STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2551	1	73

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34832.1.1	STP-1922 (1)	PE
34832.2.2	STP-1922 (1)	ROW, UTIL
34832.3.1	STP-1922 (1)	CONSTR.

ID: U-2551

CONTRACT: C202815

NOTE: SEE SHEET 1A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

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

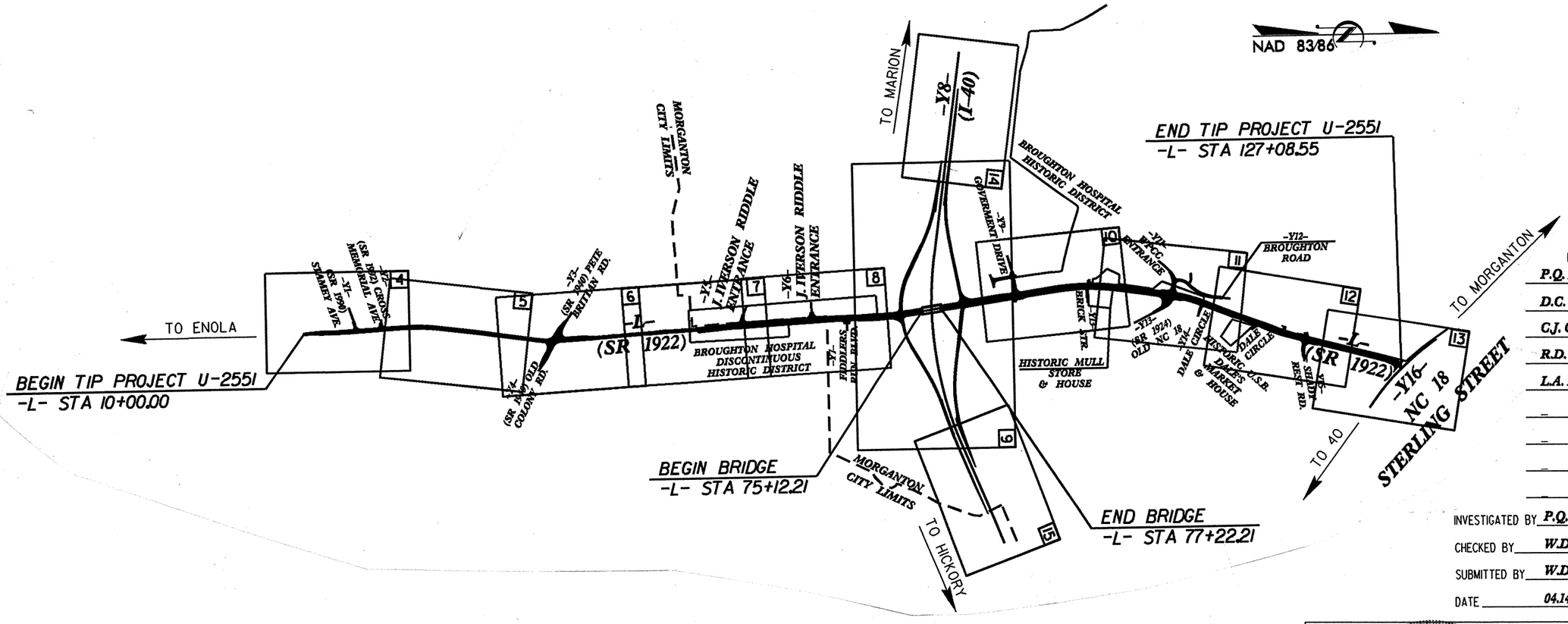
ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34832.1.1 F.A. PROJ. STP-1922(1)

COUNTY BURKE

PROJECT DESCRIPTION MORGANTON-SR 1922 (ENOLA ROAD) / SR 1924 (OLD NC 18) FROM SOUTH of PETE BRITTAIN ROAD (SR 1940) to NC 18

INVENTORY



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

P.Q. LOCKAMY

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C.J. COFFEY

R.D. CHILDERS

L.A. RIDDLE

INVESTIGATED BY P.Q. LOCKAMY

CHECKED BY W.D. FRYE

SUBMITTED BY W.D. FRYE

DATE 04.14.09

NORTH CAROLINA LICENSED SEAL 1907 GEOLOGIST Patrick Q. Lockamy

4-14-09 P.Q. Lockamy

DRAWN BY: J.T. WILLIAMS

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.
U-2551	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	11 MN	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		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
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
- SOUNDING ROD
- SPT CPT DPT DMT VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- SPT N-VALUE
- REF — SPT REFUSAL

SAMPLE DESIGNATIONS
- S - BULK SAMPLE
- SS - SPLIT SPOON SAMPLE
- ST - SHELBY TUBE SAMPLE
- RS - ROCK SAMPLE
- RT - RECOMPACTED TRIAXIAL SAMPLE
- CBR - CALIFORNIA BEARING RATIO SAMPLE
- HAND AUGER BORING

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

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
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

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

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

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] 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: BM-3 MARKER IN 24" PINE -BL- STA. 37+93 106 RT

ELEVATION: 1169.09 FT.

NOTES:
F.I.A.D. - FILLED IMMEDIATELY AFTER DRILLING

AREA OF EXISTING FILL

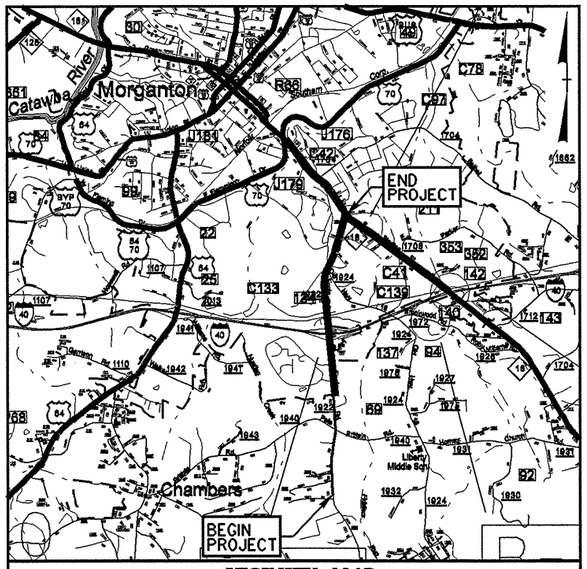
REVISED 02/23/06

09/08/09

TIP PROJECT: U-2551

PROJECT: 34832.1.1

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MORGANTON

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BURKE COUNTY

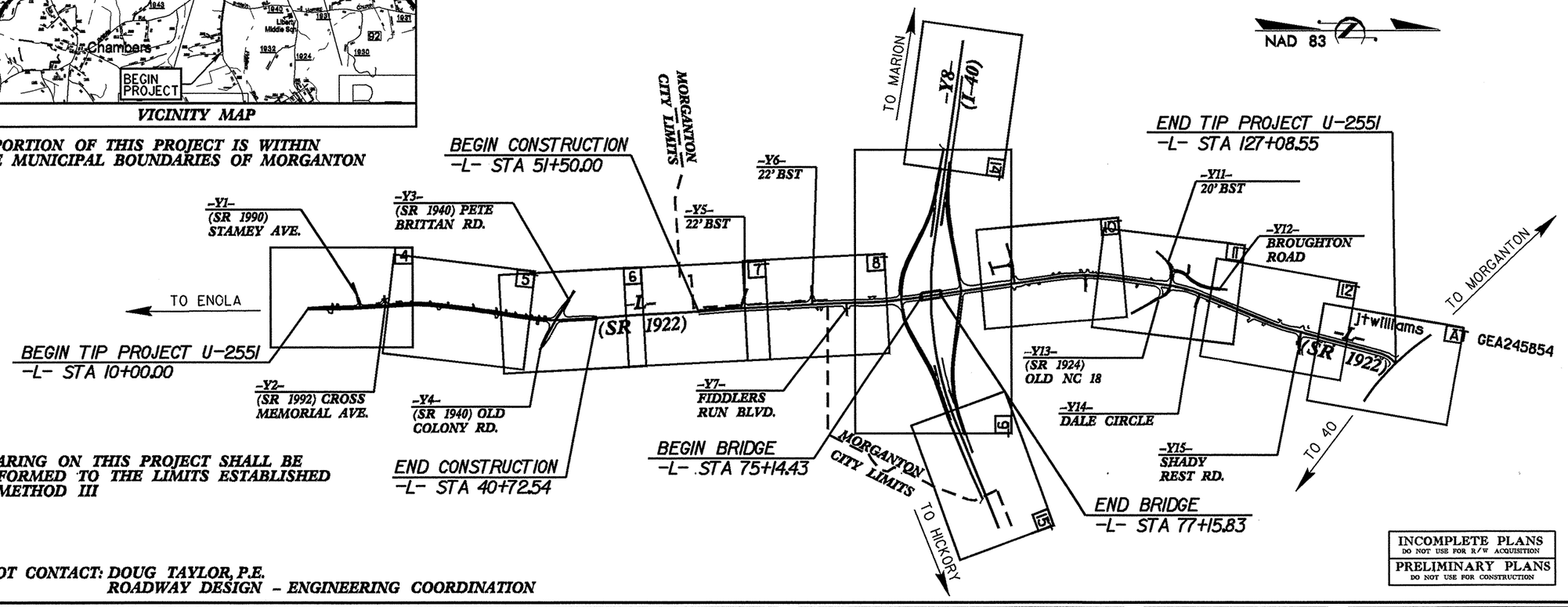
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2551	1A	73

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34832.1.1	STP-1922 (1)	PE

LOCATION: Morganton – SR 1922 (Enola Rd) /SR 1924 (Old NC 18) from South of Pete Brittian (SR 1940) Road to NC 18

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE, AND SIGNALS

NAD 83



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

NCDOT CONTACT: DOUG TAYLOR, P.E.
ROADWAY DESIGN – ENGINEERING COORDINATION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2010	=	14650
ADT 2030	=	21790
DHV	=	9 %
D	=	60 %
T	=	7 % *
V	=	40 MPH

* TTST 3 DUAL 4

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-2551 = 1.975 miles
LENGTH OF STRUCTURE TIP PROJECT U-2551 = 0.038 miles
TOTAL LENGTH TIP PROJECT U-2551 = 2.013 miles

PLANS PREPARED BY: ARCADIS G & M of North Carolina, Inc. WWW.ARCADIS-US.COM 801 Corporate Center Drive, Suite 300 Raleigh, NC 27607-5073 Tele 919/854-1282 Fax 919/854-5448

FOR THE DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 21, 2009

LETTING DATE: FEBRUARY 15, 2011

STEVE SMALLWOOD, P.E.
PROJECT ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

31-MAR-2009 14:45
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jtwilliams AT GEA245854

PROJECT REFERENCE NO.	SHEET NO.
U-2551	2/73

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 PLASTIC INDEX	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 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) PL — PLASTIC LIMIT	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
OM — OPTIMUM MOISTURE SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
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
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
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
- SOUNDING ROD
- SPT CPT DPT DMT VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- SPT N-VALUE
- REF — SPT REFUSAL

SAMPLE DESIGNATIONS
- S - BULK SAMPLE
- SS - SPLIT SPOON SAMPLE
- ST - SHELBY TUBE SAMPLE
- RS - ROCK SAMPLE
- RT - RECOMPACTED TRIAXIAL SAMPLE
- CBR - CALIFORNIA BEARING RATIO SAMPLE
- HAND AUGER BORING

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

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
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE __" STEEL TEETH
- [ ] TRICONE __" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

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

CORE SIZE:
- [ ] -B-
- [ ] -N-
- [ ] -H-

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] 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 PIECES 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: BM-3 MARKER IN 24" PINE -BL- STA. 37+93 106 RT

ELEVATION: 1169.09 FT.

NOTES:
-

AREA OF EXISTING FILL

REVISED 02/23/06

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

April 14, 2009

STATE PROJECT: 34832.1.1 (U-2551)
COUNTY: Burke

DESCRIPTION: Morganton – SR 1922 (Enola Road)/ SR 1924 (Old NC 18)
From South of Pete Brittian (SR 1940) Road to NC 18

SUBJECT: Geotechnical Report – Inventory

Project Description

The project consists of widening approximately two miles of existing 2-lane to improved 2-lane or 4-lane. A stretch of Enola Road from Station 40+72 to 51+50 is not included in the project. Much of the project borders the J. Iverson Riddle Developmental Center and Broughton Hospital. A section of I-40 and the interchange at exit 104 is included along with new alignment for all four ramps. Many sections of -Y- Line are also improved with limited relocated alignment.

Areas of Special Geotechnical Interest

Structures

The bridge from Stations 75+18 to 77+23 -L- is founded on deep residuum/saprolite. The bridge investigation and recommendations are not part of this inventory and will be addressed at a later date.

Potentially Unsuitable Subsurface Conditions

Fill: An elaborate subsurface drainage system on the grounds of Broughton Hospital left of Stations 119+00 to 126+50 –L- carries headwater stream flow through rather extensive areas of deep fill. The fill is predominantly earth material and has rubble from demolished structures and some asphalt. Much of the fill appears usable for roadway foundation with the exception of an area which may have formerly been impounded (Lt. of -L- Sta. 119+00 to approximately 121+00).

Fill: An area along -Y12- from Stations 12+70 to 15+00 contains fill, less than four feet deep, that has some rubble in it.

Fill: Red clay runoff sedimentation up to four feet deep has been deposited over brown floodplain soils of Fiddlers Run to the right of -Y8-. This material apparently originated from the gulling of a ditch right of -Y8- from Stations ± 51+00 to ± 55+00.

Portions of Ramp B have embankment placed there as apparent waste material from the original construction of the interstate. This material is clayey and has standard penetration test resistance values comparable to that of nearby residual clays.

Physiography and Geology

From the -L- Station 10+00 to 111+00 the project runs along a drainage divide and then descends and ends along a filled in gully at Sterling Street. The land is easily gullied and most near by streams are choked with sediments from historic times. One creek, Fiddlers Run, is very unusual because it has recently lowered its stream bed and cut through basal alluvium as observed just upstream of -Y8-. Two other small creeks located to the left and right of -Y8- near Station 25+00 are recent gullies that have intercepted the water table. They have no alluvium.

Rock type is obscured by thick soils but was observed in samples of saprolite to be dominantly gneisses and schists with some intrusives (granite to granodiorite). If large enough in extent, granitic areas tend to have shallow rock, otherwise granite is found in thin veins in the country rock.

Soil Properties

Thick piedmont type ridge top residuum is present along most of the project. Red residual clays there are typically three to six feet thick and often have several more feet of an underlying transition soil of red/orange clayey silt. Consistency of residuum is typically medium stiff. Underlying saprolitic soils tend to be sandy silts with varying amounts of sericitic mica. Saprolitic soils can be more than 100 feet deep in areas of metamorphic parent rock or less than ten feet deep in granitic areas.

Rock Properties

Gneissic and schistose rocks here are weathered to considerable depths and covered by thick residuum. A few areas along the project have intrusive rocks that are more resistant to weathering and nearly outcrop. This is noticeable near -L- Stations 13+00, 31+00 to 34+00, and 108+50. One area to the right of -L- Stations 121+50 to 124+50 has shallow crystalline rock.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-250-4088
FAX: 919-250-4237

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Groundwater

Groundwater was measured in only six borings. It was observed to be deep in borings near the bridge on -L- over -Y8- and conversely was shallow where a clay embankment was placed over residual clay soil on Ramp B and at -L- Station 20+00. The heads of drainages near the ridge top also exhibited a tendency for clayey residual soils to be wet as was observed in the boring at -L- Station 39+00.

