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ID: R-3622B

CONTRACT: 38068.1.1

NOTE: SEE SHEET 2A 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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3622B	1	30

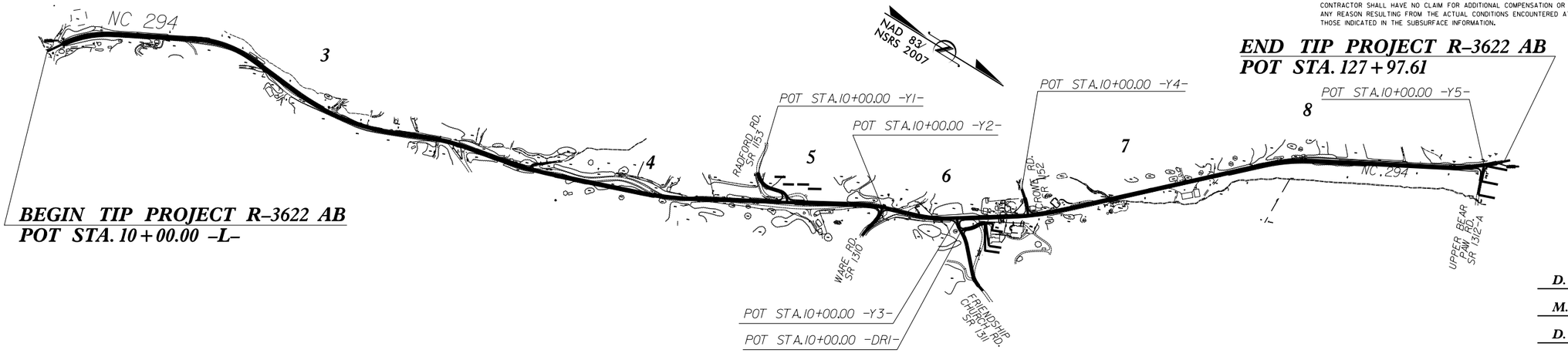
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
		P.E.
		R/W & UTIL.

PROJ. REFERENCE NO. 38068.1.1 (R-3622B) F.A. PROJ. N/A

COUNTY Cherokee

PROJECT DESCRIPTION NC 294 from SR 1130 (Sunny Point Rd.) to SR 1312-A (Upper Bear Paw Rd.)

RECOMMENDATIONS



BEGIN TIP PROJECT R-3622 AB
POT STA. 10+00.00 -L-

END TIP PROJECT R-3622 AB
POT STA. 127+97.61

CAUTION NOTICE

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

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

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

PERSONNEL

D. Racey
M. Brewer
D. Tignor
S. Davis
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P. Groff
E. Ruhl
P. Hughes
P. Alton, P.E.
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INVESTIGATED BY F&R, Inc.

CHECKED BY P. Alton, P.E.

SUBMITTED BY F&R, Inc.

DATE April 2015

DRAWN BY: D. Racey

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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.

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER W. PATRICK ALTON

DocuSigned by:
W. Patrick Alton
A270EF78A6DF442...

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:

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

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT²)
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
PLASTIC RANGE (PI): LL — LIQUID LIMIT		
	- 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
- SPT / CPT / DMT / VST / PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

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

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [X] -N 02
- [ ] -H_____

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

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

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

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER - A WATER BEARING FORMATION OR STRATA.

ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: N/A

ELEVATION: N/A FT.

NOTES:
ALLUV. = ALLUVIAL
CLY. = CLAYEY
DK. = DARK
FIAD = FILLED IMMEDIATELY AFTER DRILLING
GSRF = GRAVEL-SIZED ROCK FRAGMENTS
RDWY. EMB. = ROADWAY EMBANKMENT
SOS = SURFICIAL ORGANIC SOILS
TR. = TRACE
WR = WEATHERED ROCK
W/ = WITH

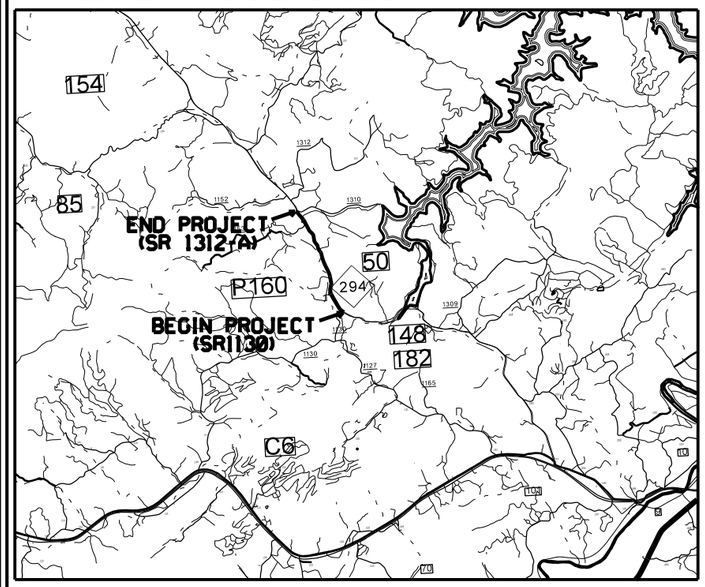
REVISED 09/23/09

09/08/99

TIP PROJECT: R-3622B

CONTRACT: 38068.1.1

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CHEROKEE COUNTY

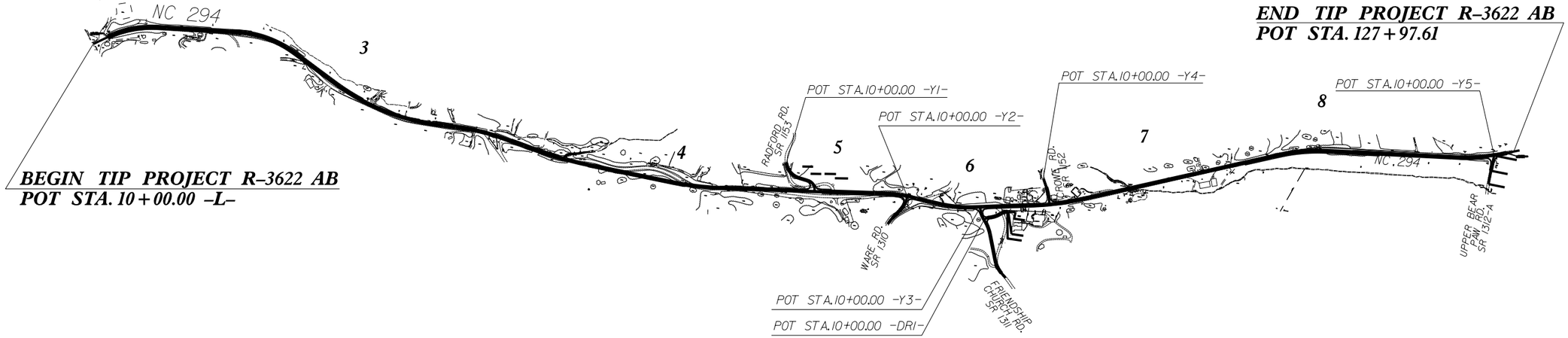
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3622B	2A	30

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38068.1.1		PE

LOCATION: NC 294 FROM SR 1130 (SUNNY POINT ROAD TO SR 1312-A (UPPER BEAR PAW ROAD

TYPE OF WORK: GRADING, DRAINAGE, AND PAVING

NAD 83-
NSRS 2007



BEGIN TIP PROJECT R-3622 AB
POT STA. 10+00.00 -L-

END TIP PROJECT R-3622 AB
POT STA. 127+97.61

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT = 3,050
ADT = 6,000
DHV = — %
D = — %
T = 3 % *
V = 50 MPH
* TTST 3% DUAL—%
FUNC = MAJOR
CLASS COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY
TIP PROJECT R-3622 C = 2.1 MILES

Prepared in the Office of:
VAUGHN & MELTON, INC.
1318-F PATTON AVENUE ASHEVILLE, NC 28806 PHONE(828) 253-2796

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

PROJECT ENGINEER

PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

10-APR-2015 11:54
F:\Projects_66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\PlanProf\R3622C_geo_tsh_rec.dgn
DRacey AT 66CADD

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V&M Vaughn & Melton Consulting Engineers

Asheville, North Carolina 828-253-2796

Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/ NSRS 2007

UNDERCUT EXCAVATION

BEGIN GEOTEXTILE FOR SOIL STABILIZATION AND 3 FEET OF SELECT GRANULAR MATERIAL AT -L- STA. 28+75 AND END AT -L- STA. 33+24

TS Sta. 30+30.31

SC Sta. 31+40.31

MATCHLINE -L- STA. 21+00

MATCHLINE -L- STA. 34+00

TS Sta. 21+19.62

SC Sta. 22+63.62

CS Sta. 26+01.99

ST Sta. 27+45.99

LARRY McNABB DB 324 PG 199

CHADWICK WAYNE McNABB DB 1258 PG 54 DB 827 PG 23

GAIL NICHOLS DB 628 PG 10

MICHAEL L. BIAS DB 899 PG 69

ROBERT W. FAIL DB 702 PG 121

JAMES L. DAVIS, JR. DB 1345 PG 949

UNITED COMMUNITY BANK DB 1418 PG 869

36" CMP

BLOCK PUMP HOUSE

BLOCK WALL

EXISTING R/W

CONC HW

SCRUB

WOODS

NC 294 22' BST

Boulders/WR

GRAVEL

15" CMP

24" OAK

ROADWAY EMBANKMENT

ALLUVIAL

RESIDUAL

OUTLET UNKNOWN

18" CMP

30" CMP

GR

IS FD

ROCK HW

N 05°57'16" E 92.65'

N 05°37'37" E 152.27'

10-APR-2015 11:13
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\PlanProf\R3622C_geo_rec_psh_03.dgn
default AT 66P001

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Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/ NSRS 2007

MATCHLINE -L- STA. 48+00

MATCHLINE -L- STA. 61+00 SEE SHEET 5

-L- Sta. 50+50.00=
~~DR2- Sta. 11+86.52~~

PRC Sta. 11+22.41
PRC Sta. 10+18.73
PC Sta. 10+00.00
CS Sta. 52+26.77
ST Sta. 52+98.77
PT Sta. 11+79.98
TS Sta. 58+96.92
SC Sta. 59+92.92

N 19° 55' 41.7" W

VERNA RAE WELLS GRIFFIN
DB 777 PG 61

THOMAS J. NEVIEAU
DB 696 PG 74

JOHN F. CHYNOWETH, TRUSTEE
DB 1174 PG 291

KAREN BETH WESTENE
DB 1168 PG 473

T. L. MCNABB, JR.
DB 383 PG 99

NOTTINGHAM HILL, INC.
DB 1188 PG 37

SCOTT W. PRESTON
DB 1316 PG 827

Rock Outcrop
Rock Outcrops

SCRUB
WOODS
BRICK COLUMNS
GRAVEL
MTL SHED
EXISTING R/W
SHARING LANE
24" CMP
36" CMP
CONC HW
NC 294
22' BST
4' WW
WD RAIL
EIP
OEIP

10-APR-2015 11:14
P:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\PlanProf\R3622C_geo_rec_psh_04.dgn
Library: AT_66P.dgn

8/17/99

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Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/ NSRS 2007

65 70 10

-Y1- PC Sta.10+00.00
BEGIN CONSTRUCTION

UNDERCUT EXCAVATION

PT Sta. 11+65.78

PC Sta. 12+40.85

PT Sta. 13+43.86

-L- Sta. 70+91.19=
-Y1- Sta. 13+44.15

N 29° 44' 28.6" W

Boulders/WR

Rock Outcrops

CS Sta. 62+90.84

ST Sta. 63+86.84

MATCHLINE -L- STA. 61+00 SEE SHEET 4

MATCHLINE -L- STA. 74+00 SEE SHEET 6

KAREN BETH WESTENBERG
DB 1168 PG 473

ROBERT H. GILBREATH, JR.
DB 1158 PG 337

T. L. McNABB, JR.
DB 383 PG 99

RADFORD RD, SR 1153 18' BST

NC 294 22' BST

WOODS

GARAGE

CONC

10-APR-2015 11:57
P:\Projects 66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\PlanProf\R3622C_geo_rec_psh_05.dgn
DBConfig AT 66P01

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Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99

NAD 83/ NSRS 2007

MATCHLINE -L- STA. 74+00 SEE SHEET 5

MATCHLINE -L- STA. 88+00 SEE SHEET 7

TS Sta. 75+74.90
SC Sta. 77+13.90
CS Sta. 77+79.46
-L- Sta. 78+40.49=
-Y2- Sta. 10+00.00
TS Sta. 80+40.69
SC Sta. 81+79.69
CS Sta. 83+19.22
ST Sta. 84+58.22
-L- Sta. 84+37.24=
-Y3- Sta. 10+00.00
PC Sta. 10+06.67
PRC Sta. 11+03.38
-Y3- Sta. 11+07.10=
-DRI- Sta. 10+00.00
PT Sta. 11+32.31
ST Sta. 79+18.46
-Y2- PT Sta. 12+15.00
END CONSTRUCTION
PRC Sta. 12+77.19
PT Sta. 12+32.32
PC Sta. 10+04.62
-DRI- Sta. 11+42.90
POT Sta. 12+65.36
PT Sta. 12+06.80
-DRI- Sta. 12+00.00
END CONSTRUCTION
PC Sta. 14+47.65
-Y3- Sta. 15+65.00
END CONSTRUCTION
PT Sta. 15+66.83
POT Sta. 16+16.24

ROBERT H. GILBREATH, JR. DB 1158 PG 337
NEW COMMUNICATIONS OF THE CAROLINAS, INC. DB 1389 PG 631
FOX RIDGE OF CHEROKEE COUNTY, LLC. DB 1169 PG 382
ROBERT P. WARE DB 879 PG 45 DB 1119 PG 621
T. L. McNABB, JR. DB 383 PG 99
DB 1177 PG 113

Rock Outcrops
Rock Outcrop/ Boulder
Rock Outcrops/ Boulders/WR
Boulders/WR
CONSTRUCT DRAINAGE BLANKET IN ACCORDANCE WITH THE SPECIAL PROVISION: "DRAINAGE BLANKETS"
SPRING BOX (IDENTIFIED DURING GEOTECHNICAL FIELD INVESTIGATION)
(IDENTIFIED DURING GEOTECHNICAL FIELD INVESTIGATION)

NC 294 22' BST
WARE RD. SR 1390 18' BST
FRIENDSHIP CHURCH RD SR 1391 18' BST
EXISTING R/W
CAROLINA FOX RIDGE (PVT)
GATE CODE BOX
PUMP HOUSE
TRANSFORMER
WOOD SHED
ROCK WALL
CONC WALL
ASPHALT PARKING
1 S FD (CHURCH DAY CARE)
WOODS
SCRUB

UNDERCUT EXCAVATION

10-APR-2015 11:56
P:\Projects\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\PlanProf\R3622C_geo_rec_psh_06.dgn
dlarsen
At 66 Addl

SINCE F&R 1881

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Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99

NAD 83/ NSRS 2007

MATCHLINE -L- STA. 88+00 SEE SHEET 6

MATCHLINE -L- STA. 102+00 SEE SHEET 8

TS Sta. 88+21.47

SC Sta. 89+17.47

CS Sta. 92+26.89

ST Sta. 93+22.89

POT Sta. 10+00.00

-Y4- Sta. 10+75.00 BEGIN CONSTRUCTION

PC Sta. 10+80.73

PT Sta. 11+36.01

-L- Sta. 89+95.85= END -Y4- Sta. 12+13.51

ROADWAY EMBANKMENT

ALLUVIAL

RESIDUAL

POND A

POND B

Boulders/WR

2 S BR CHURCH

FRIENDSHIP BAPTIST CHURCH
DB 1305 PG 859
DB 213 PG 187
DB 211 PG 7
DB 206 PG 286
DB 191 PG 293
DB 171 PG 290

MARSHALL G. SIMMONS
DB 1107 PG 786

TAMMY WOOD WRIGHT
DB 1121 PG 357
DB 1270 PG 795

STANLEY WOOD, JR.
DB 523 PG 39
DB 350 PG 140

KRISTIE WRIGHT
DB 1110 PG 117

KRISTIE HARBIN
DB 1203 PG 554

GARDEN

ARTIFICIAL FILL

24" CMP

18" CMP

12" RCP

8" HDPE

60" CMP

12" CMP

4' HOGWIRE

WOODS

SCRUB

WELL HOUSE

CONC PAD

ROCK WALL

DRAIN PIPE

WD DECK

CONC STEPS

CONC RAMP

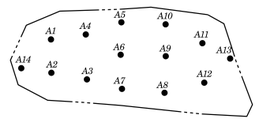
CONC BLK STEPS

GRAVEL PARKING

ASPHALT

EIP

POND A TEST LOCATION DETAIL
(NOT TO SCALE)

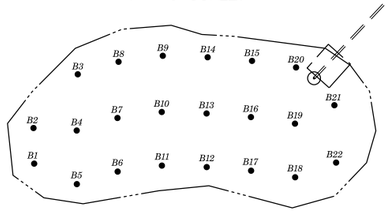


POND A
SEDIMENT SURVEY DATA

STATION	BATHYMETRIC DEPTH (ft)	TOTAL DEPTH (ft)	SEDIMENT DEPTH (ft)
A1	3.4	3.7	0.3
A2	4.6	4.8	0.2
A3	8.0	10.1	2.1
A4	7.5	8.3	0.8
A5	7.4	7.8	0.4
A6	7.0	8.7	1.7
A7	7.6	8.2	0.6
A8	7.2	8.5	1.3
A9	7.9	8.9	1.0
A10	7.0	7.6	0.6
A11	5.8	6.0	0.2
A12	5.9	7.3	1.4
A13	1.2	2.4	1.2
A14	1.6	1.6	0.0

UNDERCUT EXCAVATION
(BASED ON PROPOSED 7' WIDE CULVERT)

POND B TEST LOCATION DETAIL
(NOT TO SCALE)



POND B
SEDIMENT SURVEY DATA

STATION	BATHYMETRIC DEPTH (ft)	TOTAL DEPTH (ft)	SEDIMENT DEPTH (ft)
B1	1.5	1.8	0.3
B2	1.6	2.0	0.4
B3	2.1	2.6	0.5
B4	5.1	5.4	0.3
B5	3.5	4.2	0.7
B6	3.3	3.9	0.6
B7	6.1	6.7	0.6
B8	2.9	4.0	1.1
B9	6.1	6.4	0.3
B10	8.0	8.7	0.7
B11	3.6	4.2	0.6
B12	4.3	4.9	0.6
B13	10.0	11.3	1.3
B14	7.0	7.6	0.6
B15	4.5	5.4	0.9
B16	9.9	11.2	1.3
B17	3.6	4.2	0.6
B18	3.6	4.3	0.7
B19	3.9	4.7	0.8
B20	4.6	5.4	0.8
B21	2.9	3.7	0.8
B22	3.5	4.1	0.6

10-APR-2015 11:58
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\PlanProf\R3622C-geo-rec_psh_07.dgn
DBarclay A1 66P-0073

8/17/99

NAD 83/
NSRS 2007

105

110

115

MATCHLINE -L- STA. 102+00 SEE SHEET 7

MATCHLINE -L- STA. 116+00

WOODS

STANLEY WOOD, JR.
DB 523 PG 39
DB 390 PG 140

CROWE DEVELOPING, INC.
DB 1062 PG 63

LINDA J. SCULLION
DB 1390 PG 787

DAVID A. BA
DB 1228 PG

SCRUB

30" HICKORY

EXISTING R/W

-L-

NC 294 22' BST

ROADWAY EMBANKMENT

ALLUVIAL

15" CMP

RDWY. EMB.

ARTIFICIAL FILL

BST

WD RAMP

GR

IS BK BUS W/LOG SIDING

IS MTL BUS

EIP

EIP 60" CMP

60" CMP

STANLEY WOOD, JR.
DB 531 PG 17

SHARON L. RHOTON
DB 1353 PG 764

CLIFFORD A. STRINGER
DB 1226 PG 833

RESIDUAL

42

44

WO

SPRINGS

TS Sta. 108+29.63

SC Sta. 109+54.63

CS Sta. 112+06.39

ST Sta. 113+31.39

UNDERCUT EXCAVATION

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Consulting Engineers

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Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

10-APR-2015 11:59
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User: AT 66P-0073

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	9

0 5 10

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

1780 1770 1760 1750 1740 1730 1720 1710 1700 1690 1680 1670 1660 1650 1640

L_5700R2

L_5700R

EXISTING GROUND SURFACE

Ⓐ

Medium dense to very

dense, moist, gray & tan, silty fine SAND (A-2-4),

Gray & tan (METASANDSTONE)

-WEATHERED ROCK-

-RESIDUAL-

with trace mica, saprolitic

Stiff to very stiff, moist, brown-red, tan & gray,

fine sandy SILT (A-4), with trace roots & mica,

saprolitic

2:1

4:1

10:1

-WEATHERED ROCK-

Tan & gray (METASANDSTONE)

-CRYSTALLINE ROCK-

(METASANDSTONE)

3 20 32 100/0.9 51 13 15 25 100/0.3 50/0.0

AR
Dry
10/12

BT
Dry
10/12

Ⓐ Soft, moist, brown-red, fine sandy SILT (A-4), with trace roots & mica -RESIDUAL-

57+00.00

℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

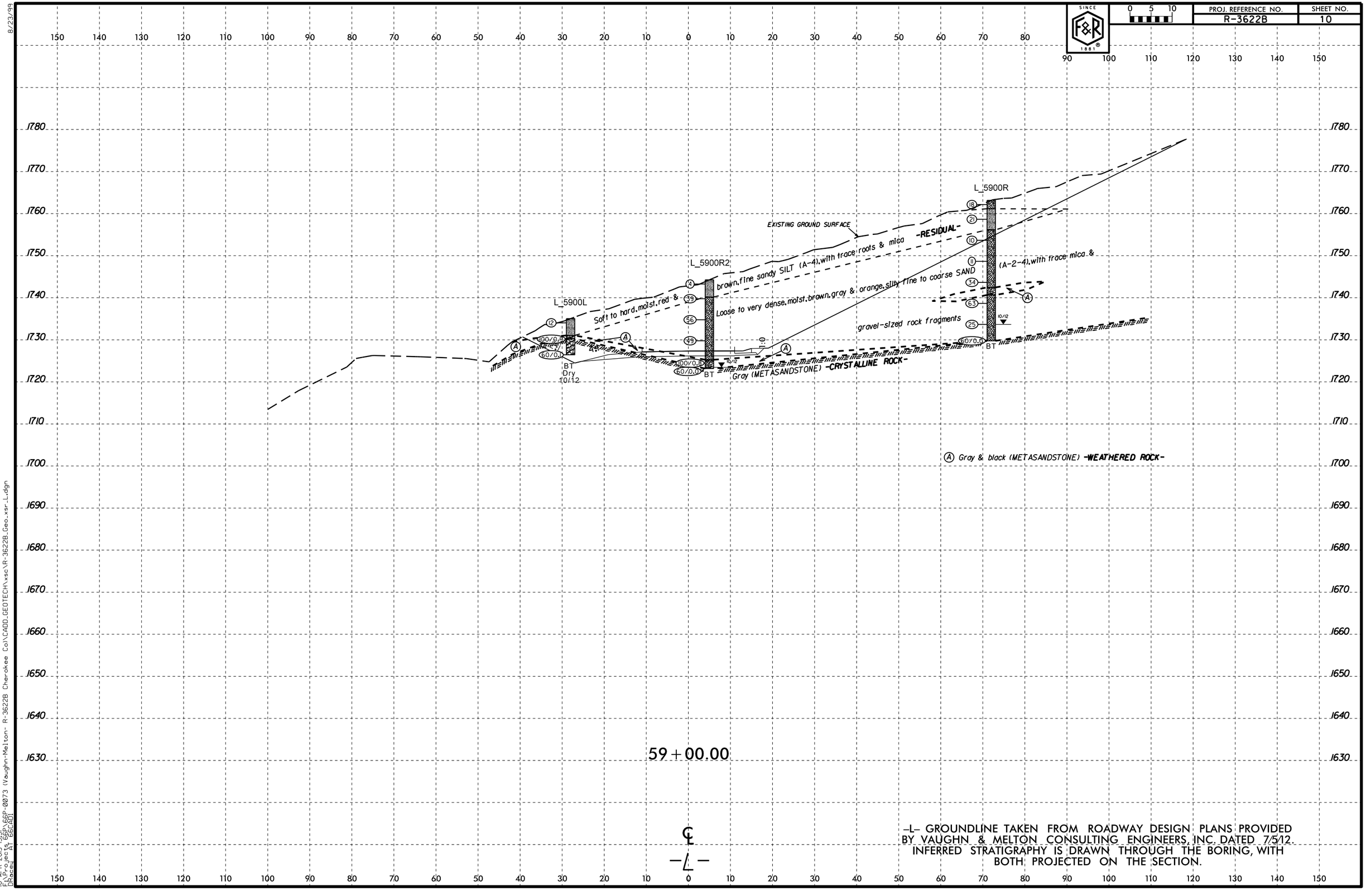
10-APR-2015 15:30
File:Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_L.dgn
Drawer: AT 66CADD

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	10



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:31
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Default 41 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	11

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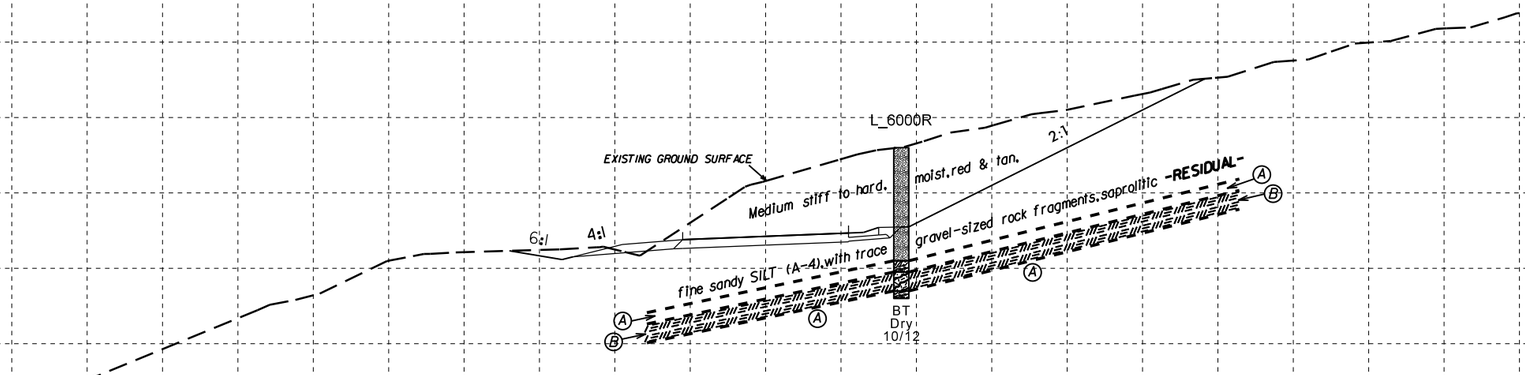
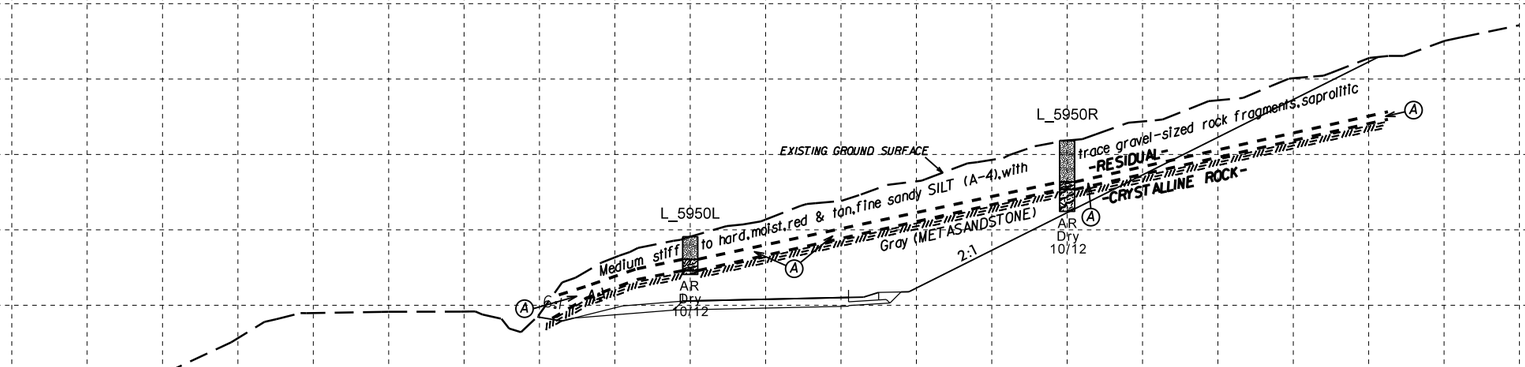
1770 1760 1750 1740 1730 1720 1710 1700



60+00.00



59+50.00

℄

–L–

Ⓐ Gray (METASANDSTONE) -WEATHERED ROCK-

Ⓑ Gray-tan (METASANDSTONE) -CRYSTALLINE ROCK-

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:32
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_Ldgn
Default A1 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	12

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

1780
1770
1760
1750
1740

EXISTING GROUND SURFACE

6:1 4:1 4:1 2:1

-WEATHERED ROCK-

(MET ASILTSTONE)

-CRYSTALLINE ROCK-

(MET ASILTSTONE)

64+00.00

L_6350L

5:1

19 coarse sandy SILT (A-4), -RES.- Red-tan (METASILTSTONE)

100/10

Very stiff, moist, red-tan, fine to with some mica, saprolitic

65 fine sandy SILT (A-4), with trace mica, saprolitic

28 V. stiff to hard, moist, red-tan & brown.

BT Dry 9/12

L_6350R

EXISTING GROUND SURFACE

7 12 Med. stiff, moist, red-brown, f. to cse. sdy. SILT (A-4), with trace mica & gravel-sized rock frags. -RES.-

4:1

100/0.8

100/0.5

-WEATHERED ROCK-

60/0.0

-CRYSTALLINE ROCK-

Gray (METASILTSTONE)

BT Dry 9/12

1780
1770
1760
1750
1740
1730
1720
1710

63+50.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

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

10-APR-2015 15:32
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_L.dgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	13

0 5 10

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

1800 1790 1780 1770 1760 1750 1740 1730

L_6500R2

L_6500R

EXISTING GROUND SURFACE

Ⓐ -RESIDUAL-

V.stiff to hard,moist,red & brown, fine sandy SILT (A-4),with trace gravel-sized rock fragments

6:1 4:1 2:1 4:1

AR Dry 10/12

Tan,brown & gray (METASILTSTONE) -WEATHERED ROCK-

Tan & gray (METASILTSTONE)

BT Dry 10/12

-CRYSTALLINE ROCK-

65+00.00

L_6450R2

L_6450R

EXISTING GROUND SURFACE

CLAY (A-6) -RESIDUAL-

Medium stiff, moist,red-brown,silty fine sandy

sandy SILT (A-4),with trace mica & gravel-sized rock fragments

6:1 4:1 2:1

hard,moist,red,brown & gray,fine

Very stiff to

Tan & gray (METASILTSTONE) -WEATHERED ROCK-

Gray (METASILTSTONE)

AR Dry 9/12

-CRYSTALLINE ROCK-

BT Dry 10/12

64+50.00

Ⓐ Medium stiff,moist,red-brown,silty fine sandy CLAY (A-6) -RESIDUAL-

℄ –L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:34
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_L.dgn
dtacey
At 66CADD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	14

0 5 10

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

1800 1790 1780 1770 1760 1750 1740 1730

L_6600L

EXISTING GROUND SURFACE

4:1 4:1 2:1

Ⓐ Medium stiff,moist, red-tan & brown,fine sandy SILT (A-4);with trace Gray (METASILTSTONE)

Ⓑ gravel-sized rock fragments -CRYSTALLINE ROCK-

AR Dry 10/12

66+00.00

L_6550R2

L_6550R

EXISTING GROUND SURFACE

6:1 4:1 4:1 2:1

5 36 50/0.0

BT Dry 9/12

AR Dry 10/12

Ⓐ -RESIDUAL- (A-4);with trace to some fragments,saprolitic gravel-sized rock Hard,moist,red-tan,fine sandy SILT

Ⓑ Gray (METASILTSTONE) -CRYSTALLINE ROCK-

65+50.00

℄

Ⓐ Medium stiff,moist,red-brown,silty fine sandy CLAY (A-6),with trace roots -RESIDUAL-

Ⓑ Tan & gray (METASILTSTONE) -WEATHERED ROCK-

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:36
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_L.dgn
Default 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	15

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

1810
1800
1790
1780
1770
1760

L_6700L

EXISTING GROUND SURFACE

2:1

Stiff to very stiff, moist, red-brown, fine sandy SILT (A-4), with trace mica & gravel-sized rock fragments

4:1

-CRYSTALLINE ROCK-

Gray (METASILTSTONE)

AR
Dry
10/12

67+00.00

1810
1800
1790
1780
1770
1760
1750
1740

L_6650L

Stiff to very stiff, moist, red-brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments

2:1

4:1

-CRYSTALLINE ROCK-

Gray (METASILTSTONE)

AR
Dry
10/12

L_6650R

EXISTING GROUND SURFACE

AR
Dry
9/12

L_6650R2

-RESIDUAL-

-CRYSTALLINE ROCK-

AR
Dry
10/12

66+50.00

℄
–L–

Ⓐ Soft to medium stiff, moist, red-brown, silty fine sandy CLAY (A-6), with trace mica **-RESIDUAL-**

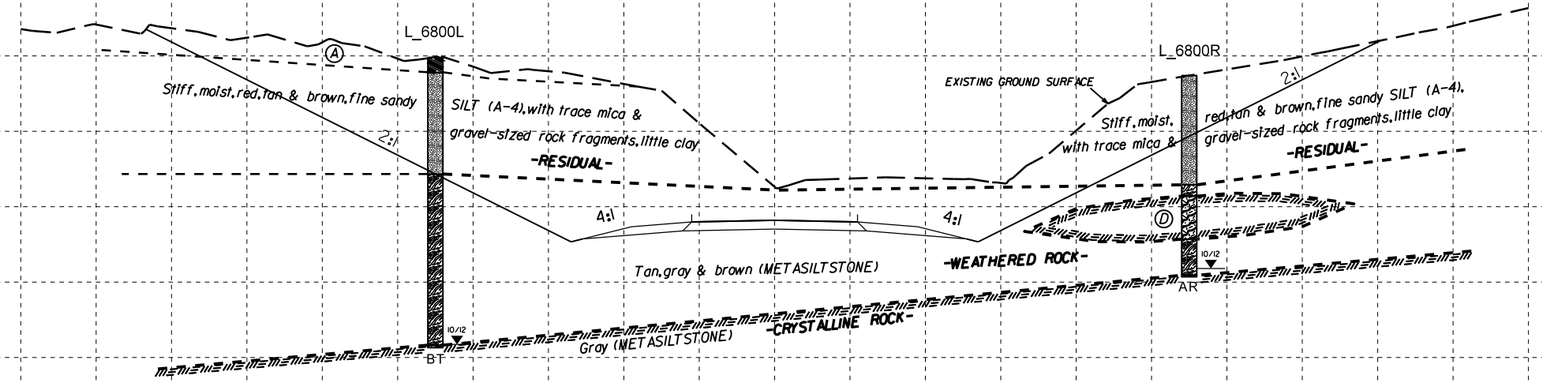
Ⓑ Brown (METASILTSTONE) **-WEATHERED ROCK-**

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

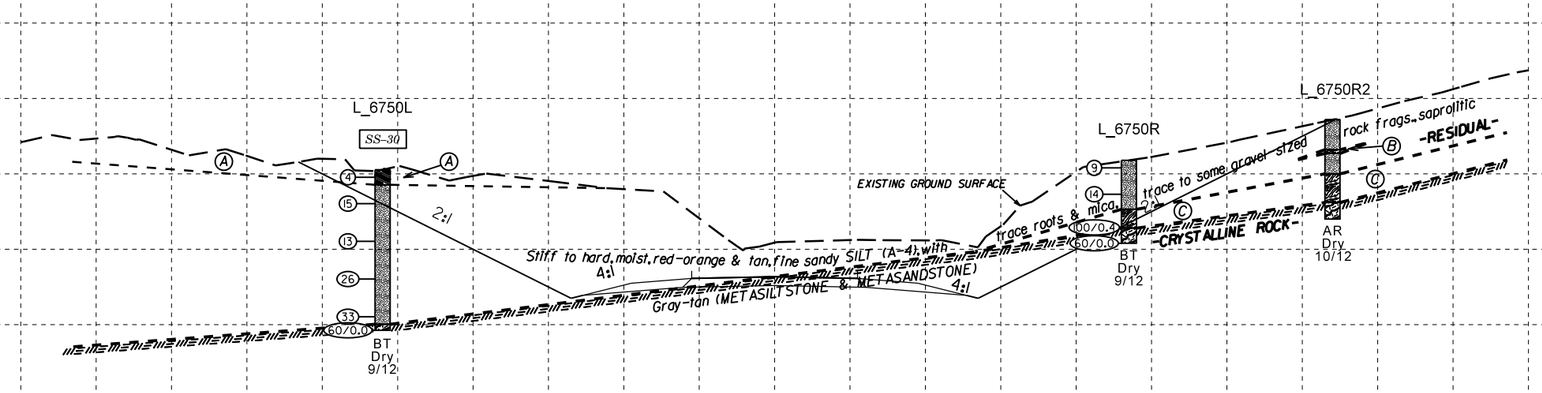
10-APR-2015 15:38
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_Ldgn
Default 66CADI

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-30	52' LT.	67+50	0.3'-1.5'	A-6(11)	40	17	8.3	25.6	18.0	48.1	99.9	95.8	70.3	21.2	NT



68+00.00



67+50.00

℄

—L—

Ⓐ Soft to medium stiff, moist to wet, red-brown, fine sandy CLAY (A-6), with little silt **-RESIDUAL-**
Ⓑ Brown (METASANDSTONE) **-WEATHERED ROCK-**
Ⓒ Tan & gray (METASILTSTONE & METASANDSTONE) **-WEATHERED ROCK-**
Ⓓ Gray (METASILTSTONE) **-CRYSTALLINE ROCK-**

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	17

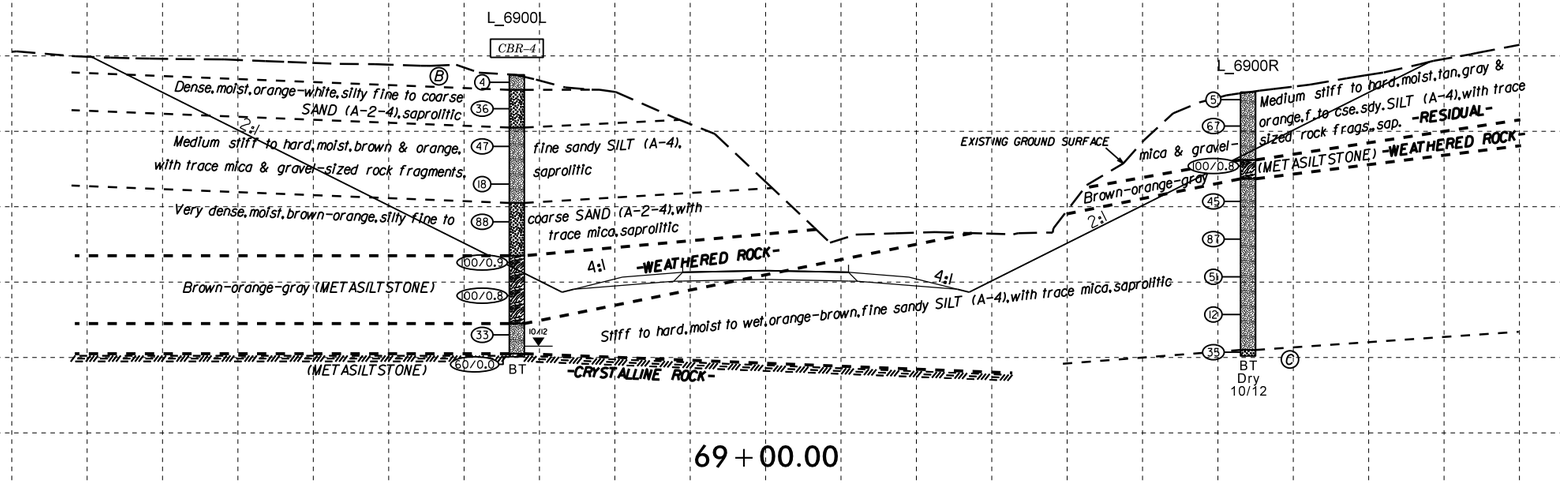
SOIL TEST RESULTS

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
CBR-4	33' LT.	69+00	7.0'-13.0'	A-4(0)	30	NP	8.8	48.4	30.4	12.4	93.2	89.5	47.9	8.4	NT

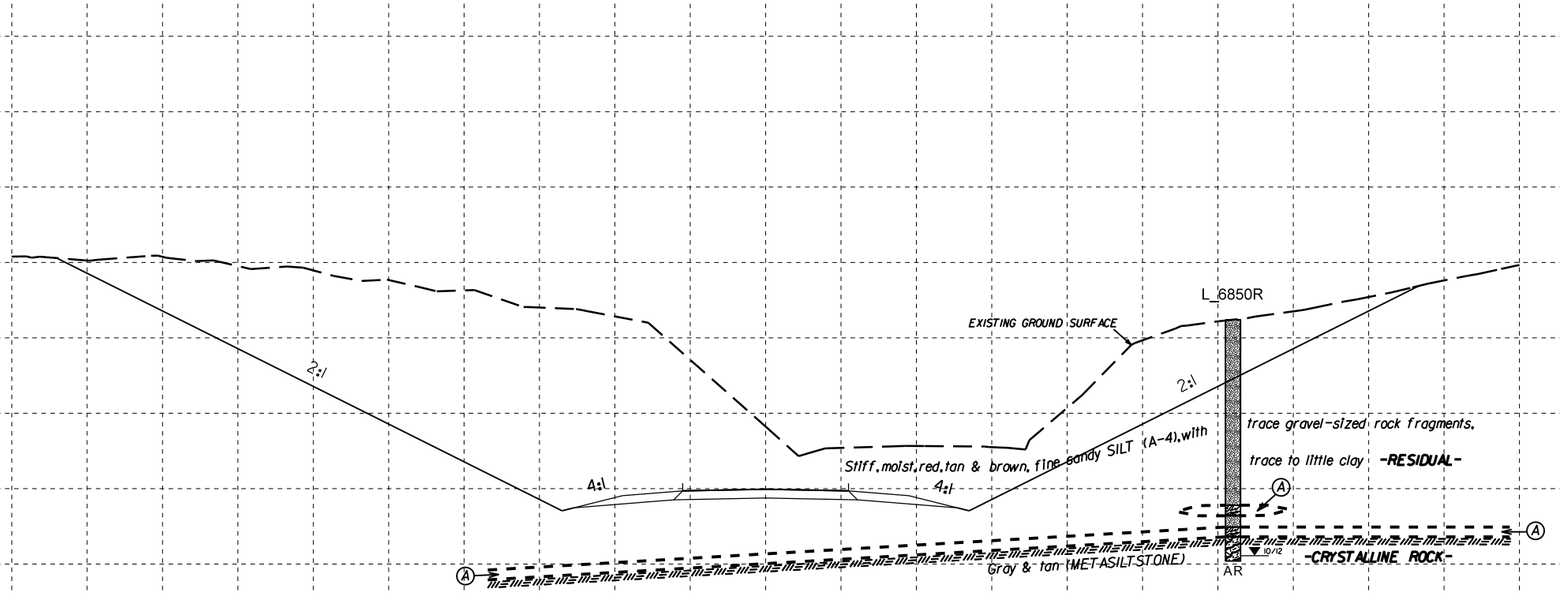
(A) Tan (METASILTSTONE) **-WEATHERED ROCK-**

(B) Soft to medium stiff, moist, red-brown, fine to coarse sandy SILT (A-4), with trace organics & gravel-sized rock fragments, little clay **-RESIDUAL-**

(C) Dense, moist, orange, white, brown & black, silty fine to coarse SAND (A-2-4), with trace mica & gravel-sized rock fragments, saprolitic **-RESIDUAL-**



69+00.00



68+50.00

℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:43
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_L.dgn
DRocel
AT 66CADD1

