEET No. 19 & 20 FOR -L- PROFILE

17-JUL-2014 08:44
L:\Raleigh Projects\Bridges\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanProf\B-4490_geo_psh_08.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4490	9

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

8/17/99

-L-
PI Sta 32+53.30
Δ = 8° 38' 25.1" (RT)
D = 4° 05' 33.2"
L = 2111.2'
T = 1057.6'
R = 1,400.00'
DS = 40 MPH
SE = 2.0% *
RO = 100'

-Y7-
PI Sta 18+02.27
Δ = 46° 34' 26.5" (LT)
D = 9° 14' 28.5"
L = 503.98'
T = 266.85'
R = 620.00'

* REQUIRES DESIGN EXCEPTION

-Y7- POT Sta. 10+00.00
-Y6- POT Sta. 10+00.00

BEGIN APPROACH SLAB
-L- Sta. 34+10.96

BEGIN BRIDGE 2
-L- Sta. 34+35+/-

BEGIN RETAINING WALL
-L- STA. 35+55.00

END APPROACH SLAB
-L- Sta. 35+84.00

END BRIDGE 2
-L- Sta. 35+60+/-

1" = 40' (FOR SKETCH ONLY)

SKETCH SHOWING DIMENSION OF PAVEMENT AND SHOULDERS IN RELATION TO PROPOSED BRIDGE WIDTH

BEGIN RETAINING WALL
-Y6- STA. 11+06.56

BEGIN RETAINING WALL
-Y7- STA. 11+37.15

BEGIN RETAINING WALL
-L- STA. 35+55.00

END BRIDGE 2
-L- Sta. 35+60+/-

END RETAINING WALL
-L- STA. 38+20.00

NAD 83/NSRS 2007

LALON L. BARNES JR.
DB 5620 PG 511

CHARLES T. HAIGH
DB 3072 PG 57

ALFRED N. DAVIS
DB 1192 PG 279

ATLANTIC COAST LINE R.R. CO.
DB 298 PG 280

LAWRENCE GLIDEMAN
DB 5955 PG 587

O. J. HARBOROUGH JR.
DB 2[illegible] PG 35

CSX RR

-Y6-

-Y7-

EXISTING R/W

200' SHIFT

+58.66

12' CONC

-L- POT Sta. 34+92.18 =
-Y6- POT Sta. 12+48.60

-L- PT Sta. 33+58.66

PROPOSED 5' SIDEWALK

TYPE-III

ALLUVIAL

ARTIFICIAL FILL

+25.24

2'-6" C&G

STAMPED CONC. MEDIAN

2'-9" C&G (MED.)

41' F TO F

97' F TO F

86' F TO F

5" MONOLITHIC ISLAND (TYP.)

5" MONOLITHIC ISLAND

ROADWAY EMBANKMENT

S 62° 21' 34.9" E

RAIL ELEV. = 101.09'
DISTANCE TO GIRDER =24.23'

BRIDGE SEAT ELEV. 121.85'

48" CONC

30" C&G

GROVE ST

78' BST

ROWAN ST

CAT-1

-BY5- 20

S 23° 25' 17.9" W

S 23° 22' 24.5" W

200' SHIFT

BEGIN BRIDGE 2
-L- Sta. 34+35+/-

END RETAINING WALL
-Y6- STA. 13+77.53

RAIL ELEV. = 101.93'
DISTANCE TO GIRDER= 22.59

60" WROUGHT IRON

MTL LT

WOODS

48" RCP

END RETAINING WALL
-Y7- STA. 13+47.98

-L- POT Sta. 35+23.40 =
-Y7- POT Sta. 12+63.33

MH IS LOCKED, NO INV

48" MTL

MATCH LINE SEE SHEET 8
-L- STA. 33+40.00

MATCH LINE SEE SHEET 10
-L- STA. 38+40.00

24-JUN-2015 13:49
L:\Raleigh Investigations\TIP\B4490_GEO_ROWY_ADD\CADD_GEOTECH\PlanProf\B-4490_geo_psh_09.dgn
jcarlton

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4490	10

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

NAD 83/NSRS 2007

BEGIN CONSTRUCTION
-Y8- POT Sta. 11+75.00
MARION C. GEORGE JR.
DB 2129 PG 545

MARION C. GEORGE JR.
DB 2125 PG 201

LAFAYETTE BANK & TRUST CO.
DB 2389 PG 523

-L-
PI Sta 41+42.09
Δ = 5° 07' 19.2" (LT)
D = 1° 08' 45.3"
L = 446.98'
T = 223.64'
R = 5,000.00'
DS = 40 MPH
SE = 2.0%
RO = n/a

-Y8- CHATHAM ST

RAY AVE
S 22° 27' 02.6" W
-Y9-

FREDERICK L GRAHAM
DB 4652 PG 271

2SBK BUS

MTL CANOPY

48" CONC

24" RCP

15" RCP

18" RCP

8" PVC

8" CAST IRON

EXISTING R/W

IN CONDUIT

34' DR.

36' DR.

20' BST DRIVE

32' BST DRIVE

PROPOSED 5' SIDEWALK

2'-6" C&G

24' C&G

9"x18" CONC.CURB

BM81
-BL- STA 34+85
32' LEFT
ELEV. 106.57'

-L- PC Sta. 39+18.45

14.5" MONOLITHIC ISLAND (TYP.)

5" MONOLITHIC ISLAND

-L- POC Sta. 39+81.96 =
-Y8- POT Sta. 13+78.06

-L- POC Sta. 43+18.49 =
-Y10- POT Sta. 10+00.00

-L- POC Sta. 43+28.36 =
-Y9- POT Sta. 15+21.03

-L- PT Sta. 43+65.43

GROVE ST

RAY AVE
S 22° 33' 05.8" W
-Y10-

S 62° 21' 34.9" E

S 67° 28' 54.2" E

41+08.25
2.00 LT

41+08.34
4.16 RT

42+08.45
5.00 LT

100' LEFT TURN TAPER

190' SHIFT

166.05' TAPER TO EXISTING

CITY OF FAYETTEVILLE
DB 7684 PG 237
DB 6555 PG 37
DB 6402 PG 425
PB 120 PG 165
PB 121 PG 185

60" WROUGHT IRON

60" CONC

MH IS LOCKED, NO INV

ISBLK

CONC

POWER BOX

VAULT

POWER CABINET

POWER METER

TELEPHONE VAULT
4'X6'X5.5'

SIZE & TYPE UNKNOWN

EXIST. 04

EXIST. 03

EXIST. 02

EXIST. 01

EXIST. 00

NC 24/210 CHATHAM ST.

770 / 943	-Y8-	2015 ADT / 2035 ADT
434 / 521		334 / 421
34,813 / 47,596	-L-	-L- 34,713 / 47,496

NC 24/210 & RAY AVE.