Wells

A monitoring well is located within construction limits at -L- Station 102+55, 60 feet right and is shown on plan view.

Geotechnical Descriptive Analysis

-L- Station 10+00 to 37+00: The alignment will consist of short cuts and low fills in residual clays.

-L- Station 37+00 to 40+72.54: This section of -L- is poorly drained and possesses deep clays.

-L- Stations 51+50 to 111+00: The alignment is on ridge top with residual clays and has short cuts and low fills. The bridge over I-40 and all four ramps with the bulk of the earthwork on the project is included in this section.

-L- Stations 111+00 to 119+00: -L- runs along side slopes with deep residuum.

-L- Stations 119+00 to 127+08: The right of -L- is in an existing cut area with shallow crystalline rock. Left of -L- was a deep gully and creek valley that has been completely obscured by filling. Fill is predominantly earth material and contains some rubble of brick, stone, asphalt and occasional metal. The area is now a level woodlawn with large trees. An apparent pond was observed in the filled area left of Stations ± 119+10 to ± 120+00. Small areas to the left of -L- were apparently excavated but so extensively altered that they are included in the fill area noted on sheet 13.

Respectfully Submitted,

P. Q. Lockamy

P. Q. Lockamy P.G.

EARTHWORK BALANCE SHEET

PROJECT NAME Enola Road | COMPUTED BY STS | DATE February 23, 2012
STATE PROJECT NUMBER U-2551 | CHECKED BY | SHEET 1 OF 4

STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMB. + 15%	BORROW	ROCK	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
SUMMARY #1															
-L- Left															
10+50.00	40+72.54	2587				2587	170		170	196	0		2391		2391
-Y1-															
11+63.00	12+43.24	13				13	1		1	2	0		11		11
-Y2-															
10+38.00	10+93.42	13				13	0		0	0	0		13		13
-Y3-															
11+04.98	13+46.26	603				603	55		55	63	0		540		540
TOTAL SUMMARY #1		**3216**				**3216**	**227**		**227**	**261**	**0**		**2955**		**2955**
SUMMARY #2															
-L Right-															
10+50.00	40+72.54	2055				2055	3093		3093	3557	1502		0		0
-Y4-															
10+25.75	13+15.43	2101				2101	177		177	204	0		1897		1897
TOTAL SUMMARY #2		**4156**				**4156**	**3270**		**3270**	**3761**	**1502**		**1897**		**1897**
SUMMARY #3															
-L- Left															
51+50.00	75+12.21	1472				1472	1134		1134	1304	0		168		168
-Y5-															
10+94.00	11+86.63	271				271	26		26	29	0		241		241
-RPB-															
16+00.00	23+77.27	9217				9217	724		724	833	0		8384		8384
-Y8RT-(RAMPB)															
21+50.00	30+50.00	2086				2086	2119		2119	2437	351		0		0
TOTAL SUMMARY #3		**13046**				**13046**	**4003**		**4003**	**4604**	**351**		**8793**		**8793**

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

EARTHWORK BALANCE SHEET — SHEET 2 OF 4

STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMB. + 15%	BORROW	ROCK	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
SUMMARY #4															
-L- Right															
51+50.00	75+12.21	1842				1842	2492		2492	2866	1024		0		0
-RPC-															
17+04.78	22+70.00	1978				1978	4190		4190	4819	2841		0		0
-Y8RT-(RAMPC)															
43+50.00	59+48.00	3345				3345	7495		7495	8619	5274		0		0
TOTAL SUMMARY #4		**7165**				**7165**	**14177**		**14177**	**16304**	**9139**		**0**		**0**
SUMMARY #5															
-L- Left															
77+22.21	101+65.00	880				880	1824		1824	2098	1218		0		0
-RPA-															
15+70.00	22+95.75	12400				12400	221		221	254	0		12146		12146
-Y9-															
11+84.82	13+00.00	86				86	46		46	53	0		33		33
-SR1-															
10+10.00	12+08.53	0				0	1667		1667	1917	1917		0		0
-Y8LT-(RAMPA)															
14+00.00	29+00.00	2895				2895	2196		2196	2525	0		370		370
TOTAL SUMMARY #5		**16261**				**16261**	**5954**		**5954**	**6847**	**3135**		**12549**		**12549**
SUMMARY #6															
-L- Right															
77+22.21	101+65.00	3834				3834	4130		4130	4750	916		0		0
-RPD-															
16+36.00	24+60.00	20766				20766	0		0	0	0		20766		20766
-Y8LT-(RAMPA)															
44+50.00	54+50.00	7876				7876	446		446	513	0		7363		7363
-SR4-															
10+29.73	11+15.54	182				182	14		14	16	0		166		166

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

EARTHWORK BALANCE SHEET — SHEET 3 OF 4

STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMB. + 15%	BORROW	ROCK	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
-SR5- (-L- Station)															
81+37.39	84+71.05	173				173	212		212	244	71		0		0
-Y10-															
10+29.52	11+20.00	18				18	26		26	30	12		0		0
TOTAL SUMMARY #6		**32849**				**32849**	**4828**		**4828**	**5553**	**999**		**28295**		**28295**
SUMMARY #7															
-L- Left															
101+65.00	126+74.09	3533		480		3533	5774		5774	6640	3107		0	480	480
-Y11-															
10+33.51	12+60.00	1865				1865	65		65	75	0		1790		1790
-Y12-															
10+25.24	15+60.00	182				182	6098		6098	7013	6831		0		0
-DWY1-															
10+00.00	11+06.23	3				3	425		425	489	486		0		0
TOTAL SUMMARY #7		**5583**		**480**		**5583**	**12362**		**12362**	**14217**	**10424**		**1790**	**480**	**2270**
SUMMARY #8															
-L- RIGHT															
101+65.00	126+74.09	3262	115			3147	2584	115	2469	2954	0		308		308
-Y13-															
12+30.73	14+93.88	710				710	288		288	331	0		379		379
-Y14-															
10+40.00	11+29.03	62				62	22		22	25	0		37		37
-Y15-															
10+45.00	12+13.87	1129				1129	1		1	1	0		1128		1128
TOTAL SUMMARY #8		**5163**	**115**			**5048**	**2895**	**115**	**2780**	**3311**	**0**		**1852**		**1852**

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

EARTHWORK BALANCE SHEET SHEET 4 OF 4

STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMB. + 15%	BORROW	ROCK	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
SUBTOTAL SUMMARY #1, #2,#3,#4, #5,#6, #7 & 8		87439	115	480		87324	47716	115	47601	54858	25550		58131	480	58611
TOTALS		87439	115	480		87324	47716	115	47601	54858	25550		58131	480	58611
LOSS DUE TO CLEARING & GRUBBING		-1250				-1250							-1250		-1250
ADDITIONAL UNDERCUT				920			920		920	1058	1058			920	920
WASTE TO REPLACE BORROW											-26608		-26608		-26608
GRAND TOTALS		**86189**	**115**	**1400**		**86074**	**48636**	**115**	**48521**	**55916**	**0**		**30273**	**1400**	**31673**
SAY		**87000**													

Estimated Undercut (Shallow) = 4000 CY
Estimated Shoulder Borrow = 4200 CY
Estimated DDE = 1537 CY

Earthwork quantities are calculated by the Roadway Design Unit.These earthwork quantities are based in part on the subsurface dataprovided by the Geotechnical Engineering Unit.

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Raleigh, NC 27607-5073
Tel: 919/854-1282 Fax: 919/854-5448

PROJECT REFERENCE NO.	SHEET NO.
U-2551	4/73
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

-L-	-Y1-
PI Sta 11+30.48	PI Sta 13+97.30	PI Sta 11+40.11
Δ = 2° 29' 30.0" (RT)	Δ = 2° 36' 15.0" (LT)	Δ = 4° 01' 46.6" (RT)
D = 0° 57' 17.7"	D = 0° 57' 17.7"	D = 1° 54' 35.5"
L = 260.93'	L = 272.71'	L = 210.99'
T = 130.48'	T = 136.38'	T = 105.54'
R = 6,000.00'	R = 6,000.00'	R = 3,000.00'
SE = NC	SE = NC	SE = SEE PLANS
DS = 40 MPH	DS = 40 MPH	DS = 40 MPH

BEGIN PROJECT U-2551
-L- PC STA 10+00.00

POT Sta. 10+00.00
PC Sta. 10+34.57
BEG.CONSTR. STA 11+63.00
BEG.CONSTR. STA 10+38.00
POT Sta. 10+00.00
PRC Sta. 12+60.33
PT Sta. 15+33.63
-L- POT STA 15+55.75 =
-Y1- POT STA 12+70.15
PT Sta. 12+45.56
-L- POT STA 18+21.25 =
-Y2- POT STA 11+09.94
-BY12-63 POT 5+00.00

MATCH LINE STA 20+00
SEE SHEET 5

LAIL, KATHY J.
MAYFIELD, JOHNNY R.
MOOREFIELD, JASON W.
WYKE, JONATHAN D.
CHAPMAN, HORACE J.
DAVIS, ROY C.
ST JOHN, ANDY
CROSS MEMORIAL BAPTIST CHURCH
STATE HOSPITAL

ARNOLD DRIVE (SR 1888) 20' PAVE
STANLEY AVENUE (SR 8901) 18' BST
CROSS MEMORIAL AVENUE (SR 1892) 18' BST
ENOLA ROAD (SR 1822)

B-1 11+50 28 RT
B-2 13+00 30 LT
B-3 16+50 15 RT
B-4 20+00 15 FRT

200' UNIFORM TAPER

-BL2-54 PINC 11+47.61
-BY11-62 POT 7+24.21
-BL2-55 PINC 15+70.86
-BY12-64 POT 7+20.29
-BL2-56 PINC 19+05.47

RDWY.INV\CADD_GEOTECH\PlanProf\U2551_GEO_ps1_04.dgn

13-APR-2009 11:38
C:\Projects\NCDOT\GEOTECH\PlanProf\U2551_GEO_ps1_04.dgn
$$$$USERNAME$$$$

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Tel: 919/854-1282 Fax: 919/854-5448

PROJECT REFERENCE NO.	SHEET NO.
U-2551	5/73
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

5/5/11

-L-
PI Sta 22+29.72
Δ = 10° 10' 04.0" (RT)
D = 2° 48' 06.3"
L = 362.91'
T = 181.93'
R = 2,045.00'
SE = .03
DS = 40 MPH

PI Sta 28+64.08
Δ = 1° 28' 17.0" (RT)
D = 0° 42' 58.3"
L = 205.44'
T = 102.73'
R = 8,000.00'
SE = NC
DS = 40 MPH

MATCHLINE STA 20+00
SEE SHEET 5

MATCHLINE STA 32+00
SEE SHEET 6

(20) STAMEY, CAROL Y. DB 1290 PG 586

(21) PATTERSON, WILLIAM E. DB 757 PG 1504

(22) COLE, ET AL, SHERRILL DB 322 PG 405

(23) HARBISON, JR., WILLIAM M. DB 132 PG 378

(24) HARBISON, JR., WILLIAM M. DB 600 PG 10

(25) NOGGLE, S. L. DB 627 PG 22

(26) NOGGLE, SUSAN H. DB 440 PG 157

(27) TALLENT, HOWARD J. DB 987 PG 585

(28) TALLENT, ESTATE, NANCY P. DB 776 PG 491

(29) LEONARD, ET AL, ARWELL M. DB 986 PG 395

(30) TALLENT, GUY A. DB 359 PG 403

B-5 24+00 21 LT

B-6 26+50 20 RT

B-7 29+00 25 RT

B-8 31+50 25 LT

N 7°02'58.0" E

N 5° 26' 20.5" E

N 6° 56' 32.5" E

N 8° 31' 50.0" E

PC Sta. 20+41.79

PT Sta. 24+10.70

PC Sta. 27+61.35

PT Sta. 29+66.80

STATE HOSPITAL

DO NOT DISTURB VAULT

2010 ADT
2030 ADT

4410
6720
-L-
ENOLA RD.
4510
6820
40
40
140
140
HIGH SCHOOL ENTRANCE
180
180

2010 ADT
2030 ADT

JR. TALENT RD
130
200
4510
6820
-L-
30
50
100
150
4680
7020
ENOLA RD.
40
40
140
140
HIGH SCHOOL EXIT ONE-WAY OUT
180
180

13-APR-2009 11:32
USER:mmcmillan
DGN:...\GEOTECH\PlanProf\U2551_GEO_psi_05.dgn
PSS:$$$$RASTERNAME$$$$

RDWY_INV\CADD_GEOTECH\PlanProf\U2551_GEO_psi_05.dgn

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PROJECT REFERENCE NO.	SHEET NO.
U-2551	6 / 73
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

MATCHLINE STA 32+00 -L-
SEE SHEET 5

MATCHLINE STA 45+00 -L-
SEE SHEET 7

-L-
PI Sta 35+70.17
Δ = 11° 47' 25.0" (LT)
D = 3° 49' 11.0"
L = 308.67'
T = 154.88'
R = 1,500.00'
SE = .03
DS = 40 MPH

PI Sta 41+02.00
Δ = 0° 35' 09.0" (LT)
D = 0° 13' 45.1"
L = 255.62'
T = 127.81'
R = 25,000.00'
SE = NC
DS = 40 MPH

-Y3-
PI Sta 10+69.02
Δ = 1° 27' 40.3" (RT)
D = 2° 20' 53.5"
L = 62.23'
T = 31.11'
R = 2,440.00'
SE = SEE PLANS
DS = 40 MPH

-Y4-
PI Sta 12+26.40
Δ = 3° 04' 08.0" (LT)
D = 1° 49' 30.3"
L = 168.15'
T = 84.10'
R = 3139.38'
SE = SEE PLANS
DS = 40 MPH

PC Sta. 10+38.90 -Y3-
PI Sta. 11+00.13
PT Sta. 11+06.37 -Y3-
PC Sta. 11+42.31 -Y4-
PT Sta. 13+10.46 -Y4-
PC Sta. 39+74.19 -L-
PT Sta. 37+23.95 -L-
POC STA 36+36.00= -Y3- POT STA 13+66.00 -Y4- POT STA 10+00.00
PT Sta. 42+29.80 -L-
END CONSTR. STA 13+15.43
END CONSTRUCTION -L- POT STA 40+72.54
BEG. CONSTR. STA 11+04.98
POT Sta. 11+00.00 -Y3-
POT Sta. 13+66.52 -Y4-
-BL2-1 POT 48+27.62 LB PHASE II
-BL-1 POT 5+00.00 LA PHASE I

DEVINNEY, MAE BERNICE
DB 833 PG 663

MORGAN, CHRISTOPHER S.
DB 930 PG 2386

MILLNER, JOSEPH H.
DB 1021 PG 277

DUCKWORTH, LINDA A.

