CONTRACT: C202583

ID: R-2814B

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

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34506.1.1(R-2814B) F.A. PROJ. STP-401(4)

COUNTY WAKE

PROJECT DESCRIPTION US 401 ROLESVILLE BYPASS FROM SR 2225, LOUISBURY ROAD TO NC 96, ZEBULON ROAD

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2814B	1	146

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34506.1.1	STP-401(4)	PE
34506.2.GV1	STP-0401(199)	R/W & UTILITIES
34506.3.GV3	STP-0401(214)	CONSTRUCTION

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

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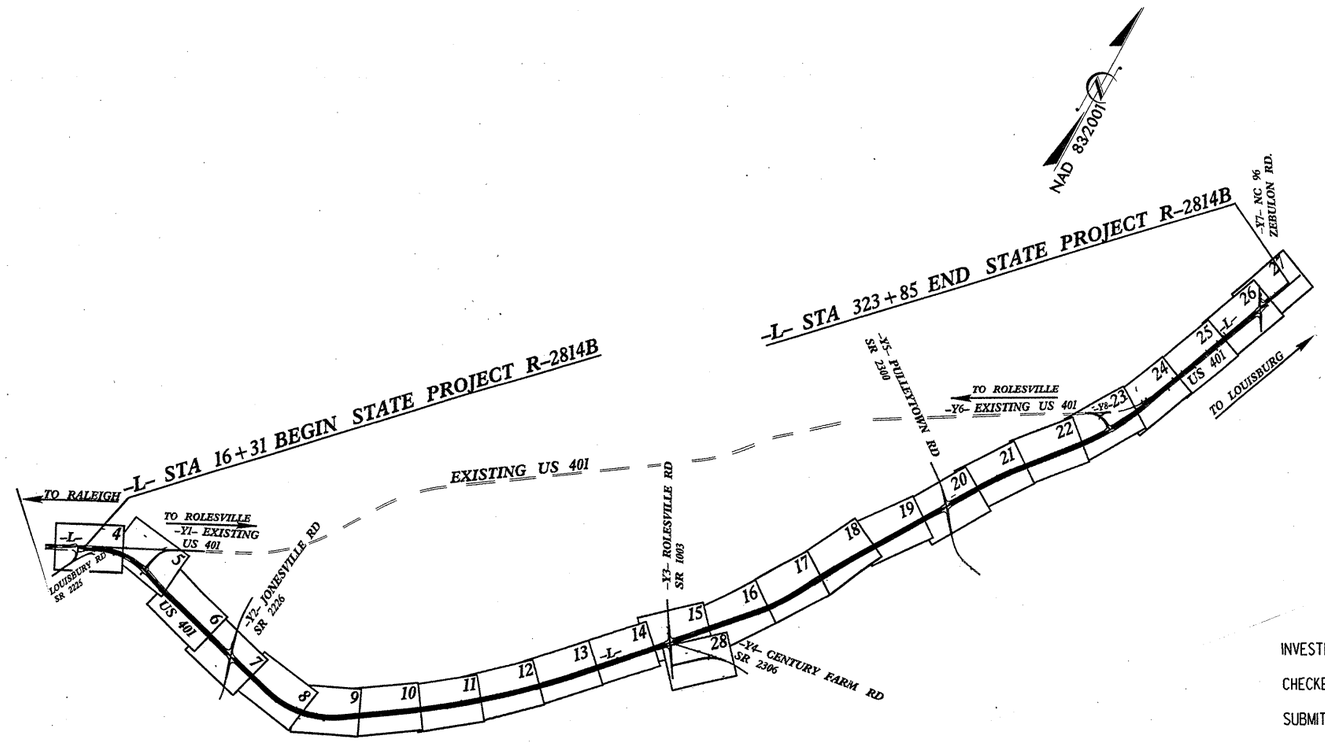

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DATE SEPTEMBER 2008

NORTH CAROLINA LICENSED SEAL 1301 GEOLOGIST THOMAS P. MOOREFIELD 9-25-08

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PROJECT REFERENCE NO.	SHEET NO.
34506.1.1 (R-2814B)	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	50 MX													
#40	30 MX	50 MX	51 MN											
#200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	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 NO MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	No MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	4.76	2.00	0.42	0.25	0.075	0.053

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

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

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	26 OR MORE	HIGH

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE 1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE 10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME 20 - 35%
HIGHLY ORGANIC	>10%	>20%	HIGHLY 35% AND ABOVE

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

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

ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-550
- [ ] PORTABLE HOIST
- [X] CME-750
- [X] D-50

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

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B____
- [ ] -N____
- [ ] -H____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [X] 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. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

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

WEATHERING

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

ROCK HARDNESS

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

FRACTURE SPACING

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

BEDDING

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

INDURATION

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

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

TERMS AND DEFINITIONS

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

AQUIFER - A WATER BEARING FORMATION OR STRATA.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BENCH MARK:

ELEVATION: FT.

NOTES:

REVISED 02/23/06

See Sheet 1-A For Index of Sheets

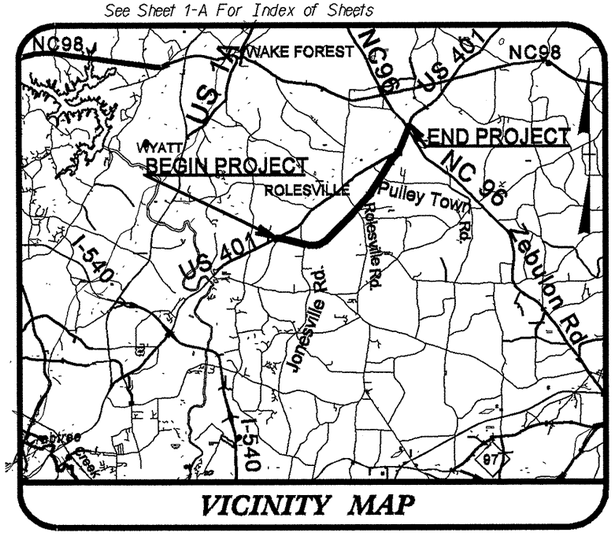
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2814B	2A	146
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
34506.1.1	STP-401(4)	PE	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

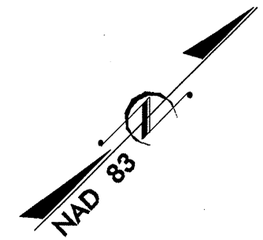
WAKE COUNTY

LOCATION: US 401 ROLESVILLE BYPASS FROM SR 2225, LOUISBURY ROAD TO NC 96, ZEBULON ROAD

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

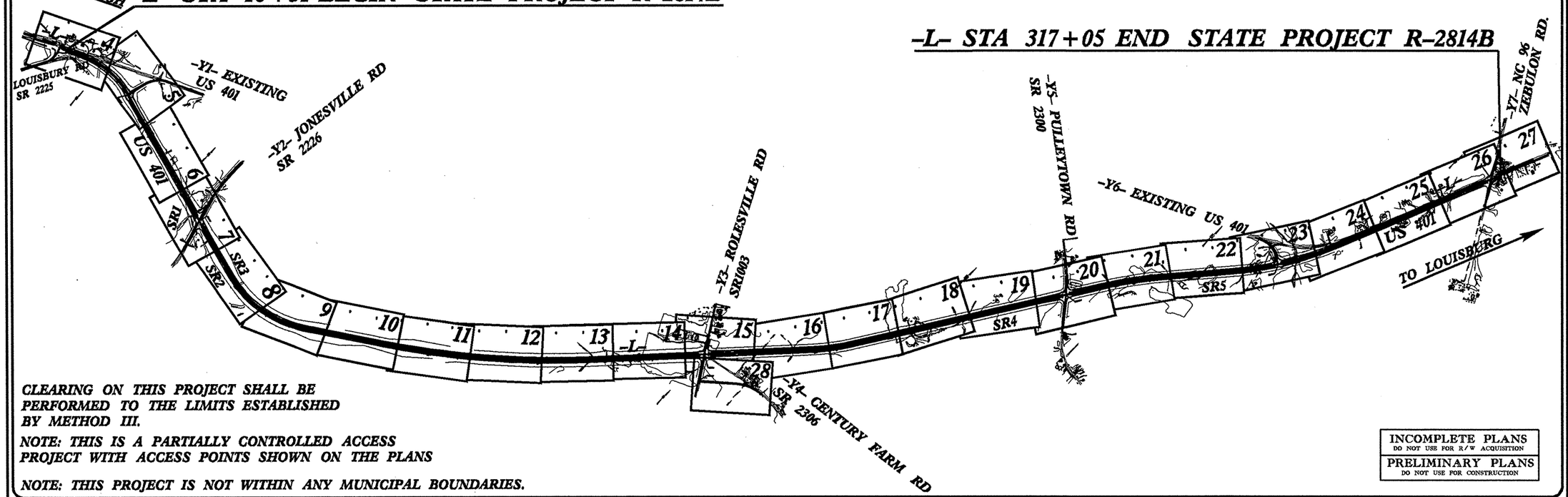


VICINITY MAP



TO RALEIGH -L- STA 16+31 BEGIN STATE PROJECT R-2814B

-L- STA 317+05 END STATE PROJECT R-2814B



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

NOTE: THIS IS A PARTIALLY CONTROLLED ACCESS PROJECT WITH ACCESS POINTS SHOWN ON THE PLANS

NOTE: THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: R-2814B

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2030 = 24600
ADT =
DHV = 55 %
D = 13 %
T = 7 % *
V = 60 MPH

* TTST 2 DUAL 5

PROJECT LENGTH

LENGTH ROADWAY F. A. PROJECT STP-401(4) = 5.696 MILES
TOTAL LENGTH TIP PROJECT R-2814B = 5.696 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 17, 2009

LETTING DATE: APRIL 19, 2011

JS GOODNIGHT
PROJECT ENGINEER

TD GOINS
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

09/08/99

23-SEP-2008 14:46
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ttwalker AT GEJ22425

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Michael F. Easley
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

Lyndo Tippett
SECRETARY

September 25, 2008

STATE PROJECT: 34506.1.1 (R-2814B)
FEDERAL PROJECT: STP-401(4)
COUNTY: Wake

DESCRIPTION: US 401 Rolesville Bypass from SR 2225, Louisbury Road, to NC 96, Zebulon Road

SUBJECT: Geotechnical Report – Inventory

Project Description

This project consists of a new four lane roadway (-L-, US 401 Rolesville Bypass) passing to the east of Rolesville. The project begins near the intersection of US 401 and Louisbury Road (SR 2225) south of Rolesville and extends 5.1 miles northeastward around Rolesville until it merges with US 401 north of town. The existing two-lane US 401 will be widened to four lanes from that point to its intersection with NC 96, approximately 0.6 miles to the north. Intersections are proposed with US 401 Business (-Y1-) at -L- 31+05 south of town, and north of town (-Y6-) at -L- 272+00. Additional intersections are planned at Jonesville Road (SR 2226, -Y2-), Rolesville Road (SR 1003, -Y3-), and Pulleytown Road (SR 2300, -Y5-). Century Farm Road (SR 2306, -Y4-) will be re-aligned at its intersection with Rolesville Road (-Y3-).

The geotechnical field investigation was conducted during January and February 2008. Two S&ME drill crews were contracted to assist in investigating the subsurface. NCDOT Geotechnical Engineering Unit geologists sampled and logged the borings. ATV-mounted CME-550, CME-750, and a track-mounted Diedrich D-50 drill machines were used during field investigation. Standard Penetration Tests were performed in selected borings and additional borings were advanced using continuous flight augers. Representative soil samples were collected for visual classification in the field and submitted for laboratory analysis by NCDOT's Materials and Tests Unit.

The following alignments, totaling 6.6 miles, were investigated. Subsurface soil profiles, or cross-sections, of these alignments are included in this report:

Line	Station		
-L-	17+21	to	323+85
-Y1-	16+00	to	24+67
-Y2-	19+00	to	28+87
-Y4-	10+12	to	22+29
-Y5-	20+50	to	24+00
-Y6-	15+00	to	21+65

Areas of Special Geotechnical Interest

1) Highly Plastic Clay Soils: Occurrences of highly plastic clay soil (Plasticity Index greater than 25) are noted below:

Alignment	Station	Offset
-L-	27+00	70 LT
-L-	49+50	75 RT
-L-	158+00	20 LT
-L-	160+00	CL
-L-	166+00	70 LT
-L-	170+00	CL
-L-	178+00	CL
-L-	180+50	CL
-L-	209+50	70 LT
-L-	211+50	70 LT
-L-	216+00	20 RT
-L-	229+88	CL
-L-	232+00	110 RT
-L-	236+00	CL
-L-	238+00	20 RT
-L-	252+93	CL
-L-	259+50	20 LT
-L-	288+20	40 RT
-Y4-	16+00	25 RT
-Y6-	18+00	35 RT

2) Crystalline Rock: Crystalline rock was encountered in the following continuous intervals:

Alignment	Station		
-L-	45+50	to	47+50
-L-	56+30	to	75+00
-L-	81+50	to	83+50
-L-	91+00	to	97+00
-L-	104+50	to	115+50
-L-	119+50	to	140+00
-L-	148+00	to	150+00
-L-	164+00	to	170+00
-L-	175+50	to	178+00
-L-	182+50	to	185+00
-L-	195+00	to	195+50
-L-	269+60	to	275+50
-Y1-	20+00	to	23+00
-Y6-	16+00	to	20+50

Additionally, crystalline rock was encountered in the following borings:

Alignment	Station	Offset
-L-	31+00	40 LT
-L-	34+50	CL
-L-	39+00	60 RT
-L-	144+00	CL
-L-	191+00	20 RT
-L-	232+00	110 RT
-L-	302+00	90 LT
-L-	310+00	65 LT
-Y2-	26+50	45 LT

3) Artificial Fill: Artificial fill soil occurs in earthen pond dams in the following locations:

Alignment	Station		
-L-	52+72	to	56+31
-L-	145+19	to	146+07
-L-	200+90	to	201+50
-L-	201+93	to	203+13

4) Shallow Groundwater: Shallow groundwater, which may cause problems during construction, was encountered in the following area:

Alignment	Station		
-L-	45+50	to	47+50

Physiography and Geology

The project is located in the eastern Piedmont area of North Carolina. A mixture of woods, pastures, ponds, and agricultural fields are located along the project corridor. Scattered single-family homes and farm buildings are located adjacent to the corridor. The terrain is moderately rolling with several steep slopes adjacent to small streams that flow from left to right across the -L- alignment.

The entire project is underlain by the Rolesville Batholith Granite of the Raleigh Belt. This granite intrusion is resistant to weathering and is often present at, or very near, the ground surface. Crystalline granitic bedrock outcrops in many areas along the project.

Soil Properties

Soils encountered at the project site include artificial fill, roadway embankment, residual, and alluvial sediments.

Roadway embankment soil is present beneath the existing US 401, as well as the -Y- alignments. The embankment soil is generally less than three feet in thickness. Where sampled, the embankment soil consists of red-brown, moist, stiff, sandy clay (AASHTO classification of A-6). Loose, silty sand (A-2-4) is also expected to be present in the roadway embankment soil.

Artificial fill soil occurs as earthen pond dams along the -L- alignment. The fill soil was sampled in one location (-L- 145+50/70 LT, see Plan Sheet No. 14 and Cross-section Sheet No. 121), and consists of eleven feet of tan, moist, stiff, sandy clay (A-6).

Alluvial soils occur within floodplains and ponds. The floodplain-deposited sandy soils occur at -L- 54+50, 115+50, and 246+00. These sediments are five to twelve feet in thickness and consist of loose to medium dense, silty sand (A-2-4) and coarse sand (A-1-b). One occurrence of gray, wet, very soft, sandy silt (A-4) occurs at -L- 78+50. Alluvial pond sediment is expected to be less than one foot in thickness and consist mostly of silty sand (A-2-4) with organic debris such as rotting leaves.

Residual soils are derived from the in-place weathering of the underlying granitic bedrock and are generally well-graded sands with good engineering properties. Silty sand (A-2-4) is the most common soil in the project area. These sandy soils are generally dry, loose to medium dense, silty sand (A-2-4) and coarse sand (A-1-b). Brown and tan, stiff to very stiff, sandy clay (A-6) is also present. Residual, highly plastic "cap" clays occur at the ground surface over several areas of the project. Areas containing highly plastic soils (plasticity indices of greater than 25) are listed above in the section "Areas of Special Geotechnical Interest".

Rock Properties

Weathered rock and crystalline rock occur throughout the project. The weathered rock is derived from the underlying Rolesville Granite bedrock and ranges from inches to 10 feet or more in thickness. Crystalline rock occurs as surface outcrops (see locations on Plan Sheet Nos. 7, 8, 9, 17, and 28). In the deeper cut areas, crystalline rock generally occurs within five feet or less of the ground surface. In more deeply weathered areas, crystalline rock occurs at depths of 28 feet or greater.

Groundwater

Groundwater was encountered in 46 of the 242 borings completed on this project. Groundwater, when encountered in residual soil or weathered rock (36 borings), was variable across the project, ranging from 1.3 feet to 26.7 feet below the ground surface. The average depth to groundwater in the residual/weathered rock borings was 7.9 feet. Groundwater in borings located in alluvial areas ranged from the surface to 7.8 feet in depth. The average depth in alluvial borings was 1.7 feet. The shallow groundwater in the alluvial area at -L- 245+00 to 247+20 may cause problems during construction.

Artificial Fill Soil in Earthen Pond Dams

As noted above in the section "Areas of Special Geotechnical Interest" artificial fill soil is present in the dams of five farm ponds along the -L- alignment. The artificial fill soil was sampled in one location (-L- 145+50/70 LT, see Plan Sheet No. 14 and Cross-section Sheet No. 121) and consists of eleven feet of tan, moist, stiff, sandy clay (A-6). Thickness of the fill soil at the four other sites ranged from five to as much as twelve feet.

Prepared by,

Thomas P. Moorefield
Project Geological Engineer

COMPUTED BY: N. ADIMA	DATE 12/21/2010	PROJECT NO.	SHEET NO.
CHECKED BY: TG	DATE 12/21/2010	TIP # R-2814B	1 OF 2

EARTHWORK BALANCE SHEET

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	ROCK EXCAVATION	UNDERCUT EXCAVATION	UNSUITABLE EARTH EXCAVATION	SUITABLE EARTH EXCAVATION	TOTAL EMB'T	EARTH EMBANKMENT	ROCK EMB'T	EMB'T + % 20	BORROW	ROCK WASTE	SUITABLE WASTE	UNSUITABLE WASTE	TOTAL WASTE
-L- 17+50 TO 46+00	50759	0	0	0	50759	46486	46486	0	55783	5024	0	0	0	0
-Y1- 16+00 TO 24+67.22	8695	14	0	0	8681	25	8	14	23	0	0	8672	0	8672
-L- 46+00 TO 76+00	282593	180667	4091	38	101888	55440	0	44352	44352	0	136315	101888	4129	242332
-Y2- 19+00 TO 28+87	1165	53	0	0	1112	1698	1632	53	2011	846	0	0	0	0
SUBTOTALS NO 1	343212	180734	4091	38	162440	103649	48125	44419	102169	5870	136315	110560	4129	251004
-L- 76+00 TO 106+00	206871	93363	0	0	113508	91870	0	73496	73496	0	19867	113508	0	133375
-L- 106+00 TO 136+00	237851	139227	0	0	98624	97610	0	78088	78088	0	61139	98624	0	159763
-L- 136+00 TO 166+00	8045	130	987	94	.7821	206388	206226	130	247601	239650	0	0	1081	1081
-Y3- 15+71 TO 25+27	2026	0	0	0	2026	573	573	0	688	0	0	1338	0	1338
-Y4- 10+12.12 TO 22+29.49	6581	0	0	0	6581	489	489	0	587	0	0	5994	0	5994
SUBTOTALS NO 2	461374	232720	987	94	228560	396930	207288	151714	400459	239650	81006	219465	1081	301552
-L- 166+00 TO 196+00	94937	3684	578	16357	74896	17359	12754	3684	18989	0	0	59591	16935	76526
-L- 196+00 TO 226+00	36407	0	6458	15045	21362	84986	84986	0	101983	80621	0	0	21503	21503
-L- 226+00 TO 256+00	3511	0	0	0	3511	59357	59357	0	71228	67717	0	0	0	0
-L- 256+00 TO 286+00	18917	0	0	0	18917	54096	54096	0	64915	45998	0	0	0	0
-Y5- 16+56 TO 26+90	852	0	0	0	852	915	915	0	1098	246	0	0	0	0
-Y6- 15+00 TO 21+14.40	3453	468	0	0	2985	334	0	267	267	0	201	2985	0	3186
-Y7- 11+50 TO 19+38	174	0	0	0	174	1320	1320	0	1584	1410	0	0	0	0
-Y8- 10+24.02 TO 12+55	47	0	0	0	47	411	411	0	493	446	0	0	0	0
-L- 286+00 TO 316+00	19397	272	0	0	19125	15954	15614	272	19009	0	0	388	0	388
-L- 316+00 TO 323+50	2113	0	0	0	2113	2438	2438	0	2926	813	0	0	0	0
SUBTOTALS NO 3	179808	4424	7036	31402	143982	237170	231891	4223	282493	197252	201	62964	38438	101603
-DET4LD- 11+50 TO 12+50	0	0	0	0	0	813	813	0	976	976	0	0	0	0
-DETY7- 11+00 TO 12+00	56	0	0	0	56	116	116	0	139	83	0	0	0	0
-DETY1- 11+00 TO 11+50	101	0	0	0	101	118	118	0	142	41	0	0	0	0
SUBTOTAL NO 4	157	0	0	0	157	1047	1047	0	1256	1099	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROJECT SUBTOTALS	984551	417878	12114	31534	535139	738796	488351	200356	786377	443871	217522	392989	43648	654159
LOSS DUE TO CLEAR. & GRUB	-42100				-42100					0		-42100		-42100
ROCK TO REPLACE BORROW							-217522	217522	0	-217522	-217522			-217522
ADJUST FOR ROCK WASTE							-54380		-54380	-54380				
ELIMINATE EARTH SHRINKAGE FACTOR						0	0		-54380	-54380				
ADDITIONAL UNDERCUT EXCAV.			5510	0	0	5510	5510	0	6612	6612		0	5510	5510
LESS SELECT GRANULAR MAT'L							-11036		-13243	-13243				
WASTE IN LIEU OF BORROW										-110958		-110958		-110958
PROJECT TOTALS	942451	417878	17624	31534	493039	744306	210923	417878	670986	0	0	239931	49158	289089
REPLACE TOP SOIL BOR. PITS										0				
GRAND TOTALS	942451		17624							0				
SAY	942500		17700							0				

PAVEMENT STRUCTURE VOLUME :	127,508	CUBIC YARDS
DRAINAGE DITCH EXCAVATION :	29,090	CUBIC YARDS
SHOULDER BORROW:	64500	CUBIC YARDS
UNDERCUT EXCAVATION	0	CUBIC YARDS (Contingency Item)

EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

COMPUTED BY: __N. ADIMA_____	DATE	12/21/2010
CHECKED BY: _TG_____	DATE	12/21/2010

PROJECT NO.	SHEET NO.
TIP # R-2814B	2 OF 2

ALTERNATE PAVEMENT EARTHWORK BALANCE SHEET

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	ROCK EXCAVATION	UNDERCUT EXCAVATION	UNSUITABLE EARTH EXCAVATION	SUITABLE EARTH EXCAVATION	TOTAL EMB'T	EARTH EMBANKMENT	ROCK EMB'T	EMB'T + % 20	BORROW	ROCK WASTE	SUITABLE WASTE	UNSUITABLE WASTE	TOTAL WASTE
PROJECT SUBTOTALS	984551	417878	12114	31534	535139	738796	488351	200356	786377	443871	217522	392989	43648	654159
ADJUST FOR ALT. PVMT. DESIGN	-10857	-8122			-2735	61205	48654	10040	68426	63342	-18162	2221		-15942
ADJUSTED PROJECT SUBTOTALS	973694	409756	12114	31534	532404	800001	537005	210396	854803	507213	199360	395210	43648	638217
LOSS DUE TO CLEAR. & GRUB	-42100				-42100							-42100		-42100
ROCK TO REPLACE BORROW							-199360	199360	0	-199360	-199360			-199360
ADJUST FOR ROCK WASTE							-49840		-49840	-49840				
ELIMINATE EARTH SHRINKAGE FACTOR									-49840	-49840				
ADDITIONAL UNDERCUT EXCAV.			5510	0	0	5510	5510	0	6612	6612		0	5510	5510
LESS SELECT GRANURAL MAT'L							-11036		-13243	-13243				0
WASTE IN LIEU OF BORROW										-201542		-201542		-201542
PROJECT TOTALS	931594	409756	17624	31534	490304	805511	282279	409756	748492	0	0	151568	49158	200725
REPLACE TOP SOIL BOR. PITS										0				
GRAND TOTALS	931594		17624							0				
SAY	931600		17700							0				

PAVEMENT STRUCTURE VOLUME :	111,880	CUBIC YARDS
DRAINAGE DITCH EXCAVATION :	29,090	CUBIC YARDS
SHOULDER BORROW:	36700	CUBIC YARDS
UNDERCUT EXCAVATION	0	CUBIC YARDS (Contingency Item)

EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	4

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

15

20

NAD 83

CANOPY

ISBKD

ISFD

S

W

BST

GR

CANOPY B

CANOPY B

CANOPY B

END EXIST CA FENCE

T.H. # W-1A
STA. BY-7, 12 + 84.87
ELEV. = 334.99'

T.H. # W-2
STA. BY-7, 19 + 76.27
ELEV. = 340.04'

RESIDUAL

ROADWAY EMBANKMENT

ROADWAY EMBANKMENT

RESIDUAL

ROADWAY EMBANKMENT

RESIDUAL

16" D.I.P.

5' CONC HW

18" RCP

US 401 LOUISBURG RD

7' CONC CURB

ABAND BUS

15" RCP

SR 2225 LOUISBURG RD

FUTURE PROPOSED 12" WATER MAINNOT CONSTRUCTED

MTL

0 100 200

FEET

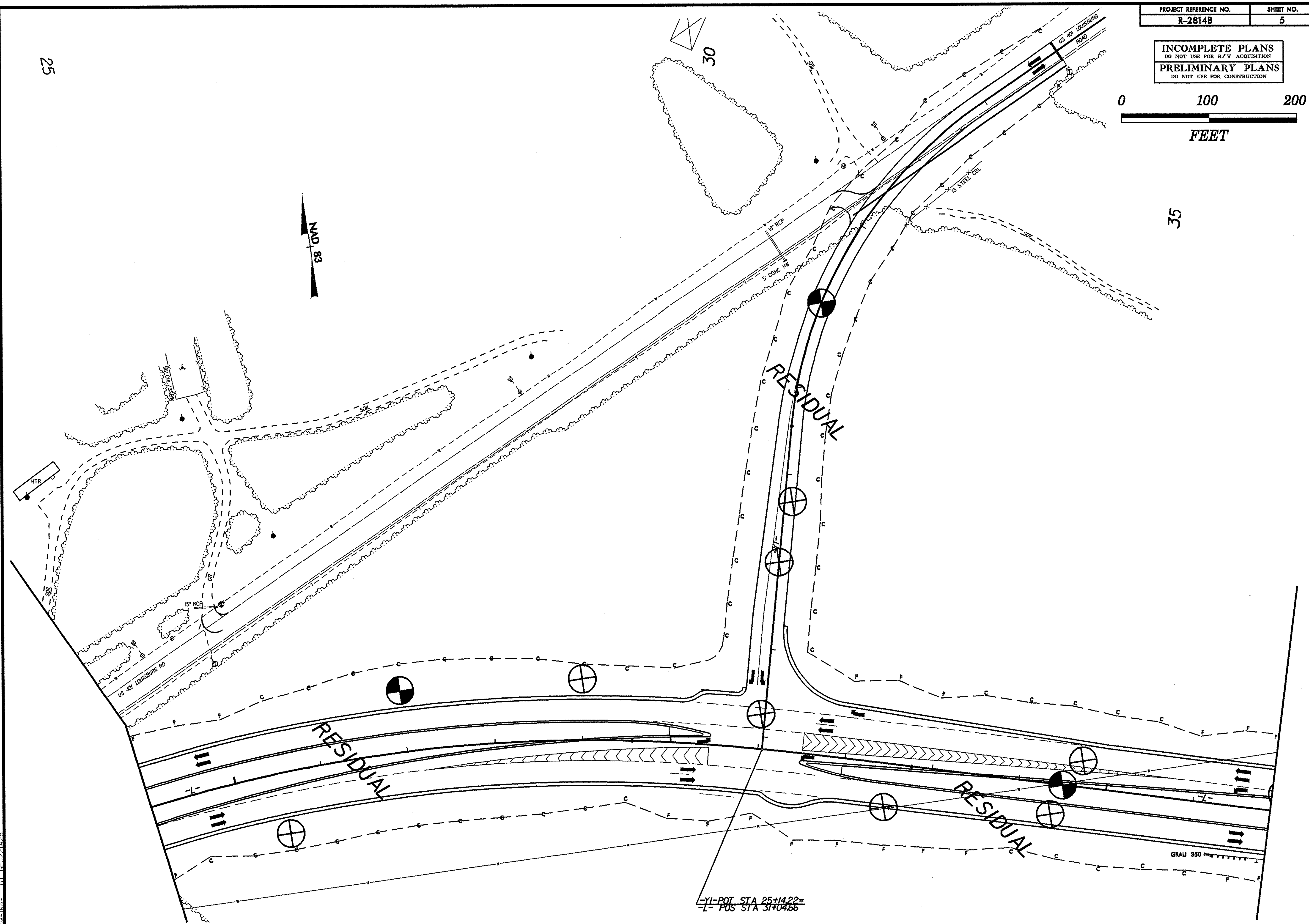
22-SEP-2008 14:38
I:\ero\raleigh\investigation\tip\r-2814b_geo_rdwy_rev\cadd_geotech\planprof\r-2814b_geo_inv004_004.dgn
mooreheld

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	5

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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PROJECT REFERENCE NO.	SHEET NO.
R-2814B	6

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

40

NAD 83

45

FUTURE PROPOSED 12" WATER MAIN (NOT CONSTRUCTED)

