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

CONTENTS

ID: B-3159

CONTRACT:

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 38331.1.1 (B-3159) F.A. PROJ. STPNHS-0052(31)

COUNTY DAVIDSON

PROJECT DESCRIPTION BRIDGE NO. 27 OVER US 29-64-70 /I-85 BUS. ON NC 8 /US 52

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3159	1	12

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
38331.1.1	STPNHS-0052(31)	P.E.
		R/W & UTIL.

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) 250-4088. 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.K. STICKNEY

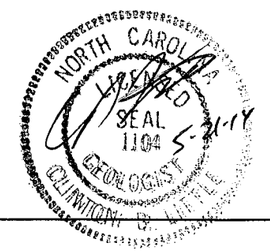
C.L. SMITH

INVESTIGATED BY J.E. BEVERLY

CHECKED BY C.B. LITTLE

SUBMITTED BY C.B. LITTLE

DATE APRIL 2014



DRAWN BY: J.K. McCLURE

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.
38331.1.1 (B-3159)	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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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
LIQUID LIMIT	6 MX		NP	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
PLASTIC INDEX				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 A 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	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>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		
	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 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 W/ CORE
- SPT N-VALUE
- REF SPT REFUSAL

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:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-550
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [X] TUNG.-CARBIDE INSERTS
- [X] CASING [X] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [X] TRICONE 2 15/16" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

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

CORE SIZE:
- [ ] -B_____
- [ ] -N_____
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS 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 FEET
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 THE 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, 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: FT.

NOTES:

SOIL STRATIGRAPHY IS THROUGH THE BORINGS FOR PROFILES.

BORING ELEVATIONS OBTAINED FROM THE B3159_LS_TIN.TIN FILE.

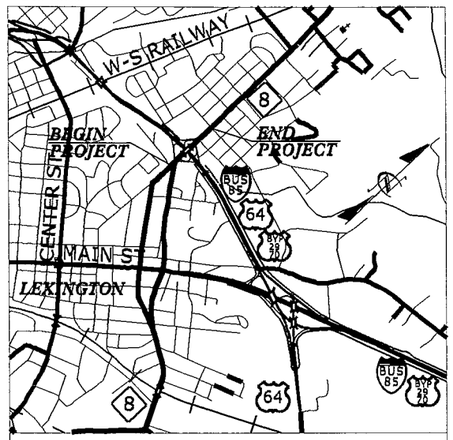
REVISED 09/23/09

09/08/'99

TIP PROJECT: B-3159

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

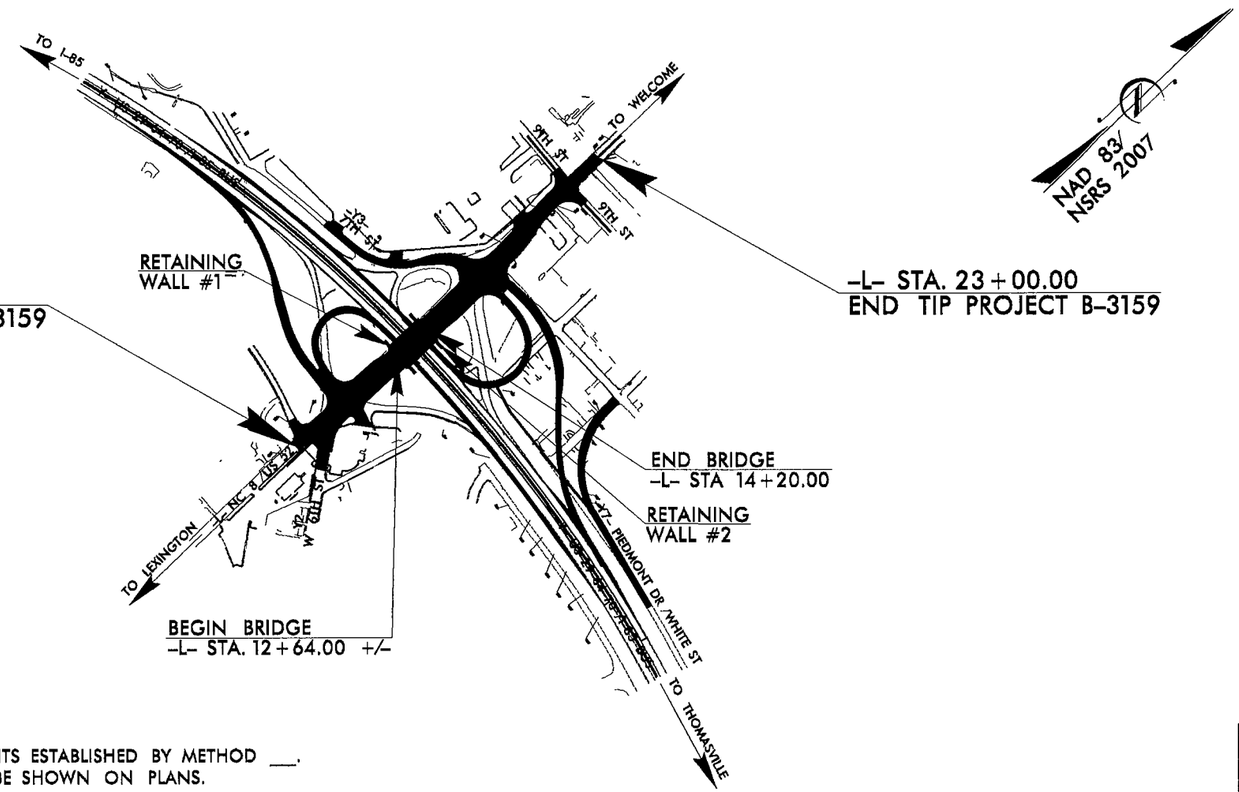
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3159	2A	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38331.1.1	STPNHS-0052(31)	PE

LOCATION: BRIDGE NO. 27 OVER US 29-64-70 /I-85 BUS ON NC 8 /US 52
TYPE OF WORK: GRADING, DRAINAGE, PAVING, RETAINING WALL, & STRUCTURE



CLEARING ON THIS PROJECT SHOULD BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ___.
THIS IS A FULL CONTROLLLED-ACCESS PROJECT WITH ACCESS TO BE SHOWN ON PLANS.
THIS PROJECT IS WITHIN THE CITY LIMITS OF LEXINGTON.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 23,900
ADT 2035 = 28,600
DHV = 10 %
D = 60 %
T = 5 % *
V = 40 MPH
* TTST =2 DUAL 3
FUNC CLASS = ARTERIAL
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY OF TIP PROJECT B-3159 = 0.259 MILES
LENGTH STRUCTURE OF TIP PROJECT B-3159 = 0.030 MILES
TOTAL LENGTH OF TIP PROJECT B-3159 = 0.289 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 20, 2014

LETTING DATE: JUNE 16, 2015

TONY HOUSER, PE
PROJECT ENGINEER

BRUCE PAYNE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE:

ROADWAY DESIGN ENGINEER

SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

08-APR-2014 11:05
C:\Projects\B3159_GEO_RDWY_DAVIDSON\CADD_GEOTECH\PlanProf\B3159_GEO_inv_orig-rdy-tsh_002A.dgn
jmcclure AT GEH2S7466

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

April 14, 2014

STATE PROJECT: 38331.1.1 (B-3159)
F.A. PROJECT: STPNHS-0052(31)
COUNTY: Davidson
DESCRIPTION: Bridge No. 27 over US 29-64-70 / I-85 Business on NC 8 / US 52

SUBJECT: Geotechnical Report – Inventory

This report presents the findings for the proposed interchange surrounding bridge # 27 in Davidson County. The bridge lies at the intersection of NC 8 / US 52 and US 29-64-70 / I-85 Business.