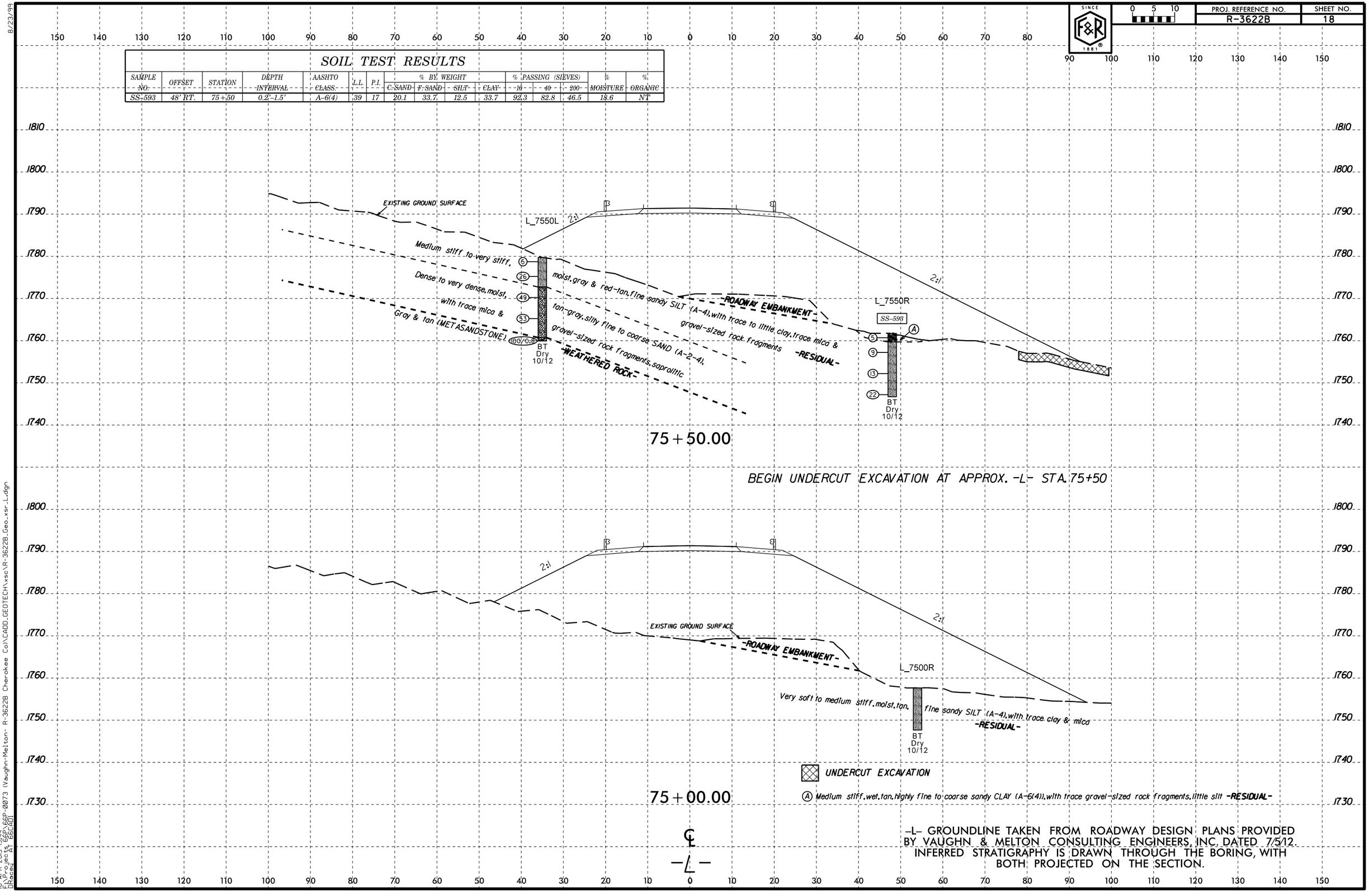
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	18

0 5 10

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH -INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C-SAND	% BY WEIGHT F-SAND	% BY WEIGHT -SILT-	% BY WEIGHT -CLAY-	% PASSING (SIEVES) -10-	% PASSING (SIEVES) -40-	% PASSING (SIEVES) -200-	% MOISTURE	% ORGANIC
SS-593	48' RT.	75+50	0.2'-1.5'	A-6(4)	39	17	20.1	33.7	12.5	33.7	92.3	82.8	46.5	18.6	NT



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

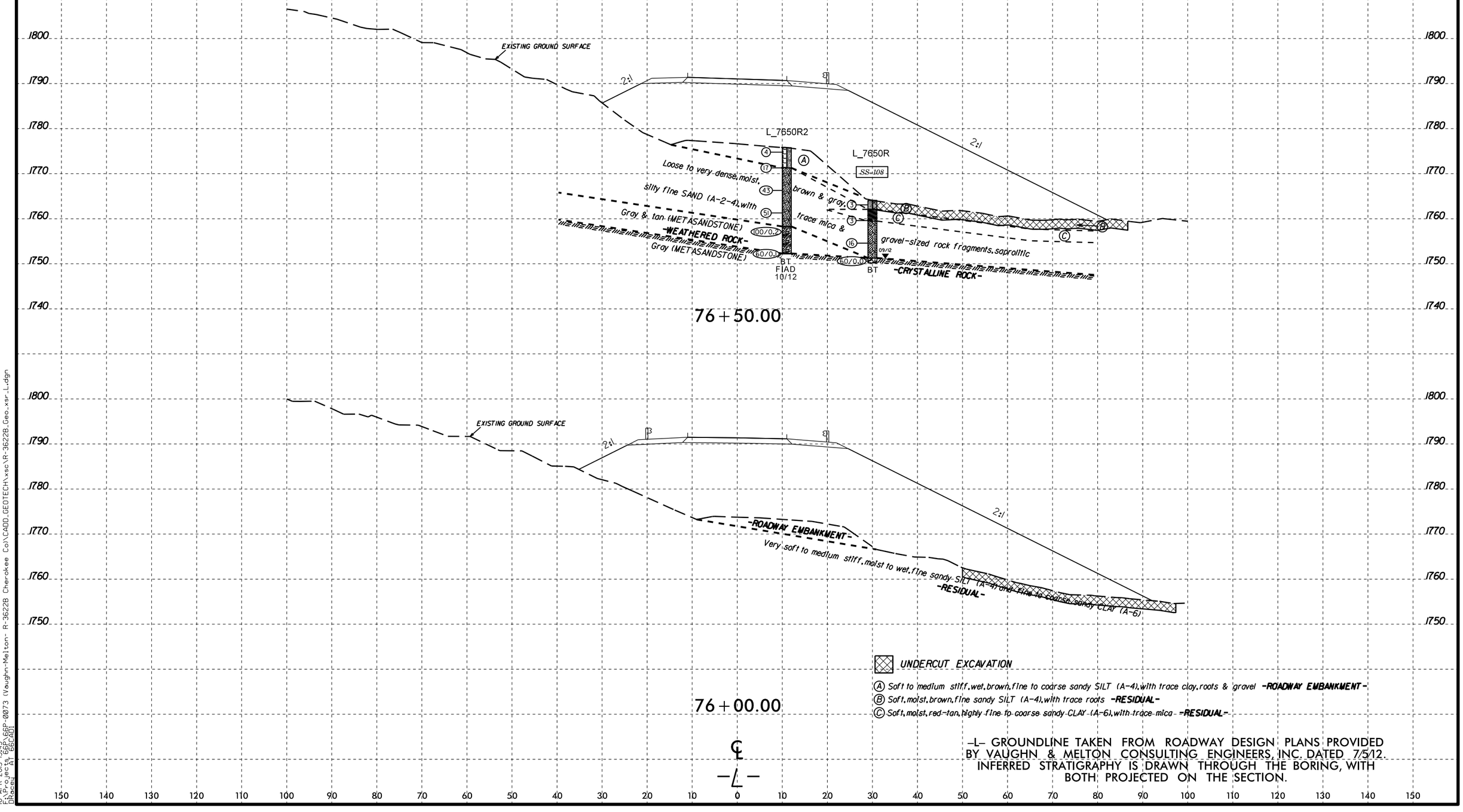
10-APR-2015 15:44
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_L.dgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	19

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-108	30' RT.	76+50	3.5'-4.6'	A-6(2)	35	12	30.5	30.0	7.7	31.8	98.9	80.3	42.4	23.0	NT



UNDERCUT EXCAVATION

Ⓐ Soft to medium stiff, wet, brown, fine to coarse sandy SILT (A-4), with trace clay, roots & gravel **-ROADWAY EMBANKMENT-**

Ⓑ Soft, moist, brown, fine sandy SILT (A-4), with trace roots **-RESIDUAL-**

Ⓒ Soft, moist, red-tan, highly fine to coarse sandy CLAY (A-6), with trace mica **-RESIDUAL-**

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:45
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_L.dgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	20

0 5 10

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

1810
1800
1790
1780
1770
1760
1750

EXISTING GROUND SURFACE

2:1

-ROADWAY EMBANKMENT-

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

2:1

77+50.00

EXISTING GROUND SURFACE

2:1

-ROADWAY EMBANKMENT-

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

2:1

77+00.00

UNDERCUT EXCAVATION

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

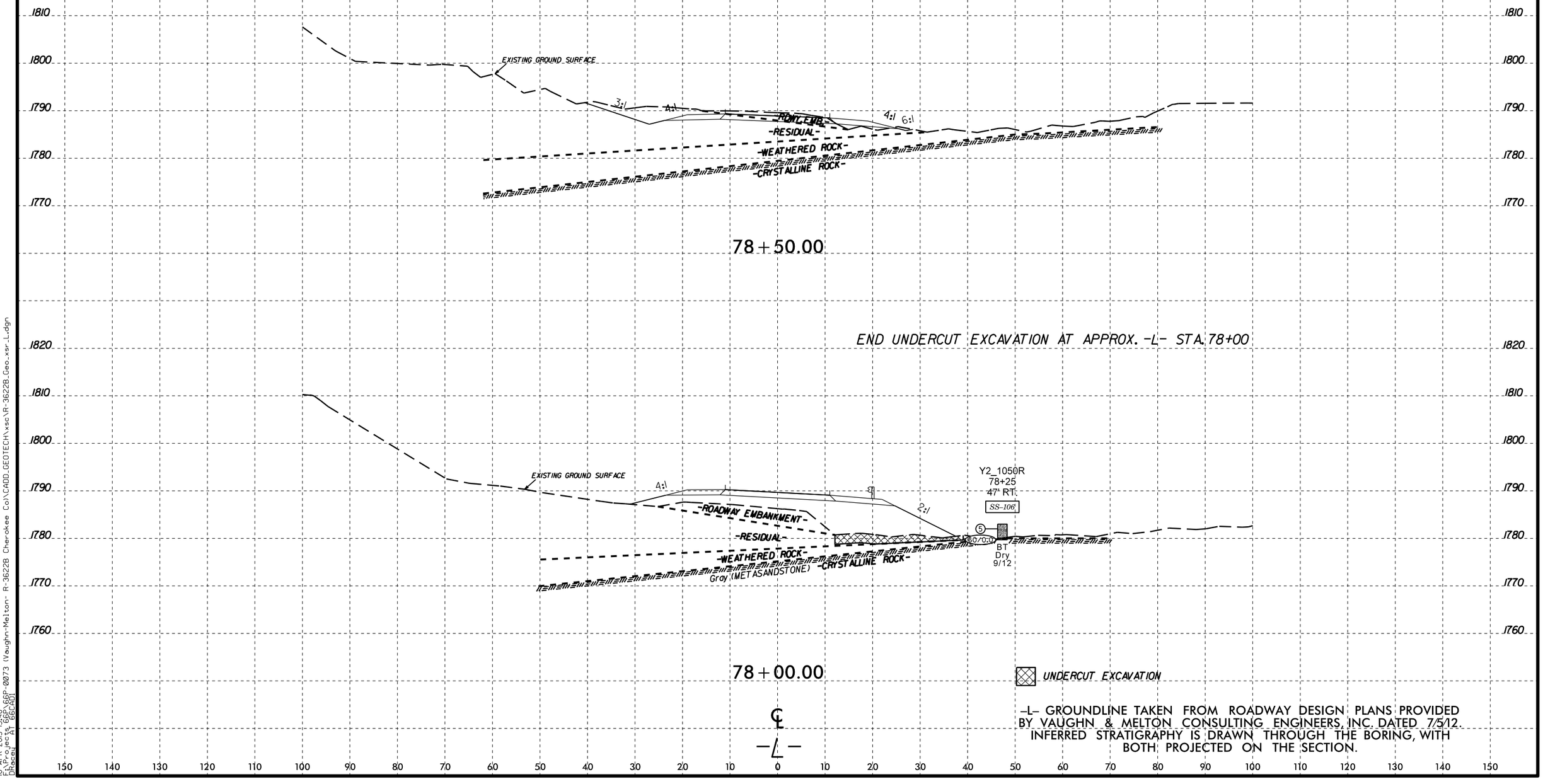
10-APR-2015 15:47
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_L.dgn
Default 41 66CAD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	21

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-106	47' RT	78+25	0.1'-0.9'	A-4(4)	38	8	10.3	34.5	21.1	34.1	95.9	91.3	58.9	19.9	NT



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:48
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_Ldgn
Default 11 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	22

0 5 10

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

1830 1820 1810 1800 1790 1780 1770

L_7934L
79+34
42' LT.

2:1

Medium stiff to hard,moist,red-brown & tan, fine to coarse sandy SILT (A-4)with trace roots & gravel-sized rock fragments,saprolitic (8, 54, 44)

-RESIDUAL-

(19) Med.dense,moist,red-brown,silty f.to cse.SAND (A-2-4), saprolitic

EXISTING GROUND SURFACE

4:1

-WEATHERED ROCK-

(100/0.3) Red & tan (METASANDSTONE)

(100/0.2)

(60/0.1)

-CRYSTALLINE ROCK-

BT
Dry
10/12

Gray (METAGRAYWACKE)

4:1

2:1

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

79+50.00

1690 1810 1800 1790 1780 1770

EXISTING GROUND SURFACE

2:1

4:1

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

79+00.00

℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

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

10-APR-2015 15:49
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_L.dgn
Default 1 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	23

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

1820 1810 1800 1790 1780 1770

EXISTING GROUND SURFACE

RESIDUAL

WEATHERED ROCK

CRYSTALLINE ROCK

2:1

4:1

80+50.00

1830 1820 1810 1800 1790 1780 1770

L_8000R

EXISTING GROUND SURFACE

RESIDUAL

WEATHERED ROCK

CRYSTALLINE ROCK

2:1

4:1

Gray-tan (METAGRAYWACKE)

(A) (B) (6)

100/0.5

60/0.0

10/12"

REC=90%
RQD=50%

Gray, fresh, hard to very hard, (METAGRAYWACKE),

REC=100%
RQD=100%

moderately close to wide fracture spacing

CT

(A) Medium stiff, moist, red-brown, fine sandy SILT (A-4), with trace mica, little clay -RESIDUAL-

(B) Gray, moderately weathered, moderately hard to hard (METAGRAYWACKE), close to very close fracture spacing -CRYSTALLINE ROCK-

** WATER LEVEL MAY BE INACCURATE DUE TO WATER INTRODUCED FOR CORING

80+00.00

℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

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

10-APR-2015 15:50
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_L.dgn
Default 41 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	24

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

1830 1820 1810 1800 1790 1780 1770 1760

EXISTING GROUND SURFACE

2:1

4:1

4:1

2:1

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

81+50.00

EXISTING GROUND SURFACE

Med.stiff,moist,brown,fine sandy SILT (A-4),with trace gravel-sized rock frags. Gray (MET AGRAYWACKE)

L_8100R

AR
Dry
10/12

L_8100R2

AR
Dry
10/12

2:1

4:1

4:1

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

81+00.00

℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:51
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_Ldgn
Default AT 66CADD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	25

0 5 10

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

1820 1810 1800 1790 1780 1770 1760

L_8250R

L_8250R

EXISTING GROUND SURFACE

Medium stiff,moist, brown,fine sandy SILT (A-4) -RESIDUAL-

Medium dense,moist,tan & brown,silty fine SAND (A-2-4),with trace gravel-sized rock fragments Ⓑ

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

Gray-brown (METAGRAYWACKE)

Gray (METAGRAYWACKE)

4:1 4:1 2:1

AR Ⓒ Dry 10/12

BT Dry 10/12

82+50.00

L_8200R2

L_8200R

EXISTING GROUND SURFACE

Ⓐ

Gray (METAGRAYWACKE)

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

2:1 4:1

AR Dry 10/12

BT Dry 10/12

82+00.00

℄

–L–

Ⓐ Medium stiff,moist,red-brown,fine sandy SILT (A-4),with trace roots & gravel-sized rock fragments **-RESIDUAL-**

Ⓑ Medium stiff,moist,brown,fine sandy SILT (A-4),with trace gravel-sized rock fragments **-RESIDUAL-**

Ⓒ Gray (METAGRAYWACKE) **-WEATHERED ROCK-**

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

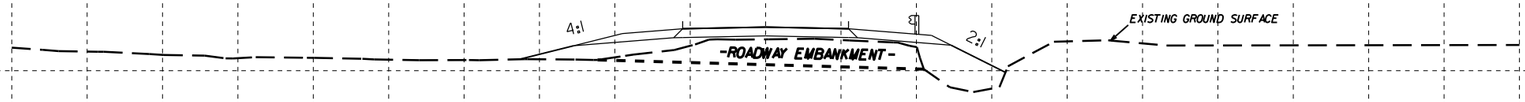
10-APR-2015 15:52
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_Ldgn
Default 41 66CADD

8/23/99

SINCE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.
F&R 1881		R-3622B	26

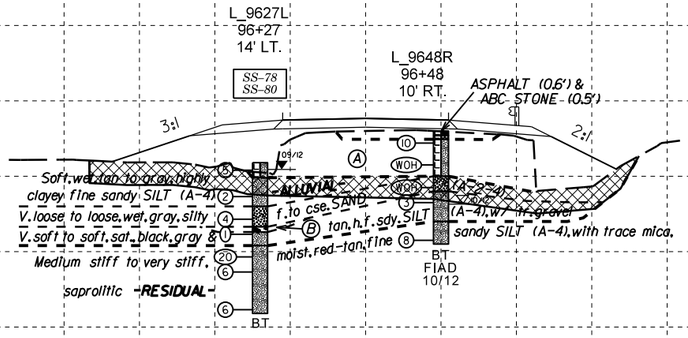
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-78	14' LT.	96+27	3.5'-5.0'	A-4(5)	35	9	9.0	29.4	26.4	35.2	99.5	94.5	66.6	40.1	NT
SS-80	14' LT.	96+27	8.5'-9.2'	A-7-5(24)	88	25	6.4	27.1	39.1	27.4	99.7	97.0	69.9	121.0	NT



97+00.00

END UNDERCUT EXCAVATION AT APPROX. -L- STA. 96+56



96+50.00

BEGIN UNDERCUT EXCAVATION AT APPROX. -L- STA. 96+30

℄
-L-

UNDERCUT EXCAVATION (BASED ON PROPOSED 7' WIDE CULVERT)

(A) Very soft to stiff, moist to wet, dark brown & gray, fine to coarse sandy SILT (A-4), with trace roots & mica, trace to little clay -ROADWAY EMBANKMENT-

(B) Very soft, saturated, black, fine sandy silty CLAY (A-7-5), with organic odor -ALLUVIAL-

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:53
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsr_L.dgn
DMcneil AT 66CADD

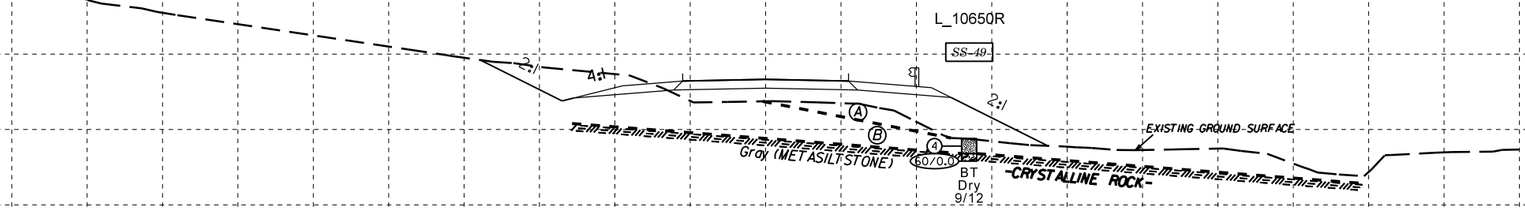
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	27

0 5 10

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-49	27' RT.	106+50	0.3'-1.5'	A-4(1)	27	8	22.8	32.9	15.3	29.0	98.2	85.8	47.2	18.9	NT



Ⓐ -ROADWAY EMBANKMENT-

Ⓑ Soft to medium stiff, moist, brown, clayey highly fine to coarse sandy SILT (A-4), with trace roots & gravel-sized rock fragments -RESIDUAL-

106+50.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:54
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Default A1 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	28

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

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-106	10' RT.	10+50	0.1'-0.9'	A-4(4)	38	8	10.3	34.5	21.1	34.1	95.9	91.3	58.9	19.9	NT

1810 1800 1790 1780 1770

1.5:1 4:1 2:1

EXISTING GROUND SURFACE

10+75.00

Y2_1050R

SS-106

A

B

5

50/0.0

BT
Dry
9/12

Gray LMET. SANDSTONE

-CRYSTALLINE ROCK-

1.5:1 4:1 2:1

EXISTING GROUND SURFACE

1810 1800 1790 1780 1770 1760 1750 1740

10+50.00

Ⓐ -ROADWAY EMBANKMENT-

Ⓑ Medium stiff, moist, red & tan, clayey fine to coarse sandy SILT (A-4), with trace roots -RESIDUAL-

℄
-Y2-

-Y2- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:56
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8/23/99

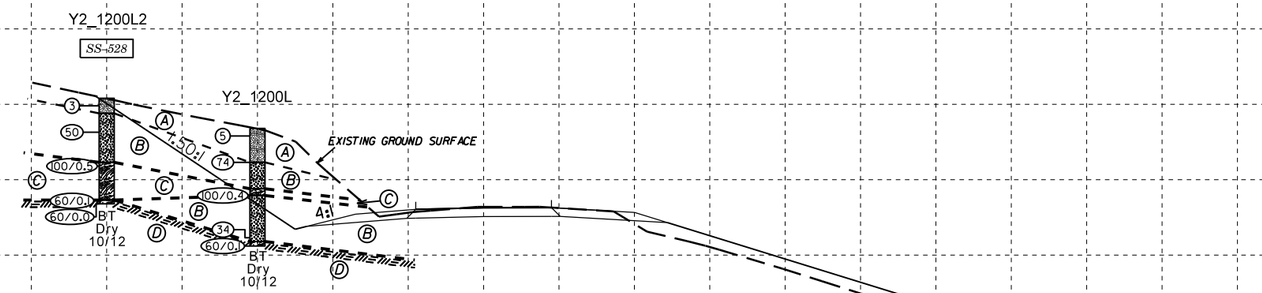
SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	29

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-528	50' LT.	12+00	0.3'-1.5'	A-4(1)	26	8	24.5	34.2	12.5	28.8	98.3	85.2	44.2	15.5	NT



Ⓐ Soft to medium stiff, moist, red-brown, clayey highly fine to coarse sandy SILT (A-4), with trace mica & roots **-RESIDUAL-**

Ⓑ Dense to very dense, moist, red-tan-gray, silty fine to coarse SAND (A-2-4), with trace mica & gravel-sized rock fragments, saprolitic **-RESIDUAL-**

Ⓒ Gray-tan-red (METASILTSTONE) **-WEATHERED ROCK-**

Ⓓ Gray (METASILTSTONE) **-CRYSTALLINE ROCK-**

12+00.00

℄

-Y2-

-Y2- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 15:57
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Default 41 66CADI

ID: R-3622B

CONTRACT: 38068.1.1

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

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	10+00.00-127+97.61	4-12	-	13-100
-Y1-	10+00.00-13+44.15	8	-	101-103
-Y2-	10+00.00-12+15.00	9	-	104-106
-Y3-	10+00.00-15+65.00	9	-	107-109
-Y4-	10+00.00-12+13.51	10	-	110
-Y5-	10+00.00-11+25.00	12	-	-
-DRI-	10+00.00-12+00.00	9	-	111

INVENTORY TEXT	3-3F
BORING LOG	112
CORE PHOTOS	113
ROCK TEST SUMMARY	114

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

ROADWAY SUBSURFACE INVESTIGATION

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3622B	1	122

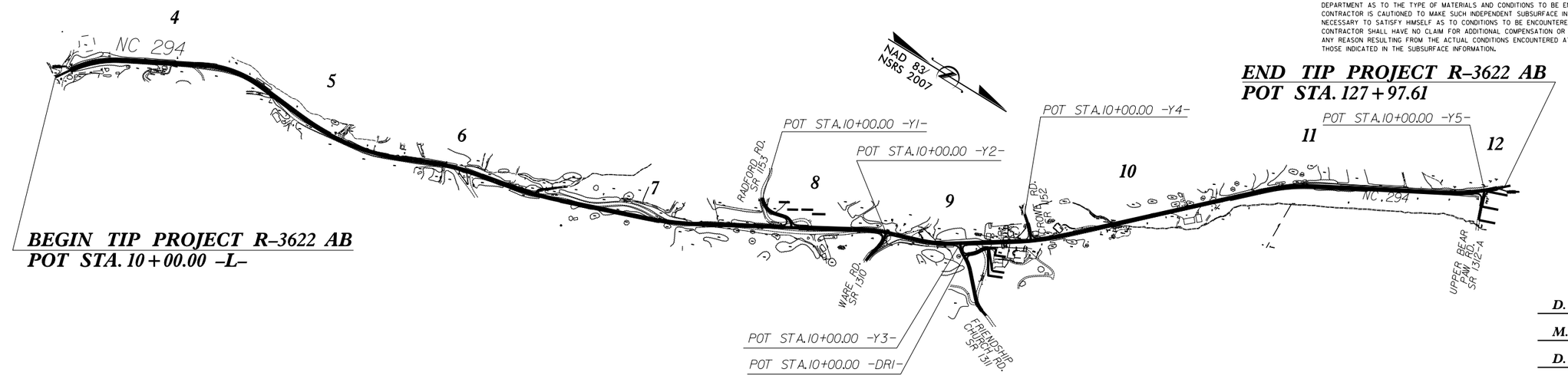
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
		P.E.
		R/W & UTIL.

PROJ. REFERENCE NO. *38068.1.1 (R-3622B)* F.A. PROJ. *N/A*

COUNTY *Cherokee*

PROJECT DESCRIPTION *NC 294 from SR 1130 (Sunny Point Rd.) to SR 1312-A (Upper Bear Paw Rd.)*

INVENTORY



BEGIN TIP PROJECT R-3622 AB
POT STA. 10+00.00 -L-

END TIP PROJECT R-3622 AB
POT STA. 127+97.61

CAUTION NOTICE

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

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

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

PERSONNEL

D. Racey
M. Brewer
D. Tignor
S. Davis
C. Ellis
P. Groff
E. Ruhl
P. Hughes
P. Alton, P.E.
D. Jenks

INVESTIGATED BY *F&R, Inc.*

CHECKED BY *P. Alton, P.E.*

SUBMITTED BY *F&R, Inc.*

DATE *April 2015*

DRAWN BY: *D. Racey*

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.

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER W. PATRICK ALTON

DocuSigned by:
W. Patrick Alton
A270EF78A6DF442...

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:

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

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	N/A
	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
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
- SPT, DPT, DMT, VST, PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

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

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

CORE SIZE:
- [ ] -B_____
- [X] -N 02
- [ ] -H_____

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

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

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

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER - A WATER BEARING FORMATION OR STRATA.

ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: N/A

ELEVATION: N/A FT.

NOTES:
ALLUV. = ALLUVIAL
CLY. = CLAYEY
DK. = DARK
FIAD = FILLED IMMEDIATELY AFTER DRILLING
GSRF = GRAVEL-SIZED ROCK FRAGMENTS
RDWY. EMB. = ROADWAY EMBANKMENT
SOS = SURFICIAL ORGANIC SOILS
TR. = TRACE
WR = WEATHERED ROCK
W/ = WITH

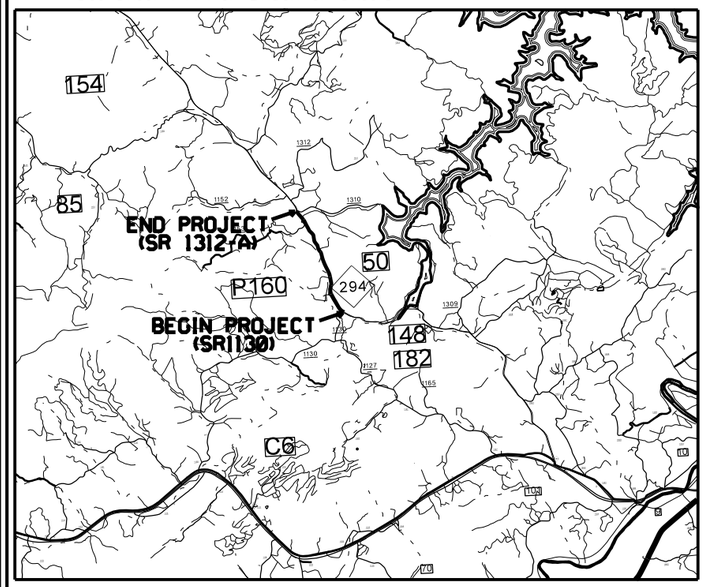
REVISED 09/23/09

09/08/99

TIP PROJECT: R-3622B

CONTRACT: 38068.1.1

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CHEROKEE COUNTY

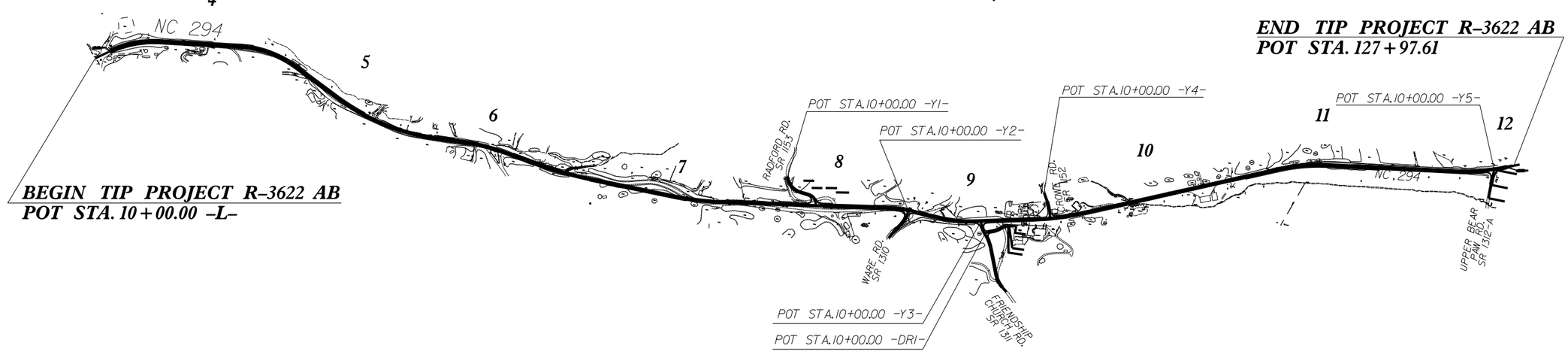
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3622B	2A	122

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38068.1.1		PE

LOCATION: NC 294 FROM SR 1130 (SUNNY POINT ROAD TO SR 1312-A (UPPER BEAR PAW ROAD

TYPE OF WORK: GRADING, DRAINAGE, AND PAVING

NAD 83-
NSRS 2007



BEGIN TIP PROJECT R-3622 AB
POT STA. 10+00.00 -L-

END TIP PROJECT R-3622 AB
POT STA. 127+97.61

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): 5 2.5 0 5 10

DESIGN DATA

ADT = 3,050
ADT = 6,000
DHV = — %
D = — %
T = 3 % *
V = 50 MPH
* TTST 3% DUAL—%
FUNC = MAJOR
CLASS COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY
TIP PROJECT R-3622 C = 2.1 MILES

Prepared in the Office of:
VAUGHN & MELTON, INC.
1318-F PATTON AVENUE ASHEVILLE, NC 28806 PHONE(828) 253-2796

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

PROJECT ENGINEER

PROJECT DESIGN 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.*

10-APR-2015 11:51
F:\Projects_66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\PlanProf\R3622C_geo_tsh_inv.dgn
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April 10, 2015

Vaughn & Melton Consulting Engineers
1318-F Patton Avenue
Asheville, North Carolina 28806

Attn: Mr. Reece Schuler, PE, SI

State Project No.: 38068.1.1
TIP No.: R-3622B
F.A. Number: N/A
County: Cherokee

Description: NC 294 from SR 1130 (Sunny Point Rd.) to SR 1312-A (Upper Bear Paw Rd.)

SUBJECT: **Geotechnical Report – Inventory**

Project Description

This project involves realigning existing NC 294 (-L-) for a distance of approximately 2.1 miles in Cherokee County, North Carolina. NC 294 is proposed to be re-graded and realigned for safety reasons along the existing 2-lane roadway. This will generally consist of straightening horizontal curves and flattening vertical curves. The project begins approximately at the intersection of NC 294 with Sunny Point Road and ends just north of its intersection with Upper Bear Paw Road. The new roadway generally extends through rolling terrain that contains widely spaced residences, grass fields and pastures.

Proposed embankment heights are generally less than 8 to 9 feet in height while proposed cut depths are generally less than 10 to 15 feet in height. However, the maximum embankment heights and cut depths reach approximately 30 feet at existing peaks and valleys.

Several intersecting roads will also be required to be re-graded (-Y4- & -Y5-) and realigned (-Y1-, -Y2-, -Y3- & -DR1-) to match the new grades on NC 294. Crowe Road (-Y4-) and Upper Bear Paw Road (-Y5-) will require minor re-grading and will retain their current alignments. Radford Road (-Y1-), Ware Road (-Y2-), Friendship Church Road (-Y3-) and the driveway from Friendship Church Road to the existing church (-DR1-) will be re-graded and realigned to intersect NC 294 at the new grades. Radford Road will require a maximum cut depth of approximately 23 feet and minimal embankment. Ware Road will require a maximum cut depth of approximately 12 feet and maximum embankment heights of approximately 5 feet. Friendship Church Road will require a maximum cut depth of approximately 26 feet and minimal embankment. The church driveway will require a maximum cut depth of approximately 14 feet and minimal embankment.

The geotechnical field investigation was performed between September 25 and October 24 of 2012. During this time period, a total of ninety-two (92) standard penetration test (SPT) borings were advanced with an ATV-mounted CME-55 drill rig with an automatic hammer. In addition, forty-nine (49) auger probe borings were completed in order to delineate shallow rock or potentially unsuitable soils. Representative soil and rock samples were collected for visual classification in the field and for laboratory analysis by F&R's testing laboratory.

The following alignments were investigated:

Line	Station(±)
-L-	10+00 to 127+97.61
-Y1-	10+00 to 13+44.15
-Y2-	10+00 to 12+14.81
-Y3-	10+00 to 15+66.83
-Y4-	10+00 to 12+13.51
-Y5-	10+00 to 11+25
-DR1-	10+00 to 12+00

Pond Surveys

F&R also conducted a siltation survey on two ponds (Pond A and Pond B) in order to document the existing bottom contours of the ponds and the existing quantities of sediment present in the ponds. Pond A is located approximately at -L- station 93+00, 250 feet left, and Pond B is located approximately at -L- station 97+00, 80 feet right. A sampling grid was developed to determine the sample locations. At each sample location, water (bathymetric) depth and total depth were determined using a 2-inch diameter, schedule 40, open-ended, PVC sampling probe annotated in 0.1 foot increments. Sediment thickness was determined by pushing the probe to refusal. Refusal is defined as the point at which the probe cannot achieve further penetration into the sediment under the weight of the person sampling.

Fourteen (14) sample locations were surveyed for Pond A. Bathymetric depths ranged from 1.2 to 8.0 feet, with an average depth of 5.9 feet. Total depths (depth to refusal) ranged from 1.6 to 10.1 feet below the water surface (at the time of the investigation), with an average depth of 6.7 feet. Sediment thickness ranged from 0 to 2.1 feet, with an average thickness of 0.8 feet.

Twenty-two (22) sample locations were surveyed for Pond B. Bathymetric depths ranged from 1.5 to 10.0 feet, with an average depth of 4.6 feet. Total depths ranged from 1.8 to 11.3 feet below the water surface, with an average depth of 5.3 feet. Sediment thickness ranged from 0.3 to 1.3 feet, with an average thickness of 0.7 feet.

Areas of Special Geotechnical Interest

1) Crystalline Rock: Multiple borings performed on this project encountered rock above or within six feet of the proposed grade. At other borings, crystalline rock was not encountered above or within six feet of the proposed grade, but dependent upon the trend of the rock-line, crystalline rock could be encountered above or within six feet of the proposed grade in adjacent slope areas. The following areas were found to contain or may contain crystalline rock above or within six feet of the proposed grade and will likely require ripping or blasting for removal:

Line	Station (±)
-L-	57+00, right
-L-	58+75 to 60+25
-L-	63+25 to 68+75
-L-	77+25 to 82+75
-L-	106+50, right
-Y2-	10+25 to 11+00, right
-Y2-	11+75 to 12+25, left

2) Weathered Rock: Multiple borings performed on this project encountered weathered rock above or within six feet of the proposed grade. At other borings, weathered rock was not encountered above or within six feet of the proposed grade, but dependent upon the trend of the rock-line, weathered rock could be encountered above or within six feet of the proposed grade in adjacent slope areas. The following areas were found to contain or may contain weathered rock above or within six feet of the proposed grade and have a potential to require ripping or blasting for removal:

Line	Station (±)
-L-	22+00, left
-L-	24+00, right
-L-	53+25, right
-L-	56+00 to 57+50
-L-	58+25 to 60+25
-L-	63+25 to 70+50
-L-	77+75 to 84+50
-L-	88+00, right
-Y1-	11+00 to 12+50
-Y2-	11+75 to 12+25, left
-Y3-	12+00 to 13+00

3) Soft, Loose and Wet Soils: The following areas contain relatively soft or loose and/or wet soils that have the potential to cause subgrade problems during construction:

Line	Station (±)
-L-	15+50 to 23+50, left
-L-	29+00 to 33+10, left
-L-	37+50 to 38+50, left
-L-	42+50 to 43+50, left
-L-	46+50 to 49+50,left
-L-	51+75 to 52+25, right
-L-	61+00 to 62+00, left
-L-	63+00 to 65+00, left
-L-	70+75 to 78+00
-L-	87+50 to 88+50, right
-L-	93+00 to 98+00
-L-	101+00 to 103+00, right
-L-	106+00 to 125+50, right
-Y2-	10+25 to 10+75, right
-Y4-	10+50 to 11+00, left

4) Cohesive Soils: The following areas contain cohesive soils that have the potential to cause embankment instability or long-term settlement problems:

Line	Station (±)
-L-	29+75 to 32+25, left
-L-	71+25 to 78+00
-L-	95+00 to 96+00, left
-L-	116+00 to 117+00, right
-L-	119+00 to 120+75, right
-L-	123+00 to 125+50, right

5) Groundwater: Several borings performed on this project encountered groundwater within six feet of the proposed grade. At other borings, groundwater was not encountered within six feet of the proposed grade, but dependent upon the actual groundwater level, groundwater could be encountered within six feet of the proposed grade in adjacent slope areas. The following areas exhibited or may exhibit groundwater within six feet of the proposed grade:

Line	Station (±)
-L-	53+25
-L-	58+25 to 59+25
-L-	80+00, right

-L-	96+15 to 96+75
-L-	112+50, right
-L-	120+00 to 126+00
-Y4-	10+75, left

The following areas exhibited groundwater within three feet of existing grade, which has the potential to cause subgrade problems during construction:

Line	Station (±)
-L-	30+75 to 31+75, left
-L-	96+15 to 96+75
-L-	123+00 to 126+00, right

6) Organic Soils: The following locations were found to contain organic-laden soils, which have the potential to cause subgrade problems during construction, embankment instability or long-term settlement problems:

Line	Station (±)
-L-	29+75 to 30+75, left
-L-	74+25 to 74+75, right
-L-	120+75 to 121+25, right

7) Springs: Springs were located within the proposed construction limits at the following locations:

Line	Station (±)
-L-	41+09, 42’ left
-L-	77+44, 57’ right
-L-	77+76, 31’ right
-L-	78+23, 29’ right

8) Hazardous Materials: Potentially hazardous materials were observed within the proposed construction limits at the following location. This location is the site of an abandoned structure currently being used as an auto pit:

Line	Station (±)
-L-	90+44, 50’ left

Physiography and Geology

The project is located in the Blue Ridge Belt of the Blue Ridge physiographic province of North Carolina. More specifically, it is located in an area mapped as Metasandstone, Metagraywacke, Metasiltstone, and Mica Schist. Weathered and crystalline rock samples recovered from our borings and observation of exposed boulders exhibited the characteristics of all of these units. The virgin soils are the residual product of in-place chemical weathering of rock that was similar to the rock presently underlying the site.

Existing NC 294 generally runs southeast to northwest. The ground surface along the centerline of NC 294 generally slopes upward from an elevation of ±1,593 feet at the beginning of the project to an elevation of ±1,800 feet near -L- station 70+00 (existing) and ±1,791 feet near -L- station 75+00 (proposed). The ground surface then generally slopes downward to an elevation of ±1,665 feet at the end of the project.

Based on review of the cross sections provided, the typical existing roadway section varies considerably. For the first half of the project, the roadway typically consists of embankment on the left and cut on the right. Beyond that, the roadway varies becoming relatively flat towards the end of the project. Existing cuts and fills generally appear to be on the order of approximately 10 to 20 feet with the existing slopes typically ranging from 1:1 (H:V) to 1.5:1 (H:V).

During our preliminary site visit, we observed multiple areas that contained exposed rock in cut slopes and at the existing ground surface. Generally however, no apparent structure was visible and the exposed rock appeared to mainly consist of boulders and/or weathered rock.

Several small, narrow streams approximately follow the alignment of existing NC 294. One stream converges with the south/west side of NC 294 at the beginning of the project at Sunny Point Road, and extends approximately to -L- station 51+00 near Sharing Lane, where it diverges from NC 294 and heads westward. Another stream converges with the west side of NC 294 approximately at -L- station 96+45 where it crosses under the road, and extends to the end of the project at Upper Bear Paw Road. In addition, two, small, man-made ponds are present – one approximately at 93+00, 250 feet left and one approximately at 97+00, 80 feet right.

Twin corrugated metal pipes (CMP) are present beneath NC 294 approximately at -L- station 96+45, which transport water northward from the stream beneath the road. The plans provided by Vaughn and Melton, indicate that the existing pipes are 60-inch diameter and approximately 30 feet long, and we have been informed that the CMPs will be replaced with a 6’ X 7’ reinforced concrete box culvert (RCBC).

Soils Properties - Roadway

The subsurface conditions discussed below and those shown on the attached drawings, represent an estimate of the subsurface conditions based on interpretation of the boring data using normally-accepted geotechnical engineering judgments. The transitions between different soil strata are usually less distinct than those shown on the plan views and cross sections. Sometimes the relatively small sample obtained in the field is insufficient to definitively describe the origin of the subsurface material. Although individual soil test borings are representative of the subsurface conditions at the boring locations on the dates performed, they are not necessarily indicative of subsurface conditions at other locations or at other times.

Soils within the area of this project have been divided into four categories: surficial materials (topsoil, asphalt, ABC stone), roadway embankment/artificial fill, alluvial soils, and residual soils.

Surficial Materials: Asphalt was encountered at the surface of borings L_2010L, L_3600, L_9550R, L_9648R, L_9750R, L_9850R, L_10050L, L_10150R, L_10250R, L_10450R and L_11258L. The asphalt ranged in thickness from approximately 0.5 to 0.8 feet.

Aggregate base course (ABC stone) was encountered at the surface of boring L_3400L and was approximately 1.5 feet thick. ABC stone was encountered below the asphalt at borings L_2010L, L_9648L, L_9850R, L_10050L and L_11258L and ranged in thickness from approximately 0.2 to 0.5 feet

Topsoil/rootmat was encountered at the surface of all of the remaining borings and ranged in thickness from approximately 0.1 to 0.3 feet.

Roadway Embankment/Artificial Fill: Roadway embankment (R.E.) / artificial fill (A.F.) soils were encountered below the asphalt in borings L_3600, L_9550R, L_9750R, L_10150R, L_10250R, and L_10450L. R.E. / A.F. soils were encountered below the ABC stone in borings L_2010L, L_10050L, and L_11258L. And R.E. / A.F. soils were encountered below the topsoil in borings L_4000R, L_4388R, L_6131L, L_7650R2, L_8600L, L_9350L, L_9450L, L_9550L, L_9600R, L_11250R and L_12563R. The fill soils generally consisted of sandy SILT (AASHTO classification A-4) with varying amounts of gravel and generally trace organics. The SPT N-values in the fill ranged from 0 to 17 blows per foot (bpf), but the majority ranged from 5 to 7 bpf. The fill extended to depths ranging from approximately 0.6 to 4.5 feet.

Alluvial Soil: Alluvial soils were encountered in borings generally located from -L- station 30+00 to 32+50, left; -L- station 94+50 to 102+50, left and right; and -L- station 112+50 to 125+63, right. The alluvial soils generally consisted of sandy SILT (A-4) and silty SAND (A-2-4), with lesser zones of clayey SILT (A-5) and sandy and silty CLAY (A-6 & A-7). At borings L_3000L, L_3003L and L_3050L, the alluvial soil consisted of clayey SILT with little organic matter (11.3%). At boring L_12100R, the alluvial soil consisted of silty CLAY with little organic matter (10.7%). The SPT N-values in the alluvial ranged from 0 to 16 bpf.

Residual Soil: The majority of the soils encountered on the project are residual soils, and typically consist of fine sandy SILT (A-4) and silty fine SAND (A-2-4). The residual soil is generally red, brown or gray in color and contains trace rock fragments and mica. The tested silty and sandy soils are either non-plastic or have low plasticity indices ranging from 1 to 10%. The consistency of the residual soils was most commonly medium dense to dense and stiff to hard.

Soils Properties - Culvert

One boring was performed near each end of the proposed culvert – borings L_9627L and L_9648R. The following discussion relates to these two borings.

Surficial Materials: Topsoil was encountered at the surface of boring L_9627L and was approximately 0.1 feet in thickness. Asphalt (0.6 feet) and ABC stone (0.5 feet) was encountered at the surface of boring L_9648R.

Roadway Embankment Fill: Roadway embankment (R.E.) was encountered below the surficial materials in both borings and consisted of fine to coarse sandy SILT (A-4). The SPT N-values in the fill ranged from 0 to 5 bpf. The fill in borings L_9627L and L_9648R extended to depths of approximately 2.0 feet and 6.0 feet, respectively.

Alluvial Soil: Alluvial soils were encountered below the R.E in both borings and consisted of silty fine to coarse SAND (A-2-4) and fine sandy SILT (A-4). A thin layer (~0.7 feet thick) of black silty CLAY (A-7-5) with an organic odor was encountered in boring L_9627L. The SPT N-values in the alluvial ranged from 0 to 4 bpf.