	2843 / 3452 (-Y9-)	
870 / 1044		1204 / 1452
34,713 / 47,496	-L-	-L- 34,913 / 47,696
1974 / 2409		1839 / 2187
	4583 / 5540 (-Y9-)	

END TIP PROJECT B-4490
-L- STA. 42+75.00

SEE SHEET No. 21 FOR -L- PROFILE
SEE SHEET No. 24 FOR -Y8- PROFILE

MATCH LINE SEE SHEET 9
-L- STA. 38+40.00

17-JUL-2014 08:46
L:\Raleigh Invest\Design\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanProf\B-4490_rdy_psh_10.dgn
(Geometric) AT [illegible]

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4490	11

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

NAD 83/NSRS 2007

-Y3-
PI Sta 17+09.63
Δ = 43° 13' 24.1" (RT)
D = 8° 48' 53.0"
L = 490.35'
T = 257.51'
R = 650.00'
DS = 40 MPH
SE = 4.0%
RO = 124

-Y11A-
PI Sta 10+98.78
Δ = 55° 05' 13.9" (RT)
D = 143° 14' 22.0"
L = 38.46'
T = 20.86'
R = 40.00'
SE = n/a
RO = n/a

LONNIE MELVIN
DB 863 PG 13

MARY S. HARRIS
DB 6040 PG 861

JIMMIE SMITH
DB 3228 PG 518

RICHARD BROWN
DB 500 PG 182
TRACT 1

RICHARD BROWN
DB 500 PG 182
TRACT 2

ALBRTTA MCMILLAN
DB 495 PG 127

INEZ JONES
DB 495 PG 171

ALVIN ELLIOTT
DB 4588 PG 592

TALLEY INVESTMENTS LLC
DB 7779 PG 868

ELLEN GLADDEN
DB 6403 PG 374

COUNCIL & WILLIFORD PROPERTIRS, LLC
DB 5754 PG 200

DURHAM ST
-Y11A- S 22° 28' 03.5" E

BRUNNER ST -Y11-
S 66° 51' 34.2" W

MURCHISON RD -Y3-
S 36° 29' 17.7" E

S 32° 37' 10.4" W

-Y11A- POT Sta. 10+00.00

-Y11A- PC Sta. 10+77.92

-Y11A- PT Sta. 11+16.38

BEGIN CONSTRUCTION
-Y11- POT Sta. 11+45.00

BEGIN CONSTRUCTION
-Y11A- POT Sta. 10+73.27

BEGIN CONSTRUCTION
-Y3- POT Sta. 12+15.00

-Y3- POT Sta. 10+00.00

-Y3- PT Sta. 13+23.43 =
-Y11A- POT Sta. 11+65.79

-Y3- PT Sta. 14+10.60 =
-Y11- POT Sta. 12+31.02

-Y3- PC Sta. 14+52.13

MATCH LINE SEE SHEET 12
-Y3- STA. 14+80.00

SEE SHEET No. 23 FOR -Y3- PROFILE
SEE SHEET No. 25 FOR -Y11A- PROFILE
SEE SHEET No. 25 FOR -Y11- PROFILE

17-JUL-2014 08:47
L:\Raleigh Investigation\TIP\B4490.GEO.RDWY\CADD.GEOTECH\PlanProf\B-4490_rdy_psh_11.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4490	12

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

NAD 83/NSRS 2007

IDA WAITMAN, HEIRS
DB 525 PG 142

SIU-HUA CHEN
DB 5238 PG 168

ROSALIND W. WAITMAN
DB 5554 PG 248

DIPAK
RANAVAYA
DB 7645 PG 469

-Y3-
PI Sta 17+09.63
Δ = 43° 13' 24.1" (RT)
D = 8° 48' 53.0"
L = 490.35'
T = 257.51'
R = 650.00'
DS = 40 MPH
SE = 4.0%
RO = 124'

215' SHIFT

+71.80

-BY2- 13

BMBO
-BL- STA 15+03
476' LEFT
ELEV. 93.57

PROPOSED
5' SIDEWALK

EXISTING R/W

EIP

TV FO

15" RCP

SIZE & TYPE UNKNOWN

30" C&G

CB

40' BST

DURHAM ST

-Y3-

2'-6"
C&G

5" MONOLITHIC
ISLAND (TYP.)

2'-9"
C&G (MED.)

6" CAST IRON

MURCHISON RD

60" CONC

STAMPED
CONC.
MEDIAN

2'-6"
C&G

10' F

12' TO F

72' F TO F

F C

MATCH LINE SEE SHEET 11
-Y3- STA. 14+80.00

MATCH LINE SEE SHEET 6
-Y3- STA. 18+40.00

+93.46

100' TAPER

+84.02

DORIS B. UTLEY
DB 5323 PG 462

PROPOSED
5' SIDEWALK

+78.76

+09.76

+40.76

ROSALIND W. WAITMAN
DB 5554 PG 248
TRACT 2

SEE SHEET No. 23 FOR -Y3- PROFILE

17-JUL-2014 08:48
L:\Raleigh Projects\gregson\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanProf\B-4490_rdy_psh_12.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4490	13

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

MATCH LINE SEE SHEET 16

NAD 83/NSRS 2007

-Y3-
PI Sta 24+31.13
Δ = 34° 27' 26.8" (LT)
D = 7° 09' 43.1"
L = 481.12'
T = 248.08'
R = 800.00'
DS = 40 MPH
SE = 4.0%
RO = 124'

-Y3- PC Sta. 21+83.04

-Y3- PT Sta. 26+64.16

S 27° 43' 20.5" E

MATCH LINE SEE SHEET 6
-Y3- STA. 21+80.00

MATCH LINE SEE SHEET 14
-Y3- STA. 27+20.00

MATCH LINE SEE SHEET 15

PROPOSED 5' SIDEWALK

2'-6" C&G

2'-9" C&G (MED.)

STAMPED CONC. MEDIAN
SIZE & TYPE UNKNOWN

GRASS MEDIAN

200' TAPER

100' TAPER

CULVERT #2
45' CONC HW

CONC RETAINING WALL

GROVE ST

BRAGG BLVD

EDWARD B. SEIFERT
DB 5254 PG 460

CITY OF FAYETTEVILLE
DB 8412 PG 737
PB 117 PG 100

WOODS

BK PLANTER

MTL CANOPY

POWER METER

POWER CABINET

MTL LT

6' CAST IRON

SEE SHEET No. 23 & 24 FOR -Y3- PROFILE

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4490	14

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

NAD 83/NSRS 2007

-Y3-

PI Sta 24+31.13	PI Sta 32+77.61
Δ = 34° 27' 26.8" (LT)	Δ = 49° 59' 42.4" (RT)
D = 7° 09' 43.1"	D = 6° 26' 15.8"
L = 481.12'	L = 776.60'
T = 248.08'	T = 414.97'
R = 800.00'	R = 890.00'
DS = 40 MPH	SE = exist.
SE = 4.0%	RO = exist.
RO = 124"	

CITY OF FAYETTEVILLE
DB 7369 PG 841
PB 117 PG 100

CITY OF FAYETTEVILLE
DB 7329 PG 300
PB 117 PG 100

UNDER CONSTRUCTION

160' SHIFT

-Y3- PC Sta. 31+80.99 =
-Y12- POT Sta. 14+59.67
END CONSTRUCTION
-Y3- POT Sta. 30+50.00

-Y3- PC Sta. 28+62.64

PROPOSED 5' SIDEWALK

WALTER ST -Y12-

S 82° 38' 07.7" W

CITY OF FAYETTEVILLE
DB 5029 PG 454

-BY2- 17

-Y3-

MATCH LINE SEE SHEET 13
-Y3- STA. 27+20.00

S 27° 43' 20.5" E

2'-6" C&G

GRASS MEDIAN

2'-9" (MED.) C&G

STAMPED CONC. MEDIAN

160' TAPER

GRAVEL

CITY OF FAYETTEVILLE
DB 7501 PG 84
PB 39 PG 77

SEE SHEET No. 24 FOR -Y3- PROFILE

17-JUL-2014 08:52
L:\Raleigh Projects\Division\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanProf\B-4490_rdy_psh_14.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4490	15

NAD 83/NSRS 2007

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

MATCH LINE SEE SHEET 06

MATCH LINE SEE SHEET 13

MATCH LINE SEE SHEET 5 -DR1- STA. 10+80.00

-DR1-

BRAGG BLVD

32' DR.