BRITTAIN, MARY D.
DB 166 PG 371

WELLONS, GENE C.
DB 731 PG 865

BURKE PROPERTIES, INC.
DB 860 PG 140

BURKE PROPERTIES, INC.
DB 873 PG 779

BURKE PROPERTIES, INC.
DB 873 PG 779
TRACT 2

STATE OF NC BURKE CO BOARD OF EDUCATION
DB 679 PG 397
PB 3 PG 76

LIBERTY MIDDLE SCHOOL
1½SBK SCHOOL

STATE HOSPITAL

PETE BRITTIAN RD. -Y3-
OLD COLONY RD -Y4-
ENOLA RD. -L-

2010 ADT
2030 ADT

4680 / 7020	440 / 660	3220 / 4790	9670 / 14430
	340 / 510	2550 / 3790	

-BL2 60 PINC 40+03.64
-BL3-70 PINC 18+54.55
-BL3-1 PINC 22+88.91
-BL3-69 PINC 16+97.72
-BL3-68 PINC 14+91.22

R=120'
R=50'
O=6'
R=75'
R=120'
R=45'
O=6'

150' FULL
150' UNIFORM TAPER
120' UNIFORM TAPER

B-9 33+00 15 RT
B-10 39+00 32 LT

EXISTING R/W
60' CHL
40' CHL
48' CHL
SOIL
BST
CONC
GR
ISFD
ISBKD
ISBUS
1½SFD
WOODS

N 3° 16' 10.0" W
N 3° 51' 19.0" W
N 4° 31' 01.5" W
S 3° 64' 33" E 280.91'
S 5° 29' 21.0" E

ENOLA ROAD (SR 1922) 33' BST
OLD COLONY ROAD (SR 1940) 24' BST

12" DIP
18" CMP
15" CMP
24" CMP
20" C&G
10' CONC
60' CONC

INV ELEV= 1161.53
INV ELEV (OUT)=1157.56
INV ELEV (IN)=1157.83
INV ELEV (OUT)=1157.44
INV ELEV (OUT)=1156.67
INV ELEV (IN)=1159.35
INV ELEV (OUT)=1158.30
INV ELEV (IN)=1158.54
INV ELEV (IN)=1154.88
INV ELEV (OUT)=1154.78
INV ELEV (IN)=1160.24
INV ELEV (OUT)=1158.20
TOP ELEV=1160.69
TOP ELEV=1162.28
TOP ELEV (IN)=1163.54
TOP ELEV (IN)=1163.00
TOP ELEV=1162.06

BM= 18" BENCHMARK ELEVATION = 186.61 IN BL2 S SECTION 38-54.91 LEFT
BM= 18" BENCHMARK ELEVATION = 196.61 IN 32" TWIN WHITE OAK

13-APR-2009 11:32
G:\PROJECTS\2004_CAD\GEOTECH\PlanProf\U2551_GEO_psi_06.dgn
SELECTED PLANIMETRICS

13-APR-2009 11:32
G:\PROJECTS\2004_CAD\GEOTECH\PlanProf\U2551_GEO_RDWY_INV\CADD_GEOTECH\PlanProf\U2551_GEO_psi_06.dgn

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PROJECT REFERENCE NO.	SHEET NO.
U-2551	7/13
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

MATCHLINE STA 45+00 -L-
SEE SHEET 6

MATCHLINE STA 58+00 -L-
SEE SHEET 8

CAUSBY, JAMES R.

MARILYN BRENDLE DAVIS

VERNON LESLIE WELLMAN

KATHRYN B. DUCKWORTH & FREDIE RAY DUCKWORTH

WESTERN CAROLINA CENTER

BROUGHTON HOSPITAL'S HISTORIC HOSPITAL DISCONTINUOUS DISTRICT

FOOTHILLS REGIONAL AIRPORT AUTHORITY

STATE HOSPITAL AT MORGANTON
D.B. D3 PG. 54
PB. 3 PG. 76

BEGIN CONSTRUCTION
-L- STA 51+50.00

BEG. CONSTR. STA 10+94.00

-BL-3 PINC 16+40.93
-BY2-28 POT 7+23.96

-BL-2 PINC 8+52.56

PRC Sta. 53+44.65

PRC Sta. 49+64.52

PC Sta. 46+53.17

PT Sta. 55+72.03

-L- POT STA 55+96.00 =
-Y5- PT STA 12+17.81

300' TAPER

ENOLA RD.

MIDDLE SCHOOL ENTRANCE

JROC ENTRANCE

2010 ADT / 2030 ADT		
9670 / 14430		9770 / 14530
210 / 210		310 / 310
520 / 520		

2010 ADT / 2030 ADT		
9770 / 14530		10440 / 15530
260 / 390		930 / 1390

PI Sta 48+08.85
Δ = 1° 22' 20.0" (RT)
D = 0° 26' 26.7"
L = 311.35'
T = 155.68'
R = 13,000.00'
SE = EXIST.

PI Sta 51+54.63
Δ = 3° 02' 08.0" (LT)
D = 0° 47' 54.8"
L = 380.13'
T = 190.11'
R = 7,175.00'
SE = NC
DS = 40 MPH

PI Sta 54+58.36
Δ = 2° 36' 20.0" (RT)
D = 1° 08' 45.3"
L = 227.38'
T = 113.71'
R = 5,000.00'
SE = NC
DS = 40 MPH

PI Sta 11+09.02
Δ = 6° 26' 36.8" (LT)
D = 2° 57' 30.0"
L = 217.81'
T = 109.02'
R = 1,936.75'
SE = SEE PLANS
DS = 40 MPH

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5/14/99

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Raleigh, NC 27607-5073
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PROJECT REFERENCE NO.	SHEET NO.
U-2551	8/73
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

HYDRAULICS ENGINEER

-L-
PI Sta 67+20.11
Δ = 1° 53' 05.0" (RT)
D = 0° 57' 17.7"
L = 197.37'
T = 98.69'
R = 6,000.00'
SE = NC
DS = 40 MPH

MATCHLINE STA 58+00 -L-
SEE SHEET 7

MATCHLINE STA 70+00 -L-
SEE SHEET 9

-L- POT STA 12+00.57
-Y6- POT STA 12+00.57
POT STA 67+15.47
-Y7- POT STA 10+00.00
-L- POT STA 63+56.00 =
-Y6- POT STA 10+00.00
POT Sta. 11+38.40
PC Sta. 66+21.68
PRC Sta. 68+18.79
EXIST. -L- STA 67+15.47
NO DEED REFERENCE
WESTERN CAROLINA CENTER
BROUGHTON HOSPITAL'S HISTORIC HOSPITAL DECONTINUOUS DISTRICT
RIPRAP
24" CONC GUTTER
22' BST
30" CONC GUTTER
OUTLET NOT FOUND
8" PLASTIC
8" CLAY
12' BST
17' BST
9' BST
23' BST
HEDGE ROW
EXISTING RIGHT OF WAY
EOP
SR 1922 ENOLA RD
30" C&G
48" CONC WALK
BRICK
6" CURB
150' TAPER
MONO ISLAND
CONC
GR
BLK WALL
FIDDLER'S RUN BLVD
EXIST. R=30'
R=60'
R=30'
N 2° 54' 47.0" W
N 3° 33' 38.3" W
N 2° 26' 35.9" W
N 86° 27' 59.9" E
N 87° 23' 09.4" E
BM#2
-BL- STA: 22+97.22
17.19' RIGHT
ELEV.=1166.31
B-13
65+50
20 RT
302.08'
N00°25'22"E
19.95'
S01°52'16"E
CONC MON.
S12°01'35"E
98.94'
S11°49'00"E
101.50'
N89°27'09"W
460.62'
S89°27'25"E
446.53'
N89°59'59"W
314.44'
N89°25'52"W
165.88'
N88°58'15"W
N88°55'12"W
93.78'

78	WAYNE & CORINNE ABELE DB 892 PG 1445
77	WAYNE & CORINNE ABELE DB 893 PG 847
79	STATE HOSPITAL AT MORGANTON D.B. 03 PG. 54 PB. 3 PG 76
76	CBL & ASSOCIATES MANAGEMENT, INC. DB 929 PG 719
75	CHICK-FIL-A, INC. D.B. 929 PG. 723
	DRURY LANE OWNERSHIP UNKNOWN BST PARKING AREA
85	JAMES R. KIRKPATRICK TRUSTEE DB 1108 PG 946

ISF BUS
ISFBUS
ISBKD
ISBBUS

2010 ADT
2030 ADT
JIROC N. ENTRANCE -Y6-
10440 15530 -L-
260 400
2490 3710
ENOLA RD. 12670 18840

2010 ADT
2030 ADT
12670 18840 -L-
14650 21790
ENOLA RD.
700 1050
2680 4000
FIDDLER'S RUN BLVD. -Y6-
3380 5050

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PROJECT REFERENCE NO.	SHEET
R-2551	9/83

RPA,B,C & D

0 100 200

FEET

A

B

C

D

-L- POC 79+40.00 =
RPA POT STA 23+82.59
RPD POT STA 25+35.14

-L- POT STA 76+15.21 =
-Y8- POC STA 37+05.36
Δ= 97° 38' 50.15"

-L- POC 72+95.00 =
RPB POT STA 24+71.58
RPC POT STA 23+95.90

-L-
PI Sta 71+28.23
Δ = 1° 04' 58.0" (LT)

B-35 20+35
B-36 21+53
B-37 16+70
B-40 19+46 21 LT
B-41 17+45
B-42 23+60 44 RT
B-43 21+15 42 RT
B-44 18+28 15 RT
B-45 17+05 5 LT
B-46 19+09 10 RT
B-47 17+45
B-48 19+46 21 LT
B-49 21+66
B-16
B-17 22+05

ST Sta 18+07.58
ST Sta 19+74.36
ST Sta 17+61.24
ST Sta 18+57.07
PC Sta 31+28.61
PT Sta 74+36.88
Sta 20+77.86
PNC 89+37.67
PNC 35+05.86

RPA
RPB
RPC
RPD

150' TAPER
GRAU-350
N 88° 41' 48.9" E
N 8° 12' 08.9" W
N 8° 07' 12.4" W
N 82° 45' 20.0" W
S 82° 46' 51.0" E
N 80° 14' 50.8" E
I-40 WBL 24' CONC
I-40 EBL 24' CONC
72' CONC DITCH
60' CONC DITCH
66' CONC DITCH
ISBRD
RIP RAP
EXISTING R/W

5/14/99

ARCADIS G & M of North Carolina, Inc. WWW.ARCADIS-US.COM	PROJECT REFERENCE NO.	SHEET NO.
801 Corporate Center Drive, Suite 300 Raleigh, NC 27607-5073 Tel: 919/854-1282 Fax: 919/854-5448	U-2551	10/73
	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

-SR1-
PI Sta 10+92.24
Δ = 6° 31' 14.0" (RT)
D = 7° 38' 22.0"
L = 85.35'
T = 42.72'
R = 750.00'
SE = NC
DS = 40 MPH

-Y9-
PI Sta 11+42.26
Δ = 6° 24' 53.9" (RT)
D = 4° 10' 58.6"
L = 153.36'
T = 76.76'
R = 1,369.75'
SE = SEE PLANS
DS = 20 MPH

PI Sta 12+51.52
Δ = 4° 35' 35.4" (RT)
D = 7° 02' 11.9"
L = 65.27'
T = 32.65'
R = 814.25'
SE = SEE PLANS
DS = 15 MPH

-L-
PI Sta 92+70.47
Δ = 16° 20' 06.0" (RT)
D = 2° 29' 28.0"
L = 655.73'
T = 330.10'
R = 2,300.00'
SE = .03
DS = 40 MPH

MATCHLINE STA 82+50 -L- SEE SHEET 9

MATCHLINE STA 95+00 -L- SEE SHEET 11

POT Sta. 10+00.00
PC Sta. 10+65.50
POT Sta. 10+00.00
PC Sta. 10+49.52
-SR1- POT Sta. 10+00.00=
-SR2- POC Sta. 10+69.00
BEG.CONSTR.STA 10+10.00
BEG.CONSTR.STA 11+84.82
PCC Sta. 12+18.86
-Y9- POC Sta. 12+33.00=
-SR1- POT Sta. 12+23.02
PT Sta. 12+84.14
-L- POC STA 92+61.44 =
-Y10- POT STA 10+00.00
-L- POT STA 85+00.00
-Y9- POT STA 14+32.64
END CONSTR.STA 11+20.00

2010 ADT
2030 ADT
NC GRID 35
ENOLA RD.
GOVERNMENT DRIVE
MOBILE HOME PARK ENTRANCE -Y9-
DRIVEWAY
BRICK ST. -Y10-
HOUSTON HOSPITAL HISTORIC DISTRICT

County of Burke DB 798 PG 433
SECU DB 715 PG 737
HOWARD J. MULL ET AL DB 843 PG
HISTORIC MULL STORE & HOUSE
WILLIE COFFEY & HOMER D. COFFEY D.B. 239, PG. 187
D.B. 222, PG. 66
ROGER D. HASTINGS & MILLIE C. HASTINGS D.B. 824, PG. 250
RALPH L. DALE D.B. 550, PG. 452
HILDA KAY YOUNT D.B. 862, PG.
JACK LEE EDGE, JR. & RHONDA G. EDGE D.B. 871, PG. 1553
JACK L HUFFMAN & AUDRY S HUFFMAN D.B. 785 PG. 294
HOMER HINES COFFEY & MAXINE O. COFFEY
JOE MILLER SELF & VELMA ELIZABETH MILLER SELF
JACK LEE EDGE, SR. & JO BUCHANON EDGE D.B. 757, PG. 182
PRIVATE DRIVE OWNERSHIP UNKNOWN

100' DUKE POWER TRANSMISSION LINE RIGHT OF WAY NO DEED REFERENCE

1'-6" CURB & GUTTER

B-18 B-19 B-20 B-21 B-22

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GEOPAK_ANALYSIS_$$$$
GEOPAK_ENGINE_$$$$

5/14/99

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
U-2551	11
R/W SHEET NO.	73
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE STA 95+00 -L-
SEE SHEET 10

MATCHLINE STA 108+00 -L-
SEE SHEET 12

WESTERN PIEDMONT COMMUNITY COLLEGE

NORTH CAROLINA STATE BROUGHTON HOSPITAL

BROUGHTON HOSPITAL ENTRANCE

2010 ADT
2030 ADT

ENOLA RD.