The geotechnical field investigation was conducted in the month of February 2014 with the addition of two PDEA borings from May 2010. An ATV mounted CME 550X drill machine equipped with automatic drop hammer was utilized to perform test borings. The following survey lines are addressed in this report.

Line	**Station**
-L-	7+75 to 21+00
-Y2-	10+00 to 12+36.06
-RPA-	10+00 to 21+61.41
-LPA-	10+00 to 19+05.77
-RPC-	10+00 to 20+71.61
-LPC-	10+00 to 17+41.46
-Y3-	10+00 to 16+09.98
-Y7-	10+00 to 18+53.57

Areas of Special Geotechnical Interest:

1. *Groundwater:*

Groundwater was encountered in several borings during the course of this investigation, however in only 2 instances was groundwater at or above proposed grade. Following is a list of those locations:

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
DIRECTOR OF PRECONSTRUCTION
1538 MAIL SERVICE CENTER
RALEIGH NC 27699-1538

TELEPHONE: 919-707-2540
FAX: 919-715-5361

WEBSITE: WWW.NCDOT.GOV

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Boring Location	**Groundwater Elevation**
-LPA- 15+35, 25.3' RT	774.1'
-LPC- 11+43, 38' LT	764.5'

2. *Crystalline Rock:*

Rock was not encountered during the course of this investigation.

3. *High PI Soils: (PI's 28 and greater)*

High PI clay soils were only encountered in one instance. An A-7-5 clay with a PI value of 45 was noted at –LPA- station 15+35, 8' RT. Depth range of the soil is 0 – 12 feet which puts it above proposed grade, however it may exist in the proposed side slope cuts around this vicinity.

4. *Alluvial Soils:*

There are no alluvial soils present on the project.

Physiography / Geology:

The project area is located in east-central Davidson County within the city limits of Lexington. Topography is predominantly flat with the area surrounded by business structures and traversed by major highways, ramps and loops.

Geologically the site lies in the Carolina Slate Belt with residual soil types originating from metamorphic mafic rock types of Paleozoic Era (PzZm).

Soil Properties:

1. *Residual Soils:*

These soils are derived from in place weathering of parent materials. They occur in a variety of consistencies, classifications, and stratigraphic sequences. Residual soils are further subdivided into clays, silts, and sands. In most instances residual soils in this area are micaceous with mica amounts ranging from trace to high.

Clays are common soils within this area. They are found as surface soils and at depth. Boring and sample data indicates they consist of medium stiff to stiff, trace to very micaceous, silty sandy clay. AASHTO classifications were A-7-5 and A-7-6. Clay soils appear well drained with a plasticity index range from 18 to 45. Corresponding liquid limit ranges were between 46 and 85.

Silts are also common and consist of soft to hard, some to very micaceous, clayey sandy silt. AASHTO classifications are A-4, and A-5. Silts were only noted below 7 feet.

Sheet 3A

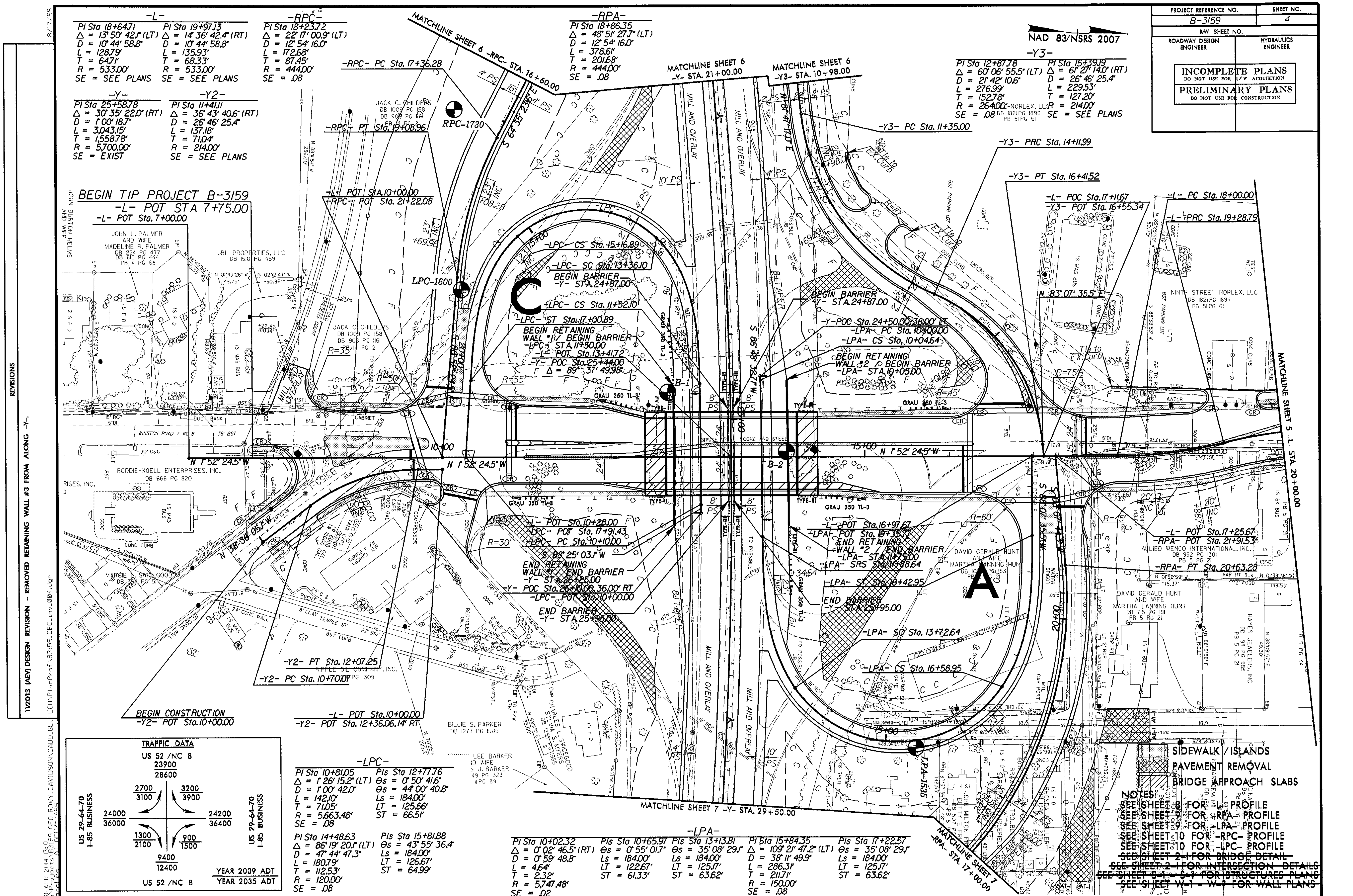
Sands consist of loose to dense, some mica, clayey silty sand and clayey sand with corresponding AASHTO classifications of A-2-4, and A-2-6. Sands occur at multiple depth ranges.

2. *Fill Soils:*

Roadway embankment fill soils are present beneath the existing roads, loops and ramps associated with the interchange. Roadway fill soils were medium stiff to stiff sandy silty clay with the A-6 AASHTO classification.