34' DR.

EXISTING R/W

SANITARY SEWER MANHOLE WITH WATER LINE CROSSING THROUGH

SIZE & TYPE UNKNOWN

6" CAST IRON

6" DI

1" FO

12" CHL

CONC

55' CB

BRAGG BLVD 79' BST

30" C&G

R=40'
100.66
29.3' (LT)

IN CONDUIT

2'-6" C&G

50' TAPER

+05.62

S 33°56'43.6" E

EX.

13

12

14

15

22'

16" RCP

+14.18

60" CONC

24" RCP

DI

CB

VAULT

EOI

9"x18" CONC.CURB

TIE TO EXISTING C&G

+01.22

+21.30

END CONSTRUCTION
-DR1- POT Sta. 15+10.61

WOODS

CONC

CANOPY

S.C. RANKIN EST
DB 468 PG 18

DB 8376 PG 733

ISMTLBUS

ISBKBUS

CITY OF FAYETTEVILLE
DB 8403 PG 413

BST

25FD

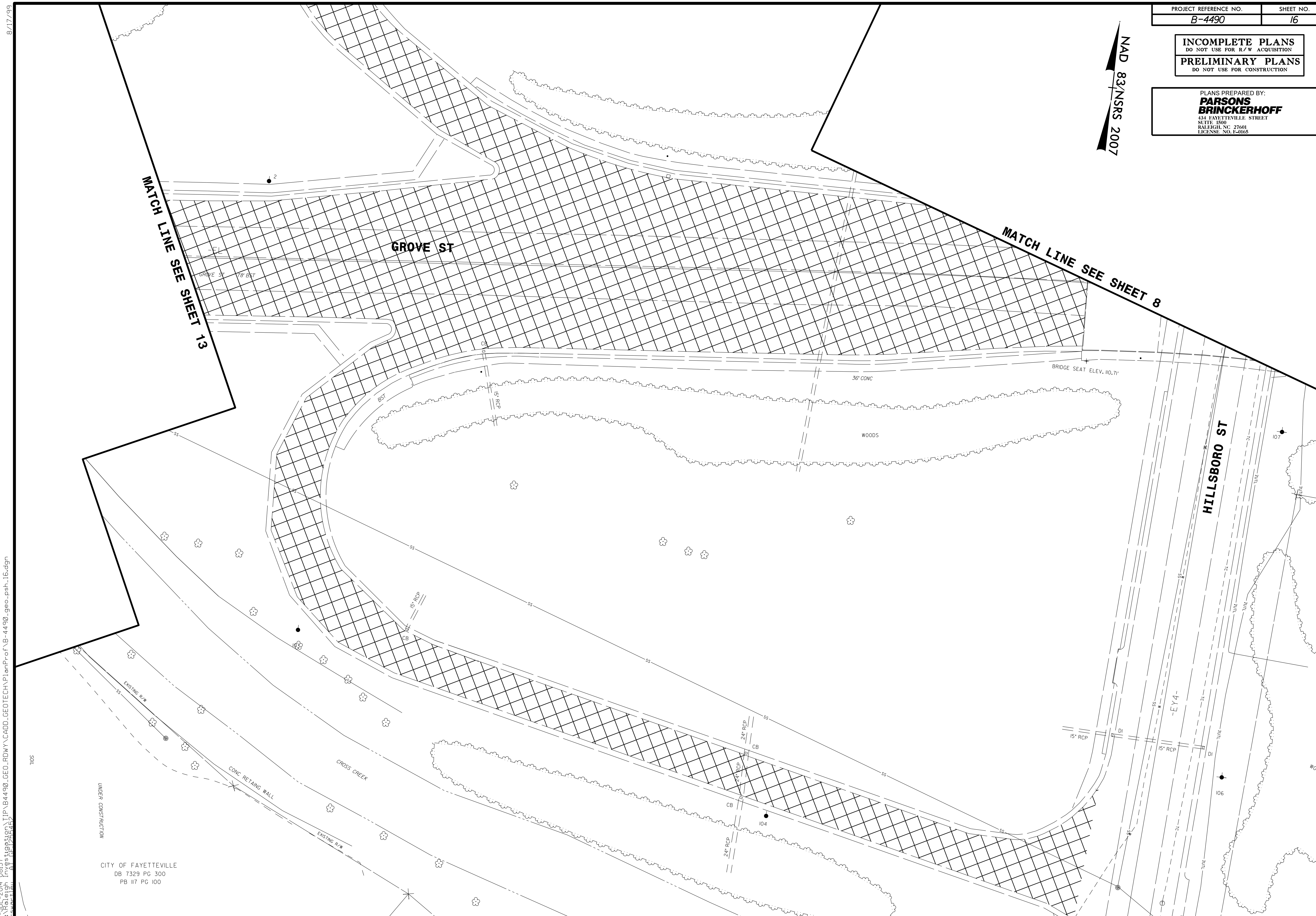
52' BK

61' BK

8' BK

SEE SHEET No. 25 FOR -DR1- PROFILE

17-JUL-2014 08:56
L:\Raleigh Investigation\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanProf\B-4490_geo_psh_15.dgn



8/17/99

17-JUL-2014 08:57
L:\Raleigh Investigation\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanProf\B-4490_geo_psh_16.dgn
irswartley AT GFJ255452