CAT-1

GRAU 350

RESIDUAL

-L-

SOIL

RESIDUAL

CAT-1

0 100 200

FEET

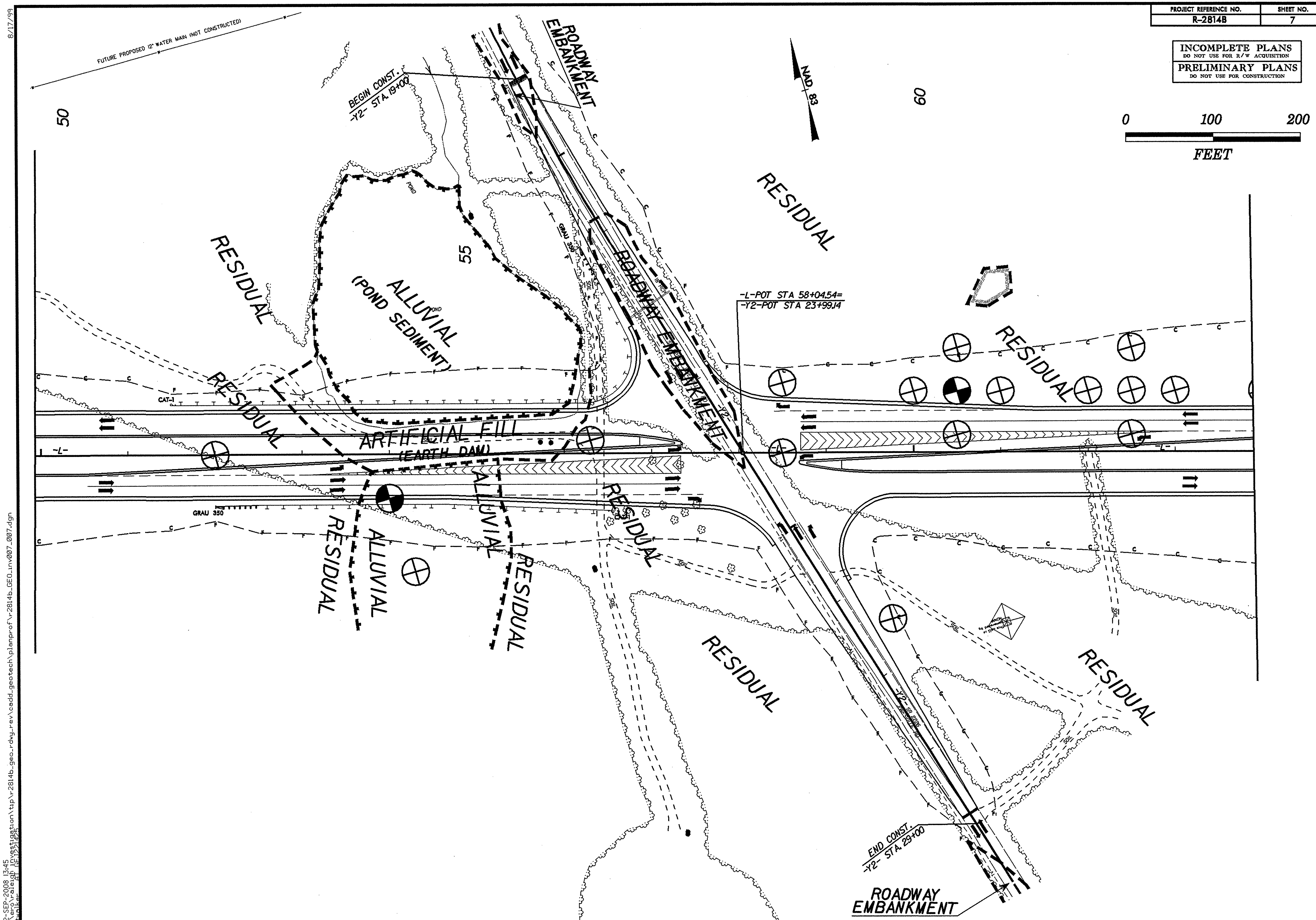
8/17/99

22-SEP-2008 13:44
I:\env\raleigh\projects\tip\r-2814b_geo_rdwy_rev\cadd_geotech\planprof\r-2814b_GEO_inv006_006.dgn
jwalker

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	7

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/17/99

22-SEP-2008 13:45

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	8

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

65 70 75

NAD 83

0 100 200
FEET

RESIDUAL

RESIDUAL

RESIDUAL

RESIDUAL

ALLUVIAL

ARTIFICIAL FILL
(SEWER LINE)

GRAU 350

CAT-1

22-SEP-2008 13:46
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8/17/95

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	9

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 100 200
FEET

80

85

90

NAD 83

ARTIFICIAL FILL
(SEWER LINE)

RESIDUAL

ALLUVIAL

ALLUVIAL

ALLUVIAL

RESIDUAL

RESIDUAL

RESIDUAL

RESIDUAL

GRAU 350

CAT-1

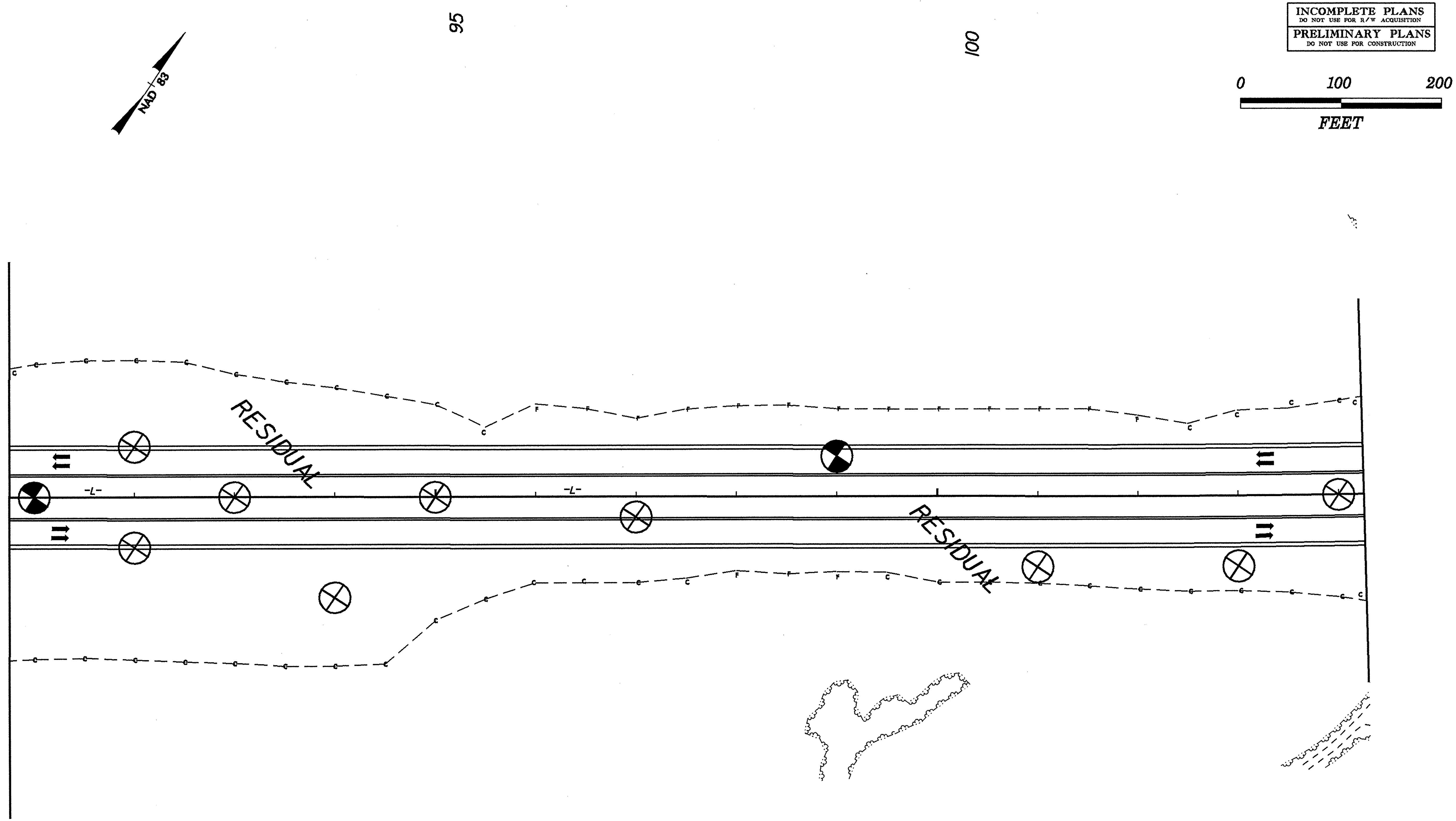
-L-

22-SEP-2008 13:46
I:\erc\raleigh\investigation\tip\r-2814b_geo_rdwy_rev\cadd_geotech\planprof\r-2814b_GEO_inv009_009.dgn
twalker

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	10

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/17/99

22-SEP-2008 13:47

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	11

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

105 110 115

0 100 200
FEET

NAD 83

RESIDUAL

RESIDUAL

CAT-1

RESIDUAL

ALLUVIAL

RESIDUAL

CAT-1

GRAU 350

ARTIFICIAL FILL
(SEWER LINE)

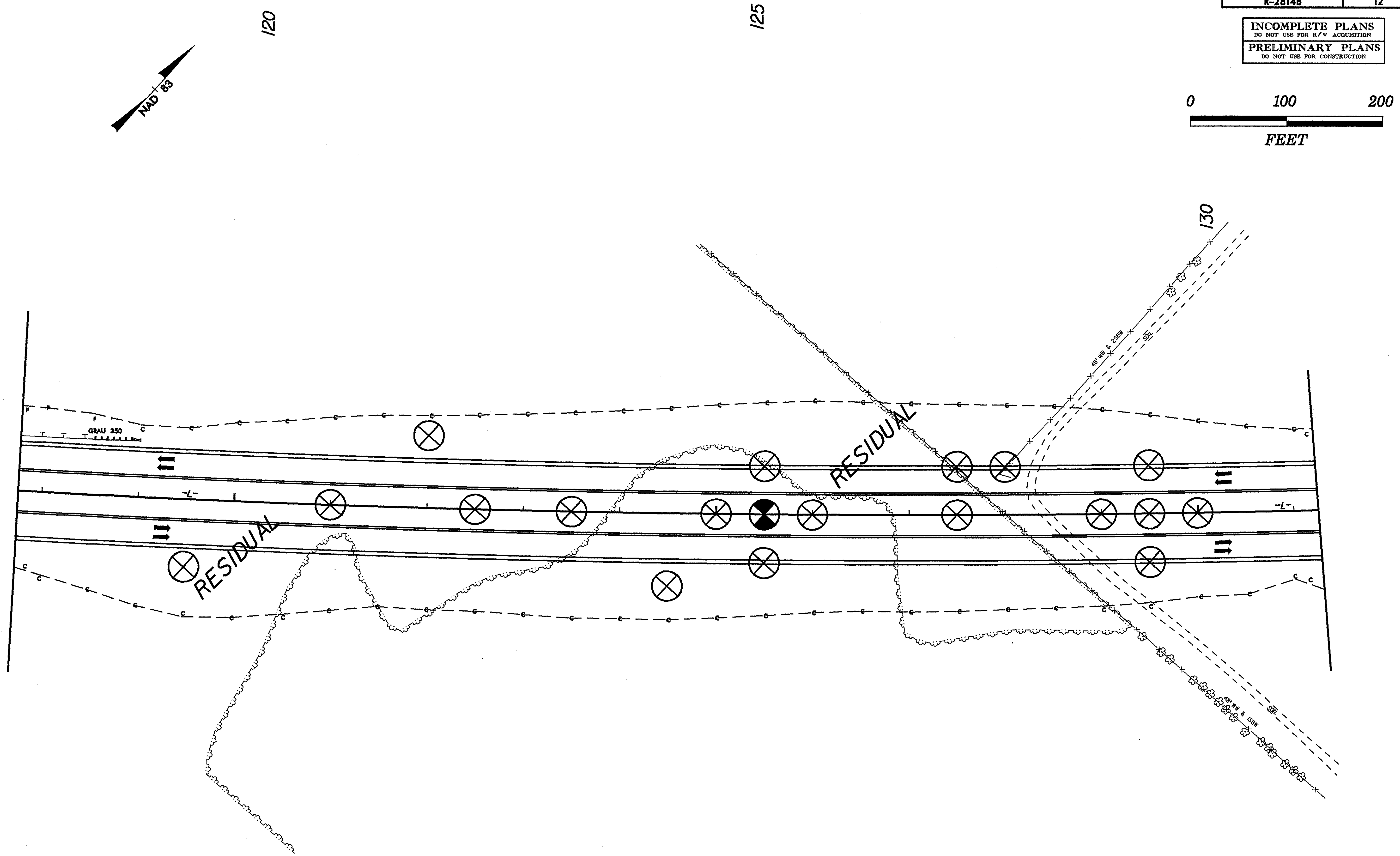
-L-

22-SEP-2008 13:49
i:\eng\raleigh projects\geotech\tip\r-2814b_geo_rdwy_rev\caadd_geotech\planprof\r-2814b_GEO_inv011_011.dgn
mwalker

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	12

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/17/99

22-SEP-2008 13:49

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	13

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

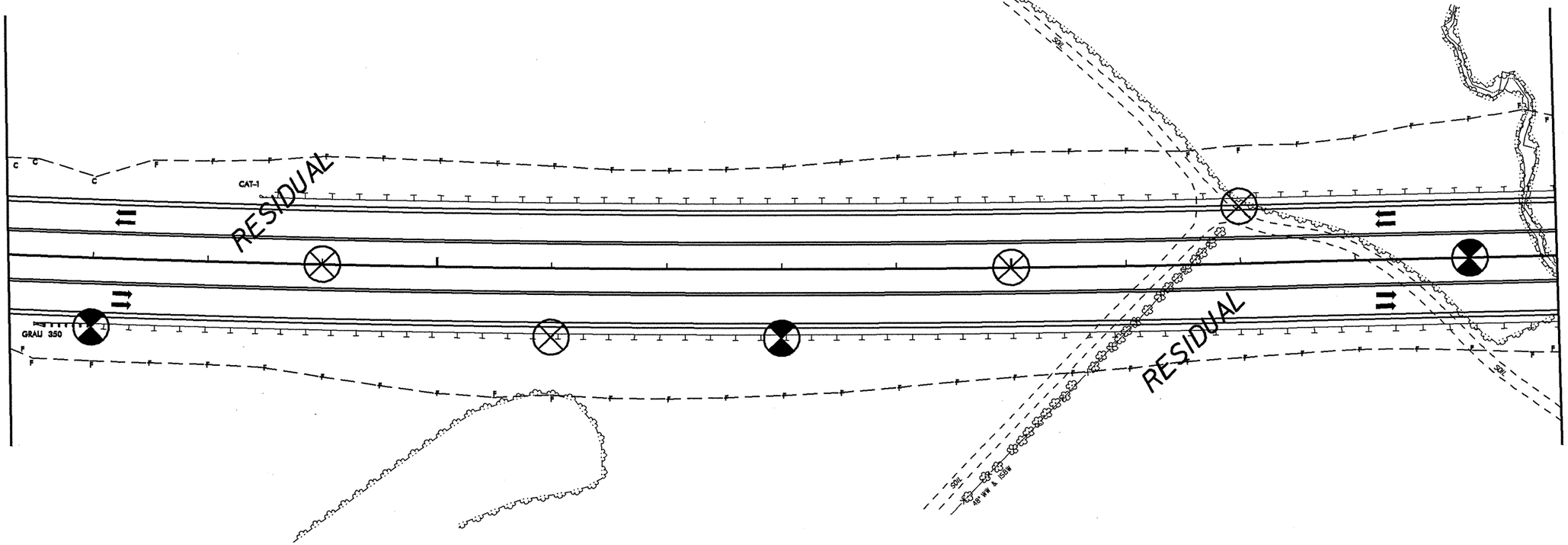
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

135

140

NAD 83

0 100 200
FEET



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ttwalker
GEOPAK

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	14

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

145 150 155

NAD 83

POND

SOIL

SOIL

0 100 200

FEET

ARTIFICIAL FILL
(EARTH DAM)

RESIDUAL

GRAU 350

POND

ALLUVIAL
(POND SEDIMENT)

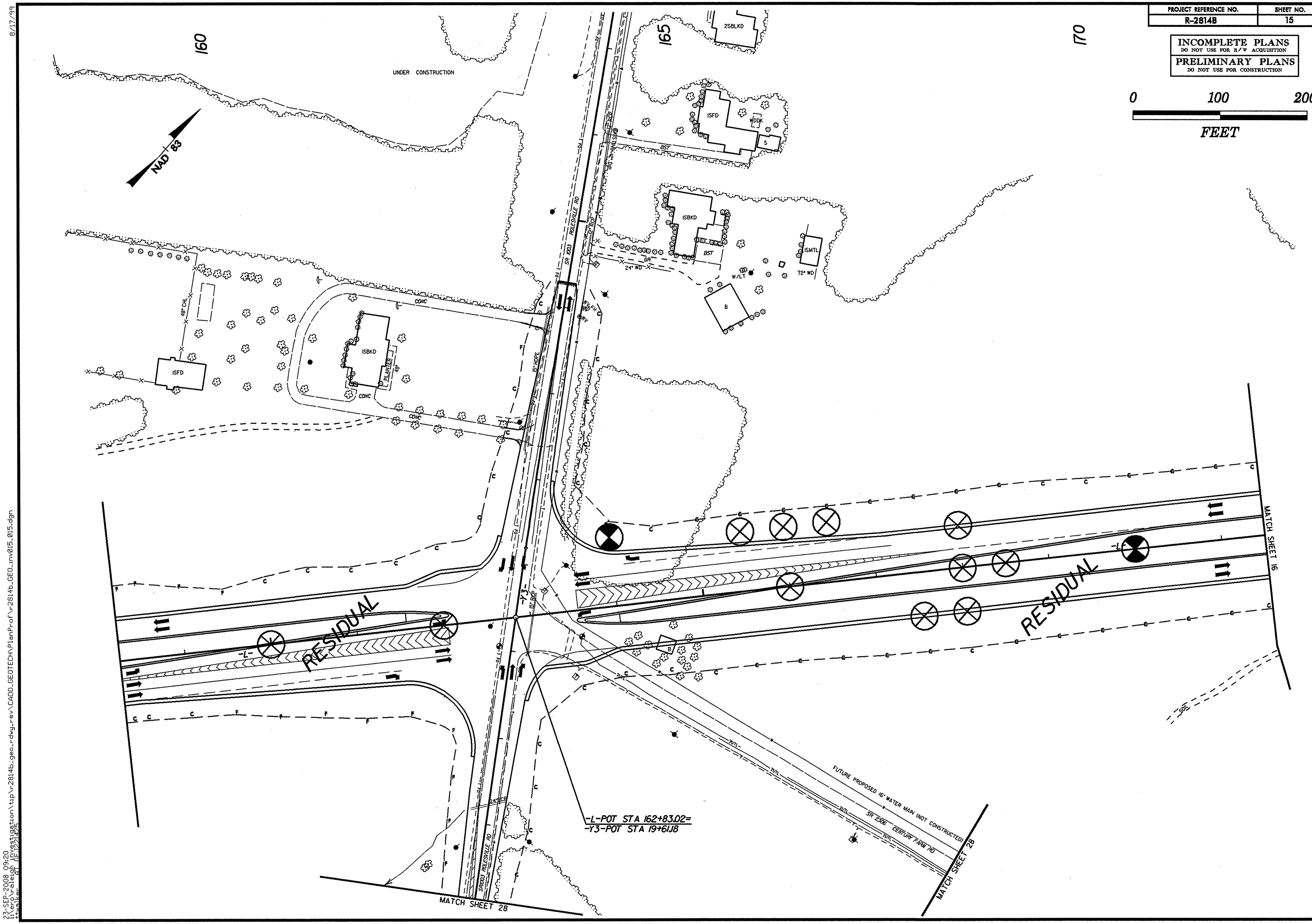
RESIDUAL

CAT-1

RESIDUAL

POND

22-SEP-2008 13:50
I:\ero\raleigh\investigation\tip\r-2814b_geo_rdwg_rev\cadd_geotech\planprof\r-2814b_GEO_inv014_014.dgn
tswalker


PROJECT REFERENCE NO. R-2814B
SHEET NO. 15
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
0 100 200
FEET
160
165
170
NAD 83
UNDER CONSTRUCTION
2SBLKD
1SFD
WDDK
BST
1SBKD
1SMTL
72" WD
24" WD
W/LT
B
S
1SFD
1SBKD
PLANTER
CONC
SR 1003 ROLESVILLE RD
15" HDPE
RESIDUAL
RESIDUAL
-L-
-Y3-
MATCH SHEET 16
MATCH SHEET 28
MATCH SHEET 28
-L-POT STA 162+83.02=
-Y3-POT STA 19+61.18
FUTURE PROPOSED 16" WATER MAIN (NOT CONSTRUCTED)
SR 2106 CENTURY FARM RD
SR1003 ROLESVILLE RD
24" CSP
SOIL

8/17/99

23-SEP-2008 09:20
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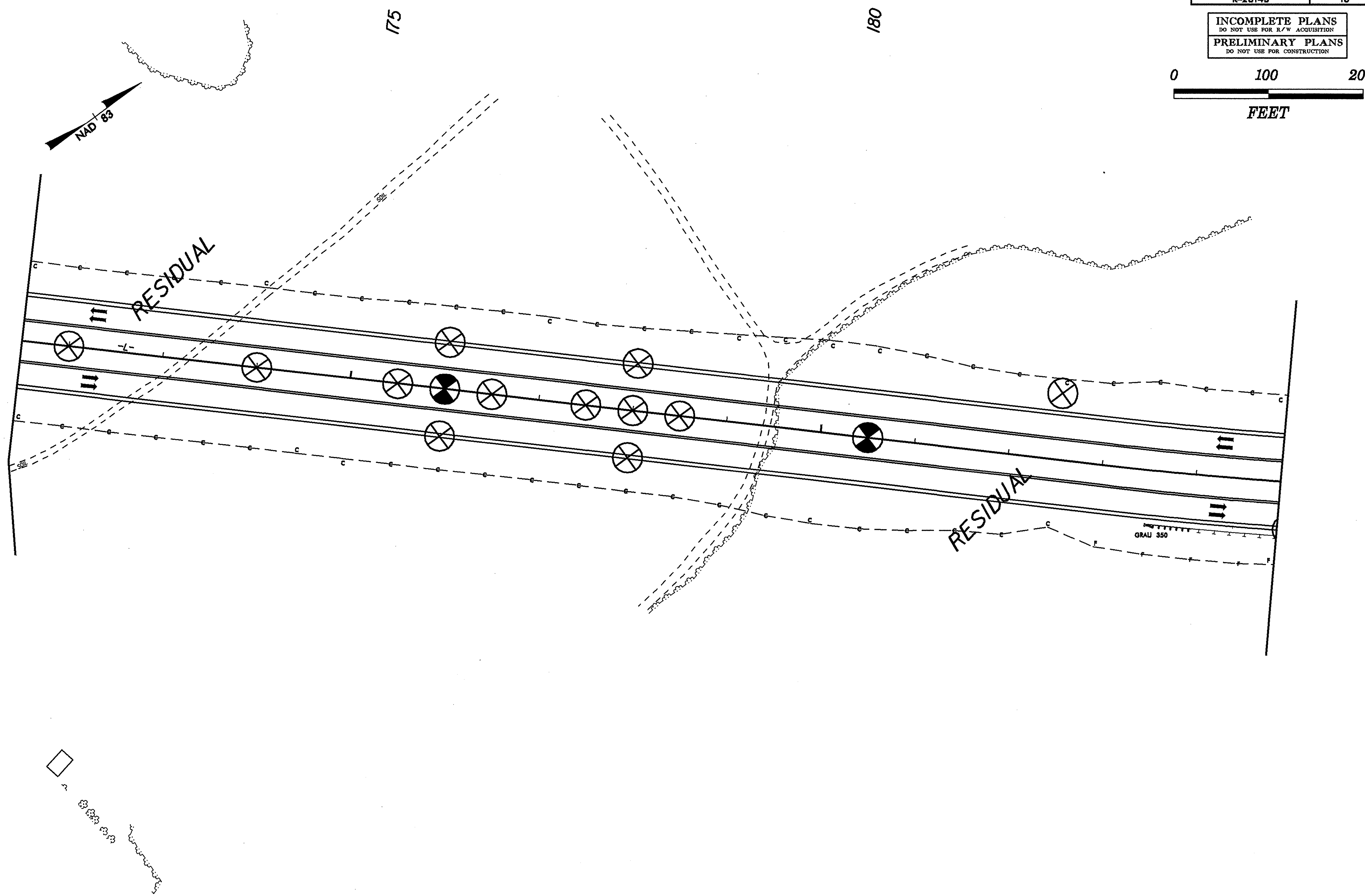
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	16

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/17/99

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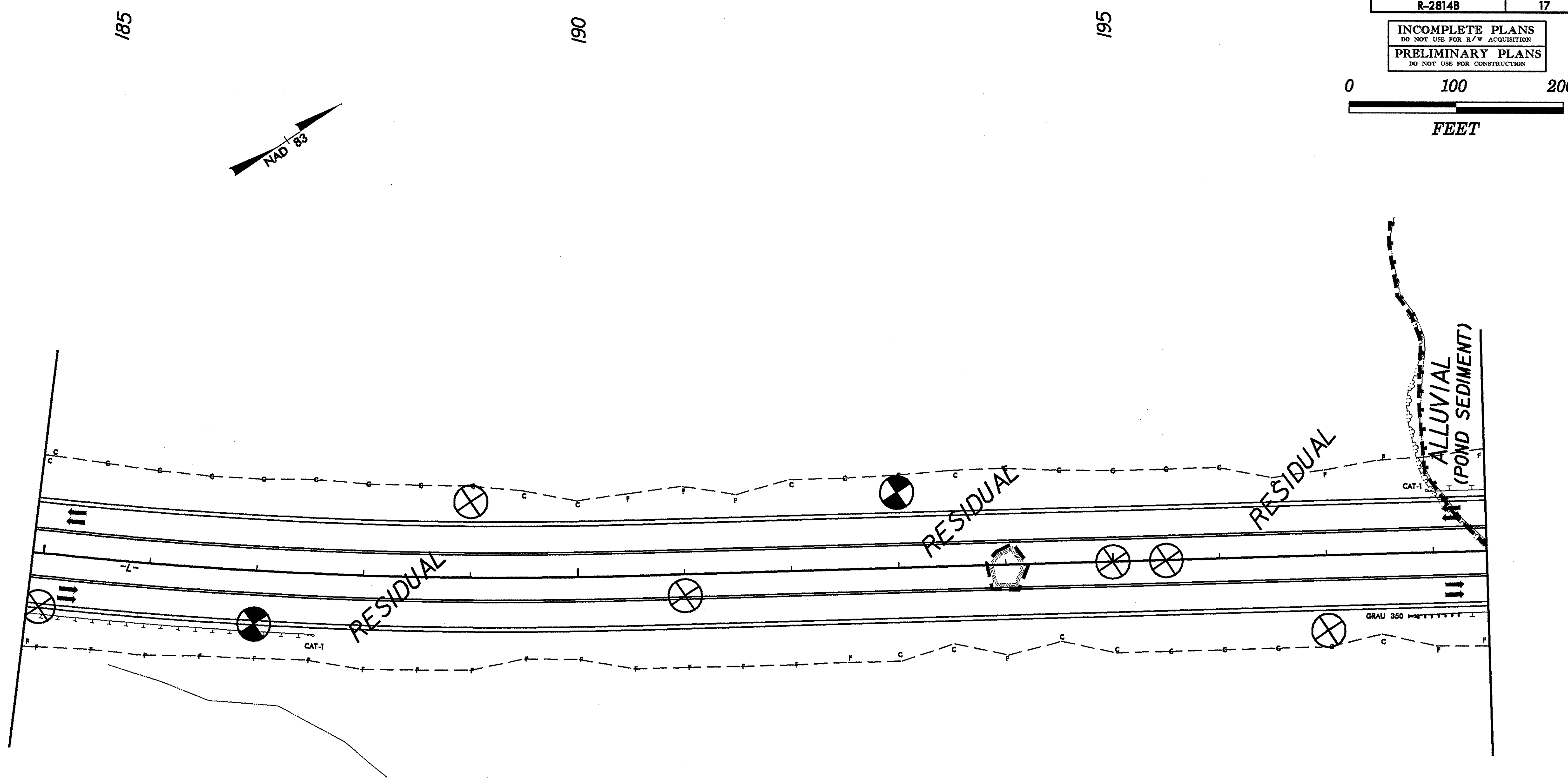
ttwalker AT GEJ221425

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	17

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/17/99

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	18

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 100 200
FEET

200

205

210

NAD 83

POND

ISBLKD

18" RCP

RESIDUAL

ALLUVIAL
(POND SEDIMENT)

GRID 350

POND

ALLUVIAL
(POND SEDIMENT)

CAT-1

ARTIFICIAL FILL
(EARTH DAM)

ARTIFICIAL FILL
(EARTH DAM)

ALLUVIAL
(POND SEDIMENT)

POND

RESIDUAL

SOIL

SOIL

SOIL

27-FEB-2009 11:24
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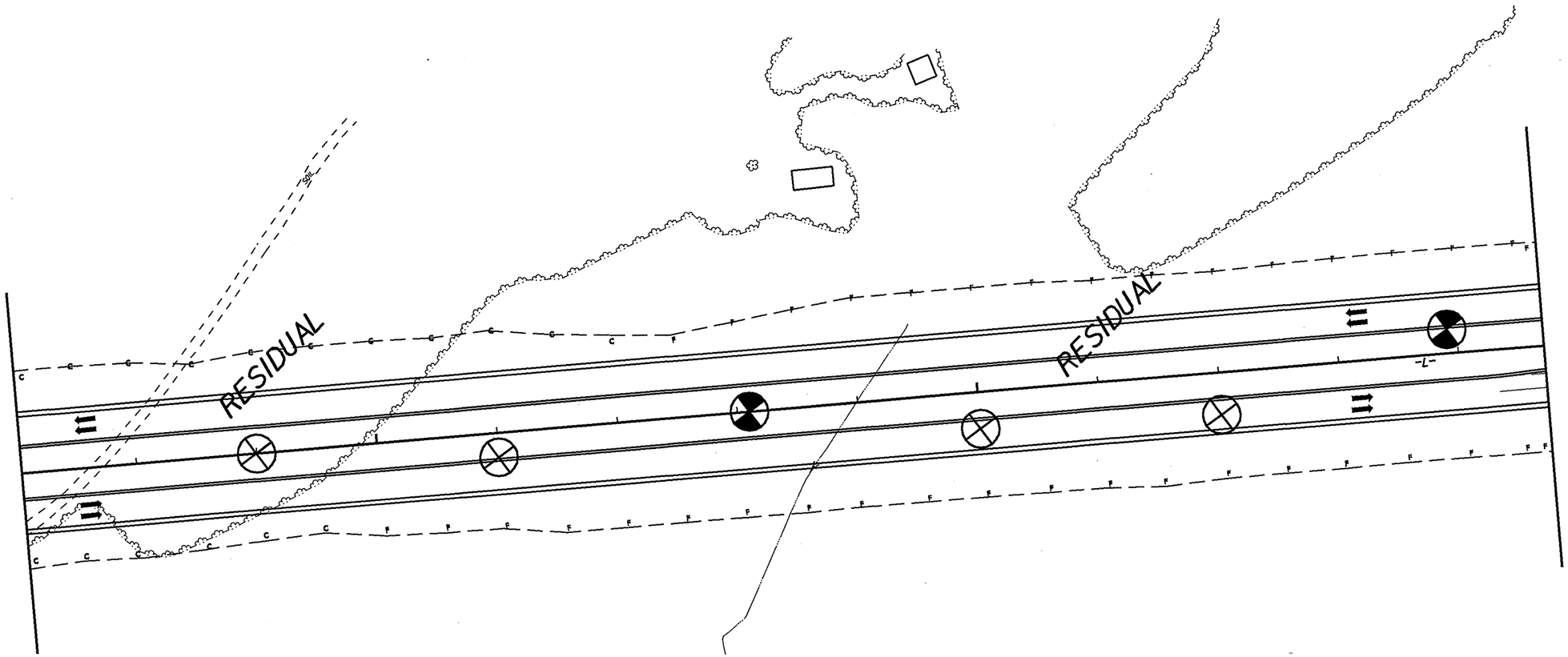
jwalker