Respectfully Submitted,

J. E. Beverly
Project Engineering Geologist



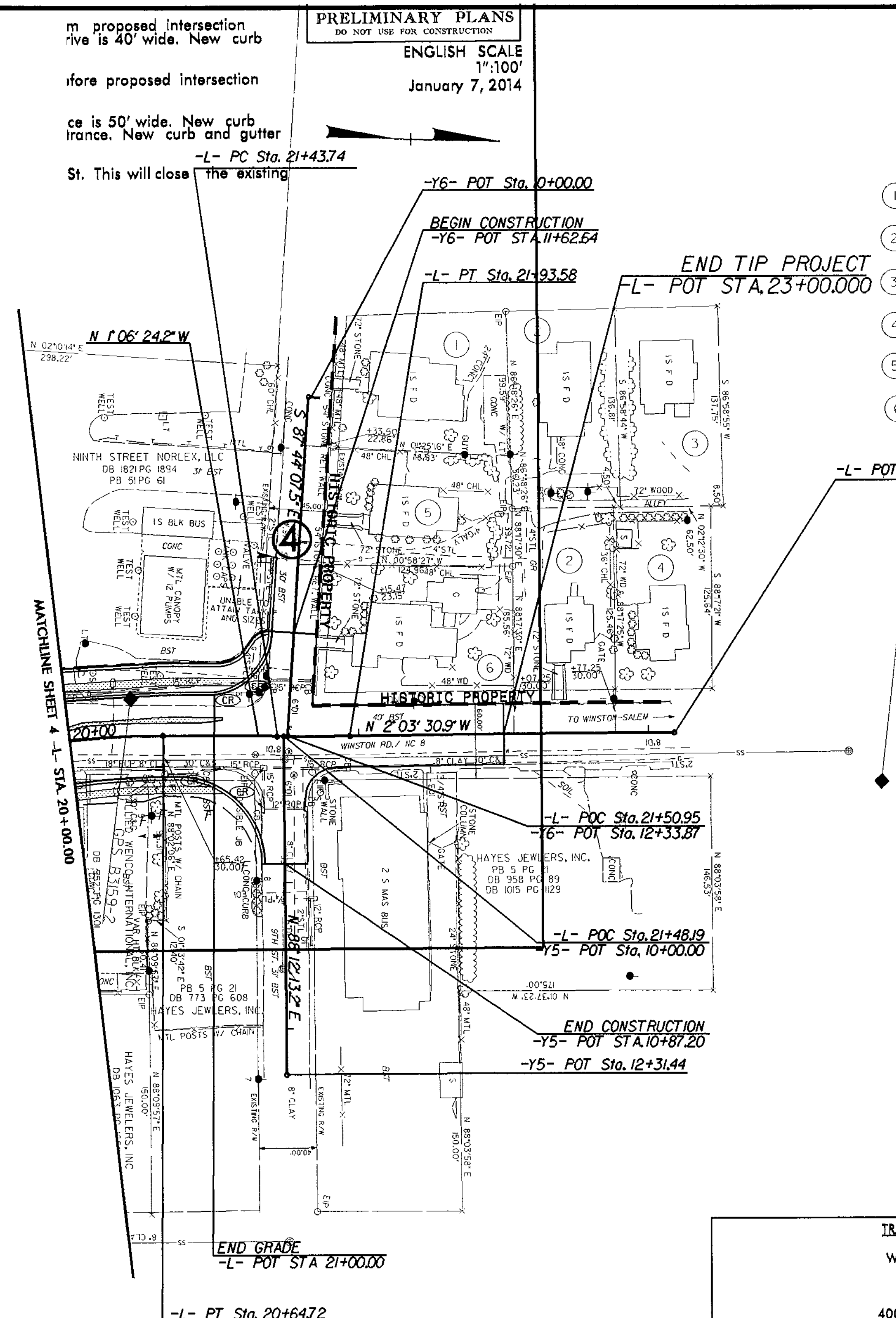
PROJECT REFERENCE NO. B-3159 SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
REVISIONS
11/2013 (AEY) DESIGN REVISION - REMOVED RETAINING WALL #3 FROM ALONG -Y-.
-L-
PI Sta 18+64.71 Δ = 13° 50' 42.1" (LT) D = 10° 44' 58.8" L = 128.79' T = 64.71' R = 533.00' SE = SEE PLANS
PI Sta 19+97.13 Δ = 14° 36' 42.4" (RT) D = 10° 44' 58.8" L = 135.93' T = 68.33' R = 533.00' SE = SEE PLANS
-RPC-
PI Sta 18+23.72 Δ = 22° 17' 00.9" (LT) D = 12° 54' 16.0" L = 172.68' T = 87.45' R = 444.00' SE = .08
-RPA-
PI Sta 18+86.35 Δ = 48° 51' 27.7" (LT) D = 12° 54' 16.0" L = 378.61' T = 201.58' R = 444.00' SE = .08
-Y-
PI Sta 25+58.78 Δ = 30° 35' 22.0" (RT) D = 1° 00' 18.7" L = 3,043.15' T = 1,558.78' R = 5,700.00' SE = EXIST
-Y2-
PI Sta 11+41.11 Δ = 36° 43' 40.6" (RT) D = 26° 46' 25.4" L = 137.18' T = 71.04' R = 214.00' SE = SEE PLANS
-Y3-
PI Sta 12+87.78 Δ = 60° 06' 55.5" (LT) D = 21° 42' 10.6" L = 276.99' T = 152.78' R = 264.00' SE = .08
PI Sta 15+39.19 Δ = 61° 27' 14.0" (RT) D = 26° 46' 25.4" L = 229.53' T = 127.20' R = 214.00' SE = SEE PLANS
MATCHLINE SHEET 6 -RPC- STA. 16+60.00
MATCHLINE SHEET 6 -Y- STA. 21+00.00
MATCHLINE SHEET 6 -Y3- STA. 10+98.00
MATCHLINE SHEET 5 -L- STA. 20+00.00
MATCHLINE SHEET 7 -Y- STA. 29+50.00
MATCHLINE SHEET 7 -RPA- STA. 17+00.00
BEGIN TIP PROJECT B-3159
-L- POT STA 7+75.00
-L- POT Sta. 7+00.00
BEGIN CONSTRUCTION
-Y2- POT Sta.10+00.00
-L- POT Sta.10+00.00
-Y2- POT Sta. 12+36.06,14' RT
-Y2- PT Sta. 12+07.25
-Y2- PC Sta. 10+70.07
-RPC- PC Sta. 17+36.28
-RPC- PT Sta. 19+08.96
-L- POT Sta.10+00.00
-RPC- POT Sta. 21+22.08
-LPC- CS Sta. 15+16.89
-LPC- SC Sta. 13+36.10
BEGIN BARRIER -Y- STA.24+87.00
-LPC- CS Sta. 11+52.10
-LPC- ST Sta. 17+00.89
BEGIN RETAINING WALL #1 / BEGIN BARRIER -LPC- STA.11+50.00
-L- POT Sta. 13+41.72
-Y- POC Sta.25+44.00
Δ = 89° 37' 49.98"
-L- POT Sta.10+28.00
-LPC- POT Sta. 17+91.43
-LPC- PC Sta. 10+10.00
S 88° 25' 03.1" W
END RETAINING WALL #1 / END BARRIER -Y- STA.26+25.00
-Y- POC Sta.26+10.00, 36.00' RT
-LPC- POT Sta.10+00.00
END BARRIER -Y- STA.25+95.00
BEGIN BARRIER -Y- STA.24+87.00
-Y- POC Sta.24+50.00, 36.00' LT
-LPA- PC Sta. 10+00.00
-LPA- CS Sta. 10+04.64
BEGIN RETAINING WALL #2 / BEGIN BARRIER -LPA- STA.10+05.00
-L- POT Sta.16+97.67
-LPA- POT Sta. 19+35.77
END RETAINING WALL #2 / END BARRIER -LPA- STA.11+75.00
-LPA- SRS Sta.11+88.64
-LPA- ST Sta.18+42.95
END BARRIER -Y- STA.25+95.00
-LPA- SC Sta. 13+72.64
-LPA- CS Sta. 16+58.95
-Y3- PC Sta. 11+35.00
-Y3- PRC Sta. 14+11.99
-Y3- PT Sta. 16+41.52
-L- POC Sta.17+11.67
-Y3- POT Sta. 16+55.34
-L- PC Sta. 18+00.00
-L- PRC Sta. 19+28.79
-L- POT Sta.17+25.67
-RPA- POT Sta. 21+91.53
-RPA- PT Sta. 20+63.28
N 1° 52' 24.5" W
N 38° 36' 05.1" W
S 86° 48' 36.7" W
N 83° 07' 35.5" E
RPC-1730
LPC-1600
LPA-1535
B-1
B-2
C
A
MILL AND OVERLAY
JOHN L. PALMER AND WIFE MADELINE R. PALMER DB 224 PG 477 DB 615 PG 444 PB 4 PG 68
JBL PROPERTIES, LLC DB 1510 PG 469
JACK C. CHILDERS DB 1009 PG 158 DB 909 PG 161 PB 21 PC 2
BODDIE-NOELL ENTERPRISES, INC. DB 666 PG 820
NINTH STREET NORLEX, LLC DB 1821 PG 1894 PB 51 PG 61
ALLIED WENCO INTERNATIONAL, INC. DB 952 PG 1301 PB 5 PG 21
DAVID GERALD HUNT AND WIFE MARTHA LANNING HUNT DB 715 PG 181 PB 5 PG 21
HAYES JEWELERS, INC
RIPPLE OIL COMPANY, INC. PG 1309
BILLIE S. PARKER DB 1277 PG 1505
TRAFFIC DATA
US 52 /NC 8
23900 28600
2700 3100
3200 3900
24000 36000
24200 36400
1300 2100
900 1500
9400 12400
US 29-64-70 I-85 BUSINESS
YEAR 2009 ADT
YEAR 2035 ADT
-LPC-
PI Sta 10+81.05 Δ = 1° 26' 15.2" (LT) D = 1° 00' 42.0" L = 142.10' T = 71.05' R = 5,663.48' SE = .08
PIs Sta 12+77.76 Θs = 0° 50' 41.6" Θs = 44° 00' 40.8" Ls = 184.00' LT = 125.66' ST = 66.51'
PI Sta 14+48.63 Δ = 86° 19' 20.1" (LT) D = 47° 44' 47.3" L = 180.79' T = 112.53' R = 120.00' SE = .08
PIs Sta 15+81.88 Θs = 43° 55' 36.4" Ls = 184.00' LT = 126.67' ST = 64.99'
-LPA-
PI Sta 10+02.32 Δ = 0° 02' 46.5" (RT) D = 0° 59' 48.8" L = 4.64' T = 2.32' R = 5,747.48' SE = .02
PIs Sta 10+65.97 Θs = 0° 55' 01.7" Ls = 184.00' LT = 122.67' ST = 61.33'
PIs Sta 13+13.81 Θs = 35° 08' 29.1" Ls = 184.00' LT = 125.17' ST = 63.62'
PI Sta 15+84.35 Δ = 109° 21' 47.2" (LT) D = 38° 11' 49.9" L = 286.31' T = 211.71' R = 150.00' SE = .08
PIs Sta 17+22.57 Θs = 35° 08' 29.1" Ls = 184.00' LT = 125.17' ST = 63.62'
SIDEWALK / ISLANDS
PAVEMENT REMOVAL
BRIDGE APPROACH SLABS
NOTES:
SEE SHEET 8 FOR -L- PROFILE
SEE SHEET 9 FOR -RPA- PROFILE
SEE SHEET 9 FOR -LPA- PROFILE
SEE SHEET 10 FOR -RPC- PROFILE
SEE SHEET 10 FOR -LPC- PROFILE
SEE SHEET 2-I FOR BRIDGE DETAIL
SEE SHEET 2-1 FOR INTERSECTION DETAILS
SEE SHEET S-1 - S-2 FOR STRUCTURES PLANS
SEE SHEET W-1 - W-3 FOR WALL PLANS
08-APR-2014