OLD NC 10

BEG.CONSTR.STA 10+60.00

-DWY1-
PI Sta 10+80.36
Δ = 40° 06' 58.6" (RT)
D = 114° 35' 29.6"
L = 35.01'
T = 18.26'
R = 50.00'
SE = NC
DS = 10 MPH

-Y12-
PI Sta 11+10.21
Δ = 49° 00' 04.4" (RT)
D = 35° 48' 35.5"
L = 136.84'
T = 72.92'
R = 160.00'
SE = SE PLANS
DS = 20 MPH

-Y12-
PI Sta 13+32.70
Δ = 49° 55' 18.6" (LT)
D = 13° 28' 52.9"
L = 303.54'
T = 158.57'
R = 425.00'
SE = SEE PLANS
DS = 20 MPH

-Y12- POT Sta. 10+00.00=
-Y11- POC Sta. 11+51.53

BEG.CONSTR.POT Sta. 10+00.00
PC Sta. 10+62.11
PT Sta. 10+97.12

PCSta. 10+37.29

-DWY1- POT Sta. 11+15.64=
-Y12- POC Sta. 11+63.59=
PRCSta. 11+74.13

-L- POC STA 104+93.00 =
-Y14- POC STA 11+58.44

PCSta. 11+02.82

-BL-12 PINC 6.50% TAPER
-BY4-87 POT 24+
-BY6-89 POT 11+76.75
5+00.00

-BL-11 PINC

1'-6" CURB & GUTTER

JANETTE K. LANGLEY

RANDY W. SMALL

DALE M. BARRIER & GINA L. BARRIER

JIMMY DANIEL REECE

ALAN B. ANTON
TERESA S. ANTON

FRED J. WHALEN
KENNETH P. WHALEN

DONNA ELAINE ROSS

RICHARD J. DALE

SANDRA D. ROPER

BEG.CONSTR.STA 12+30.73

PT Sta. 95+96.09

POT Sta. 10+00.00

PC Sta. 14+06.48

PCSta. 10+14.06

-L- POC STA 101+65.00 =
-Y11- POT STA 10+00.00
-Y13- POT STA 13+23.35

PT Sta. 14+81.96

BEG.CONSTR.STA 10+40.00

PCSta. 10+34.14

PT Sta. 14+17.61

POT Sta. 16+41.78

AREA OF EXISTING FILL

-BY4-34 POT 5+00.00

BROUGHTON RD 20' BST

-Y13-
PI Sta 14+46.60
Δ = 48° 03' 15.2" (LT)
D = 63° 39' 43.1"
L = 75.48'
T = 40.12'
R = 90.00'
SE = SEE PLANS
DS = 10 MPH

-L-
PI Sta 103+27.99
Δ = 13° 59' 10.0" (RT)
D = 3° 49' 11.0"
L = 366.16'
T = 183.98'
R = 1,500.00'
SE = .03
DS = 40 MPH

-Y14-
PI Sta 10+57.09
Δ = 1° 45' 09.5" (RT)
D = 3° 49' 11.0"
L = 45.88'
T = 22.94'
R = 1,500.00'
SE = SEE PLANS
DS = 40 MPH

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PROJECT REFERENCE NO.	SHEET NO.
U-2551	12/73
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

-L-
PI Sta 113+98.67
Δ = 6° 57' 06.0" (LT)
D = 3° 49' 11.0"
L = 181.99'
T = 91.11'
R = 1,500.00'
SE = .03
DS = 40 MPH

-Y15-
PI Sta 11+30.95
Δ = 20° 51' 44.8" (RT)
D = 14° 19' 26.2"
L = 145.65'
T = 73.64'
R = 400.00'
SE = SEE PLANS
DS = 35 MPH

2010 ADT
2030 ADT

BROUGHTON HOSPITAL ENTRANCE
750 1120
490 730
240 360
12210 18160
11920 17730
-L-
ENOLA RD.
90 140
50 80
SHADY REST RD.
-Y15-
150 250

NORTH CAROLINA STATE BROUGHTON HOSPITAL

MATCHLINE STA 108+00 -L-
SEE SHEET 11

MATCHLINE STA 17+00 -L-
SEE SHEET 13

AREA OF EXISTING FILL

APPROXIMATE LOCATION

-L- POT STA 116+40.00 =
-Y15- POT STA 12+43.37

PT Sta. 114+89.55

PC Sta. 113+07.56

PT Sta. 12+02.96

PCSta. 10+57.31

BEG:CONSTR.STA 10+45.00

POT Sta. 10+00.00

-BL-16 PINC
-BY8-91 POT

1'-6" CURB & GUTTER

6' CONC CURB

SLATE

CONC TANK

CONC

2SBKBUS

ISFBUS

ISBUS

ISFAPT

ISBKD

1½SFD

ISFD

2SFAPT

SHED

CHRISTOPHER LN 18' BST.

SHADY REST RD. 18' BST.

EXISTING R/W

60' CONC

50' TAPER

R=45'

TIM W. BUFF & CHARLOTTE S. BUFF

WHEELER DALE & GERNELL H. DALE

CITY OF MORGANTON

MARY ELMORE DEATON

LUPE ANNA MILLS

NANCY M. DEGOACH ET

MANLEY R. BARRIER & BEULAH B. BARRIER

DIMITRIOS VARELAS & ELENI Z. VARELAS

REAL ESTATE RENTALS

MARTHA WILKINS JUNE

WALTER E. DeHETRE
GRACE E. DeHETRE

B-34
B-32
B-36
B-37
B-38
B-50

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5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
U-2551	13/73
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

-L-
PI Sta 125+86.26
Δ = 30° 18' 54.0" (RT)
D = 20° 27' 46.0"
L = 148.15'
T = 75.85'
R = 280.00'
SE = SEE PLANS
DS = 30 MPH

-Y16-
PI Sta 15+26.26
Δ = 19° 44' 07.0" (RT)
D = 1° 59' 59.9"
L = 986.78'
T = 498.32'
R = 2,864.82'

AREA OF EXISTING FILL

NC GRID 83/95

MATCHLINE STA 120+00 -L-
SEE SHEET

END TIP PROJECT U-2551
-L- POT STA 127+08.55=
-Y16- POC STA 15+27.00

2010 ADT 2030 ADT
NC 18 25500 37460
-L- ENOLA RD. 11920 17730 8880 13200 80 120 240 370 BERRY ST. 2930 4360 50 80
NC 18 19220 28590

NORTH CAROLINA STATE BROUGHTON HOSPITAL
1'-6" CURB & GUTTER
JACK L. HUFFMAN & AUDREY S. HUFFMAN
PATRICK C. BARTHOLOMEW & LISA C. BARTHOLOMEW
SHARON LYNN EPLEY-BUFF
CHARLES A. BENNETT & MARY A. BENNETT
JOE JOHNSON
MILLIE J. BERNARD & LUCILLE T. BERNARD
CAROLYN M. McDANIEL & HARRY L. McDANIEL
DEPARTMENT OF TRANSPORTATION
LIFEGAINS INC.
ROBIN R. KISTLER
OLIVER LCARD & LILLIE LCARD
CLAUDE L. COFFEY & KATIE W. COFFEY
WILLIAM K. WADDELL & JO ANN TEAGUE WADDELL STATE FARM INSURANCE
ROBERT A. KELLY
MORGANTON HOUSING PARTNERSHIP
MATTHEWS STREET
BERRY ST.
NC 18 N STERLING ST
PC Sta. 10+60.00
PT Sta. 10+80.00
PC Sta. 10+61.68
POT 86+94.66
POT 12+69.80
POT 123+80
POT 125+58.55
POT Sta. 125+86.26
POT Sta. 126+34.24
POT Sta. 127+08.55
POT Sta. 127+30.47
POT Sta. 127+39.46
POT Sta. 127+46.75
POT Sta. 127+50.00
POT Sta. 127+53.54
POT Sta. 127+61.68
POT Sta. 127+68.82
POT Sta. 127+75.96
POT Sta. 127+83.10
POT Sta. 127+90.24
POT Sta. 127+97.38
POT Sta. 128+04.52
POT Sta. 128+11.66
POT Sta. 128+18.80
POT Sta. 128+25.94
POT Sta. 128+33.08
POT Sta. 128+40.22
POT Sta. 128+47.36
POT Sta. 128+54.50
POT Sta. 128+61.64
POT Sta. 128+68.78
POT Sta. 128+75.92
POT Sta. 128+83.06
POT Sta. 128+90.20
POT Sta. 128+97.34
POT Sta. 129+04.48
POT Sta. 129+11.62
POT Sta. 129+18.76
POT Sta. 129+25.90
POT Sta. 129+33.04
POT Sta. 129+40.18
POT Sta. 129+47.32
POT Sta. 129+54.46
POT Sta. 129+61.60
POT Sta. 129+68.74
POT Sta. 129+75.88
POT Sta. 129+83.02
POT Sta. 129+90.16
POT Sta. 129+97.30
POT Sta. 130+04.44
POT Sta. 130+11.58
POT Sta. 130+18.72
POT Sta. 130+25.86
POT Sta. 130+33.00
POT Sta. 130+40.14
POT Sta. 130+47.28
POT Sta. 130+54.42
POT Sta. 130+61.56
POT Sta. 130+68.70
POT Sta. 130+75.84
POT Sta. 130+82.98
POT Sta. 130+90.12
POT Sta. 130+97.26
POT Sta. 131+04.40
POT Sta. 131+11.54
POT Sta. 131+18.68
POT Sta. 131+25.82
POT Sta. 131+32.96
POT Sta. 131+40.10
POT Sta. 131+47.24
POT Sta. 131+54.38
POT Sta. 131+61.52
POT Sta. 131+68.66
POT Sta. 131+75.80
POT Sta. 131+82.94
POT Sta. 131+90.08
POT Sta. 131+97.22
POT Sta. 132+04.36
POT Sta. 132+11.50
POT Sta. 132+18.64
POT Sta. 132+25.78
POT Sta. 132+32.92
POT Sta. 132+40.06
POT Sta. 132+47.20
POT Sta. 132+54.34
POT Sta. 132+61.48
POT Sta. 132+68.62
POT Sta. 132+75.76
POT Sta. 132+82.90
POT Sta. 132+90.04
POT Sta. 132+97.18
POT Sta. 133+04.32
POT Sta. 133+11.46
POT Sta. 133+18.60
POT Sta. 133+25.74
POT Sta. 133+32.88
POT Sta. 133+40.02
POT Sta. 133+47.16
POT Sta. 133+54.30
POT Sta. 133+61.44
POT Sta. 133+68.58
POT Sta. 133+75.72
POT Sta. 133+82.86
POT Sta. 133+90.00
POT Sta. 133+97.14
POT Sta. 134+04.28
POT Sta. 134+11.42
POT Sta. 134+18.56
POT Sta. 134+25.70
POT Sta. 134+32.84
POT Sta. 134+39.98
POT Sta. 134+47.12
POT Sta. 134+54.26
POT Sta. 134+61.40
POT Sta. 134+68.54
POT Sta. 134+75.68
POT Sta. 134+82.82
POT Sta. 134+89.96
POT Sta. 134+97.10
POT Sta. 135+04.24
POT Sta. 135+11.38
POT Sta. 135+18.52
POT Sta. 135+25.66
POT Sta. 135+32.80
POT Sta. 135+39.94
POT Sta. 135+47.08
POT Sta. 135+54.22
POT Sta. 135+61.36
POT Sta. 135+68.50
POT Sta. 135+75.64
POT Sta. 135+82.78
POT Sta. 135+89.92
POT Sta. 135+97.06
POT Sta. 136+04.20
POT Sta. 136+11.34
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POT Sta. 189+30.64
POT Sta. 189+37.78
POT Sta. 189+44.92
POT Sta. 189+52.06
POT Sta. 189+59.20
POT Sta. 189+66.34
POT Sta. 189+73.48
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POT Sta. 190+02.04
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POT Sta. 190+44.88
POT Sta. 190+52.02
POT Sta. 190+59.16
POT Sta. 190+66.30
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POT Sta. 190+80.58
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POT Sta. 190+94.86
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POT Sta. 191+37.70
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POT Sta. 191+66.26
POT Sta. 191+73.40
POT Sta. 191+80.54
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POT Sta. 191+94.82
POT Sta. 192+01.96
POT Sta. 192+09.10
POT Sta. 192+16.24
POT Sta. 192+23.38
POT Sta. 192+30.52
POT Sta. 192+37.66
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POT Sta. 193+94.74
POT Sta. 194+01.88
POT Sta. 194+09.02
POT Sta. 194+16.16
POT Sta. 194+23.30
POT Sta. 194+30.44
POT Sta. 194+37.58
POT Sta. 194+44.72
POT Sta. 194+51.86
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POT Sta. 197+51.74
POT Sta. 197+58.88
POT Sta. 197+66.02
POT Sta. 197+73.16
POT Sta. 197+80.30
POT Sta. 197+87.44
POT Sta. 197+94.58
POT Sta. 198+01.72
POT Sta. 198+08.86
POT Sta. 198+16.00
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POT Sta. 203+58.64
POT Sta. 203+65.78
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POT Sta. 205+79.98
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POT Sta. 206+01.40
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POT Sta. 207+72.76
POT Sta. 207+79.90
POT Sta. 207+87.04
POT Sta. 207+94.18
POT Sta. 208+01.32
POT Sta. 208+08.46
POT Sta. 208+15.60
POT Sta. 208+22.74
POT Sta. 208+29.88
POT Sta. 208+37.02
POT Sta. 208+44.16
POT Sta. 208+51.30
POT Sta. 208+58.44
POT Sta

PROJECT REFERENCE NO.	SHEET
R-2551	14/73

-Y8- at RPD

0 100 200
FEET

-Y8-
PI Sta 41+71.68
Δ = 30° 32' 47.4" (LT)
D = 1° 29' 59.8"
L = 2,036.49'
T = 1,043.07'
R = 3,819.83'

-RPD-

PIs Sta 12+07.14	PI Sta 15+08.91	PIs Sta 18+07.75
Θs = 4° 46' 28.7"	Δ = 16° 34' 31.5" (RT)	Θs = 4° 46' 28.7"
Ls = 250.00'	D = 3° 49' 11.0"	Ls = 250.00'
LT = 166.73'	L = 433.94'	LT = 166.73'
ST = 83.39'	T = 218.50'	ST = 83.39'
	R = 1,500.00'	
	SE = .08	
	DS = 65 MPH	

B-42
23+60
44 RT

B-43
21+15
42 RT

B-44
18+28
15 RT

B-45
47+00
152 LT

150' TAPER

-RPD- N 82° 45' 20.0" W

ST Sta. 19+74.36

CS Sta. 17+24.36

-BY1-24 PINC

-BY1-23 PINC
35+05.86

40+79.47

N 80° 14' 50.8" E

N 88° 41' 48.9" E

N 71° 34' 52.2" E

S 71° 01' 11.0" W

S 18° 25' 54" E

-RPC- PC Sta. 12+90.41

-RPC- CS Sta. 30+48.85

-RPC- PC Sta. 30+00.00

-RPC- PT Sta. 24+71.58

-RPC- PT Sta. 23+95.90

-RPC- PC Sta. 22+95.00

B-16
19+09
10 RT

B-14
17+05
5 LT

B-17
22+05

CS Sta. 16+57.07

ST Sta. 18+57.07

CS Sta. 14+00.00

CS Sta. 12+00.00

R=50'

R=120'

GRAU-350

EXISTING R/W

R/W MON.