PROJECT REFERENCE NO.	SHEET NO.
R-2814B	19

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 100 200
FEET

8/17/99

23-SEP-2008 15:04
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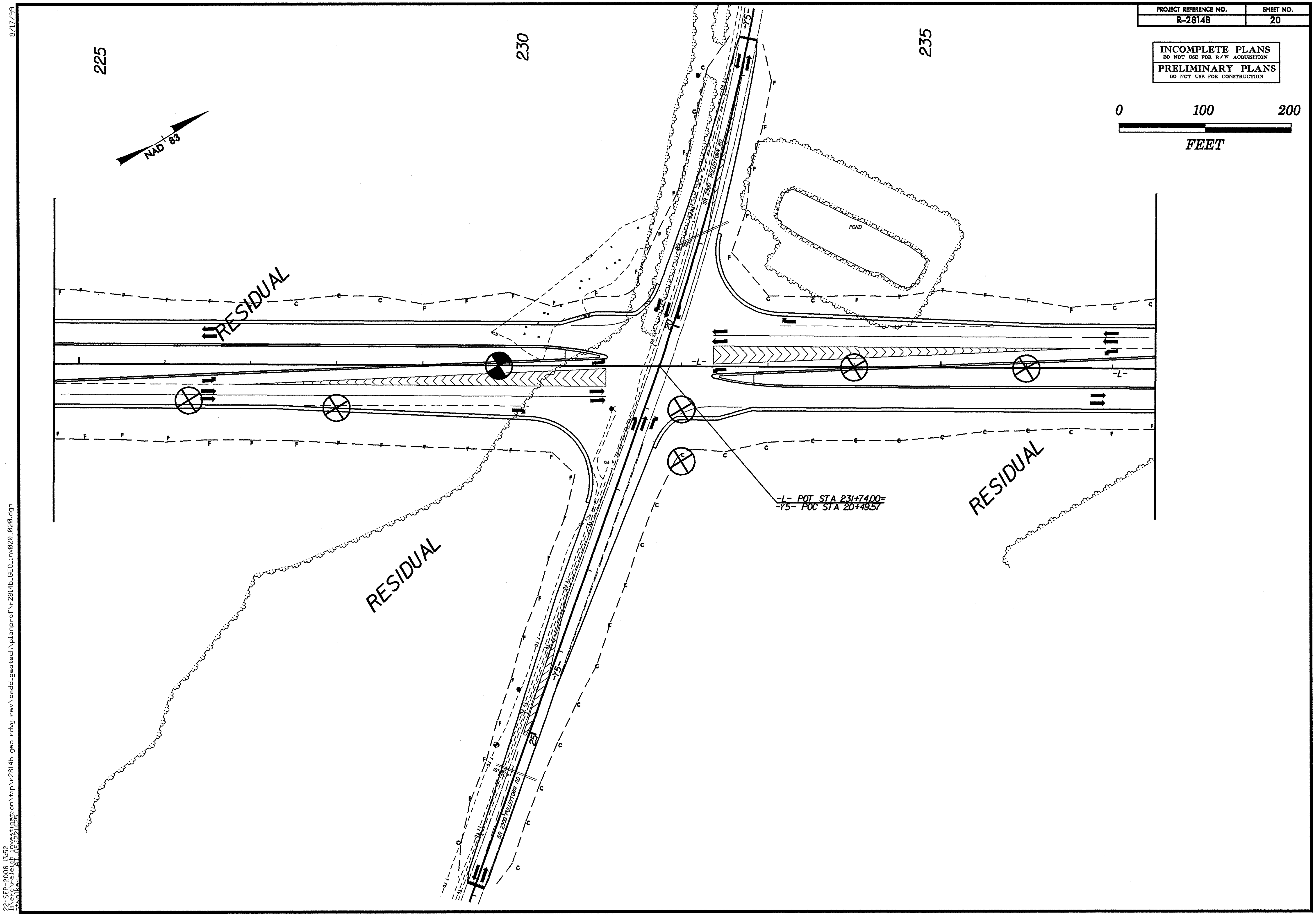
+moorefield AT GEJ240334


PROJECT REFERENCE NO.
R-2814B
SHEET NO.
20
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
0
100
200
FEET
225
230
235
NAD 83
RESIDUAL
RESIDUAL
RESIDUAL
POND
-L-
-Y5-
SR 2300 PULLETOWN RD
-L- POT STA 231+74.00=
-Y5- POC STA 20+49.57

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	21

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 100 200
FEET

NAD 83

240

245

250

RESIDUAL

ALLUVIAL

RESIDUAL

CAT-1

GRAU 350

GRAU 350

CAT-1

-L-

SOIL

POND

8/17/99

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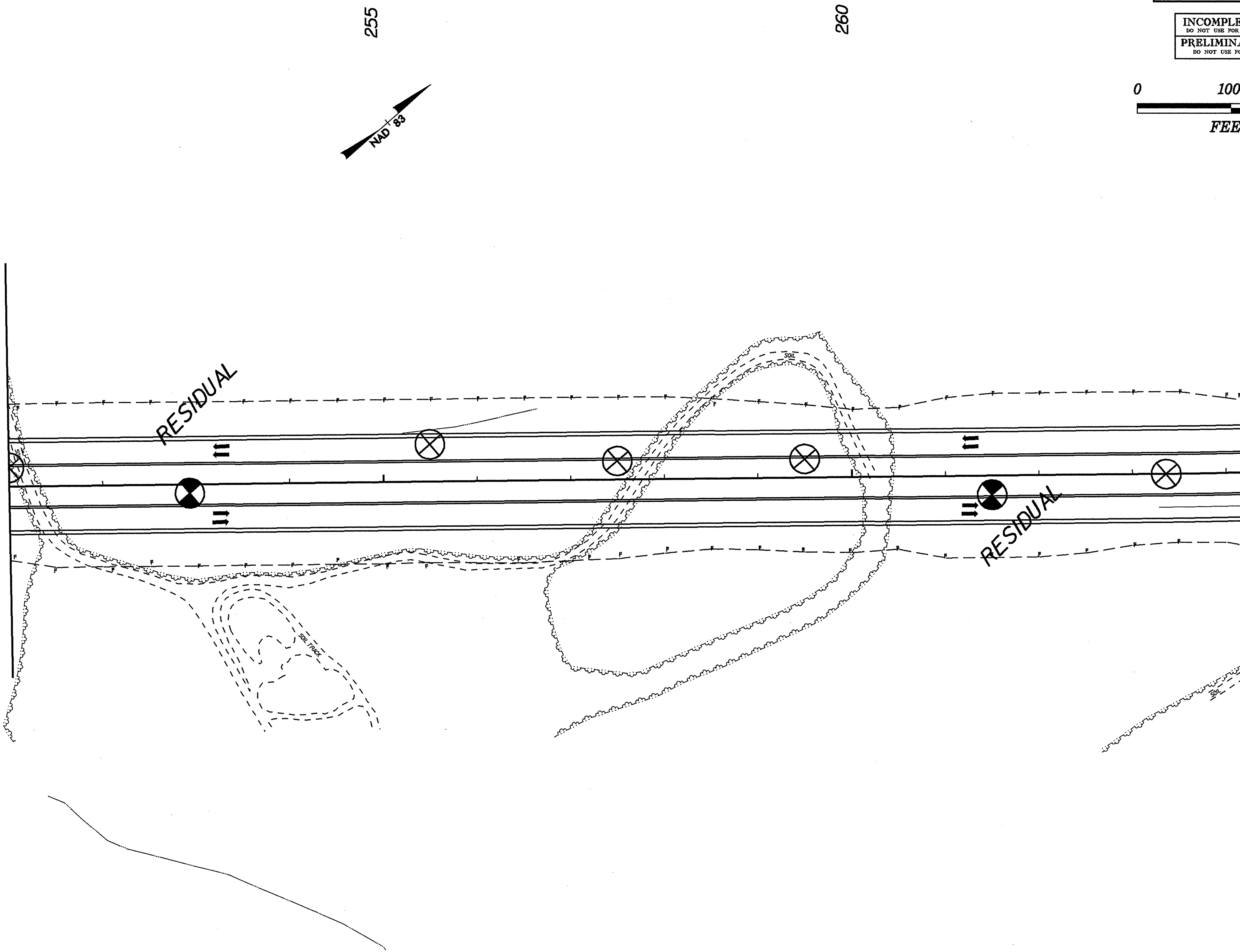
tjwalker

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	22

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 100 200
FEET



8/17/99

22-SEP-2008 13:53
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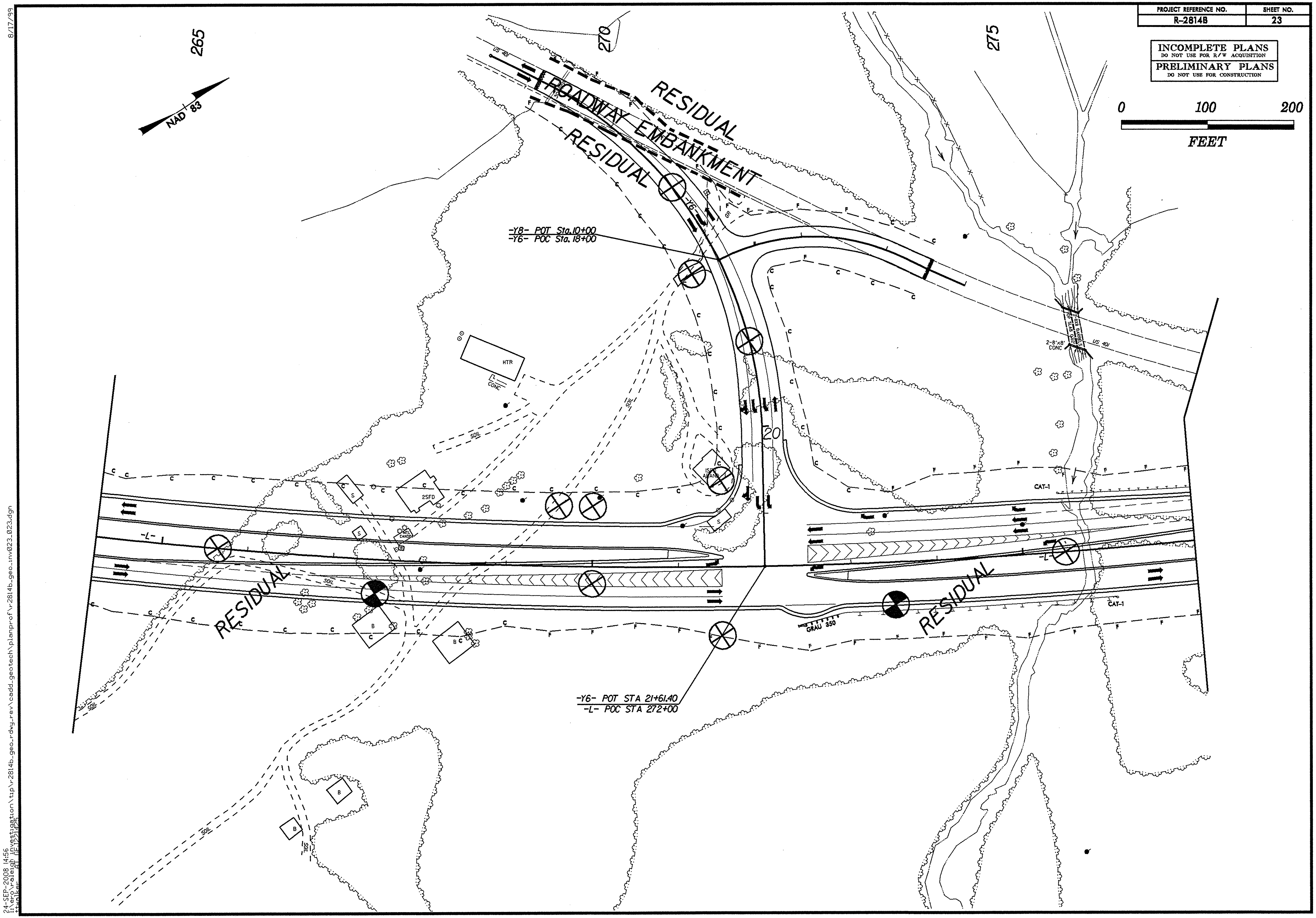
ttwalker AT GEJ221425

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	23

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



8/17/99

24-SEP-2008 14:56
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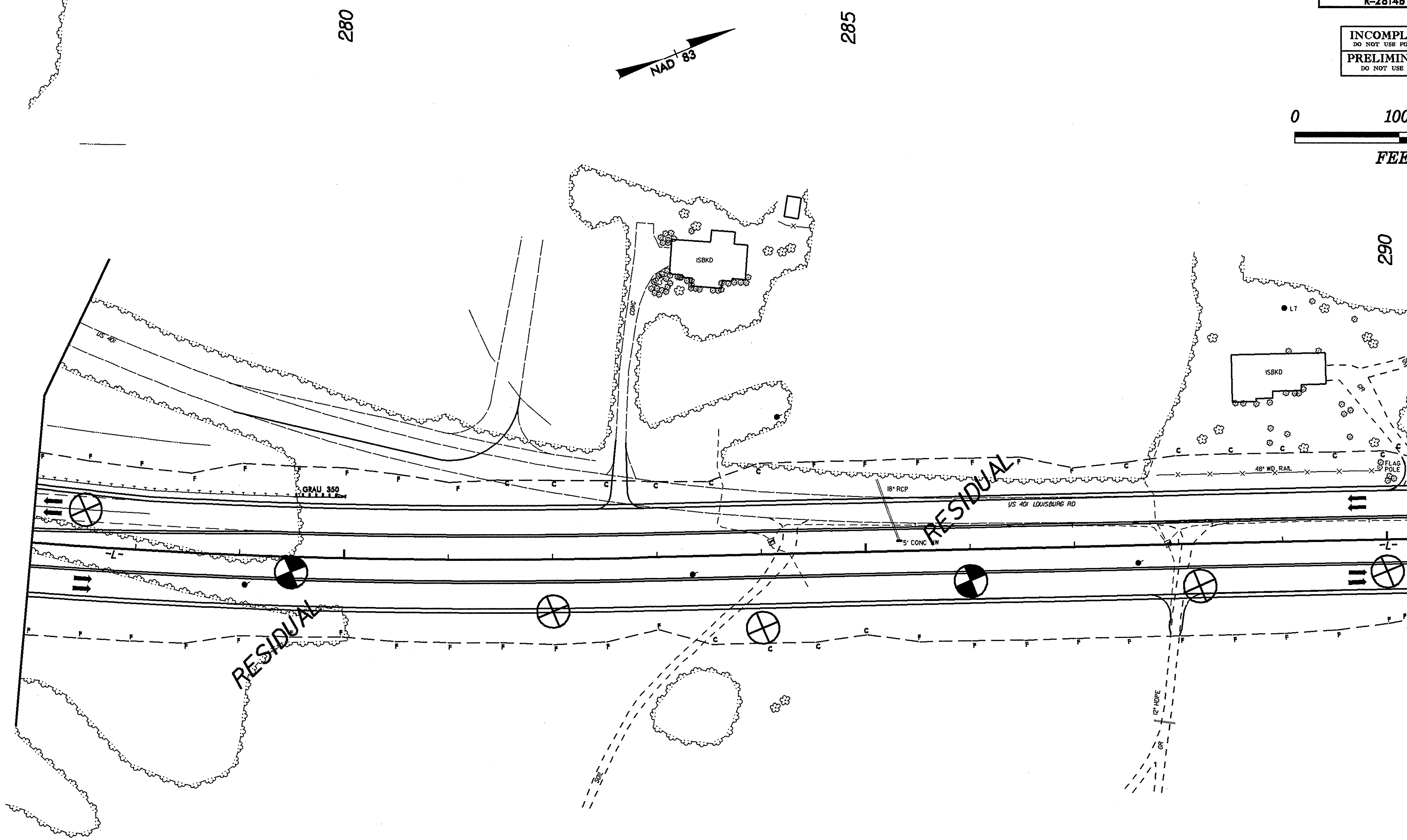
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	24

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 100 200
FEET



8/17/99

22-SEP-2008 13:54
l:\ero\raleigh investigation\tip\r2814b_geo_rdwy_rev\cadd_geotech\planprof\r2814b_GEO_inv024_024.dgn
ttwalker AT GEJ221425

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	25

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

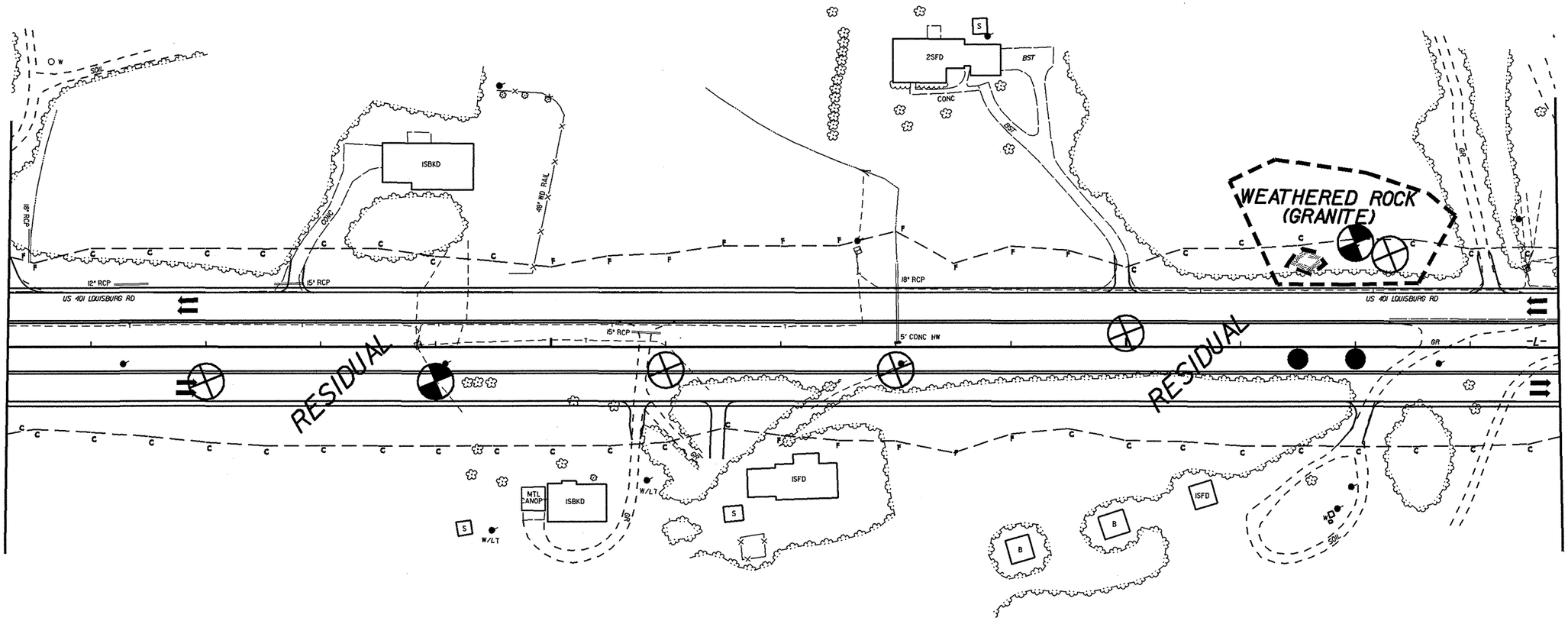
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 100 200
FEET

295

300

NAD 83



8/17/95

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tkwalker GT (GEOPAK)

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	26

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

305 310 315

NAD 83

0 100 200
FEET

-L- POT 315+15.37
-Y7- POT 15+42.33

RESIDUAL

ISFD

ISBKD

SOIL

5' CONC HW 18" RCP

US 401 LOUISBURG RD

RESIDUAL

ROADWAY EMBANKMENT

-Y7-

15" RCP

HTR

ISMTL

BST

2-GAS PUMPS

5' CONC HW

SOIL

W/SIG LT

US 401 LOUISBURG RD

-L- GR

GR

TR

18" RCP

72" CHL GATE

GREENHOUSE

MTL S

6' CONC HW

24" RCP

18" RCP

RESIDUAL

22-SEP-2008 13:55
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tkwalker GEOPAK

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	27

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 100 200
FEET

320

325

NAD 83

MTL CANOPY

TB

S

ISBK BUS

3 GAS PUMPS W/MTL CANOPY

18" CMP

HTR

BST

RESIDUAL

18" RCP

US 401 LOUISBURG RD

POND
W.E.=103.6

6' CONC HW

24" RCP

US 401 LOUISBURG RD

15" RCP

RESIDUAL

GATE

GR

END CONST.
-L- STA.323+85

22-SEP-2008 13:55
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tkwalker

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	28

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 100 200
FEET

NAD 83

MATCH SHEET 15

-Y3-POT STA 24+77.79=
-Y4-POT STA 10+00

-Y3-

RESIDUAL

-Y4-

15

20

RESIDUAL

MATCH SHEET 15

SR 1003 RULEVILLE RD 20' BST

SR 2306 CENTURY FARM RD

15" RCP

12" RCP

48" CMP

72" WD

WD CANOPY

ISFD

DR

G

ISBKD

S

FUTURE PROPOSED

8/17/99

22-SEP-2008 13:55
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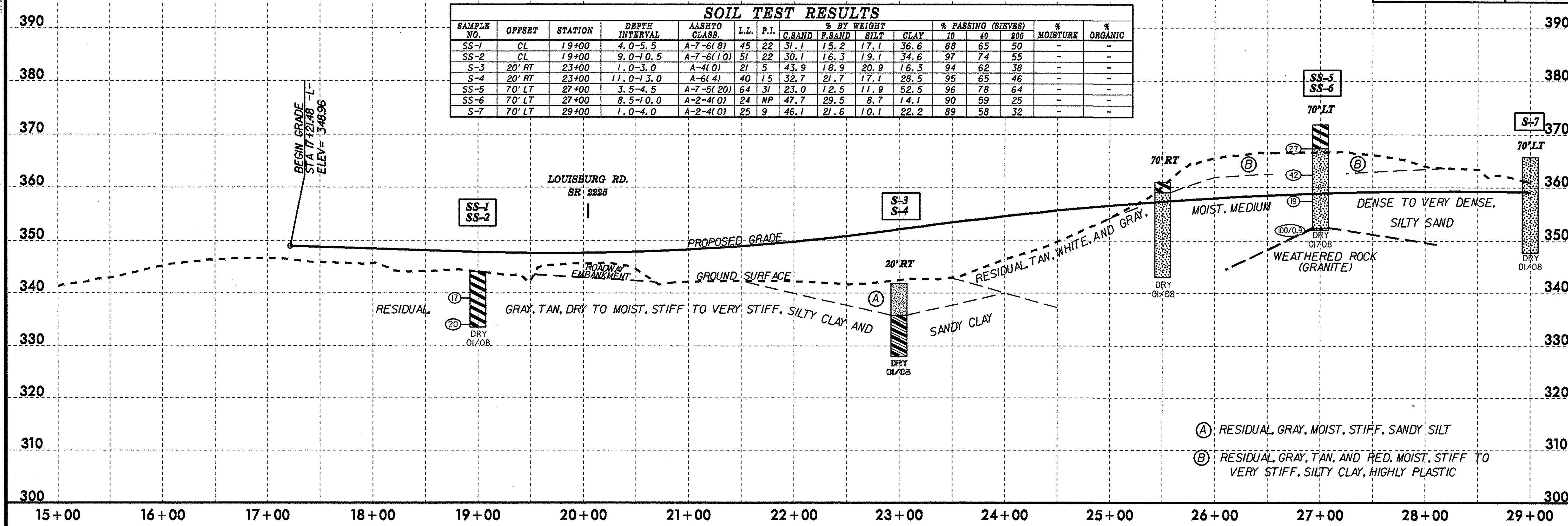
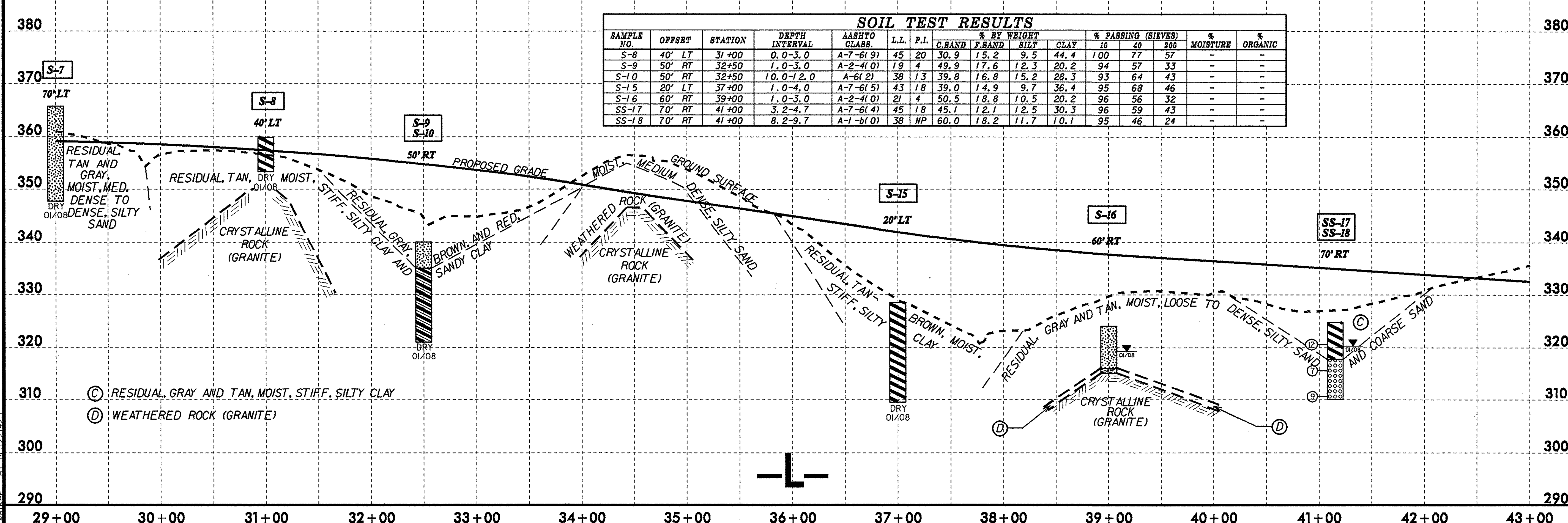
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-1	CL	19+00	4.0-5.5	A-7-6(8)	45	22	31.1	15.2	17.1	36.6	88	65	50	-	-
SS-2	CL	19+00	9.0-10.5	A-7-6(10)	51	22	30.1	16.3	19.1	34.6	97	74	55	-	-
S-3	20' RT	23+00	1.0-3.0	A-4(0)	21	5	43.9	18.9	20.9	16.3	94	62	38	-	-
S-4	20' RT	23+00	11.0-13.0	A-6(4)	40	15	32.7	21.7	17.1	28.5	95	65	46	-	-
SS-5	70' LT	27+00	3.5-4.5	A-7-5(20)	64	31	23.0	12.5	11.9	52.5	96	78	64	-	-
SS-6	70' LT	27+00	8.5-10.0	A-2-4(0)	24	NP	47.7	29.5	8.7	14.1	90	59	25	-	-
S-7	70' LT	29+00	1.0-4.0	A-2-4(0)	25	9	46.1	21.6	10.1	22.2	89	58	32	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-8	40' LT	31+00	0.0-3.0	A-7-6(9)	45	20	30.9	15.2	9.5	44.4	100	77	57	-	-
S-9	50' RT	32+50	1.0-3.0	A-2-4(0)	19	4	49.9	17.6	12.3	20.2	94	57	33	-	-
S-10	50' RT	32+50	10.0-12.0	A-6(2)	38	13	39.8	16.8	15.2	28.3	93	64	43	-	-
S-15	20' LT	37+00	1.0-4.0	A-7-6(5)	43	18	39.0	14.9	9.7	36.4	95	68	46	-	-
S-16	60' RT	39+00	1.0-3.0	A-2-4(0)	21	4	50.5	18.8	10.5	20.2	96	56	32	-	-
SS-17	70' RT	41+00	3.2-4.7	A-7-6(4)	45	18	45.1	12.1	12.5	30.3	96	59	43	-	-
SS-18	70' RT	41+00	8.2-9.7	A-1-b(0)	38	NP	60.0	18.2	11.7	10.1	95	46	24	-	-



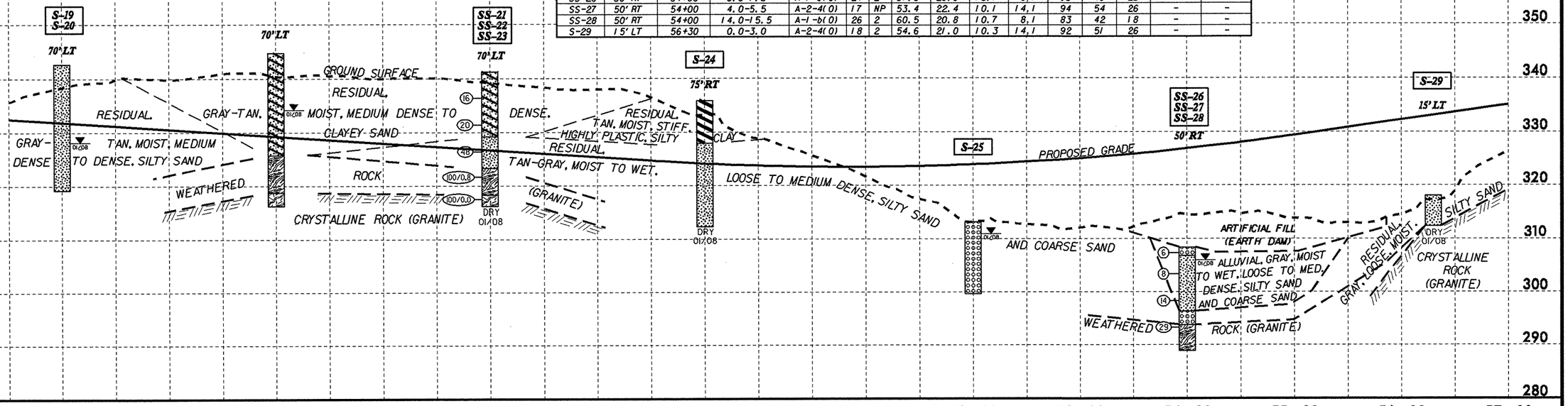
5/28/99

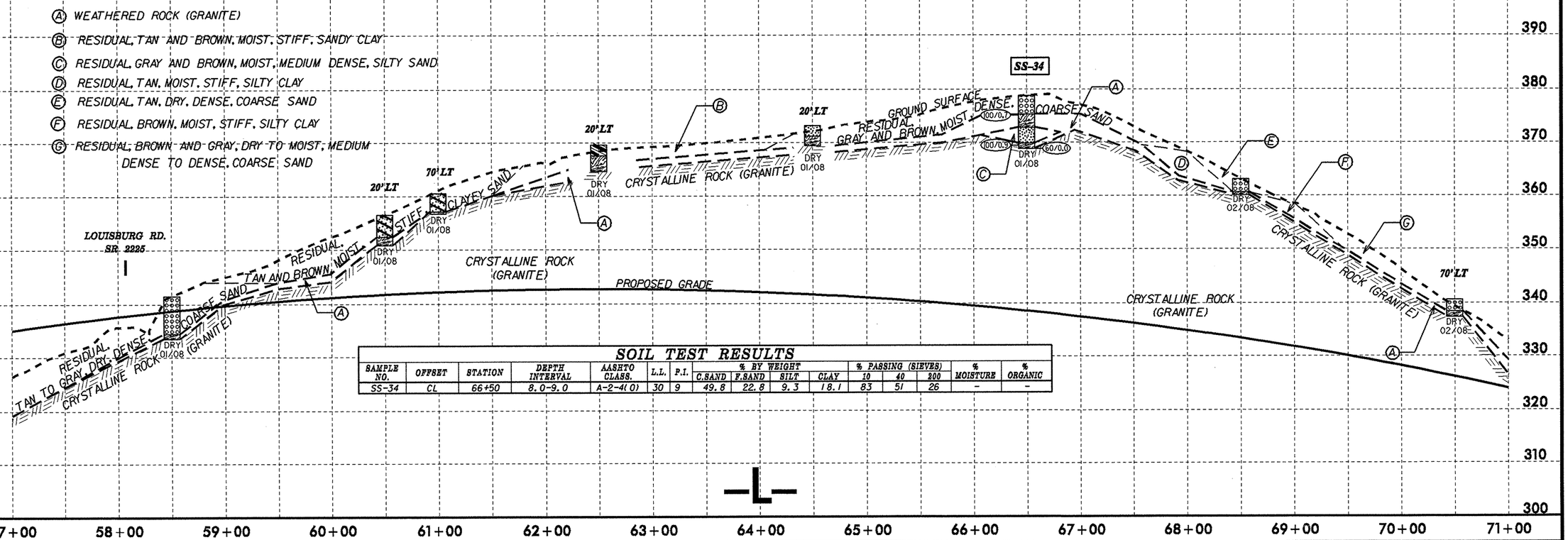
22-SEP-2008 13:17

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	30

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-19	70' LT	43+50	1.0-3.0	A-2-4(0)	20	2	53.7	19.2	14.9	12.1	90	51	28	-	-
S-20	70' LT	43+50	12.0-15.0	A-2-4(0)	23	NP	54.1	24.6	9.1	12.1	92	55	23	-	-
SS-21	70' LT	47+50	3.8-5.3	A-2-6(11)	36	17	50.9	16.2	4.6	28.3	96	56	34	-	-
SS-22	70' LT	47+50	8.8-10.3	A-2-6(11)	38	18	50.7	16.0	9.1	24.2	88	50	32	-	-
SS-23	70' LT	47+50	13.8-15.3	A-2-4(0)	29	4	51.7	23.4	14.7	10.1	95	57	28	-	-
S-24	75' RT	49+50	0.0-3.0	A-7-6(10)	53	26	33.9	13.9	11.7	40.4	91	66	50	-	-
S-25	CL	52+00	1.0-4.0	A-1-b(0)	19	3	61.0	14.7	12.1	12.1	94	46	25	-	-
SS-26	50' RT	54+00	0.0-1.5	A-1-b(0)	24	2	57.5	20.8	13.7	8.1	93	49	23	-	-
SS-27	50' RT	54+00	4.0-5.5	A-2-4(0)	17	NP	53.4	22.4	10.1	14.1	94	54	26	-	-
SS-28	50' RT	54+00	14.0-15.5	A-1-b(0)	26	2	60.5	20.8	10.7	8.1	83	42	18	-	-
S-29	15' LT	56+30	0.0-3.0	A-2-4(0)	18	2	54.6	21.0	10.3	14.1	92	51	26	-	-