Residual Soil: Residual soils were encountered below the alluvial soil in both borings and consisted of fine sandy SILT (A-4). The SPT N-values in the residual ranged from 3 to 20 bpf.

Rock Properties

Weathered Rock (WR) and Crystalline Rock (CR) was encountered in almost half of the borings. The weathered rock was typically sampled as very hard sandy silt and very dense silty sand with rock fragments. The depth to weathered rock varied from 3.0 to 31.6 feet. The SPT N-values in the weathered rock ranged from 100/1.0’ to 100/0.2’.

Auger refusal was encountered in 17 borings (L_4388R, L_5700R, L_5900L, L_5900R, L_5900R2, L_6131L, L_6550R, L_6750L, L_6750R, L_6900L, L_7650R, L_7934L, L_8200R, L_10650R, Y2_1050R, Y2_1200L & Y2_1200L2) at depths ranging from approximately 3.0 to 44.7 feet. Auger refusal is a designation applied to any material that cannot be penetrated by the soil auger, and is typically caused by encountering boulders, hard rock lenses/ledges or bedrock. The nature of the materials causing auger refusal was not

explored in these borings, but is anticipated to represent the bedrock surface. The exception is boring L_10650R, which may have encountered a boulder.

An additional 32 auger probe borings were performed to further delineate rock in areas where crystalline rock was encountered within 6 feet of proposed grade. Auger refusal was encountered in 19 of the borings (L_3400L, L_5700R2, L_5950L, L_5950R, L_6450R, L_6500R, L_6550R2, L_6600L, L_6650L, L_6650R, L_6650R2, L_6700L, L_6750R, L_6800R, L_6850R, L_8100R, L_8100R2, L_8200R2 & L_8250R) at depths ranging from 4.0 to 40.3 feet.

Rock coring was performed at boring L_8000R after encountering auger refusal. The coring extended from 5.5 to 32.0 feet below the existing ground surface after SPT refusal was achieved. The rock consisted of moderately hard to very hard, moderately weathered to fresh, Metagraywacke. Isolated zones of lost core recovery were noted within the upper several feet, which may be indicative of the presence of relatively thin soil seams or weathered rock. The Recovery of each core run and the Rock Quality Designation (RQD) of each core run were measured by F&R staff. The strata recovery and RQD are indicated on the cross section. From 5.5 to 9.7 feet, the recovery and RQD were measured to be 90% and 50%, respectively. From 9.7 feet to boring termination, the recovery and RQD was measured to be 100% and 100%, respectively.

Groundwater Properties

Generally, groundwater measurements were attempted in a majority of the borings along the project except where borings had to be backfilled due to their location in the road (borings L_2010L, L_3600, L_7650R2, L_9550R, L_9648R, L_9750R, L_9850R, L_10050R, L_10150R, L_10250R, L_10450L & L_11258L). Stabilized groundwater was encountered in approximately 48 borings at depths ranging from 2.5 to 38.1 feet. Stabilized groundwater was not encountered in the remaining borings. The recovered soil samples were generally described as moist above the groundwater level and wet or saturated below the groundwater level.

Numerous wells, springs and seeps were noted during our preliminary site visit and during our field exploration. A majority of them are contained in a concrete housing and are indicated on the plans provided by Vaughn & Melton. Typically, the wells were being used for domestic water supply, and the springs and seeps were being used for livestock and domestic water or were being diverted into the storm drains. However, several springs were noted during our field reconnaissance that are not indicated on the plans. One uncontained spring was noted at approximate -L- station 64+70, 38’ left, but is estimated to be just outside of the proposed construction limits. Another spring was noted at approximate -L- station 75+29, 131’ right, and is currently being used for watering livestock and overflows out of an open concrete box. Another uncontained spring was noted at approximate -L- station 77+76, 31’ right, near the two existing springs indicated on the plans.

Geotechnical Descriptive Analysis of the Project

For descriptive purposes, the project has been divided into twelve segments. The division of the segments is based on the topography and proposed roadway elevations.

Segment 1: -L- Station 10+00 to 51+75 (±):

Segment 1 of the project will extend through an area with existing fill slopes on the left side of the existing alignment and existing cut slopes on the right side. The proposed alignment will generally follow the existing alignment with minimal cut and fill required at the centerline of the road. However, the realignment will require additional fill depths on the left ranging from approximately 5 to 15 feet and additional cuts on the right ranging from approximately 5 to 15 feet. The unclassified excavation to be encountered in the additional cuts is anticipated to consist mainly of residual sandy silts and silty sands. The subgrade within the areas of proposed fills is anticipated to consist mainly of soft to medium stiff residual sandy silts.

Segment 2: -L- Station 51+75 to 60+25 (±):

Segment 2 of the project will also extend through an area with existing fill slopes on the left side of the existing alignment and existing cut slopes on the right side. The proposed alignment diverges off the right side of the existing roadway, and will require deep, wide cuts ranging from approximately 5 to 32 feet in depth and 50 to 100 feet in width to accommodate proposed 2:1 (H:V) slopes. The unclassified excavation to be encountered in these cuts is anticipated to consist mainly of residual sandy silts, silty sands, weathered rock and crystalline rock.

Segment 3: -L- Station 60+25 to 65+25 (±):

Segment 3 of the project will extend through an area with existing fill slopes on the left and right sides of the existing alignment and transitions to minimal or no fill on the left and existing cut slopes on the right. The proposed alignment will generally follow the existing alignment with minimal cut and fill required at the centerline of the road. However, the realignment will require additional fill depths on the left ranging from approximately 5 to 15 feet or less and additional cuts on the right of approximately 12 feet and less. The unclassified excavation to be encountered in the additional cuts is anticipated to consist mainly of residual sandy silts, sand clays, weathered rock and crystalline rock. The subgrade within the areas of proposed fill is anticipated to consist of medium stiff to very stiff sandy silt (A-4).

Segment 4: -L- Station 65+25 to 71+00 (±):

Segment 4 of the project will extend through an area with existing cut slopes on the left and ride sides of the existing alignment. The proposed alignment diverges off the left side of the existing roadway, and will require additional cuts on both sides ranging in depth from approximately 10 to 27 feet. The unclassified

excavation to be encountered in these cuts is anticipated to consist mainly of residual sandy silts, silty sands, sandy clays, weathered rock and crystalline rock.

Segment 5: -L- Station 71+00 to 78+25 (±):

Segment 5 of the project will extend through an area with existing fill slopes on the left and right sides of the existing alignment and transitions to existing cut slopes on the left. The proposed alignment converges with the existing roadway towards the end of this segment and will require fill ranging in depth from approximately 10 to 30 feet. This will include approximately 10 to 20 feet of fill over the existing roadway. The subgrade within this area is anticipated to consist of soft to medium stiff sandy clay, soft to medium stiff sandy silt, and existing roadway embankment soils.

Segment 6: -L- Station 78+25 to 85+25 (±):

Segment 6 of the project will extend through an area with existing cut slopes on the left and right sides of the existing alignment. The proposed alignment will generally follow the existing alignment and will require additional cut depths on the left and right ranging from approximately 10 to 18 feet. The unclassified excavation to be encountered in the additional cuts is anticipated to consist mainly of residual sandy silts, silty sands, weathered rock and crystalline rock.

Segment 7: -L- Station 85+25 to 105+75 (±):

Segment 7 of the project will extend through an area with minimal, existing, cut and fill slopes on the left and right sides of the existing alignment. The proposed alignment will generally follow the existing alignment and will require additional cut and fill depths of less than approximately 5 feet. The unclassified excavation to be encountered in the additional cuts is anticipated to consist mainly of residual silty sands, sandy silts, weathered rock and crystalline rock. The subgrade within the areas of proposed fills is anticipated to mainly consist of alluvial sandy silts.

Segment 8: -L- Station 105+75 to 126+50 (±):

Segment 8 of the project will extend through an area with existing cut slopes on the left side of the existing alignment and fill slopes on the right side. The proposed alignment will generally follow the existing alignment and will require additional cut depths on the left of less than approximately 5 feet and additional fill depths on the right ranging from approximately 5 to 13 feet. The unclassified excavation to be encountered in the additional cuts is anticipated to consist mainly of residual silty sands and sandy silts. The subgrade within the areas of proposed fill is anticipated to consist mainly of soft to medium stiff alluvial sandy silt (A-4).

Segment 9: -Y1- Station 10+00 to 13+50 (±):

Segment 9 of the project will extend through an area with existing cut slopes on the left side of the existing alignment and existing fill slopes on the right side. The proposed alignment diverges off the left side of the existing roadway, and will require additional cut depths of up to approximately 22 feet. The unclassified excavation to be encountered in these cuts is anticipated to consist mainly of residual sandy silts, silty sands and weathered rock.

Segment 10: -Y2- Station 10+00 to 12+75 (±):

Segment 10 of the project will extend through an area with existing cut slopes on the left side of the existing alignment and natural ground on the right side. The proposed alignment diverges off the right side of the existing roadway, and will require additional cut depths of up to approximately 10 feet and fill depths of up to approximately 5 feet. The unclassified excavation to be encountered in these cuts is anticipated to consist mainly of residual sandy silts, silty sands, and weathered rock. The subgrade within the areas of proposed fills is anticipated to consist of medium stiff sandy silt.

Segment 11: -Y3- Station 10+00 to 16+00 and -DR1- Station 10+00 to 12+00 (±):

Segment 11 of the project diverges onto a new alignment off of the existing roadway, and will require deep, wide cuts on the left and right, ranging from approximately 5 to 26 feet in depth and 70 to 115 feet in width to accommodate proposed 1.5:1 (H:V) slopes. The unclassified excavation to be encountered in these cuts is anticipated to consist mainly of residual sandy silts, silty sands and weathered rock.

Segment 12: -Y4- Station 10+00 to 12+00 and -Y5- Station 10+00 to 11+25 (±):

Segment 12 of the project will extend through an area with minimal, existing fill slopes on the left and right sides of the existing alignment. The proposed alignment will generally follow the existing alignment and will require minimal additional fill depths of less than approximately 2 feet.

Sincerely,

FROEHLING & ROBERTSON, INC.

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER W. Patrick Alton

DocuSigned by:
W. Patrick Alton
A270EF78A6DF442...

W. Patrick Alton, P.E.
Geotechnical Services Manager

6113E431716C478...
Daniel Schaefer
DocuSigned By: Daniel Schaefer

Daniel K. Schaefer, P.E.
Raleigh Branch Manager

Appendix A

Shelby Tubes

The following Shelby tubes were obtained and transported to our laboratory for potential testing to determine the engineering properties of the soil:

Sample No.	Boring No.	Line	Station	Offset	Depth (ft)	Test(s) Performed
ST-1	L_7450R	-L-	74+50	75’ Rt	6.0 – 8.0	CU Triaxial Shear Testing
ST-2	L_3003L	-L-	30+03	22’ Lt	5.0 – 7.0	Consolidation Testing
ST-3	L_3000L	-L-	30+00	22’ Lt	5.0 – 7.0	Not tested
ST-4	L_7450R	-L-	74+50	75’ Rt	6.0 – 8.0	CU Triaxial Shear Testing and Consolidation Testing

Bulk Samples

The following bulk samples were obtained and transported to our laboratory for potential testing to determine the engineering properties of the soil:

Sample No.	Boring No.	Line	Station	Offset	Depth (ft)	Test(s) Performed
CBR-1	L_2600R	-L-	26+00	35’ Rt	5.5 – 8.0	California Bearing Ratio
CBR-2	L_4600R	-L-	46+00	27’ Rt	8.5 – 15.0	California Bearing Ratio
CBR-3	L_5789L	-L-	57+89	19’ Lt	3.5 – 5.5	California Bearing Ratio
CBR-4	L_6900L	-L-	69+00	33’ Lt	7.0 – 13.0	California Bearing Ratio
CBR-5	L_8400R	-L-	84+00	63’ Rt	5.0 – 10.0	California Bearing Ratio

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	3G

EARTHWORK BALANCE SHEET

SINCE F&R 1881

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Consulting Engineers

Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/ NSRS 2007

15

20

10

POT Sta. 10+00.00

-L- STA. 11+35.00
BEGIN TIP PROJECT R-3622B
BEGIN CONSTRUCTION

N 57° 13' 14.5" W

CONC HW
11'-7" x 7'-9" CMAP
11'-7" x 7'-9" CMAP
CONC HW

60.00'
EXISTING R/W
EXISTING R/W

GRAVEL
18" CMP
GAIL NICHOLS
DB 628 PG 10

SUNNY POINT RD. SR 1130
20' BST

NC 294 22' BST

SCRUB
CONC HW
EXISTING R/W
SCRUB
EXISTING R/W
GAIL NICHOLS
DB 628 PG 10
GAIL NICHOLS
DB 628 PG 10

Boulder
GRAVEL
SCRUB
WD SHED
MTL SHED
WOODS
NELSON RIDGE DRIVE
17' BST
12" CMP
12" CMP
EIP
EXISTING R/W
WOODS
48" CMP
EXISTING R/W
ROCK SIGN
ROCK PLANTER
CB
GATE
ROCK COLUMNS

MARGARET E. HOGSED
(FORMERLY MARGARET ALEWEL)
DB 465 PG 175

EIP
EIP

TERRY J. SYMANSKY
DB 1349 PG 811

JOHN G. DUNN
DB 1185 PG 722

BART GERSHENBAUM
KATHLEEN PALMIERI
DB 1363 PG 362

JOHN H. FENWICK
DB 1190 PG 196

TS Sta. 10+50.03

SC Sta. 11+95.03

CS Sta. 14+73.69

ST Sta. 16+17.69

MATCHLINE -L- STA. 21+00 SEE SHEET 5

REVISIONS

8/17/99

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Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/
NSRS 2007

25

30

LARRY McNABB
DB 324 PG 199

CHADWICK WAYNE McNABB
DB 1258 PG 54
DB 827 PG 23

GAIL NICHOLS
DB 628 PG 10

36" CMP

BLOCK PUMP HOUSE

BLOCK WALL

EXISTING R/W

SCRUB

CONC HW

NC 294 22' BST

Boulders/WR

WOODS

MICHAEL L. BIAS
DB 899 PG 69

GRAVEL

N 05°57'37" E 152.27'

15" CMP

Elp

24" OAK

ROADWAY EMBANKMENT

ALLUVIAL

RESIDUAL

OUTLET UNKNOWN

TS Sta. 30+30.31

SC Sta. 31+40.31

LARRY McNABB
DB 324 PG 199

WOODS

EXISTING R/W

Boulders/WR

MATCHLINE -L- STA. 34+00 SEE SHEET 6

ROBERT W. FAIL
DB 702 PG 121

MATCHLINE -L- STA. 21+00 SEE SHEET 4

TS Sta. 21+19.62

SC Sta. 22+63.62

CS Sta. 26+01.99

ST Sta. 27+45.99

JAMES L. DAVIS, JR.
DB 1345 PG 949

UNITED COMMUNITY BANK
DB 1418 PG 869

CONC HW

18" CMP

30" CMP

IS FD

GR

IO

ROCK HW

N 05°57'16" E 92.65'

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default AT 66P.CTB

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PROJECT REFERENCE NO.	SHEET NO.
R-3622B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/ NSRS 2007

MATCHLINE -L- STA. 34+00 SEE SHEET 5

MATCHLINE -L- STA. 48+00 SEE SHEET 7

CS Sta. 39+28.81

ST Sta. 40+38.81

TS Sta. 41+38.15

SC Sta. 42+58.15

CS Sta. 44+67.94

ST Sta. 45+87.94

TS Sta. 47+08.18

SC Sta. 47+80.18

LARRY McNABB DB 324 PG 199

GAIL W. STANSELL DB 668 PG 57

DONALD L. MORRIS DB 943 PG 101

MICHAEL L. WOOD DB 1230 PG 79

ARLIN DEAN ET AL DB 795 PG 77

NOTE: DROP INLET IS 12" CMP PLACED VERTICALLY ON 30" CMP

OUTLET UNKNOWN

BLOCK PUMPHOUSE (ABAND)

Boulders/WR

Boulder

WOODS

SCRUB

SHED

EXISTING R/W

CONC HW

ROCK WALL

PED

TRANSFORMER

METER

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User: AT 66(all)

8/17/99

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Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/ NSRS 2007

MATCHLINE -L- STA. 48+00 SEE SHEET 6

MATCHLINE -L- STA. 61+00 SEE SHEET 8

PRC Sta. 11+22.41
PRC Sta. 10+18.73
PC Sta. 10+00.00
CS Sta. 52+26.77
ST Sta. 52+98.77
TS Sta. 58+96.92
SC Sta. 59+92.92

PT Sta. 11+79.98

-L- Sta. 50+50.00=
~~DR2- Sta. 11+86.52~~

N 19° 55' 41.7" W

VERNA RAE WELLS GRIFFIN
DB 777 PG 61

THOMAS J. NEVIEAU
DB 696 PG 74

JOHN F. CHYNOWETH, TRUSTEE
DB 1174 PG 291

KAREN BETH WESTENE
DB 1168 PG 473

T. L. MCNARB, JR.
DB 383 PG 99

NOTTINGHAM HILL, INC.
DB 1188 PG 37

SCOTT W. PRESTON
DB 1316 PG 827

SHARING LANE

EXISTING R/W

24" CMP

36" CMP

NC 294 22 BST

CONC HW

WD RAIL

BRICK COLUMNS

GRAVEL

4" WW

Rock Outcrop

Rock Outcrops

MTL SHED

WOODS

SCRUB

EIP

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PROJECT REFERENCE NO.	SHEET NO.
R-3622B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99

NAD 83/ NSRS 2007

65 70 10

-Y1- PC Sta.10+00.00
BEGIN CONSTRUCTION

PT Sta. 11+65.78

PC Sta. 12+40.85

PT Sta. 13+43.86

-L- Sta. 70+91.19=
-Y1- Sta. 13+44.15

MATCHLINE -L- STA. 61+00 SEE SHEET 7

MATCHLINE -L- STA. 74+00 SEE SHEET 9

CS Sta. 62+90.84

ST Sta. 63+86.84

Rock Outcrops

Boulders/WR

N 29°44'28.6" W

N 30°27'17" W 444.01'

KAREN BETH WESTENBERG
DB 1168 PG 473

ROBERT H. GILBREATH, JR.
DB 1158 PG 337

T. L. McNABB, JR.
DB 383 PG 99

RADFORD RD. SR 1153 18' BST

NC 294 22' BST

WOODS

SPRING

GARAGE

CONC HW

MTL GATE

18" CMP

24" CMP

EXISTING R/W

IRR. TIE WALL

1½ S FD

CONC

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SINCE F&R 1881

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Consulting Engineers

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Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865 546 5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99

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dlarsen
At 66.00ft

MATCHLINE -L- STA. 74+00 SEE SHEET 8

MATCHLINE -L- STA. 88+00 SEE SHEET 10

NAD 83/ NSRS 2007

TS Sta. 75+74.90
SC Sta. 77+13.90
CS Sta. 77+79.46
TS Sta. 80+40.69
SC Sta. 81+79.69
CS Sta. 83+19.22
ST Sta. 84+58.22

-L- Sta. 78+40.49=
-Y2- Sta. 10+00.00

-L- Sta. 84+37.24=
-Y3- Sta. 10+00.00

ROBERT H. GILBREATH, JR. DB 1158 PG 337

NEW COMMUNICATIONS OF THE CAROLINAS, INC. DB 1389 PG 631

FOX RIDGE OF CHEROKEE COUNTY, LLC. DB 1169 PG 382

ROBERT P. WARE DB 879 PG 45 DB 1119 PG 621

T. L. McNABB, JR. DB 383 PG 99

LEE TAYLOR DB 1177 PG 113

WOODS
SCRUB
NC 294 22' BST
EXISTING R/W
CAROLINA FOX RIDGE (PVT)
GATE CODE BOX
MTL GATE
PED
TRANSFORMER
PUMP HOUSE
DROP INLET IS VERTICAL 30" CMP
12" CMP
18" CMP
24" CMP
SPRING
SPRING BOX (IDENTIFIED DURING GEOTECHNICAL FIELD INVESTIGATION)
WET
Rock Outcrop/ Boulder
Rock Outcrops/ Boulders/WR
Boulders/WR
(IDENTIFIED DURING GEOTECHNICAL FIELD INVESTIGATION)
WOOD SHED
CONC WALL
ROCK WALL
MTL S RR
C&G
ASPHALT PARKING
2' C&G
I S FD (CHURCH DAY CARE)
WARE RD. SR 1390
FRIENDSHIP CHURCH RD SR 1391 18' BST
5 SBW
2 S ELEC.
1½ S FD
EIP
CONC MON

PT Sta. 11+32.31
-Y2- PT Sta. 12+15.00
END CONSTRUCTION
PRC Sta. 12+77.19

PC Sta. 10+06.67
PRC Sta. 10+50.34
PRC Sta. 11+42.90
PC Sta. 10+04.62
PRC Sta. 11+03.38
-Y3- Sta. 11+07.10=
-DRI- Sta. 10+00.00
PT Sta. 12+32.32
PT Sta. 12+06.80
-DRI- Sta. 12+00.00
END CONSTRUCTION
PC Sta. 14+47.65
-Y3- Sta. 15+65.00
END CONSTRUCTION
PT Sta. 15+66.83
POT Sta. 16+16.24
POT Sta. 12+65.36

SINCE F&R 1881

V&M Vaughn & Melton
Consulting Engineers

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Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99

NAD 83/ NSRS 2007

MATCHLINE -L- STA. 88+00 SEE SHEET 9

MATCHLINE -L- STA. 102+00 SEE SHEET 11

TS Sta. 88+21.47

SC Sta. 89+17.47

CS Sta. 92+26.89

ST Sta. 93+22.89

POT Sta. 10+00.00

-Y4- Sta. 10+75.00 BEGIN CONSTRUCTION

PC Sta. 10+80.73

PT Sta. 11+36.01

-L- Sta. 89+95.85= END -Y4- Sta. 12+13.51

POND A

POND B

ROADWAY EMBANKMENT

ALLUVIAL

RESIDUAL

ARTIFICIAL FILL

MARSHALL G. SIMMONS DB 1107 PG 786

TAMMY WOOD WRIGHT DB 1121 PG 357 DB 1270 PG 795

STANLEY WOOD, JR. DB 523 PG 39 DB 350 PG 140

KRISTIE WRIGHT DB 1110 PG 117

KRISTIE HARBIN DB 1203 PG 554

FRIENDSHIP BAPTIST CHURCH DB 1305 PG 859 DB 213 PG 187 DB 211 PG 71 DB 206 PG 293 DB 191 PG 286 DB 171 PG 290

2 S BR CHURCH

Boulders/WR

24" CMP

36" CMP

18" CMP

8" HDPE

60" CMP

12" RCP

WOODS

SCRUB

GRAVEL PARKING

ASPHALT

CONC WELL HOUSE

CONC PAD

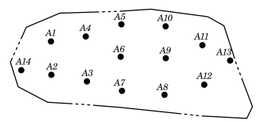
ROCK WALL

WD DECK

DRAIN PIPE

EIP

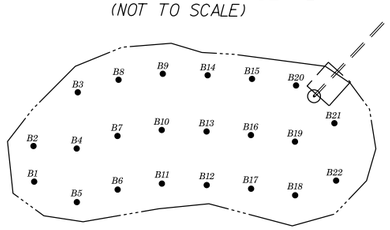
POND A TEST LOCATION DETAIL
(NOT TO SCALE)



POND A
SEDIMENT SURVEY DATA

STATION	BATHYMETRIC DEPTH (ft)	TOTAL DEPTH (ft)	SEDIMENT DEPTH (ft)
A1	3.4	3.7	0.3
A2	4.6	4.8	0.2
A3	8.0	10.1	2.1
A4	7.5	8.3	0.8
A5	7.4	7.8	0.4
A6	7.0	8.7	1.7
A7	7.6	8.2	0.6
A8	7.2	8.5	1.3
A9	7.9	8.9	1.0
A10	7.0	7.6	0.6
A11	5.8	6.0	0.2
A12	5.9	7.3	1.4
A13	1.2	2.4	1.2
A14	1.6	1.6	0.0

POND B TEST LOCATION DETAIL
(NOT TO SCALE)



POND B
SEDIMENT SURVEY DATA

STATION	BATHYMETRIC DEPTH (ft)	TOTAL DEPTH (ft)	SEDIMENT DEPTH (ft)
B1	1.5	1.8	0.3
B2	1.6	2.0	0.4
B3	2.1	2.6	0.5
B4	5.1	5.4	0.3
B5	3.5	4.2	0.7
B6	3.3	3.9	0.6
B7	6.1	6.7	0.6
B8	2.9	4.0	1.1
B9	6.1	6.4	0.3
B10	8.0	8.7	0.7
B11	3.6	4.2	0.6
B12	4.3	4.9	0.6
B13	10.0	11.3	1.3
B14	7.0	7.6	0.6
B15	4.5	5.4	0.9
B16	9.9	11.2	1.3
B17	3.6	4.2	0.6
B18	3.6	4.3	0.7
B19	3.9	4.7	0.8
B20	4.6	5.4	0.8
B21	2.9	3.7	0.8
B22	3.5	4.1	0.6

10-APR-2015 11:04
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\PlanProf\R3622C_geo_inv_psh_10.dgn
Placeur, Al (66PAT)

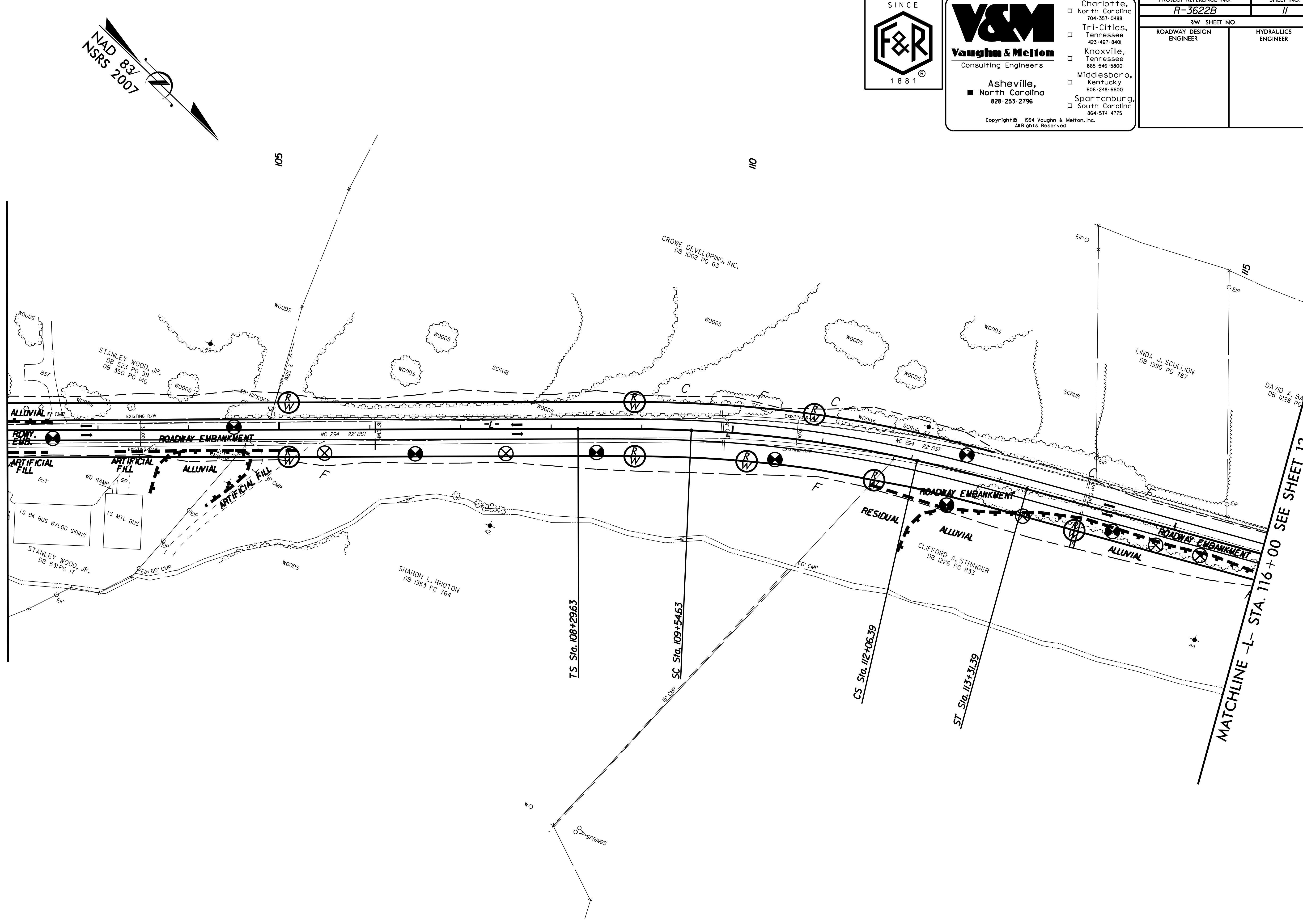
PROJECT REFERENCE NO.	SHEET NO.
R-3622B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SINCE F&R 1881

V&M Vaughn & Melton Consulting Engineers

Asheville, North Carolina 828-253-2796

Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775



8/17/99

10-APR-2015 11:05
F:\Projects 66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\PlanProf\R3622C_geo_inv_psh_11.dgn

8/17/99

NAD 83/
NSRS 2007

SINCE F&R 1881

V&M Vaughn & Melton
Consulting Engineers

Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574 4775

PROJECT REFERENCE NO.	SHEET NO.
R-3622B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATCHLINE -L- STA. 116+00 SEE SHEET 11

KATHLEEN K. LEACH DB 1214 PG 143

DOUGLAS O. FOSTER DB 1222 PG 647

ROBERT D. TRUETT DB 1285 PG 70

CROWE DEVELOPING, INC. DB 1062 PG 63

KEVIN L. SULLIVAN DB 1361 PG 698

CROWE DEVELOPING, INC. DB 1062 PG 63

KENNETH GENE KEENUM, SR. DB 968 PG 394

CLIFFORD A. STRINGER DB 1226 PG 833

KENNETH GENE KEENUM, SR. DB 968 PG 394

HAWDEN LANE

NC 294

SC Sta. 124+17.69

CS Sta. 125+77.71

ST Sta. 127+11.71

TS Sta. 122+83.69

POT Sta. 128+32.59

POT Sta. 12+34.39

-L- Sta. 126+22.24=
-Y5- Sta. 10+00.00

-L- STA. 127+25.00
END TIP PROJECT R-3622B
END CONSTRUCTION

-Y5- Sta. 11+25.00
END CONSTRUCTION

ROADWAY EMBANKMENT

ALLUVIAL

RESIDUAL

WOODS

SCRUB

EXISTING R/W

INV=1655.21'

INV=1654.68'

-L- CURVE DATA

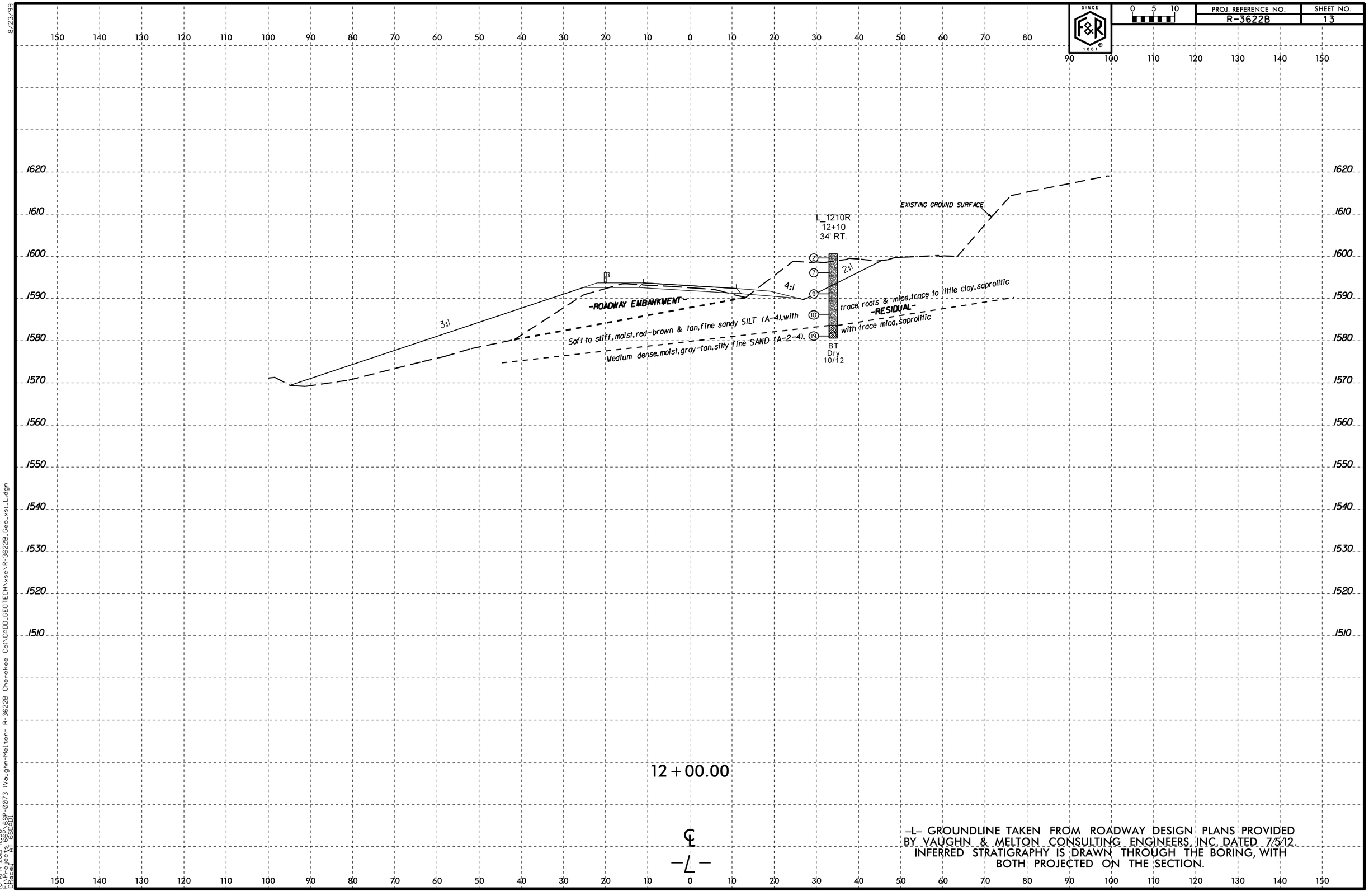
PIs Sta 123+73.04	PI Sta 124+97.82	PIs Sta 126+22.39
θs = 3°18'33.6"	Δ = 7°54'14.2" (LT)	θs = 3°18'33.6"
Ls = 134.00'	D = 4°56'21.4"	Ls = 134.00'
LT = 89.35'	L = 160.02'	LT = 89.35'
ST = 44.68'	T = 80.14'	ST = 44.68'
	R = 1160.00'	

10-APR-2015 11:06
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\PlanProf\R3622C_geo_inv_psh_12.dgn
dbogan

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	13

0 5 10



12+00.00

℄

–L–

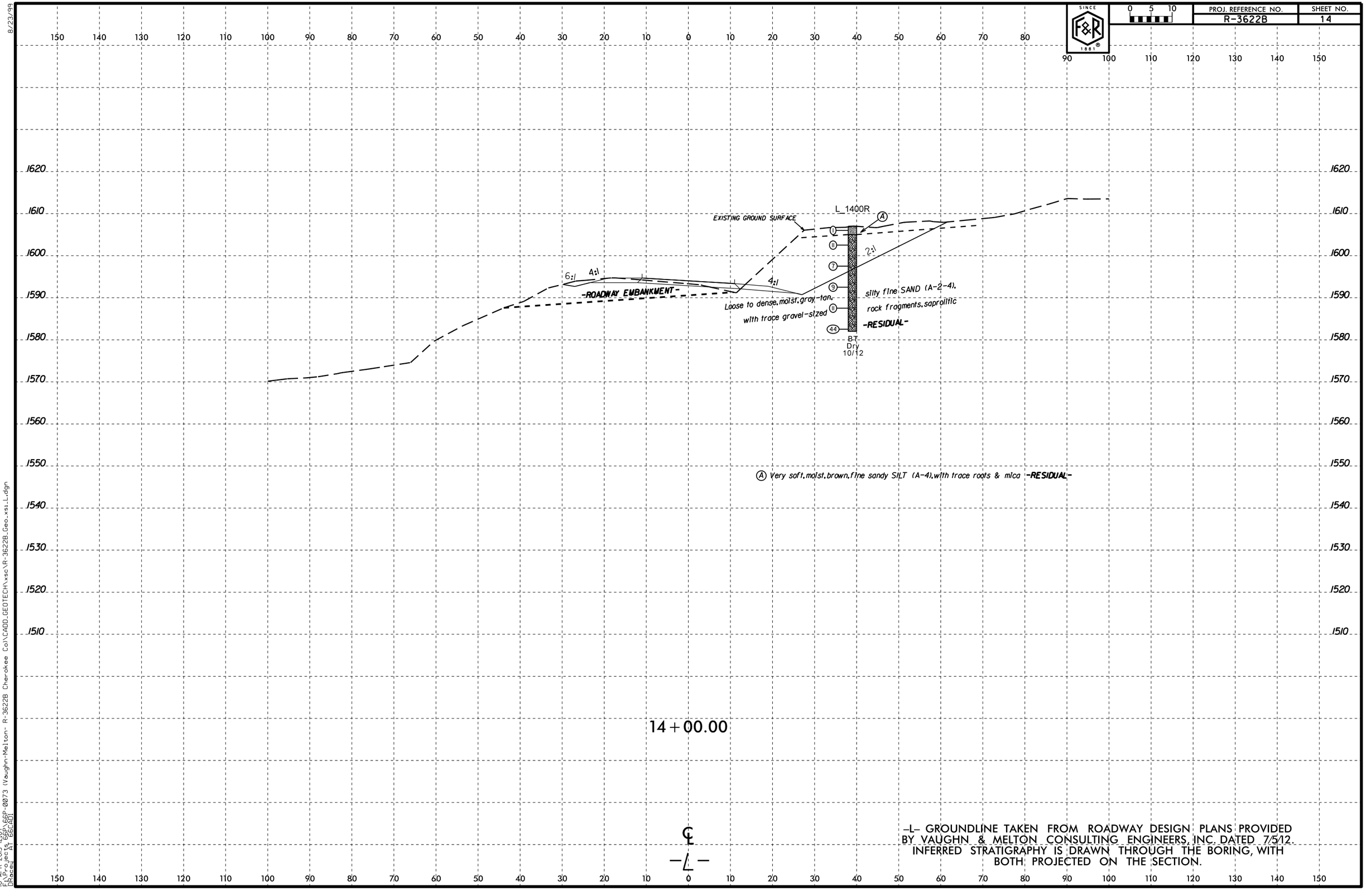
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:06
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CAD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	14

0 5 10



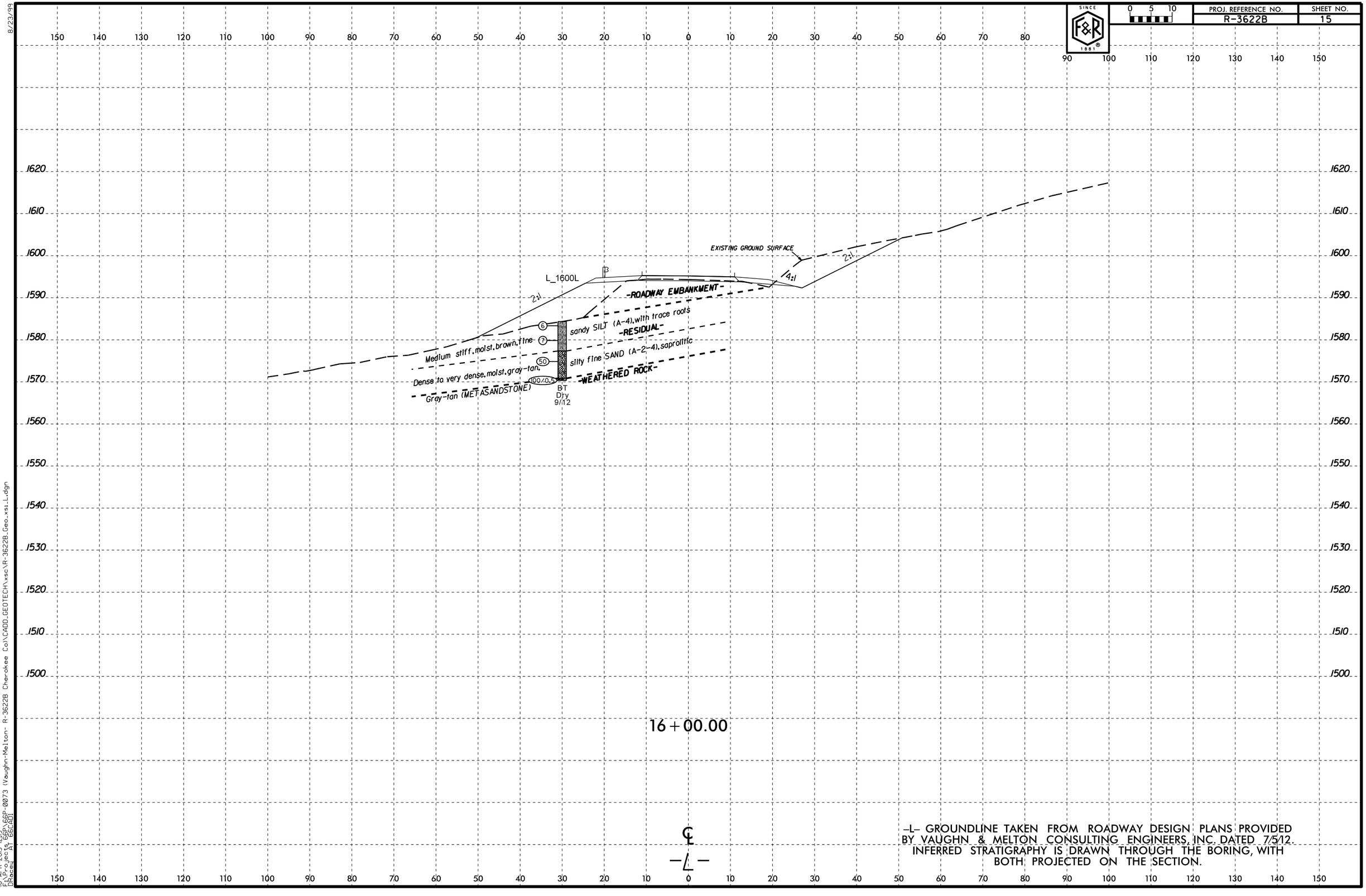
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:07
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 11" 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	15

0 5 10



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:19
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default A1 66CADI

8/23/99

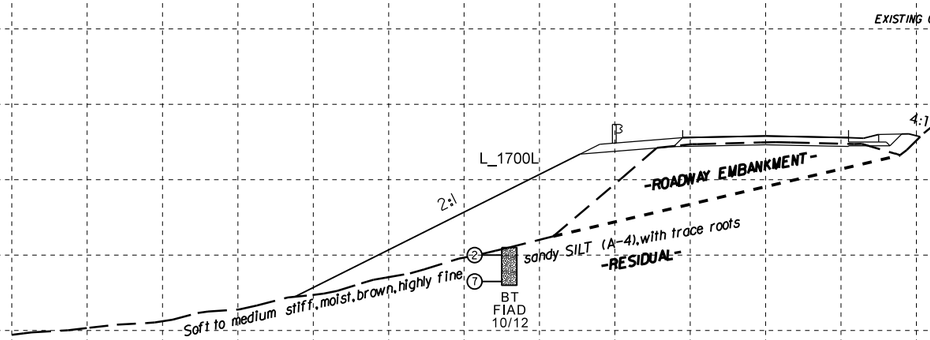
SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	16

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

1640 1630 1620 1610 1600 1590 1580 1570 1560 1550 1540 1530 1520 1510 1500 1490 1480