48" WW&25BW

72" CONC DITCH

66" CONC DITCH

60" CONC DITCH

I-40 WBL 24' CONC

I-40 EBL 24' CONC

20' C&G

18" C&G

45' BST

10' BST

4' BST

3' BST

ISBRO

TOP=1152.21
IN SW=1147.08
IN NW=1146.98
OUT=1146.98

TOP=1151.77
IN=1147.27
OUT=1147.17

TOP=1152.38
IN NW=1147.68
IN SW=1147.58
OUT=1147.48

TOP=1152.47
IN=1147.97
OUT=1147.87

TOP=1152.38
IN=1147.88
OUT=1147.78

48" WW&25BW
IN=1147.28
OUT=1147.18

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5/14/99

ARCADIS
G & M of North Carolina, Inc.
WWW.ARCADIS-US.COM
801 Corporate Center Drive, Suite 300
Raleigh, NC 27607-5073
Tel: 919/854-1282 Fax: 919/854-5448

PROJECT REFERENCE NO.	SHEET NO.
U-2551	15 / 73
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

-RPD-
PIs Sta 12+07.14
θs = 4° 46' 28.1"
Ls = 250.00'
LT = 166.73'
ST = 83.39'

-Y8-
PI Sta 41+71.68
Δ = 30° 32' 47.4" (LT)
D = 1° 29' 59.8"
L = 2,036.49'
T = 1,043.07'
R = 3,819.83'

MATCHLINE STA 51+00
SEE SHEET 9

PT Sta. 51+65.10

-RPD- POT Sta. 10+00.00=
-Y8- POT Sta. 52+50.00 38.4 RT
S 3° 24' 0" E

S 71° 07' 11.0" W

AREA OF EXISTING F'ILL

-BY1- BM#8
STA. 55+41.42
129.34' LEFT
ELEV.= 1110.12

POT Sta. 62+92.06

N 67° 38' 26.5" E

N 67° 43' 10.0" E

N17°26'19"W
257.34'

SR 1924 OLD NC 18

24" CONC

SAS/16W LN

84" BST

-Y8-

60" CONC DITCH

18" CONC

66" CONC DITCH

OUTLET PIT FOUND

564+78.71

44" WW&2SBW

18" CMP

TOP=1027.16
IN=1098.66
OUT=1098.82

1-40 WBL 24' CONC

1-40 EBL 24' CONC

4' FDPS

10' FS

12' FS

12"

8" CONC

12" CMP

TOP=1024.24
IN=1023.74

TOP=1027.16
IN=1098.66
OUT=1098.82

12 1.0X1.8 LONG BOX CULVERT

TOP=1027.59
IN=1097.59
OUT=1097.49

TIE TO EXIST. G/R

600' FULL

360' UNIFORM TAPER

EXISTING R/W

EXISTING R/W

EOP

56+50
100 RT

58+00
100 RT

6-56

6-67

SR 1979 MICA AVE

GR

ISFBUS

ROCK WALL

ABOVE GROUND SEWER LINE

12" CONC
INV=1104.50

15" CMP
INV=1102.06

SWF

INV=1104.35

INV=1104.42

INV=1097.49

485.11'
S9°27'59"W

FLOOD PLAIN

WORK BEING DONE ONLY ON RAMPS

30-APR-2009 08:46
USER NAME = mwilson
DESIGN NAME = 699_GEOTECH\PlanProf\U2551_GEO_ps1_15.dgn

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2551	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

1240 1230 1220 1210 1200 1190 1180 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050 1040

B-33
16+70
15 LT

B-34
20+55
℄

B-35
22+51
℄

RESIDUAL, TAN, MOTTLED, SLIGHTLY SANDY SILTY CLAY; MOIST

RESIDUAL, RED, SILTY CLAY; MOIST

RESIDUAL, RED, SILTY CLAY; MOIST

EMBANKMENT, BROWN/RED, SILTY CLAY; MOIST

SAPROLITE, PINK, MOTTLED, SILT W/ TRACE MICA; MOIST

SAPROLITE, TAN/GRAY SANDY SILT; MOIST

SAPROLITE, TAN, SANDY SILT; MOIST

B.T.
DRY

B.T.
DRY

B.T.
DRY

6 12 7 6 9 10 12 12 6 9 9

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00

-RPA-

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$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2551	17/73
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

1240 1230 1220 1210 1200 1190 1180 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050 1040

B-47
17+45
℄

B-48
19+46
21 LT

B-49
21+66
℄

EMBANKMENT, RESIDUAL BROWN CLAY; MOIST

RESIDUAL, RED, SILTY CLAY; MOIST

SAPROLITE, PINK/WHITE, SANDY SILT; MOIST

B.T.
DRY

ROADWAY EMBANKMENT, BROWN SILTY CLAY; MOIST

RESIDUAL, RED, MOTTLED, SLIGHTLY SANDY SILTY CLAY; MOIST

03/09

B.T.

EMBANKMENT, BROWN CLAY; MOIST

RESIDUAL, RED, SILTY CLAY; MOIST

SAPROLITE, TAN/RED SANDY SILT

B.T.
DRY

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00

-RPB-

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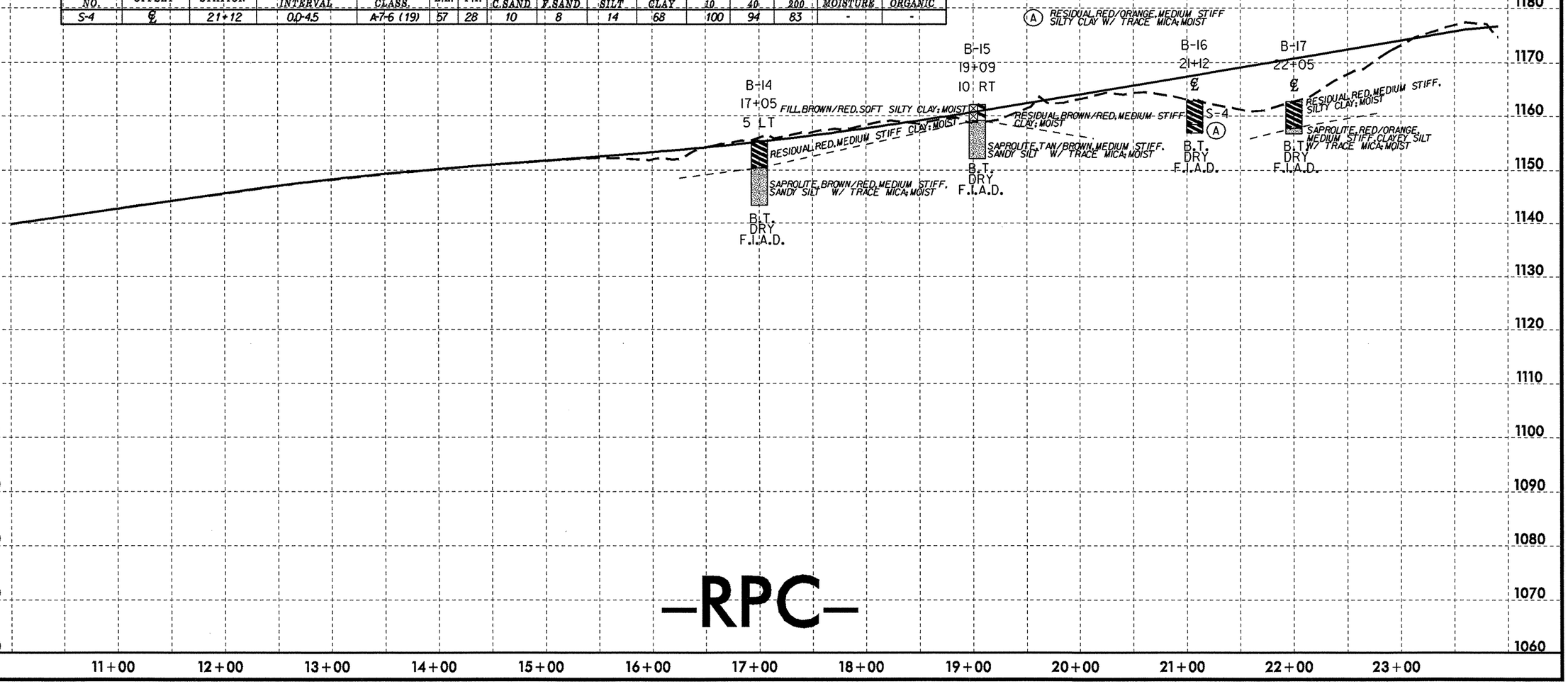
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2551	18/73
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 C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-4	℄	21+12	0.0-4.5	A-7-6 (19)	57	28	10	8	14	68	100	94	83	-	-



-RPC-

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PROJECT REFERENCE NO.	SHEET NO.
U-2551	19/23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

1250 1240 1230 1220 1210 1200 1190 1180 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050

B-44
18+28
15 RT

RESIDUAL, RED, SLIGHTLY SANDY, SILTY CLAY; MOIST

SAPROLITE, RED/PINK, SANDY SILT; MOIST

RESIDUAL, RED, SILTY CLAY; MOIST

SAPROLITE, RED/TAN SANDY SILT

B.T.
DRY

B-43
21+15
42 RT

15 8 9 9 11

B.T.
DRY

B-42
23+60
44 RT

RESIDUAL, RED, SILTY CLAY; MOIST

14 10 9 11

SAPROLITE, WHITE/TAN/PINK SANDY SILT; MOIST

B.T.
DRY

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00

-RPD-

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8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
U-2551	20/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1255
1250
1245
1240
1235

12+00.00

1255
1250
1245
1240
1235
1230
1225
1220

B-I
11+50
28 RT

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

SAPROLITE, ORANGE, MEDIUM STIFF, SANDY SILT; MOIST

B.T.
DRY
F.I.A.D.

11+50.00

-L-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	21

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1255 1250 1245 1240 1235 1230 1225

B-2
13+00
30 LT

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

SAPROLITE, ORANGE-YELLOW, MEDIUM STIFF, SANDY SILT; MOIST

SAPROLITE, TAN, MEDIUM DENSE SILTY SAND WITH SMALL MINERAL FRAGMENTS; DRY

B.T.
DRY
F.I.A.D.

13+00.00

1255 1250 1245 1240 1235

12+50.00

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	22/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1230 1225 1220 1215

17+00.00

1240 1235 1230 1225 1220 1215 1210 1205

B-3
16+50
15 RT

EMBANKMENT, RED, SOFT TO MEDIUM STIFF, SILTY CLAY; MOIST

RESIDUAL, ORANGE, MEDIUM STIFF, SILTY CLAY; MOIST

SAPROLITE, ORANGE AND YELLOW, MEDIUM STIFF, SANDY SILT; MOIST

B.T.
DRY
F.I.A.D.

16+50.00

—L—

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	23/23

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1225
1220
1215
1210
1205
1200

B-4
20+00
15 RT

EMBANKMENT, BROWN, SOFT TO MEDIUM STIFF, SILTY CLAY; MOIST

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

01/09

B.T.
DRY
F.I.A.D.

20+00.00

19+50.00

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0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
U-2551	24/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1225
1220
1215
1210
1205
1200
1195

B-5
24+00
27 LT

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

SAPROLITE, ORANGE, MEDIUM STIFF, SANDY SILT; MOIST

SAPROLITE, WHITE AND GREY, MEDIUM DENSE, SILTY SAND; MOIST

B.T.
DRY
F.I.A.D.

24+00.00

1225
1220
1215
1210
1205

23+50.00

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
U-2551	25 OF 73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1220
1215
1210
1205

27+00.00

1220
1215
1210
1205
1200
1195
1190

B-6
26+50
20' RT

FILL, BROWN, SANDY CLAY

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

RESIDUAL, RED-YELLOW, SANDY SILT; MOIST

SAPROLITE, YELLOW-BROWN-WHITE, MEDIUM DENSE SILTY SAND; DRY

B.T.
DRY
F.I.A.D.

26+50.00

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	26 / 73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1215 1210 1205 1200 1195 1190 1185

B-7
29+00
25 RT

FILL, BROWN, RED SILTY SILTY CLAY

S-1 RESIDUAL, RED, MEDIUM STIFF, CLAY; MOIST

SAPROLITE, RED, MEDIUM STIFF, CLAYEY SANDY SILT; MOIST

SAPROLITE, DARK BROWN, MEDIUM STIFF SANDY SILT; MOIST

SAPROLITE, ORANGE/YELLOW, LOOSE TO MEDIUM DENSE SILTY SAND; DRY

B.T.
DRY
F.I.A.D.

29+00.00

28+50.00

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1215 1210 1205 1200

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	27/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1205
1200
1195
1190
1185
1180

32+00.00

1210
1205
1200
1195
1190
1185
1180
1175

B-8
31+50
25 LT

FILL, RED, MEDIUM STIFF, SILTY CLAY, MOIST

RESIDUAL, RED, MEDIUM STIFF, SANDY SILTY CLAY, MOIST

SAPROLITE, WHITE/BLACK, MEDIUM DENSE SILTY SAND, DRY

B.T.
DRY
F.I.A.D.

31+50.00

—L—

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	28B/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1200
1195
1190
1185
1180
1175
1170

B-9
33+00
15 RT

FILL, RED, SILTY CLAY, MOIST

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; DRY

SAPROLITE, WHITE, LOOSE SILTY SAND; DRY

SAPROLITE, ORANGE, MEDIUM STIFF, SANDY SILT; DRY

B.T.
DRY
F.I.A.D.

33+00.00

1200
1195
1190
1185
1180
1175

32+50.00

—L—

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	29 OF 73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1180
1175
1170
1165

39+50.00

1185
1180
1175
1170
1165
1160
1155

B-10
39+00
32 LT

FILL, RED, SILTY CLAY; MOIST

RESIDUAL, RED, SOFT TO MEDIUM STIFF, SILTY CLAY; MOIST

SAPROLITE, MOTTLED, RED/ORANGE, SOFT TO MEDIUM STIFF, SILTY SANDY CLAY; MOIST TO WET

B.T.
DRY
F.I.A.D.

39+00.00

—L—

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	30/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1175
1170
1165
1160
1155
1150
1145

B-11
52+00
30 LT

S-2 RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

S-3 SAPROLITE, ORANGE AND TAN, MEDIUM STIFF SANDY SILT; MOIST

B.T.
DRY
F.I.A.D.

52+00.00

1175
1170
1165
1160
1155
1145

51+50.00

$-\mathcal{L}-$

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	31/73

B-12
54+00
32 LT

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

SAPROLITE, ORANGE/TAN/WHITE, MEDIUM STIFF, SANDY SILT W/ TRACE MICA

B.T.
DRY
F.I.A.D.

54+00.00

53+50.00

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8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
U-2551	32 / 73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1180
1175
1170
1165
1160
1155

B-13
65+50
20 RT

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

RESIDUAL, TAN, MEDIUM STIFF, SLIGHTLY SANDY SILT W/TRACE MICA; MOIST

B.T.
DRY
F.I.A.D.

65+50.00

—L—

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1180
1175
1170
1165
1160
1155

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0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	33/73

B-46
75+15
45 LT

EMBANKMENT, TAN/RED SILTY CLAY; MOIST

5
8
8
13
10
11
10
12
11
12
16
11
18
19
17
20
29
23
41
39
100/0.5
68

SAPROLITE, RED/TAN/WHITE, MOTTLED SANDY SILT ; MOIST

03/09

SAPROLITE, WHITE/TAN, FINE SANDY SILT W/ TRACE MICA AND NUMEROUS SILTY SAND LAYERS; MOIST

WEATHERED ROCK, GRANITIC

SAPROLITE, TAN, SILTY SAND W/ TRACE MICA; MOIST

B.T.

75+00.00

—L—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1200 1190 1180 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050

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8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	24/23

B-41
77+35
46 LT

SS-1 (11)
SS-2 (8) (9)
SS-3 (10) (11) (11)
SS-4 (12) (15) (14) (9) (15) (13) (12) (23) (23) (32) (15) (15)

EMBANKMENT, BROWN/RED, SILTY CLAY; MOIST

RESIDUAL, RED, SILTY CLAY; MOIST

02-09

SAPROLITE, BROWN/TAN/WHITE SANDY SILT ; MOIST

SAPROLITE, WHITE/TAN, SILTY SAND W/TRACE MICA; MOIST

SAPROLITE, TAN, SANDY SILT; MOIST

B.T.

77+50.00

—L—

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	37 73

B-18
83+00
25 LT

RESIDUAL, RED/BROWN, MEDIUM STIFF, SILTY CLAY; MOIST

SAPROLITE, ORANGE, MEDIUM STIFF, SANDY SILT W/ TRACE MICA; MOIST

B.T.
DRY
F.I.A.D.