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-34	CL	66+50	8.0-9.0	A-2-4(0)	30	9	49.8	22.8	9.3	18.1	83	51	26	-	-

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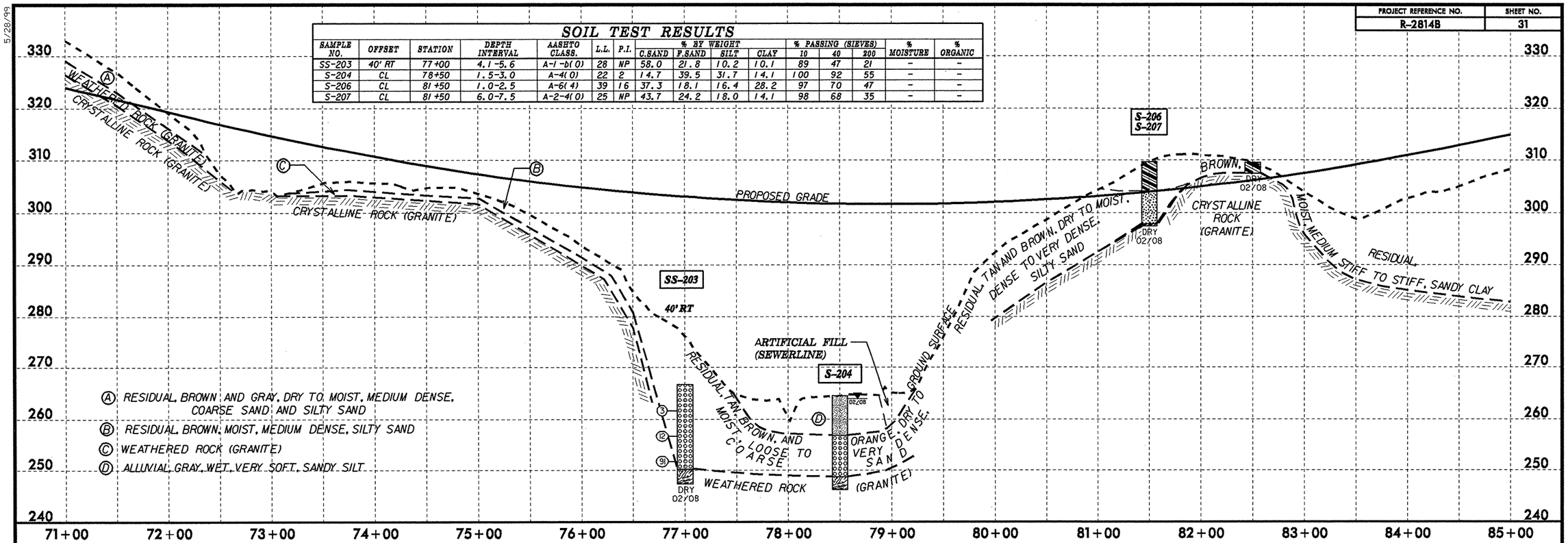
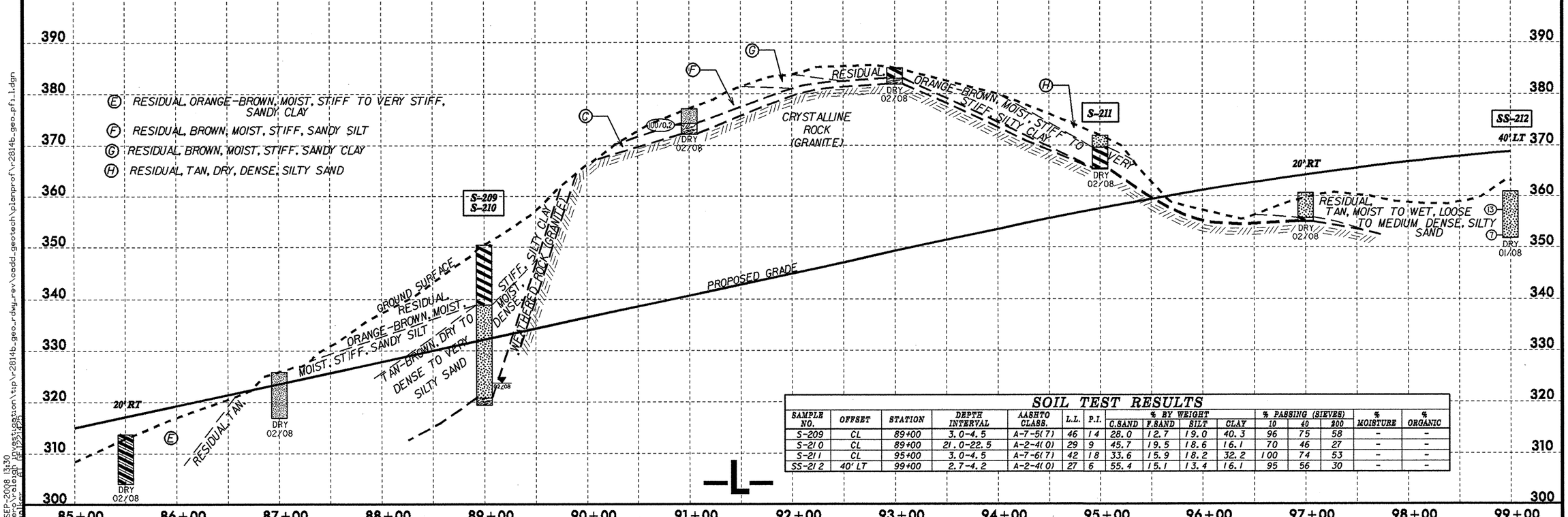
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	31

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-203	40' RT	77+00	4.1-5.6	A-1-b(0)	28	NP	58.0	21.8	10.2	10.1	89	47	21	-	-
S-204	CL	78+50	1.5-3.0	A-4(0)	22	2	14.7	39.5	31.7	14.1	100	92	55	-	-
S-206	CL	81+50	1.0-2.5	A-6(4)	39	16	37.3	18.1	16.4	28.2	97	70	47	-	-
S-207	CL	81+50	6.0-7.5	A-2-4(0)	25	NP	43.7	24.2	18.0	14.1	98	68	35	-	-





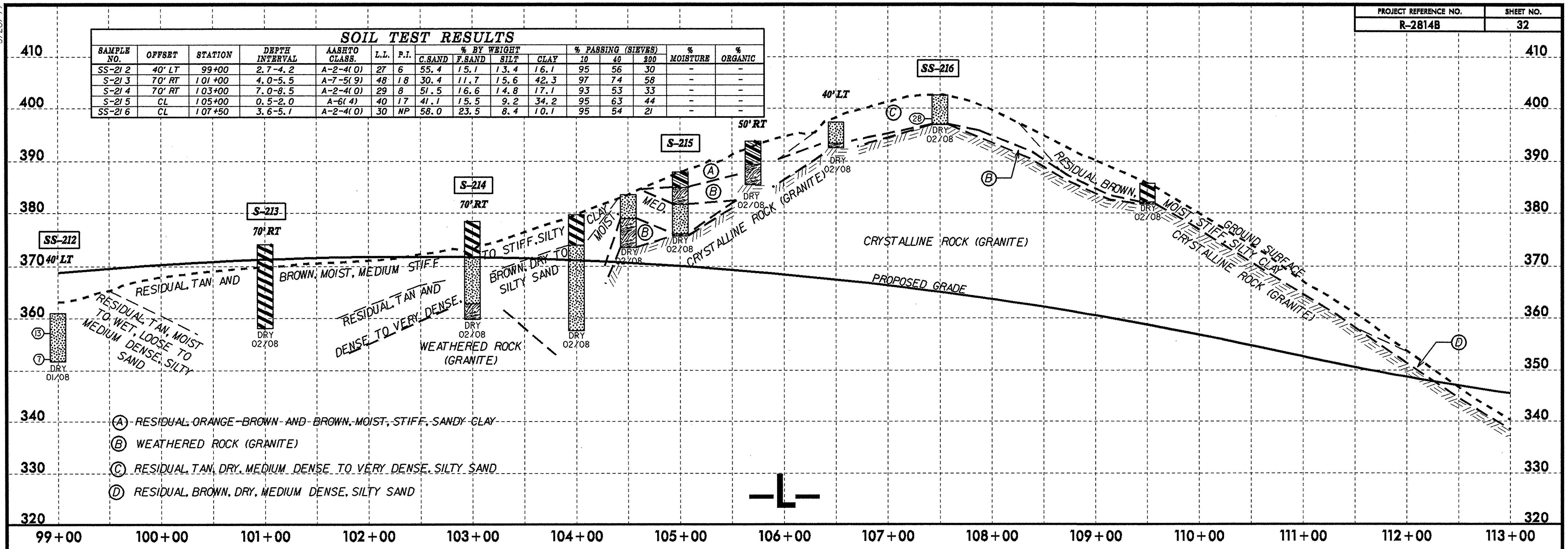
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-209	CL	89+00	3.0-4.5	A-7-5(7)	46	14	28.0	12.7	19.0	40.3	96	75	58	-	-
S-210	CL	89+00	21.0-22.5	A-2-4(0)	29	9	45.7	19.5	18.6	16.1	70	46	27	-	-
S-211	CL	95+00	3.0-4.5	A-7-6(7)	42	18	33.6	15.9	18.2	32.2	100	74	53	-	-
SS-212	40' LT	99+00	2.7-4.2	A-2-4(0)	27	6	55.4	15.1	13.4	16.1	95	56	30	-	-

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	32

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-212	40' LT	99+00	2.7-4.2	A-2-4(0)	27	6	55.4	15.1	13.4	16.1	95	56	30	-	-
S-213	70' RT	101+00	4.0-5.5	A-7-5(9)	48	18	30.4	11.7	15.6	42.3	97	74	58	-	-
S-214	70' RT	103+00	7.0-8.5	A-2-4(0)	29	8	51.5	16.6	14.8	17.1	93	53	33	-	-
S-215	CL	105+00	0.5-2.0	A-6(4)	40	17	41.1	15.5	9.2	34.2	95	63	44	-	-
SS-216	CL	107+50	3.6-5.1	A-2-4(0)	30	NP	58.0	23.5	8.4	10.1	95	54	21	-	-



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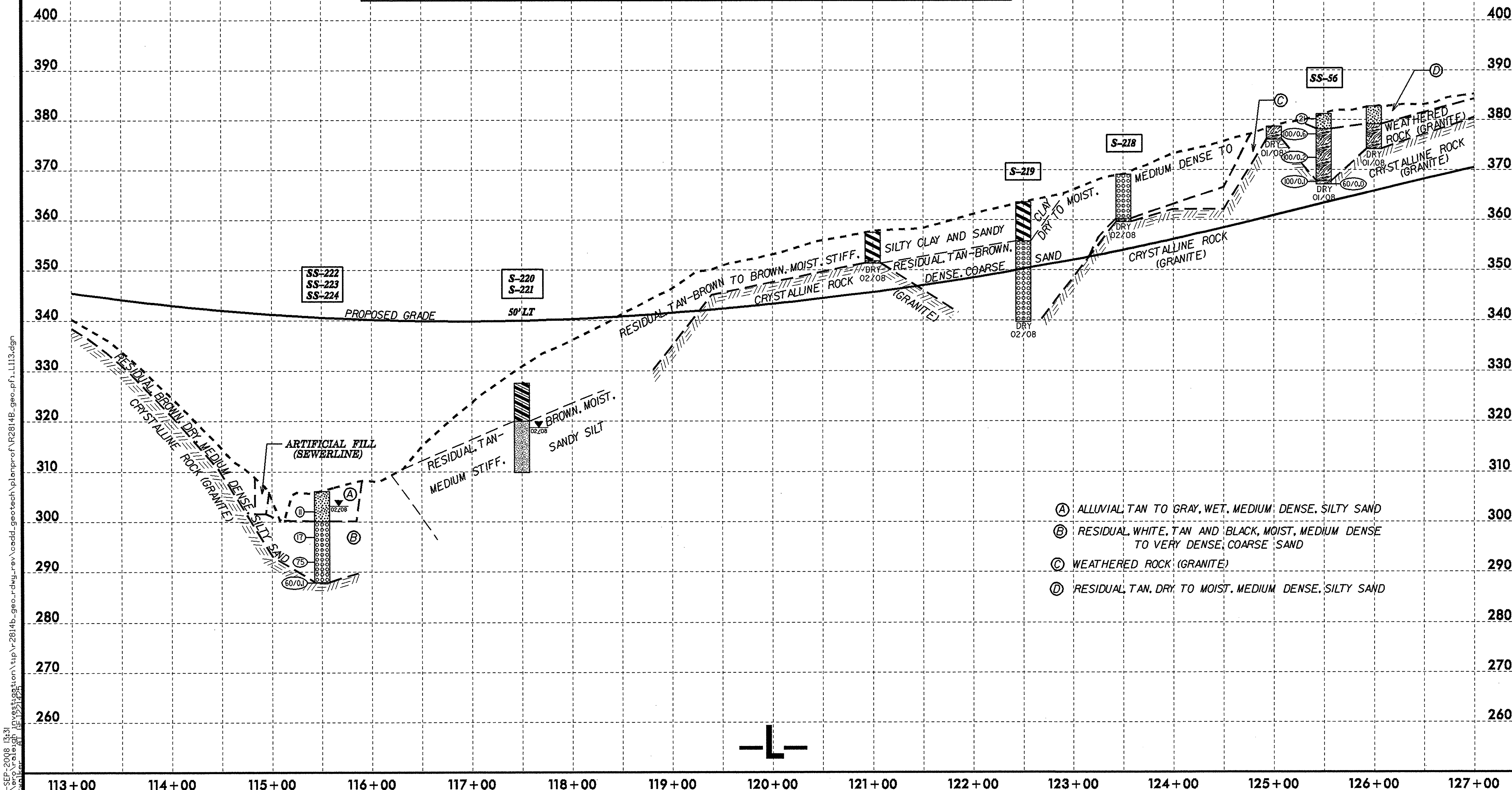
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	33

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-222	CL	115+50	3.1-4.6	A-2-4(0)	20	2	52.2	28.0	7.8	12.1	94	60	22	-	-
SS-223	CL	115+50	8.1-9.6	A-1-b(0)	31	NP	61.3	22.4	10.3	6.0	87	43	17	-	-
SS-224	CL	115+50	13.1-14.6	A-1-b(0)	29	NP	59.6	23.1	10.3	7.0	88	46	18	-	-
S-220	50' LT	117+50	0.0-7.5	A-6(1)	34	12	47.3	16.7	11.8	24.2	94	57	37	-	-
S-221	50' LT	117+50	7.5-17.6	A-4(0)	35	6	39.7	24.8	17.4	18.1	99	71	39	-	-
S-219	CL	122+50	2.5-4.0	A-7-6(13)	52	24	27.4	12.7	9.6	50.4	100	79	61	-	-
S-218	CL	123+50	4.0-5.5	A-1-b(0)	23	NP	62.9	21.6	9.5	6.0	88	46	17	-	-
SS-56	CL	125+50	0.0-1.5	A-2-4(0)	24	NP	58.9	24.4	8.6	8.1	82	47	33	-	-



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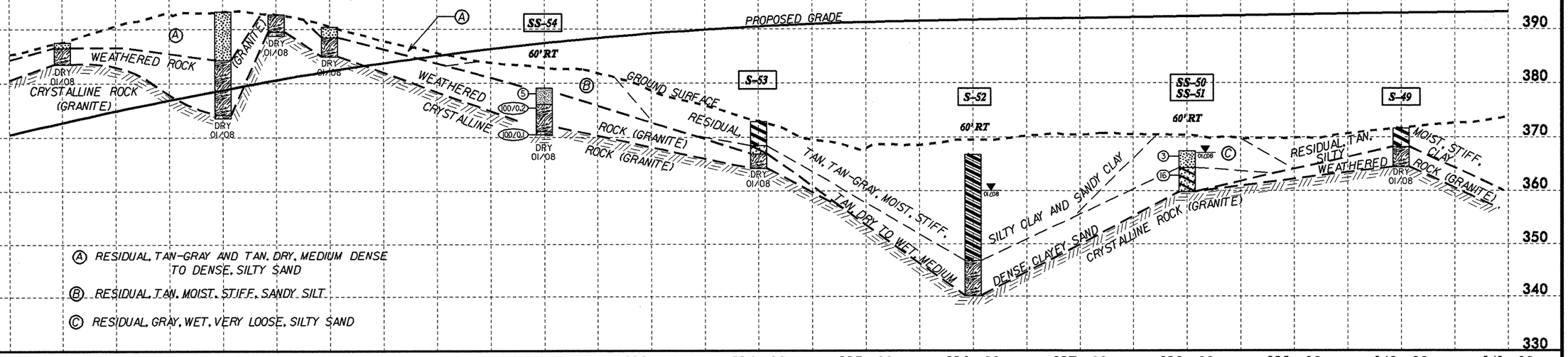
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	34

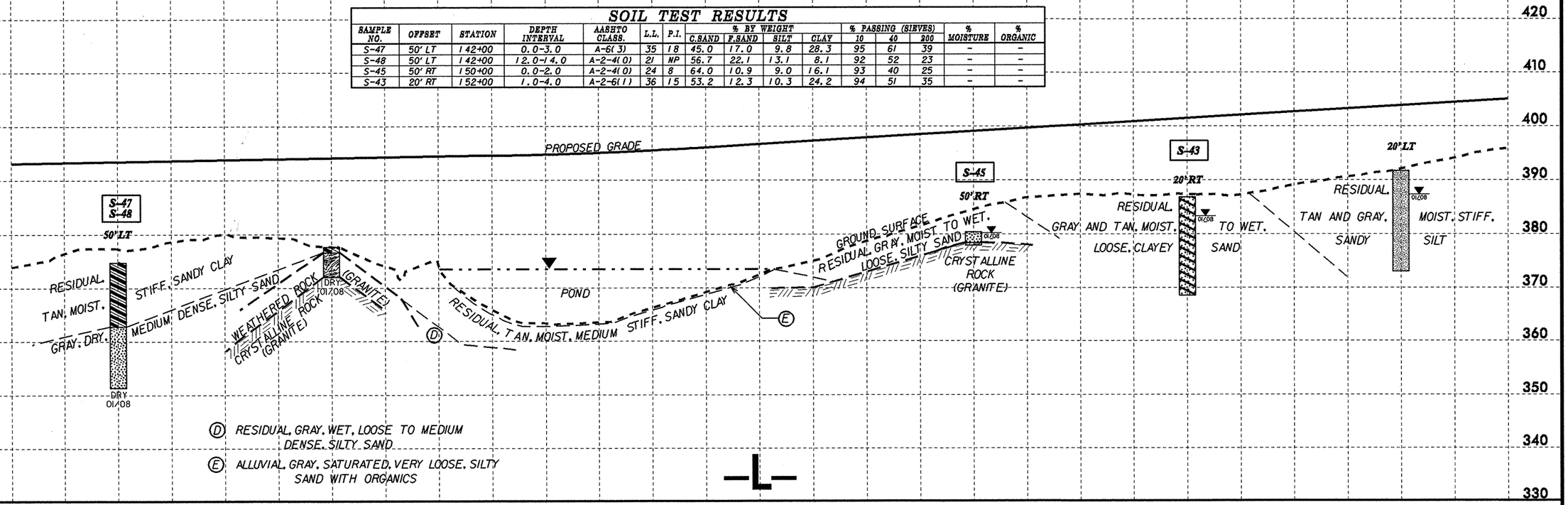
SOIL TEST RESULTS

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-54	60' RT	132+00	0.0-1.5	A-4(0)	25	9	46.8	16.8	12.2	24.2	93	61	36	-	-
S-53	CL	139+00	1.0-3.0	A-7-6(8)	47	24	38.0	15.2	10.4	36.3	98	69	48	-	-
S-52	60' RT	136+00	6.0-8.0	A-6(3)	39	17	41.2	14.1	15.4	29.3	90	60	42	-	-
SS-50	60' RT	138+00	0.0-1.5	A-2-4(0)	25	6	51.7	15.9	18.3	14.1	96	57	34	-	-
SS-51	60' RT	138+00	3.7-5.2	A-2-6(0)	27	11	58.5	17.9	7.5	16.1	95	51	25	-	-
S-49	CL	140+00	0.0-3.0	A-7-6(6)	43	21	36.1	17.0	8.6	38.3	95	69	47	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-47	50' LT	142+00	0.0-3.0	A-6(3)	35	18	45.0	17.0	9.8	28.3	95	61	39	-	-
S-48	50' LT	142+00	12.0-14.0	A-2-4(0)	21	NP	56.7	22.1	13.1	8.1	92	52	23	-	-
S-45	50' RT	150+00	0.0-2.0	A-2-4(0)	24	8	64.0	10.9	9.0	16.1	93	40	25	-	-
S-43	20' RT	152+00	1.0-4.0	A-2-6(1)	36	15	53.2	12.3	10.3	24.2	94	51	35	-	-



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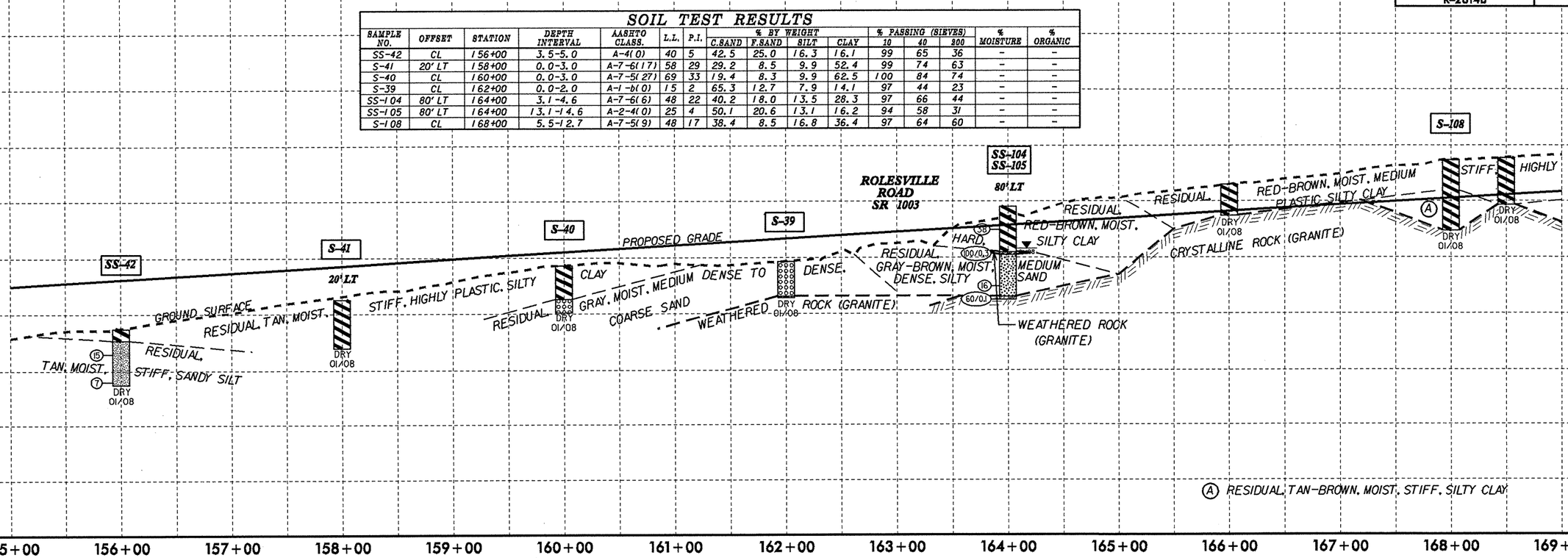
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	35

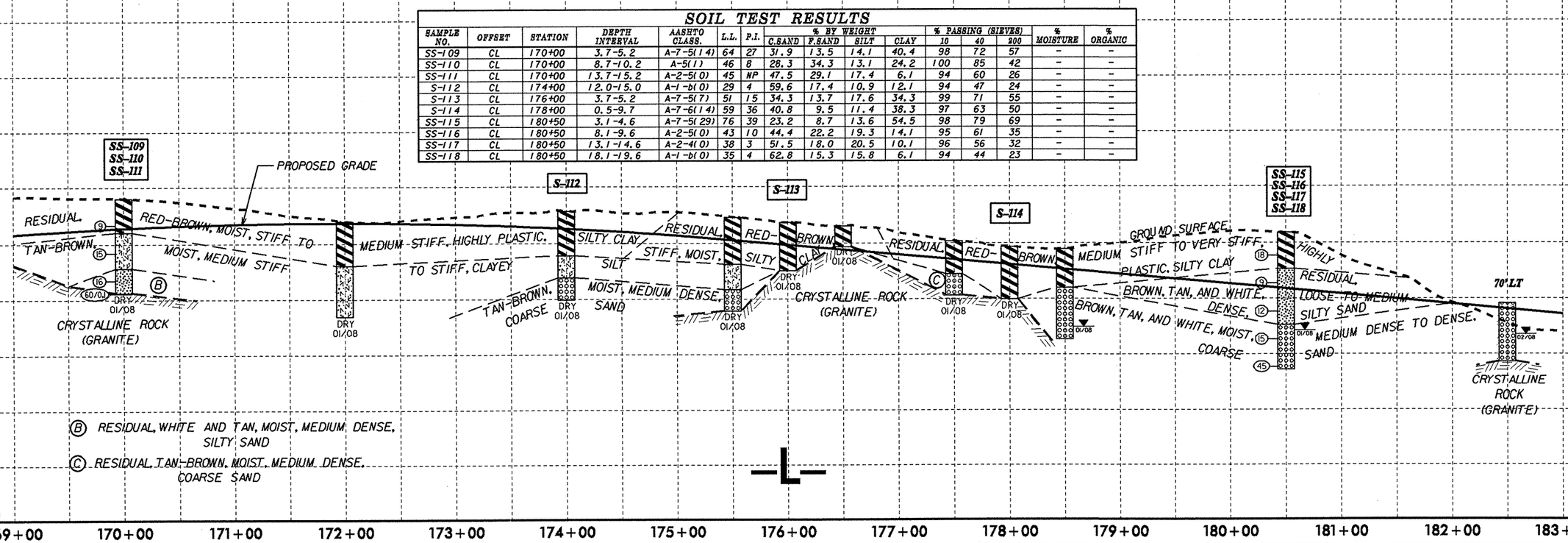
SOIL TEST RESULTS

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-42	CL	156+00	3.5-5.0	A-4(0)	40	5	42.5	25.0	16.3	16.1	99	65	36	-	-
S-41	20' LT	158+00	0.0-3.0	A-7-6(17)	58	29	29.2	8.5	9.9	52.4	99	74	63	-	-
S-40	CL	160+00	0.0-3.0	A-7-5(27)	69	33	19.4	8.3	9.9	62.5	100	84	74	-	-
S-39	CL	162+00	0.0-2.0	A-1-b(0)	15	2	65.3	12.7	7.9	14.1	97	44	23	-	-
SS-104	80' LT	164+00	3.1-4.6	A-7-6(6)	48	22	40.2	18.0	13.5	28.3	97	66	44	-	-
SS-105	80' LT	164+00	13.1-14.6	A-2-4(0)	25	4	50.1	20.6	13.1	16.2	94	58	31	-	-
S-108	CL	168+00	5.5-12.7	A-7-5(9)	48	17	38.4	8.5	16.8	36.4	97	64	60	-	-



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-109	CL	170+00	3.7-5.2	A-7-5(14)	64	27	31.9	13.5	14.1	40.4	98	72	57	-	-
SS-110	CL	170+00	8.7-10.2	A-5(11)	46	8	28.3	34.3	13.1	24.2	100	85	42	-	-
SS-111	CL	170+00	13.7-15.2	A-2-5(0)	45	NP	47.5	29.1	17.4	6.1	94	60	26	-	-
S-112	CL	174+00	12.0-15.0	A-1-b(0)	29	4	59.6	17.4	10.9	12.1	94	47	24	-	-
S-113	CL	176+00	3.7-5.2	A-7-5(7)	51	15	34.3	13.7	17.6	34.3	99	71	55	-	-
S-114	CL	178+00	0.5-9.7	A-7-6(14)	59	36	40.8	9.5	11.4	38.3	97	63	50	-	-
SS-115	CL	180+50	3.1-4.6	A-7-5(29)	76	39	23.2	8.7	13.6	54.5	98	79	69	-	-
SS-116	CL	180+50	8.1-9.6	A-2-5(0)	43	10	44.4	22.2	19.3	14.1	95	61	35	-	-
SS-117	CL	180+50	13.1-14.6	A-2-4(0)	38	3	51.5	18.0	20.5	10.1	96	56	32	-	-
SS-118	CL	180+50	18.1-19.6	A-1-b(0)	35	4	62.8	15.3	15.8	6.1	94	44	23	-	-