17 + 00.00

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—L—

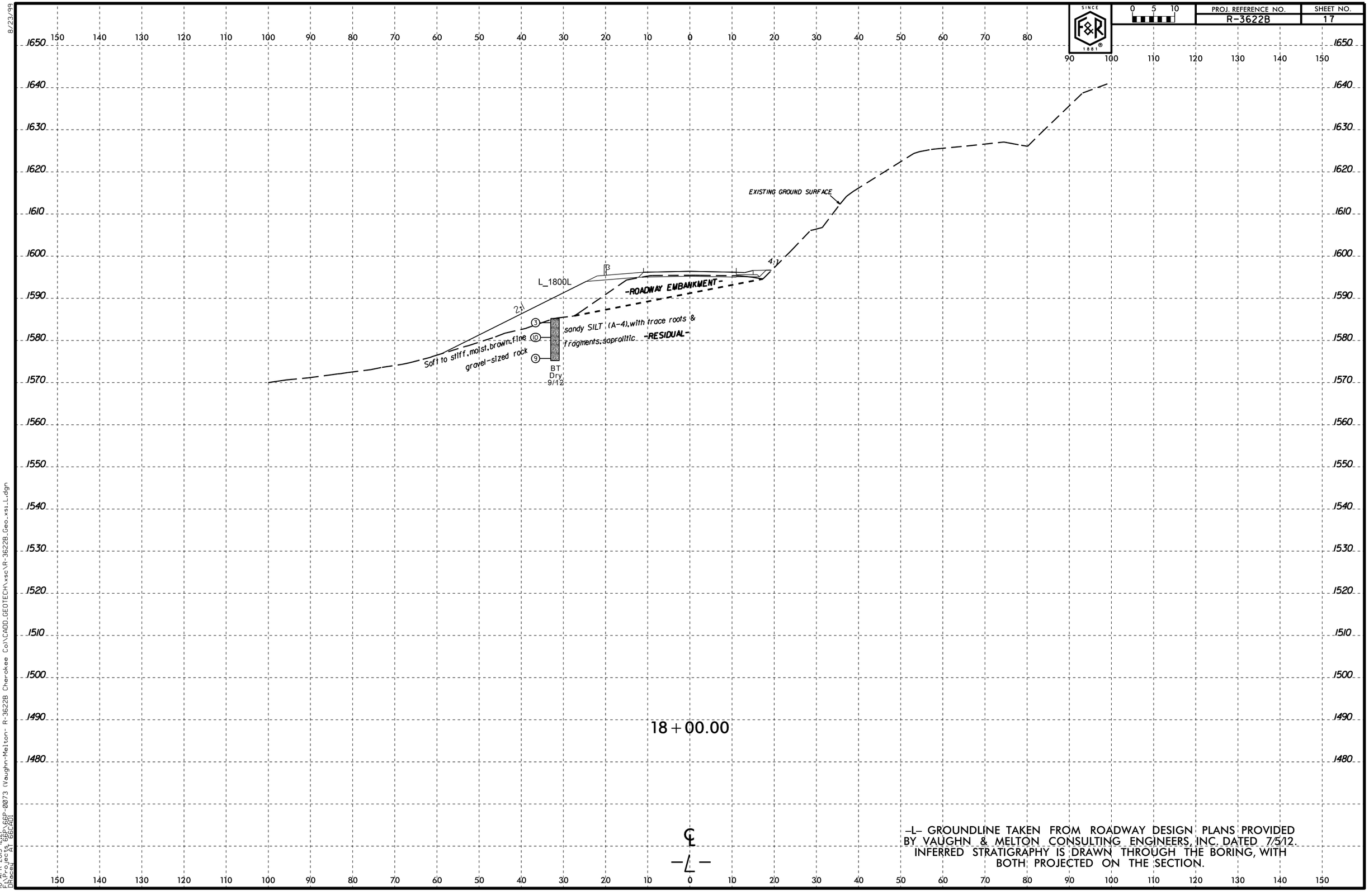
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:20
F:\Projects\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CAD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	17

0 5 10



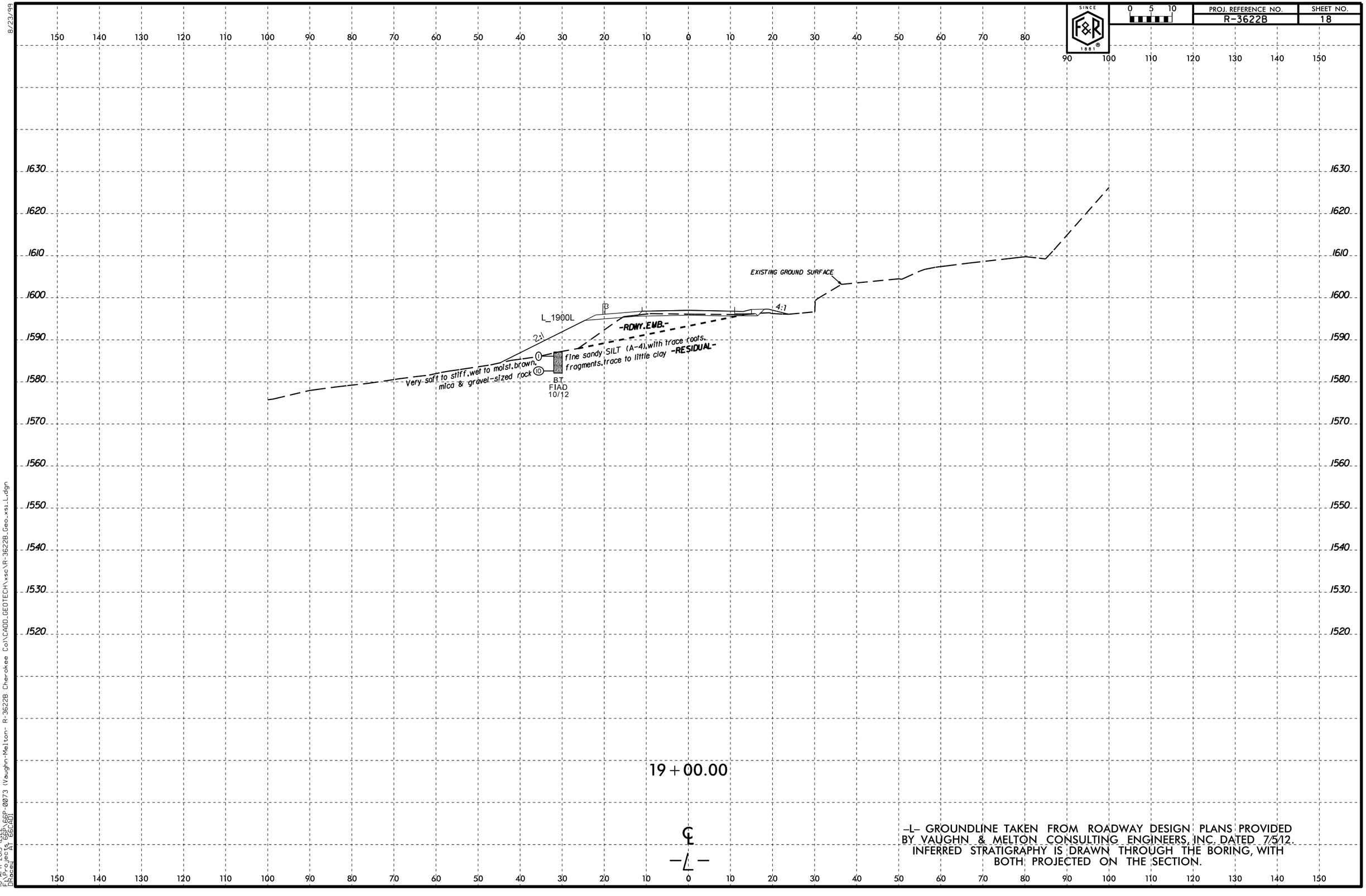
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:21
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 11" 66CAD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	18

0 5 10



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

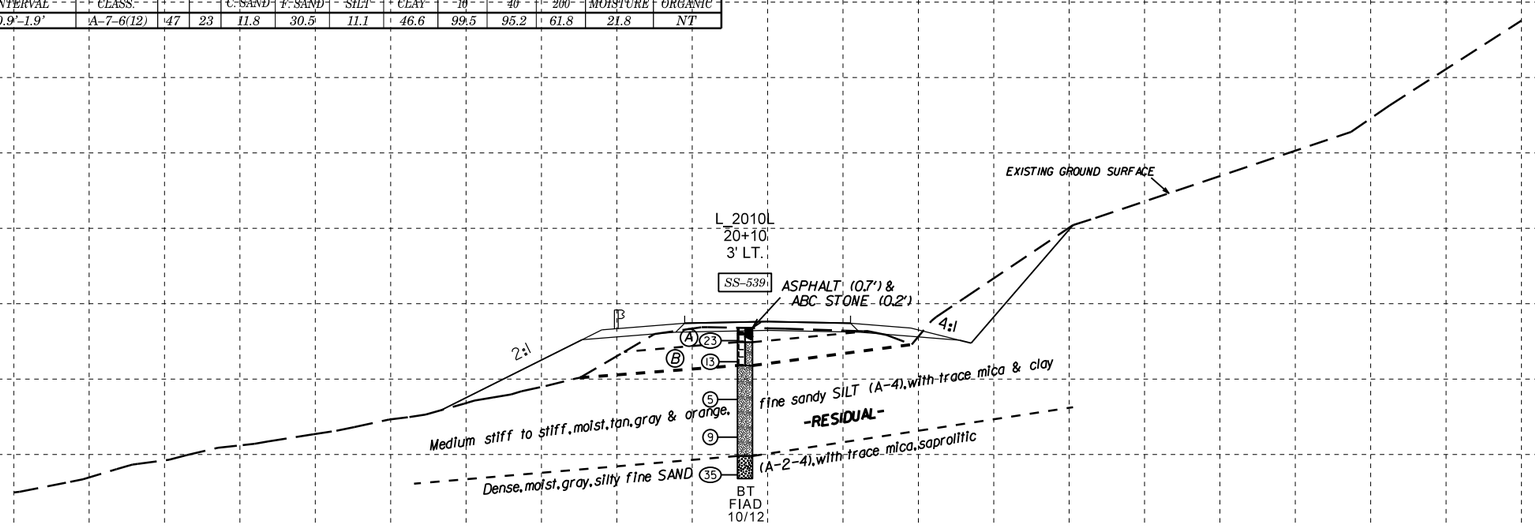
10-APR-2015 12:22
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CAD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	19

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-539	3' LT.	20+10	0.9'-1.9'	A-7-6(12)	47	23	11.8	30.5	11.1	46.6	99.5	95.2	61.8	21.8	NT



Ⓐ Very stiff, moist, red-brown, highly fine to coarse sandy CLAY (A-7-6), with trace gravel, little silt **-ROADWAY EMBANKMENT-**

Ⓑ Stiff, moist, gray, fine sandy SILT (A-4), with trace mica **-ROADWAY EMBANKMENT-**

20+00.00

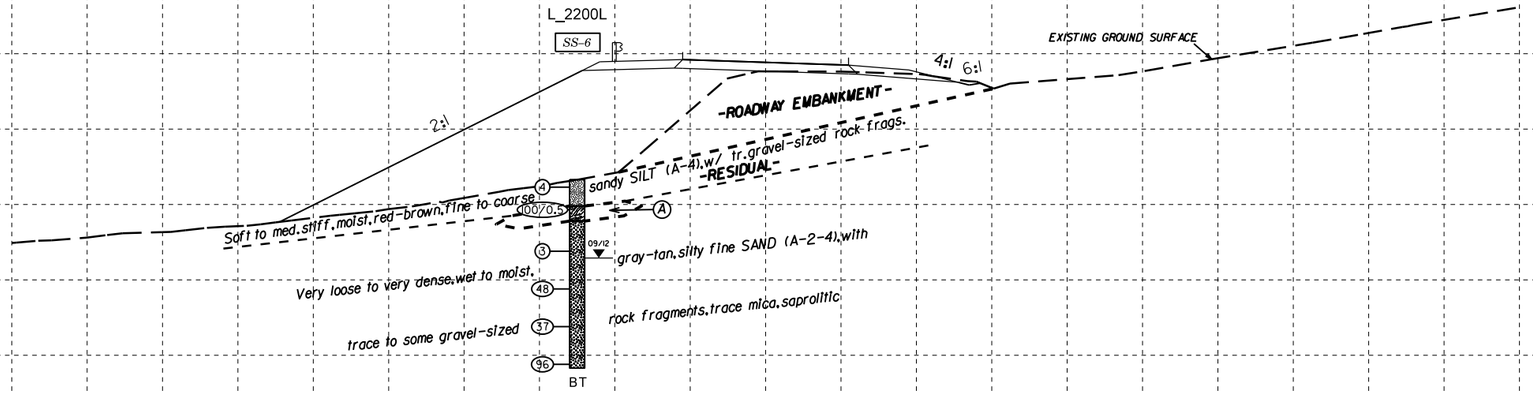
℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:23
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_Ldgn
Default 41 66CADI

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-6	25' LT.	22+00	0.2'-1.0'	A-4(0)	24	NP	12.0	46.1	19.9	22.0	98.5	94.0	48.4	17.0	NT



22+00.00

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–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

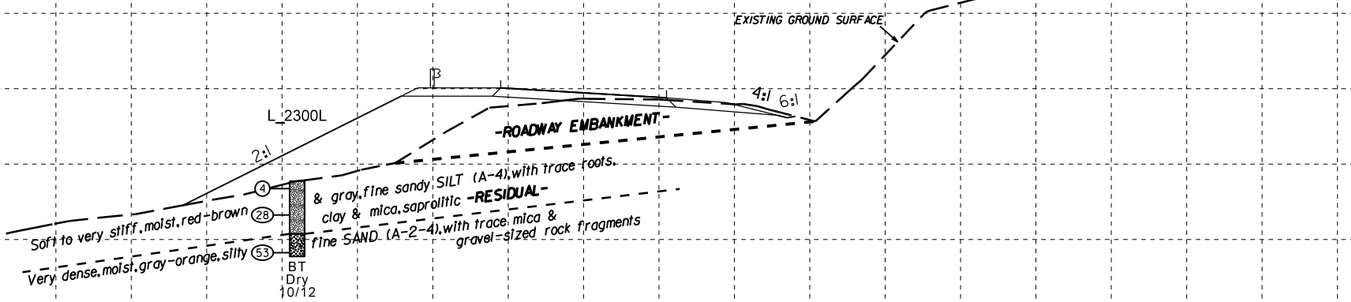
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	21

0 5 10

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

1630 1620 1610 1600 1590 1580 1570 1560 1550 1540 1530 1520 1510 1500 1490



23+00.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:24
F:\Projects\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_Ldgn
Default 11" 66CADI

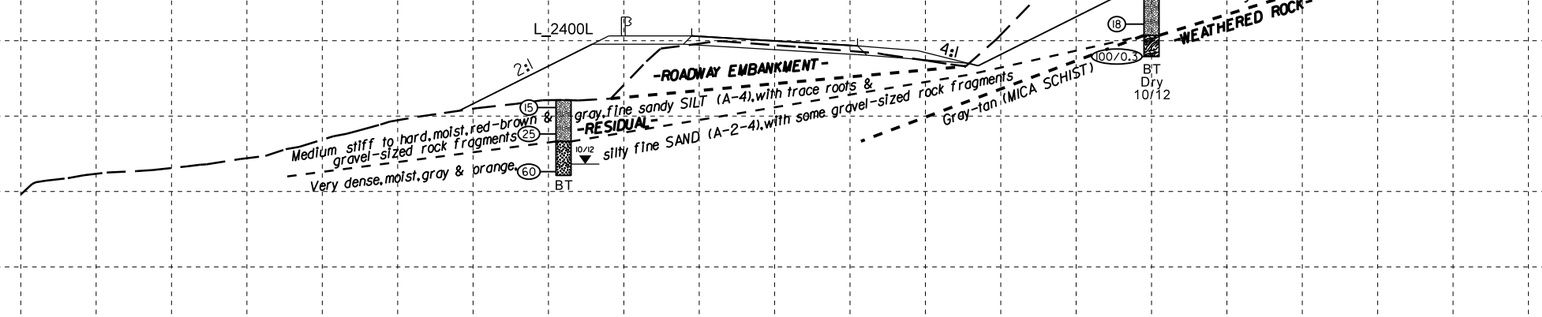
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	22

0 5 10

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

1640 1630 1620 1610 1600 1590 1580 1570 1560 1550 1540 1530 1520 1510 1500 1490



24+00.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

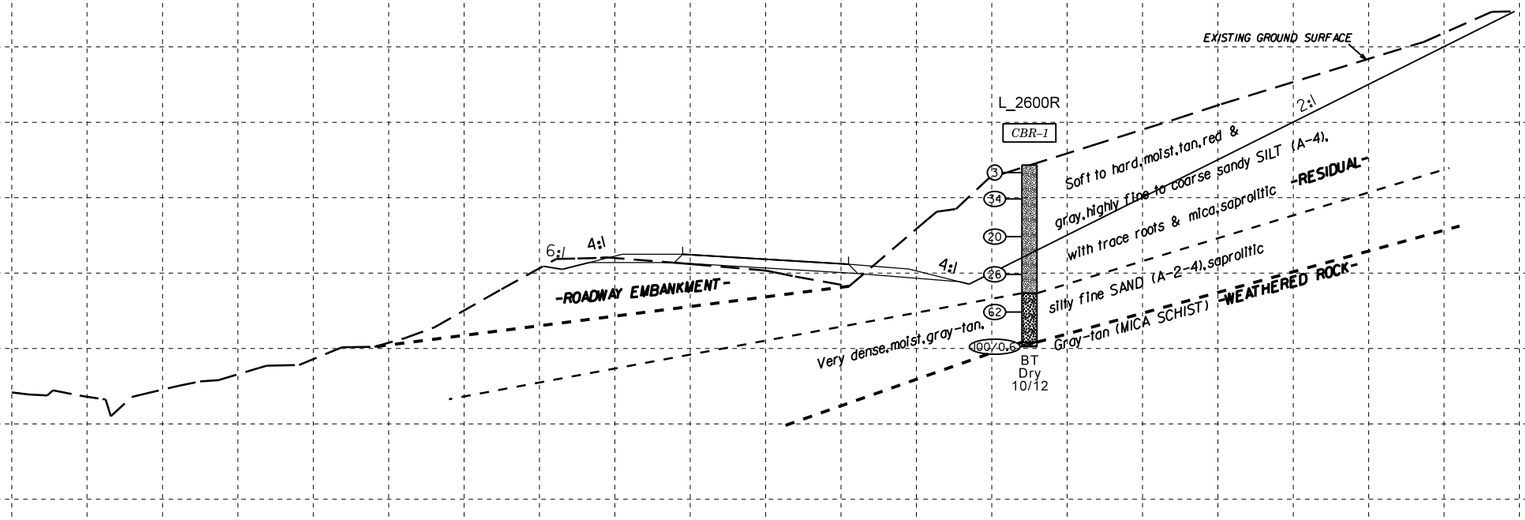
10-APR-2015 12:25
F:\Projects\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 11" 66CAD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	23

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
CBR-1	35' RT.	26+00	5.5'-8.0'	A-4(0)	32	NP	10.4	59.7	20.5	9.4	99.9	96.6	39.3	7.0	NT



26+00.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:26
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_Ldgn
Default 11" 66CADI

8/23/99

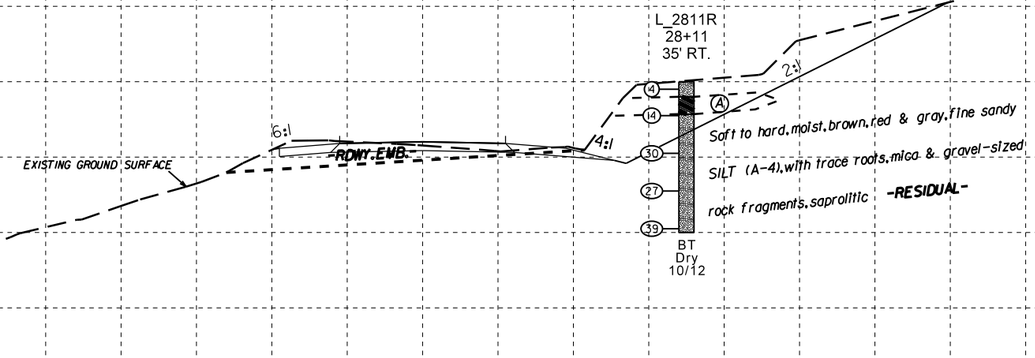
SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	24

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

1630 1620 1610 1600 1590 1580 1570 1560 1550 1540 1530 1520 1510 1500



28+00.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:27
F:\Projects\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CADI

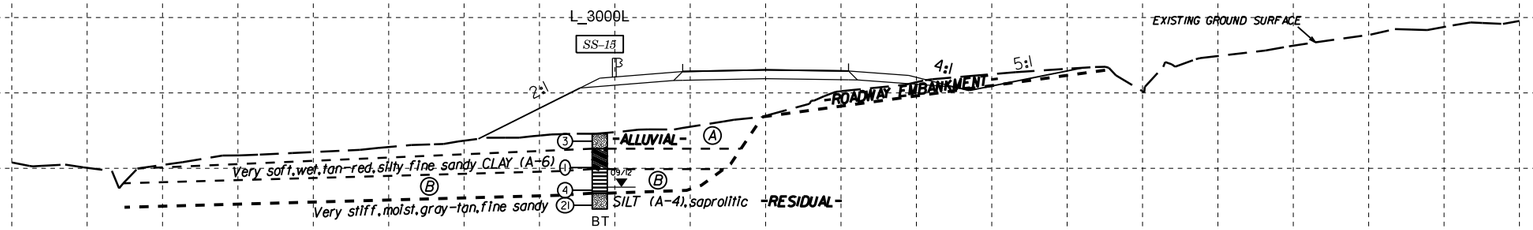
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	25

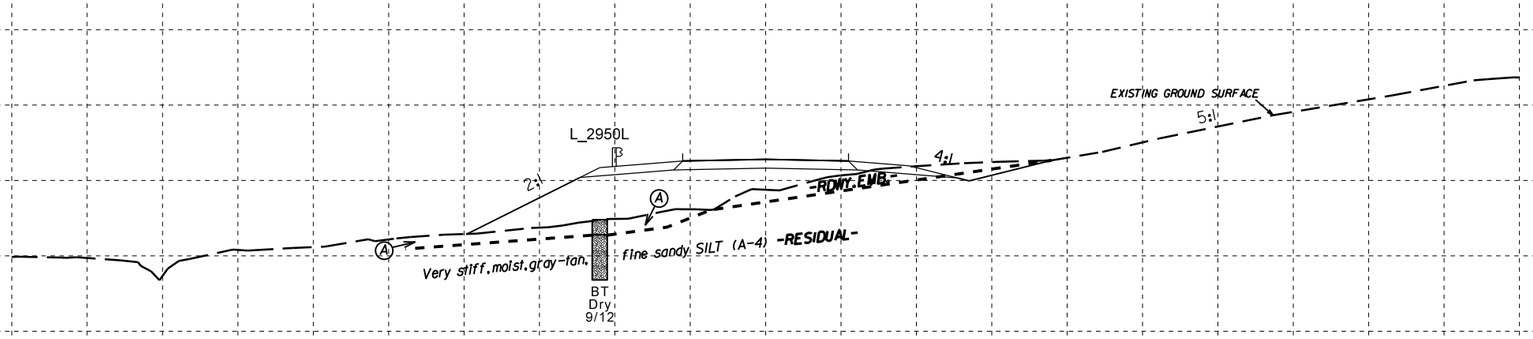
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-15	22' LT.	30+00	6.5'-7.9'	A-5(5)	50	8	4.5	31.6	33.2	30.7	84.6	83.1	59.3	77.9	NT
ST-3	22' LT.	30+03	5.0'-7.0'	A-5(9)	51	9	4.0	26.0	33.8	36.2	97.9	96.6	73.8	70.4	11.3

NOTE: BORING L_3003L NOT SHOWN ON SECTION. SEE SHEET 112 FOR BORING LOG.



30+00.00



29+50.00

Ⓐ Soft,moist,brown,fine sandy SILT (A-4),with trace roots & mica **-ALLUVIAL-**

Ⓑ Soft to medium stiff,wet to saturated,dark gray,fine sandy clayey SILT (A-5),with little gravel & organics **-ALLUVIAL-**

℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:28
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default
66CADI

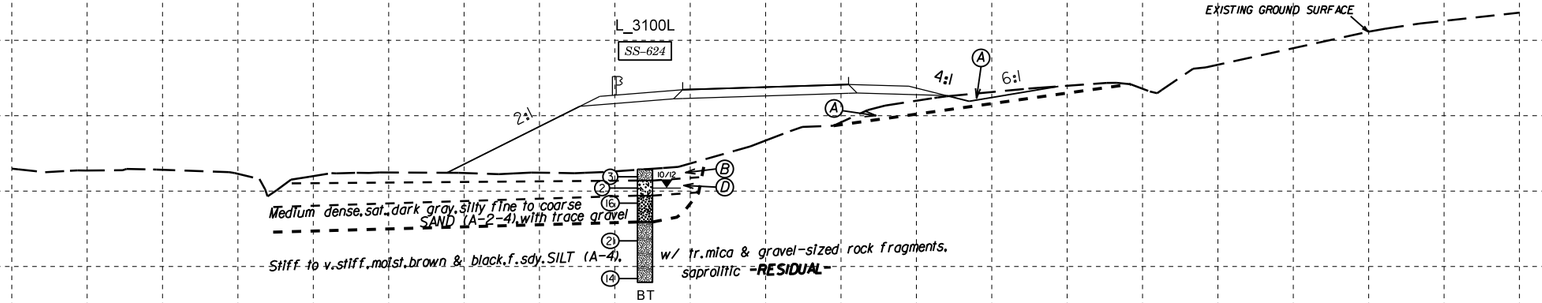
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	26

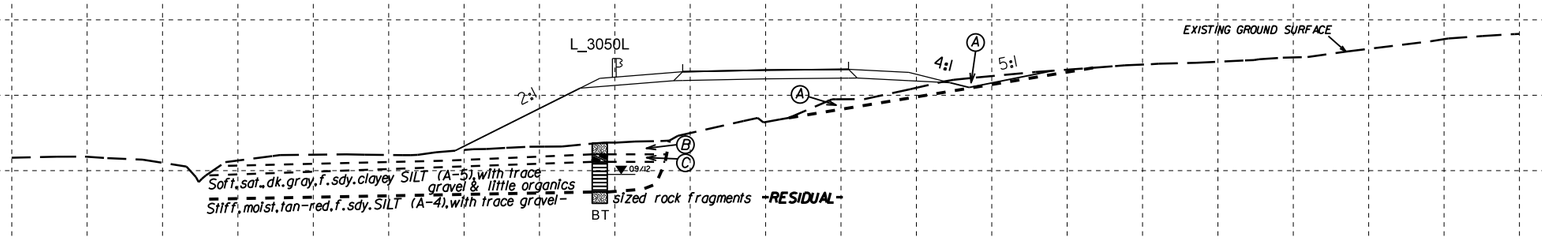
0 5 10

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-624	16' LT.	31+00	0.2'-1.5'	A-4(1)	36	1	4.9	33.6	32.4	29.1	100.0	98.1	70.3	33.5	NT



31+00.00



30+50.00

℄

Ⓐ -ROADWAY EMBANKMENT-
Ⓑ Soft, moist, brown, fine sandy SILT (A-4), with trace roots, trace to little clay -ALLUVIAL-
Ⓒ Very soft, wet, tan-red, silty fine sandy CLAY (A-6) -ALLUVIAL-
Ⓓ Very soft to soft, wet, gray, fine sandy clayey SILT (A-5), with trace organics -ALLUVIAL-

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:29
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 11" 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	27

0 5 10

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

1630 1620 1610 1600 1590 1580

L_3200L

B

2:1

4:1 6:1

EXISTING GROUND SURFACE

4 B

Very soft,wet,tan-red,silty fine sandy CLAY (A-6) WOH 09/12

Stiff,saturated to moist,gray-tan,fine sandy SILT (A-4), 8 12 saprolitic -RESIDUAL-

with trace gravel-sized rock fragments.

BT

32+00.00

1620 1610 1600 1590 1580 1570

L_3175L
31+75
22' LT.

B

2:1

4:1 6:1

EXISTING GROUND SURFACE

09/12

A

Very soft,saturated,dark gray,fine sandy clayey SILT (A-5)

Stiff,moist,gray-tan,fine sandy SILT (A-4) -RESIDUAL-

BT

31+50.00

℄

–L–

Ⓐ Very soft,moist,tan-red,silty fine sandy CLAY (A-6) -ALLUVIAL-

Ⓑ Soft to medium stiff,moist,brown,fine sandy SILT (A-4),with trace roots & gravel -ALLUVIAL-

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

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

10-APR-2015 12:30
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 41 66CADI

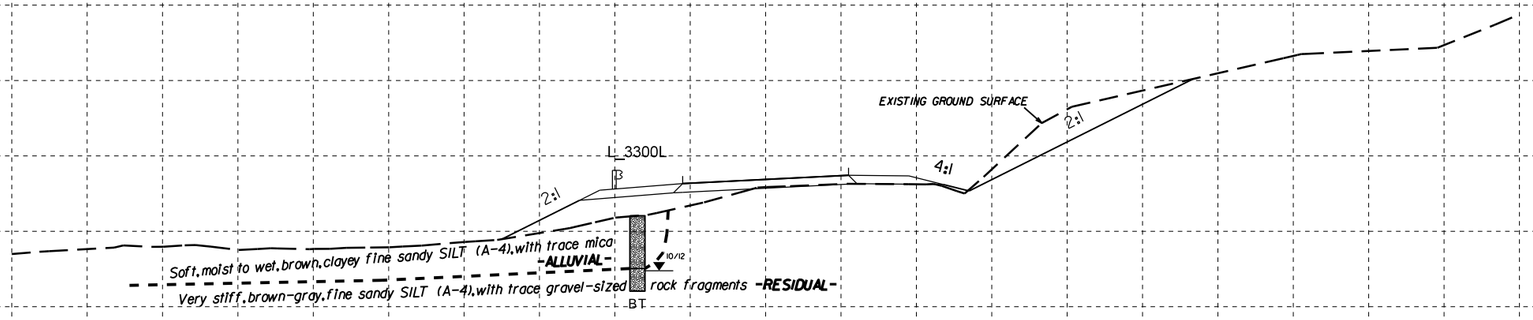
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	28

0 5 10

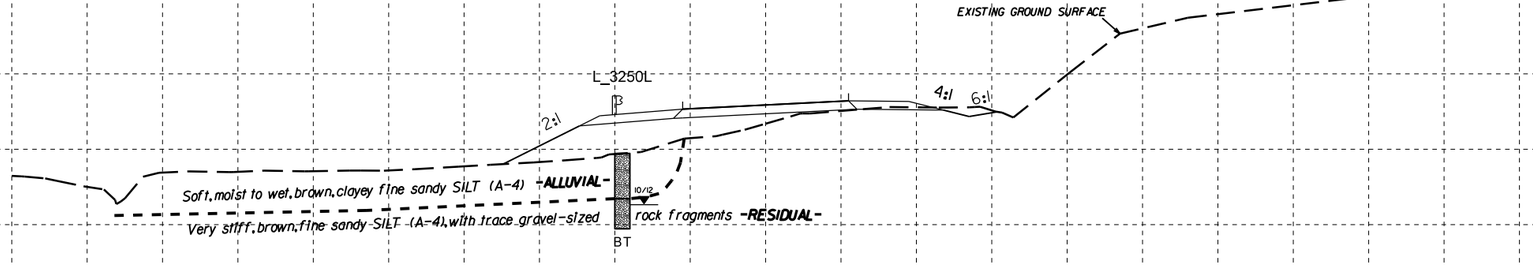
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1630 1620 1610 1600 1590 1580



33+00.00

1640 1630 1620 1610 1600 1590 1580 1570



32+50.00

℄
—L—

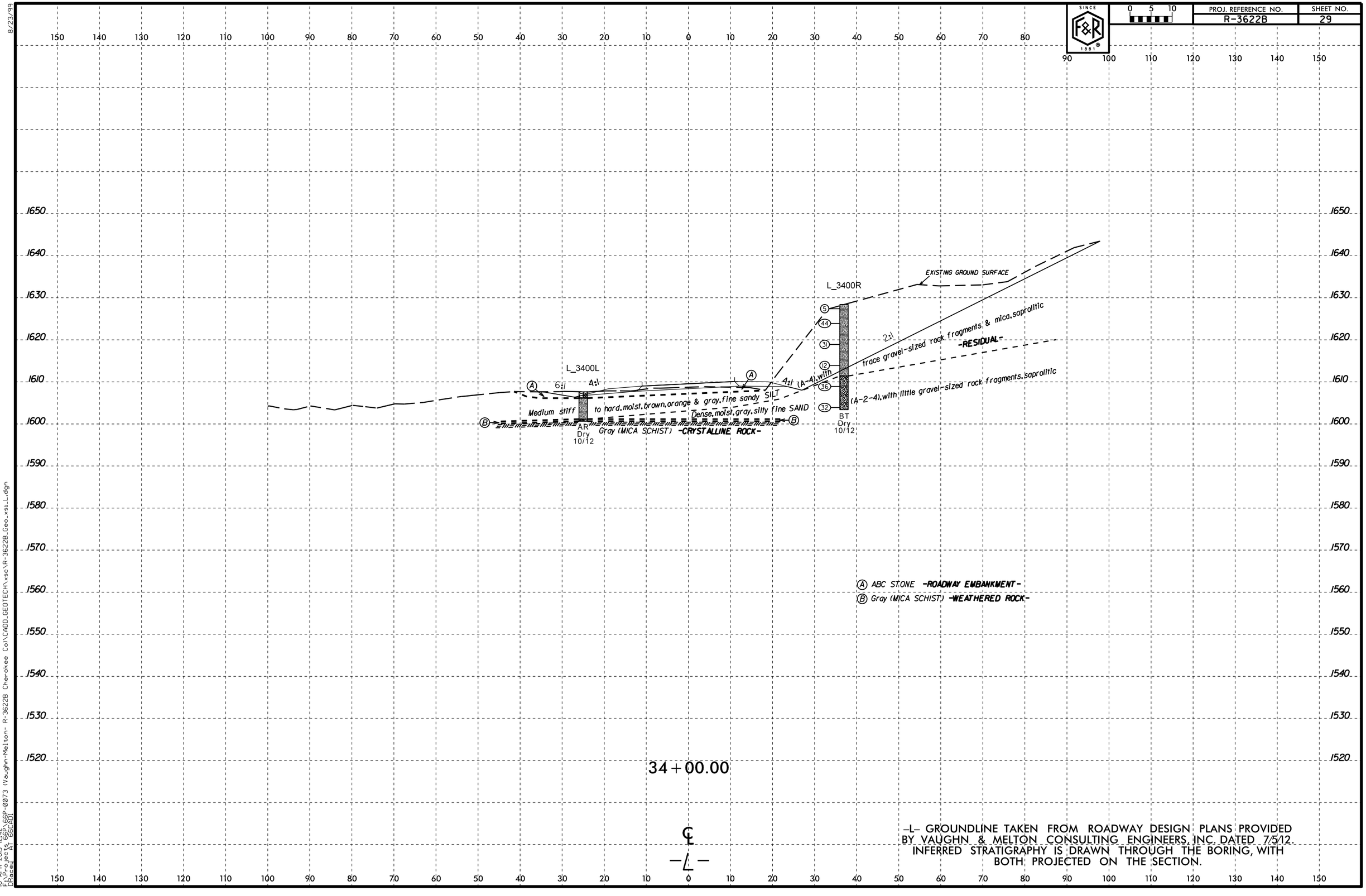
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:41
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 41 66CAD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	29

0 5 10



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:42
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
Default 11" 66CADI

8/23/99

SINCE F&R 1881	0 5 10	PROJ. REFERENCE NO.	SHEET NO.
		R-3622B	30

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

1640
1630
1620
1610
1600

EXISTING GROUND SURFACE

3:1 4:1 2:1

36+50.00

1650
1640
1630
1620
1610
1600
1590
1580
1570

EXISTING GROUND SURFACE

L_3600 ASPHALT 0.0-0.7'

2:1 4:1 2:1

9 5 45 39 WOH 10/12

Hard,moist,brown-orange & gray,fine sandy SILT (A-4),with trace mica & gravel-sized rock fragments -RESIDUAL-

BT FIAD

36+00.00

Ⓐ Medium stiff to stiff,moist to wet,tan & gray,fine sandy SILT (A-4),with trace mica & gravel and a layer of gray & tan,silty fine SAND (A-2-4),with trace gravel from 0.7'-1.0' -ROADWAY EMBANKMENT-

℄ –L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

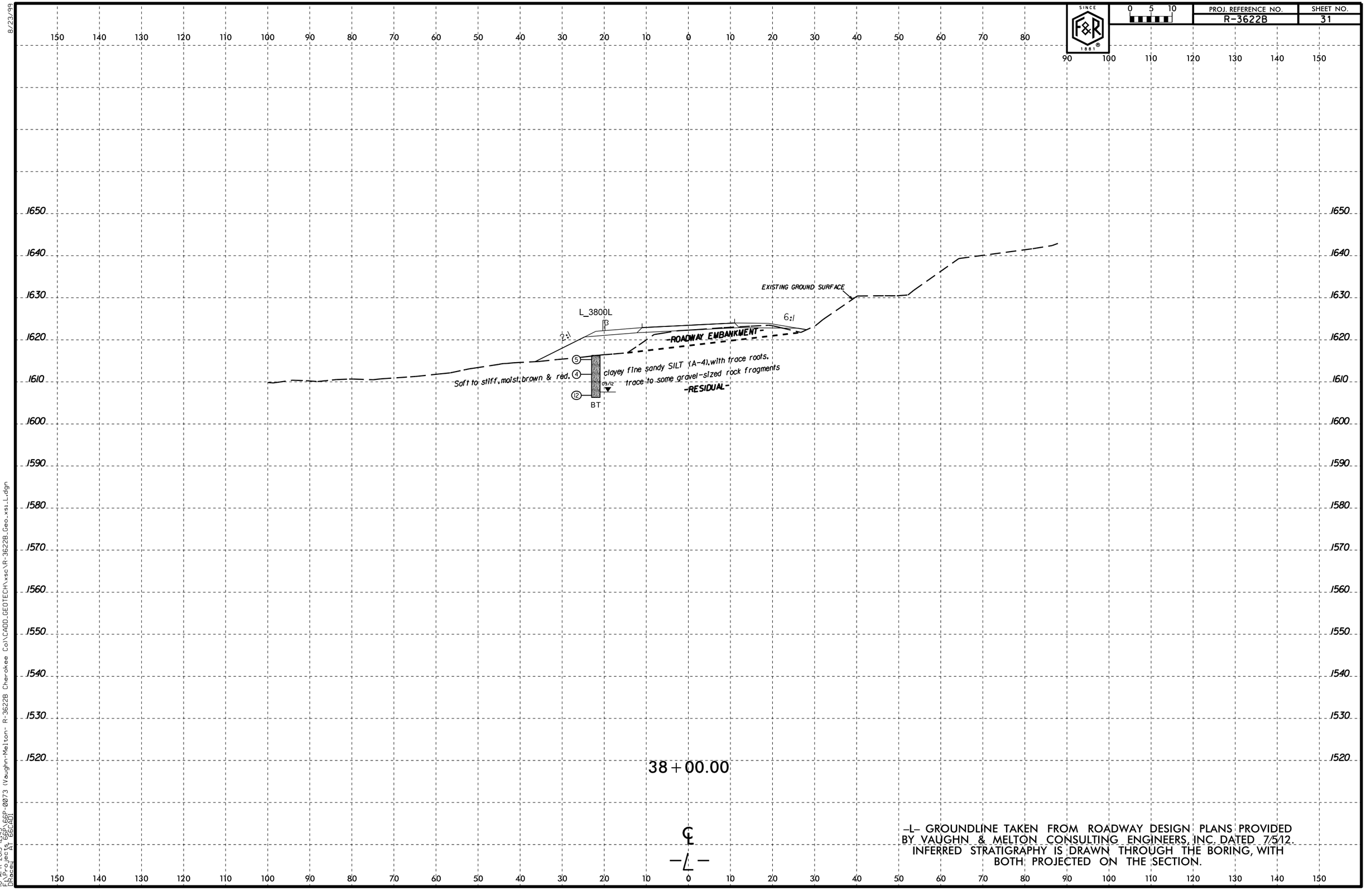
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

10-APR-2015 12:43
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	31

0 5 10



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:43
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD\GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default
ATB66CADD

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	32

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

1650
1640
1630
1620
1610

EXISTING GROUND SURFACE

2:1

3

5:1

40+50.00

1650
1640
1630
1620
1610
1600
1590

EXISTING GROUND SURFACE

L_4000R

4:1

4:1

2:1

3

-ROADWAY EMBANKMENT-

Very stiff, moist, red-brown & gray, fine sandy SILT (A-4), with trace to some gravel-sized rock fragments.