83+00.00

82+50.00

—L—

1185
1180
1175
1170
1165
1160

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	36/72

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1185 1180 1175 1170 1165 1160 1155

B-19
86+00
10 RT

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

SAPROLITE, ORANGE/TAN, MEDIUM STIFF, SILT W/ TRACE MICA; MOIST

B.T.
DRY
F.I.A.D.

86+00.00

85+50.00

—L—

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1185 1180 1175 1170 1165

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	37 / 73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1190
1185
1180
1175

88+50.00

1190
1185
1180
1175
1170
1165
1160

B-20
88+00
10 RT

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

RED/ORANGE, MEDIUM STIFF, SANDY SILT W/TRACE MICA; MOIST

SAPROLITE, WHITE/TAN, MEDIUM STIFF, SANDY SILT; MOIST

B.T.
DRY
F.I.A.D.

88+00.00

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8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
U-2551	38 / 73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1200
1195
1190
1185
1180

91+50.00

B-21
91+00
℄

RESIDUAL, RED, MEDIUM STIFF CLAY; MOIST

SAPROLITE, TAN/ORANGE, MEDIUM STIFF SLIGHYTLY SANDY SILT; MOIST

SAPROLITE, WHITE/TAN, MEDIUM STIFF SANDY SILT; MOIST

B.T.
DRY
F.I.A.D.
91+00.00

1200
1195
1190
1185
1180
1175
1170

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	39 / 73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1205
1200
1195
1190
1185
1180

B-22
93+00
12 LT

RESIDUAL, RED, MEDIUM STIFF CLAY; MOIST

B.T.
DRY
F.I.A.D.

93+00.00

1205
1200
1195
1190
1185

92+50.00

—L—

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	40 / 73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1220
1215
1210
1205
1200

97+00.00

B-23
96+50
℄

RESIDUAL, RED, MEDIUM STIFF CLAY; MOIST

B.T.
DRY
F.I.A.D.
96+50.00

1195

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	41/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1225
1220
1215
1210
1205
1200

99+50.00

B-24
99+00
10 LT

S-5 RESIDUAL. RED. MEDIUM STIFF CLAY; MOIST

S-6 RED. MEDIUM STIFF SANDY SILT; MOIST

B.T.
DRY
F.I.A.D.

99+00.00

—L—

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1225
1220
1215
1210
1205
1200

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$$$$USERNAME$$$$

1225
1220
1215
1210
1205
1200

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	42 /123

101+50.00

101+00.00

FILL, BROWN/ RED CLAY; MOIST

B-25
101+00
60' RT

RESIDUAL, BROWN/ RED, MEDIUM STIFF CLAY W/ TRACE MICA; MOIST

B.T.
DRY

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	43 / 73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1215 1210 1205 1200 1195 1190

B-30
106+50
50 RT

FILL, BROWN, LOOSE, SILTY SAND W/ ANGULAR GRAVEL; MOIST

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

RED/ORANGE, MEDIUM STIFF, SLIGHTLY SANDY SILT; MOIST

B.T.
DRY
F.I.A.D.

106+50.00

106+00.00

—L—

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	44 / 72

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1225
1220
1215
1210

109+00.00

1225
1220
1215
1210
1205
1200
1195

B-31
108+50
18 RT

RED, MEDIUM DENSE, SILTY SAND W/ TRACE MICA; MOIST

ORANGE/TAN, MEDIUM STIFF, SLIGHTLY SANDY SILT W/ TRACE MICA; MOIST

SAPROLITE, WHITE/TAN, MEDIUM STIFF, SANDY SILT W/ ROCK FRAGMENTS; MOIST

WEATHERED ROCK

B.T.
DRY
F.I.A.D.

108+50.00

—L—

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	45/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1225
1220
1215
1210
1205

110+50.00

B-32
110+00
℄

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

SAPROLITE, RED/ORANGE, MEDIUM STIFF, SANDY SILT W/TRACE MICA; MOIST

B.T.
DRY
F.I.A.D.
110+00.00

℄

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	46/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1215
1210
1205
1200
1195
1190

B-36
113+00
20 LT

FILL, BROWN/TAN, SILTY SAND W/ GRAVEL; MOIST

SAPROLITE, RED, MEDIUM STIFF, SANDY SILT W/ TRACE MICA; MOIST

B.T.
DRY
F.I.A.D.

113+00.00

112+50.00

—L—

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1215
1210
1205
1200
1195
1190

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	47/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1180
1175
1170
1165
1160

117+50.00

B-37
117+00
40 LT

FILL, BROWN/RED, SILTY SAND W/ GRAVEL; MOIST

RESIDUAL, RED, MEDIUM STIFF, SLIGHTLY SANDY SILTY CLAY; MOIST

B.T.
DRY
F.I.A.D.

117+00.00

1185
1180
1175
1170
1165
1160

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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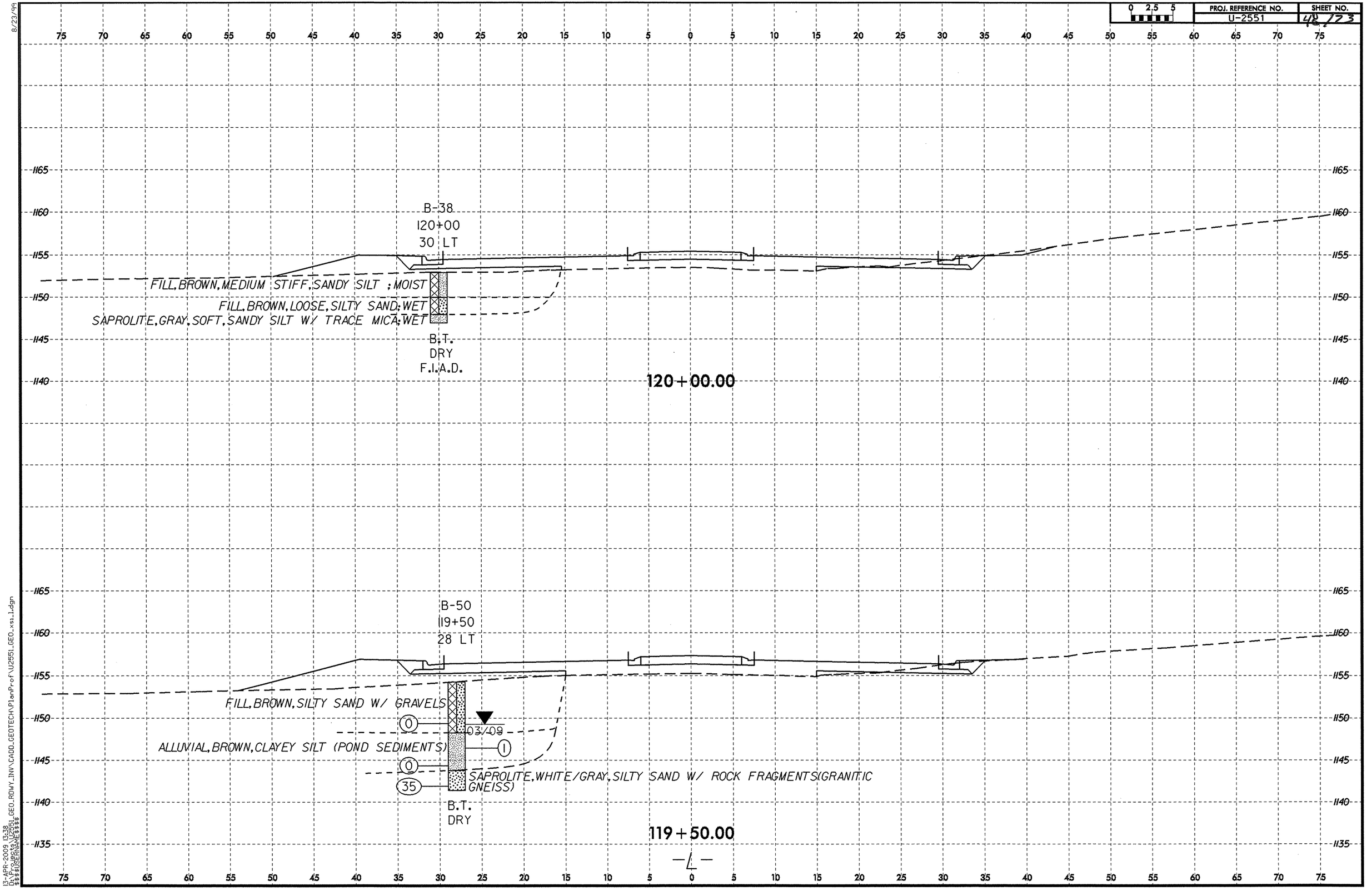

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET, NO.
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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1165
1160
1155
1150
1145

121+00.00

B-51
120+50
27 LT

FILL, RED/BROWN, SANDY SILTY CLAY W/ GRAVELS; MOIST

FILL, BROWN SILT W/ COAL AND GRAVELS; MOIST

ALLUVIAL, SILT W/ SAND LAYERS AND GRAVELS; MOIST

(2) (5) (2) (6) (6)

B.T.
DRY
F.I.A.D.

120+50.00

1165
1160
1155
1150
1145
1140
1135

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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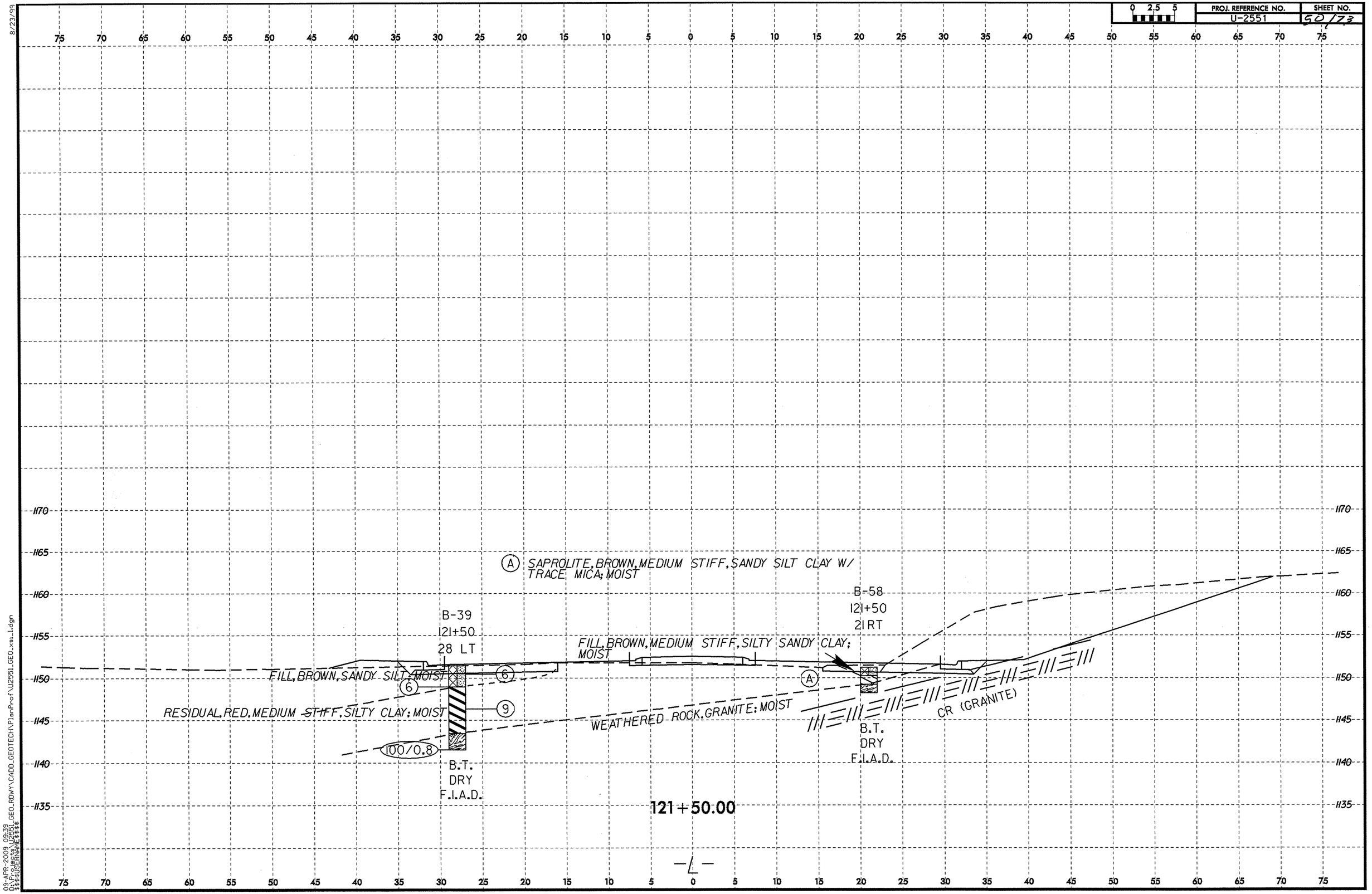
	U-2551	50/73



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PROJ. REFERENCE NO.	SHEET NO.
U-2551	51 / 7.3

0 2.5 5

B-40
122+50
35 LT

FILL, BROWN, SILTY CLAY; MOIST

8

4

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY ; MOIST

SAPROLITE, VERY DENSE, SILTY SAND

60

B.T.
DRY
F.I.A.D.

CR (GRANITE)

122+50.00

B-59
122+00
21 RT

SAPROLITE, BROWN, SILTY SAND W/ ROCK FRAGMENTS

B.T. on CR (GRANITE)
DRY
F.I.A.D.

122+00.00

—L—

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	52/73

B-52
123+50
28 LT

FILL, BROWN/RED, SILTY CLAY; MOIST — (8)

(10) RESIDUAL, BROWN/RED, SANDY, SILTY CLAY W/ ROCK FRAGMENTS; MOIST

(57) SAPROLITE, WHITE/GRAY, SANDY, CLAY W/ WEATHERED ROCK LAYERS (GRANITE); MOIST

B.T.
DRY
F.I.A.D.

CR (GRANITE)

123+50.00

B-60
123+00
20 RT

SAPROLITE, BROWN/RED, SANDY SILT W/ ROCK FRAGMENTS; MOIST

B.T. on CR (GRANITE)
DRY
F.I.A.D.

123+00.00

14-APR-2009 11:10
D:\projects\U2551\GEO_RDWY_INV\CADD_GEOTECH\PlanProf\U2551_GEO_xs1_1.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
U-2551	33 of 33

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1155 1150 1145 1140 1135 1130 1125 1120

B-53
124+50
28 LT

FILL, RED/BROWN, SILTY CLAY W/ BRICK, TIN, METAL AND SLATE FRAGMENTS; MOIST

3

3 RESIDUAL, RED/BROWN, SILTY CLAY; MOIST

3

13 SAPROLITE, SILTY SAND W/ WEATHERED ROCK LAYERS (GRANITE); MOIST

B.T.
DRY
F.I.A.D.

CR (GRANITE)

124+50.00

1160 1155 1150 1145 1140 1135 1130

B-61
124+00
23 RT

SAPROLITE, BROWN/RED, STIFF, SANDY SILT W/ ROCK FRAGMENTS; MOIST

B.T. on CR (GRANITE)
F.I.A.D.