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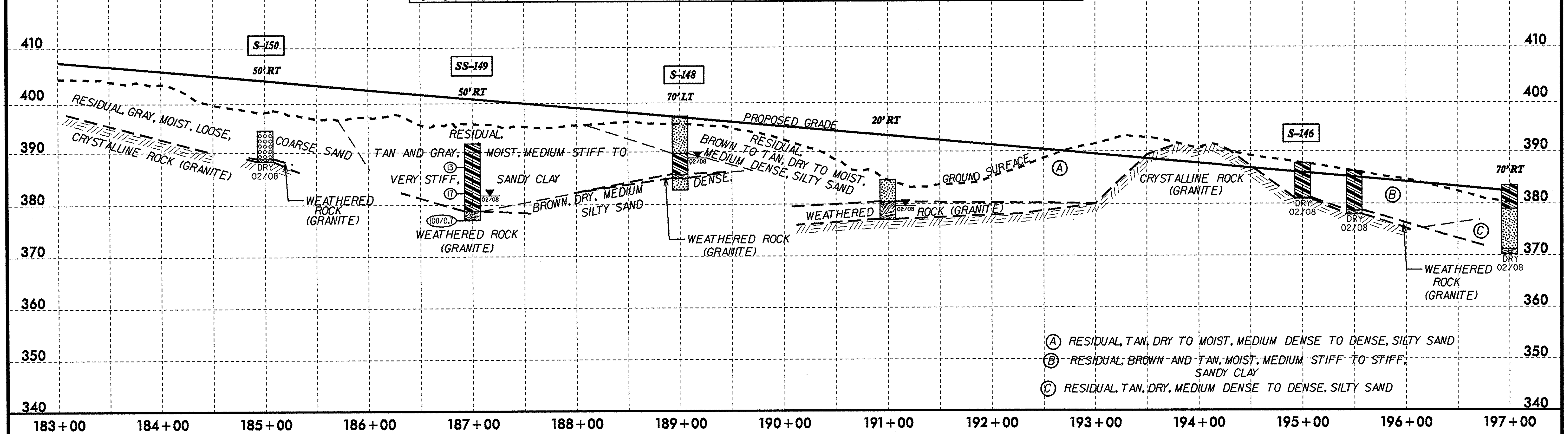
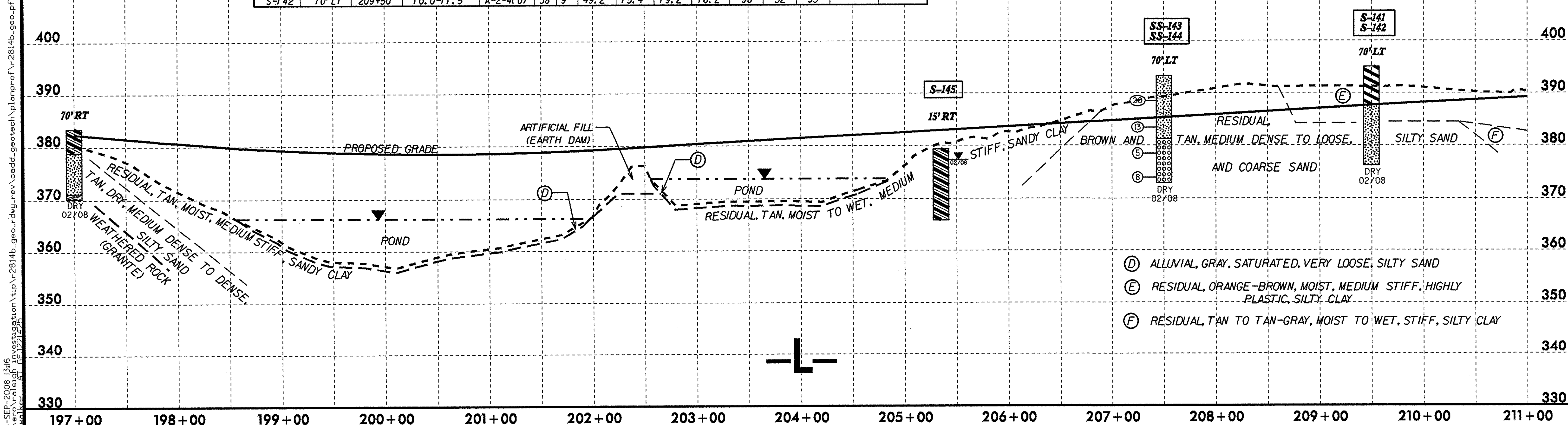
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-150	50' RT	185+00	0.0-3.0	A-1-b(0)	17	3	69.8	11.3	9.9	9.1	95	38	19	-	-
SS-149	50' RT	187+00	3.5-5.0	A-6(3)	34	16	47.1	13.3	11.4	28.2	100	63	42	-	-
S-148	70' LT	189+00	8.0-9.5	A-6(2)	34	14	43.3	13.9	14.6	28.2	95	60	43	-	-
S-146	CL	195+00	2.0-3.5	A-6(1)	32	13	47.0	15.8	13.0	24.3	90	55	36	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-145	15' RT	205+35	3.5-5.0	A-6(2)	36	21	48.6	16.7	10.4	24.3	97	59	36	-	-
SS-143	70' LT	207+50	3.8-5.3	A-2-4(0)	24	9	49.9	20.3	13.6	16.2	98	59	32	-	-
SS-144	70' LT	207+50	13.8-15.3	A-1-b(0)	41	4	58.3	20.0	15.6	6.1	94	49	25	-	-
S-141	70' LT	209+50	1.5-3.0	A-7-5(25)	68	34	23.3	7.9	14.2	54.7	99	80	70	-	-
S-142	70' LT	209+50	10.0-11.5	A-2-4(0)	38	9	49.2	15.4	19.2	16.2	90	52	35	-	-



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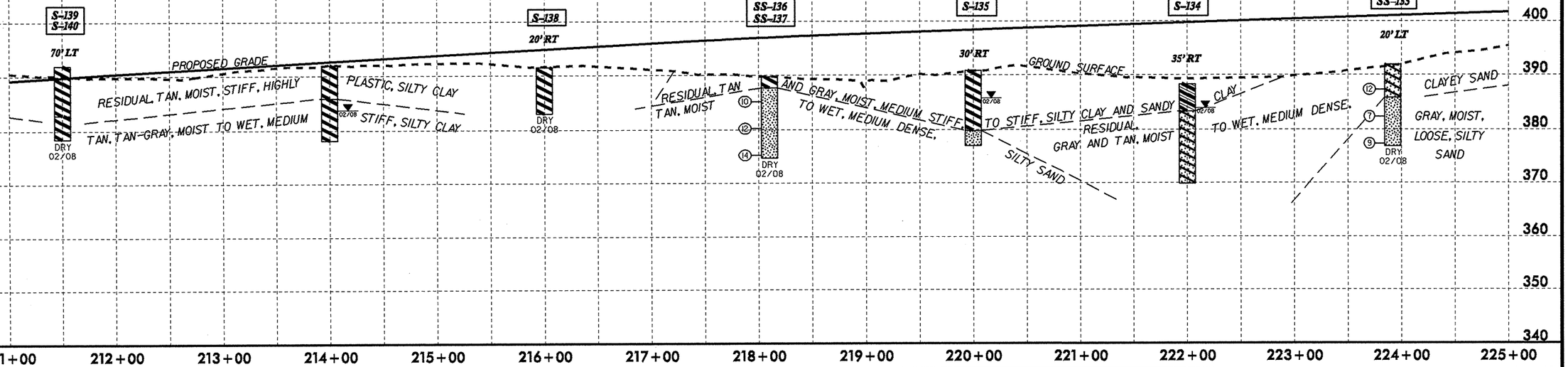
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	37

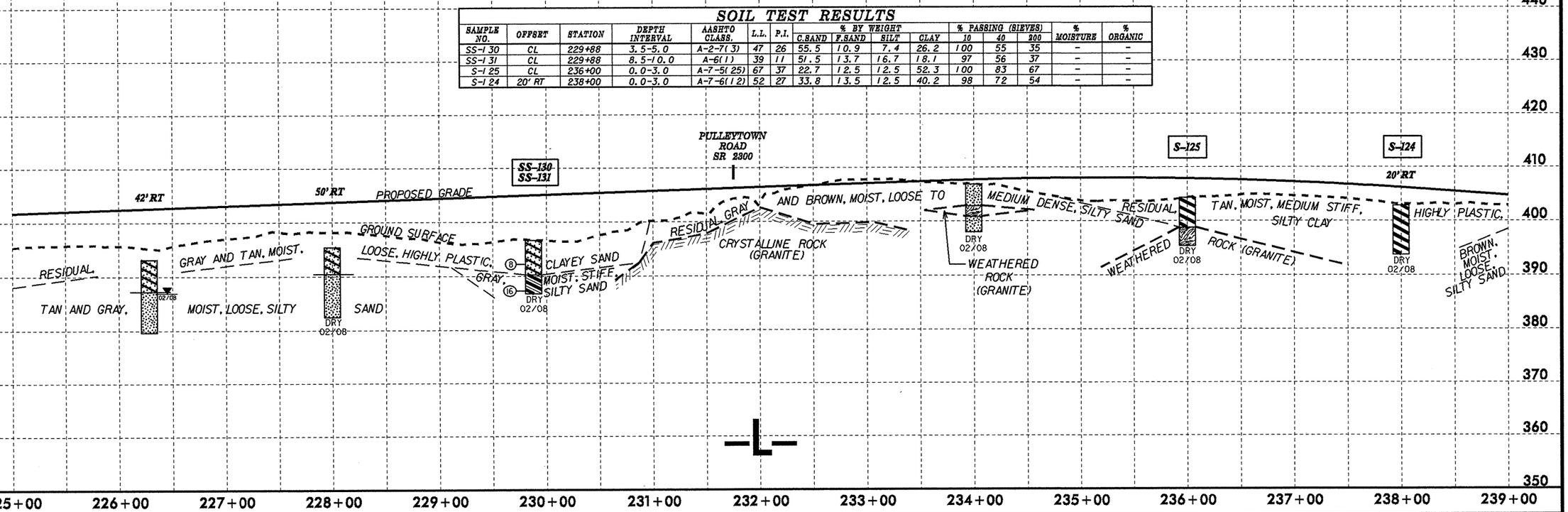
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-139	70' LT	211+50	0.0-3.0	A-7-6(14)	61	36	38.3	10.9	10.3	40.5	97	66	51	-	-
S-140	70' LT	211+50	10.0-13.0	A-7-6(3)	45	17	48.8	13.6	17.4	20.2	97	57	39	-	-
S-138	20' RT	216+00	0.0-4.0	A-7-5(36)	75	36	11.9	5.7	19.6	62.8	100	91	84	-	-
SS-136	CL	218+00	3.5-5.0	A-2-4(0)	30	NP	55.7	21.7	16.6	6.1	93	51	26	-	-
SS-137	CL	218+10	13.5-15.0	A-2-4(0)	32	4	45.5	29.1	17.2	8.1	95	63	29	-	-
S-135	30' RT	220+00	5.0-8.0	A-7-6(5)	42	15	36.6	15.6	19.4	28.3	100	71	51	-	-
S-134	35' RT	222+00	0.0-3.0	A-6(7)	36	15	30.6	12.1	22.9	34.4	100	75	60	-	-
SS-132	20' LT	223+92	3.5-5.0	A-2-7(2)	44	20	56.3	11.2	9.2	23.3	97	53	33	-	-
SS-133	20' LT	223+92	8.5-10.0	A-2-4(0)	40	NP	52.2	22.7	17.0	8.1	95	57	27	-	-



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-130	CL	229+88	3.5-5.0	A-2-7(3)	47	26	55.5	10.9	7.4	26.2	100	55	35	-	-
SS-131	CL	229+88	8.5-10.0	A-6(1)	39	11	51.5	13.7	16.7	18.1	97	56	37	-	-
S-125	CL	236+00	0.0-3.0	A-7-5(25)	67	37	22.7	12.5	12.5	52.3	100	83	67	-	-
S-124	20' RT	238+00	0.0-3.0	A-7-6(12)	52	27	33.8	13.5	12.5	40.2	98	72	54	-	-



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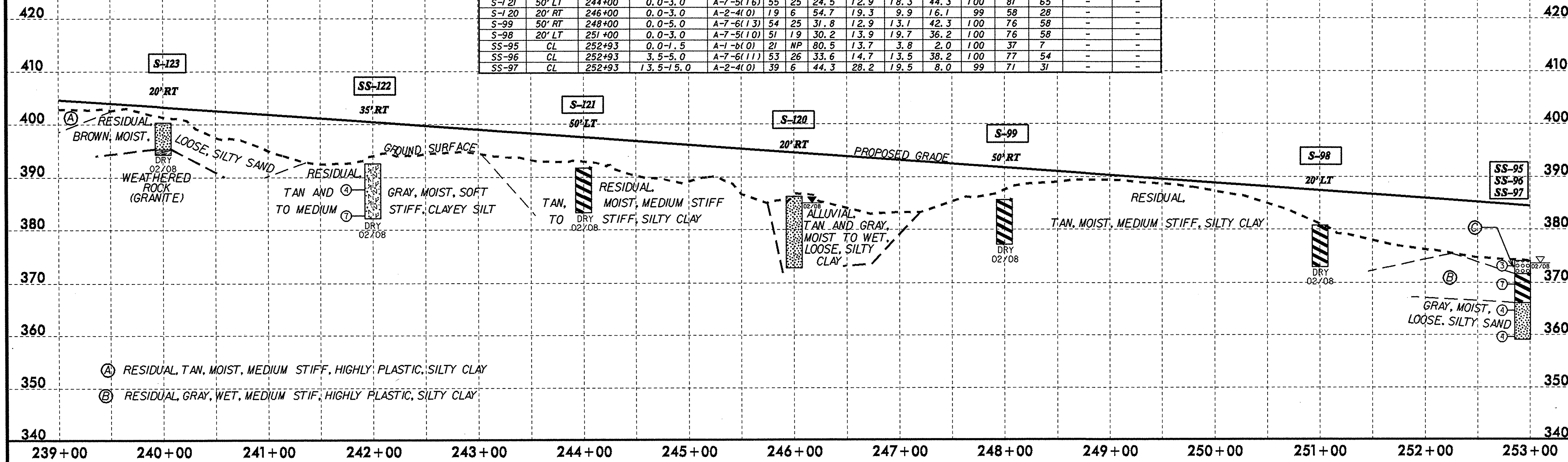
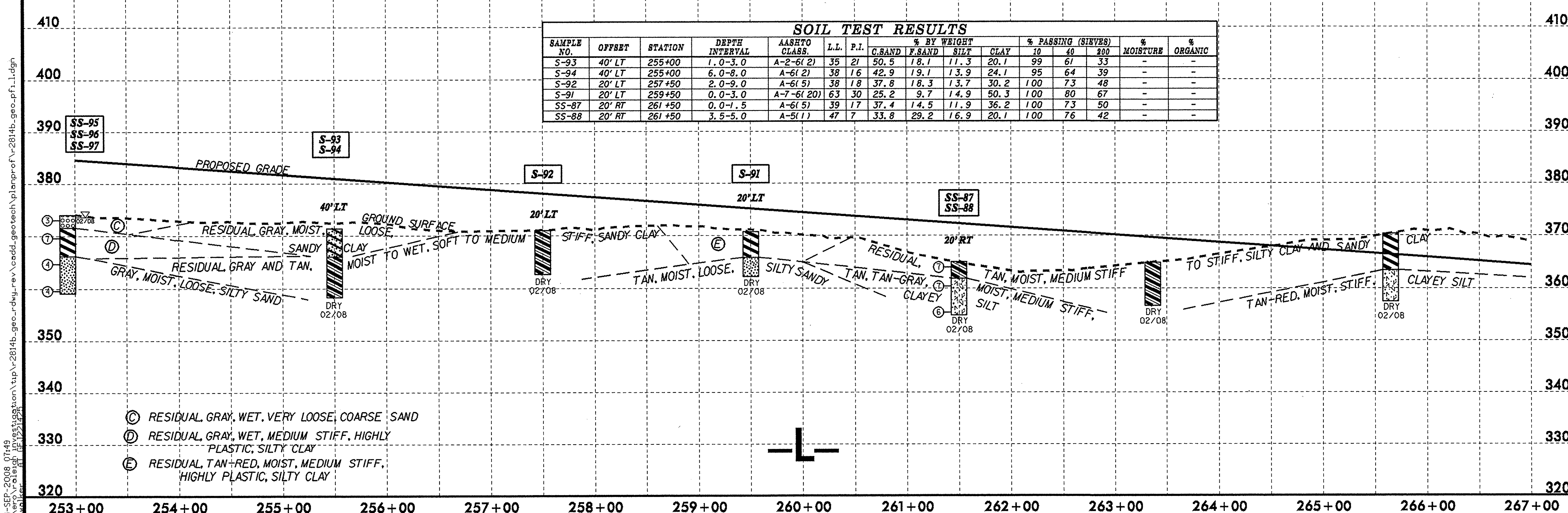
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-123	20' RT	240+00	0.0-3.0	A-2-4(0)	23	2	53.9	21.7	12.3	12.1	87	52	24	-	-
SS-122	35' LT	242+00	3.9-5.4	A-5(0)	48	4	37.6	28.8	23.5	10.1	100	75	37	-	-
S-121	50' LT	244+00	0.0-3.0	A-7-5(16)	55	25	24.5	12.9	18.3	44.3	100	81	65	-	-
S-120	20' RT	246+00	0.0-3.0	A-2-4(0)	19	6	54.7	19.3	9.9	16.1	99	58	28	-	-
S-99	50' RT	248+00	0.0-5.0	A-7-6(13)	54	25	31.8	12.9	13.1	42.3	100	76	58	-	-
S-98	20' LT	251+00	0.0-3.0	A-7-5(10)	51	19	30.2	13.9	19.7	36.2	100	76	58	-	-
SS-95	CL	252+93	0.0-1.5	A-1-b(0)	21	NP	80.5	13.7	3.8	2.0	100	37	7	-	-
SS-96	CL	252+93	3.5-5.0	A-7-6(11)	53	26	33.6	14.7	13.5	38.2	100	77	54	-	-
SS-97	CL	252+93	13.5-15.0	A-2-4(0)	39	6	44.3	28.2	19.5	8.0	99	71	31	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-93	40' LT	255+00	1.0-3.0	A-2-6(2)	35	21	50.5	18.1	11.3	20.1	99	61	33	-	-
S-94	40' LT	255+00	6.0-8.0	A-6(2)	38	16	42.9	19.1	13.9	24.1	95	64	39	-	-
S-92	20' LT	257+50	2.0-9.0	A-6(5)	38	18	37.8	18.3	13.7	30.2	100	73	48	-	-
S-91	20' LT	259+50	0.0-3.0	A-7-6(20)	63	30	25.2	9.7	14.9	50.3	100	80	67	-	-
SS-87	20' RT	261+50	0.0-1.5	A-6(5)	39	17	37.4	14.5	11.9	36.2	100	73	50	-	-
SS-88	20' RT	261+50	3.5-5.0	A-5(1)	47	7	33.8	29.2	16.9	20.1	100	76	42	-	-



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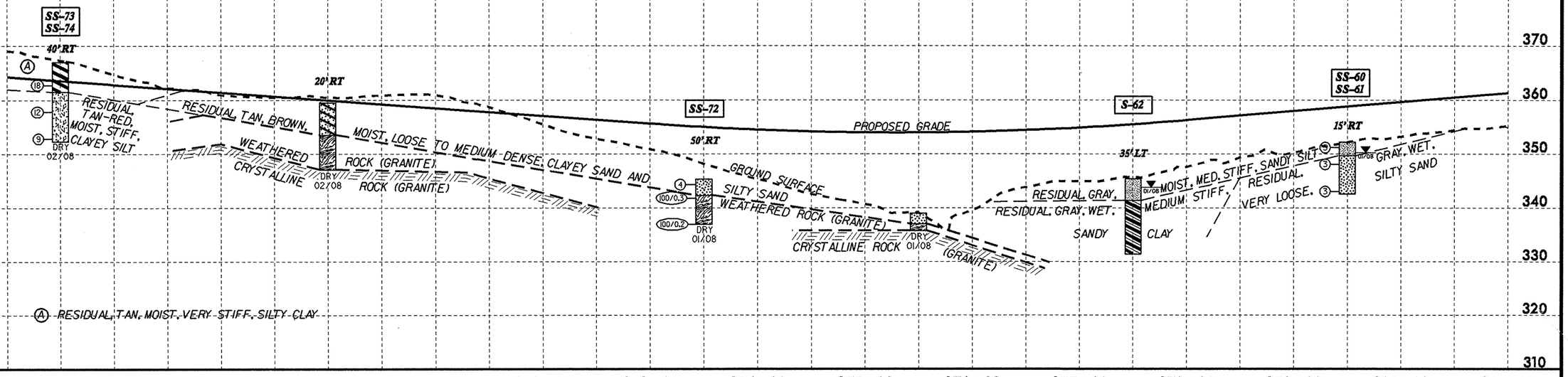
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	39

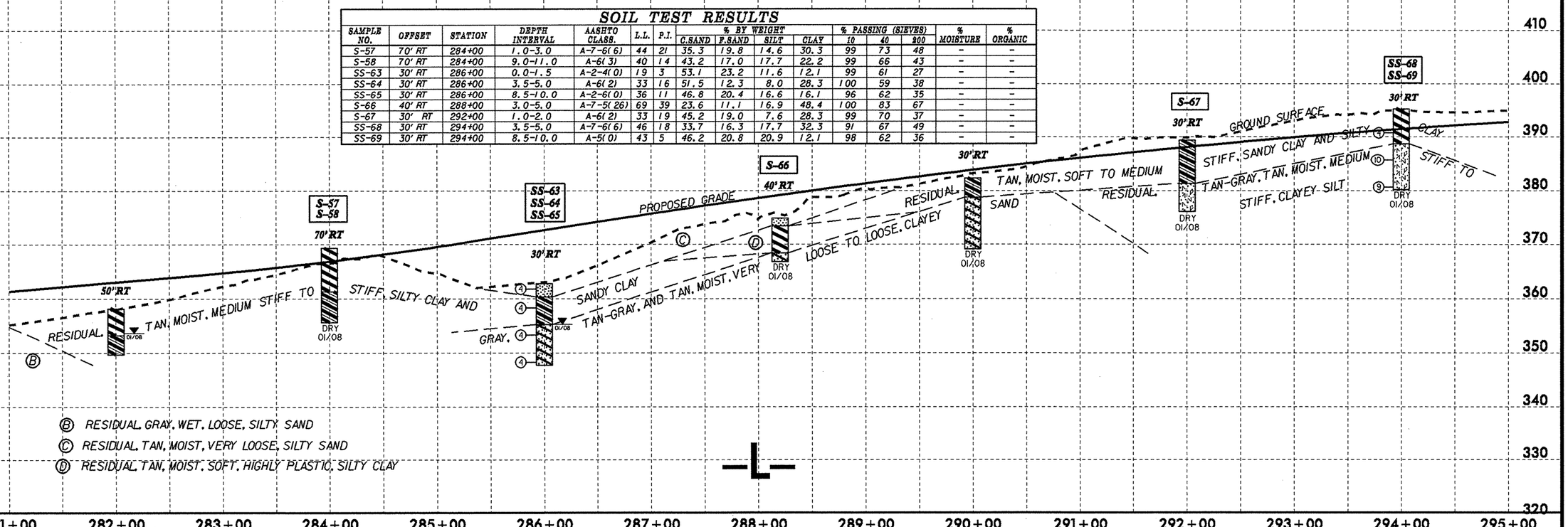
SOIL TEST RESULTS

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-73	40' RT	267+50	3.2-4.7	A-7-6(5)	43	20	42.2	14.3	11.2	32.3	99	66	45	-	-
SS-74	40' RT	267+50	8.2-9.7	A-5(1)	49	10	44.6	20.8	18.5	16.1	100	66	38	-	-
SS-72	50' RT	273+50	0.0-1.5	A-2-4(0)	16	NP	54.5	22.4	13.0	10.1	98	59	25	-	-
S-62	35' LT	277+50	5.0-7.0	A-6(1)	37	13	41.8	22.6	15.4	20.2	98	68	38	-	-
SS-60	15' RT	279+50	0.0-1.5	A-4(0)	25	6	46.8	20.2	14.8	18.2	99	65	36	-	-
SS-61	15' RT	279+50	3.1-4.6	A-2-4(0)	38	3	57.7	21.4	16.9	4.0	100	56	24	-	-



SOIL TEST RESULTS

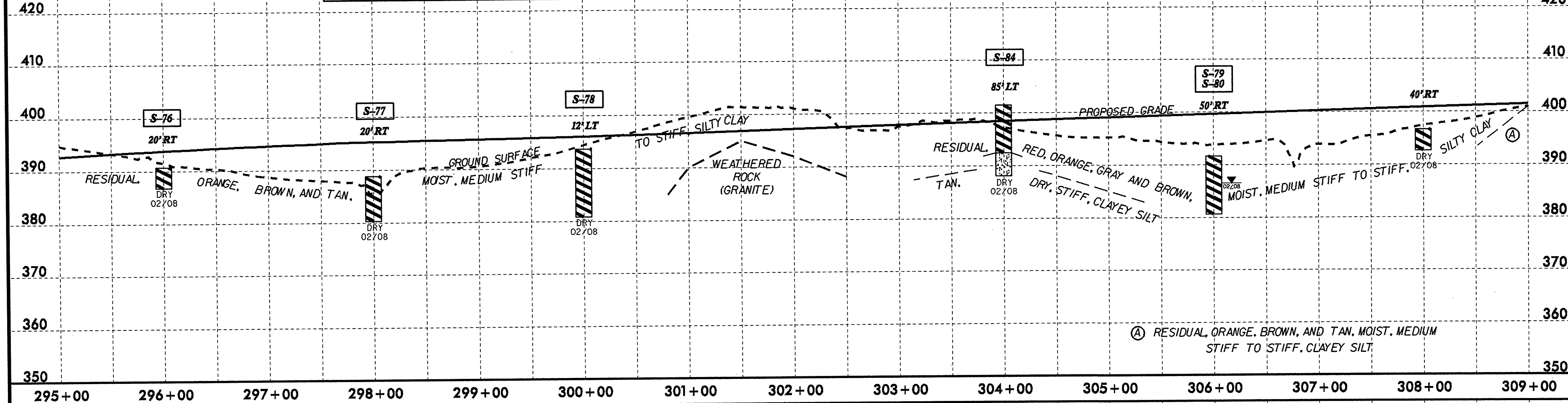
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-57	70' RT	284+00	1.0-3.0	A-7-6(6)	44	21	35.3	19.8	14.6	30.3	99	73	48	-	-
S-58	70' RT	284+00	9.0-11.0	A-6(3)	40	14	43.2	17.0	17.7	22.2	99	66	43	-	-
SS-63	30' RT	286+00	0.0-1.5	A-2-4(0)	19	3	53.1	23.2	11.6	12.1	99	61	27	-	-
SS-64	30' RT	286+00	3.5-5.0	A-6(2)	33	16	51.5	12.3	8.0	28.3	100	59	38	-	-
SS-65	30' RT	286+00	8.5-10.0	A-2-6(0)	36	11	46.8	20.4	16.6	16.1	96	62	35	-	-
S-66	40' RT	288+00	3.0-5.0	A-7-5(26)	69	39	23.6	11.1	16.9	48.4	100	83	67	-	-
S-67	30' RT	292+00	1.0-2.0	A-6(2)	33	19	45.2	19.0	7.6	28.3	99	70	37	-	-
SS-68	30' RT	294+00	3.5-5.0	A-7-6(6)	46	18	33.7	16.3	17.7	32.3	91	67	49	-	-
SS-69	30' RT	294+00	8.5-10.0	A-5(0)	43	5	46.2	20.8	20.9	12.1	98	62	36	-	-



PROJECT REFERENCE NO.	SHEET NO.
R-2814B	40

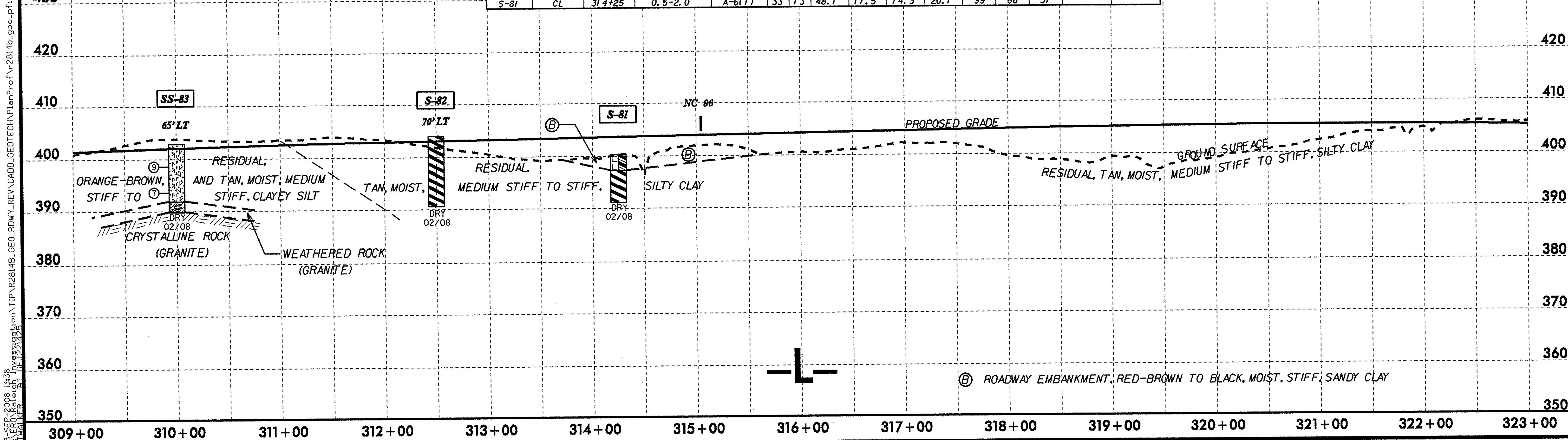
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-76	20' RT	296+00	0.5-2.0	A-7-6(10)	52	23	32.6	15.5	13.7	38.2	100	75	54	-	-
S-77	20' RT	298+00	6.0-7.5	A-7-5(2)	43	11	39.6	21.9	16.3	22.1	100	74	42	-	-
S-78	12' LT	300+00	2.0-3.5	A-7-6(10)	49	23	32.6	14.3	10.9	42.3	100	76	55	-	-
S-84	85' LT	309+00	5.0-6.5	A-7-5(9)	52	20	27.8	20.5	17.5	34.2	100	81	55	-	-
S-79	50' RT	306+00	1.0-2.5	A-7-6(6)	44	24	43.1	14.5	10.3	32.2	100	67	44	-	-
S-80	50' RT	306+00	6.5-8.0	A-7-6(6)	46	17	34.2	18.3	17.3	30.2	100	77	50	-	-



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-83	65' LT	310+00	3.3-4.8	A-5(0)	42	7	40.0	27.4	16.5	16.1	99	72	38	-	-
S-82	70' LT	312+50	4.0-5.5	A-7-5(4)	47	12	31.4	23.3	19.1	26.2	100	78	49	-	-
S-81	CL	314+25	0.5-2.0	A-6(1)	33	13	48.1	17.5	14.3	20.1	99	66	37	-	-



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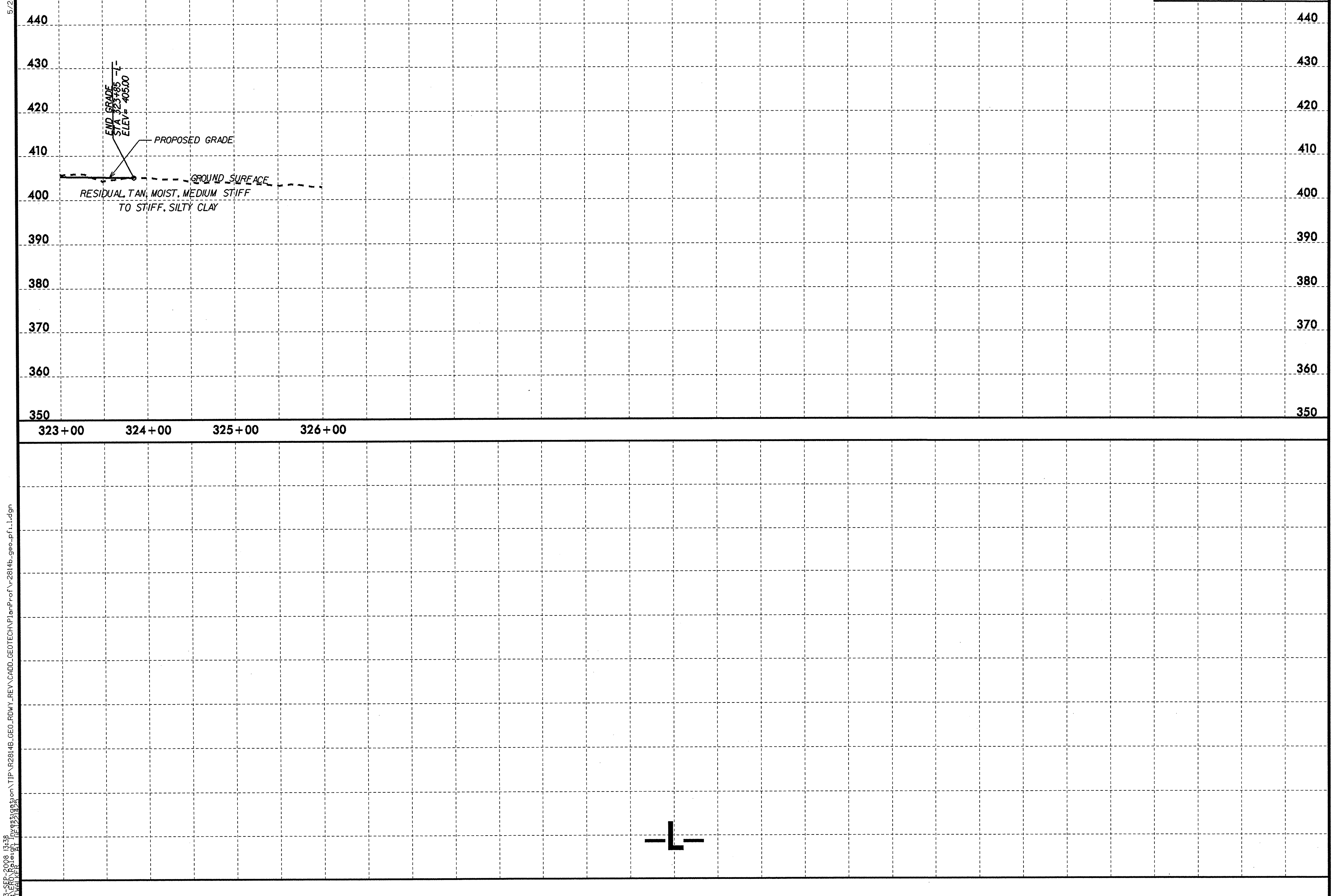
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	41