PROJECT REFERENCE NO.	SHEET NO.
B-3159	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

NAD 83/NSRS 2007



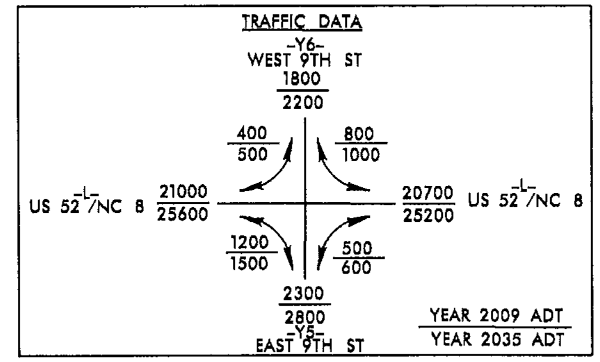
PB 8 PG 94

1. GEORGE V. HANNAH AND WIFE PATRICIA W. HANNAH DB 579 PG 81
2. DRY CREEK PROPERTIES, INC. DB 1375 PG 1278
3. BOBBY R. CALLICUTT AND WIFE BETTY B. CALLICUT DB 627 PG 842 DB 639 PG 223
4. THOMAS P. MAUNEY DB 877 PG 101
5. R. TYLER FREEMAN AND WIFE ESTHER S. FREEMAN DB 497 PG 184
6. GEORGE TOMMY PLOTT DB 1253 PG 1981

-L-

PI Sta 19+97.13	PI Sta 21+68.66
Δ = 14° 36' 42.4" (RT)	Δ = 0° 57' 06.7" (LT)
D = 10° 44' 58.8"	D = 1° 54' 35.5"
L = 135.93'	L = 49.84'
T = 68.33'	T = 24.92'
R = 533.00'	R = 3,000.00'
SE = SEE PLANS	SE = SEE PLANS

TRAFFIC DATA



SIDEWALK / ISLANDS

NOTES:

SEE SHEET 8 FOR -L- PROFILE

~~SEE SHEET 2-I FOR INTERSECTION DETAIL~~

8/17/99

08-APR-2014 13:13

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3159	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

B-3159 DESIGN REVISIO

1. Additional drive ad of 7th St/NC 8 and gutter added
2. Right turn lane

NAD 83/NSRS 2007

-RPC-

PIs Sta 11+97.82	PI Sta 13+50.37	PIs Sta 15+01.75
Θs = 8° 58' 47.7"	Δ = 17° 41' 38.5" (RT)	Θs = 8° 58' 47.7"
Ls = 184.00'	D = 9° 45' 36.8"	Ls = 184.00'
LT = 122.82'	L = 181.28'	LT = 122.82'
ST = 61.48'	T = 91.37'	ST = 61.48'
	R = 587.00'	
	SE = .08	

-Y-

PI Sta 25+58.78
Δ = 30° 35' 22.0" (RT)
D = 1° 00' 18.7"
L = 3,043.15'
T = 1,558.78'
R = 5,700.00'
SE = EXIST

BEGIN CONSTRUCTION
-Y- POC Sta. 11+50.00

BEGIN CONSTRUCTION
-Y3- POT Sta. 10+00.00

-Y- PC Sta. 10+00.00

-Y- POC Sta. 14+50.00
-RPC- POT Sta. 10+00.00, 36.00' RT

-RPC- TS Sta. 10+75.00

-RPC- SC Sta. 12+59.00

-RPC- CS Sta. 14+40.28

-RPC- ST Sta. 16+24.28

-RPC-1440

MATCHLINE SHEET 4
-Y- STA. 10+98.00

MATCHLINE SHEET 4
-Y- STA. 21+00.00

MATCHLINE SHEET 4 -RPC- STA. 16+60.00

BOBBY R. CALLICUT AND WIFE BETTY B. CALLICUT DB 629 PG 87 PB 8 PG 95

RICHARD PURVIS AND WIFE LINDA PURVIS DB 647 PG 564 PB 8 PG 95

VERL A. RUMFELT
DAVID R. RUMFELT, JR.
CECIL MAX RUMFELT
TERRY F. RUMFELT
DB 615 PG 241

EDWIN KRISENALL AND WIFE HIMWANTI KRISENALL DB 1306 PG 902

TONY G. CRAVER AND WIFE HOPE N. CRAVER DB 1056 PG 1012

TERRY F. RUMFELT DB 1702 PG 181

JACK C. CHILDERS DB 1009 PG 158 DB 908 PG 1161 PB 14 PG 2

BM#1
N=761273
E=1627487
ELEV=753.48'