124+00.00

—L—

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

09-APR-2009 09:40
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$$$$USERNAME$$$$

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
U-2551	54/73

B-55
126+60
65 LT

11 — FILL, BROWN/RED, SANDY SILTY CLAY W/ GRAVEL; MOIST
19
6
4
7
6 — RESIDUAL, BROWN/RED, SANDY SILTY CLAY W/ ROCK FRAGMENTS; MOIST

B.T.
DRY

126+50.00

B-54
125+80
21 LT

10 — FILL, BROWN, RED, SANDY SILTY CLAY W/ ASPHALT AND GRAVEL FRAGMENTS; MOIST
8
10 — RESIDUAL, BROWN, RED, SILTY CLAY; MOIST
5
7

B.T.
DRY
F.I.A.D.

126+00.00
—L—

09-APR-2009 09:40
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$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	55

B-33
16+70
15 LT

EMBANKMENT, BROWN/RED, SILTY CLAY, MOIST

(6)

(12) RESIDUAL, TAN, MOTTLED, SLIGHTLY SANDY SILTY CLAY; MOIST

(7) SAPROLITE, PINK, MOTTLED, SILT W/ TRACE MICA; MOIST

B.T.
DRY

16+70.00

16+20.00

15+70.00

-RPA-

16-JUN-2009 14:58
D:\Projects\OLD\U2551_GEO_ROWY_INV\CADD_GEOTECH\PlanProf\U2551_GEO_xsi_RPA.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	56/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1170
1165
1160
1155
1150
1145
1140
1135

21+05.00

B-34
20+55.00 R
℄

RESIDUAL, RED, SILTY CLAY; MOIST

⑥
⑨ SAPROLITE, TAN/PINK/WHITE/GRAY SANDY SILT; MOIST
⑩
⑫

B.T.
DRY

20+55.00

20+10.00

-RPA-

08-APR-2009 08:25
D:\Projects\U2551_GEO_RDWY\CADD_GEOTECH\PlanProf\U2551_GEO_xsi_1.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	S7173

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1185
1180
1175
1170
1165
1160
1155
1150
1146

B-35
22+51.00
℄

RESIDUAL, RED, SILTY CLAY; MOIST

12
6
9
9

SAPROLITE, TAN, SANDY SILT; MOIST

B.T.
DRY
22+51.42

22+00.00

21+55.00
-RPA-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

08-APR-2009 08:25
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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	58

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1150 1145 1140 1135 1130

17+95.00

1150 1145 1140 1135 1130 1125 1120 1115

B-47
17+45
℄

EMBANKMENT, BROWN CLAY; MOIST

6

RESIDUAL, RED, SILTY CLAY; MOIST

9

9

SAPROLITE, PINK/WHITE, MOTTLED, SANDY SILT; MOIST

7

B.T.
DRY
17+45.00
-RPB-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

01-APR-2009 13:17
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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	E9773

19+96.27

B-48
19+46
21 LT

EMBANKMENT, BROWN, SILTY CLAY; MOIST

6

18

RESIDUAL, RED, MOTTLED, SLIGHTLY SANDY SILTY CLAY

03/09

13

10

SAPROLITE, PINK/WHITE, MOTTLED, SANDY SILT

B.T.

19+46.27

-RPB-

01-APR-2009 13:17
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$$$$USERNAME$$$$

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET, NO.
	U-2551	60/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1170
1165
1160
1155
1150
1145
1140

B-49
21+66
℄

EMBANKMENT; BROWN CLAY; MOIST

10 RESIDUAL, RED, SILTY CLAY; MOIST

9 SAPROLITE, TAN/RED SANDY SILT

11

B.T.
DRY
21+66.27

-RPB-

01-APR-2009 13:17
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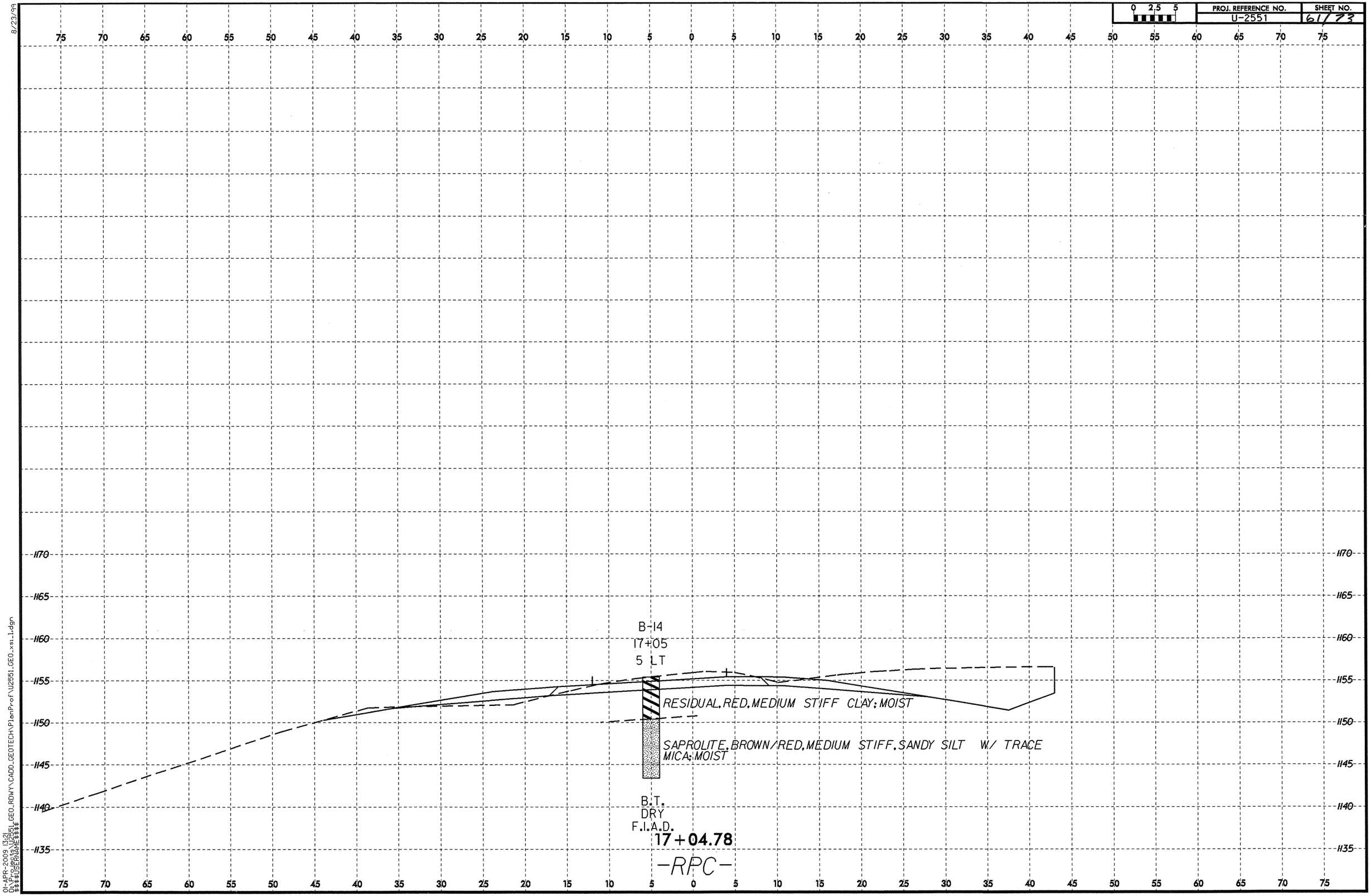
8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
U-2551	61 73



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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	62/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1175 1170 1165 1160 1155 1150 1145 1140 1135 1130

B-15
19+09
10 RT

FILL, BROWN/RED, SOFT SILTY CLAY; MOIST

SAPROLITE, WHITE/BROWN, MEDIUM STIFF, SANDY SILT W/ TRACE MICA; MOIST

B.T.
DRY
F.I.A.D.

19+07.00

-RPC-

07-APR-2009 08:02
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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	63/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1185 1180 1175 1170 1165 1160 1155 1150 1145

B-17
22+05
℄
RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY, MOIST

SAPROLITE, RED/ORANGE, MEDIUM STIFF, CLAYEY SILT W/ TRACE MICA; MOIST

B.T.
DRY
F.I.A.D.
22+05.65

B-16
21+12
℄
S-4
RESIDUAL, BROWN/RED, MEDIUM STIFF CLAY; MOIST

RESIDUAL, RED/ORANGE, MEDIUM STIFF SILTY CLAY W/ TRACE MICA; MOIST

B.T.
DRY
F.I.A.D.
21+32.00

-RPC-

08-APR-2009 08:33
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$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	64 of 73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1175
1170
1165
1160
1155
1150
1145
1140

19+25.00

18+75.00

B-44
18+28
15 RT

RESIDUAL, RED, MEDIUM STIFF, SILTY CLAY; MOIST

SAPROLITE, RED/TAN MEDIUM STIFF, SANDY SILT

B.T.
DRY

18+28.00

-RPD-

08-APR-2009 12:58
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$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	65/73

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1185 1180 1175 1170 1165 1160 1155 1150 1145

21+65.00

B-43
21+15
42 RT

RESIDUAL, RED, SLIGHTLY SANDY, SILTY CLAY; MOIST

15
8
9
9
11

SAPROLITE, RED/PINK/TAN/WHITE, SANDY SILT ;

B.T.
DRY

21+15.00

-RPD-

08-APR-2009 12:58
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8/23/99

0 2.5 5

PROJ. REFERENCE NO. U-2551

SHEET NO. 66/73

B-42
23+60
44 RT

RESIDUAL, RED; SILTY CLAY; MOIST

SAPROLITE, WHITE/PINK/TAN SANDY SILT; MOIST

B.T.
DRY

23+60.89

-RPD-

08-APR-2009 12:58
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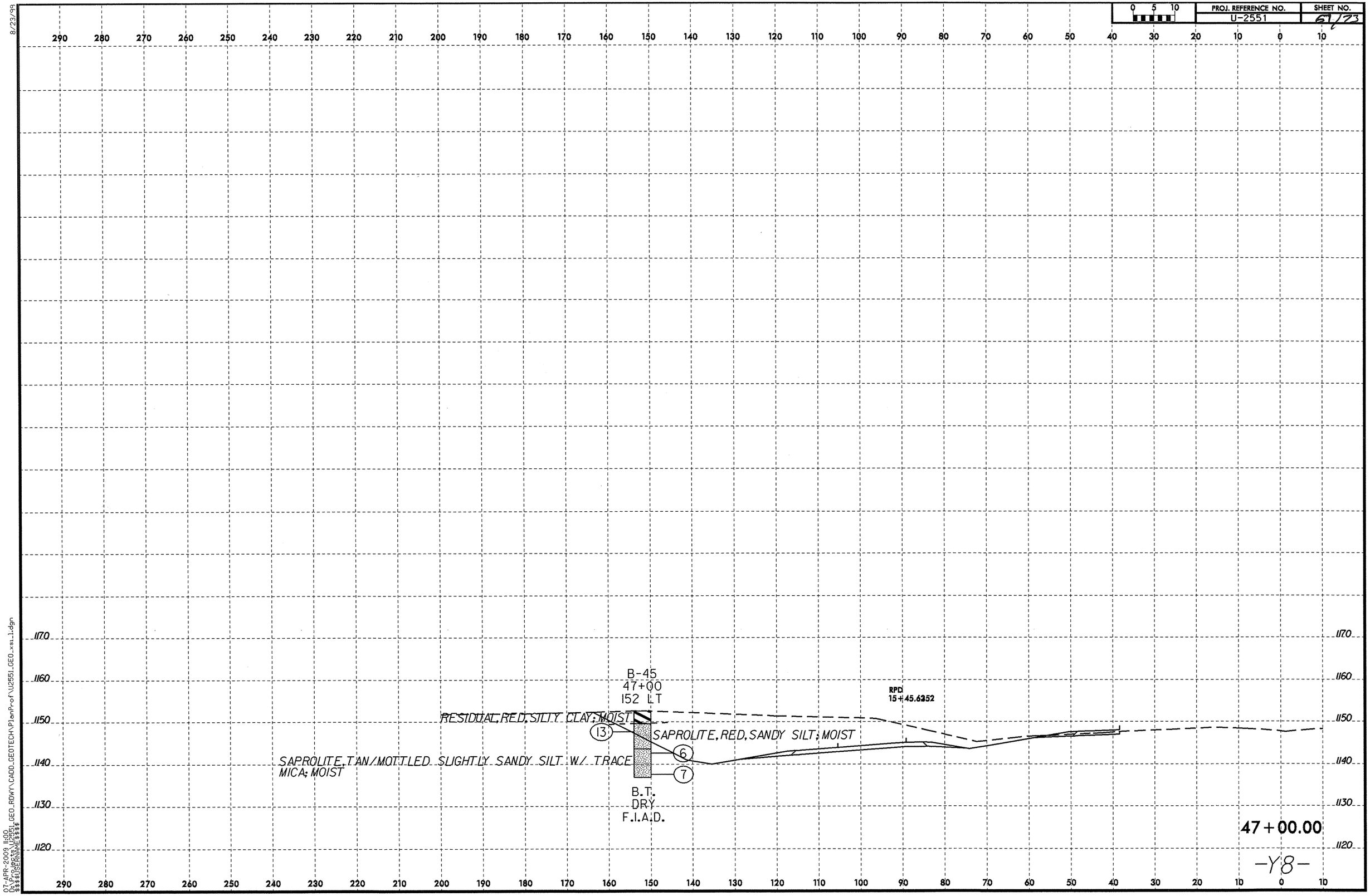
8/23/99