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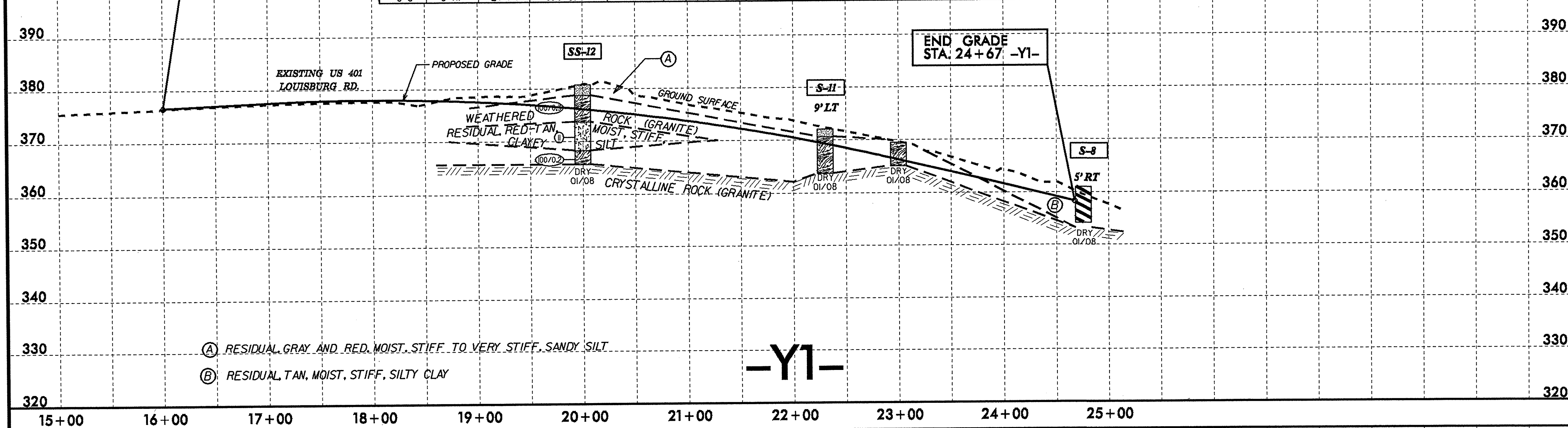
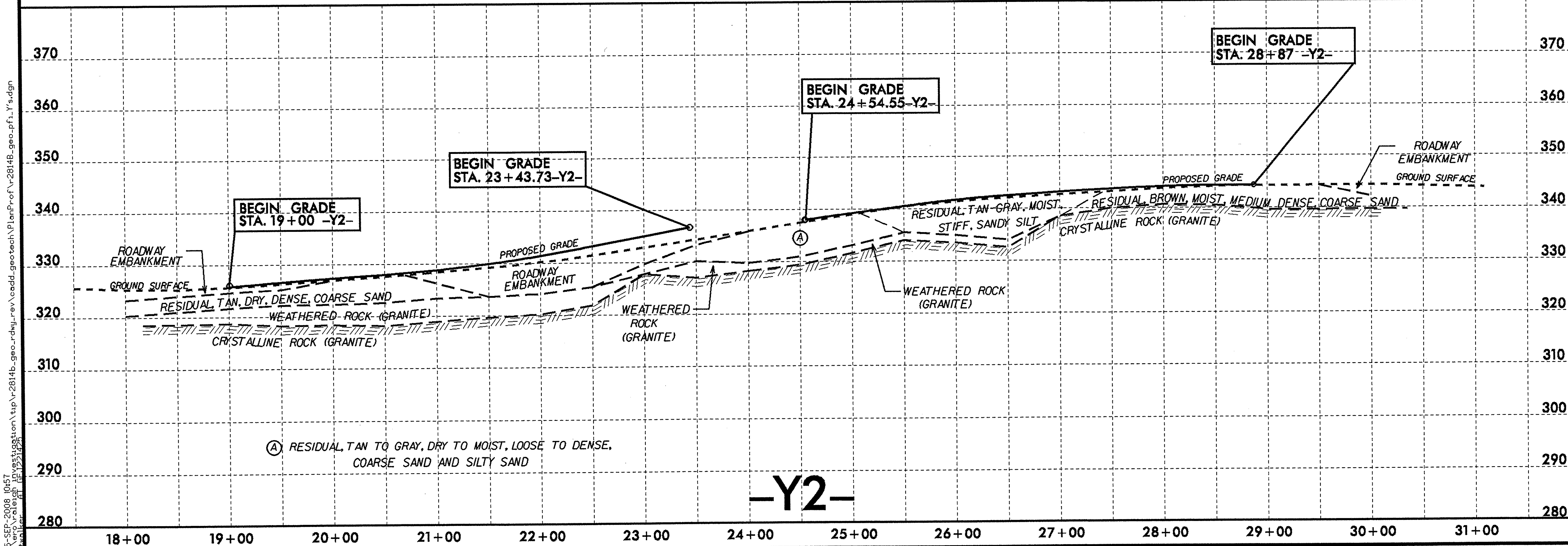
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	42

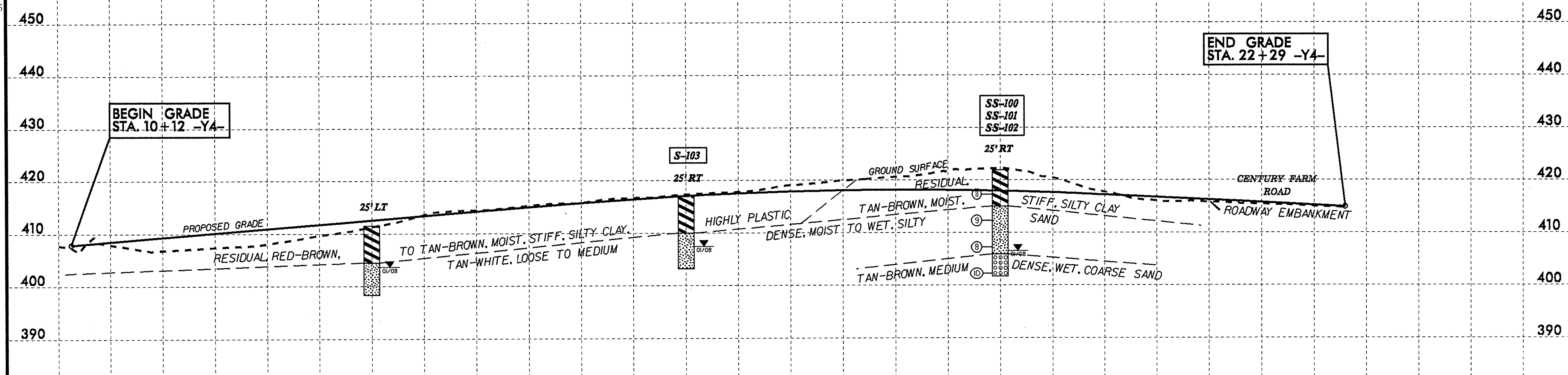
SOIL TEST RESULTS

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-12	CL	20+00	9.0-10.5	A-5(2)	41	9	37.0	19.2	23.6	20.2	97	70	46	-	-
S-11	9' LT	22+30	0.0-1.0	A-4(0)	31	10	42.8	19.4	17.6	20.2	85	58	36	-	-
S-8	5' RT	24+74	0.0-3.0	A-7-6(9)	45	20	30.9	15.2	9.5	44.4	100	77	57	-	-





PROJECT REFERENCE NO.	SHEET NO.
R-2814B	43



SOIL TEST RESULTS

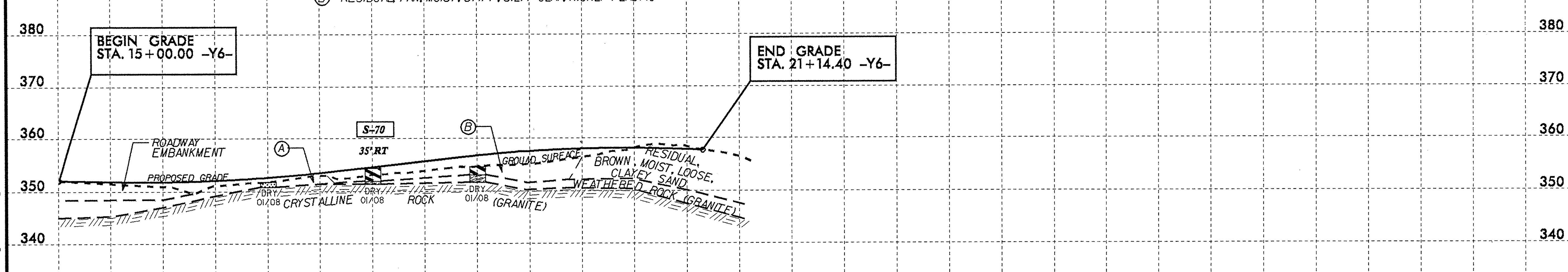
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-103	25' RT	16+00	0.0-5.0	A-7-6(15)	59	30	33.1	9.3	11.1	46.5	97	69	57	-	-
SS-100	25' RT	19+00	3.7-5.2	A-7-5(4)	44	11	28.1	24.2	19.4	28.3	100	79	52	-	-
SS-101	25' RT	19+00	8.7-10.2	A-2-4(0)	39	8	43.4	23.4	19.0	14.1	90	63	34	-	-
SS-102	25' RT	19+00	18.7-20.2	A-1-b(0)	37	6	60.4	18.0	11.5	10.1	90	43	22	-	-

-Y4-

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

Ⓐ RESIDUAL, BROWN-GRAY, MOIST, LOOSE, SILTY SAND

Ⓑ RESIDUAL, TAN, MOIST, STIFF, SILTY CLAY, HIGHLY PLASTIC



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-70	35' RT	18+00	1.0-2.0	A-7-6(9)	51	28	37.9	16.5	13.2	32.3	98	70	47	-	-

-Y6-

330 320 310 300

15+00 16+00 17+00 18+00 19+00 20+00 21+00

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	44

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

360 350 340

5.56:1 6:1 PROPOSED GRADE 3:1 GROUND SURFACE

RESIDUAL, TAN, MOIST, STIFF, SILTY CLAY

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

31+50

S-8

GROUND SURFACE PROPOSED GRADE 3.40:1

RESIDUAL, TAN, MOIST, STIFF, SILTY CLAY

WEATHERED ROCK (GRANITE)

DRY 01/08

CRYSTALLINE ROCK (GRANITE)

31+00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-8	40' LT	31+00	0.0-3.0	A-7-6(9)	45	20	30.9	15.2	9.5	44.4	100	77	57	-	-

370 360 350 340

2:1 6:1 GROUND SURFACE PROPOSED GRADE 4.37:1

WEATHERED ROCK (GRANITE)

RESIDUAL, TAN, MOIST, STIFF, SILTY CLAY

CRYSTALLINE ROCK (GRANITE)

30+50

370 360 350 340

2:1 6:1 GROUND SURFACE PROPOSED GRADE 6:1 2:1 2:1

WEATHERED ROCK (GRANITE)

RESIDUAL, TAN, MOIST, STIFF, SILTY CLAY

CRYSTALLINE ROCK (GRANITE)

30+00

-L-

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

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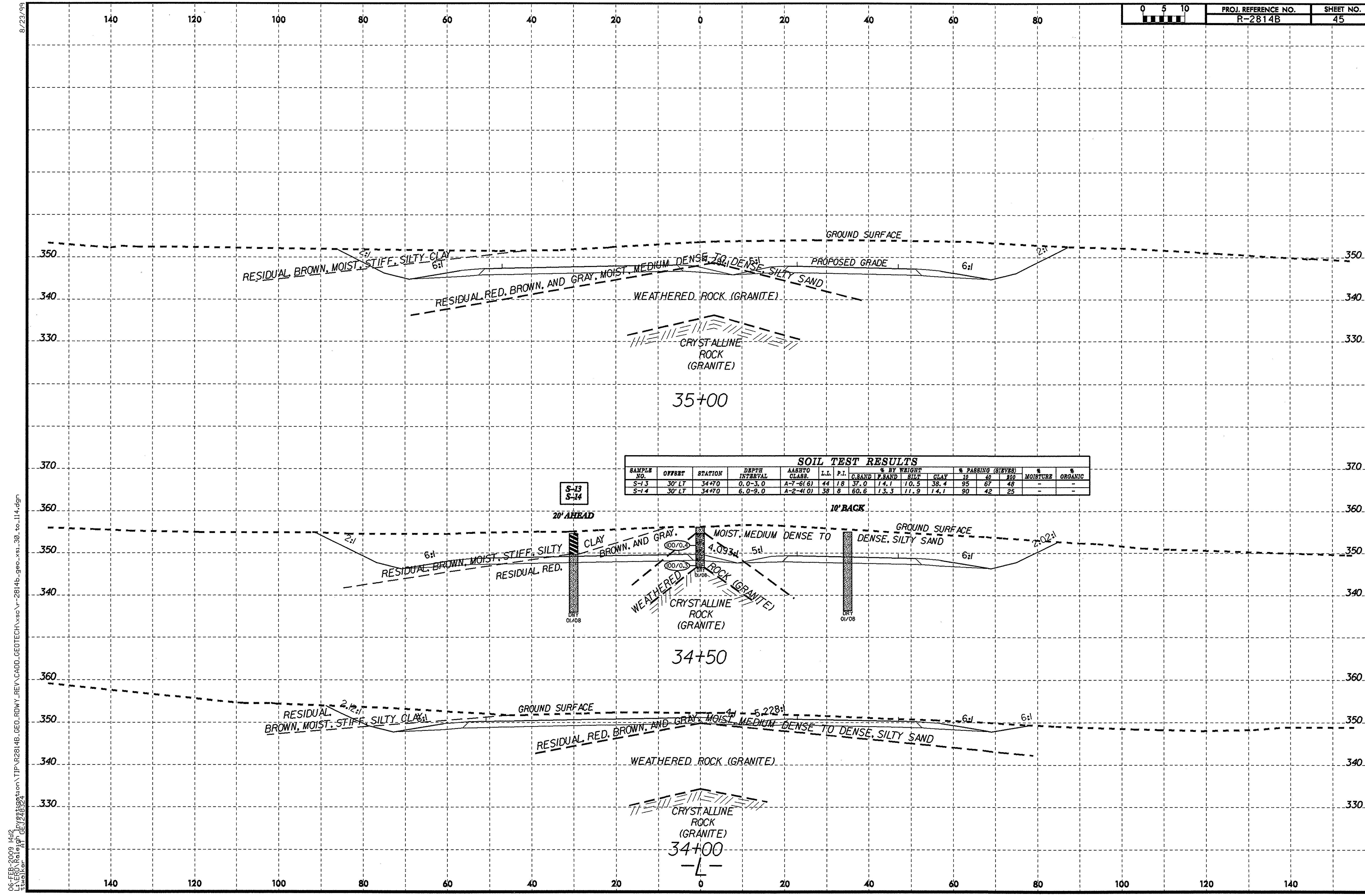
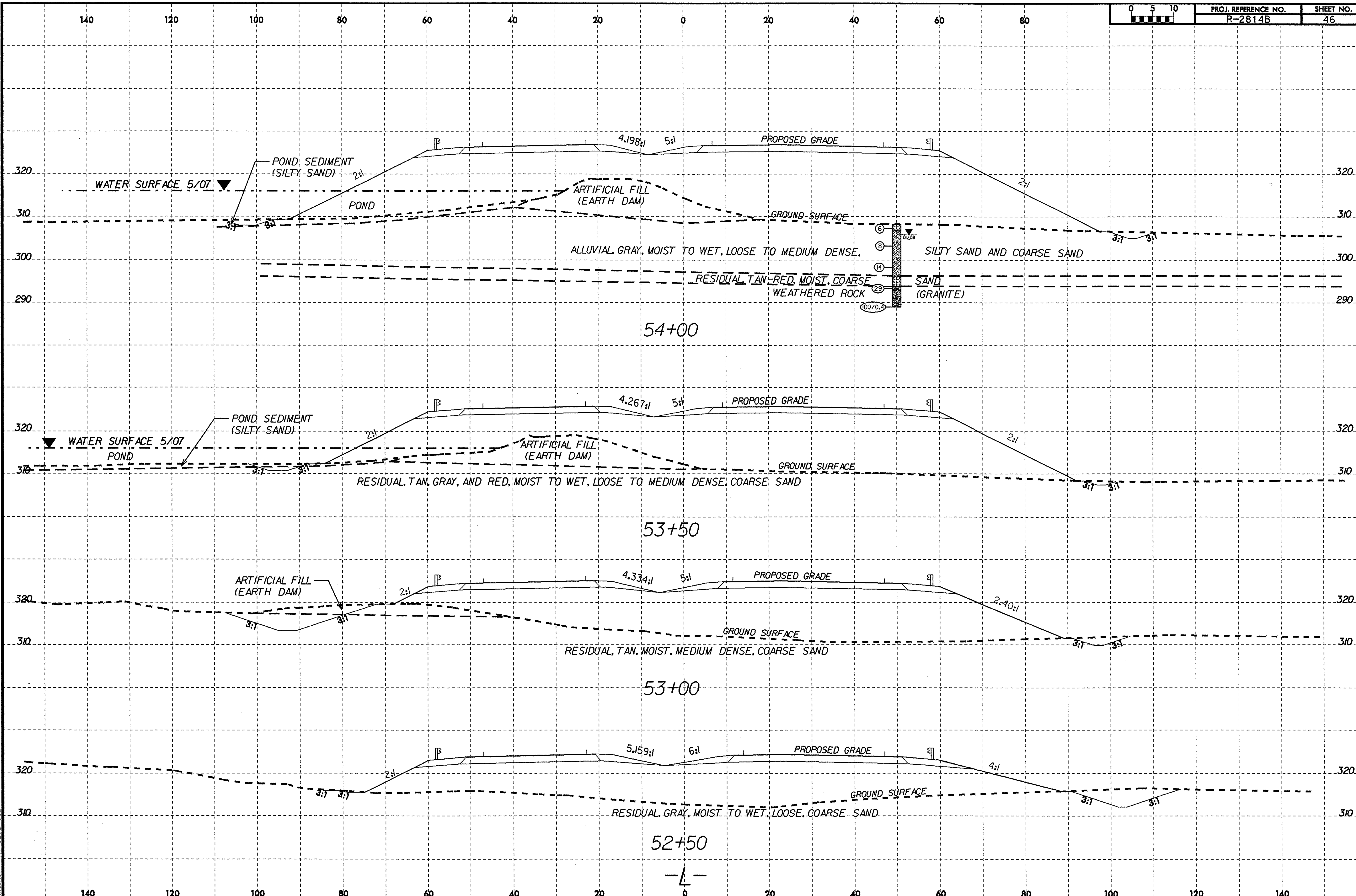
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	45



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-13	30' LT	34+70	0.0-3.0	A-7-6(6)	44	18	37.0	14.1	10.5	38.4	95	67	48	-	-
S-14	30' LT	34+70	6.0-9.0	A-2-4(0)	38	8	60.6	13.3	11.9	14.1	90	42	25	-	-

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	46



0 5 10
PONDED SEDIMENT (SILTY SAND)
WATER SURFACE 5/07
POND
ARTIFICIAL FILL (EARTH DAM)
PROPOSED GRADE
GROUND SURFACE
4.198:1
5:1
2:1
3:1
ALLUVIAL GRAY, MOIST TO WET, LOOSE TO MEDIUM DENSE, SILTY SAND AND COARSE SAND
RESIDUAL TAN-RED, MOIST, COARSE SAND
WEATHERED ROCK (GRANITE)
100/0.4
54+00
4.267:1
RESIDUAL, TAN, GRAY, AND RED, MOIST TO WET, LOOSE TO MEDIUM DENSE, COARSE SAND
53+50
4.334:1
2.40:1
RESIDUAL, TAN, MOIST, MEDIUM DENSE, COARSE SAND
53+00
5.159:1
6:1
4:1
RESIDUAL, GRAY, MOIST TO WET, LOOSE, COARSE SAND
52+50
-L-

8/23/99

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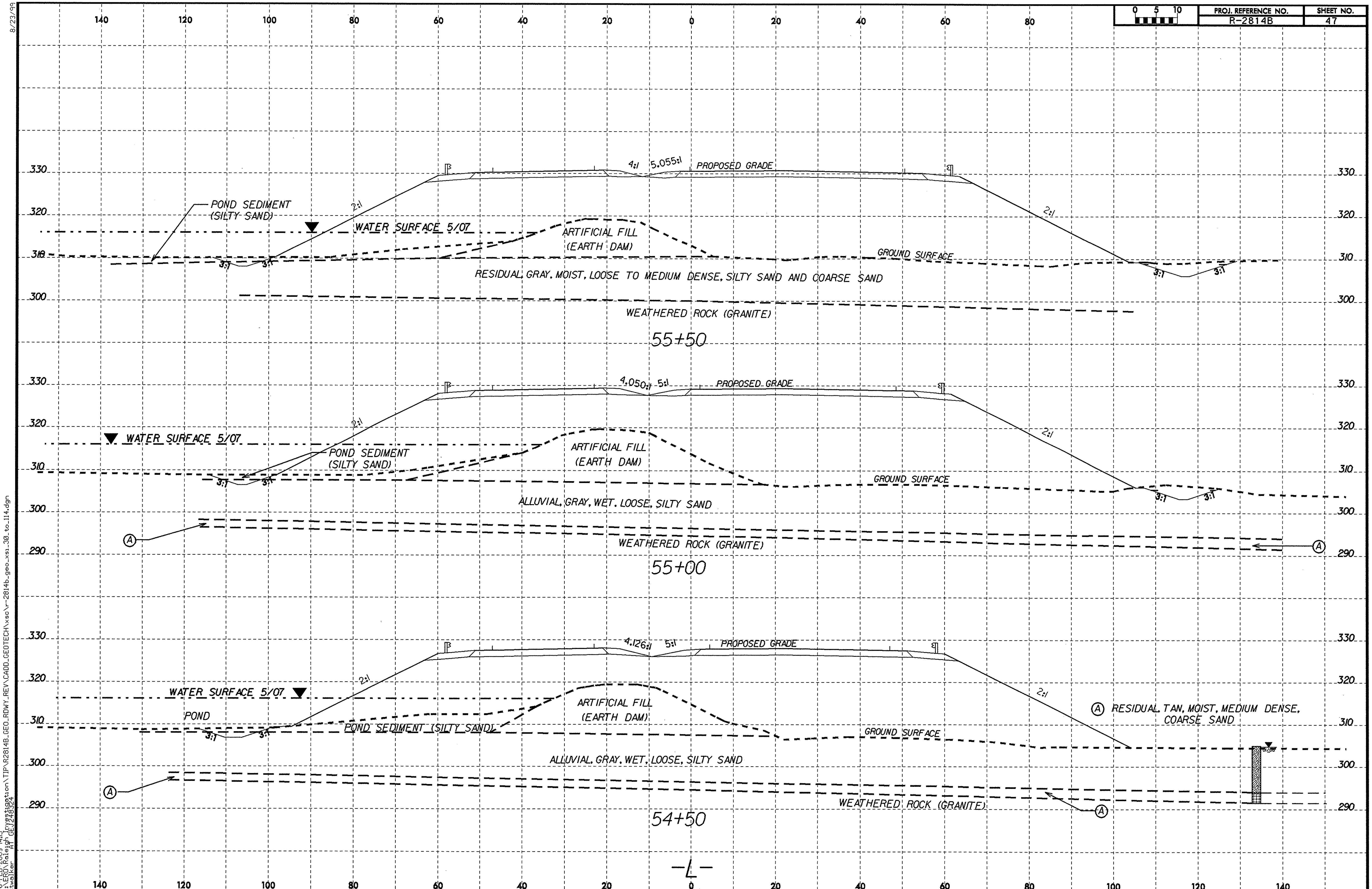
R-2814B	47



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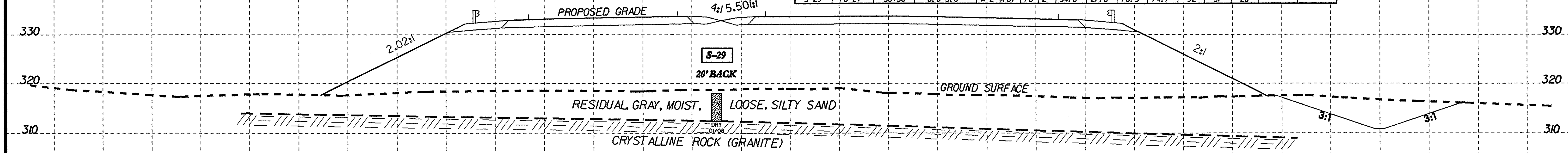
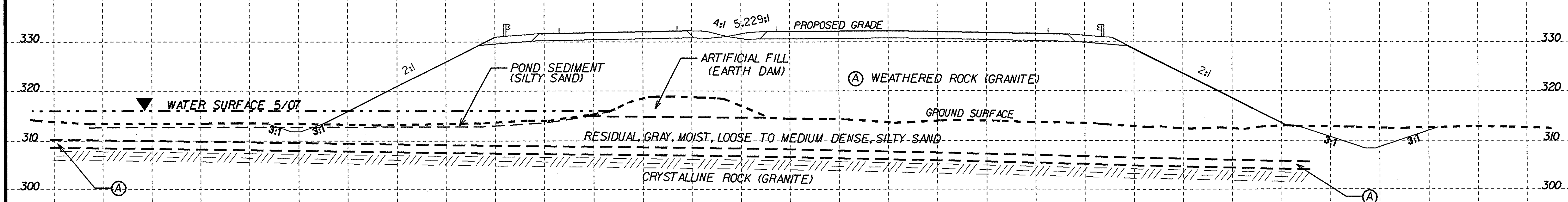
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-29	10' LT	56+30	0.0-3.0	A-2-4(0)	18	2	54.6	21.0	10.3	14.1	92	51	26	-	-



56+50



56+00

-L-

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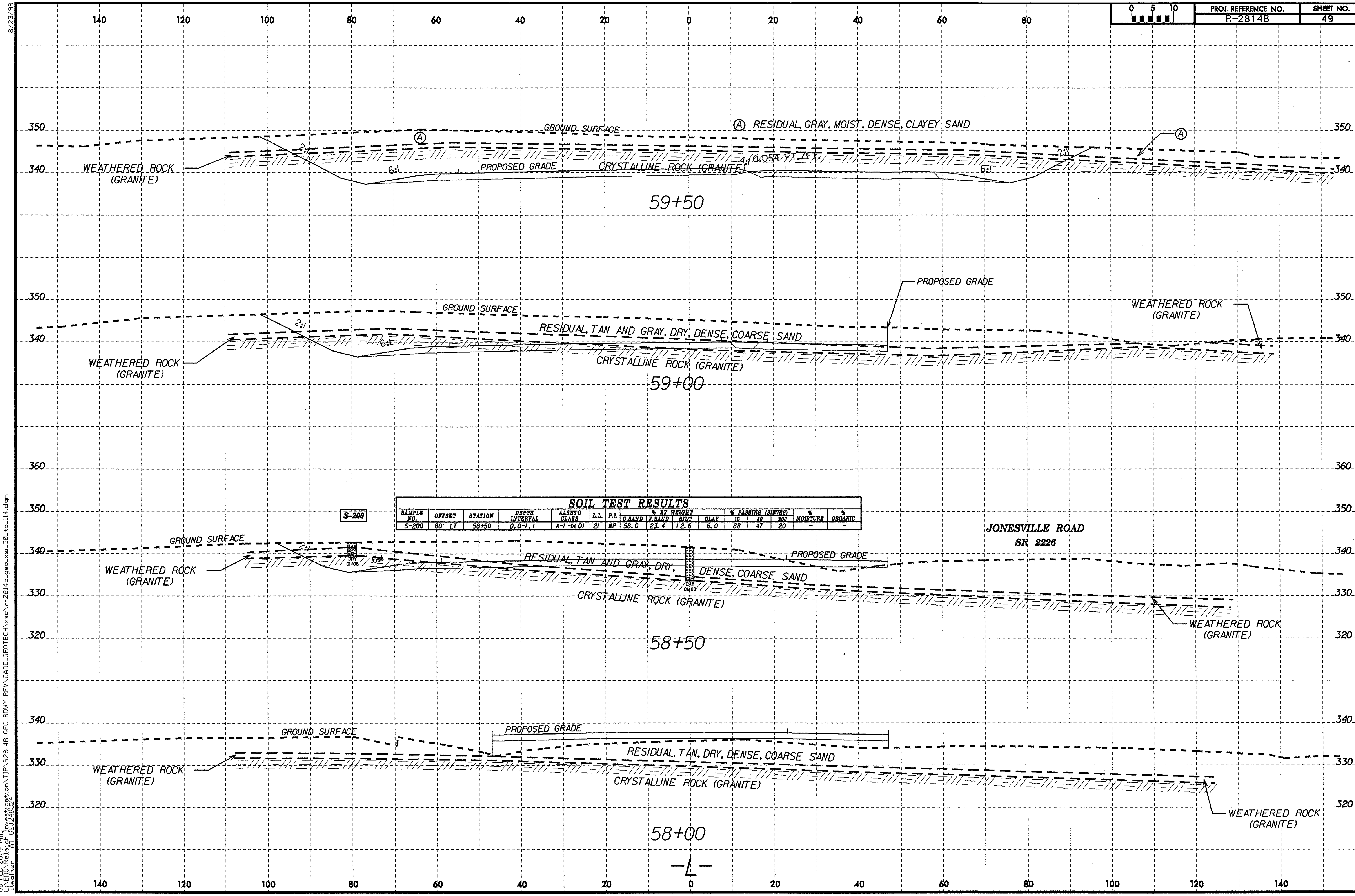
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	49


0 5 10
140 120 100 80 60 40 20 0 20 40 60 80
350
340
GROUND SURFACE
Ⓐ RESIDUAL, GRAY, MOIST, DENSE, CLAYEY SAND
WEATHERED ROCK (GRANITE)
PROPOSED GRADE
CRYSTALLINE ROCK (GRANITE)
0.05 FT./FT.
2:1
6:1
4:1
59+50
350
340
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, TAN AND GRAY, DRY, DENSE, COARSE SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
59+00
360
350
340
330
320
S-200
GROUND SURFACE
WEATHERED ROCK (GRANITE)
RESIDUAL, TAN AND GRAY, DRY, DENSE, COARSE SAND
PROPOSED GRADE
JONESVILLE ROAD
SR 2226
CRYSTALLINE ROCK (GRANITE)
DRY 01/08
58+50
340
330
320
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, TAN, DRY, DENSE, COARSE SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
58+00
-L-
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-200	80' LT	58+50	0.0-1.1	A-1-b(0)	21	NP	58.0	23.4	12.6	6.0	88	47	20	-	-