PAVEMENT REMOVAL

NOTES:
SEE SHEET 10 FOR -RPC- PROFILE
SEE SHEET 11 FOR -Y3- PROFILE

08-APR-2014 13:01
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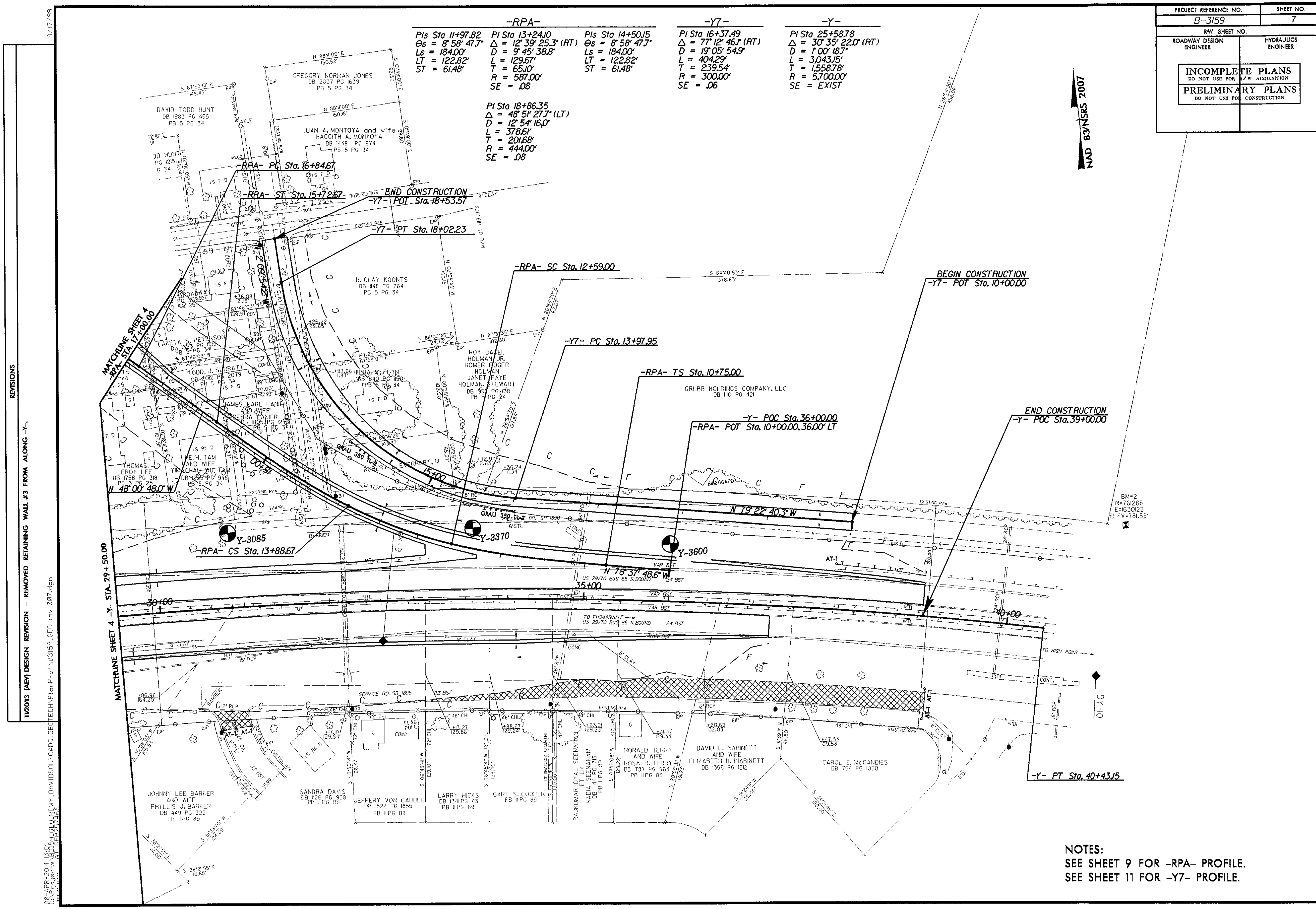
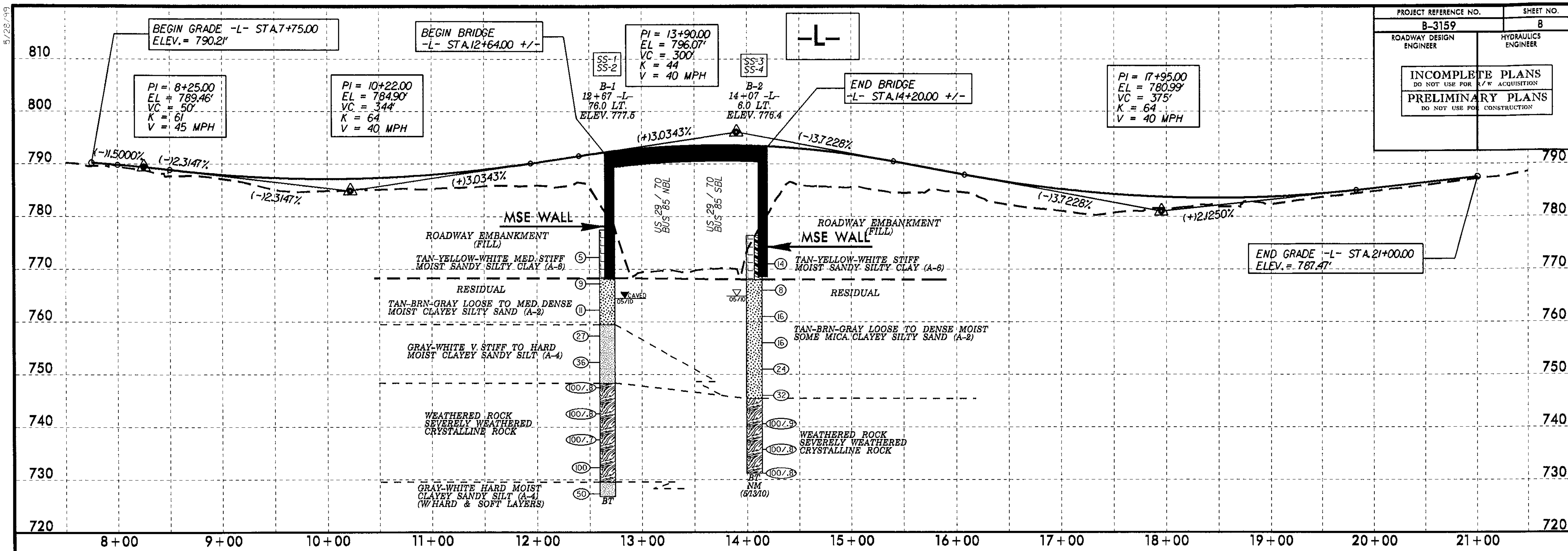
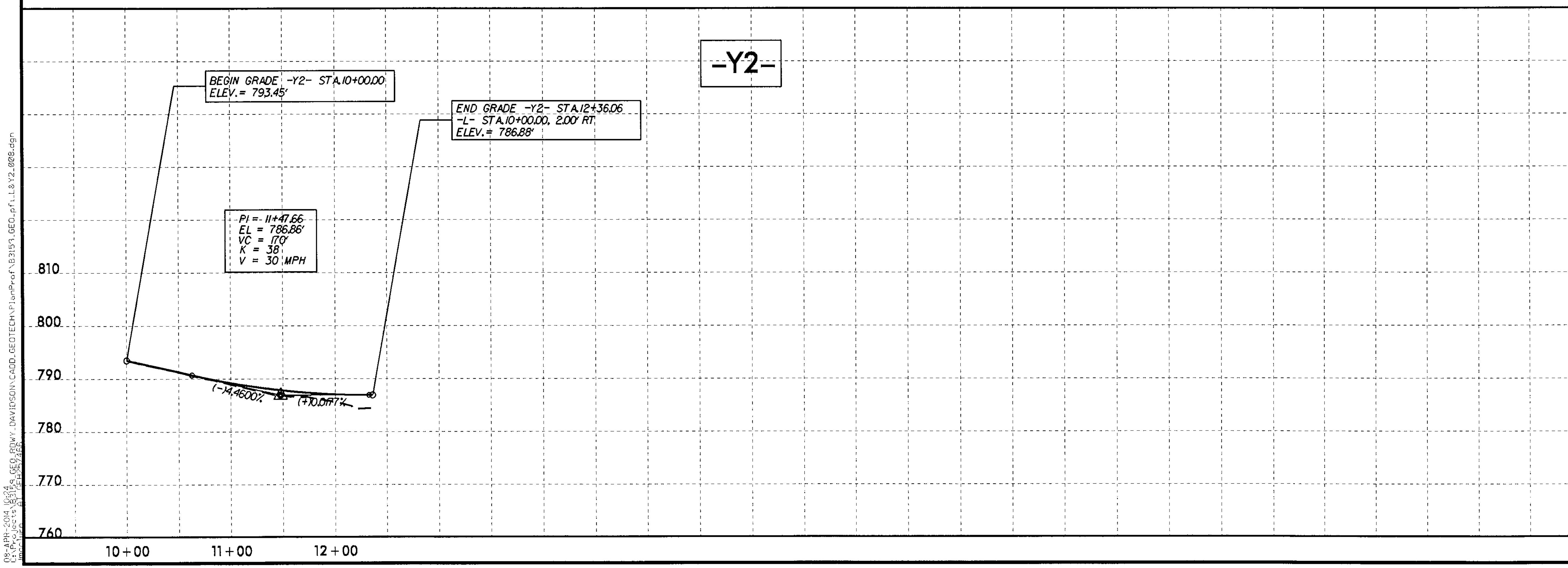