5/14/99

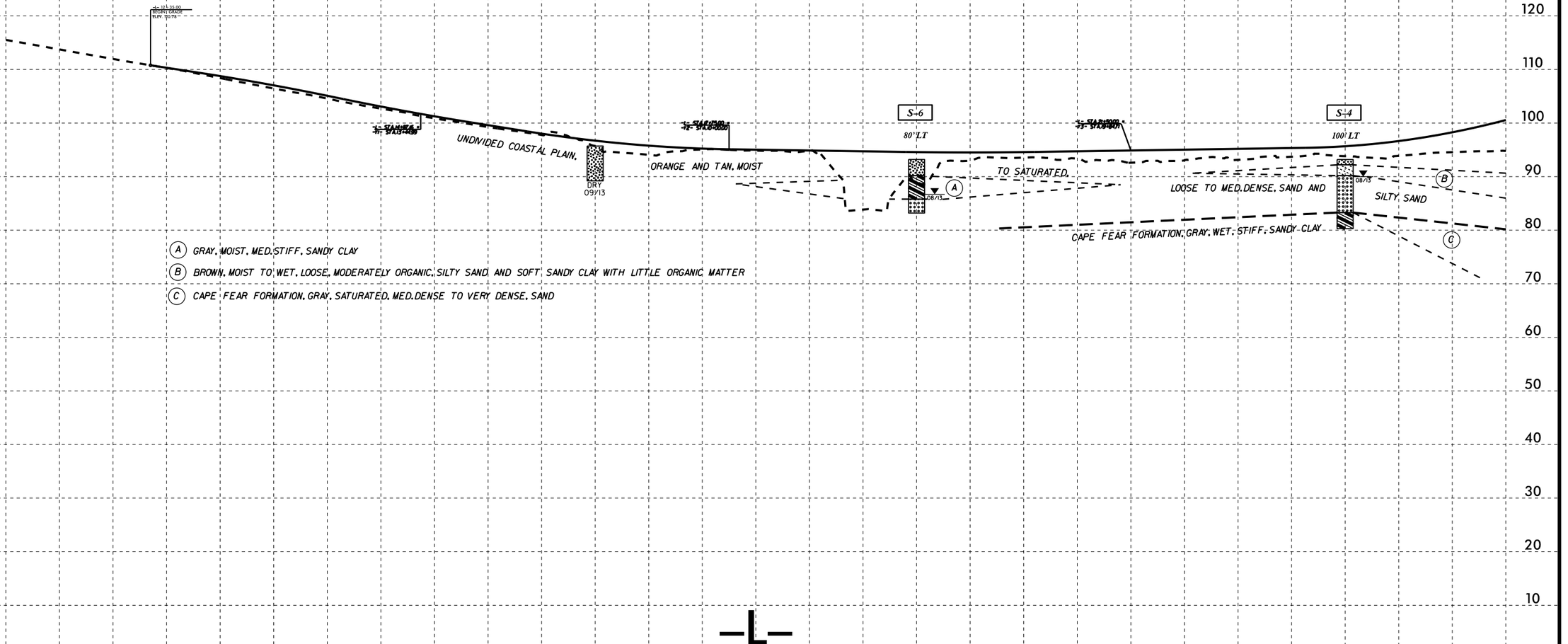
PROJECT REFERENCE NO.	SHEET NO.
B-4490	17

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-6	80' LT	19+50	3.0-7.4	A-6(4)	30	14	19.0	34.0	14.7	32.4	98	90	53	-	-
S-4	100' LT	23+50	1.0-3.0	A-2-4(0)	23	NP	19.0	50.6	16.3	14.2	99	93	35	-	5.9



17-JUL-2014 09:06
L:\Raleigh Invest\geotech\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanProf\B4490_GEO_pf1_L.dgn
(EP225545)

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4490	18

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

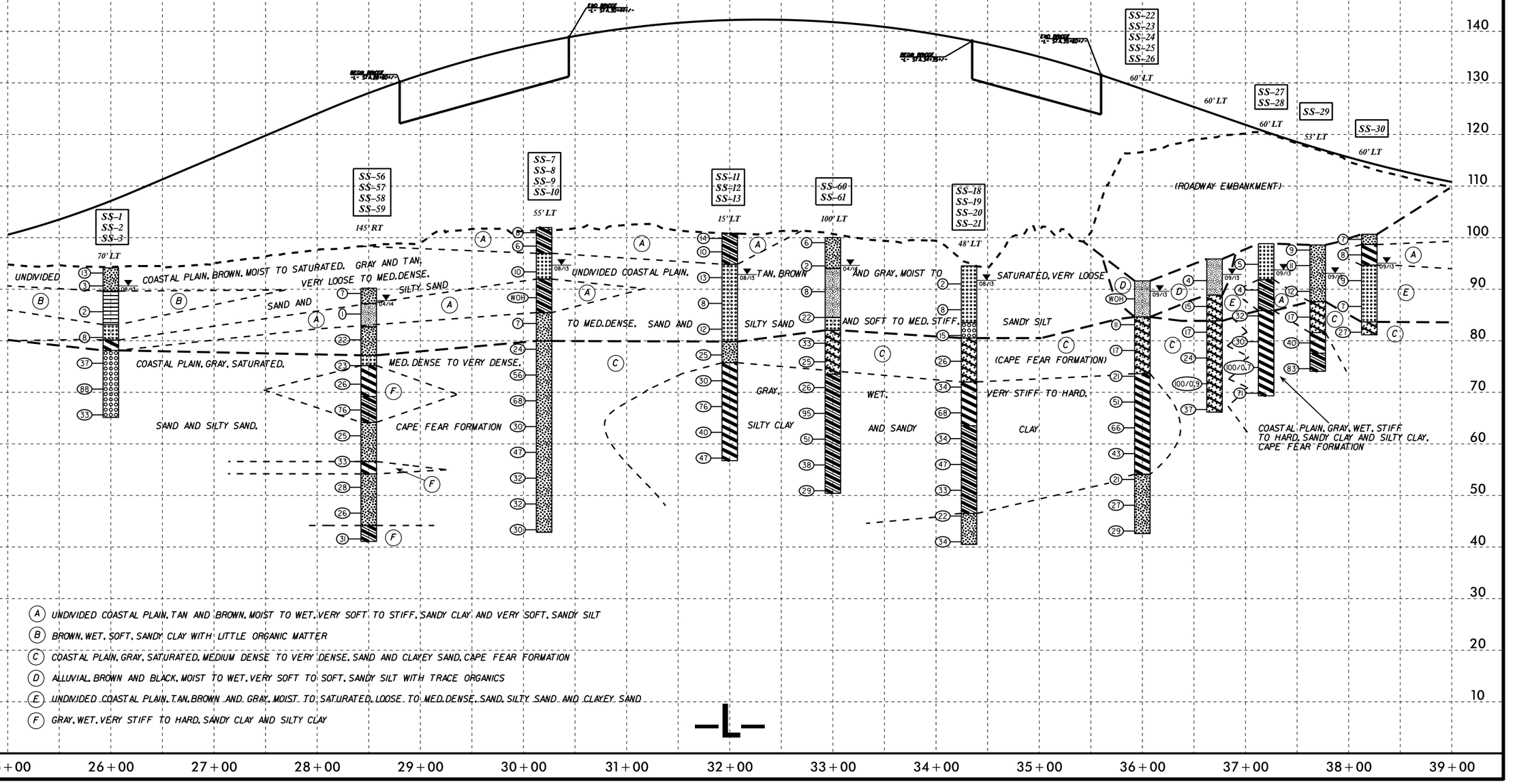
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-1	70' LT	26+00	7.5-9.0	A-6(10)	37	18	9.9	29.9	21.7	38.4	98	93	66	-	5.2
SS-2	70' LT	26+00	12.5-14.0	A-7-6(14)	49	20	7.7	31.1	45.0	16.2	100	97	70	-	-
SS-3	70' LT	26+00	17.5-19.0	A-1-b(0)	18	NP	82.1	11.6	1.2	5.1	90	30	6	-	-
SS-56	145' RT	28+50	0.0-1.5	A-2-4(0)	25	10	31.7	40.9	5.0	22.4	97	81	31	-	-
SS-57	145' RT	28+50	4.0-5.5	A-4(0)	25	3	12.8	52.3	16.6	18.3	100	94	41	-	-
SS-58	145' RT	28+50	17.6-19.1	A-7-5(7)	49	16	27.1	26.0	32.7	14.2	100	82	53	-	-
SS-59	145' RT	28+50	37.6-39.1	A-2-4(0)	33	NP	51.9	33.6	10.5	4.1	96	63	17	-	-
SS-7	55' LT	30+20	2.6-4.1	A-6(5)	32	16	31.1	18.2	16.3	34.4	97	75	52	-	-
SS-8	55' LT	30+20	12.6-14.1	A-6(7)	31	16	7.5	37.0	15.1	40.4	100	97	62	-	-
SS-9	55' LT	30+20	17.6-19.1	A-2-4(0)	23	NP	5.9	75.0	9.0	10.1	100	100	26	-	-
SS-10	55' LT	30+20	22.6-24.1	A-2-4(0)	37	NP	62.7	16.7	12.5	8.1	97	54	23	-	-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-11	15' LT	32+00	0.0-1.5	A-6(5)	35	18	29.7	23.3	12.6	34.4	97	77	49	-	-
SS-12	15' LT	32+00	22.6-24.1	A-2-4(0)	36	NP	55.3	27.3	11.3	6.1	91	53	20	-	-
SS-13	15' LT	32+00	27.6-29.1	A-7-6(6)	41	12	11.9	36.2	33.7	18.2	100	95	60	-	-
SS-60	100' LT	33+00	9.5-11.0	A-4(0)	20	6	31.5	31.3	17.2	20.1	99	80	42	-	-
SS-61	100' LT	33+00	19.5-21.0	A-2-6(2)	40	18	43.8	24.2	17.0	15.0	98	70	34	-	-
SS-18	48' LT	34+32	17.5-19.0	A-2-6(0)	40	13	51.8	24.1	18.1	6.1	96	63	28	-	-
SS-19	48' LT	34+32	22.5-24.0	A-7-6(5)	43	15	20.7	39.8	31.4	8.1	100	89	49	-	-
SS-20	48' LT	34+32	32.5-34.0	A-6(2)	40	13	25.8	42.0	24.1	8.1	100	90	39	-	-
SS-21	48' LT	34+32	47.5-49.0	A-2-4(0)	33	NP	66.0	23.7	8.3	2.0	97	62	13	-	-
SS-22	60' LT	36+00	2.5-4.0	A-4(2)	25	9	23.6	29.8	28.3	18.3	100	87	52	-	3.8
SS-23	60' LT	36+00	7.5-9.0	A-2-6(0)	35	13	47.3	28.8	15.7	8.1	85	58	24	-	-
SS-24	60' LT	36+00	17.5-19.0	A-7-5(10)	46	16	7.5	39.4	45.0	8.1	100	97	64	-	-
SS-25	60' LT	36+00	27.5-29.0	A-7-6(4)	46	20	44.8	16.4	25.6	13.2	97	64	40	-	-
SS-26	60' LT	36+00	37.5-39.0	A-2-4(0)	31	9	32.9	41.2	18.8	7.1	100	92	32	-	-
SS-27	60' LT	37+20	8.0-9.5	A-6(7)	30	13	1.8	40.0	29.7	28.4	100	99	70	-	-
SS-28	60' LT	37+20	18.0-19.5	A-7-6(9)	43	19	24.4	24.8	38.7	12.2	100	85	57	-	-
SS-29	53' LT	37+70	13.0-14.5	A-2-7(2)	41	22	50.5	16.0	15.2	18.3	93	60	33	-	-
SS-30	60' LT	38+20	3.0-4.5	A-7-6(24)	55	31	16.4	8.5	8.0	67.0	100	91	76	-	-