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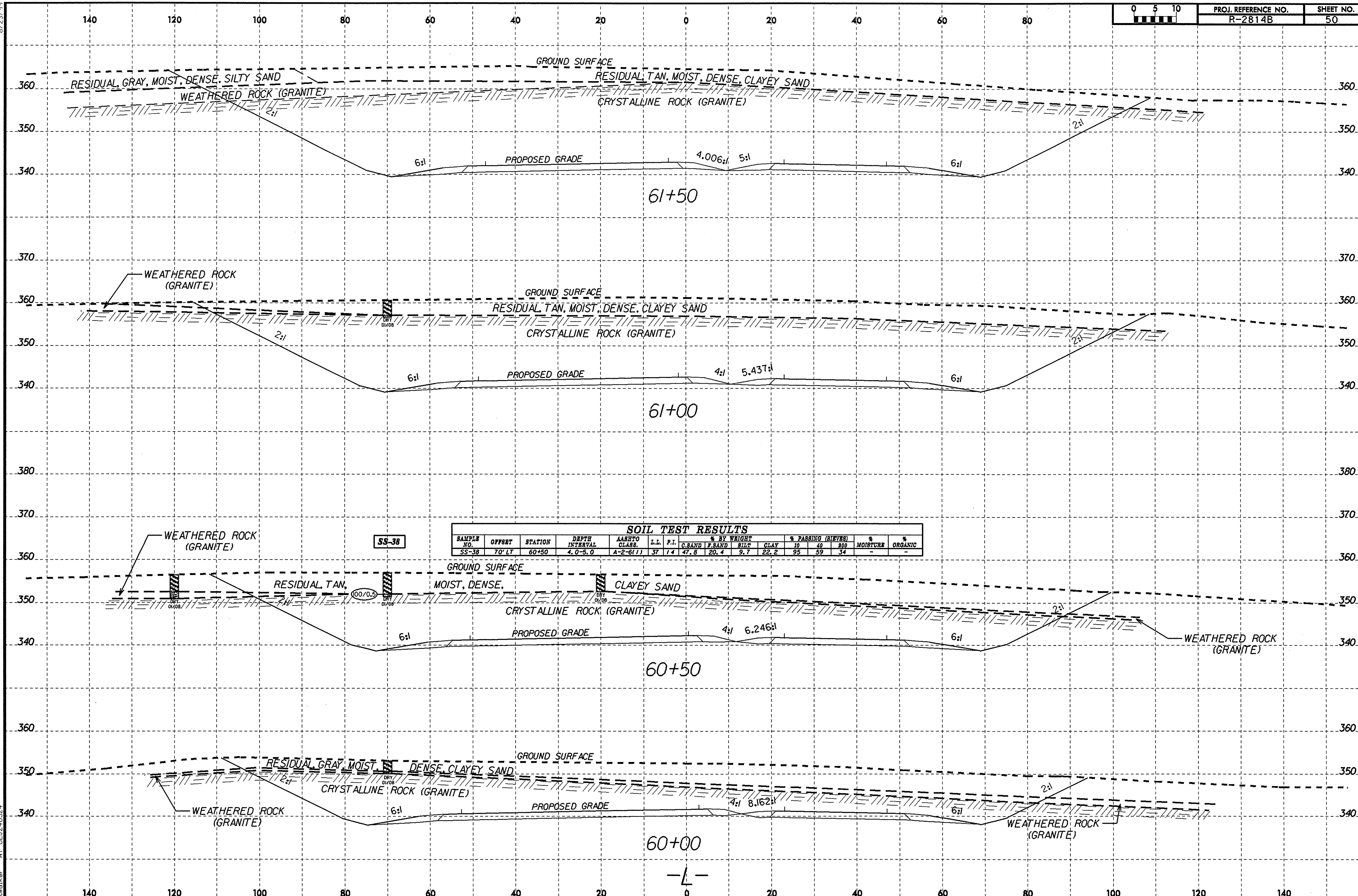
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	50



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-38	70' LT	60+50	4.0-5.0	A-2-6(1)	37	14	47.8	20.4	9.7	22.2	95	59	34	-	-

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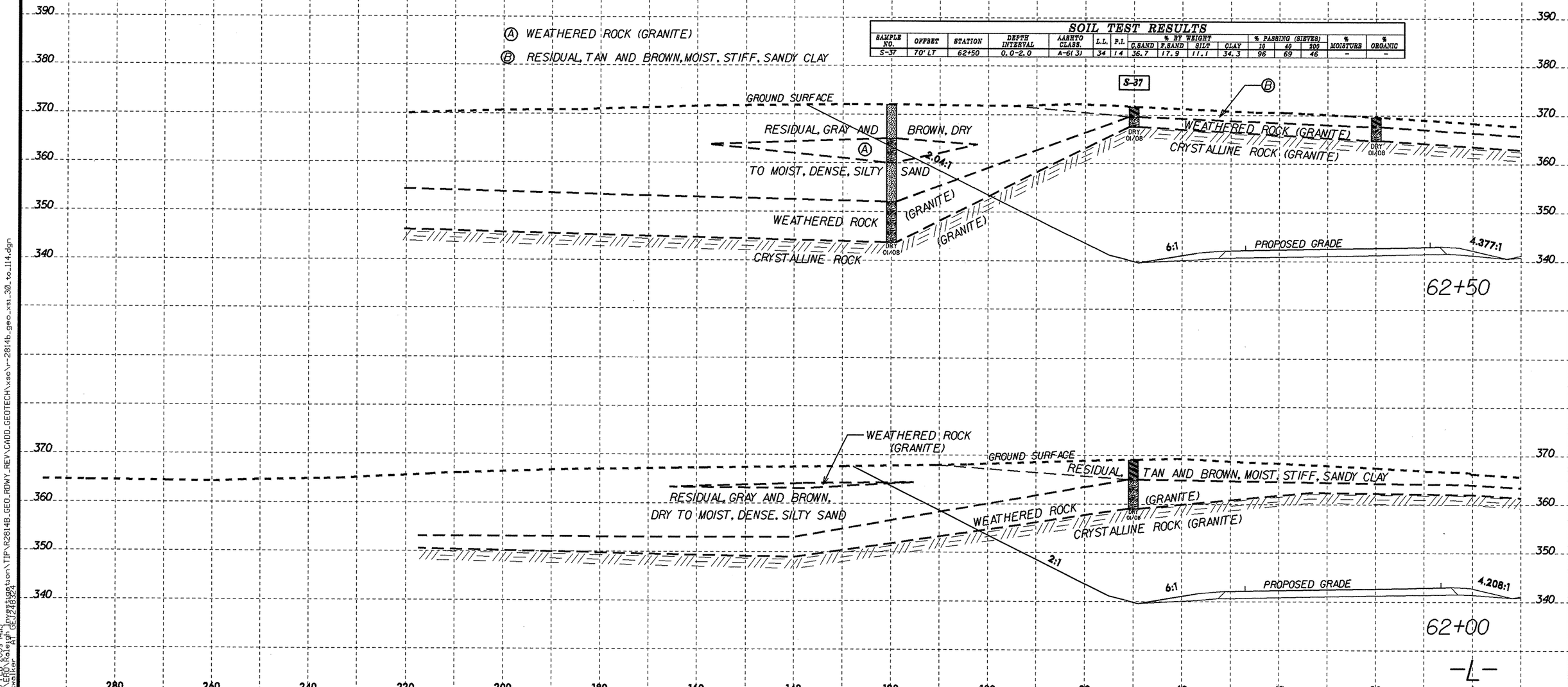
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	51

Ⓐ WEATHERED ROCK (GRANITE)

Ⓑ RESIDUAL, TAN AND BROWN, MOIST, STIFF, SANDY CLAY

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-37	70' LT	62+50	0.0-2.0	A-6(3)	34	14	36.7	17.9	11.1	34.3	96	69	46	-	-



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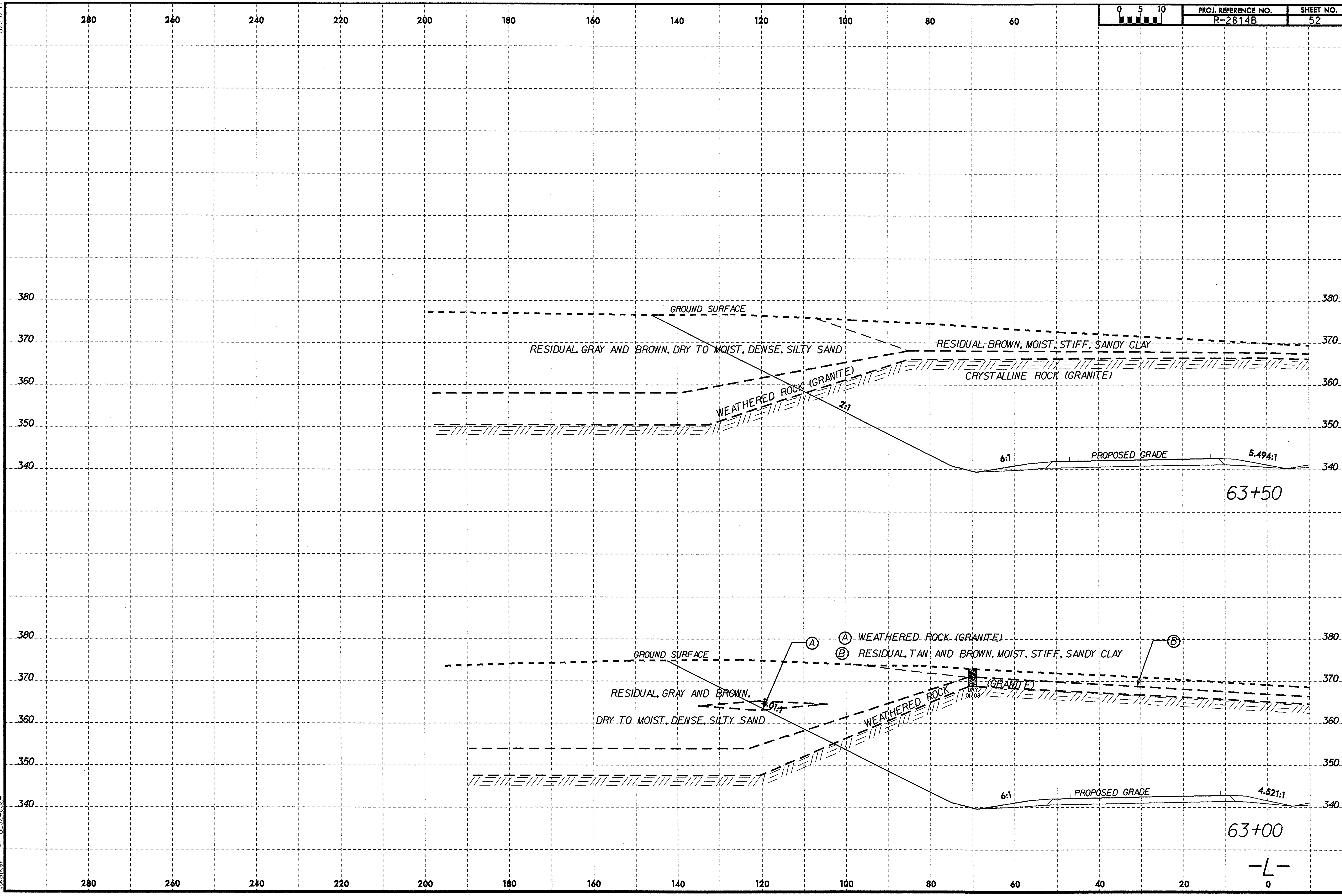
ttwalker
AT GEJ248324

8/23/99



0 5 10
PROJ. REFERENCE NO.
R-2814B
SHEET NO.
52
280
260
240
220
200
180
160
140
120
100
80
60
380
370
360
350
340
GROUND SURFACE
RESIDUAL, GRAY AND BROWN, DRY TO MOIST, DENSE, SILTY SAND
RESIDUAL, BROWN, MOIST, STIFF, SANDY CLAY
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
2:1
6:1
PROPOSED GRADE
5.494:1
63+50
(A) WEATHERED ROCK (GRANITE)
(B) RESIDUAL, TAN AND BROWN, MOIST, STIFF, SANDY CLAY
GROUND SURFACE
RESIDUAL, GRAY AND BROWN,
DRY TO MOIST, DENSE, SILTY SAND
WEATHERED ROCK
(GRANITE)
DRY 01/08
6:1
PROPOSED GRADE
4.521:1
63+00
-L-
40
20
0

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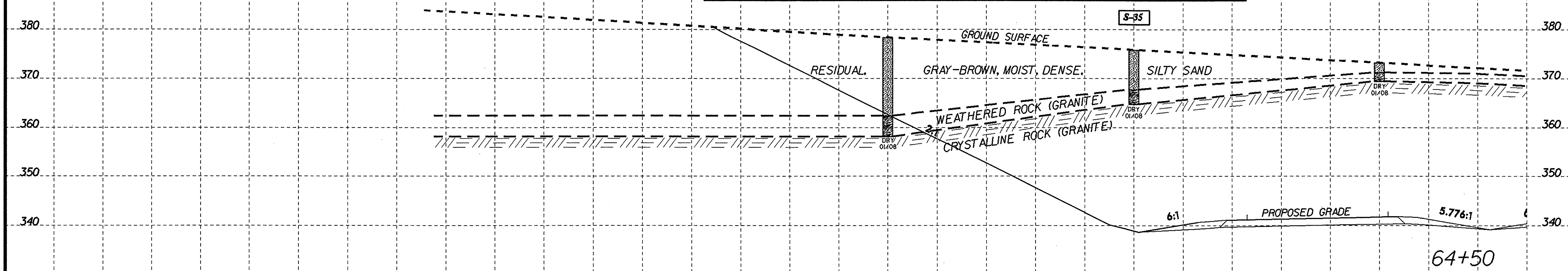
ttwalker AT GE1248324

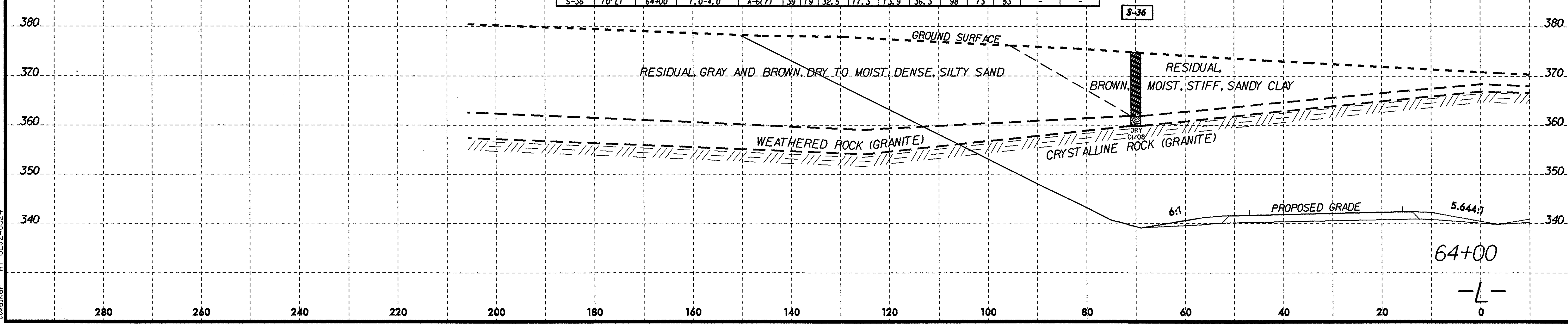
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-35	70' LT	64+50	0.0-3.0	A-2-4(0)	24	4	47.6	22.4	12.9	17.1	95	60	32	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-36	70' LT	64+00	1.0-4.0	A-6(7)	39	19	32.5	17.3	13.9	36.3	98	73	53	-	-



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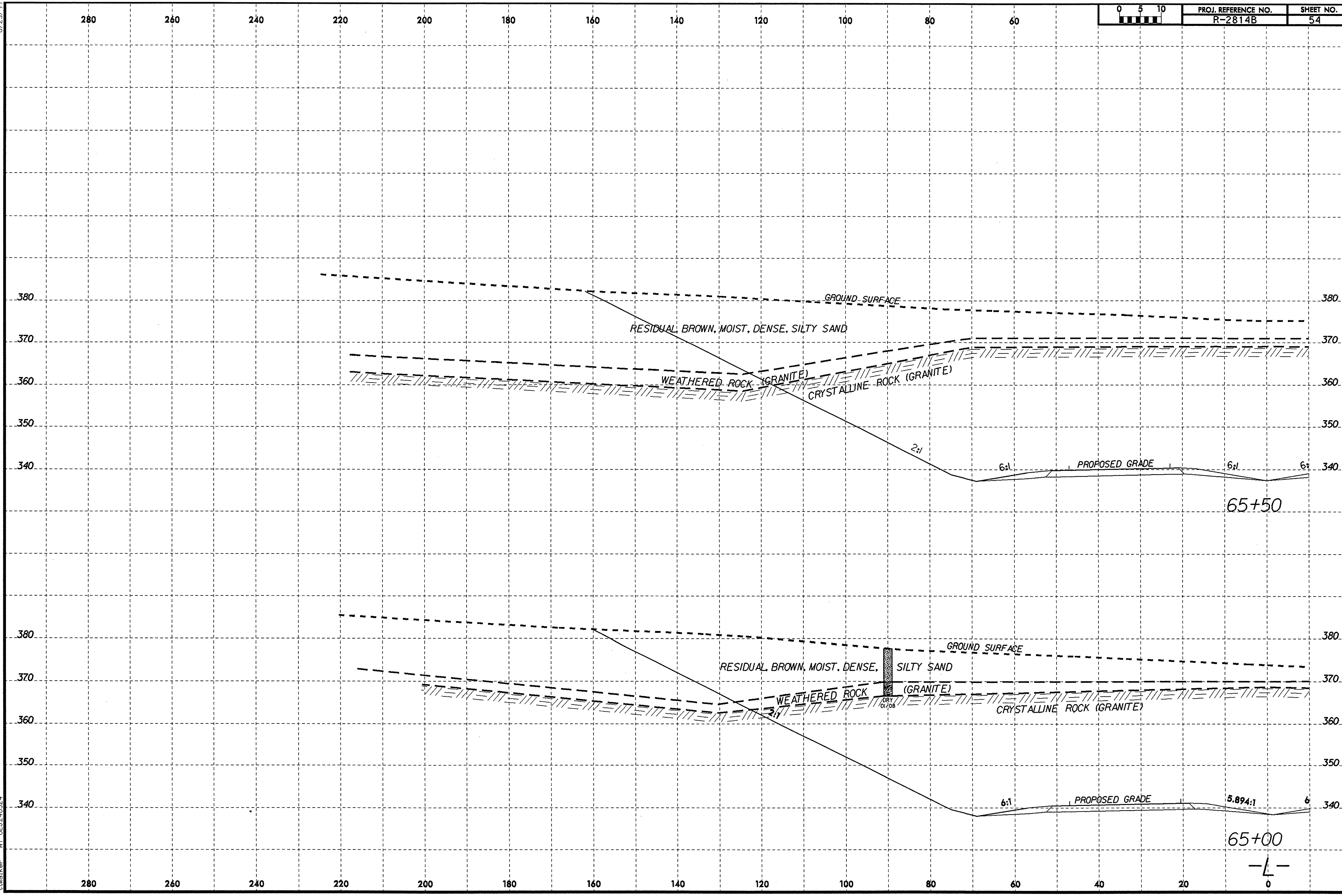


PROJ. REFERENCE NO.
R-2814B
SHEET NO.
54
0 5 10
GROUND SURFACE
RESIDUAL, BROWN, MOIST, DENSE, SILTY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
6:1
PROPOSED GRADE
65+50
GROUND SURFACE
RESIDUAL, BROWN, MOIST, DENSE, SILTY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
DRY 01/08
6:1
PROPOSED GRADE
5.894:1
65+00
-L-
380
370
360
350
340
280 260 240 220 200 180 160 140 120 100 80 60 40 20 0

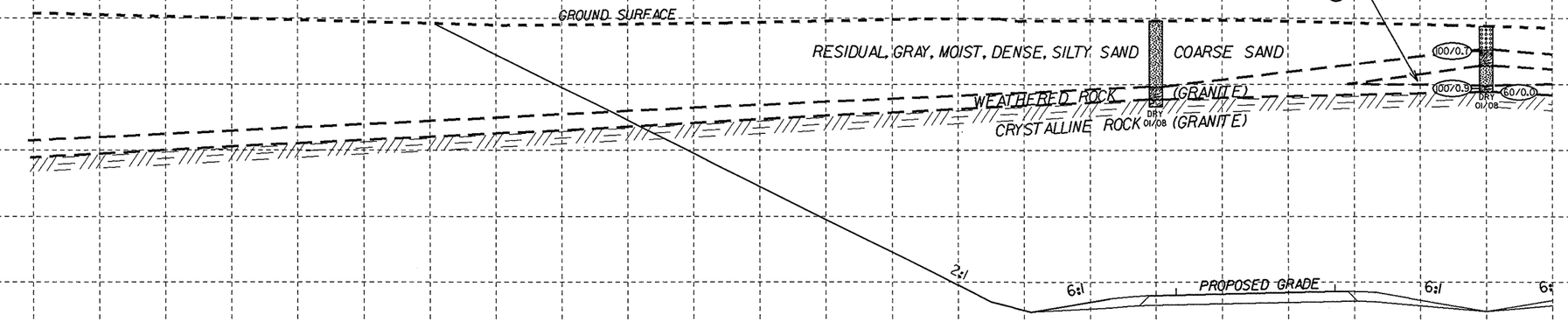
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	55

0 5 10

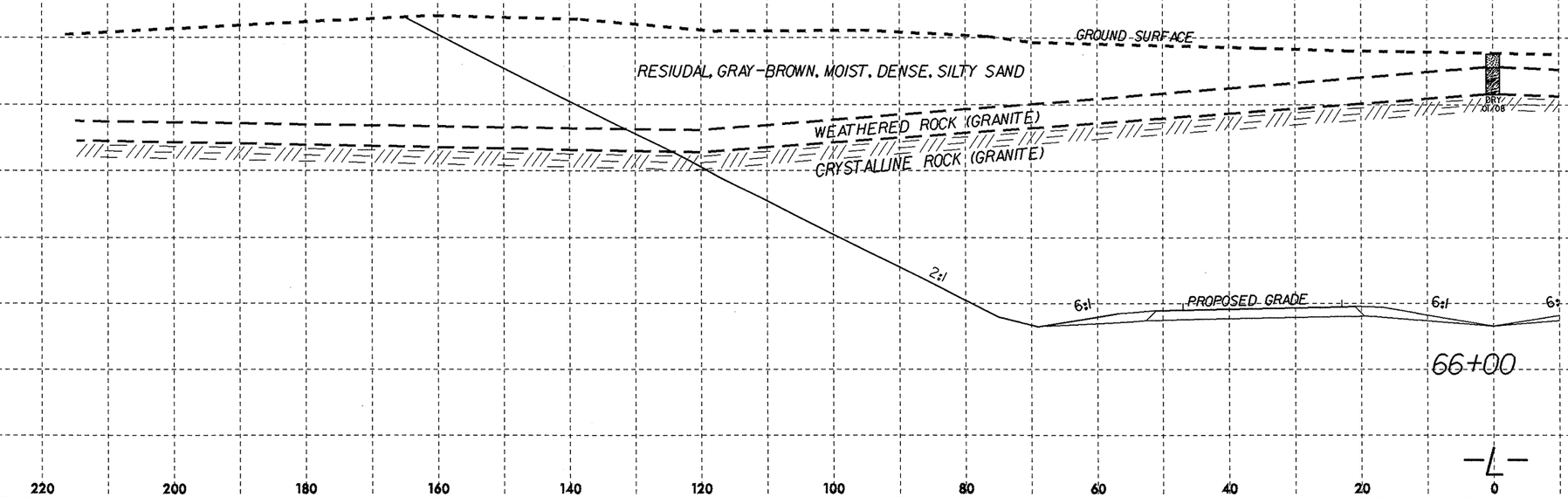
SOIL TEST RESULTS

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-34	CL	66+50	8.0-9.0	A-2-4(0)	30	9	49.8	22.8	9.3	18.1	83	51	26	-	-

Ⓐ RESIDUAL, GRAY AND BROWN, MOIST, MEDIUM DENSE TO DENSE, SILTY SAND



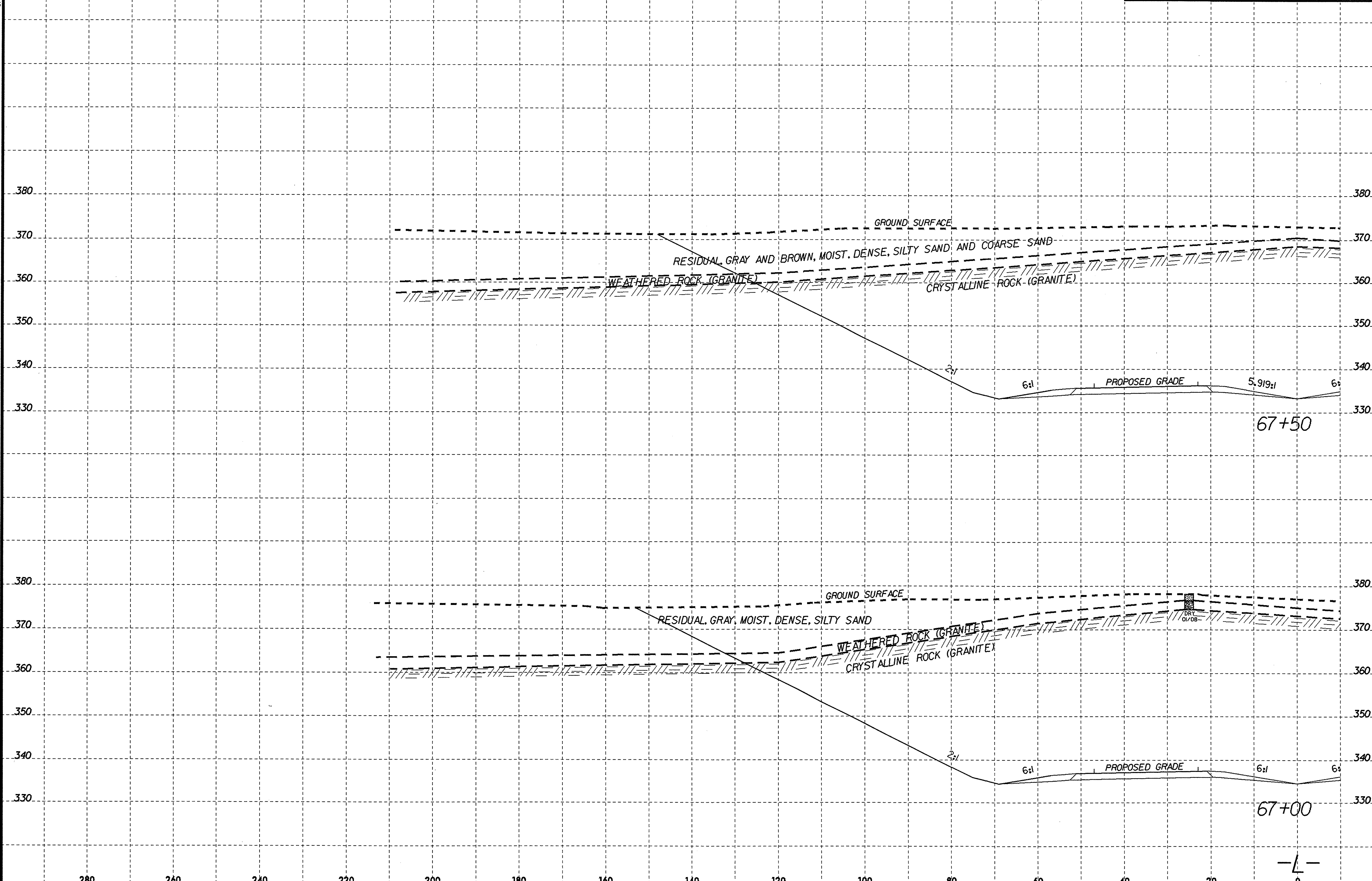
66+50



66+00

-L-

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	56



0 5 10
GROUND SURFACE
RESIDUAL, GRAY AND BROWN, MOIST, DENSE, SILTY SAND AND COARSE SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
6:1
PROPOSED GRADE
5.919:1
67+50
GROUND SURFACE
RESIDUAL, GRAY, MOIST, DENSE, SILTY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
DRY 01/08
2:1
6:1
PROPOSED GRADE
67+00
-L-
280 260 240 220 200 180 160 140 120 100 80 60 40 20 0
380 370 360 350 340 330

8/23/99

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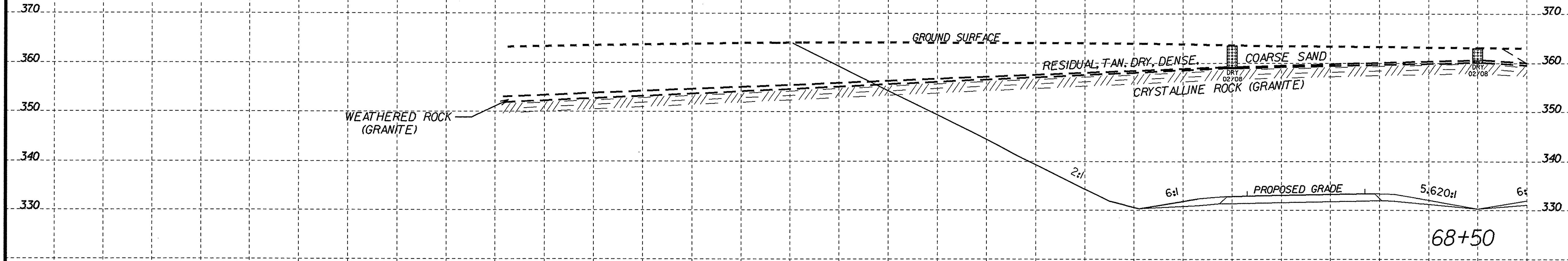
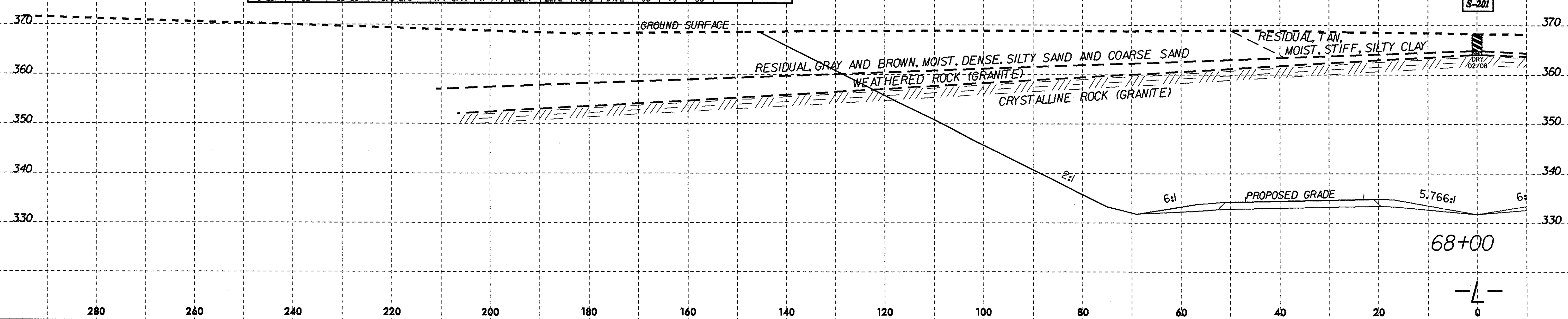
ttwalker AT GEJ248324



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-201	CL	68+00	0.5-2.0	A-7-6(7)	41	19	25.4	22.2	18.2	34.2	95	79	53	-	-