PROJECT REFERENCE NO. B-3159
SHEET NO. 7
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
-RPA-
PIs Sta 11+97.82 Θs = 8° 58' 47.7" Ls = 184.00' LT = 122.82' ST = 61.48'
PI Sta 13+24.10 Δ = 12° 39' 25.3" (RT) D = 9° 45' 38.8" L = 129.67' T = 65.10' R = 587.00' SE = .08
PIs Sta 14+50.15 Θs = 8° 58' 47.7" Ls = 184.00' LT = 122.82' ST = 61.48'
PI Sta 18+86.35 Δ = 48° 51' 27.7" (LT) D = 12° 54' 16.0" L = 378.61' T = 201.68' R = 444.00' SE = .08
-Y7-
PI Sta 16+37.49 Δ = 77° 12' 46.1" (RT) D = 19° 05' 54.9" L = 404.29' T = 239.54' R = 300.00' SE = .06
-Y-
PI Sta 25+58.78 Δ = 30° 35' 22.0" (RT) D = 1° 00' 18.7" L = 3,043.15' T = 1,558.78' R = 5,700.00' SE = EXIST
NAD 83/NSRS 2007
-RPA- PC Sta. 16+84.67
-RPA- ST Sta. 15+72.67
END CONSTRUCTION -Y7- POT Sta. 18+53.57
-Y7- PT Sta. 18+02.23
-RPA- SC Sta. 12+59.00
-Y7- PC Sta. 13+97.95
-RPA- TS Sta. 10+75.00
-Y- POC Sta. 36+00.00
-RPA- POT Sta. 10+00.00, 36.00' LT
BEGIN CONSTRUCTION -Y7- POT Sta. 10+00.00
END CONSTRUCTION -Y- POC Sta. 39+00.00
-RPA- CS Sta. 13+88.67
-Y- PT Sta. 40+43.15
MATCHLINE SHEET 4 -RPA- STA. 17+00.00
MATCHLINE SHEET 4 -Y- STA. 29+50.00
BM#2 N=761288 E=1630122 ELEV=781.59'
GREGORY NORMAN JONES DB 2037 PG 1639 PB 5 PG 34
DAVID TODD HUNT DB 1983 PG 455 PB 5 PG 34
JUAN A. MONTOYA and wife HAGDITH A. MONYOYA DB 1448 PG 874 PB 5 PG 34
H. CLAY KOONTS DB 1148 PG 764 PB 5 PG 34
GRUBB HOLDINGS COMPANY, LLC DB 1110 PG 421
JOHNNY LEE BARKER AND WIFE PHYLLIS J. BARKER DB 449 PG 323 PB 11 PG 89
SANDRA DAVIS DB 1126 PG 958 PB 11 PG 89
JEFFERY VON CAUDLE DB 1522 PG 1855 PB 11 PG 89
LARRY HICKS DB 1341 PG 43 PB 11 PG 89
GARY S. COOPER PB 11 PG 89
RONALD TERRY AND WIFE ROSA R. TERRY DB 787 PG 963 PB 11 PG 89
DAVID E. INABINETT AND WIFE ELIZABETH H. INABINETT DB 1358 PG 1212
CAROL E. McCANDIES DB 754 PG 1050
US 29/70 BUS 85 S.BOUND
TO THOMASVILLE US 29/70 BUS 85 N.BOUND
SERVICE RD. SR 1895
TO HIGH POINT
N 79° 22' 40.3" W
N 78° 37' 48.6" W
N 48° 00' 46.0" W
Y-3085
Y-3370
Y-3600
REVISIONS
11/2013 (AEY) DESIGN REVISION - REMOVED RETAINING WALL #3 FROM ALONG -Y-.
NOTES:
SEE SHEET 9 FOR -RPA- PROFILE.
SEE SHEET 11 FOR -Y7- PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
B-3159	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3159	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPA-

BEGIN GRADE -RPA- STA 10+00.00
-Y- STA 36+00.00, 36' LT
EL = 782.75'

PI = 11+50.00
EL = 780.76'
VC = 100'
K = 100
V = 50 MPH

PI = 14+05.00
EL = 774.82'
VC = 300'
K = 85
V = 45 MPH

END GRADE -RPA- STA 21+61.41
-L- STA 17+28.29, 30' RT
EL = 784.01'

SS-12
SS-13
Y-3600
10+02 -RPA-
31.0 RT.
=
36+00 -Y-
67.0 LT.
ELEV. 781.0

Y-3370
12+38 -RPA-
23.0 RT.
=
33+70 -Y-
83.0 LT.
ELEV. 788.4

SS-17
Y-3085
14+90 -RPA-
100.0 LT
=
30+86 -Y-
87.0 LT.
ELEV. 790.8

PIEDMONT DR.
SR 1050

WHITE ST.

VIRGINIA DR.