(A) UNDIVIDED COASTAL PLAIN. TAN AND BROWN. MOIST TO WET. VERY SOFT TO STIFF. SANDY CLAY AND VERY SOFT. SANDY SILT

(B) BROWN. WET. SOFT. SANDY CLAY WITH LITTLE ORGANIC MATTER

(C) COASTAL PLAIN. GRAY. SATURATED. MEDIUM DENSE TO VERY DENSE. SAND AND CLAYEY SAND. CAPE FEAR FORMATION

(D) ALLUVIAL. BROWN AND BLACK. MOIST TO WET. VERY SOFT TO SOFT. SANDY SILT WITH TRACE ORGANICS

(E) UNDIVIDED COASTAL PLAIN. TAN. BROWN AND GRAY. MOIST TO SATURATED. LOOSE TO MED. DENSE. SAND. SILTY SAND AND CLAYEY SAND

(F) GRAY. WET. VERY STIFF TO HARD. SANDY CLAY AND SILTY CLAY

17-JUL-2014 09:06
L:\Raleigh Investigation\TIP\B4490.GEO.RDWY\CADD.GEOTECH\PlanProf\B4490.GEO_pf1_L.dgn
esanders AT (NC2245452)

5/14/99

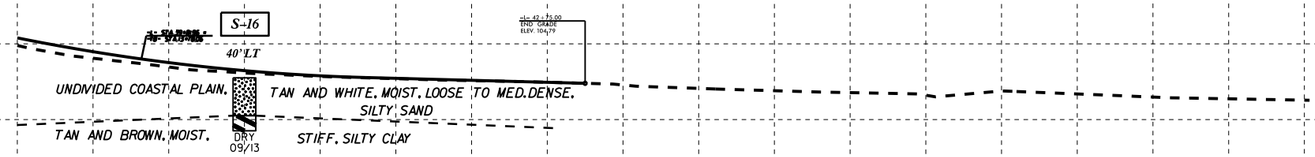
PROJECT REFERENCE NO.	SHEET NO.
B-4490	19

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-16	40' LT	40+50	5.0-7.0	A-7-6(18)	43	24	12.3	10.3	14.7	62.7	100	93	79	-	-



200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20

39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00

17-JUL-2014 09:07
L:\Raleigh Investigation\TIP\B4490_GEO_RDWY\CADD_GEOTECH\PlanProf\B4490_GEO_pf1_L.dgn

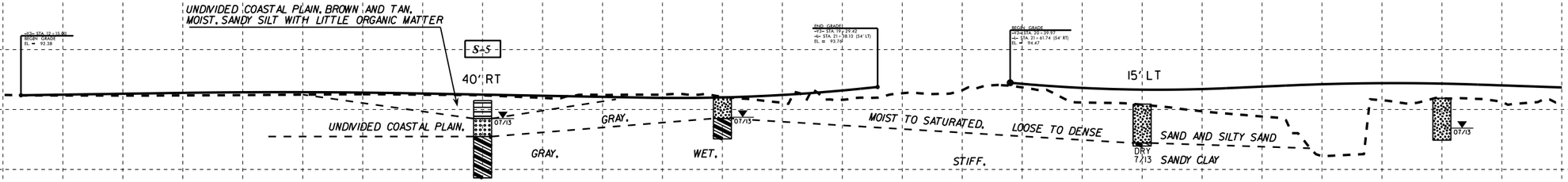
PROJECT REFERENCE NO.	SHEET NO.
B-4490	20