0 5 10

PROJ. REFERENCE NO. U-2551

SHEET NO. 67/73



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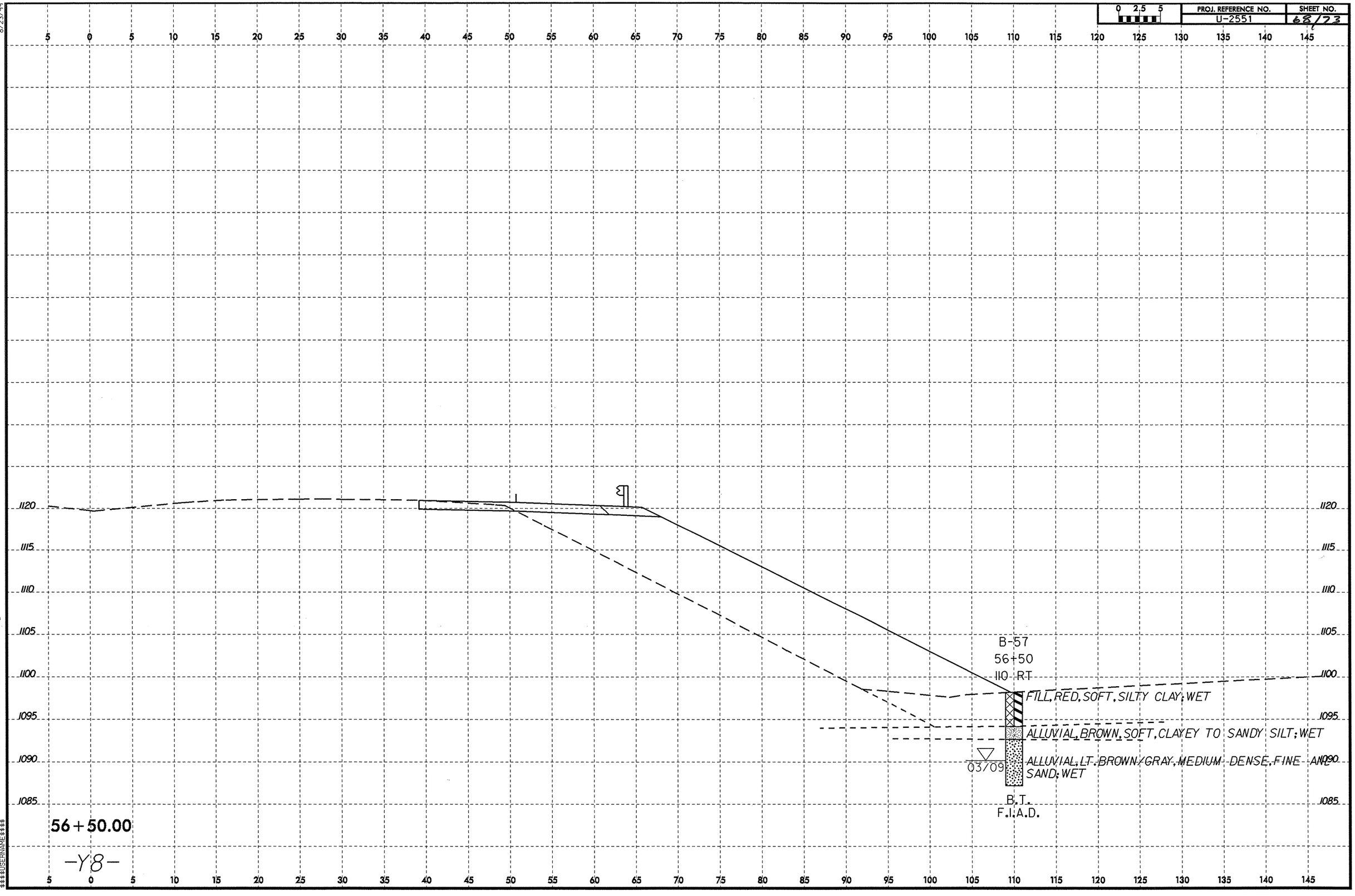
8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
U-2551	68/73



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$$$$USERNAME$$$$

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET, NO.
U-2551	69

B-56
58+00
100' RT

FILL, BROWN/RED, SOFT, SLIGHTLY SANDY, SILTY CLAY; MOIST

ALLUVIAL, DARK GRAY, SOFT, SLIGHTLY SANDY, CLAYEY SILT ; MOIST

ALLUVIAL, GRAY, SILTY FINE TO COARSE SAND; MOIST

B.T.

58+00.00

-Y8-

06-APR-2009 11:59
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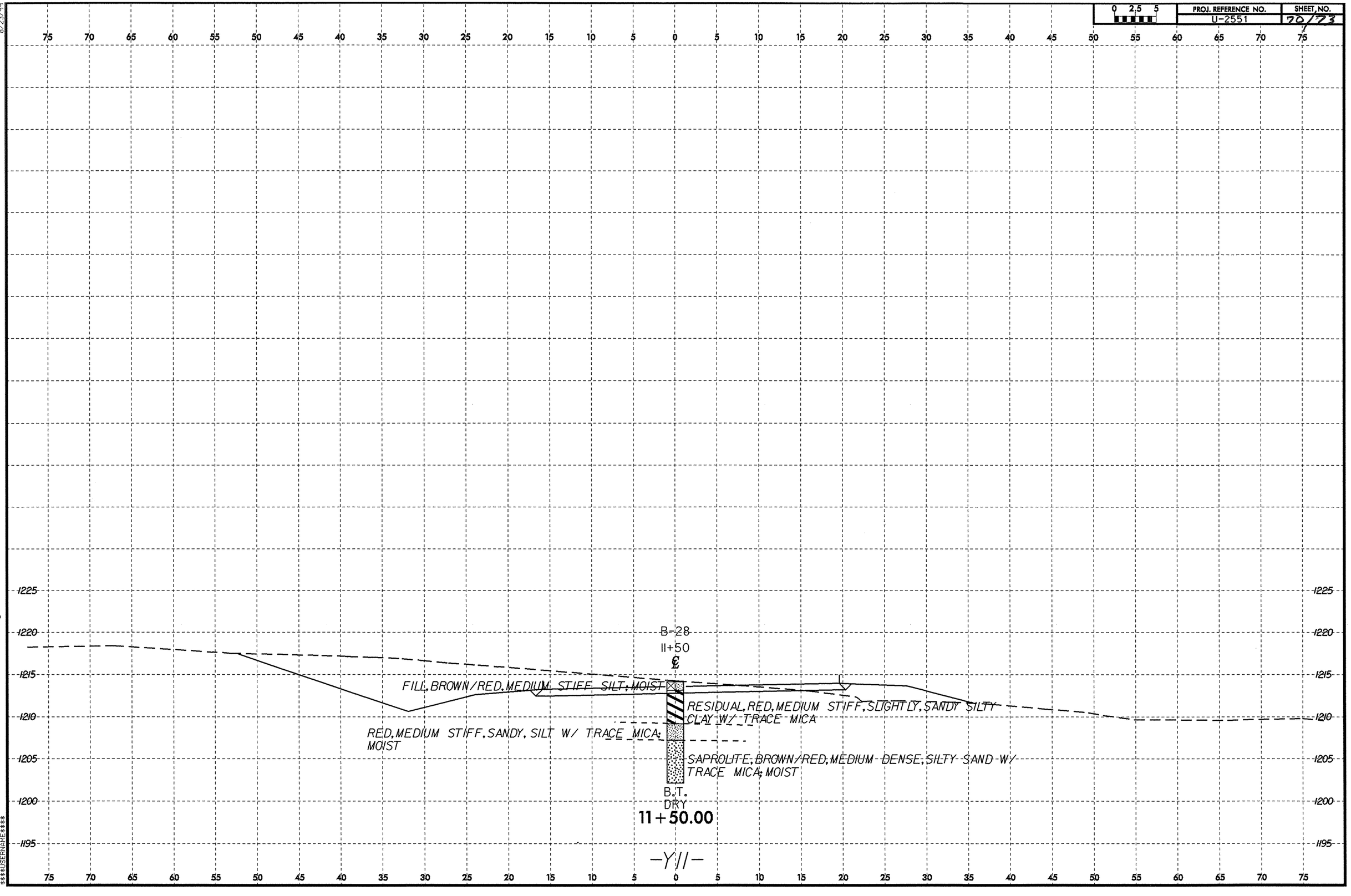
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET, NO.
	U-2551	20/73



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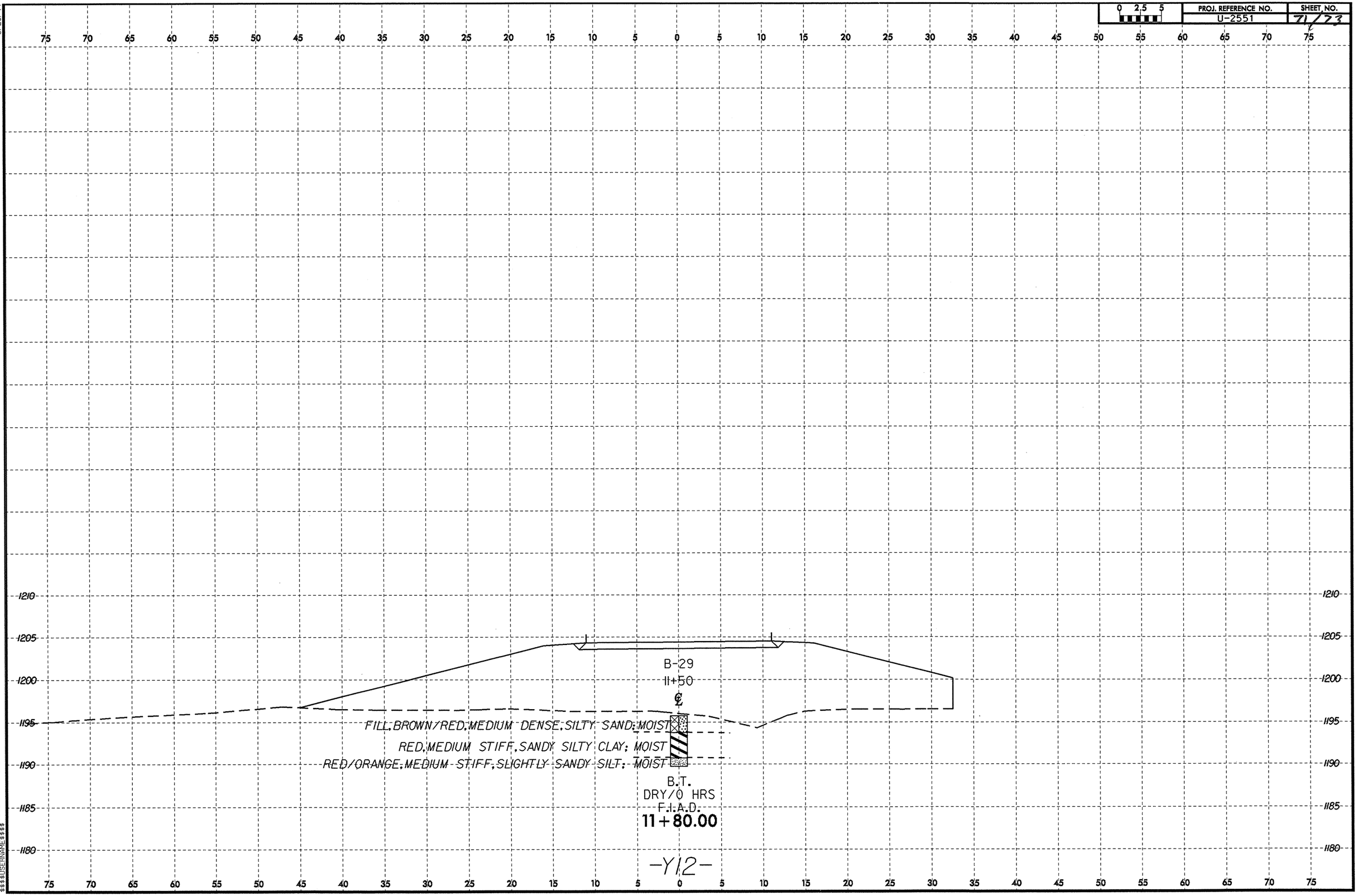
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	71/73



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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2551	22/23

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

1200
1195
1190
1185
1180

3:1

13+35.00

1205
1200
1195
1190
1185
1180
1175

B-27
13+00
20 LT

FILL, BROWN, MEDIUM STIFF, SLIGHTLY SANDY SILT; MOIST

BROWN/RED, SOFT SILTY, SANDY CLAY W/ ROOTS; WET

02/09

B.T.
DRY

B-26
13+00
℄

FILL, BROWN, MEDIUM STIFF, SLIGHTLY SANDY SILT W/ ROOTS AND RUBBLE; MOIST

B.T.
DRY
F.I.A.D.

12+85.00

-Y12-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

01-APR-2009 13:45
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$$$$USERNAME$$$$

M&T 503E

JCS

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS-MATERIALS AND TESTS UNIT
SOILS TEST REPORT-SOILS LABORATORY

T.I.P. ID #:	N/A

REPORT ON SAMPLES OF:	Soils for Quality

PROJECT:	U-2551	COUNTY:	Burke	Owner:	NCDOT
DATE SAMPLED:	2.09	DATE RECEIVED:	2.27.09	DATE REPORTED:	3.5.09
SAMPLED FROM:	Roadway	SAMPLED BY:	P. Q. Lockamy		
SUBMITTED BY:	W. D. Frye	2002	STANDARD SPECIFICATION		
LABORATORY:	Asheville				

TEST RESULTS

Project Sample No.	S-1	SS-1	S-2	SS-2	S-3	SS-3	S-4	SS-4
Lab Sample No. A	159940	159941	159942	159943	159944	159945	159946	159947
HiCAMS Sample #	--	--	--	--	--	--	--	--
Retained #4 Sieve %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Passing #10 Sieve %	99	100	100	100	100	100	100	99
Passing #40 Sieve %	89	98	92	86	87	91	94	81
Passing #200 Sieve %	73	85	73	45	37	52	83	45

MINUS #10 FRACTION

Soil Mortar - 100%								
Coarse Sand -Ret. #60	16	5	15	28	28	40	8	32
Fine Sand - Ret. #270	11	15	14	35	41	34	14	30
Silt 0.05-0.005 mm %	13	32	21	29	27	8	68	8
Clay < 0.005 mm %	60	48	50	8	4	--	--	--
Passing # 40 Sieve %	--	--	--	--	--	--	--	--
Passing # 200 Sieve %	--	--	--	--	--	--	--	--

Liquid Limit	57	60	58	34	38	34	57	38
Plastic Index	25	24	25	NP	NP	NP	28*	NP
AASHTO Classification	A-7-5 (17)	A-7-5 (18)	A-7-5 (17)	A-4 (2)	A-4 (0)	A-4 (3)	A-7-6 (19)	A-4 (2)
Quantity								
Texture								
Station	29+00	77+34	52+00	77+35	52+00	77+35	21+12	77+35
Hole No.								
Depth (ft) From:	1.8	4.3	1.0	8.7	9.5	18.7	0.0	38.7
To:	3.5	5.2	4.0	10.2	10.5	20.2	4.5	40.2
	OK	OK	OK	OK	OK	OK	See Remarks	OK

Remarks:

A-159940 – 159947; * Acceptable, but not to be used in top 2 feet of embankment or backfill.

CC:

P. Q. Lockamy	
File	

SOILS ENGINEER:	

M&T 503E

JCS

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS-MATERIALS AND TESTS UNIT
SOILS TEST REPORT-SOILS LABORATORY

T.I.P. ID #:	N/A

REPORT ON SAMPLES OF:	Soils for Quality

PROJECT:	U-2551	COUNTY:	Burke	Owner:	NCDOT
DATE SAMPLED:	2.09	DATE RECEIVED:	2.27.09	DATE REPORTED:	3.5.09
SAMPLED FROM:	Roadway	SAMPLED BY:	P. Q. Lockamy		
SUBMITTED BY:	W. D. Frye	2002	STANDARD SPECIFICATION		
LABORATORY:	Asheville				

TEST RESULTS

Project Sample No.	S-5	S-6						
Lab Sample No. A	159948	159949						
HiCAMS Sample #	--	--						
Retained #4 Sieve %	0.0	0.0						
Passing #10 Sieve %	100	100						
Passing #40 Sieve %	91	84						
Passing #200 Sieve %	63	46						

MINUS #10 FRACTION

Soil Mortar - 100%								
Coarse Sand -Ret. #60	19	29						
Fine Sand - Ret. #270	21	30						
Silt 0.05-0.005 mm %	18	19						
Clay < 0.005 mm %	42	22						
Passing # 40 Sieve %	--	--						
Passing # 200 Sieve %	--	--						

Liquid Limit	52	40						
Plastic Index	19	NP						
AASHTO Classification	A-7-5 (11)	A-4 (2)						
Quantity								
Texture								
Station	99+00	99+00						
Hole No.								
Depth (ft) From:	1.0	4.0						
To:	2.0	5.0						
	OK	OK						

Remarks:

A-159948 & 159949

CC:

P. Q. Lockamy	
File	

SOILS ENGINEER:	

G:/Everyone. . . /M&T Forms/Regional Lab Statesville/Soils Test Report M&T 503E 8-19-2000