ROADWAY EMBANKMENT (FILL)
RED-GRAY-TAN MED. STIFF SOME MICA MED. PLASTIC SILTY SANDY CLAY (A-7-5) MOIST

(-)1.3274%
(-)12.3309%
(-)12.3309%
(+)1.2156%

RESIDUAL
RED-BROWN MED. STIFF MED. PLASTIC MOIST SILTY SANDY CLAY (A-7-6)

BT
DRY
(2/12/14)

RESIDUAL
RED-TAN-BROWN MED. STIFF TRACE TO VERY MICACEOUS SILTY SANDY CLAY (A-7) MOIST

BT
FIAD
(2/17/14)

RESIDUAL
TAN-RED-BROWN STIFF VERY MICACEOUS SILTY SANDY CLAY (A-7-6), MOIST

TAN-BROWN-WHITE MEDIUM STIFF VERY MICACEOUS LOW PLASTIC CLAYEY SANDY SILT (A-5) MOIST

BT
FIAD
(2/12/14)

800 790 780 770 760 750

10 11 12 13 14 15 16 17 18 19 20 21

-LPA-

BEGIN GRADE -LPA- STA 10+00.00
-Y- STA 24+50.00, 36' LT
EL = 769.39'

PI = 10+35.00
EL = 769.46'
VC = 40'
K = 40
V = 30 MPH

PI = 12+75.50
EL = 772.34'
VC = 147'
K = 79
V = 45 MPH

PI = 14+55.00
EL = 771.15'
VC = 180'
K = 40
V = 30 MPH

PI = 17+60.00
EL = 782.88'
VC = 100'
K = 38
V = 35 MPH

END GRADE -LPA- STA 19+05.77
-L- STA 16+97.67, 30' RT
EL = 784.65'

SS-3
SS-4
B-2
10+89 -LPA-
29.0 LT.
=
14+07 -L-
6.0 LT.
ELEV. 776.4

SS-19
SS-20
SS-21
LPA-1695
15+35 -LPA-
8.0 RT.
ELEV. 790.2

EXIST -RPA-

(+)0.2810%
(+)1.1994%
(-)0.6673%
(-)0.6673%
(+)3.8462%
(+)3.8462%
(+)1.2156%

ROADWAY EMBANKMENT (FILL)
TAN-YELLOW-WHITE STIFF MOIST SANDY SILTY CLAY (A-6)

RESIDUAL
05/10

TAN-BRN-GRAY LOOSE TO DENSE MOIST SOME MICA CLAYEY SILTY SAND (A-2)

WEATHERED ROCK
SEVERELY WEATHERED CRYSTALLINE ROCK

BT
NM
(5/13/10)

RESIDUAL
RED-TAN-GRAY STIFF HIGH PLASTIC SILTY SANDY CLAY (A-7-5), MOIST

02/14

GRAY-BROWN, TRACE MICA, MEDIUM STIFF TO STIFF NON-PLASTIC CLAYEY SANDY SILT (A-5), MOIST TO WET

BT

790 780 770 760 750

10 11 12 13 14 15 16 17 18 19

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PROJECT REFERENCE NO.	SHEET NO.
B-3159	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPC-

BEGIN GRADE -RPC- STA.10+00.00
-Y- STA.14+50.00, 36' RT
ELEV.= 761.73'

PI = 11+87.00
EL = 764.16'
VC = 196'
K = 99
V = 50 MPH

PI = 15+00.00
EL = 762.00'
VC = 430'
K = 79
V = 45 MPH

END GRADE -RPC- STA.20+71.61
-L- STA.10+04.40, 50.28' LT
ELEV.= 786.15'

PI = 19+40.00
EL = 782.86'
VC = 150'
K = 67
V = 45 MPH

EXISTING US 29 / 70 BUS 85 NBL

(+)1.3000%

(-)0.6889%

ROADWAY EMBANKMENT (FILL)

RESIDUAL

SS-2
SS-3
SS-4
RPC-1440
14+40 -RPC-
25.0 RT.
ELEV. 775.1

RESIDUAL
RED-TAN MED. STIFF MED. PLASTIC SILTY SANDY CLAY (A-7-6), MOIST

TAN-BROWN MED. STIFF, SOME MICA CLAYEY SANDY SILT (A-5) MOIST TO WET

02/14

BROWN-WHITE MED. STIFF CLAYEY SANDY SILT (A-4) WET

BT

(-)0.6889%

(+)4.7398%

SS-5
RPC-1730
17+30 -RPC-
60.0 RT.
ELEV. 786.2

RESIDUAL
RED-BROWN MED. STIFF TO STIFF SOME MICA MED. PLASTIC SILTY SANDY CLAY (A-7-5) MOIST

BROWN-GRAY-WHITE SOFT VERY MICACEOUS CLAYEY SANDY SILT (A-5) MOIST TO WET

GRAY-WHITE STIFF CLAYEY SANDY SILT (A-4) MOIST

BT DRY (2/10/14)

SS-1
LPC-1600
19+23 -RPC-
6.0 LT.=
16+00 -LPC-
26.0 RT.
ELEV. 779.0

(+)4.7398%

(+)2.5000%

EXISTING RAMP C

WINSTON ROAD / NC 8

ROADWAY EMBANKMENT (FILL)

TAN-BROWN-WHITE MED. DENSE MED. PLASTIC CLAYEY SAND (A-2-6) MOIST

BT DRY (2/10/14) WEATHERED ROCK SEVERELY WEATHERED CRYSTALLINE ROCK

-LPC-

BEGIN GRADE -LPC- STA.10+00.00
-Y- STA.26+10.00, 36' RT
ELEV.= 770.31'

PI = 10+90.00
EL = 769.18'
VC = 75'
K = 157
V = 60 MPH

PI = 12+45.00
EL = 767.99'
VC = 60'
K = 35
V = 35 MPH

PI = 14+15.00
EL = 763.74'
VC = 200'
K = 17
V = 20 MPH

PI = 16+35.00
EL = 783.59'
VC = 65'
K = 10
V = 20 MPH

END GRADE -LPC- STA.17+41.46
-L- STA.10+31.25, 49.56' LT
ELEV.= 786.25'

SS-1
SS-2
B-1
11+43 -LPC-
38.0 LT.
=
12+67 -L-
76.0 LT.
ELEV. 777.5

EXISTING US 29 / 70 BUS 85 NBL

(+)1.2500%

(-)0.7729%

(-)2.5000%

(+)9.0234%

ROADWAY EMBANKMENT (FILL)

TAN-YELLOW-WHITE MED. STIFF MOIST SANDY SILTY CLAY (A-6)

BL

CAVED 05/10

RESIDUAL

TAN-BRN-GRAY LOOSE TO MED. DENSE MOIST CLAYEY SILTY SAND (A-2)

GRAY-WHITE V. STIFF TO HARD MOIST CLAYEY SANDY SILT (A-4)

WEATHERED ROCK SEVERELY WEATHERED CRYSTALLINE ROCK

GRAY-WHITE HARD MOIST CLAYEY SANDY SILT (A-4) (W/ HARD & SOFT LAYERS)

BT

EXISTING RAMP C

ROADWAY EMBANKMENT (FILL)

RESIDUAL

(+)9.0234%

SS-1
LPC-1600
16+00 -LPC-
26.0 RT.
ELEV. 779.0

(+)12.5000%

EXISTING RAMP C

WINSTON ROAD / NC 8

ROADWAY EMBANKMENT (FILL)