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

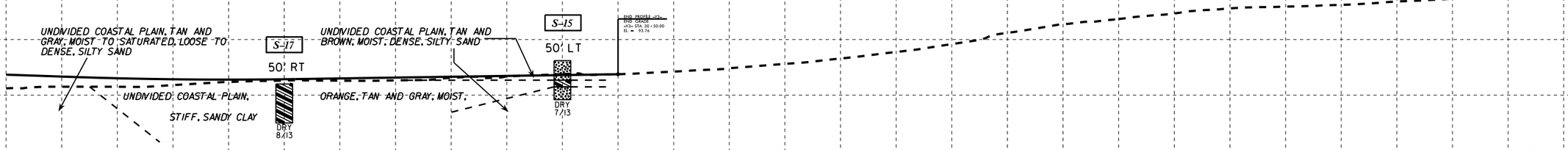
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-5	40' RT	16+00	0.0-3.0	A-4(0)	25	1	15.4	54.4	14.1	16.2	100	96	37	-	6.5



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-17	50' RT	27+50	0.0-4.0	A-6(3)	36	19	35.0	27.5	9.2	28.3	96	77	39	-	-
S-15	50' LT	30+00	4.7-7.0	A-2-4(0)	23	9	50.4	29.3	4.1	16.2	98	61	21	-	-



-Y3-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4490	21

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C SAND	F SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-11	15' LT	32+00	0.0-1.5	A-6(5)	35	18	29.7	23.3	12.6	34.4	97	77	49	-	-
SS-12	15' LT	32+00	22.6-24.1	A-2-4(0)	36	NP	55.3	27.3	11.3	6.1	91	53	20	-	-
SS-13	15' LT	32+00	27.6-29.1	A-7-6(6)	41	12	11.9	36.2	33.7	18.2	100	95	60	-	-
SS-62	100' RT	32+00	4.0-5.5	A-2-4(0)	17	3	36.9	32.9	14.1	16.0	98	76	34	-	-
SS-63	100' RT	32+00	12.7-14.2	A-2-7(1)	41	20	57.1	16.9	15.0	11.0	97	62	27	-	-
SS-64	100' RT	32+00	17.7-19.2	A-7-5(6)	45	14	25.1	25.9	33.0	16.0	100	84	55	-	-
SS-65	100' RT	32+00	22.7-24.2	A-6(3)	32	15	36.1	23.0	23.9	17.1	100	79	45	-	-
SS-69	155' RT	31+76	4.0-5.5	A-5(4)	42	10	18.3	30.7	33.0	18.1	99	90	56	56.3	13.6
SS-70	155' RT	31+76	23.2-24.7	A-6(6)	38	21	31.9	25.7	28.4	14.0	100	81	48		
SS-71	155' RT	31+76	38.2-39.7	A-2-4(0)	33	6	48.3	32.4	13.2	6.0	93	68	21		

2:1

2:1

(B) UNDIVIDED COASTAL PLAIN, GRAY AND BROWN, SAT., VERY LOOSE TO LOOSE, SILTY SAND

(B) BROWN, WET, VERY SOFT, CLAYEY SILT WITH MODERATE ORGANIC MATTER

(C) COASTAL PLAIN, GRAY, SAT., VERY DENSE, CLAYEY SAND, CAPE FEAR FORMATION

SS-11
SS-12
SS-13

SS-62
SS-63
SS-64
SS-65

SS-69
SS-70
SS-71

31+76

UNDIVIDED COASTAL PLAIN, GRAY AND BROWN, MOIST, STIFF, SANDY CLAY AND SILTY CLAY

08/13

04/14

04/14

UNDIVIDED COASTAL PLAIN, GRAY AND BROWN.

MOIST TO SAT., LOOSE TO MED. DENSE, SAND, SILTY SAND AND CLAYEY SAND

COASTAL PLAIN, GRAY, SAT., MED. DENSE, SILTY SAND, CAPE FEAR FORMATION

COASTAL PLAIN, GRAY AND RED, WET.

VERY STIFF TO HARD, SANDY CLAY AND SILTY CLAY.

CAPE FEAR FORMATION

GRAY, SAT., DENSE, SILTY SAND

GRAY AND RED, WET.

HARD, SANDY CLAY

GRAY, SAT., DENSE, SILTY SAND

100/0.9

32+00

-L-

17-JUL-2014 09:10
L:\Raleigh Invest Program\TIP\B4490_GEO_RDWY\CADD_GEOTECH\xsc\B4490_Geo_xsL_Ldgn
irswanteu
AT GEJ295452

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4490	22

120 100 80 60 40 20 0 20 40 60 80 100

150 140 130 120 110 100 90 80 70 60 50

2:1

SS-60
SS-61

SS-66
SS-67
SS-68

(A) UNDIVIDED COASTAL PLAIN, BROWN AND TAN, MOIST TO SAT., VERY LOOSE, SILTY SAND

(B) BROWN, WET, VERY SOFT, SANDY SILT WITH LITTLE TO MODERATE ORGANIC MATTER

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-60	100 LT	33+00	9.5-11.0	A-4(0)	20	6	31.5	31.3	17.2	20.1	99	80	42	-	-
SS-61	100 LT	33+00	19.5-21.0	A-2-6(2)	40	18	43.8	24.2	17.0	15.0	98	70	34	-	-
SS-66	155 RT	33+00	0.0-1.5	A-2-4(0)	26	10	39.2	30.2	14.5	16.0	91	69	32	-	-
SS-67	155 RT	33+00	14.0-15.5	A-6(2)	36	14	29.5	35.3	27.2	8.0	97	82	42	-	-
SS-68	155 RT	33+00	27.7-29.2	A-2-6(1)	36	14	35.9	34.7	21.4	8.0	100	84	34	-	-

UNDIVIDED COASTAL PLAIN, BROWN AND TAN, MOIST TO SAT., VERY LOOSE TO LOOSE, SILTY SAND

GRAY, WET, MED. STIFF, SANDY SILT

GRAY, SAT., MED. DENSE, SAND

COASTAL PLAIN, GRAY, SAT., MED. DENSE TO DENSE, CLAYEY SAND, CAPE FEAR FORMATION

WET, VERY STIFF TO HARD, SANDY CLAY, CAPE FEAR FORMATION

COASTAL PLAIN, GRAY AND RED, GRAY, SAT., DENSE, CLAYEY SAND

GRAY AND RED, WET, HARD, SANDY CLAY AND SILTY CLAY

GRAY, SAT., DENSE TO VERY DENSE, SILTY SAND

33+00

-L-

17-JUL-2014 09:11
L:\Raleigh Invest Mgmt\TIP\B4490_GEO_RDWY\CADD_GEOTECH\xsc\B4490_Geo_xsL.dgn
rswartley AT DE2SS452