Dense, wet, gray-tan, silty fine SAND (A-2-4), with trace

4 27 28 10/12 41

BT

trace mica, trace to little clay, saprolitic -RESIDUAL-

gravel-sized rock fragments; saprolitic

Ⓐ Soft to medium stiff, moist, tan & brown, fine sandy SILT (A-4), with trace roots, gravel & mica -ARTIFICIAL FILL-

40+00.00

℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

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

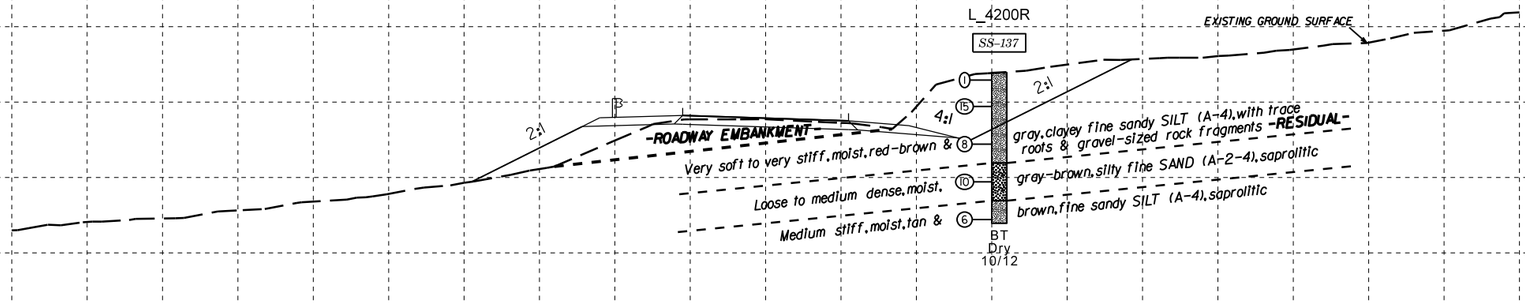
10-APR-2015 12:44
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	33

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-137	31' RT.	42+00	0.2'-1.5'	A-4(5)	33	10	4.1	38.9	21.5	35.5	96.8	95.1	62.3	24.5	NT



42+00.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:45
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_Ldgn
Default 41 66CAD1

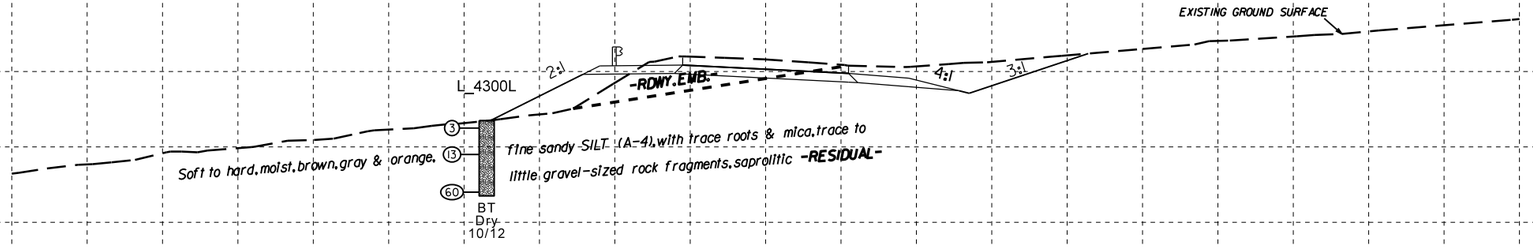
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	34

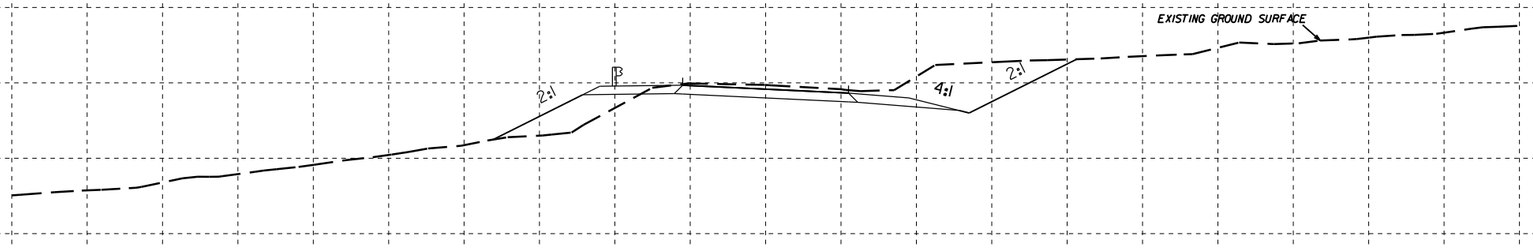
0 5 10

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

1650 1640 1630 1620 1610 1600 1590



43+00.00



42+50.00

℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:46
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD\GEOTECH\xsc\R-3622B_Geo_xsL.dgn
Default 41 66CADI

8/23/99

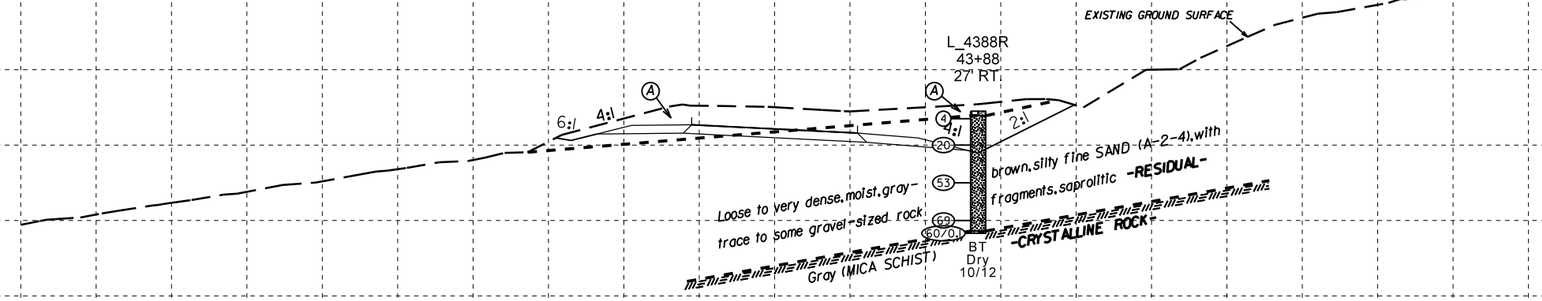
SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	35

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

1670 1660 1650 1640 1630 1620 1610 1600 1590 1580 1570 1560 1550 1540



Ⓐ Soft to medium stiff, wet, tan, fine sandy SILT (A-4), with trace roots & mica
-ROADWAY EMBANKMENT-

44+00.00

℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

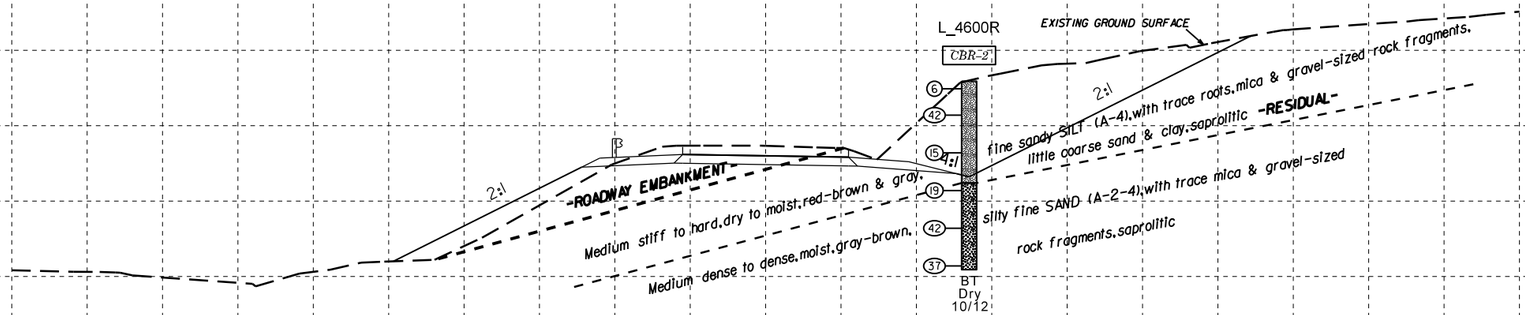
10-APR-2015 12:47
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 11" 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	36

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) #10	% PASSING (SIEVES) #40	% PASSING (SIEVES) #200	% MOISTURE	% ORGANIC
CBR-2	27' RT.	46+00	8.5-15.0'	A-4(0)	32	NP	11.4	50.4	25.8	12.4	90.6	85.5	43.6	14.6	NT



46+00.00

℄

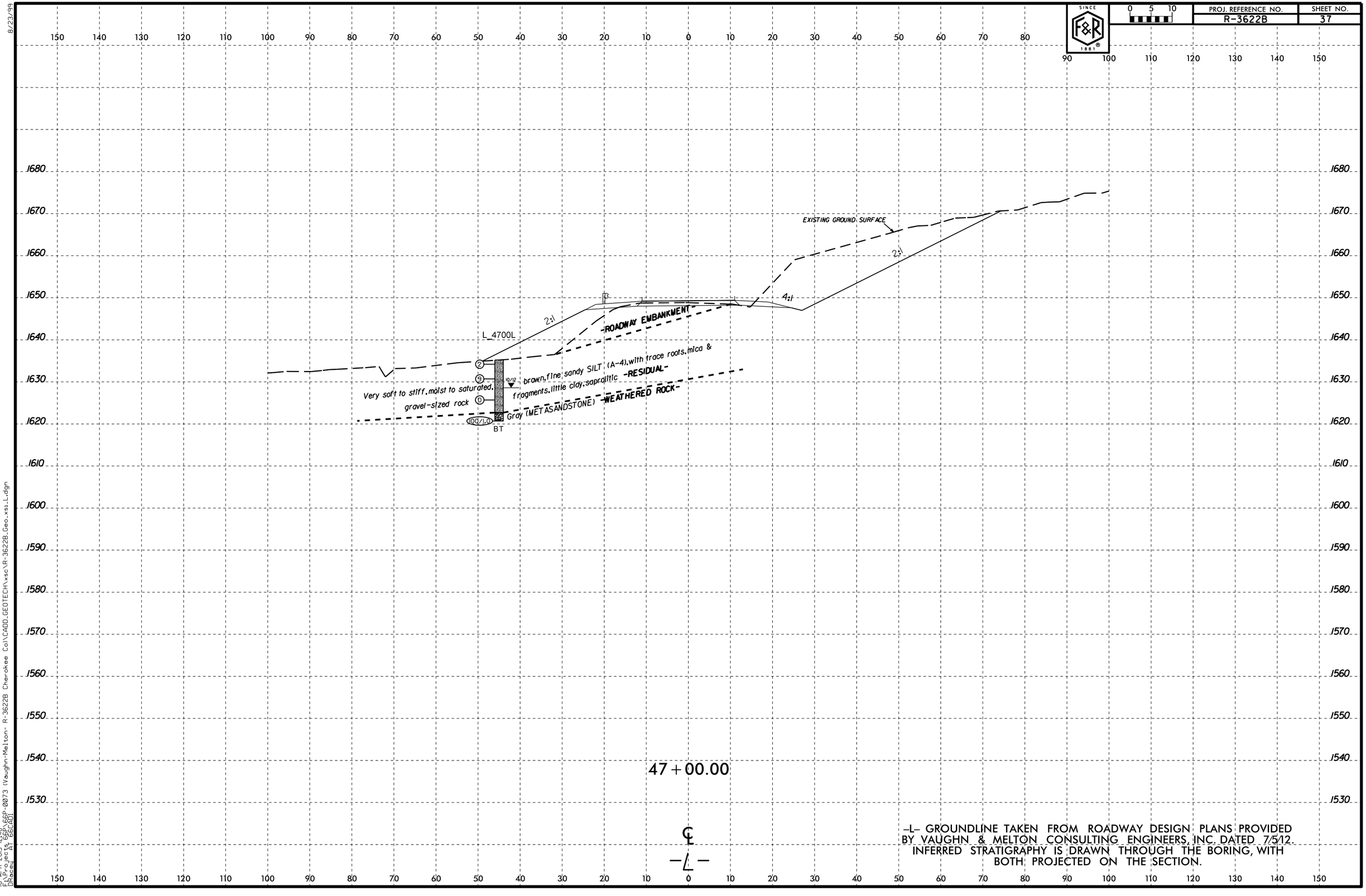
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:47
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 11" 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	37

0 5 10



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:48
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_Ldgn
Default 11" 66CADI

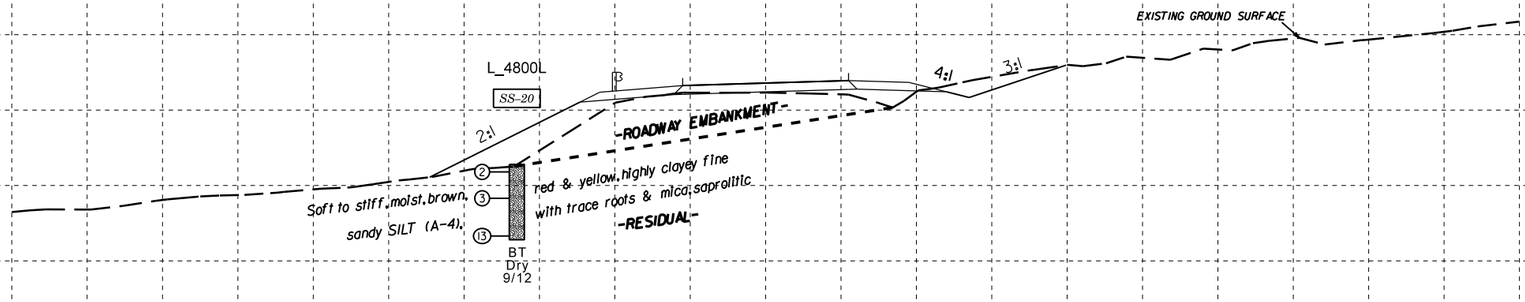
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	38

0 5 10

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) #10	% PASSING (SIEVES) #40	% PASSING (SIEVES) #200	% MOISTURE	% ORGANIC
SS-20	33' LT.	48+00	0.2'-1.5'	A-4(8)	38	9	1.4	22.4	33.3	42.9	99.9	99.3	81.8	27.6	NT



48+00.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:49
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
DTaceli AT 66CADD

8/23/99

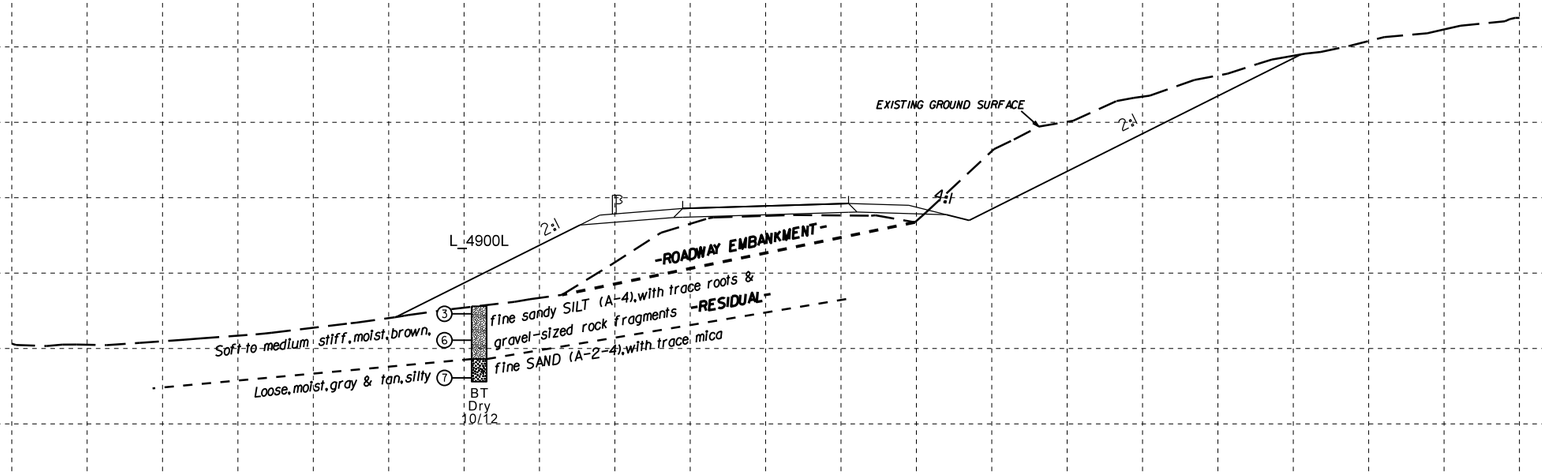
SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	39

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

1690 1680 1670 1660 1650 1640 1630 1620 1610 1600 1590 1580 1570 1560 1550



49+00.00

℄

–L–

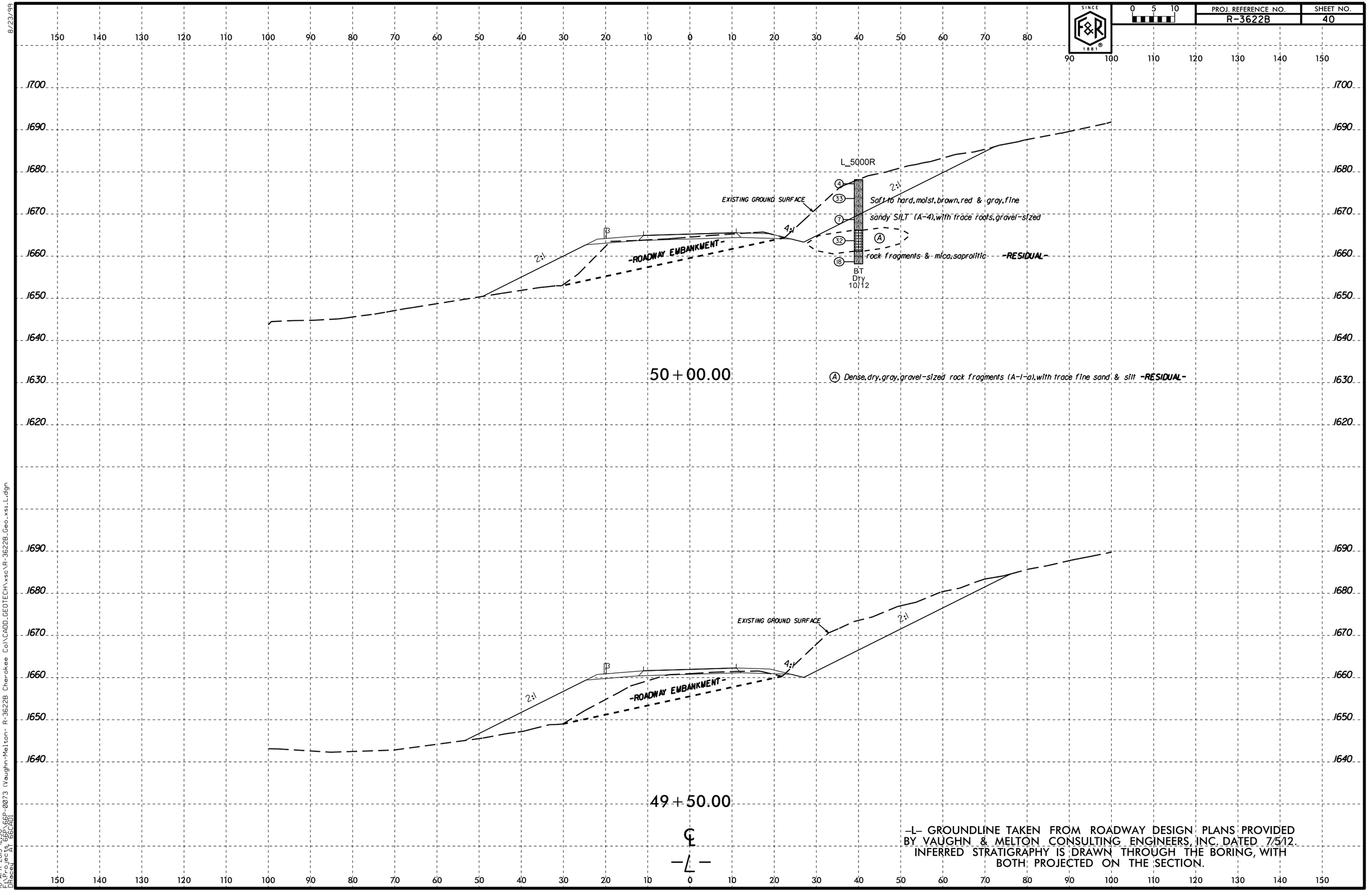
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:50
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CAD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	40

0 5 10



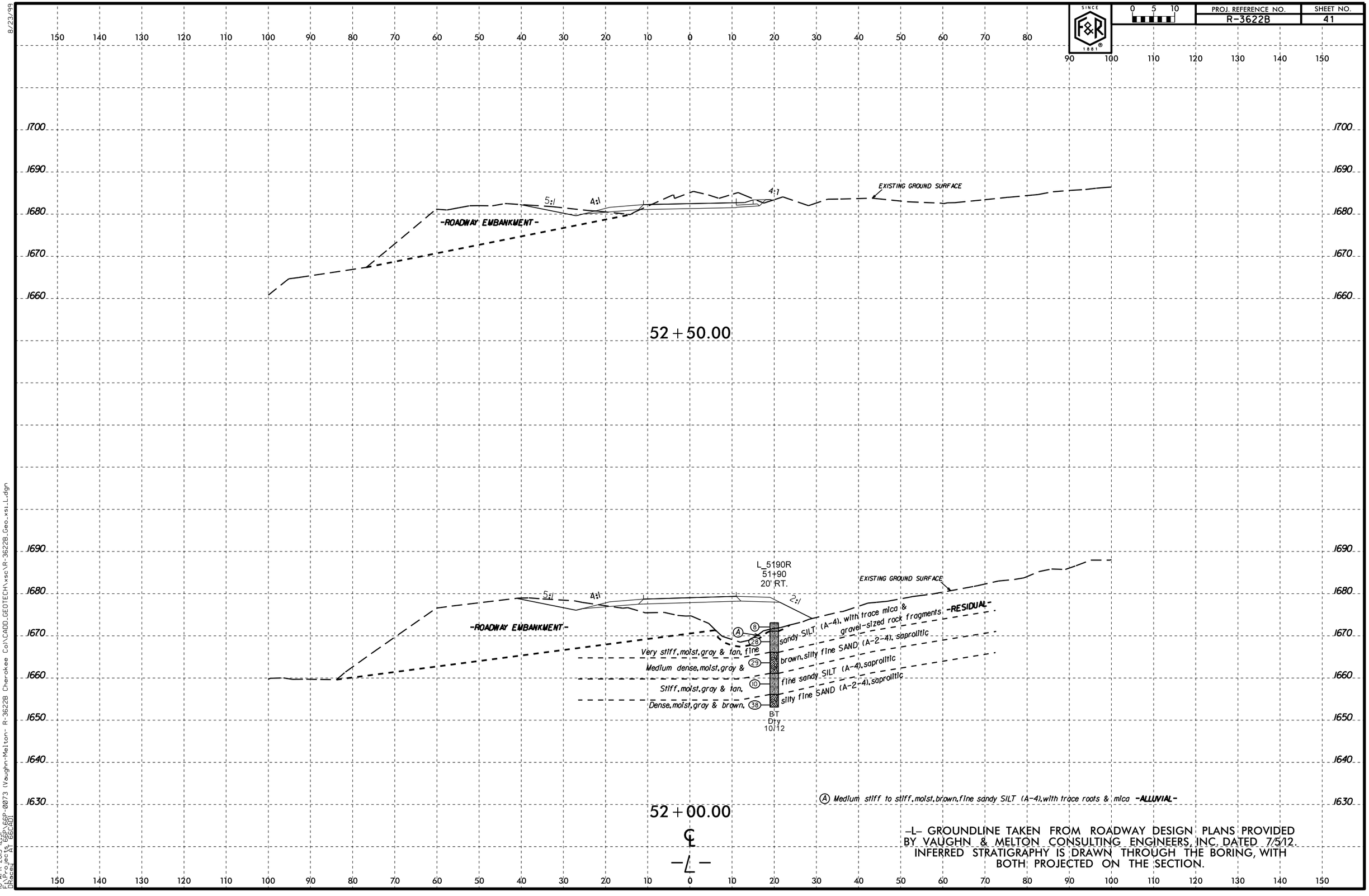
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:50
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 11" 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	41

0 5 10



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:51
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_Ldgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	42

0 5 10

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

1720 1710 1700 1690 1680 1670 1660 1650 1640 1630 1620 1610 1600 1590 1580

L_5325R
53+25
10' RT.

EXISTING GROUND SURFACE

Very stiff to hard, moist, gray-orange & brown, fine to coarse sandy SILT (A-4), with trace mica, trace to little clay, saprolitic -RESIDUAL-

19
35
100/0.1
52
52
67
10/12
B/T

5:1
4:1
2:1

-ROADWAY EMBANKMENT-

(A) Gray & tan (METASILTSTONE) -WEATHERED ROCK-

53+00.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:52
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CADI

8/23/99

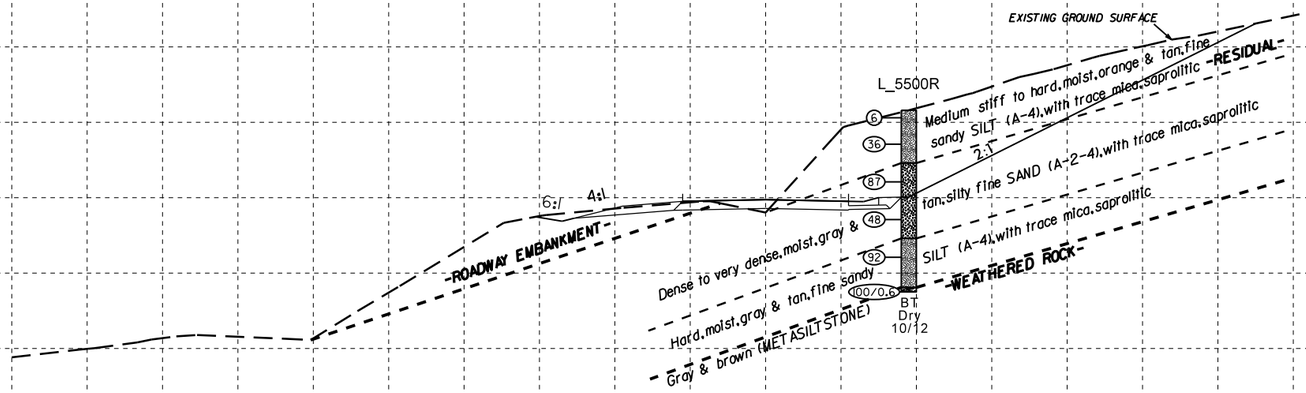
SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	43

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

1730 1720 1710 1700 1690 1680 1670 1660 1650 1640 1630 1620 1610 1600 1590



55+00.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:56
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	44

0 5 10

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

1780 1770 1760 1750 1740 1730 1720 1710 1700 1690 1680 1670 1660 1650 1640

L_5700R2

L_5700R

EXISTING GROUND SURFACE

Ⓐ Medium dense to very stiff, moist, brown-red, tan & gray.

2:1

4:1

10:1

Ⓐ dense, moist, gray & tan, silty fine SAND (A-2-4), with trace mica, saprolitic

Tan & gray (METASANDSTONE)

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

(METASANDSTONE)

AR
Dry
10/12

Ⓐ fine sandy SILT (A-4), with trace roots & mica, saprolitic

3 20 32 100/0.9 51 13 15 25 100/0.3 50/0.0

Gray & tan (METASANDSTONE)

-WEATHERED ROCK-

-RESIDUAL-

BT
Dry
10/12

Ⓐ Soft, moist, brown-red, fine sandy SILT (A-4), with trace roots & mica -RESIDUAL-

57+00.00

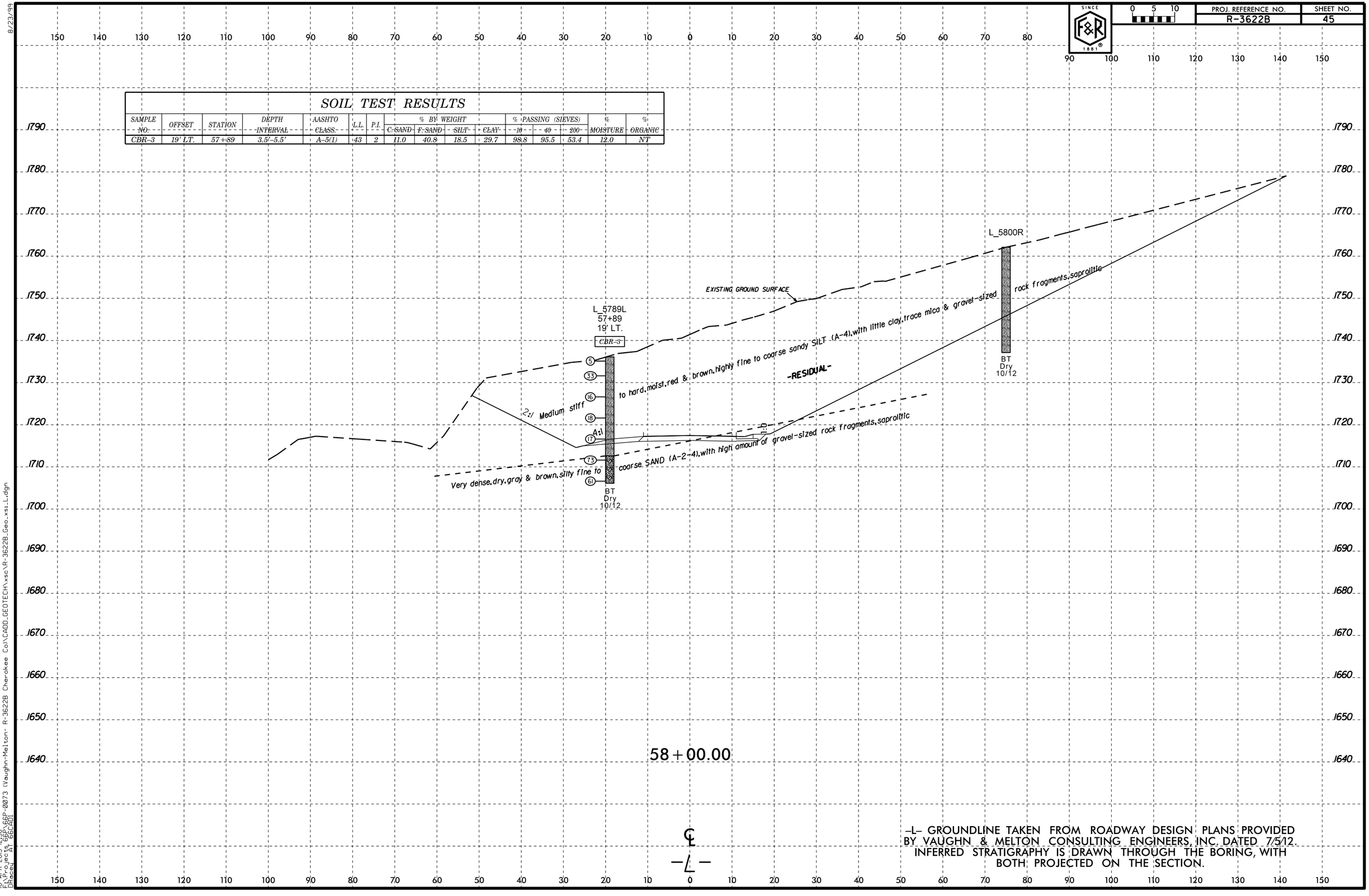
℄
—L—

—L— GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:57
File:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD\GEOTECH\xsc\R-3622B_Geo_xs1.dgn
Created: AT 66CADD

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
CBR-3	19' LT.	57+89	3.5'-5.5'	A-5(1)	43	2	11.0	40.8	18.5	29.7	98.8	95.5	53.4	12.0	NT



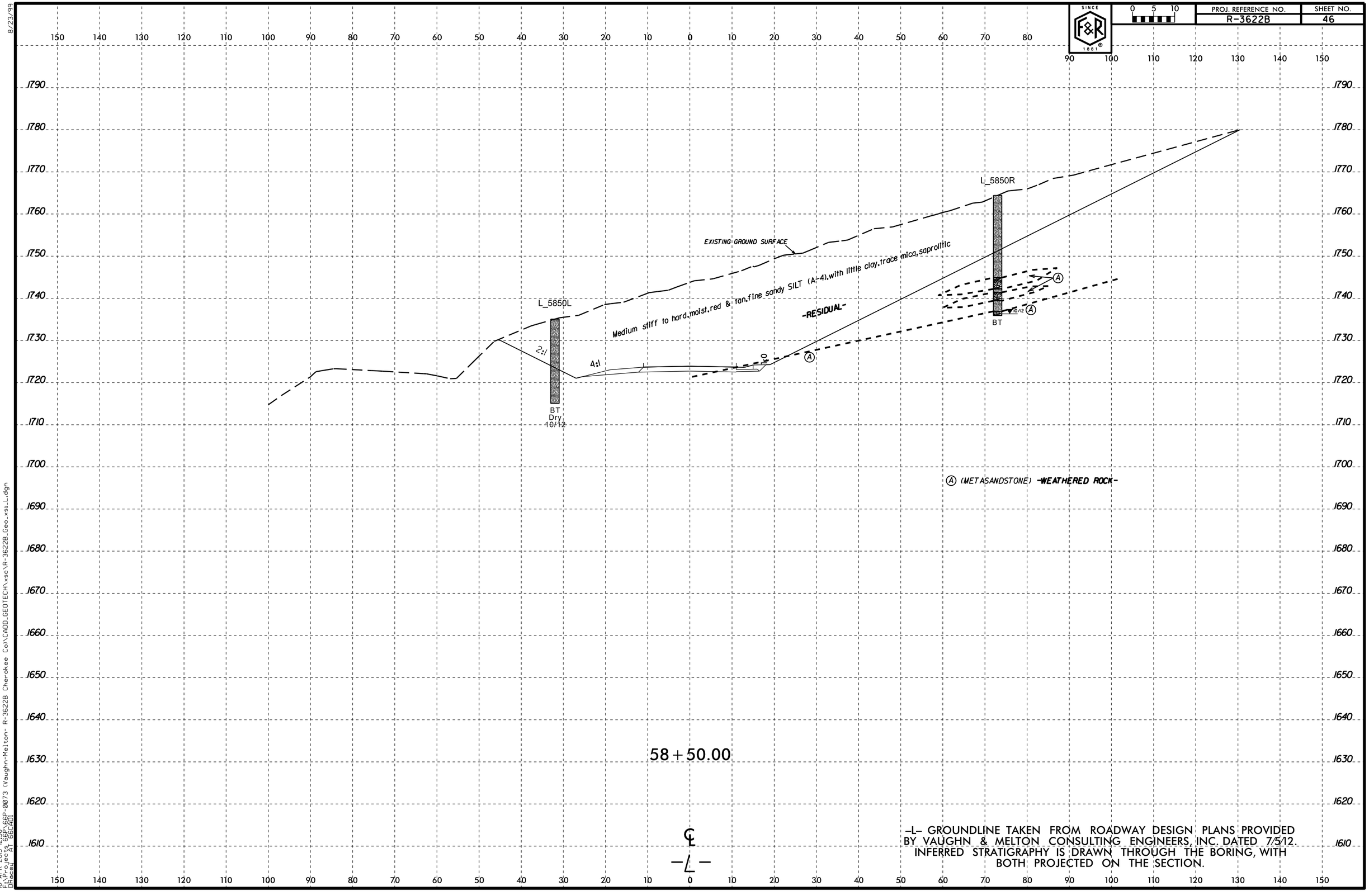
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	46



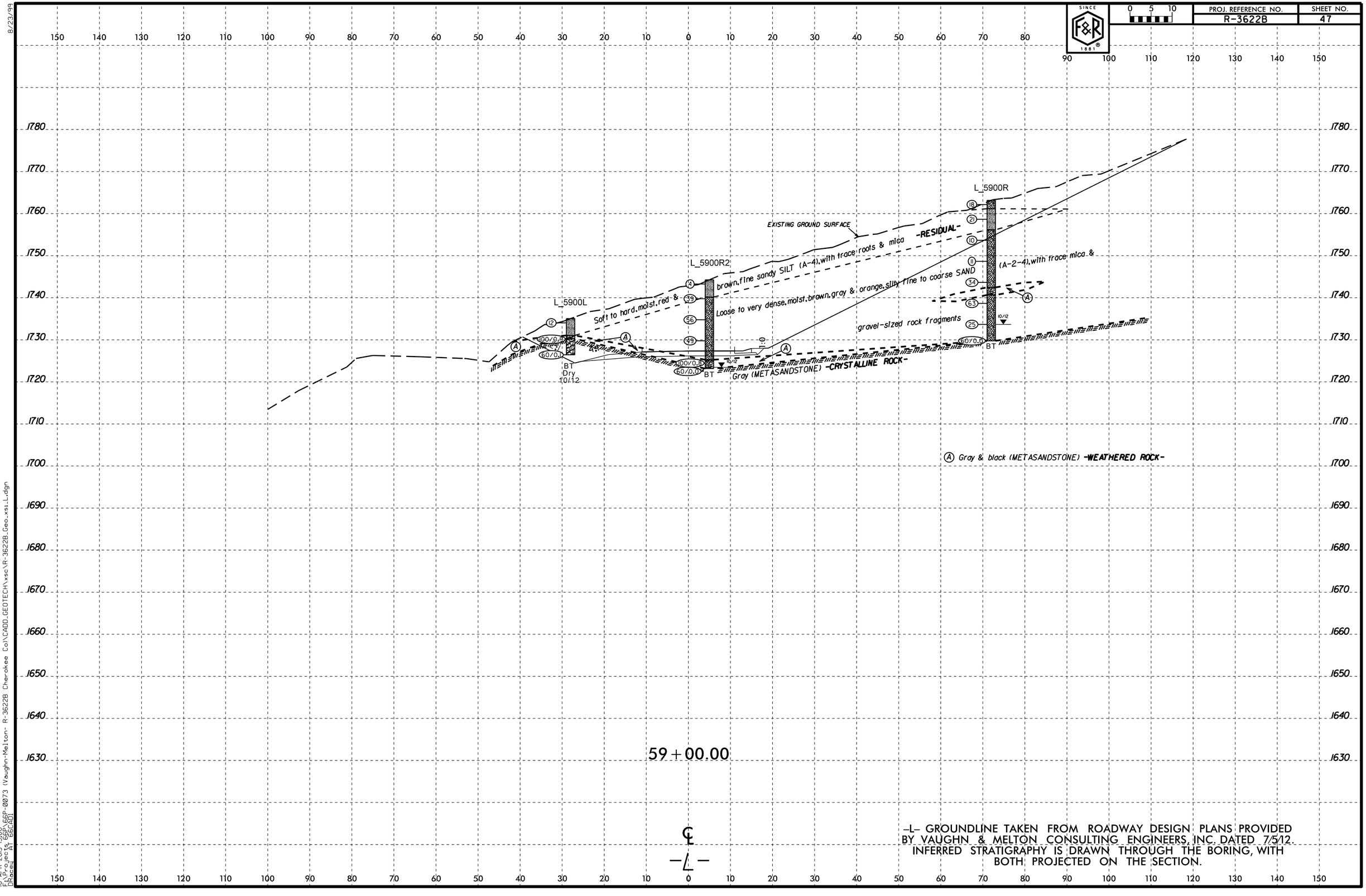
—L— GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 12:58
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 11" 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	47

0 5 10



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:00
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default A1 66CADI

8/23/99

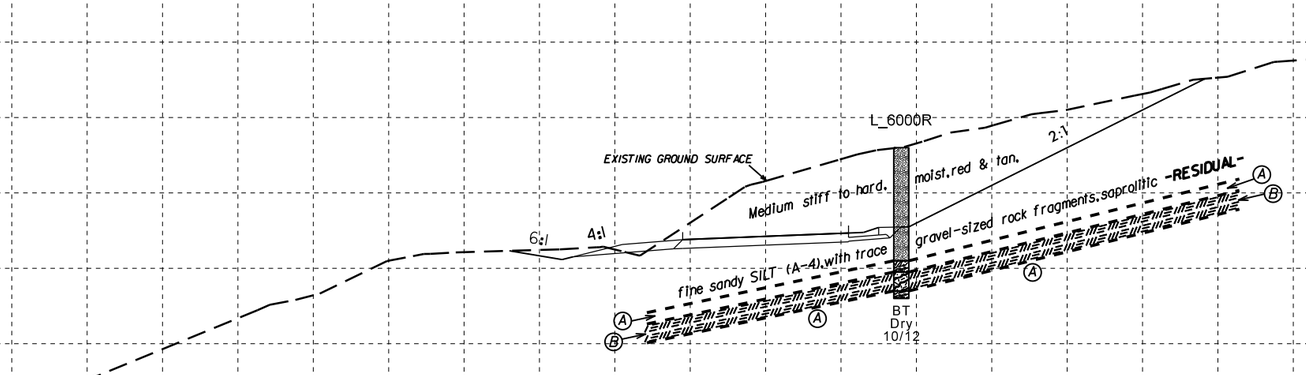
SINCE F&R 1881

0 5 10

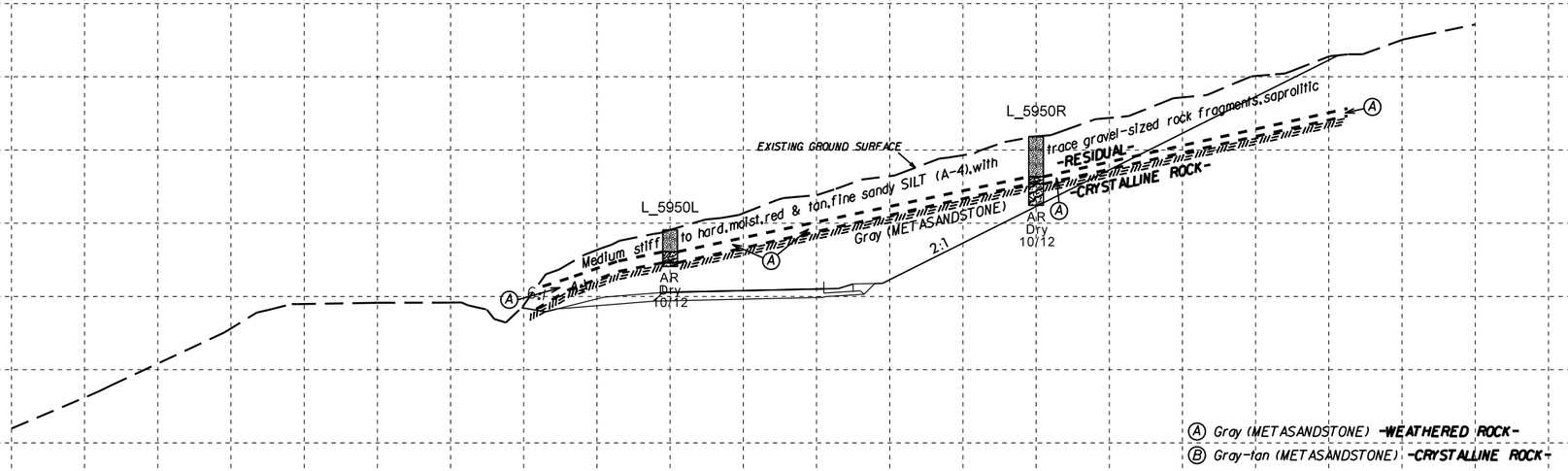
PROJ. REFERENCE NO.	SHEET NO.
R-3622B	48

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

1770 1760 1750 1740 1730 1720 1710 1700



60+00.00



59+50.00

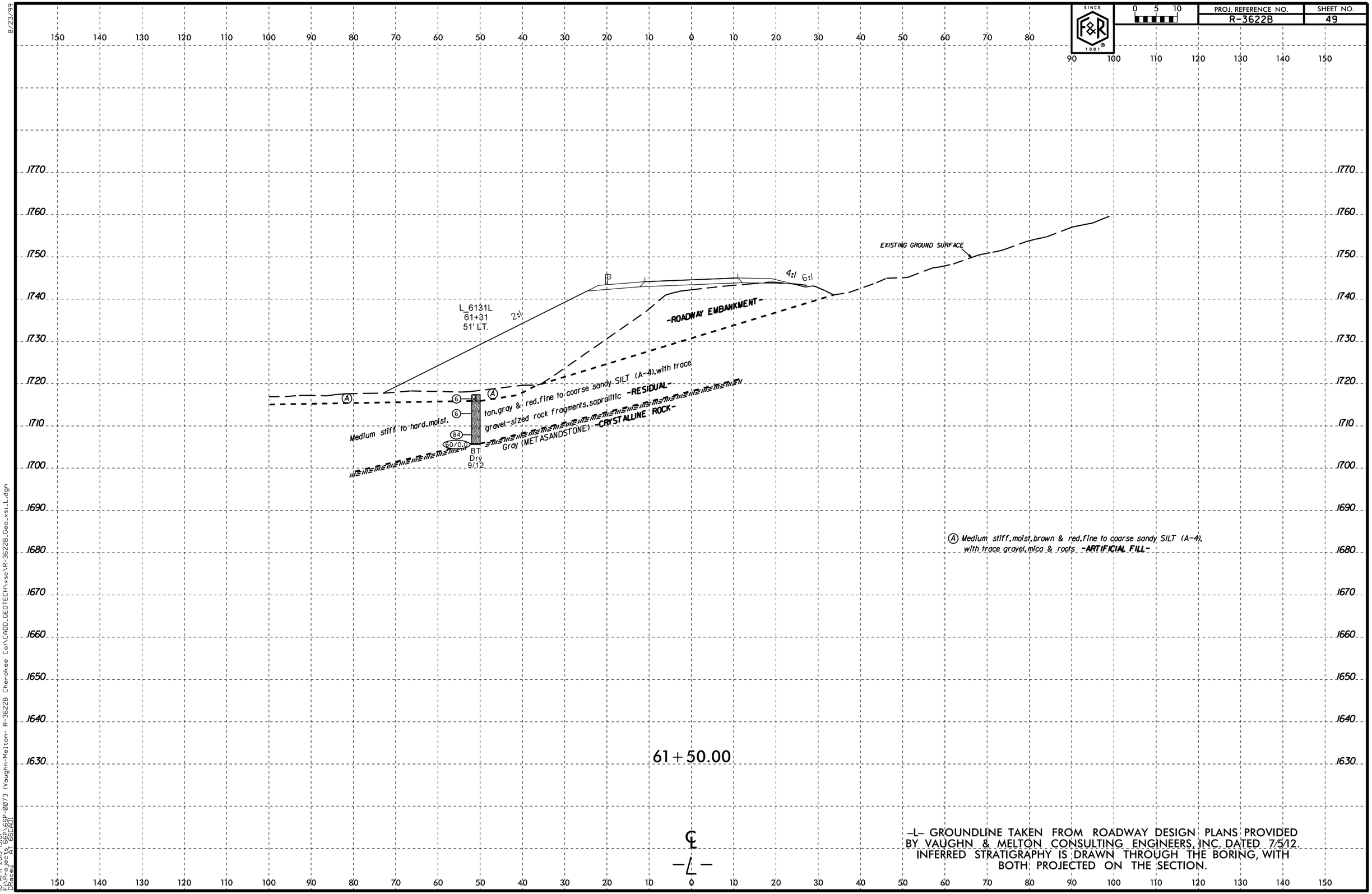
℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:00
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_Ldgn
Default 41 66CADI

0 5 10



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	50

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

1780
1770
1760
1750
1740

EXISTING GROUND SURFACE

6:1 4:1 4:1 2:1

-WEATHERED ROCK-

(MET ASILTSTONE)

-CRYSTALLINE ROCK-

(MET ASILTSTONE)

64+00.00

L_6350L

5:1

19 coarse sandy SILT (A-4), -RES.- Red-tan (METASILTSTONE)

100/10

Very stiff, moist, red-tan, fine to with some mica, saprolitic

65 fine sandy SILT (A-4), with trace mica, saprolitic

28 V. stiff to hard, moist, red-tan & brown.

BT Dry 9/12

L_6350R

EXISTING GROUND SURFACE

7 12 Med. stiff, moist, red-brown, f. to cse. sdy. SILT (A-4), with trace mica & gravel-sized rock frags. -RES.-

4:1

100/0.8

100/0.5

-WEATHERED ROCK-

60/0.0

-CRYSTALLINE ROCK-

Gray (METASILTSTONE)

BT Dry 9/12

63+50.00

℄

—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:10
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	51

0 5 10

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

1800 1790 1780 1770 1760 1750 1740 1730

L_6500R2

L_6500R

EXISTING GROUND SURFACE

Ⓐ -RESIDUAL-

V.stiff to hard,moist,red & brown, fine sandy SILT (A-4),with trace gravel-sized rock fragments

6:1 4:1 2:1

AR Dry 10/12

Tan,brown & gray (METASILTSTONE) -WEATHERED ROCK-

Tan & gray (METASILTSTONE)

BT Dry 10/12

-CRYSTALLINE ROCK-

65+00.00

L_6450R2

L_6450R

EXISTING GROUND SURFACE

CLAY (A-6) -RESIDUAL-

Medium stiff, moist,red-brown,silty fine sandy

sandy SILT (A-4),with trace mica & gravel-sized rock fragments

6:1 4:1 2:1

Very stiff to hard,moist,red,brown & gray,fine

(METASILTSTONE) -WEATHERED ROCK-

Gray (METASILTSTONE)

AR Dry 9/12

-CRYSTALLINE ROCK-

BT Dry 10/12

64+50.00

Ⓐ Medium stiff,moist,red-brown,silty fine sandy CLAY (A-6) -RESIDUAL-

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—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:11
F:\Projects\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
Default 66CADT

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	52

0 5 10

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

1800 1790 1780 1770 1760 1750 1740 1730

L_6600L

EXISTING GROUND SURFACE

4:1 4:1 2:1 2:1

Medium stiff,moist, red-tan & brown,fine sandy SILT (A-4);with trace Gray (METASILTSTONE)

gravel-sized rock fragments -CRYSTALLINE ROCK-

AR Dry 10/12

66+00.00

L_6550R2

L_6550R

EXISTING GROUND SURFACE

6:1 4:1 4:1 2:1

5 36 50/0.0

BT Dry 9/12

AR Dry 10/12

-RESIDUAL- (A-4);with trace to some fragments,saprolitic gravel-sized rock Hard,moist,red-tan,fine sandy SILT Gray (METASILTSTONE) -CRYSTALLINE ROCK-

Ⓐ Medium stiff,moist,red-brown,silty fine sandy CLAY (A-6),with trace roots -RESIDUAL-

Ⓑ Tan & gray (METASILTSTONE) -WEATHERED ROCK-

65+50.00

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–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:12
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default
66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	53

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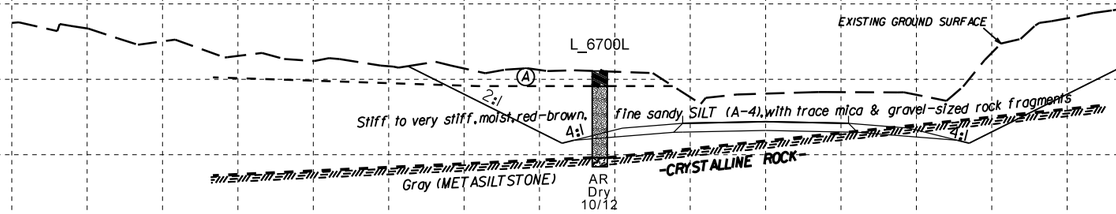
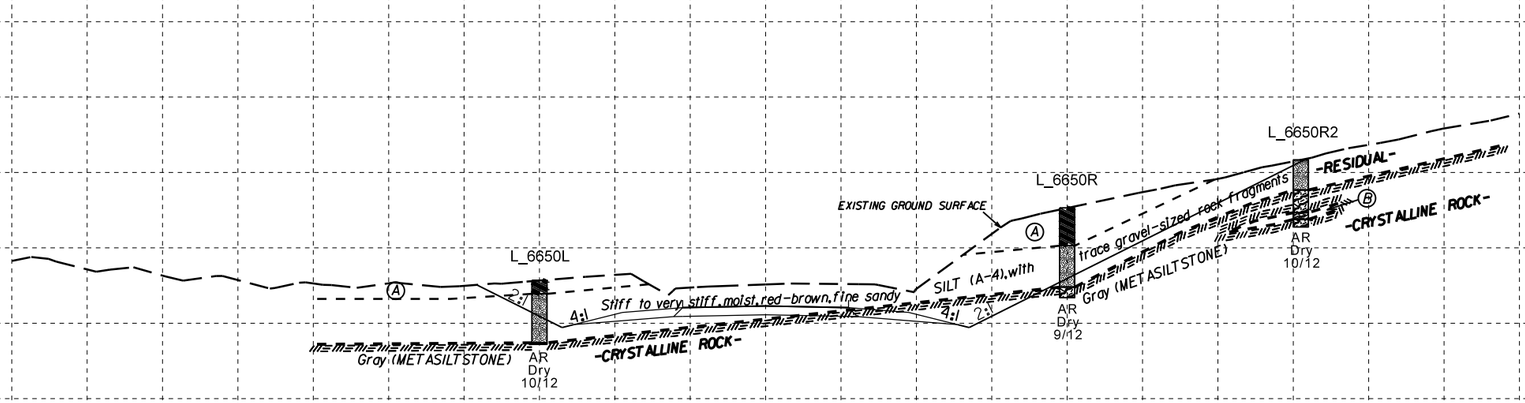
1810
1800
1790
1780
1770
1760