TAN-BROWN-WHITE MEDIUM DENSE MED. PLASTIC CLAYEY SAND (A-2-6), MOIST

BT DRY (2/10/14) WEATHERED ROCK SEVERELY WEATHERED CRYSTALLINE ROCK

5/28/99

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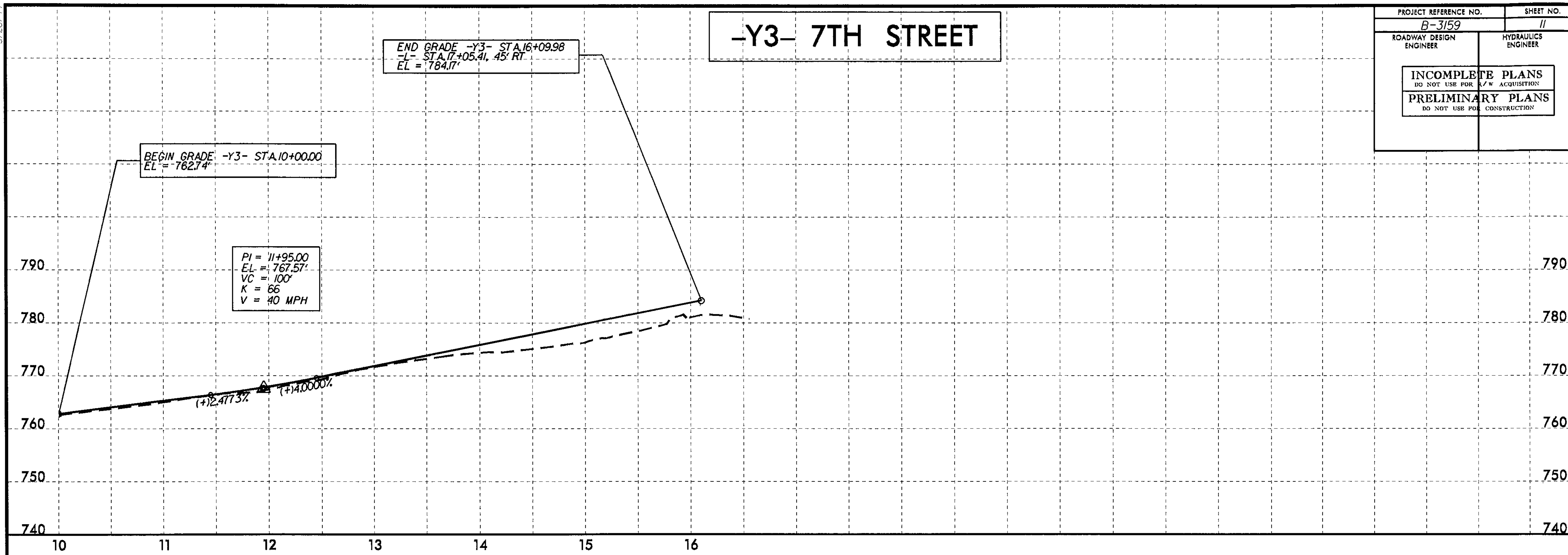
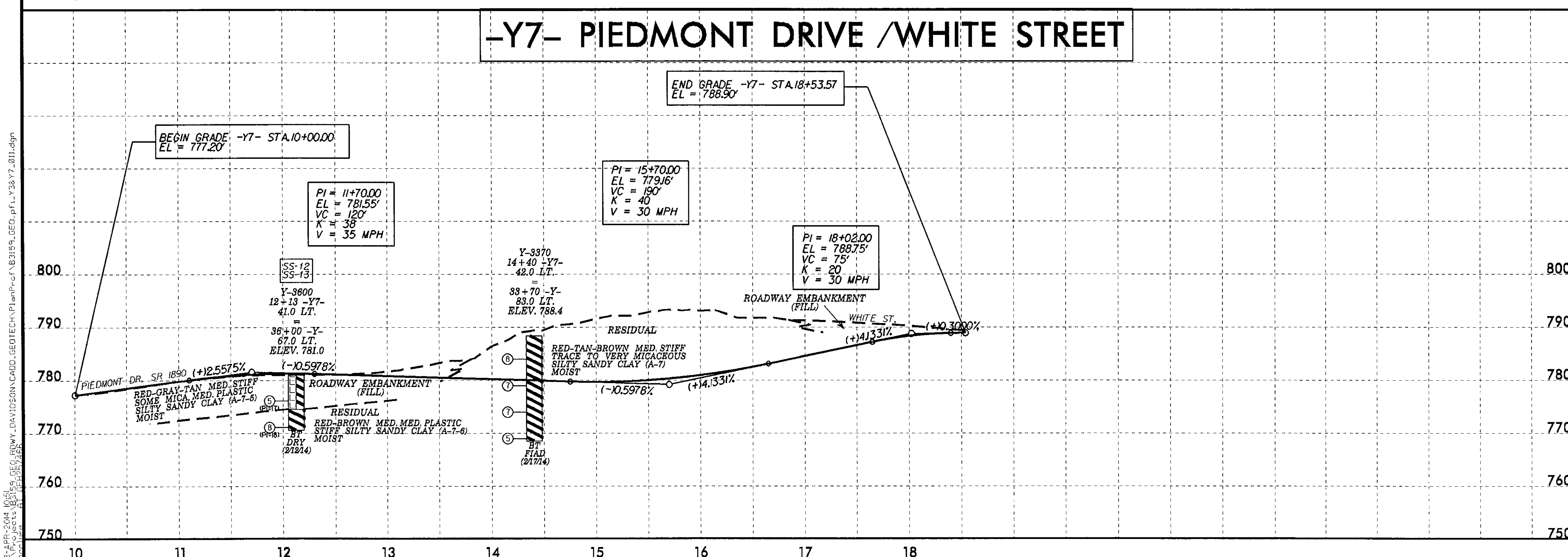
PROJECT REFERENCE NO.	SHEET NO.
B-3159	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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	Line or Boring ID
							C.SAND	F.SAND	SILT	CLAY	10	40	200			
SS-1	26 RT	16+00	4.8-5.8	A-2-6(1)	37	20	55.5	14.1	8.2	22.1	73	39	24	-	-	LPC
SS-2	25 RT	14+40	4.6-5.6	A-7-5(10)	65	18	15.9	35.0	20.9	28.2	100	92	55	-	-	RPC
SS-3	25 RT	14+40	9.6-10.6	A-5(0)	42	NP	21.1	41.6	23.1	14.1	100	89	44	-	-	RPC
SS-4	25 RT	14+40	24.6-25.6	A-4(0)	31	NP	19.5	45.3	23.1	12.1	100	92	44	-	-	RPC
SS-5	60 RT	17+30	4.6-5.6	A-7-5(19)	67	25	12.7	23.3	25.8	38.2	100	95	69	-	-	RPC
SS-12	67 LT	36+00	4.4-5.4	A-7-5(14)	57	17	10.3	25.6	30.0	34.2	100	95	71	-	-	Y
SS-13	67 LT	36+00	9.4-10.4	A-7-6(13)	46	18	10.9	20.1	26.8	42.3	100	95	73	-	-	Y
SS-17	87 LT	30+85	9.2-10.2	A-5(3)	49	8	21.9	32.6	27.4	18.1	94	80	48	-	-	Y
SS-19	8 RT	15+35	4.3-5.3	A-7-5(40)	85	45	11.1	13.5	11.1	64.4	100	94	78	-	-	LPA
SS-20	8 RT	15+35	9.3-10.3	A-7-6(16)	46	26	11.9	25.4	14.5	48.3	100	96	68	-	-	LPA
SS-21	8 RT	15+35	14.3-15.3	A-5(3)	45	5	4.2	49.3	32.4	14.1	100	99	57	-	-	LPA
THE FOLLOWING SAMPLES ARE FROM PROJECT 38331.1.1 (B-3159) PDEA																
SS-1	76 LT	12+67	9.7-10.7	A-2-4(0)	39	3	30.2	44.3	19.4	6.1	98	82	33	-	-	B-1 (-L-)
SS-2	76 LT	12+67	19.7-20.7	A-2-4(0)	25	NP	18.6	62.7	16.7	2.0	100	92	32	-	-	B-1 (-L-)
SS-3	6 LT	14+07	4.9-5.9	A-6(7)	39	21	18.6	35.5	19.4	26.5	99	91	52	-	-	B-2 (-L-)
SS-4	6 LT	14+07	9.9-10.9	A-2-4(0)	37	3	25.7	48.0	18.2	8.2	100	88	34	-	-	B-2 (-L-)