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4490	23

140 120 100 80 60 40 20 0 20 40 60 80

130 120 110 100 90 80 70 60 140 130 120 110 100 90 80 70 60 50 40

Ⓐ ALLUVIAL, BLACK AND GRAY, MOIST TO WET, VERY SOFT TO SOFT, SANDY SILT WITH TRACE ORGANICS

2:1

4:1

119.00

ROADWAY EMBANKMENT

9' BEHIND

20' AHEAD

09/13

UNDIVIDED COASTAL PLAIN, GRAY AND BROWN, SATURATED, MED. DENSE, CLAYEY SAND

CAPE FEAR FORMATION, GRAY, SATURATED, MED. DENSE TO VERY DENSE, CLAYEY SAND

4 15 17 24 100/0.9 37

36+50

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-22	60' LT	36+00	2.5-4.0	A-4(2)	25	9	23.6	29.8	28.3	18.3	100	87	52	-	3.8
SS-23	60' LT	36+00	7.5-9.0	A-2-5(0)	35	13	47.3	28.8	15.7	8.1	85	58	24	-	-
SS-24	60' LT	36+00	17.5-19.0	A-7-5(10)	46	16	7.5	39.4	45.0	8.1	100	97	64	-	-
SS-25	60' LT	36+00	27.5-29.0	A-7-6(4)	46	20	44.8	16.4	25.6	13.2	97	64	40	-	-
SS-26	60' LT	36+00	37.5-39.0	A-2-4(0)	31	9	32.9	41.2	18.8	7.1	100	92	32	-	-
SS-50	40' RT	36+20	17.6-19.1	A-2-7(2)	45	23	34.0	36.0	1.5	28.5	99	79	32	-	-
SS-51	40' RT	36+20	47.6-49.1	A-2-6(1)	37	15	51.0	22.4	16.5	10.2	97	72	29	-	-
SS-52	40' RT	36+20	72.6-74.1	A-2-4(0)	32	8	28.9	48.2	16.8	6.1	100	88	29	-	-
S-50	68' LT	36+09	0.0-2.0	A-2-4(0)	23	6	39.5	28.6	10.8	21.1	98	75	35	-	-
S-51	68' LT	36+09	2.0-7.0	A-4(4)	30	9	13.5	25.5	32.9	28.1	100	94	66	27.1	-

SS-50
SS-51
SS-52

20' AHEAD

4:1

Ⓐ ALLUVIAL, BLACK AND GRAY, MOIST TO WET, VERY SOFT, SANDY SILT AND VERY LOOSE SILTY SAND WITH TRACE ORGANICS

Ⓑ UNDIVIDED COASTAL PLAIN, GRAY, MOIST, LOOSE TO DENSE, SILTY SAND

Ⓒ GRAY, WET, VERY STIFF TO HARD, SANDY CLAY

Ⓓ GRAY, SAT., DENSE TO VERY DENSE, SILTY SAND

Ⓔ UNDIVIDED COASTAL PLAIN, GRAY, MOIST, STIFF, SANDY CLAY

2:1

116.62

ROADWAY EMBANKMENT, ORANGE AND GRAY, MOIST, LOOSE TO MED. DENSE SILTY SAND AND CLAYEY SAND

11 9 12 12 12 9 14 10

S-50
S-51

SS-22
SS-23
SS-24
SS-25
SS-26

7' AHEAD

20' AHEAD

9' AHEAD

04/11

09/13

WOH 11 17 21 51 66 43 21 27 29

UNDIVIDED COASTAL PLAIN, MOIST, LOOSE TO DENSE, SILTY SAND AND CLAYEY SAND

10 30 53 44 87 43 53 39 34 48 55

CAPE FEAR FORMATION, GRAY, SATURATED, MED. DENSE, CLAYEY SAND AND SILTY SAND

GRAY, WET, VERY STIFF TO HARD, SILTY CLAY

GRAY, SAT., MED. DENSE TO VERY DENSE, SILTY SAND

36+00

-L-

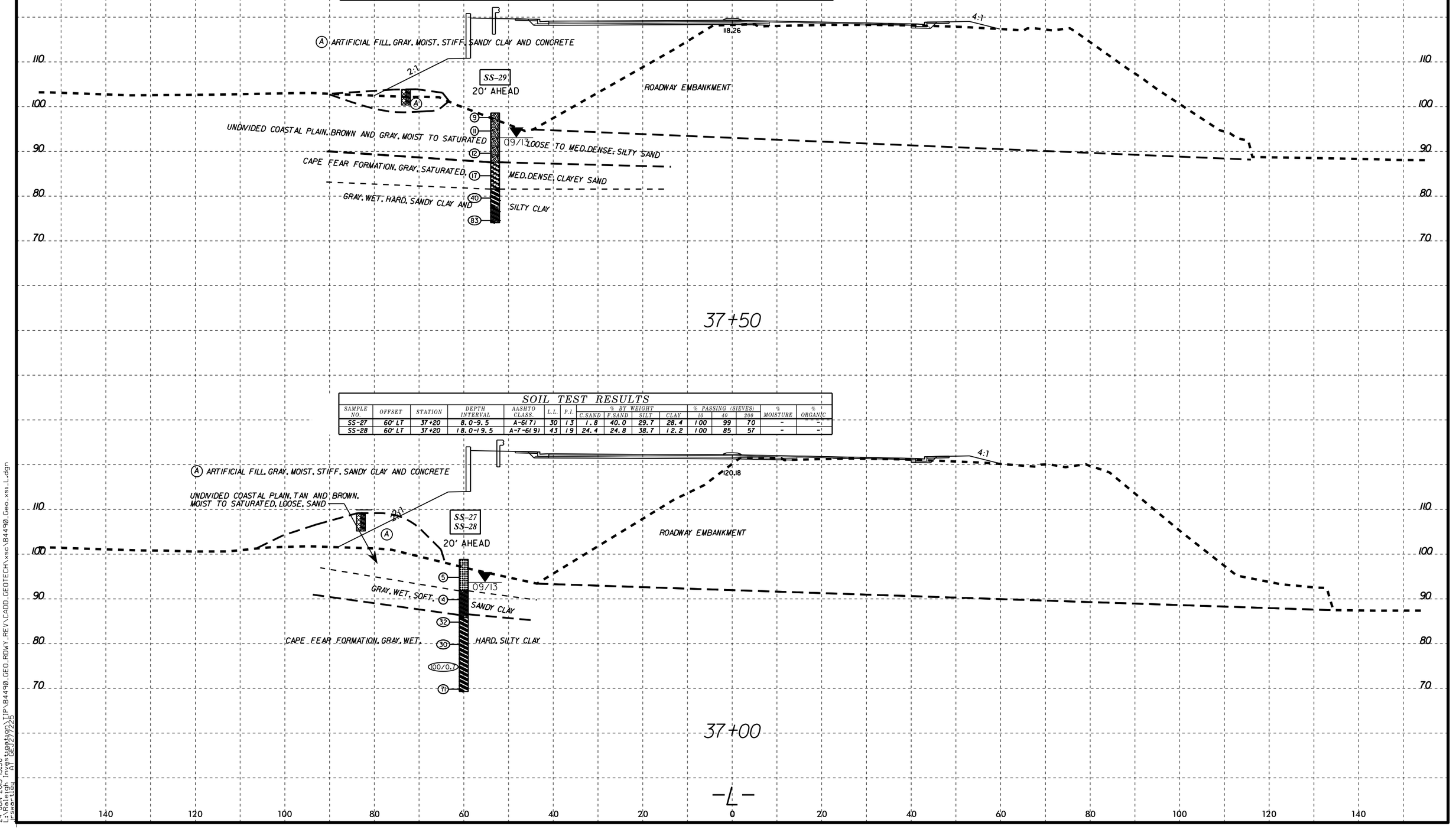
24-JUN-2015 13:55
L:\Raleigh Inves\signing\TIP\B4490_GEO_RDWY_REV\CADD_GEOTECH\xsc\B4490_Geo_xsL_L.dgn
psworley AT GEO27225