67+00.00



66+50.00

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–L–

Ⓐ Soft to medium stiff, moist, red-brown, silty fine sandy CLAY (A-6), with trace mica **-RESIDUAL-**

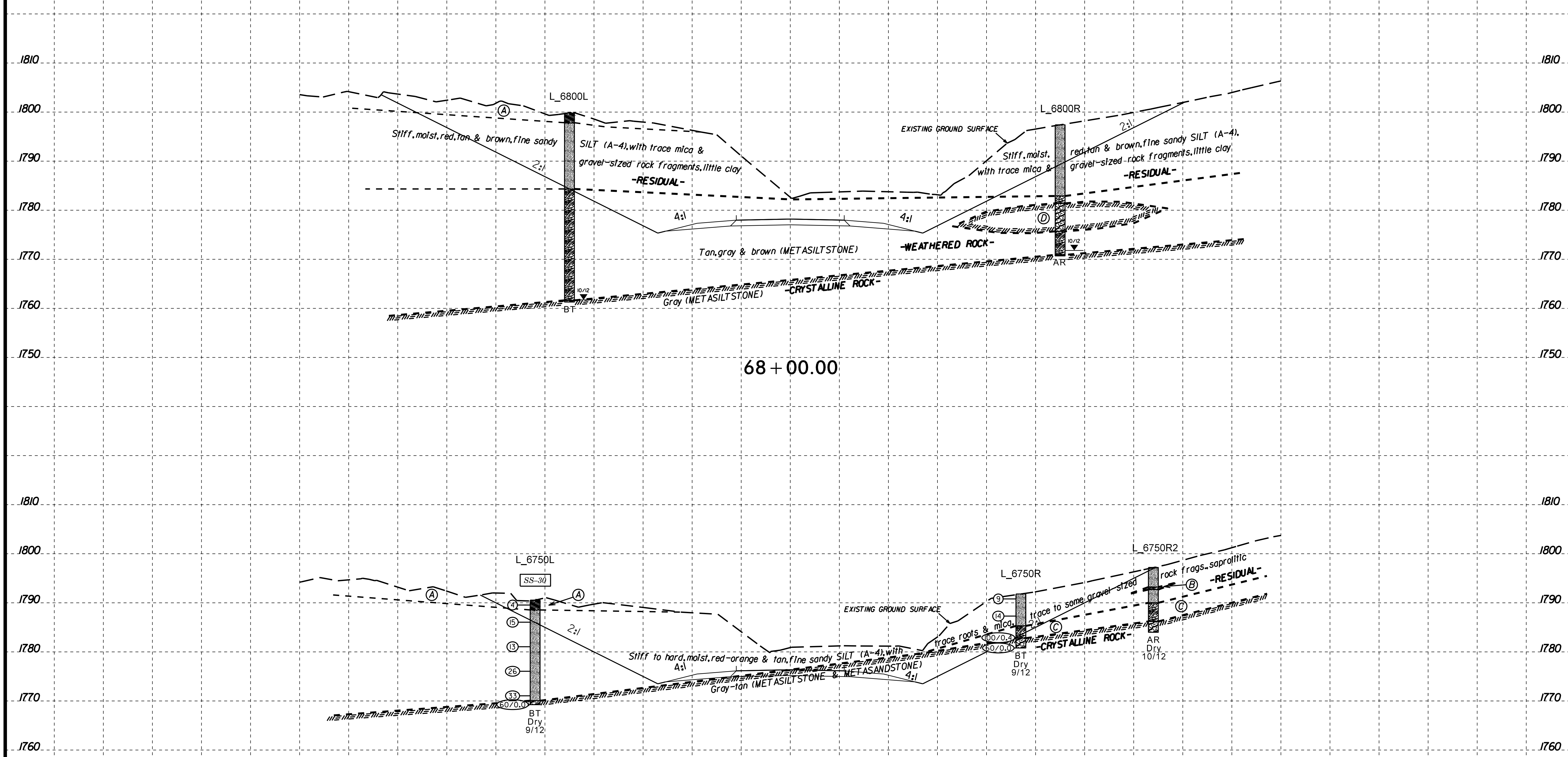
Ⓑ Brown (METASILTSTONE) **-WEATHERED ROCK-**

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, with BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:13
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default
A1 66CADI

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-30	52' LT.	67+50	0.3'-1.5'	A-6(11)	40	17	8.3	25.6	18.0	48.1	99.9	95.8	70.3	21.2	NT



Ⓐ Soft to medium stiff, moist to wet, red-brown, fine sandy CLAY (A-6), with little silt **-RESIDUAL-**
Ⓑ Brown (METASANDSTONE) **-WEATHERED ROCK-**
Ⓒ Tan & gray (METASILTSTONE & METASANDSTONE) **-WEATHERED ROCK-**
Ⓓ Gray (METASILTSTONE) **-CRYSTALLINE ROCK-**

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:4 Vaughn-Melton- R-3622B Cherokee Co\CADD_GEOTECH\xsc\R-3622B_Geo_xsl_L.dgn

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	55

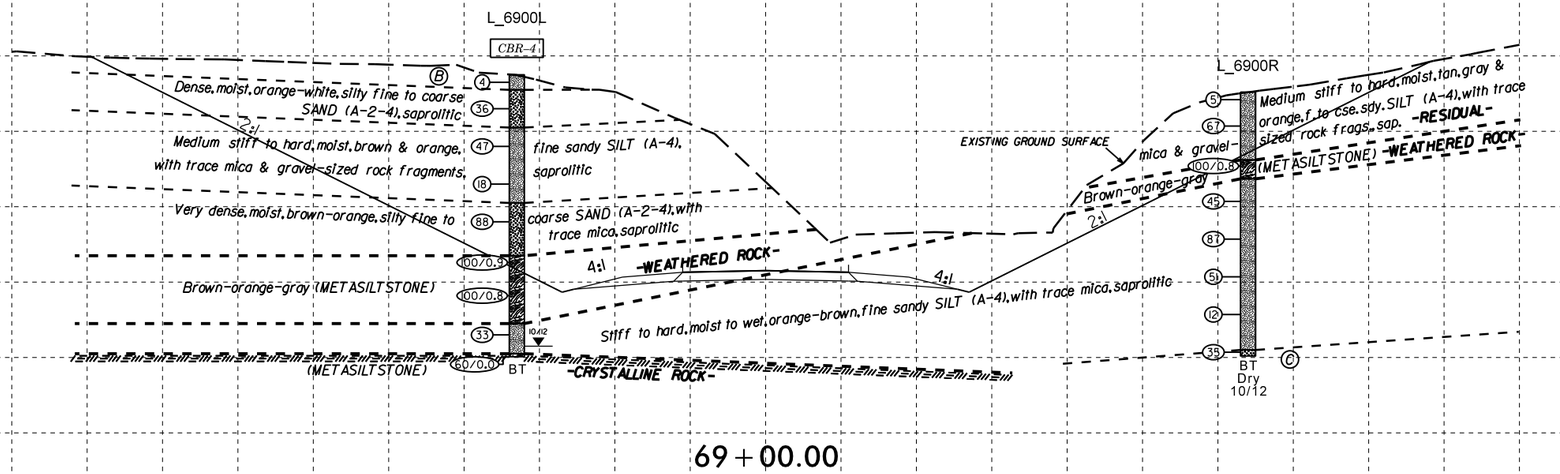
SOIL TEST RESULTS

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
CBR-4	33' LT.	69+00	7.0'-13.0'	A-4(0)	30	NP	8.8	48.4	30.4	12.4	93.2	89.5	47.9	8.4	NT

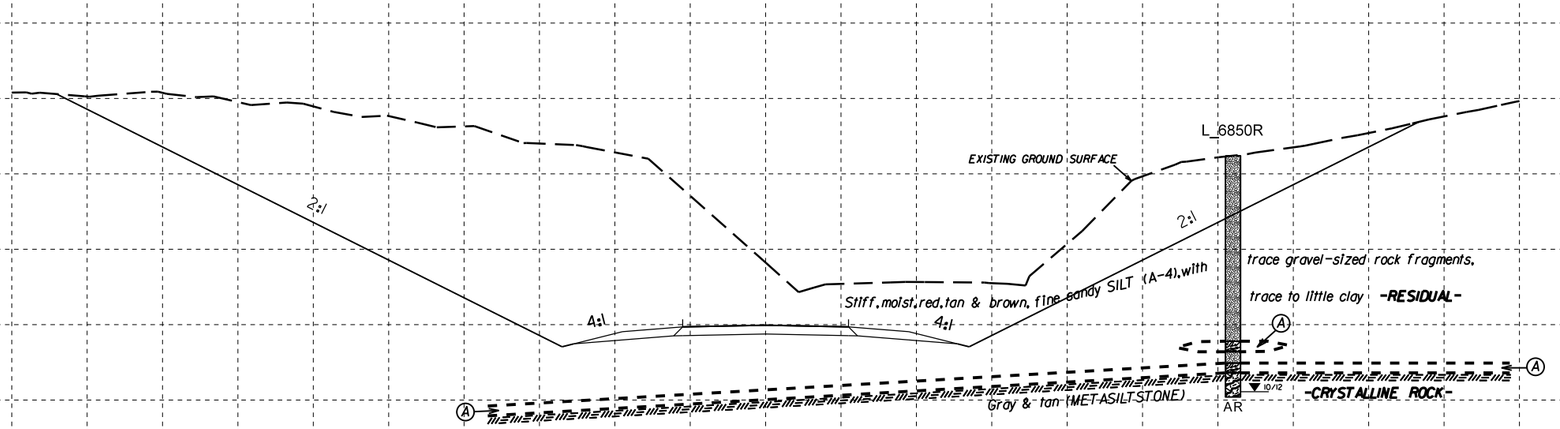
Ⓐ Tan (METASILTSTONE) **-WEATHERED ROCK-**

Ⓑ Soft to medium stiff, moist, red-brown, fine to coarse sandy SILT (A-4), with trace organics & gravel-sized rock fragments, little clay **-RESIDUAL-**

Ⓒ Dense, moist, orange, white, brown & black, silty fine to coarse SAND (A-2-4), with trace mica & gravel-sized rock fragments, saprolitic **-RESIDUAL-**



69+00.00



68+50.00

℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:14
F:\Projects\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
dlacey
66CAD1

8/23/99

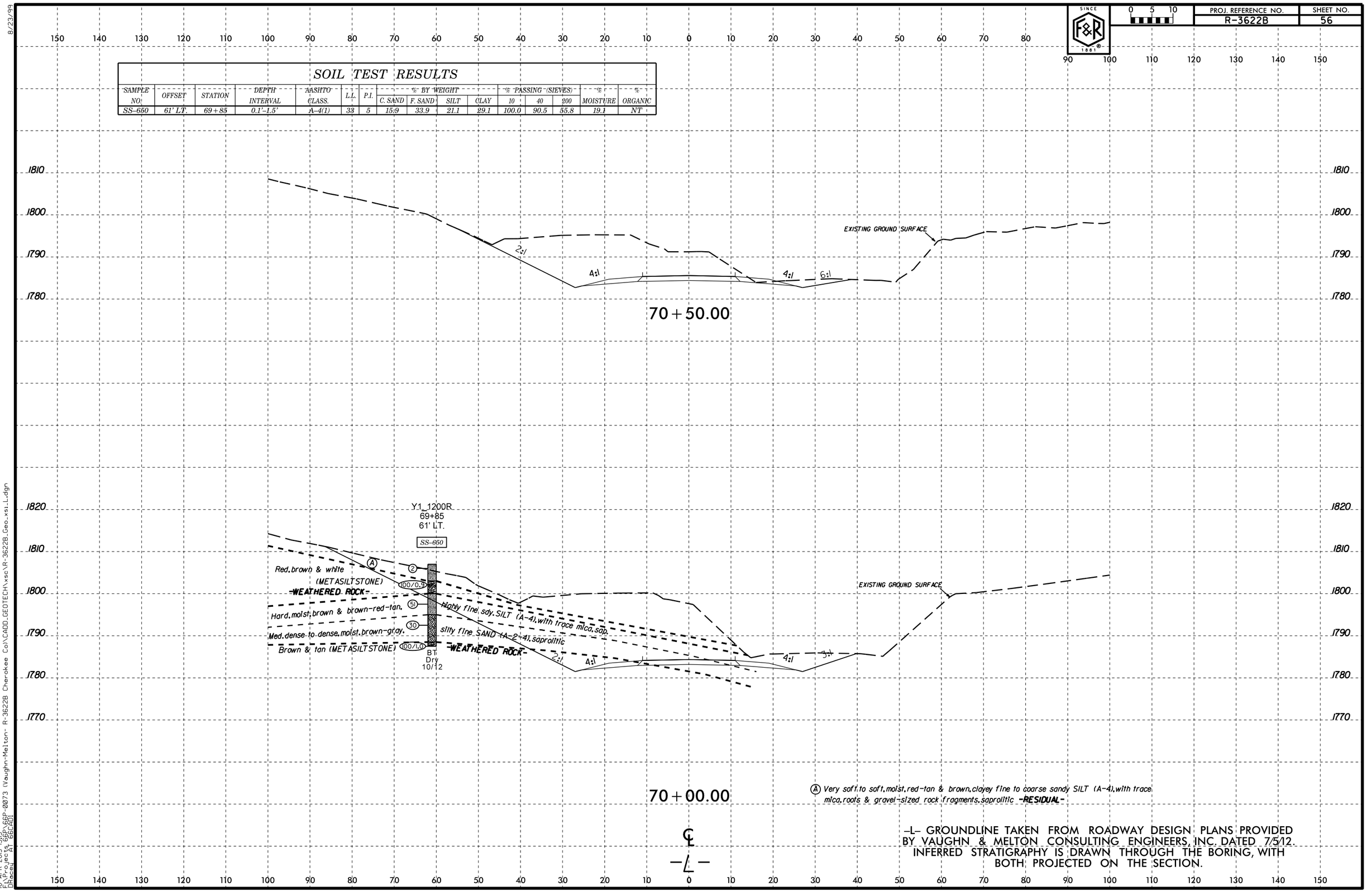
SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	56

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-650	61' LT.	69+85	0.1'-1.5'	A-4(1)	33	5	15.9	33.9	21.1	29.1	100.0	90.5	55.8	19.1	NT



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:15
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Default 11" 66CADI

8/23/99

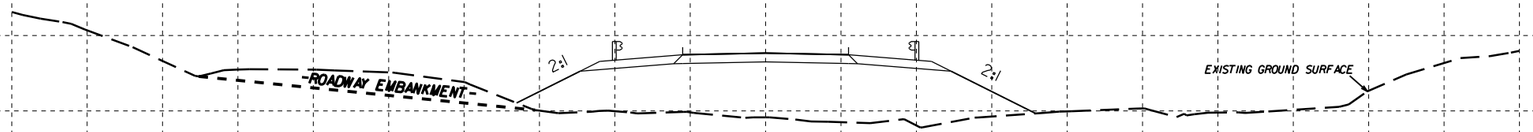
SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	57

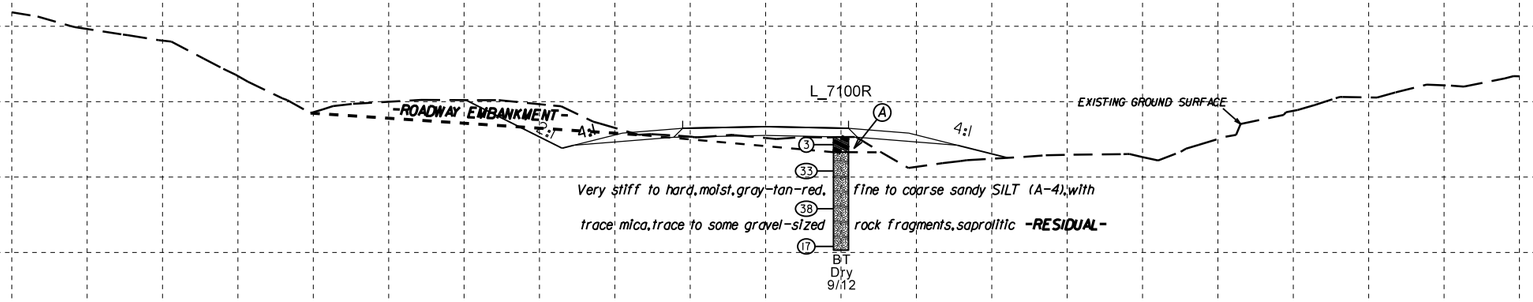
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1800
1790
1780
1810
1770



71+50.00

1800
1790
1780
1770
1760
1750
1740
1730
1720
1810



71+00.00

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–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

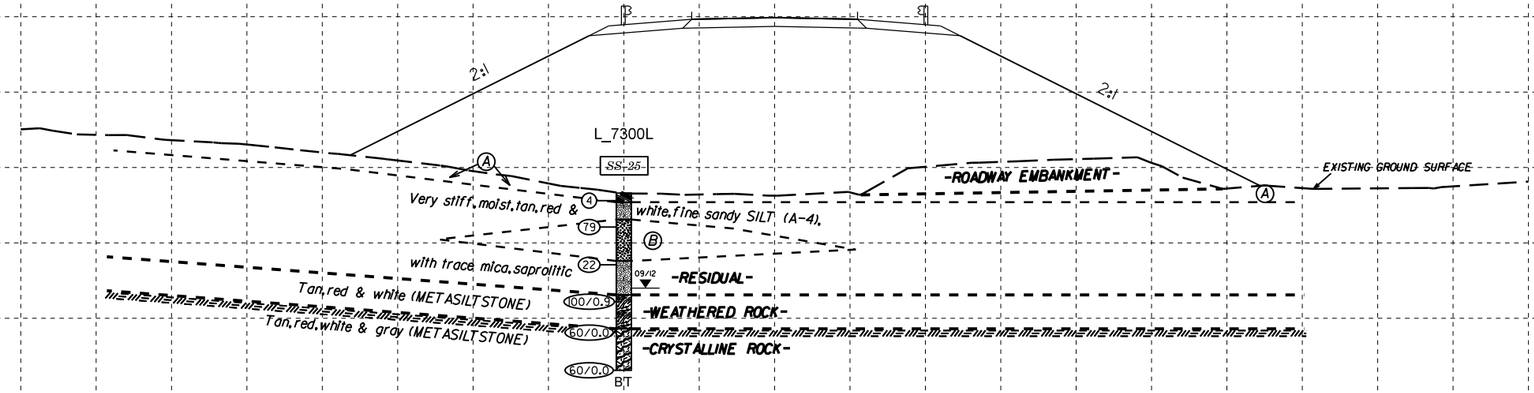
10-APR-2015 13:16
F:\Projects\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
Default 41 66CAD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	58

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-25	20' LT.	73+00	0.2'-1.2'	A-6(5)	32	11	10.0	30.8	23.6	35.6	98.9	94.4	62.8	20.8	NT



Ⓐ Soft to medium stiff, moist, brown, silty fine to coarse sandy CLAY (A-6), with trace roots **-RESIDUAL-**

Ⓑ Very dense, moist, tan & red, silty fine SAND (A-2-4), with trace mica, saprolitic **-RESIDUAL-**

73+00.00

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–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:17
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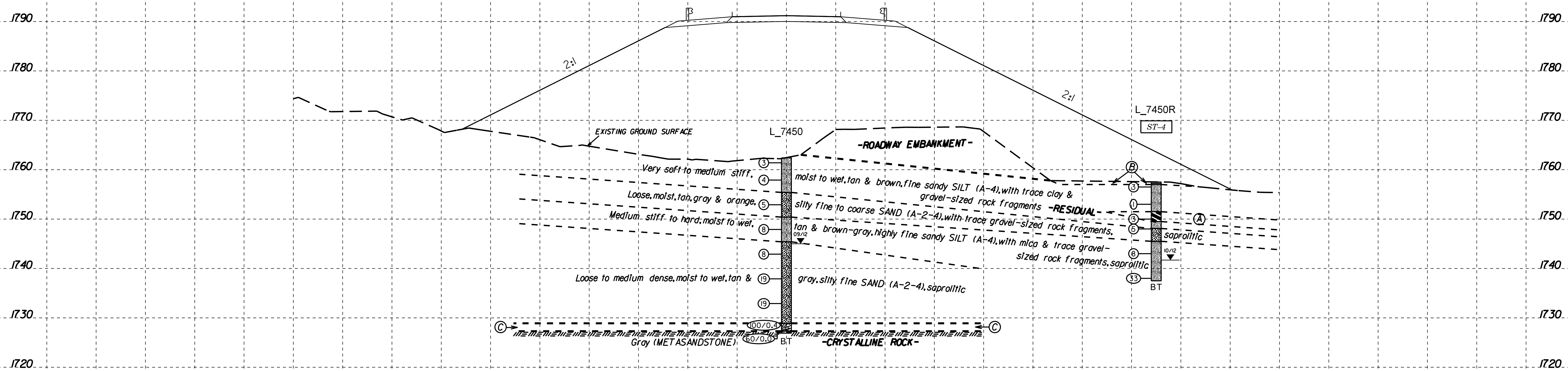
Drgset A1 66CADD

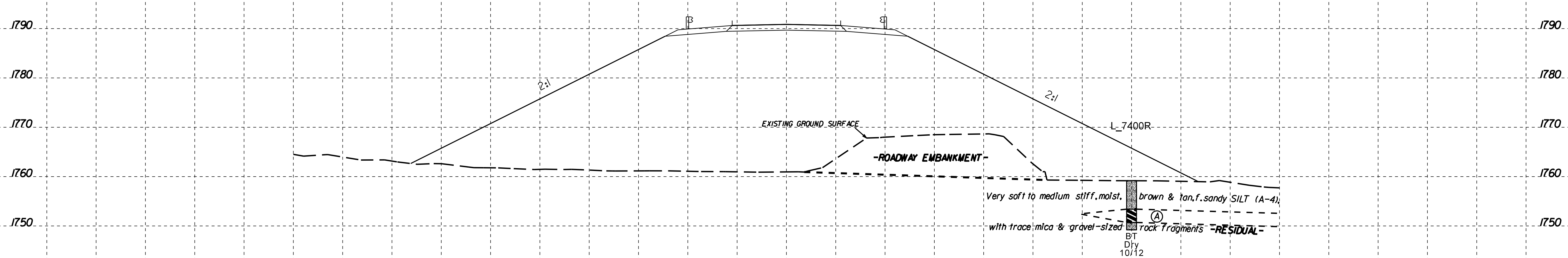
PROJ. REFERENCE NO.	SHEET NO.
R-3622B	59

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
ST-4	75' RT.	74+50	6.0'-8.0'	A-7-6(12)	41	13	3.9	17.9	31.6	46.6	100.0	98.4	81.7	29.3	NT



74+50.00



74+00.00

Ⓐ Soft, moist to wet, tan, fine sandy silty CLAY (A-7-6) **-RESIDUAL-**

Ⓑ Soft, wet, brown, fine sandy SILT (A-4), with trace clay, **highly organic -RESIDUAL-**

Ⓒ Dark brown & gray (METASANDSTONE) **-WEATHERED ROCK-**

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-L-

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

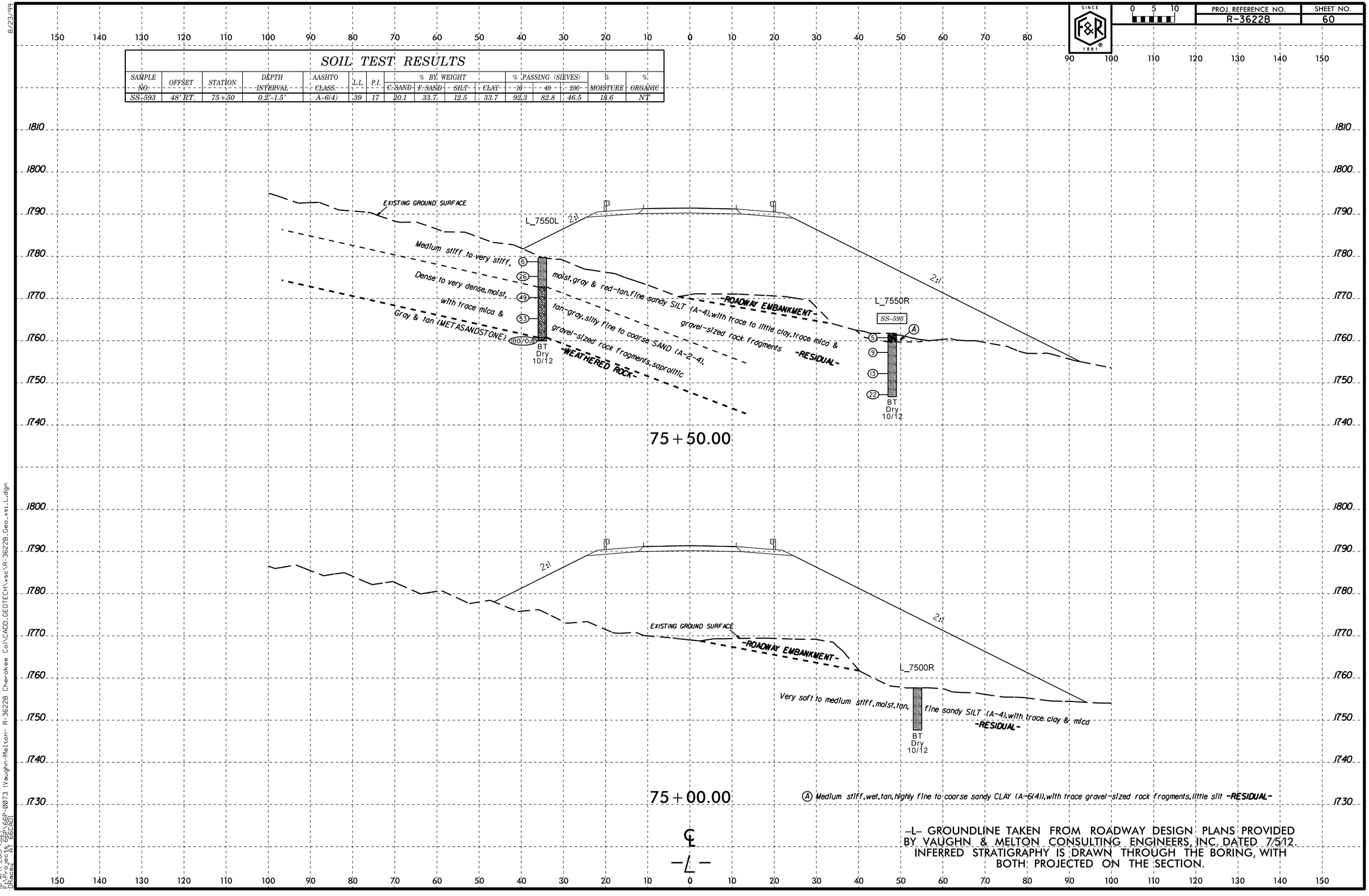
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	60

0 5 10

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH -INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C-SAND	% BY WEIGHT F-SAND	% BY WEIGHT -SILT-	% BY WEIGHT -CLAY-	% PASSING (SIEVES) -10-	% PASSING (SIEVES) -40-	% PASSING (SIEVES) -200-	% MOISTURE	% ORGANIC
SS-593	48' RT.	75+50	0.2'-1.5'	A-6(4)	39	17	20.1	33.7	12.5	33.7	92.3	82.8	46.5	18.6	NT

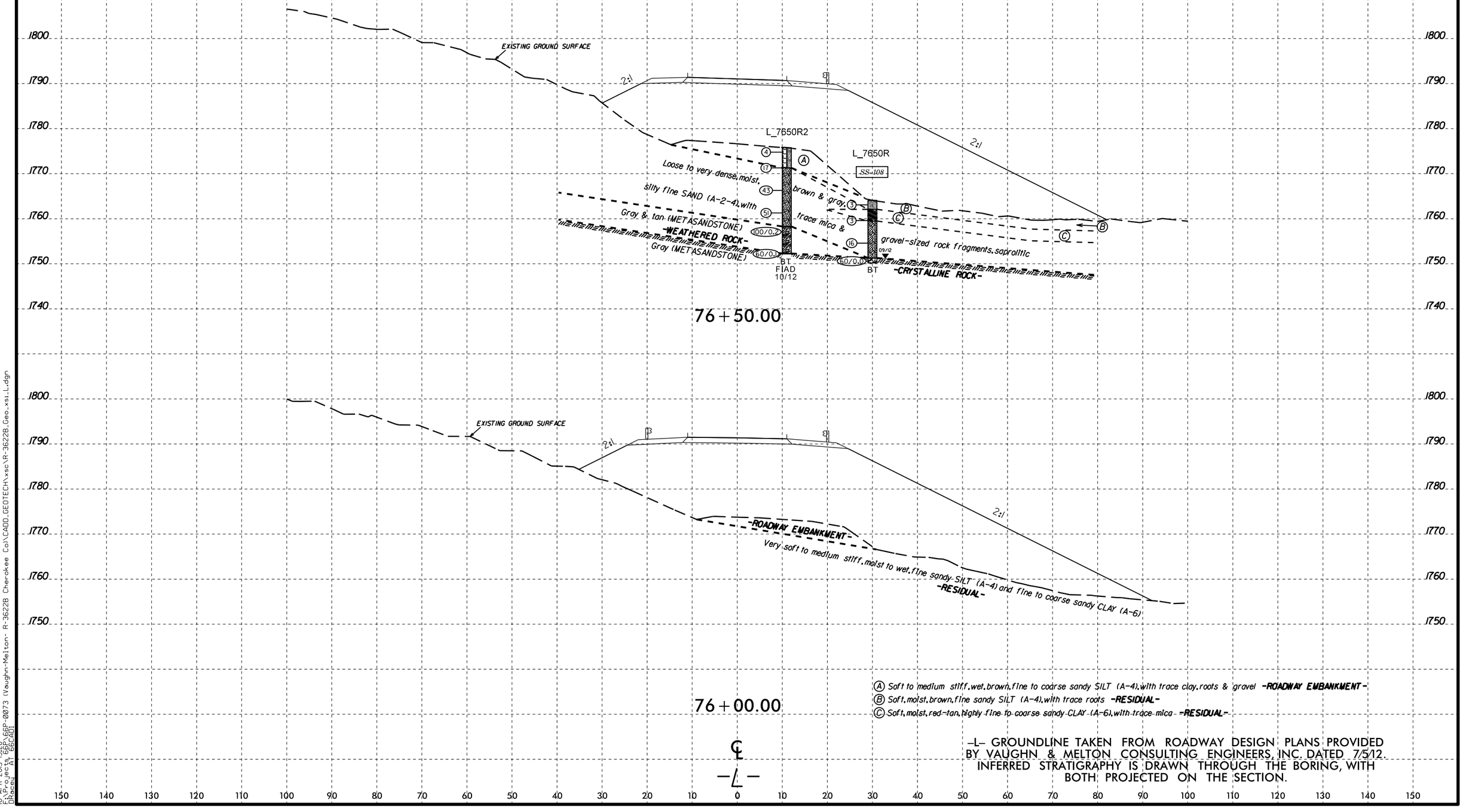


–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:27
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 41 66CADI

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-108	30' RT.	76+50	3.5'-4.6'	A-6(2)	35	12	30.5	30.0	7.7	31.8	98.9	80.3	42.4	23.0	NT



Ⓐ Soft to medium stiff, wet, brown, fine to coarse sandy SILT (A-4), with trace clay, roots & gravel **-ROADWAY EMBANKMENT-**
Ⓑ Soft, moist, brown, fine sandy SILT (A-4), with trace roots **-RESIDUAL-**
Ⓒ Soft, moist, red-tan, highly fine to coarse sandy CLAY (A-6), with trace mica **-RESIDUAL-**

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	62

0 5 10

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

1810
1800
1790
1780
1770
1760

EXISTING GROUND SURFACE

2:1

-ROADWAY EMBANKMENT-

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

2:1

77+50.00

1810
1800
1790
1780
1770
1760
1750

EXISTING GROUND SURFACE

2:1

-ROADWAY EMBANKMENT-

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

2:1

77+00.00

℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:29
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CADI

8/23/99

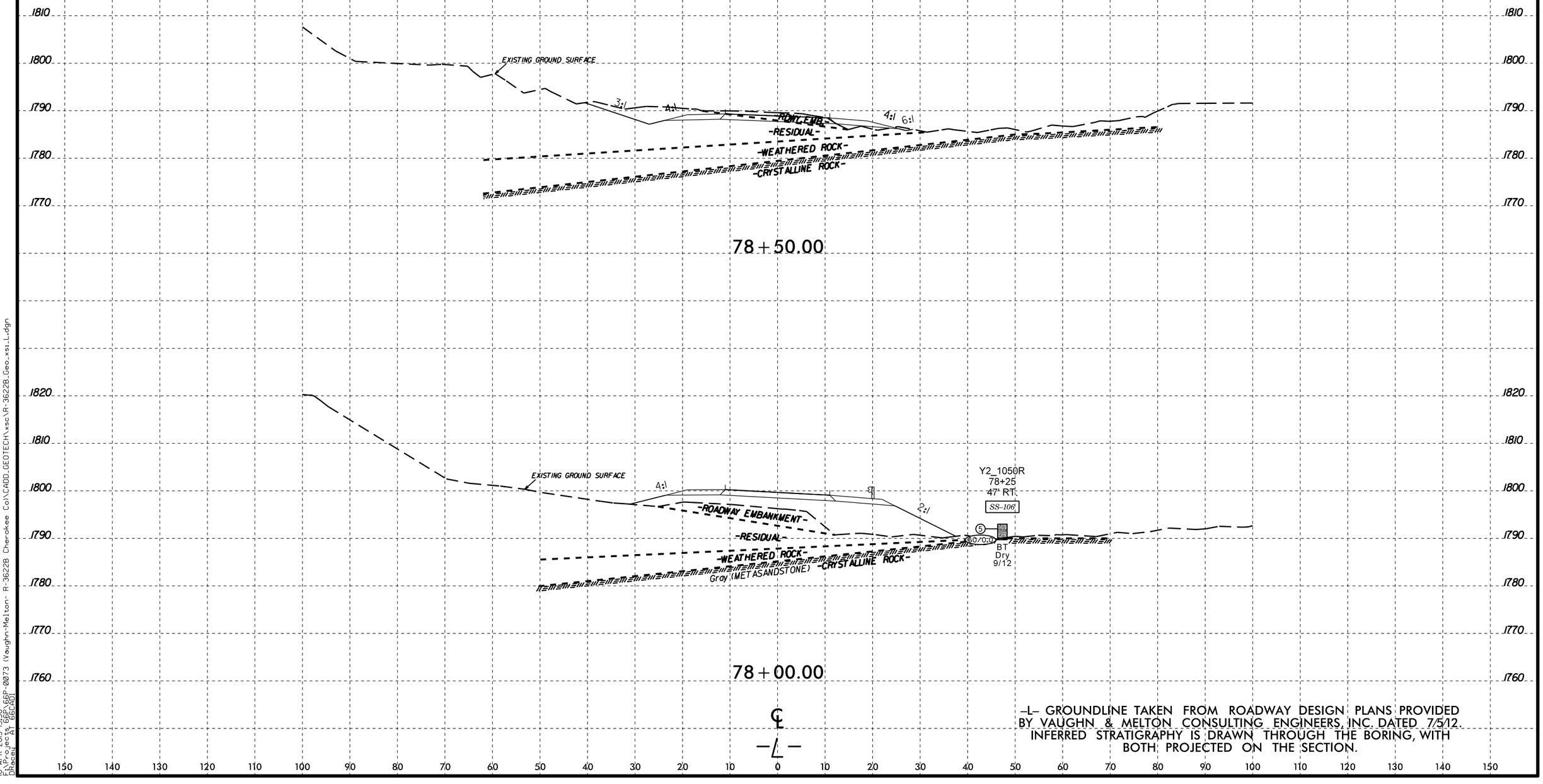
SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	63

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-106	47' RT	78+25	0.1'-0.9'	A-4(4)	38	8	10.3	34.5	21.1	34.1	95.9	91.3	58.9	19.9	NT



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

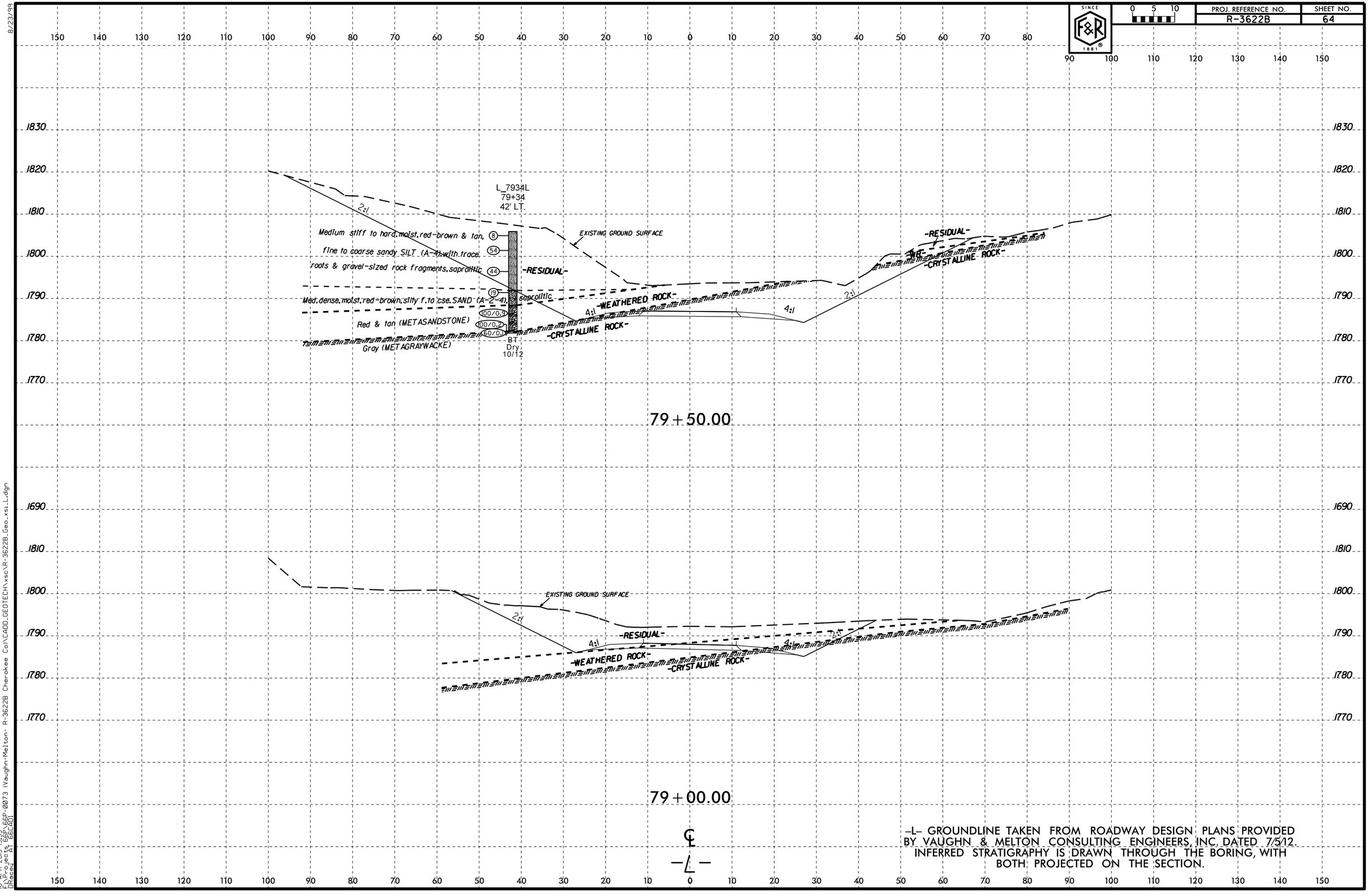
10-APR-2015 13:30
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 41 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	64



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:33
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default A1 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	65

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

1820 1810 1800 1790 1780 1770

EXISTING GROUND SURFACE

2:1

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

4:1

80+50.00

1830 1820 1810 1800 1790 1780 1770

EXISTING GROUND SURFACE

2:1

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

4:1

L_8000R

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

Gray-tan (METAGRAYWACKE)

REC=90%
ROD=50%

Gray, fresh, hard to very hard, (METAGRAYWACKE),

REC=100%
ROD=100%

moderately close to wide fracture spacing

CT

Ⓐ Medium stiff, moist, red-brown, fine sandy SILT (A-4), with trace mica, little clay -RESIDUAL-

Ⓑ Gray, moderately weathered, moderately hard to hard (METAGRAYWACKE), close to very close fracture spacing -CRYSTALLINE ROCK-

** WATER LEVEL MAY BE INACCURATE DUE TO WATER INTRODUCED FOR CORING

80+00.00

℄ –L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

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

10-APR-2015 13:34
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
Default A1 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	66

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

1830 1820 1810 1800 1790 1780 1770 1760

EXISTING GROUND SURFACE

2:1

4:1

4:1

2:1

-RESIDUAL-

-WEATHERED ROCK-

-CRYSTALLINE ROCK-

81+50.00

EXISTING GROUND SURFACE

Med. stiff, moist, brown, fine sandy SILT (A-4) with trace gravel-sized rock frags.

Gray (MET AGRAYWACKE)

L_8100R

AR
Dry
10/12

L_8100R2

AR
Dry
10/12

2:1

4:1

4:1

-RESIDUAL-

-CRYSTALLINE ROCK-

81+00.00

℄
–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:35
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default AT 66CADI

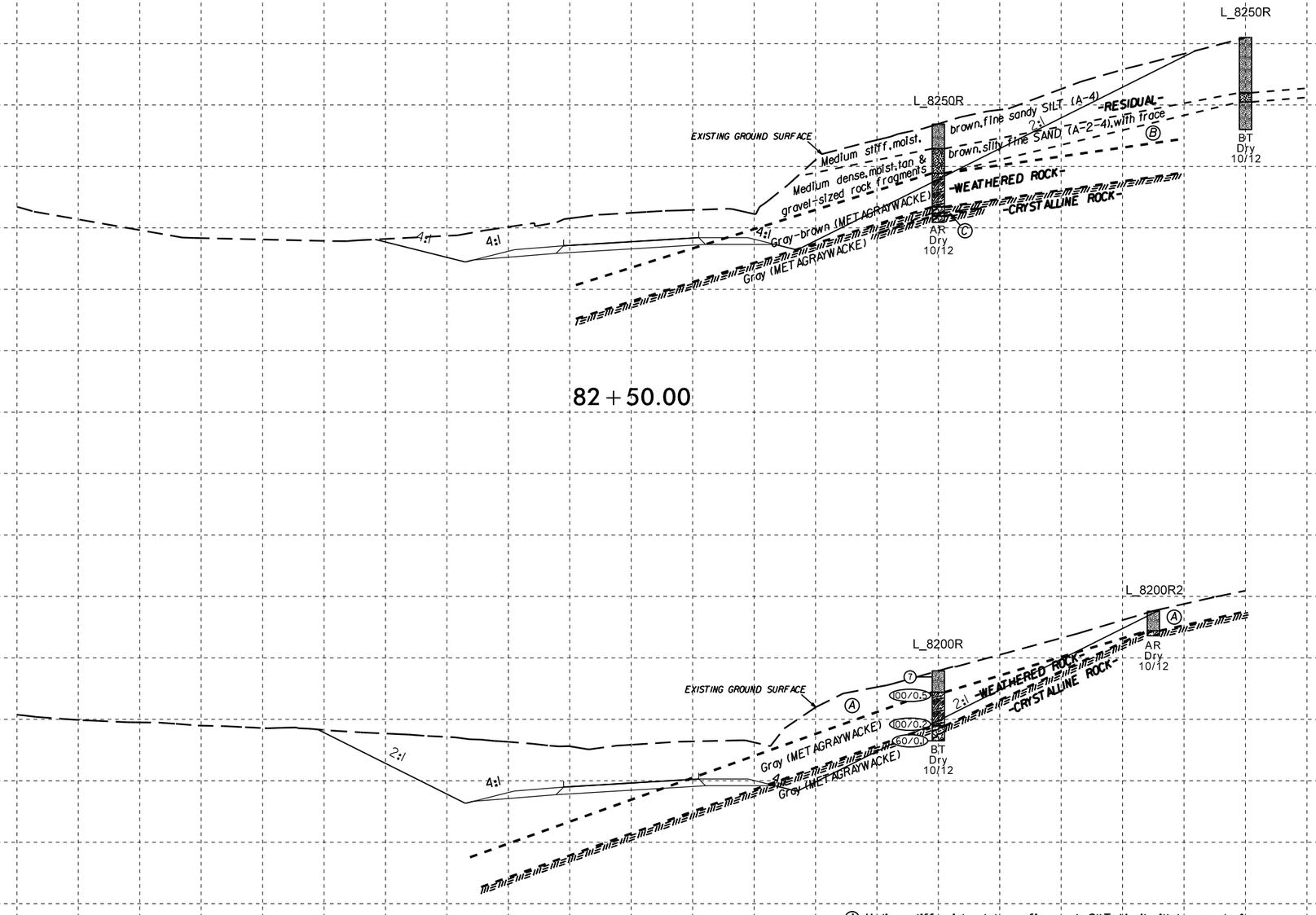
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	67

0 5 10

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

1820 1810 1800 1790 1780 1770 1760



82+50.00

82+00.00

℄
—L—

Ⓐ Medium stiff,moist,red-brown,fine sandy SILT (A-4),with trace roots & gravel-sized rock fragments **-RESIDUAL-**

Ⓑ Medium stiff,moist,brown,fine sandy SILT (A-4),with trace gravel-sized rock fragments **-RESIDUAL-**

Ⓒ Gray (METAGRAYWACKE) **-WEATHERED ROCK-**

—L— GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:36
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	68

0 5 10

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

1800
1790
1780
1770
1760

EXISTING GROUND SURFACE

6:1 4:1 4:1 2:1

83+50.00

1810
1800
1790
1780
1770
1760
1750
1740

EXISTING GROUND SURFACE

Medium stiff, moist.

Medium dense, moist.

Brown & gray (METASILTSTONE)

L_8300R

BT
Dry
10/12

brown, fine sandy SILT (A-4) -RESIDUAL

tan & brown, silty fine to coarse SAND (A-2-4), with trace gravel-sized rock fragments

-WEATHERED ROCK

6:1 4:1 4:1 2:1

83+00.00

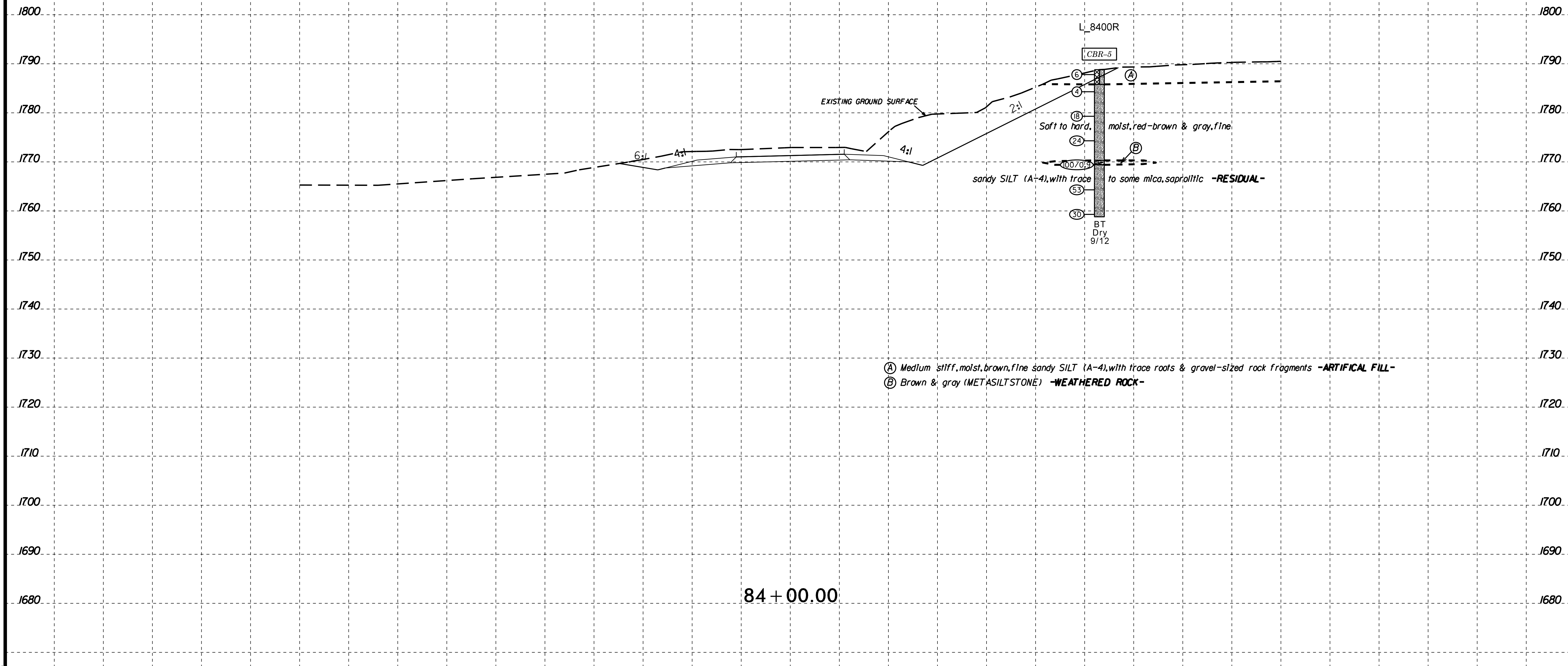
℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:36
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
DTaceli
66CADD1

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
CBR-5	63' RT.	84+00	5.0'-10.0'	A-4(0)	27	5	20.5	35.5	17.6	26.4	99.0	86.3	48.0	15.3	NT



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

8/23/99
10-APR-2015 13:38 F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsl_L.dgn

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	70

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

1780
1770
1760
1750
1740

EXISTING GROUND SURFACE

4:1

86+50.00

1790
1780
1770
1760
1750
1740
1730
1720

EXISTING GROUND SURFACE

L_8600L

6:1 4:1

Medium stiff to stiff, moist, red-tan, fine sandy SILT (A-4), with trace mica -RESIDUAL-

9 8 37

A B

BT
Dry
9/12

86+00.00

℄
—L—

Ⓐ Loose, moist, black & brown, silty fine to coarse SAND (A-2-4), with trace organics & mica, high amount of gravel -ARTIFICIAL FILL-

Ⓑ Dense, moist, gray & tan, silty fine to coarse SAND (A-2-4), saprolitic -RESIDUAL-

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:39
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
dlacey
66CADD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	71

0 5 10

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

1770
1760
1750
1740
1730
1720
1710
1700
1690
1680
1670
1660
1650

EXISTING GROUND SURFACE

2:1

L_8800R

4:1

Medium stiff, moist, red-brown, fine sandy SILT (A-4) with trace roots & gravel-sized rock fragments, little clay -RESIDUAL-

Gray & tan (METASILTSTONE) -WEATHERED ROCK-

5 100/1.0 10/12 100/0.8 BT

88+00.00

℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:40
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default A1 66CADI

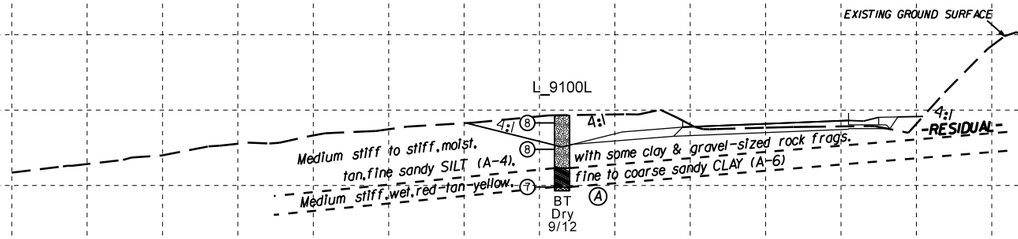
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	72

0 5 10

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

1770 1760 1750 1740 1730 1720 1710 1700 1690 1680 1670 1660 1650 1640 1630



Ⓐ Loose, wet, red & black, silty fine to coarse SAND (A-2-4), saprolitic **-RESIDUAL-**

91+00.00

℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:41
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 11" 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	73

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

1730
1720
1710
1700

EXISTING GROUND SURFACE

3:1

4:1

4:1

94+00.00

1740
1730
1720
1710
1700
1690
1680

L_9350L

A

4:1

4:1

5:1

EXISTING GROUND SURFACE

4
9
27

BT
Dry
9/12

Stiff to very stiff, moist, tan, fine sandy SILT (A-4), saprolitic **-RESIDUAL-**

A Soft to medium stiff, moist, brown, silty fine sandy CLAY (A-6), with trace roots **-ROADWAY EMBANKMENT-**

93+50.00

℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

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

10-APR-2015 13:42
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD\GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	74

0 5 10

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

1720
1710
1700

EXISTING GROUND SURFACE

4:1

6:1

95+00.00

1730
1720
1710
1700
1690
1680
1670

L 9450L

3:1

4:1

6:1

EXISTING GROUND SURFACE

Loose, wet, gray, silty fine to coarse with trace mica **-ALLUVIAL-**

Stiff, wet, gray & tan, fine

SAND (A-2-4),

10/12

sandy SILT (A-4) **-RESIDUAL-**

B-T

(A) Soft to medium stiff, wet, brown, fine sandy SILT (A-4), with little clay **-ROADWAY EMBANKMENT-**

94+50.00

℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:43
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 41 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	75

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

1720
1710
1700
1690
1680

L_9600R

4:1 6:1

2:1

EXISTING GROUND SURFACE

Ⓐ Very soft to soft, wet to saturated, red-brown, fine to coarse sandy SILT - (A-4), with trace mica & gravel -ALLUVIAL-

10/12

Very stiff, wet, brown-tan, fine sandy SILT (A-4), with trace mica -RESIDUAL-

BT

96+00.00

L_9550L

3:1

ASPHALT 0.0-0.5'

L_9550R

4:1 6:1

EXISTING GROUND SURFACE

V. soft, wet, tan, f. sdy. CLAY (A-6), w/ trace mica -ALLUVIAL-

Very stiff, moist, tan & gray, fine sandy SILT (A-4), with trace mica, saprolitic -RESIDUAL-

09/12

BT

BT FIAD 10/12

95+50.00

℄

Ⓐ Soft to medium stiff, moist, red-tan & brown, fine to coarse sandy SILT (A-4), with trace to some mica, trace gravel -ROADWAY EMBANKMENT-

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

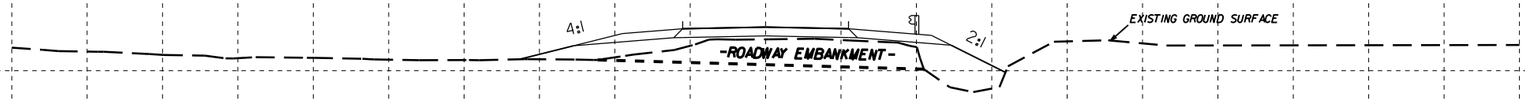
10-APR-2015 13:44
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 41 66CADI

8/23/99

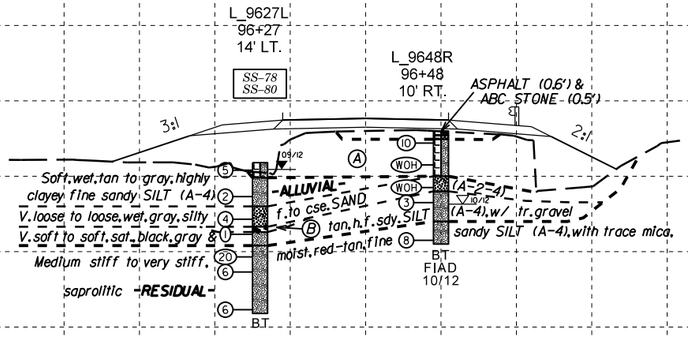
PROJ. REFERENCE NO.	SHEET NO.
R-3622B	76

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-78	14' LT.	96+27	3.5'-5.0'	A-4(5)	35	9	9.0	29.4	26.4	35.2	99.5	94.5	66.6	40.1	NT
SS-80	14' LT.	96+27	8.5'-9.2'	A-7-5(24)	88	25	6.4	27.1	39.1	27.4	99.7	97.0	69.9	121.0	NT



97+00.00



96+50.00

℄
—L—

(A) Very soft to stiff,moist to wet,dark brown & gray,fine to coarse sandy SILT (A-4),with trace roots & mica,trace to little clay -ROADWAY EMBANKMENT-

(B) Very soft,saturated,black,fine sandy silty CLAY (A-7-5),with organic odor -ALLUVIAL-

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:45
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_Ldgn
Default 11" 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	77

0 5 10

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

1710
1700
1690

5:1 5:1

-RDWY EMB-

EXISTING GROUND SURFACE

98+00.00

1720
1710
1700
1690
1680
1670
1660

L_9750R

ASPHALT 0.8'

5:1 3:1

EXISTING GROUND SURFACE

Very soft to soft, wet to saturated, brown-gray to tan, fine to coarse sandy SILT (A-4), with trace gravel & mica -ALLUVIAL-

Stiff to very stiff, moist, tan, fine sandy SILT (A-4), with trace mica -RESIDUAL-

BT FIAD 10/12

97+50.00

℄

Ⓐ Medium stiff to stiff, moist, brown, fine sandy SILT (A-4) -ROADWAY EMBANKMENT-

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:49
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default AT 66CADD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	78

0 5 10

99+50.00

EXISTING GROUND SURFACE

99+00.00

L_9850R

Medium dense, saturated, gray & tan, silty fine SAND (A-2-4), with trace gravel -ALLUVIAL-

Stiff, moist, tan & white, fine sandy SILT (A-4), with trace mica -RESIDUAL-

BT
FIAD
10/12

98+50.00

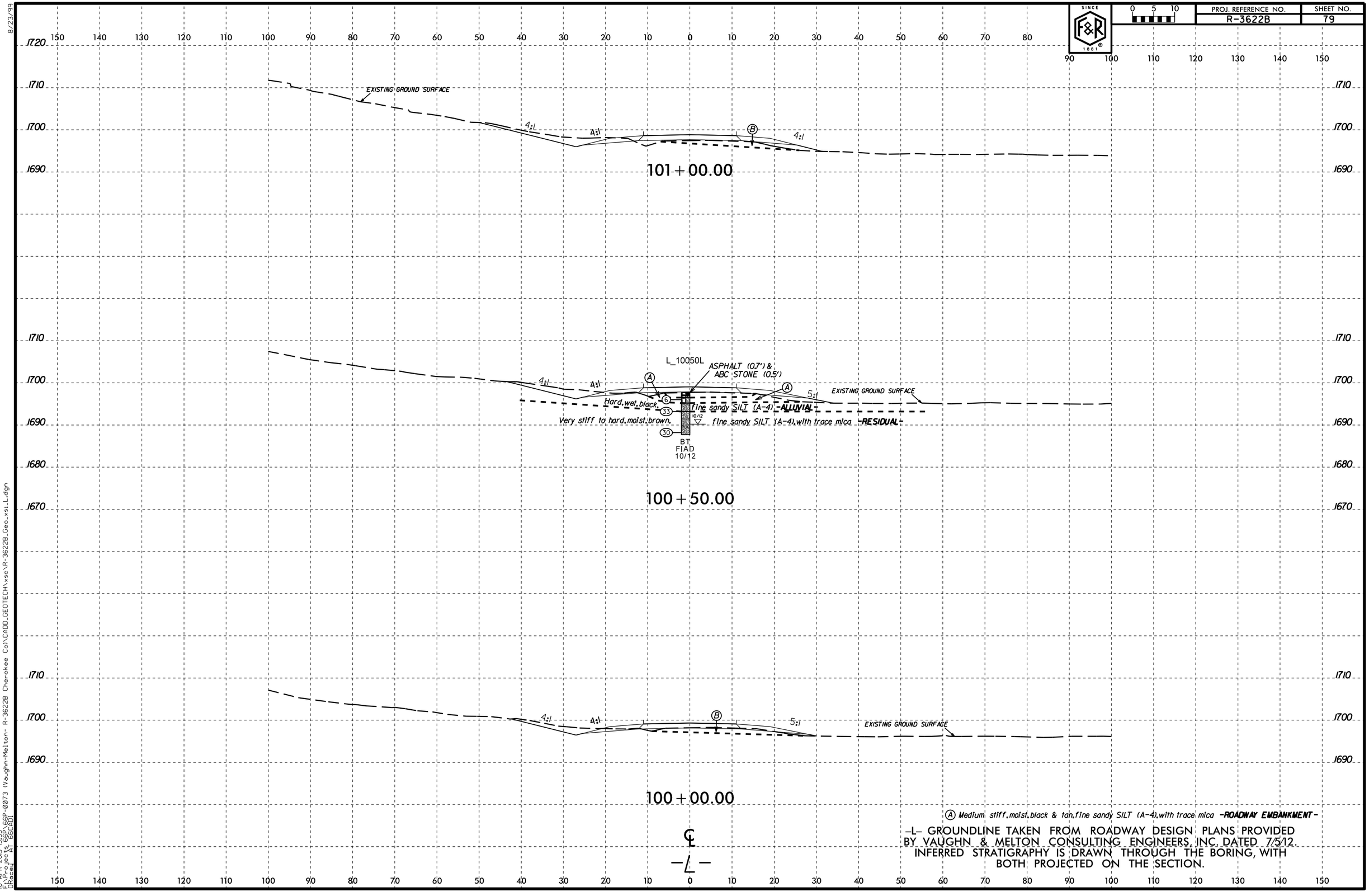
Ⓐ ASPHALT (0.8') & ABC STONE (0.5') -ROADWAY EMBANKMENT-

Ⓑ -ROADWAY EMBANKMENT-

Ⓒ Medium stiff, moist, black & brown, fine sandy SILT (A-4), with trace mica -ALLUVIAL-

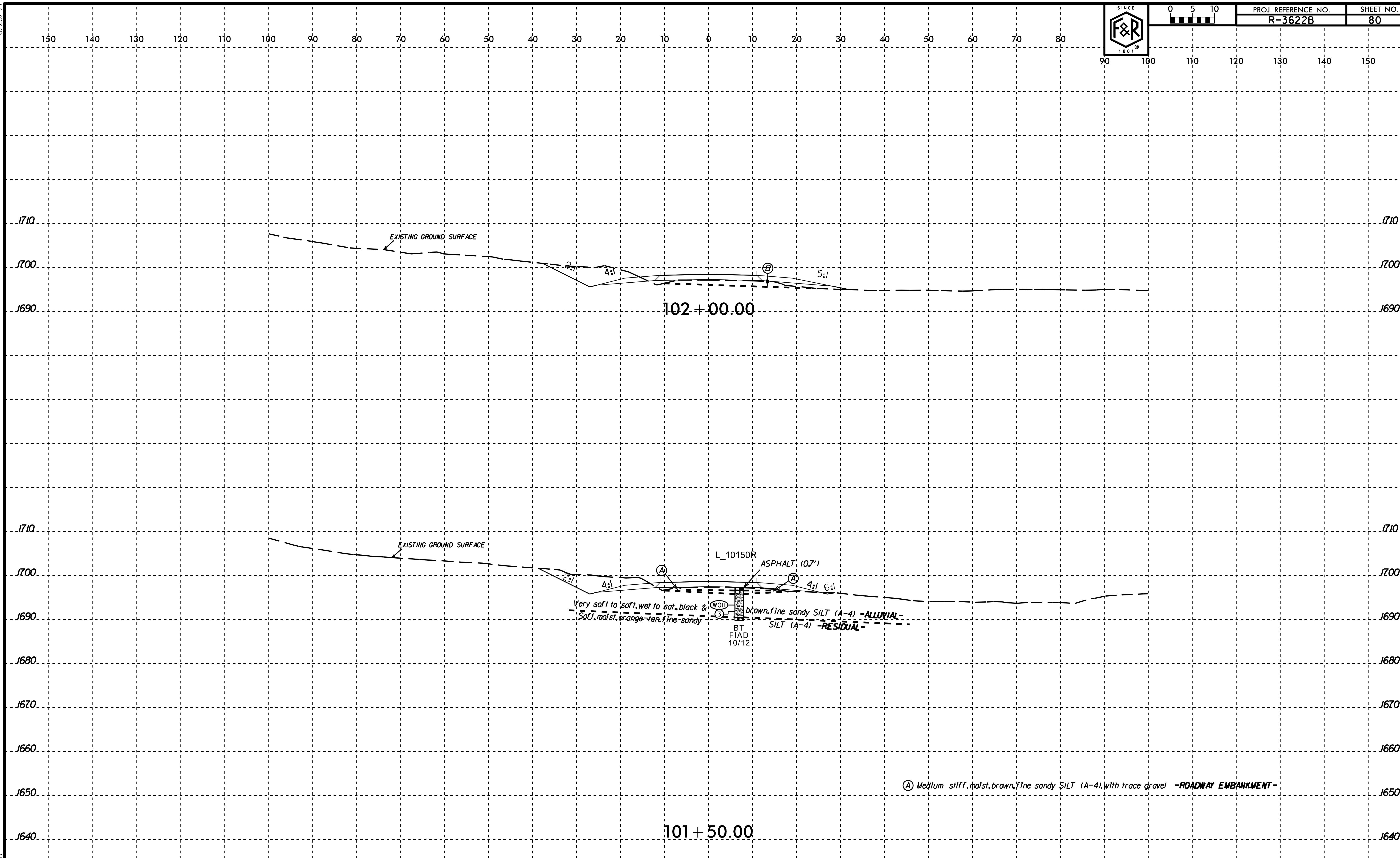
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:54
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
dlacey



Ⓐ Medium stiff,moist,black & tan,fine sandy SILT (A-4),with trace mica **-ROADWAY EMBANKMENT-**

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

8/23/99

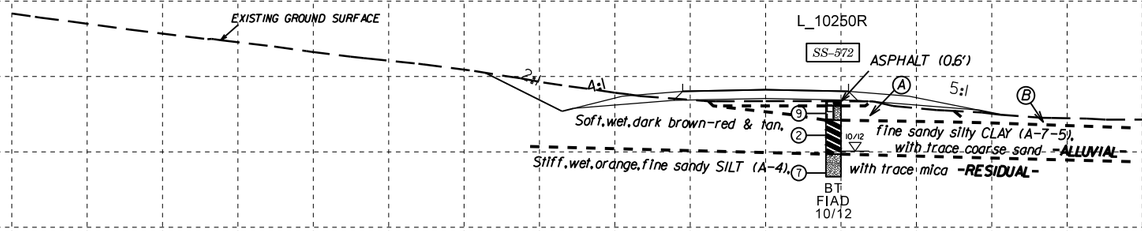
SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	81

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-572	9' RT.	102+50	2.5'-3.5'	A-7-5(13)	48	15	7.6	19.5	27.5	45.4	99.2	94.5	75.5	41.8	NT



Ⓐ Stiff,moist,brown,fine to coarse sandy SILT (A-4),with trace gravel -ROADWAY EMBANKMENT-

Ⓑ -ARTIFICIAL FILL-

102+50.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 13:57
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default A1 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	82

0 5 10

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

1720 1710 1700 1690 1680

2:1 4:1 4:1

EXISTING GROUND SURFACE

105+00.00

EXISTING GROUND SURFACE

3:1 4:1 4:1 3:1

L_10450L

ASPHALT (0.7')

(A) (A)

10 9 13 44

10/12

BT
FIAD
10/12

Stiff to hard, moist, brown-orange, fine sandy SILT (A-4), with trace mica -RESIDUAL-

-ALLUVIAL-

(A) Stiff, moist, brown, fine sandy SILT (A-4), with trace gravel -ROADWAY EMBANKMENT-

1720 1710 1700 1690 1680 1670 1660 1650 1640 1630

104+50.00

℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

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

10-APR-2015 13:58
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
Default 41 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	83

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

1710
1700
1690
1680

4:1 4:1 2:1

EXISTING GROUND SURFACE

106+00.00

1710
1700
1690
1680

3:1 4:1 2:1

L_10550R

Ⓐ

EXISTING GROUND SURFACE

09/12

Soft to medium stiff, moist, brown & gray, with trace gravel-sized rock fragments fine sandy SILT (A-4), -RESIDUAL-

B.T.

1710
1700
1690
1680
1670
1660
1650

105+50.00

Ⓐ -ROADWAY EMBANKMENT-

℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

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

10-APR-2015 13:59
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 41 66CADI

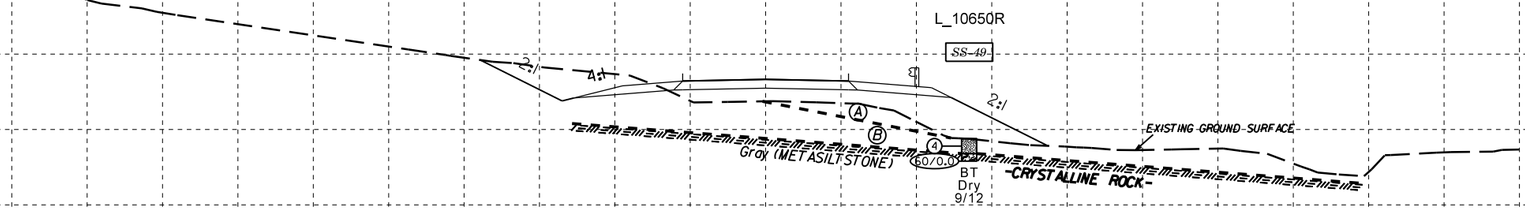
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	84

0 5 10

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-49	27' RT.	106+50	0.3'-1.5'	A-4(1)	27	8	22.8	32.9	15.3	29.0	98.2	85.8	47.2	18.9	NT



Ⓐ -ROADWAY EMBANKMENT-

Ⓑ Soft to medium stiff, moist, brown, clayey highly fine to coarse sandy SILT (A-4), with trace roots & gravel-sized rock fragments -RESIDUAL-

106+50.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:00
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CADI

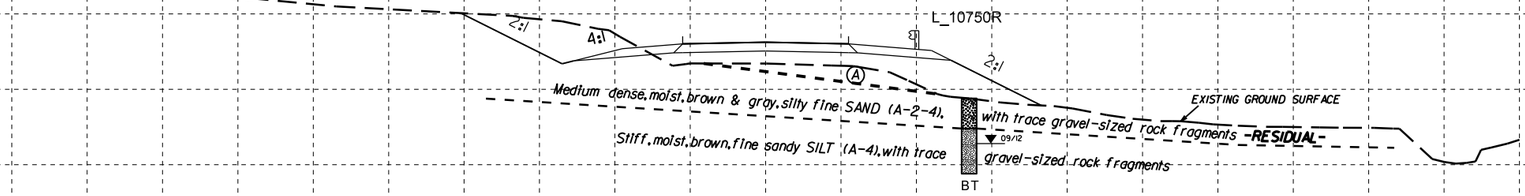
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	85

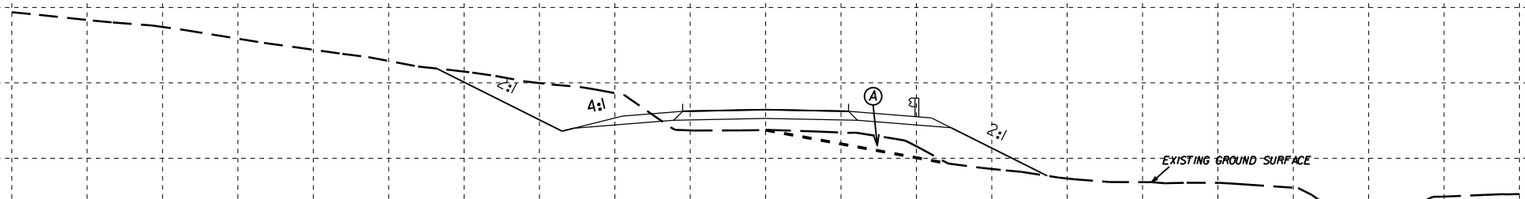
0 5 10

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

1710
1700
1690
1680
1670
1660



107 + 50.00



107 + 00.00

Ⓐ -ROADWAY EMBANKMENT-

℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

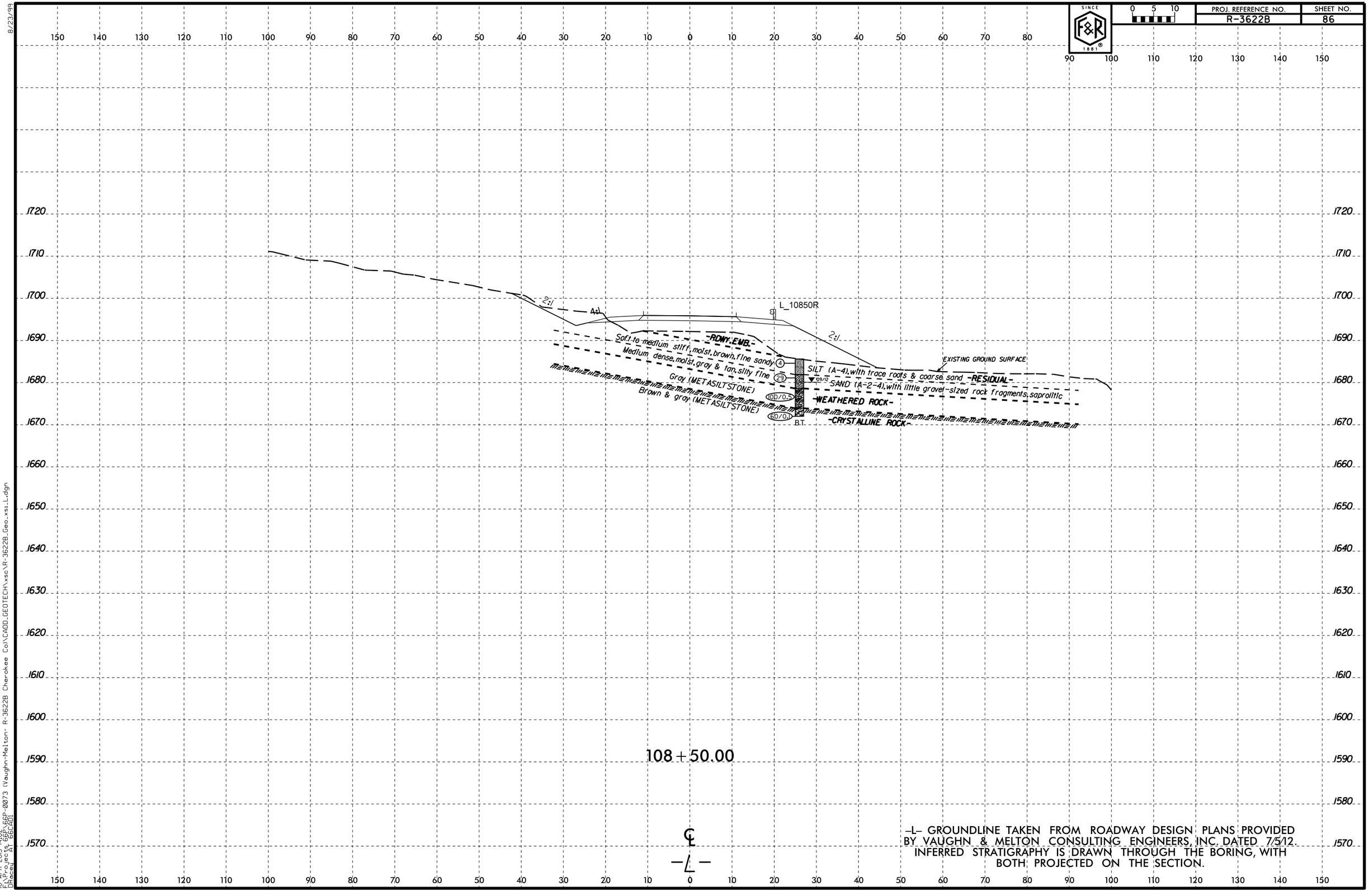
10-APR-2015 14:01
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsLL.dgn
Default 41 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	86



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

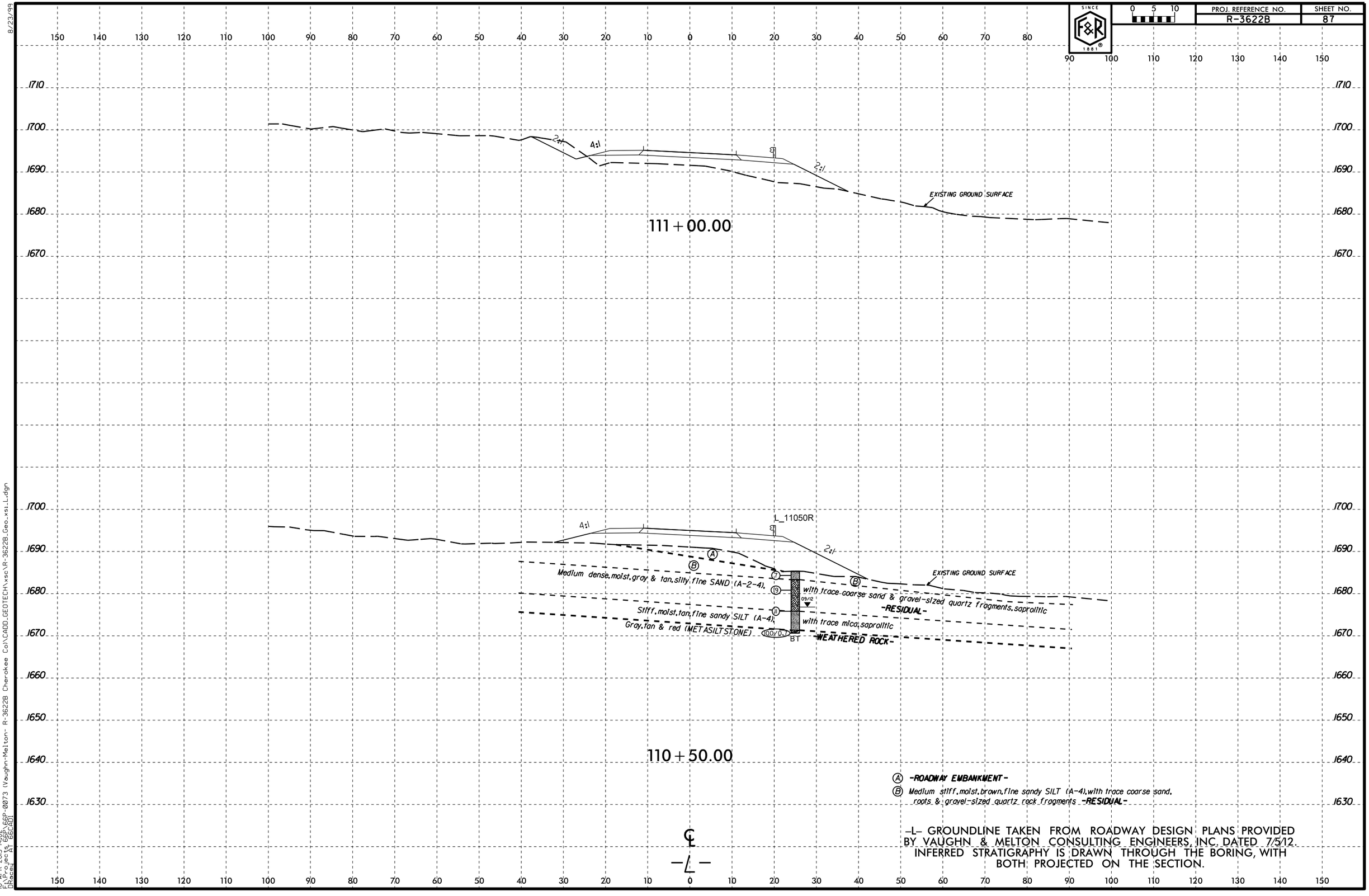
10-APR-2015 14:02
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
DMcCall 66CADD1

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	87



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

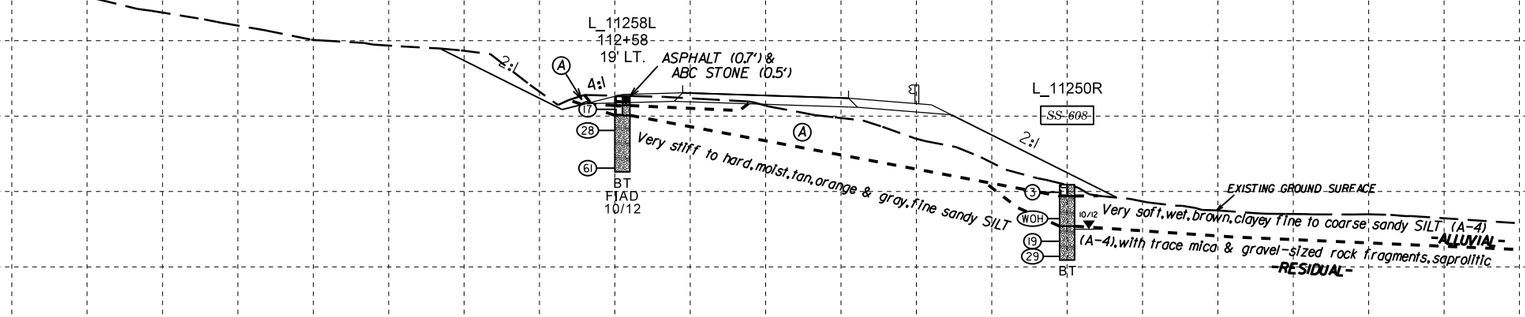
10-APR-2015 14:02
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	88

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-608	40' RT.	112+50	3.5'-5.0'	A-4(0)	33	NP	10.9	41.4	22.3	25.4	99.5	95.1	52.9	51.0	NT



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:06
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
DTaceli

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	89

0 5 10

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

1700 1690 1680 1670 1660 1650 1640

L_11335R
113+35
30' RT.

6:1 4:1 2:1

-ROADWAY EMBANKMENT-

-RESIDUAL-

EXISTING GROUND SURFACE

09/12
BT

Soft, moist to wet, brown to gray, fine sandy SILT (A-4) -ALLUVIAL-
Loose, moist, tan-red, silty fine SAND (A-2-4)

113 + 50.00

1710 1700 1690 1680 1670 1660

6:1 4:1 2:1

-ROADWAY EMBANKMENT-

EXISTING GROUND SURFACE

113 + 00.00

℄
—L—

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

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

10-APR-2015 14:06
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
Default
66CADI

8/23/99

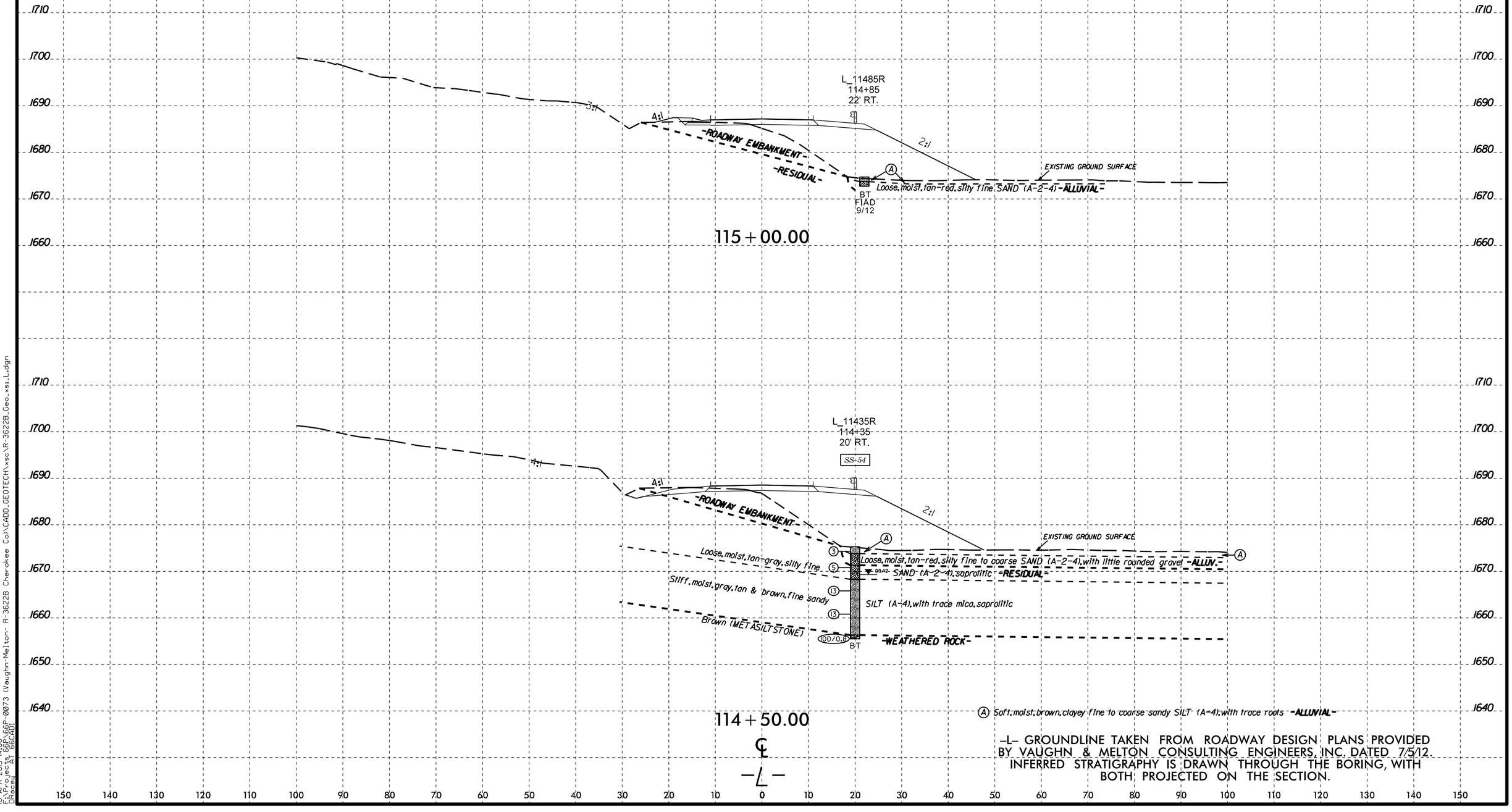
SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	90

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-54	20' RT.	114+35	0.2'-1.5'	A-4(1)	34	5	12.0	37.1	24.9	26.0	90.3	85.7	50.8	24.5	NT



10-APR-2015 14:08
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Default 41 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	91

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

1700
1690
1680
1670

2:1
4:1
ROADWAY EMBANKMENT
RESIDUAL
2:1
EXISTING GROUND SURFACE

116 + 00.00

1710
1700
1690
1680
1670
1660
1650
1640

L_11535R
115+35
20' RT.