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4490	24

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-29	53' LT	37+70	13.0-14.5	A-2-7(2)	41	22	50.5	16.0	15.2	18.3	93	60	33	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-27	60' LT	37+20	8.0-9.5	A-6(7)	30	13	1.8	40.0	29.7	28.4	100	99	70	-	-
SS-28	60' LT	37+20	18.0-19.5	A-7-6(9)	43	19	24.4	24.8	38.7	12.2	100	85	57	-	-

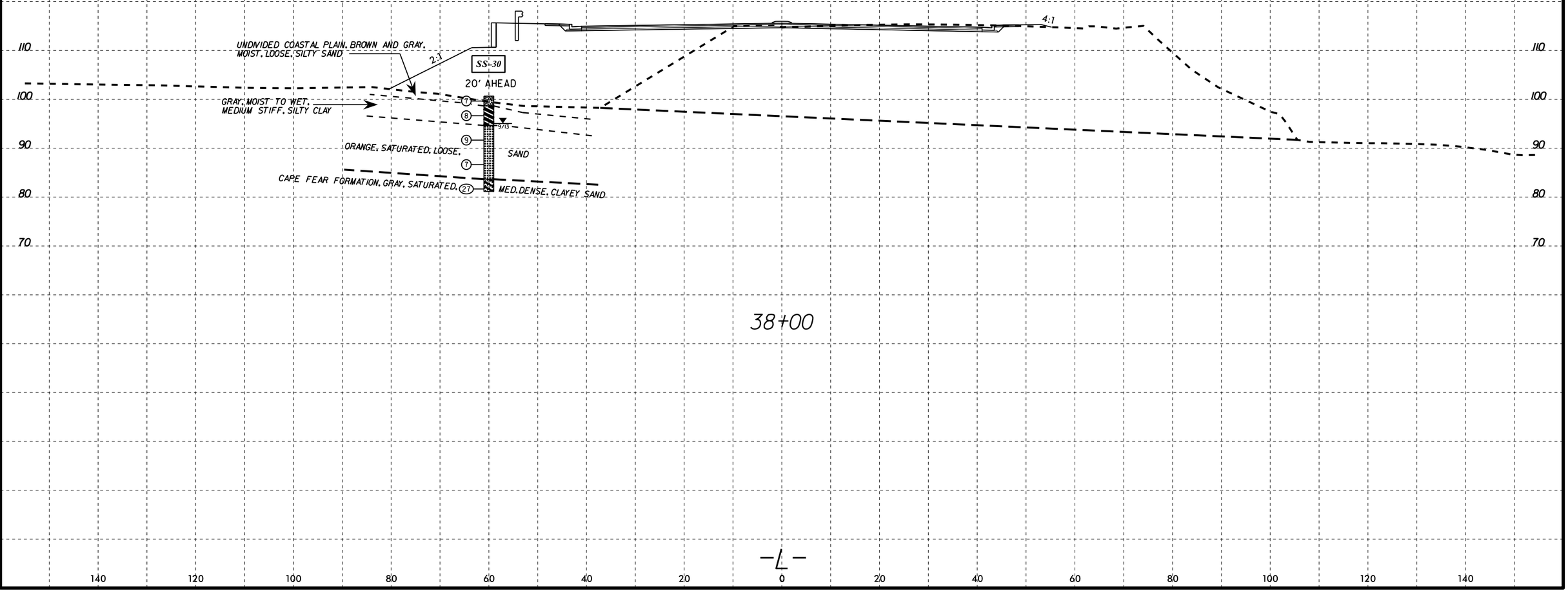
24-JUN-2015 13:56
L:\Raleigh Invest\geo\GEOTIP\B4490_GEO_ROWY_REV\CADD_GEOTECH\xsc\B4490_Geo_xsL.dgn
pswartley AT GEJ27225

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4490	25

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-30	60' LT	38+20	3.0-4.5	A-7-6(24)	55	31	16.4	8.5	8.0	67.0	100	91	76	-	-



17-JUL-2014 09:17
L:\Raleigh Invest\geotech\TIP\B4490.GEO_RDWY\CADD_GEOTECH\xsc\B4490_Geo_xsL_L.dgn
psworley AT GEJ25452

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 33727.1.1	**TIP** B-4490	**COUNTY** CUMBERLAND	**GEOLOGIST** Swartley, J. R.	
SITE DESCRIPTION BRIDGE NO. 116 OVER CSX RR, NORFOLK SOUTHERN RR, & HILLSBORO ST. ON NC 24/210				**GROUND WTR (ft)**
BORING NO. 3641_77LT	**STATION** 36+41	**OFFSET** 77 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 94.9 ft	**TOTAL DEPTH** 7.0 ft	**NORTHING** 476,574	**EASTING** 2,035,260	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger/Sampler Probe	**HAMMER TYPE** Automatic	
DRILLER N/A	**START DATE** 04/22/15	**COMP. DATE** 04/22/15	**SURFACE WATER DEPTH** 0.5ft	

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)
95										94.9 GROUND SURFACE	0.0
										ALLUVIAL BROWN, SOFT, SANDY SILT WITH TRACE ORGANICS	
90										88.9	6.0
										87.9 **UNDIVIDED COASTAL PLAIN** GRAY, DENSE, CLAYEY SAND	7.0
										Boring Terminated at Elevation 87.9 ft IN DENSE CLAYEY SAND	

WBS 33727.1.1	**TIP** B-4490	**COUNTY** CUMBERLAND	**GEOLOGIST** Swartley, J. R.	
SITE DESCRIPTION BRIDGE NO. 116 OVER CSX RR, NORFOLK SOUTHERN RR, & HILLSBORO ST. ON NC 24/210				**GROUND WTR (ft)**
BORING NO. 3634_141RT	**STATION** 36+34	**OFFSET** 141 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 90.6 ft	**TOTAL DEPTH** 6.0 ft	**NORTHING** 476,383	**EASTING** 2,035,153	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger	**HAMMER TYPE** Automatic	
DRILLER N/A	**START DATE** 04/25/15	**COMP. DATE** 04/25/15	**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
95										
90										90.6 GROUND SURFACE 0.0
										UNDIVIDED COASTAL PLAIN ORANGE AND GRAY, DENSE, CLAYEY SAND
85										84.6 6.0
										Boring Terminated at Elevation 84.6 ft IN DENSE CLAYEY SAND