4:1
ROADWAY EMBANKMENT
RESIDUAL
2:1
EXISTING GROUND SURFACE
Loose, moist, tan-red, silty fine SAND (A-2-4) -ALLUVIAL-
BT
Dry
9/12

115 + 50.00

℄
–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:09
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default A1 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	92

0 5 10

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

1700
1690
1680
1670

2:1
4:1
3:1
EXISTING GROUND SURFACE

117 + 00.00

1700
1690
1680
1670
1660
1650
1640

2:1
4:1
3:1
L_11650R
EXISTING GROUND SURFACE
③ ⑤ Soft to med.stiff,moist,tan,f.sdy.CLAY (A-6),with trace roots -ALLUVIAL-
③ Very loose,moist,gray,silty fine SAND (A-2-4),with trace mica
09/12
Very stiff,moist,tan-brown, fine sandy SILT (A-4),saprolitic,highly micaceous -RESIDUAL-
27
BT

116 + 50.00

℄
–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:09
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL.dgn
Default 41 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	93

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

1690
1680
1670
1660

4:1
4:1
2:1
EXISTING GROUND SURFACE

119 + 00.00

1690
1680
1670
1660
1650
1640

3:1
4:1
L_11850R
2:1
EXISTING GROUND SURFACE
-RESIDUAL-
Brown & black (METASANDSTONE)
50/0.1
09/12
BT
Very loose,moist,gray,fine SAND (A-2-4),with some silt,trace mica -ALLUVIAL-
-CRYSTALLINE ROCK-

118 + 50.00

℄
—L—

Ⓐ -ROADWAY EMBANKMENT-
Ⓑ Soft,moist,brown & tan,fine sandy SILT (A-4),with trace roots -ALLUVIAL-

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:10
F:\Projects\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default A1 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	94

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

1680
1670
1660

6:1 4:1 A 3:1 EXISTING GROUND SURFACE

120+00.00

1690
1680
1670
1660
1650
1640
1630

5:1 4:1 A L_11950R 2:1 EXISTING GROUND SURFACE

-RESIDUAL-

B BT Dry 9/12 Medium dense,wet,gray-tan,silty fine SAND (A-2-4)

119+50.00

℄
—L—

Ⓐ -ROADWAY EMBANKMENT-

Ⓑ Soft to very soft,moist to wet,tan & gray,fine sandy CLAY (A-6) & silty CLAY (A-7-5) -ALLUVIAL-

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

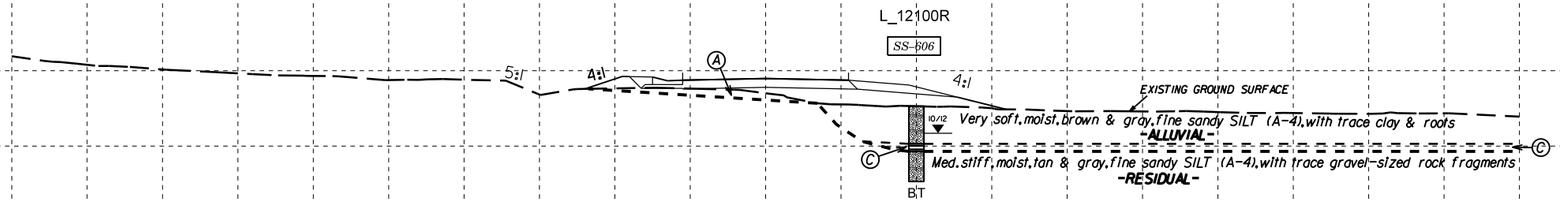
10-APR-2015 14:11
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CADI

8/23/99

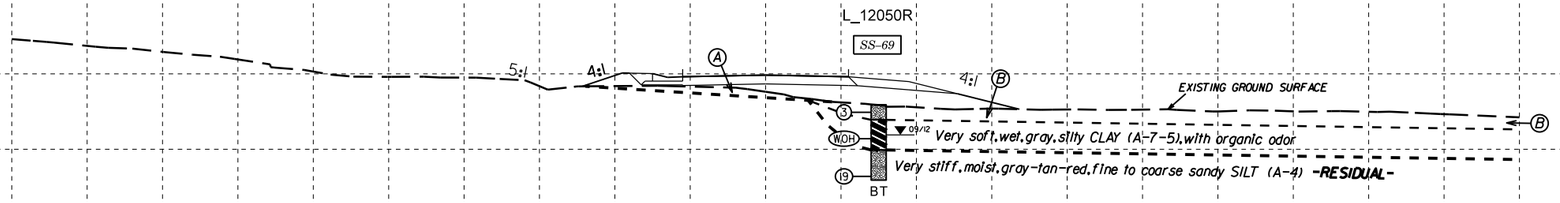
PROJ. REFERENCE NO.	SHEET NO.
R-3622B	95

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-69	15' RT.	120+50	3.5'-5.0'	A-7-5(14)	46	15	3.3	16.6	32.3	47.8	100.0	98.6	83.1	53.0	NT
SS-606	20' RT.	121+00	5.0'-6.0'	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	73.6	10.7



121+00.00



120+50.00

℄
—L—

Ⓐ -ROADWAY EMBANKMENT-
Ⓑ Soft,moist,tan,fine sandy SILT (A-4),with little clay,trace roots -ALLUVIAL-
Ⓒ Very soft to soft,saturated,gray-black,fine sandy silty CLAY (A-7-5),with little organics -ALLUVIAL-

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:12
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default
ATT 66CADI

8/23/99

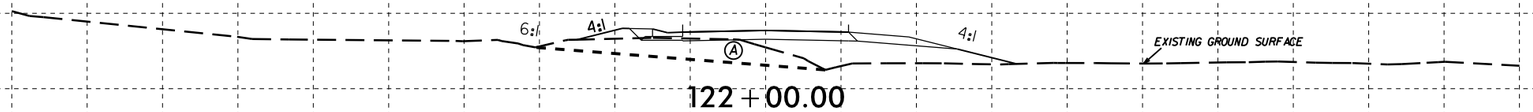
SINCE F&R 1881

0 5 10

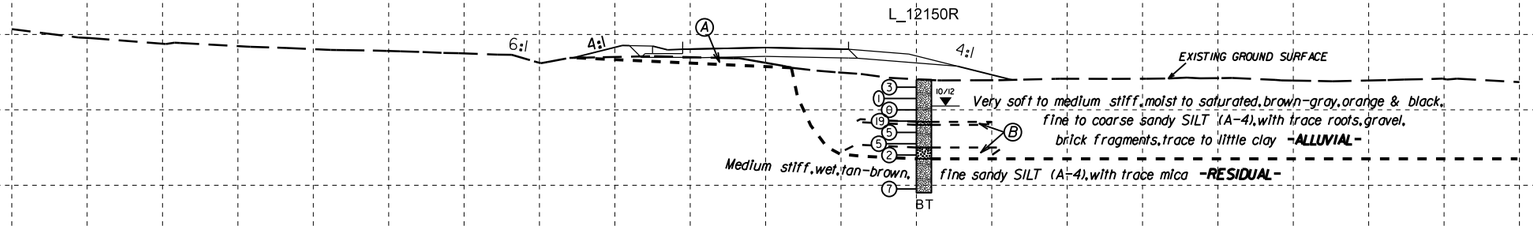
PROJ. REFERENCE NO.	SHEET NO.
R-3622B	96

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

1680
1670
1660
1650
1640
1630
1620



122+00.00



121+50.00

℄

Ⓐ -ROADWAY EMBANKMENT-

Ⓑ Very loose to medium dense, wet to saturated, brown & gray, silty fine to coarse SAND (A-2-4), with trace gravel -ALLUVIAL-

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:12
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CADI

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	97

0 5 10

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

1690 1680 1670 1660 1650

6:1 4:1 3:1

ROADWAY EMBANKMENT

EXISTING GROUND SURFACE

123+00.00

1680 1670 1660 1650 1640 1630 1620

L 12250R

6:1 4:1 4:1

EXISTING GROUND SURFACE

Ⓐ

① Very soft, moist, brown, fine sandy SILT (A-4), with trace roots, little clay -ALLUVIAL-

09/12

⑮ Medium dense, saturated, red & tan, silty fine to coarse SAND (A-2-4), with trace rounded gravel

㊳ Hard, moist, red-brown, fine sandy SILT (A-4), with trace mica, saprolitic -RESIDUAL-

BT

Ⓐ -ROADWAY EMBANKMENT-

122+50.00

℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:14
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Default
ATT 66CAD1

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	98

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

1680
1670
1660
1650

6:1 4:1 2:1

-ROADWAY EMBANKMENT-

EXISTING GROUND SURFACE

124+00.00

L_12350R

6:1 4:1 2:1

-ROADWAY EMBANKMENT-

-RESIDUAL-

EXISTING GROUND SURFACE

5 blows/12"

Very soft, wet, brown to black, clayey SILT (A-5), with trace organics

-ALLUVIAL-

BT

Loose, wet, gray-tan, silty fine to coarse SAND (A-2-4), with trace gravel

123+50.00

℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

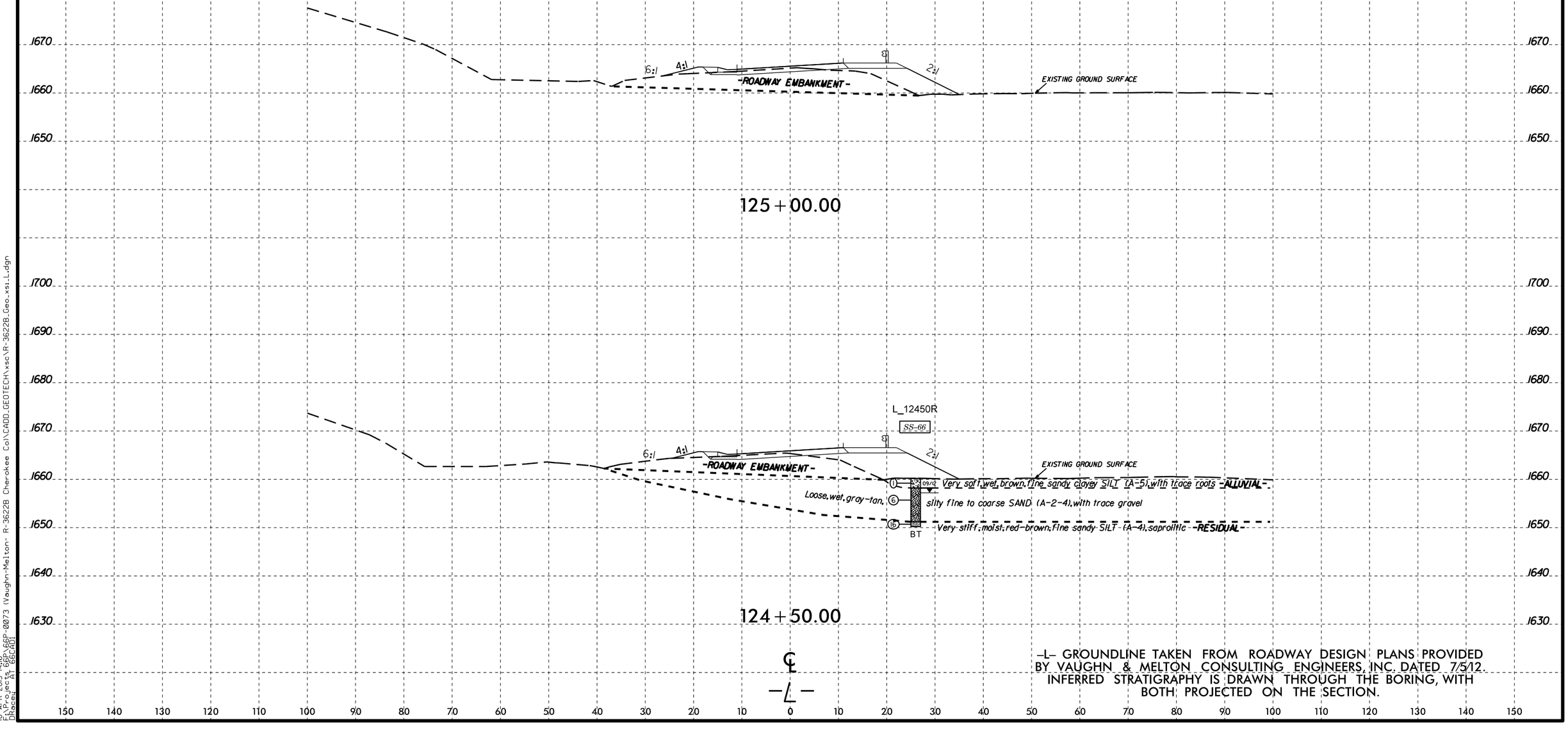
10-APR-2015 14:15
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsL_Ldgn
Default 41 66CADD

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	99

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-66	26' RT.	124+50	0.2'-1.5'	A-5(7)	48	6	2.6	24.5	38.1	34.8	100.0	99.2	77.7	54.4	NT



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:16
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default
A1 66CAD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	100

0 5 10

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

1690 1680 1670 1660 1650 1640 1630 1620 1610

6:1 4:1 4:1 6:1 EXISTING GROUND SURFACE

126+00.00

L_12563R
125+63
14' RT.

L_12550R

6:1 4:1 4:1 EXISTING GROUND SURFACE

12 A 09/12 BT

Very soft to soft, moist to wet, brown to gray, clayey SILT (A-5) -ALLUVIAL-

B 09/12

WOH

Dense, wet, tan-yellow & gray, silty fine to coarse SAND (A-2-4), with trace gravel-sized rock fragments -RESIDUAL-

39 BT

C

Ⓐ Stiff, moist, red-brown, fine to coarse sandy SILT (A-4), with trace roots, little gravel -ROADWAY EMBANKMENT-

Ⓑ Very soft, saturated, gray, fine sandy SILT (A-4), with trace mica -ALLUVIAL-

Ⓒ Very soft, saturated, gray, fine to coarse sandy CLAY (A-6), with little silt -ALLUVIAL-

125+50.00

℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:17
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_L.dgn
Default 41 66CADI

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	101

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

1840
1830
1820
1810
1800
1790

EXISTING GROUND SURFACE

1.50:1

4:1

4:1

1.50:1

10+50.00

EXISTING GROUND SURFACE

Y1_973L
9+73
35' LT.

Medium stiff to very stiff, dry, brown fine sdy. SILT (A-4), w/ trace roots

Dense, dry, red-tan, silty fine to coarse SAND (A-2-4), saprolitic

Very stiff, moist, tan-orange, fine sandy SILT (A-4), with trace mica, saprolitic

Dense, moist, gray-tan, silty fine SAND (A-2-4), with trace gravel-sized rock fragments, saprolitic

6 26 38 21 48

-RESIDUAL-

BT
Dry
9/12

1.50:1

4:1

-ROADWAY EMBANKMENT-

10+00.00

℄

-Y1-

-Y1- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

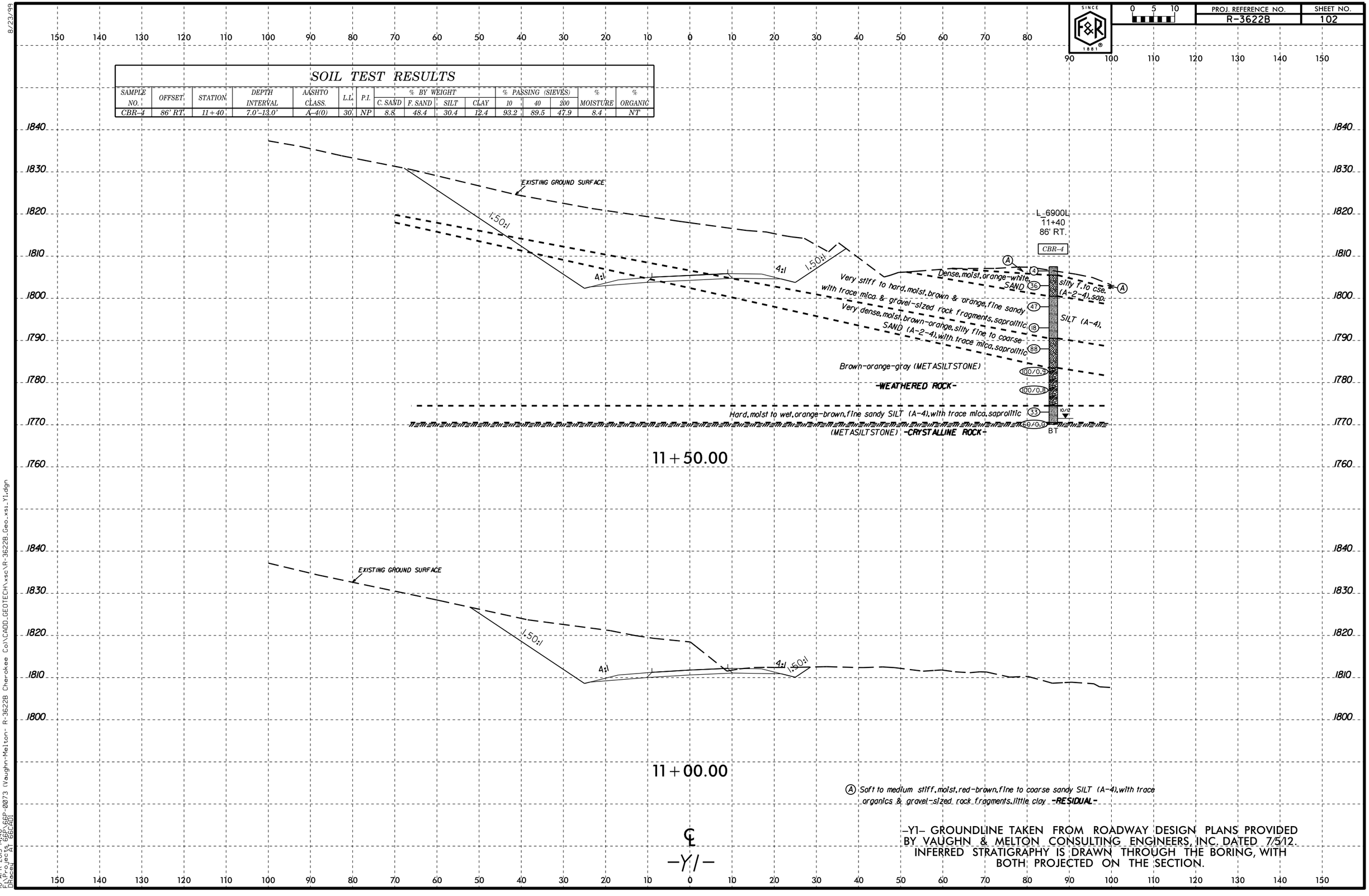
10-APR-2015 14:46
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_Y1.dgn
DMcCall
66CAD1

8/23/99

SINCE F&R 1881	0 5 10	PROJ. REFERENCE NO.	SHEET NO.
		R-3622B	102

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
CBR-4	86' RT.	11+40	7.0'-13.0'	A-4(0)	30	NP	8.8	48.4	30.4	12.4	93.2	89.5	47.9	8.4	NT



Ⓐ Soft to medium stiff, moist, red-brown, fine to coarse sandy SILT (A-4), with trace organics & gravel-sized rock fragments, little clay -RESIDUAL-

℄
-Y1-

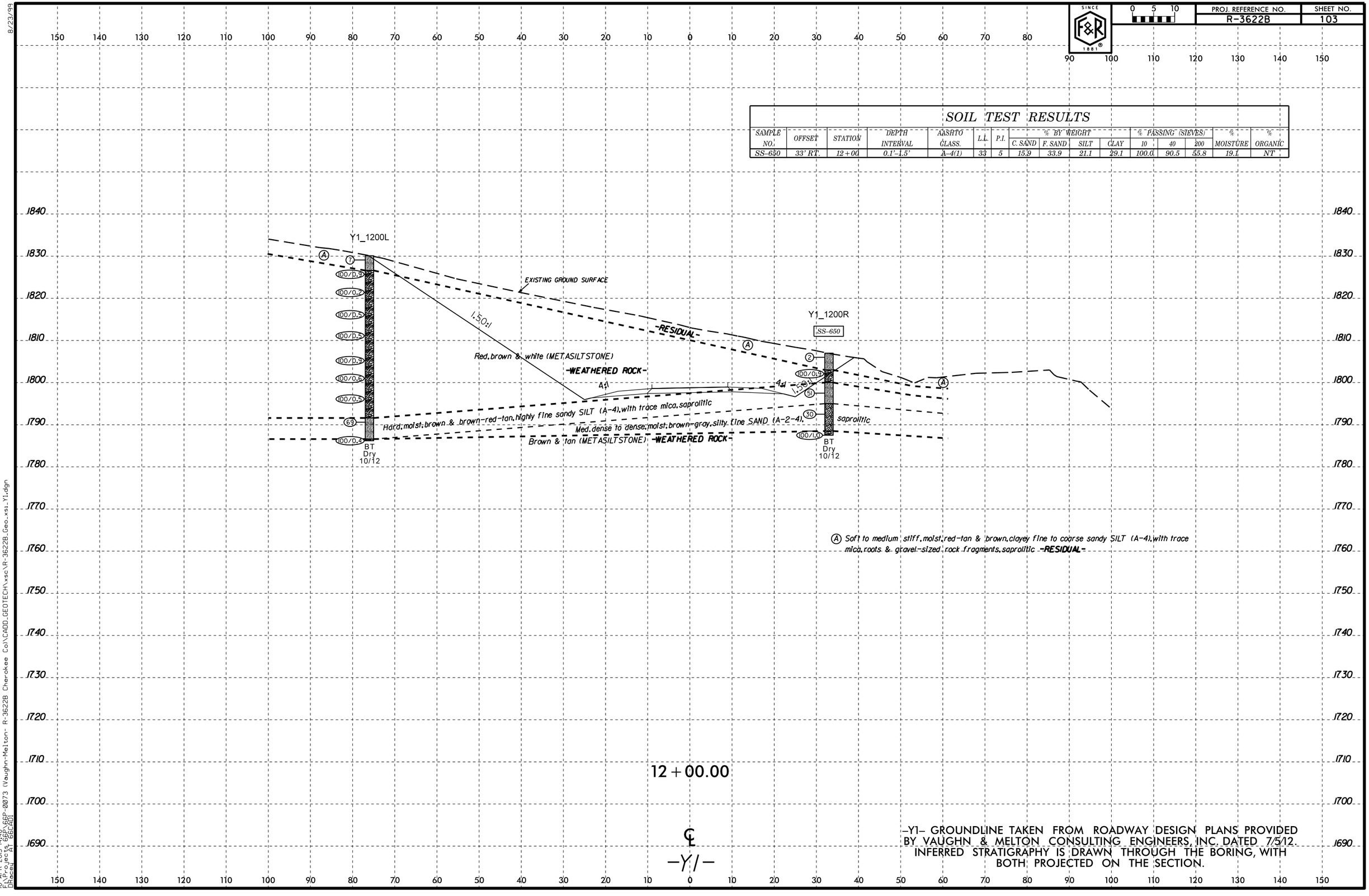
-Y1- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:46
F:\Projects\66P_66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_Y1.dgn
Default 41 66CADI

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	103

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-650	33' RT.	12+00	0.1'-1.5'	A-4(1)	33	5	15.9	33.9	21.1	29.1	100.0	90.5	55.8	19.1	NT



Ⓐ Soft to medium stiff, moist, red-tan & brown, clayey fine to coarse sandy SILT (A-4), with trace mica, roots & gravel-sized rock fragments, saprolitic -**RESIDUAL**-

-Y1- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

8/23/99

SINCE F&R 1881

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	104

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

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-106	10' RT.	10+50	0.1'-0.9'	A-4(4)	38	8	10.3	34.5	21.1	34.1	95.9	91.3	58.9	19.9	NT

1810 1800 1790 1780 1770

1.5:1 4:1 2:1

EXISTING GROUND SURFACE

10+75.00

Y2_1050R

SS-106

A

B

5

50/0.0

BT
Dry
9/12

Gray LMET. SANDSTONE

-CRYSTALLINE ROCK-

1.5:1 4:1 2:1

EXISTING GROUND SURFACE

1810 1800 1790 1780 1770 1760 1750 1740

10+50.00

Ⓐ -ROADWAY EMBANKMENT-

Ⓑ Medium stiff, moist, red & tan, clayey fine to coarse sandy SILT (A-4), with trace roots -RESIDUAL-

℄
-Y2-

–Y2– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

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

10-APR-2015 14:50
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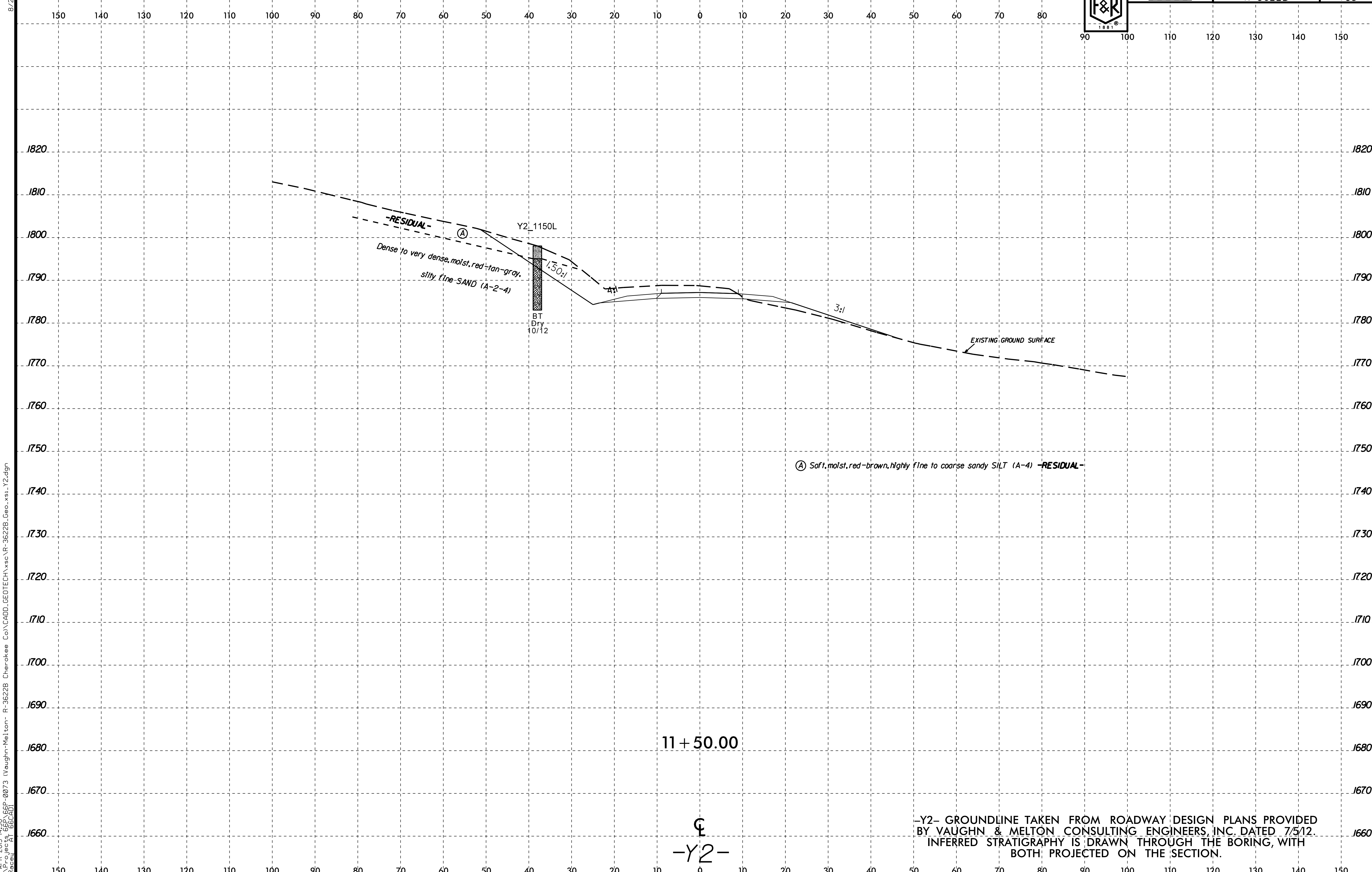
Default 1 66CADI

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	105



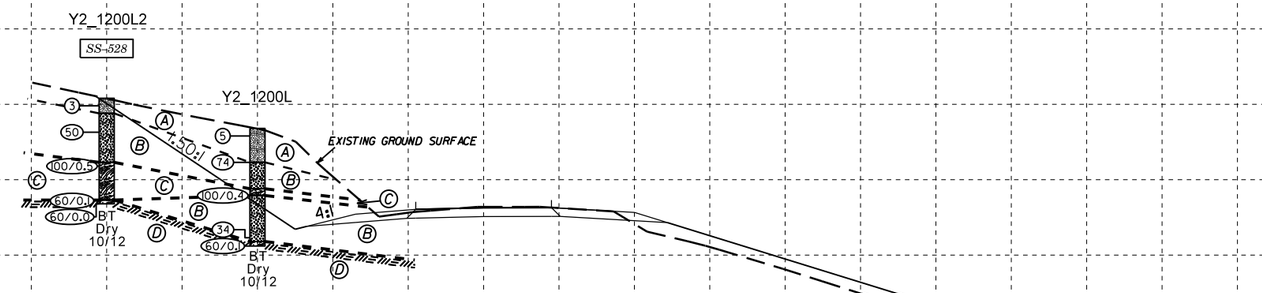
-Y2- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	106

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-528	50' LT.	12+00	0.3'-1.5'	A-4(1)	26	8	24.5	34.2	12.5	28.8	98.3	85.2	44.2	15.5	NT



Ⓐ Soft to medium stiff, moist, red-brown, clayey highly fine to coarse sandy SILT (A-4), with trace mica & roots **-RESIDUAL-**
Ⓑ Dense to very dense, moist, red-tan-gray, silty fine to coarse SAND (A-2-4), with trace mica & gravel-sized rock fragments, saprolitic **-RESIDUAL-**
Ⓒ Gray-tan-red (METASILTSTONE) **-WEATHERED ROCK-**
Ⓓ Gray (METASILTSTONE) **-CRYSTALLINE ROCK-**

12+00.00

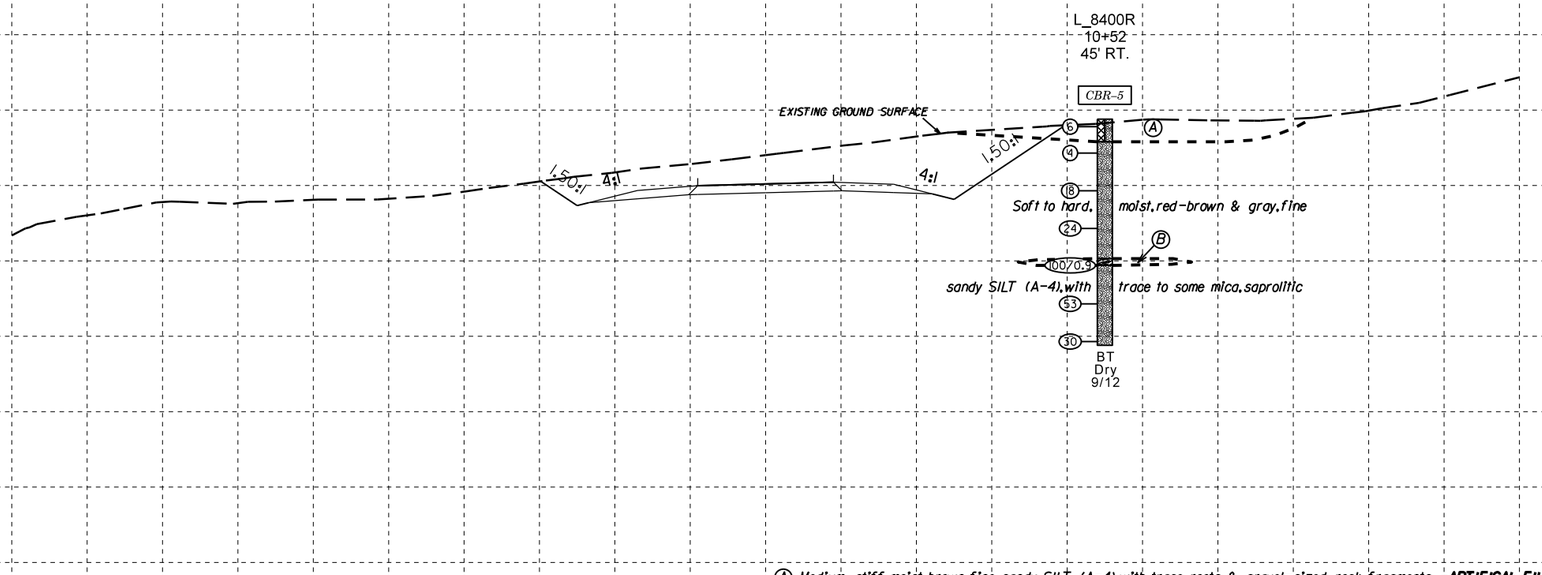
℄
-Y2-

-Y2- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:51
F:\Projects\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD_GEOTECH\xsc\R-3622B_Geo_xsi_Y2.dgn
Default 66CADI

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
CBR-5	45' RT.	10+52	5.0'-10.0'	A-4(0)	27	5	20.5	35.5	17.6	26.4	99.0	86.3	48.0	15.3	NT



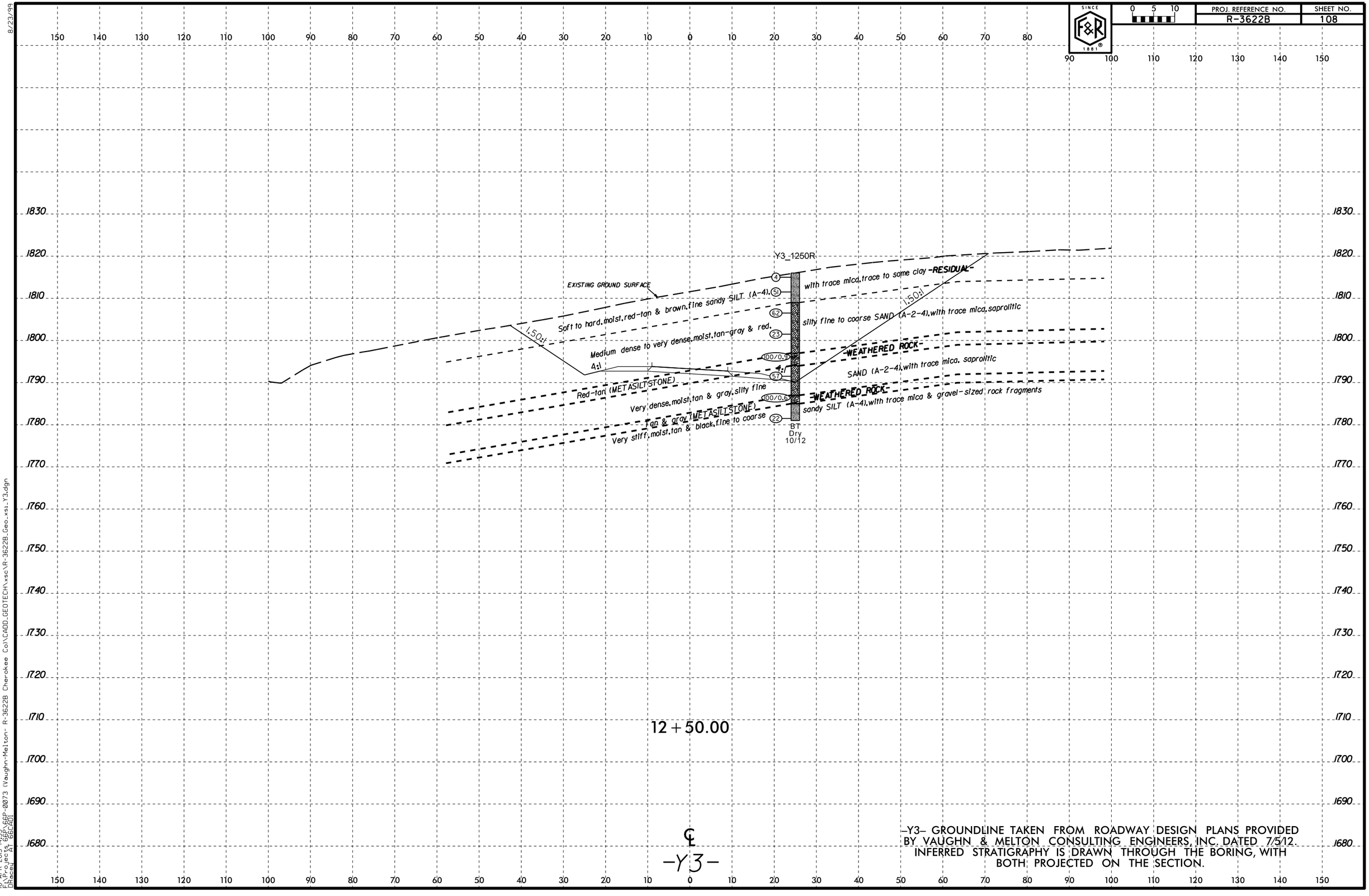
(A) Medium stiff, moist, brown, fine sandy SILT (A-4), with trace roots & gravel-sized rock fragments **-ARTIFICAL FILL-**

(B) Brown & gray (METASILTSTONE) **-WEATHERED ROCK-**

10+50.00

℄
-Y3-

-Y3- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.



8/23/99
10-APR-2015 14:53
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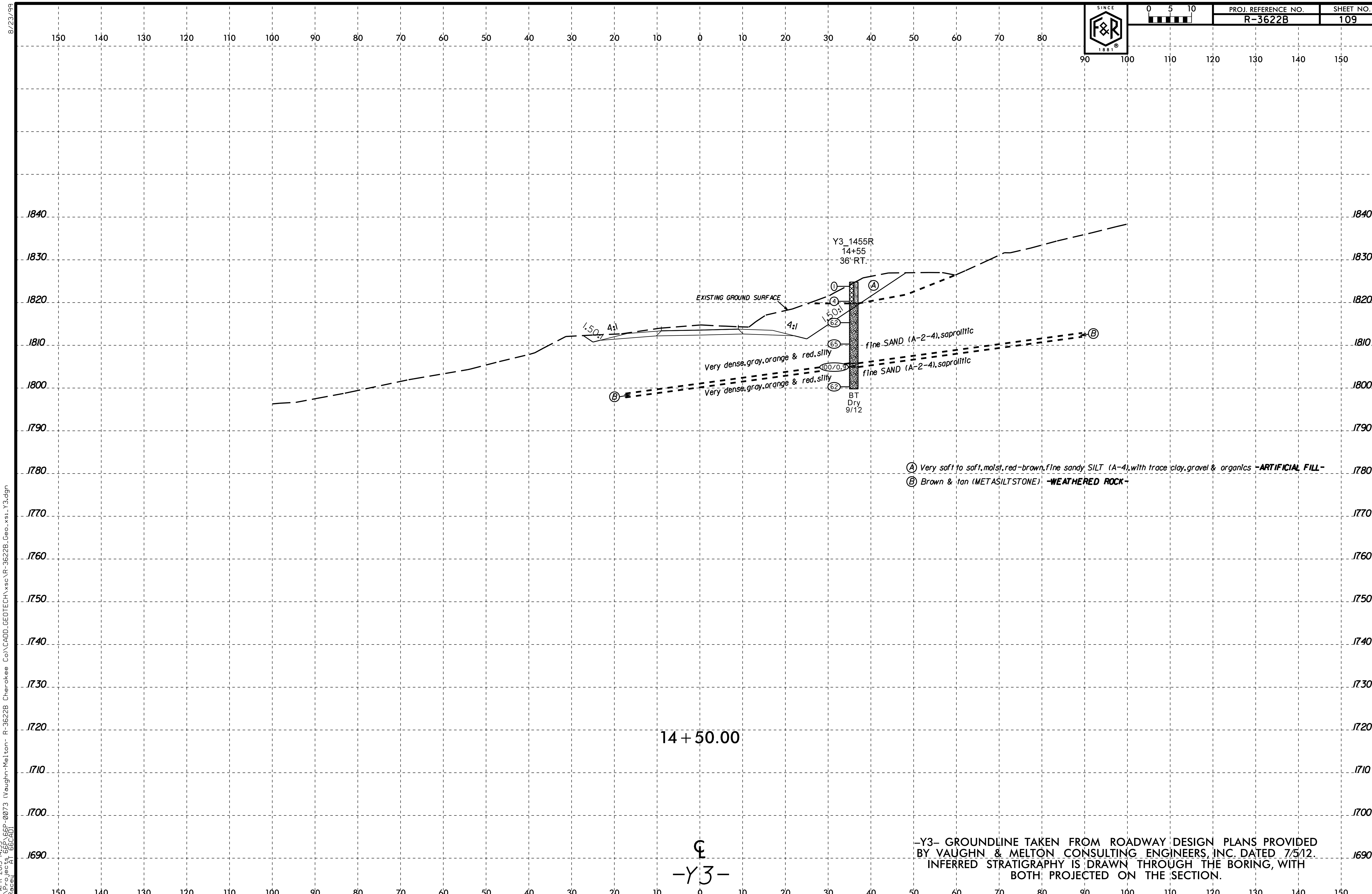
Created AT GEOMDT

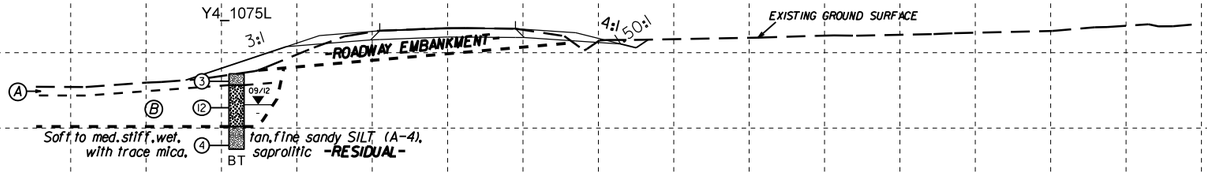


PROJ. REFERENCE NO.
R-3622B
SHEET NO.
109
Y3_1455R
14+55
36' RT.
EXISTING GROUND SURFACE
1.50:1
4:1
Very dense,gray,orange & red,silty
fine SAND (A-2-4),saprolitic
Very dense,gray,orange & red,silty
fine SAND (A-2-4),saprolitic
BT
Dry
9/12
Ⓐ Very soft to soft,moist,red-brown,fine sandy SILT (A-4),with trace clay,gravel & organics -ARTIFICIAL FILL-
Ⓑ Brown & tan (METASILTSTONE) -WEATHERED ROCK-
14+50.00
-Y3-
-Y3- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.
8/23/99
10-APR-2015 14:53
DRacey

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	110

0 5 10



10+75.00

Ⓐ Soft, moist, brown, fine to coarse sandy SILT (A-4), with trace roots & gravel **-ALLUVIAL-**

Ⓑ Medium dense, saturated, dark gray, silty fine to coarse SAND (A-2-4), with trace gravel & wood **-ALLUVIAL-**

℄
–Y4–

–Y4– GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:55
F:\Projects\66P\66P-0073 (Vaughn-Melton- R-3622B Cherokee Co)\CADD\GEOTECH\xsc\R-3622B_Geo_xsi_Y4.dgn
[Docel] AT 66CADD1

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3622B	111

0 5 10

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

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-94	26' RT.	11+00	3.5'-5.0'	A-7-6(6)	44	18	19.4	31.1	10.8	38.7	99.7	89.0	54.1	19.4	NT

1790 1780 1770 1760

EXISTING GROUND SURFACE

1.50:1 4:1 4:1 1.50:1

11+25.00

1800 1790 1780 1770 1760 1750 1740 1730

DR1_1100R

SS-94

6 dry,red-brown & gray,fine sandy SILT (A-4),with

7 Med.stiff,dry,red-tan,highy f.to cse.sdy.CLAY (A-7-6),w/ little silt,sap.

29 trace roots,graphite & mica,saprolitic **-RESIDUAL-**

38

38 with some gravel-sized rock fragments,saprolitic

91

BT
Dry
9/12

Medium stiff to hard.

EXISTING GROUND SURFACE

1.50:1 4:1 4:1 1.50:1

Dense to very dense,dry,gray,silty fine SAND (A-2-4),

11+00.00

℄

-DRI-

-DR1- GROUNDLINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY VAUGHN & MELTON CONSULTING ENGINEERS, INC. DATED 7/5/12. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE SECTION.

10-APR-2015 14:56
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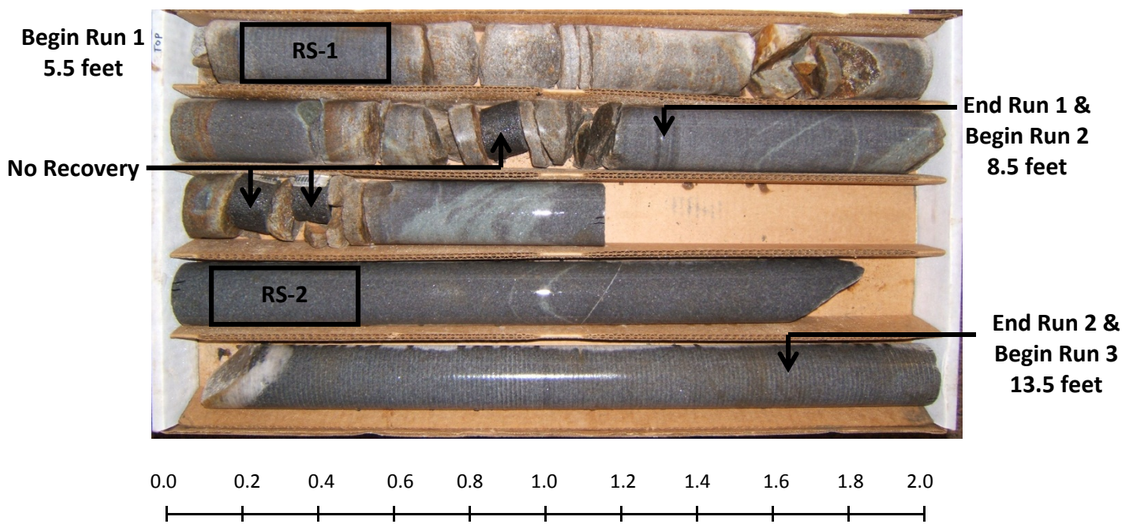
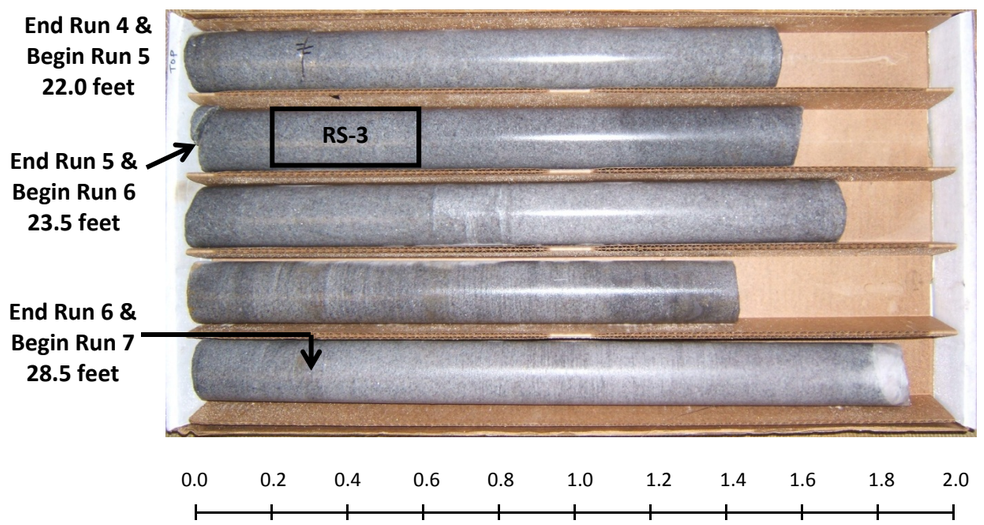
NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38068.1.1	**TIP** R-3622B	**COUNTY** CHEROKEE	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION NC 294 from SR 1130 (Sunny Point Rd.) to SR 1312-A (Upper Bear Paw Rd.)				**GROUND WTR (ft)**
BORING NO. L_3003L	**STATION** 30+03	**OFFSET** 22 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 1,594.5 ft	**TOTAL DEPTH** 8.0 ft	**NORTHING** 517,851	**EASTING** 449,305	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 10/14/12	**COMP. DATE** 10/14/12	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
1595										1,594.5 GROUND SURFACE	0.0
										ALLUVIAL Brown, fine sandy SILT (A-4).	
1590	1,589.5	5.0	WOH	WOH	WOH					1,589.5	5.0
	1,588.0	6.5	WOH	WOH	WOH	0		70% Sat.		Dark gray, fine sandy clayey SILT (A-5), with little organics.	
						0				1,587.0	7.5
										1,586.5 **RESIDUAL** Gray, fine sandy SILT (A-4), with trace clay.	8.0
										Boring Terminated at Elevation 1,586.5 ft In RESIDUAL (SILT)	
										Other Samples: ST-2 (5.0 - 7.0) ST-3 (5.0 - 7.0)	

CORE PHOTOGRAPHS: NC 294 from SR 1130 (Sunny Point Rd.) to SR 1312-A (Upper Bear Paw Rd.), L_8000R: Station 80+00, 82’ RT





LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 38068.1.1
TIP NO.: R-3622B
COUNTY: Cherokee
DESCRIPTION: NC 294 from SR 1130 (Sunny Point Road) to SR 1312-A (Upper Bear Paw Road)

Sample #	Boring #	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)
RS-1	L_8000R	5.6 - 6.0	Metagraywacke	Zhha	43%	4.31	1.99	168.6	11,719
RS-2	L_8000R	10.4 - 10.8	Metagraywacke	Zhha	90%	4.25	1.99	168.4	20,579
RS-3	L_8000R	23.7 - 24.1	Metagraywacke	Zhha	100%	4.34	1.98	167.4	22,833