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PROJ. REFERENCE NO.	SHEET NO.
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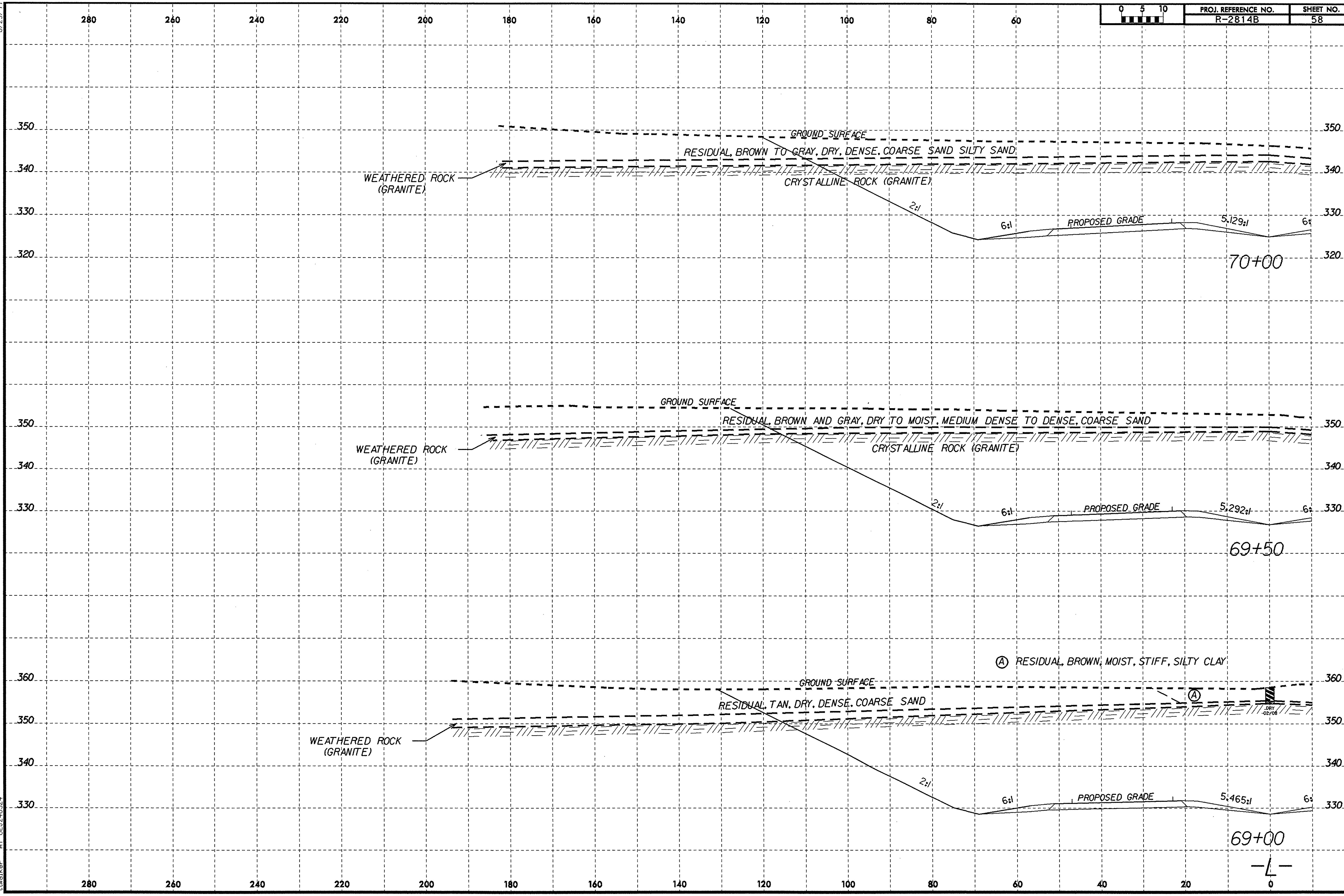

0 5 10
GROUND SURFACE
RESIDUAL, BROWN TO GRAY, DRY, DENSE, COARSE SAND SILTY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
6:1
PROPOSED GRADE
5.129:1
70+00
GROUND SURFACE
RESIDUAL, BROWN AND GRAY, DRY TO MOIST, MEDIUM DENSE TO DENSE, COARSE SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
6:1
PROPOSED GRADE
5.292:1
69+50
Ⓐ RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY
GROUND SURFACE
Ⓐ
RESIDUAL, TAN, DRY, DENSE, COARSE SAND
DRY 02/08
WEATHERED ROCK (GRANITE)
2:1
6:1
PROPOSED GRADE
5.465:1
69+00
-L-
280 260 240 220 200 180 160 140 120 100 80 60 40 20 0
360 350 340 330 320

8/23/99

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	59

280 260 240 220 200 180 160 140 120 100 80 60

340
330
320

PROPOSED GRADE

GROUND SURFACE

WEATHERED ROCK (GRANITE)

RESIDUAL, BROWN TO GRAY, DRY, MEDIUM DENSE TO DENSE, SILTY SAND AND COARSE SAND

CRYSTALLINE ROCK (GRANITE)

2:1

6:1

4.894:1

6:1

71+50

GROUND SURFACE

WEATHERED ROCK (GRANITE)

RESIDUAL, BROWN TO GRAY, DRY, MEDIUM DENSE TO DENSE, SILTY SAND AND COARSE SAND

CRYSTALLINE ROCK (GRANITE)

2:1

6:1

PROPOSED GRADE

4.894:1

6:1

71+00

350
340
330
320

GROUND SURFACE

WEATHERED ROCK (GRANITE)

RESIDUAL, BROWN TO GRAY, DRY, DENSE, COARSE SAND

DRY 02.08

CRYSTALLINE ROCK (GRANITE)

2:1

6:1

PROPOSED GRADE

4.977:1

6:1

70+50

-L-

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0

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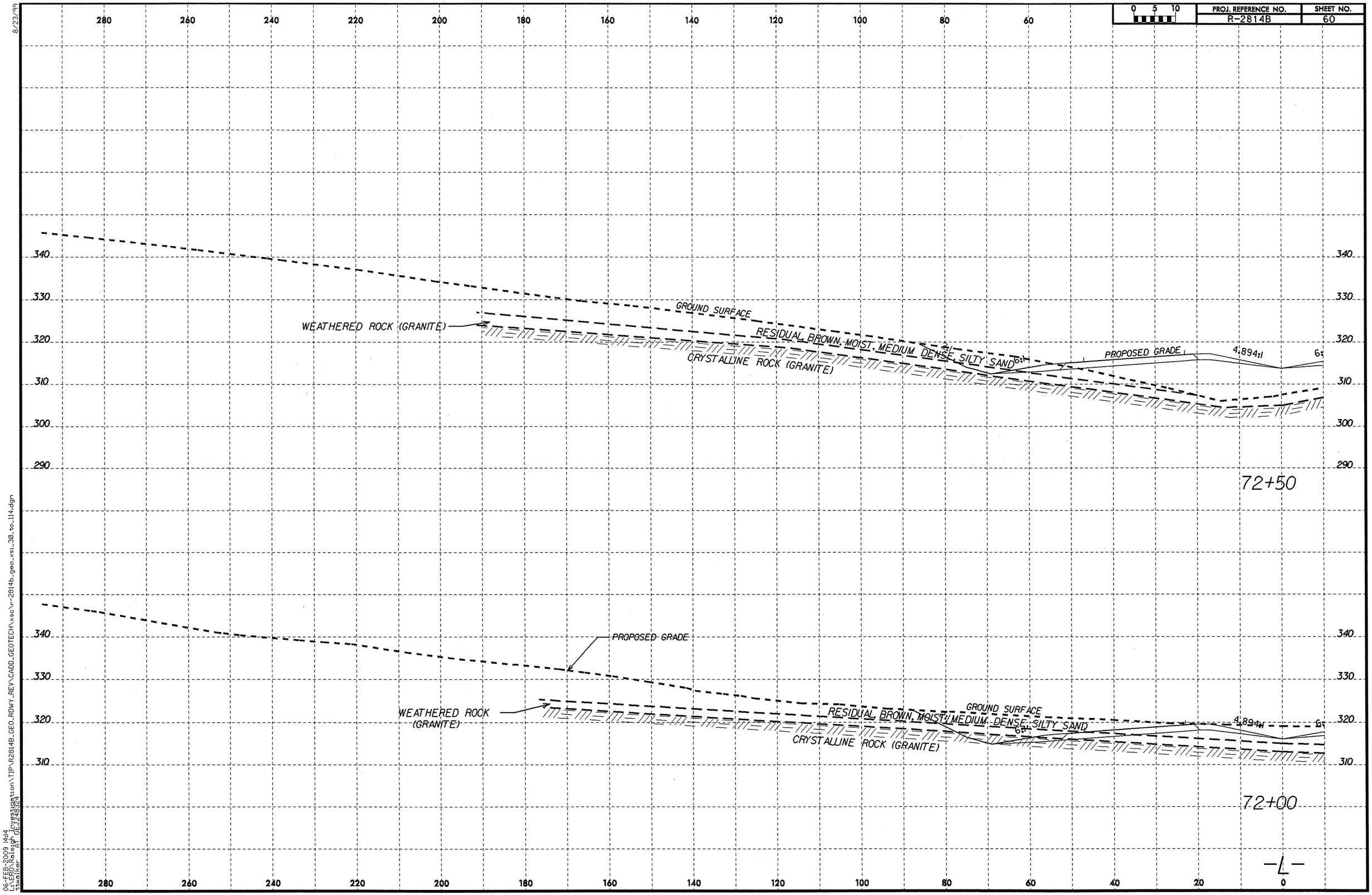
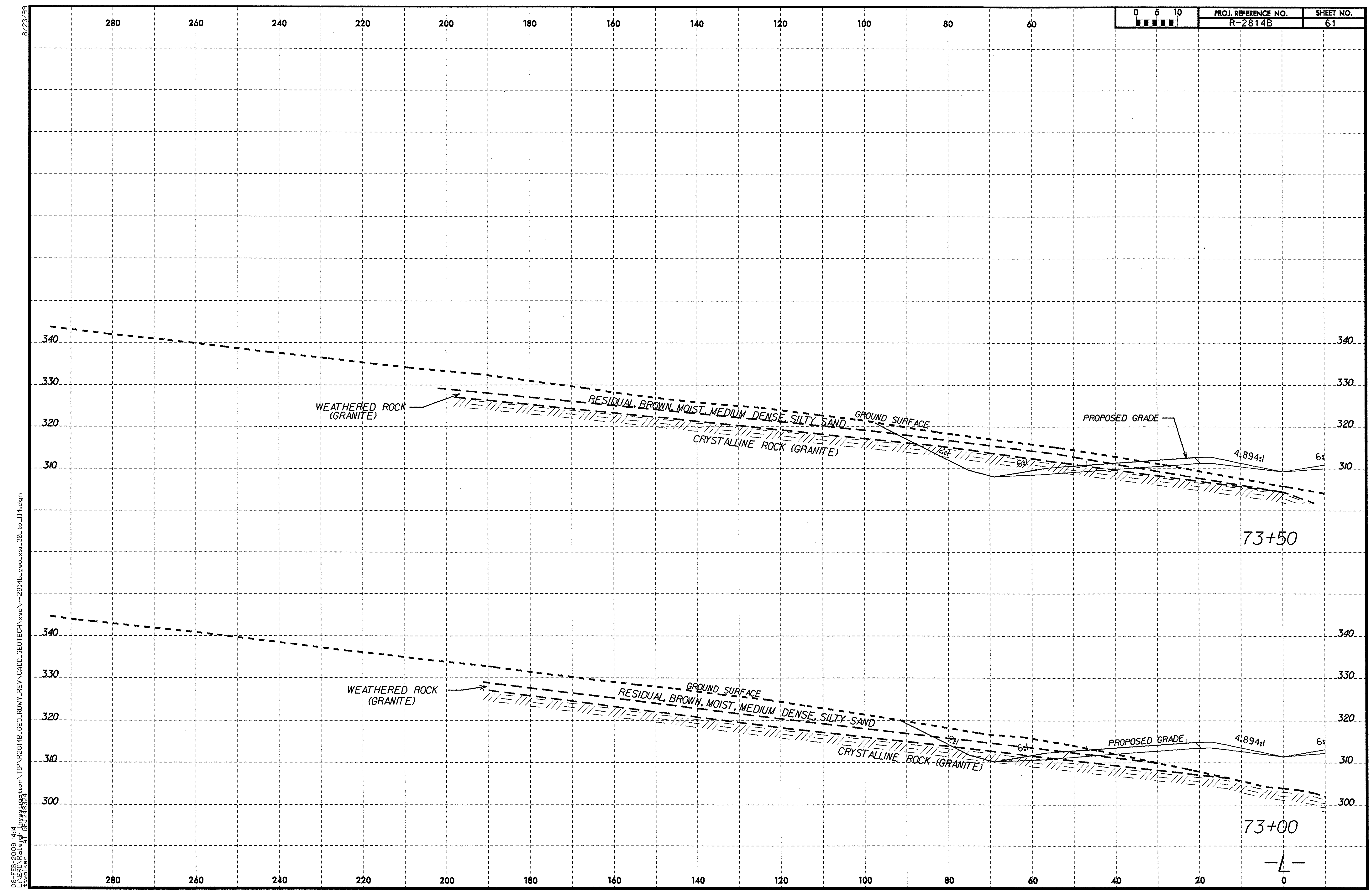
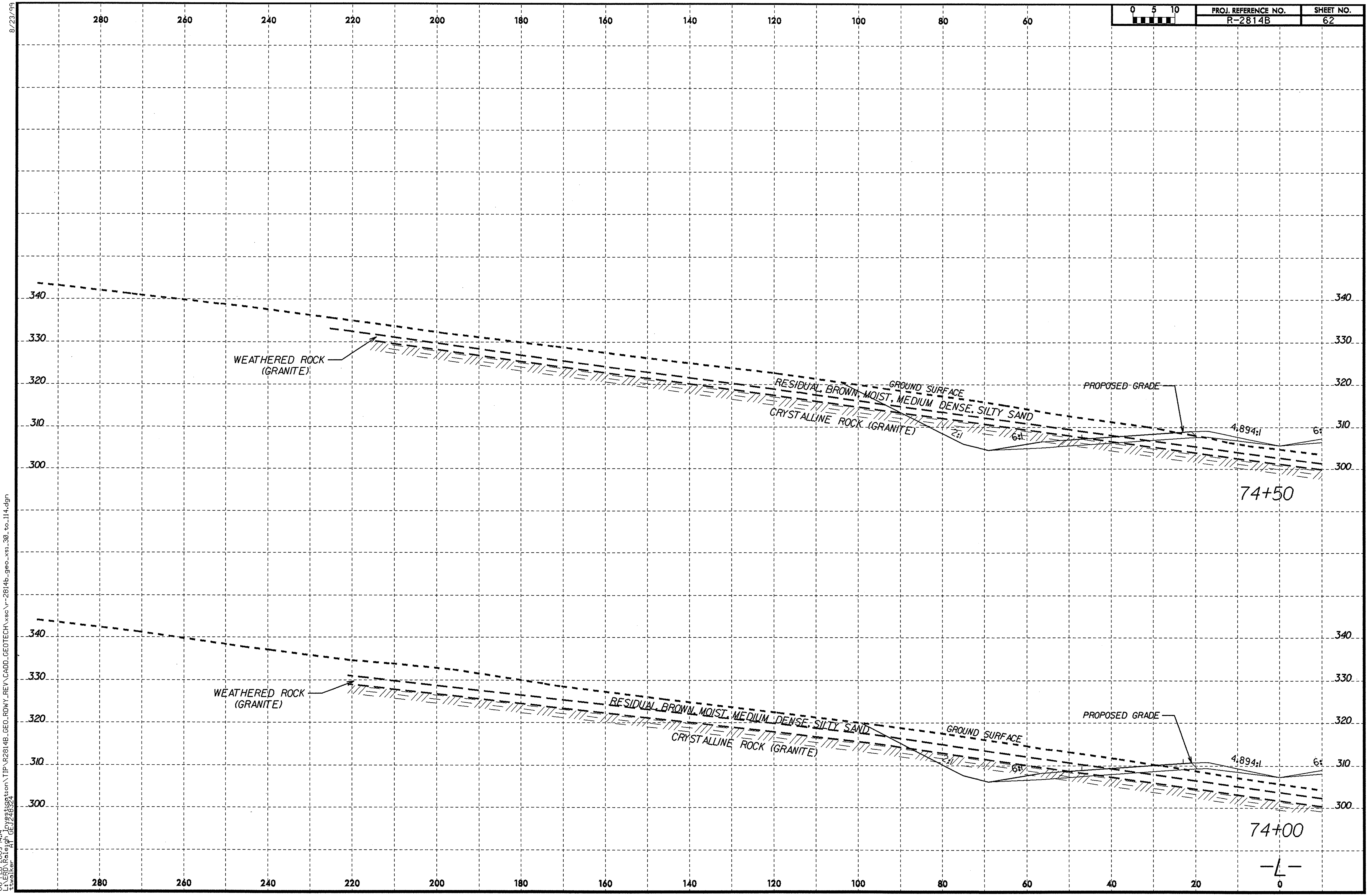
tswalker
AT GEOPAK24

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	60





PROJ. REFERENCE NO.
R-2814B
SHEET NO.
61
0 5 10
WEATHERED ROCK (GRANITE)
RESIDUAL, BROWN, MOIST, MEDIUM DENSE, SILTY SAND
GROUND SURFACE
CRYSTALLINE ROCK (GRANITE)
PROPOSED GRADE
4.894:1
73+50
73+00
-L-
8/23/99
06-FEB-2009 14:14



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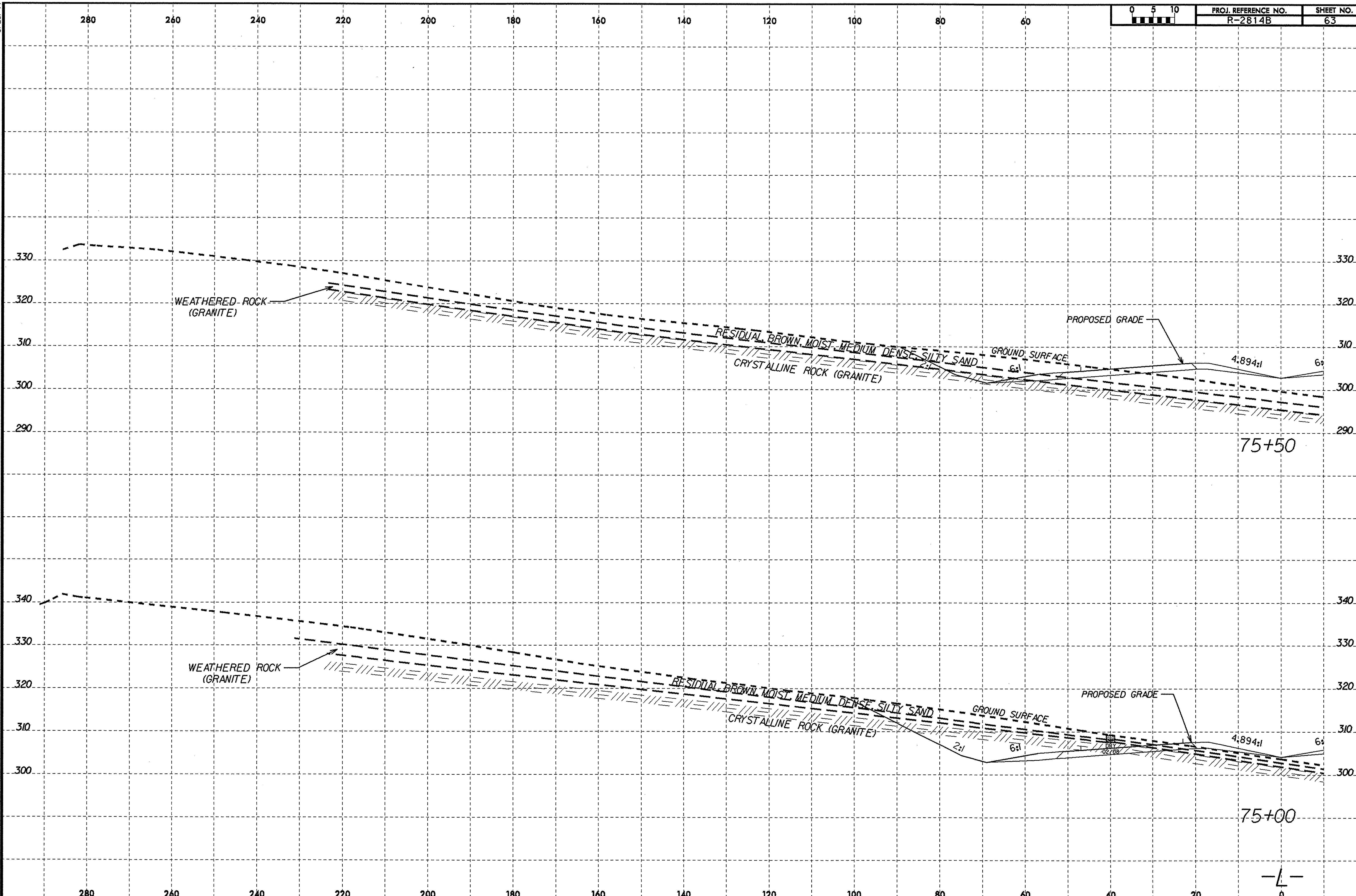
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	63



0 5 10
280 260 240 220 200 180 160 140 120 100 80 60 40 20 0
330
320
310
300
290
WEATHERED ROCK (GRANITE)
RESIDUAL BROWN MOIST MEDIUM DENSE SILTY SAND
CRYSTALLINE ROCK (GRANITE)
GROUND SURFACE
PROPOSED GRADE
6:1
4.894:1
75+50
340
330
320
310
300
WEATHERED ROCK (GRANITE)
RESIDUAL BROWN MOIST MEDIUM DENSE SILTY SAND
CRYSTALLINE ROCK (GRANITE)
GROUND SURFACE
PROPOSED GRADE
2:1
6:1
4.894:1
75+00
-L-

8/23/99

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ttwalker AT GE1248324

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	64

280 260 240 220 200 180 160 140 120 100 80 60

290 280 270 260 250 240

PROPOSED GRADE 4:894:1 6:

2.03:1

GROUND SURFACE

RESIDUAL, TAN, DRY TO MOIST, LOOSE TO VERY DENSE, COARSE SAND

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

77+00

310 300 290 280

PROPOSED GRADE 4:894:1 6:

GROUND SURFACE

RESIDUAL, TAN, DRY TO MOIST, LOOSE TO VERY DENSE, COARSE SAND

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

76+50

320 310 300 290

WEATHERED ROCK (GRANITE)

GROUND SURFACE

6:1

PROPOSED GRADE 4:894:1 6:

RESIDUAL, BROWN, MEDIUM DENSE, SILTY SAND

CRYSTALLINE ROCK (GRANITE)

76+00

-L-

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0

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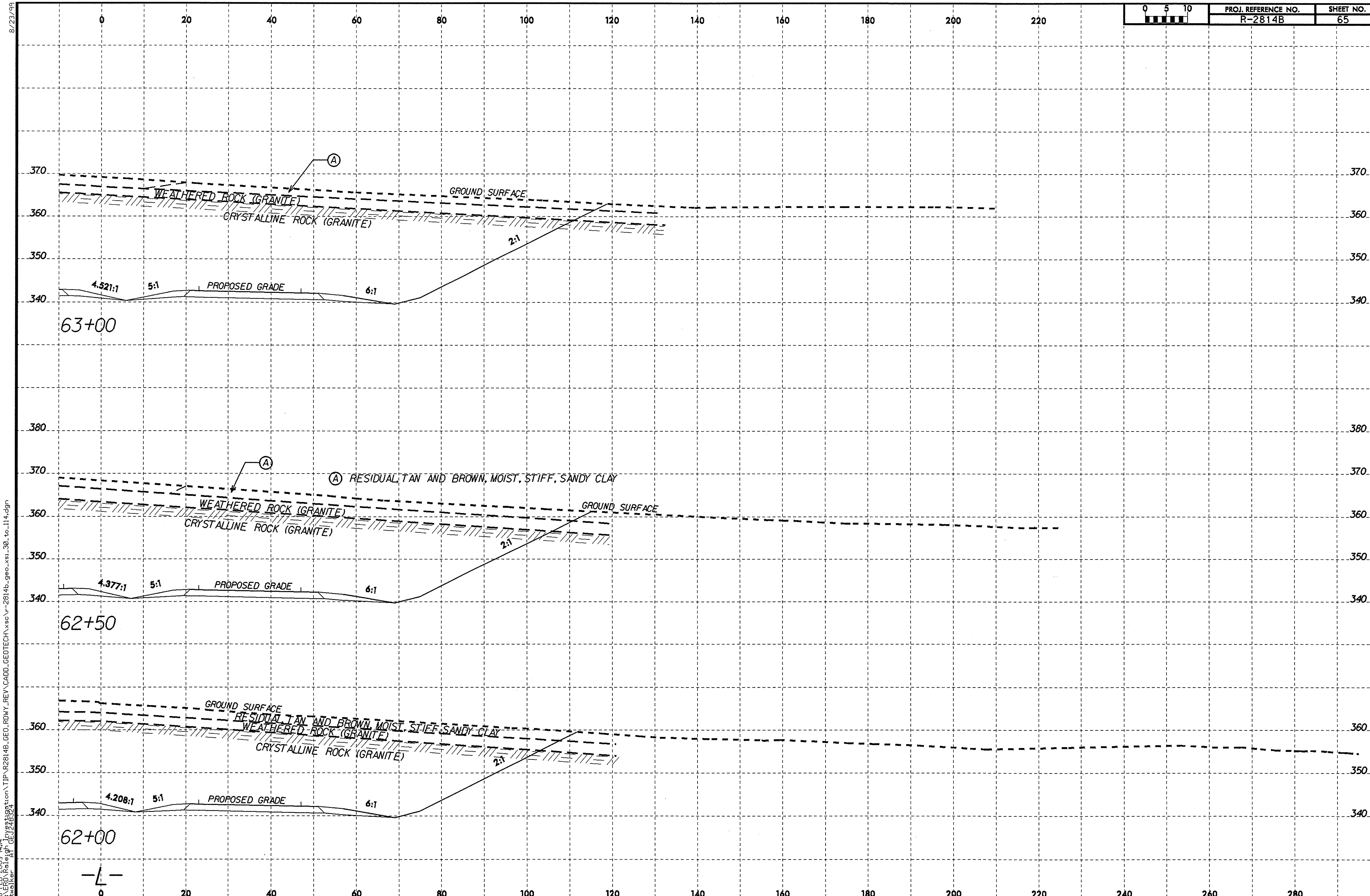
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	65



0 5 10
0 20 40 60 80 100 120 140 160 180 200 220
370
360
350
340
(A)
GROUND SURFACE
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
4.521:1
5:1
PROPOSED GRADE
6:1
63+00
380
370
360
350
340
(A)
(A) RESIDUAL, TAN AND BROWN, MOIST, STIFF, SANDY CLAY
GROUND SURFACE
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
4.377:1
5:1
PROPOSED GRADE
6:1
62+50
GROUND SURFACE
RESIDUAL, TAN AND BROWN, MOIST, STIFF SANDY CLAY
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
360
350
340
4.208:1
5:1
PROPOSED GRADE
6:1
62+00
-L-
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

8/23/99

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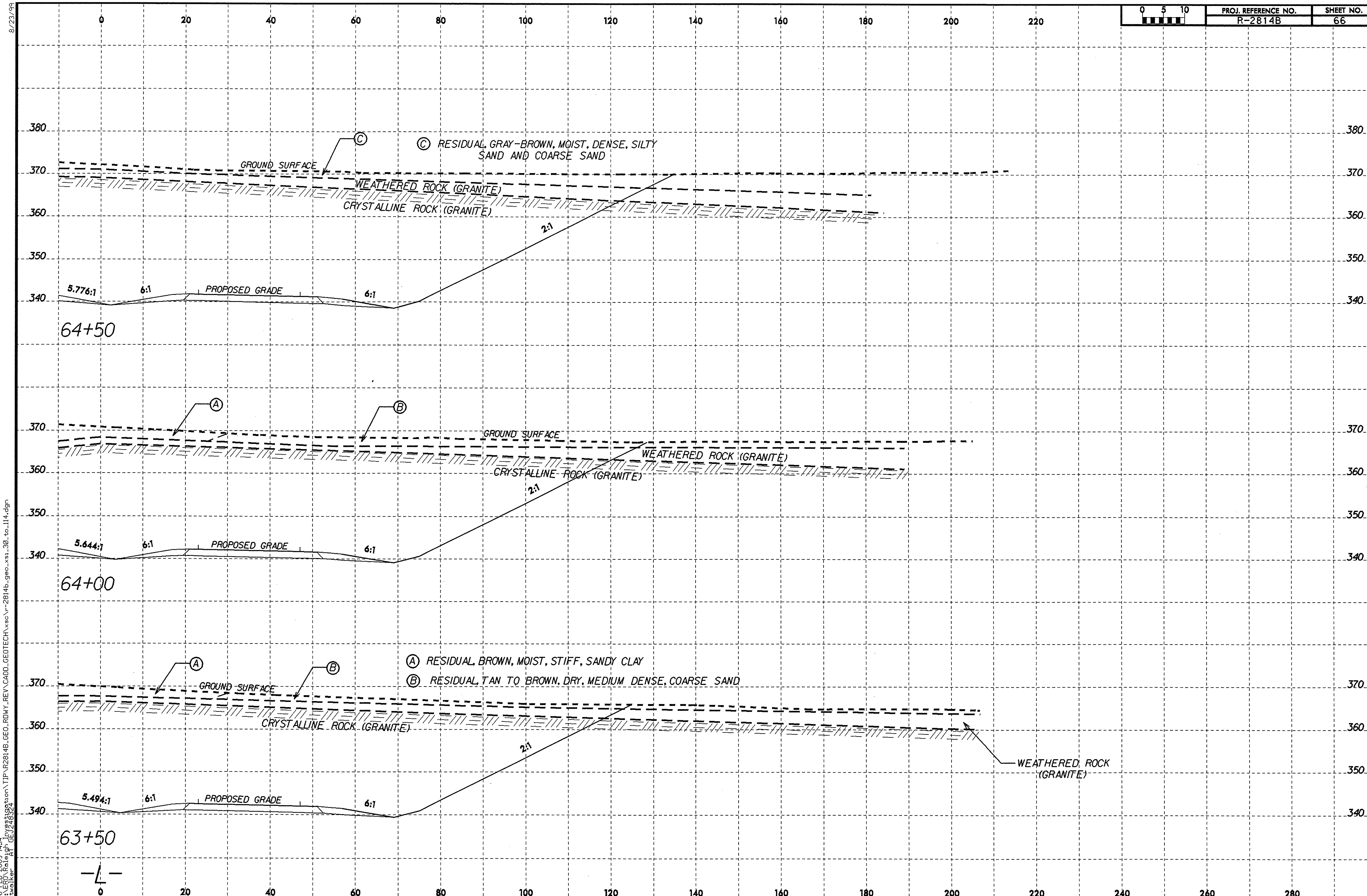
ttwalker AT GEJ248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	66



0 5 10
Ⓒ RESIDUAL, GRAY-BROWN, MOIST, DENSE, SILTY SAND AND COARSE SAND
GROUND SURFACE
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
5.776:1
6:1
PROPOSED GRADE
6:1
64+50
GROUND SURFACE
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
5.644:1
6:1
PROPOSED GRADE
6:1
64+00
Ⓐ RESIDUAL, BROWN, MOIST, STIFF, SANDY CLAY
Ⓑ RESIDUAL, TAN TO BROWN, DRY, MEDIUM DENSE, COARSE SAND
GROUND SURFACE
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
2:1
5.494:1
6:1
PROPOSED GRADE
6:1
63+50
-L-

8/23/99

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ttwalker AT GE1248324

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	67

0 5 10

0 20 40 60 80 100 120 140 160 180 200 220

380
370
360
350
340

BRY 10/06

RESIDUAL, BROWN, MOIST, MEDIUM DENSE TO DENSE, SILTY SAND AND COARSE SAND
GROUND SURFACE
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)

6:1 6:1 PROPOSED GRADE 6:1 2:1

66+00

GROUND SURFACE
RESIDUAL, BROWN, MOIST, MEDIUM DENSE TO DENSE, SILTY SAND AND COARSE SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)

6:1 6:1 PROPOSED GRADE 6:1 2:1

65+50

GROUND SURFACE
RESIDUAL, BROWN, MOIST, MEDIUM DENSE TO DENSE, SILTY SAND AND COARSE SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)

5.894:1 6:1 PROPOSED GRADE 6:1 2:1

65+00

-L-

0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

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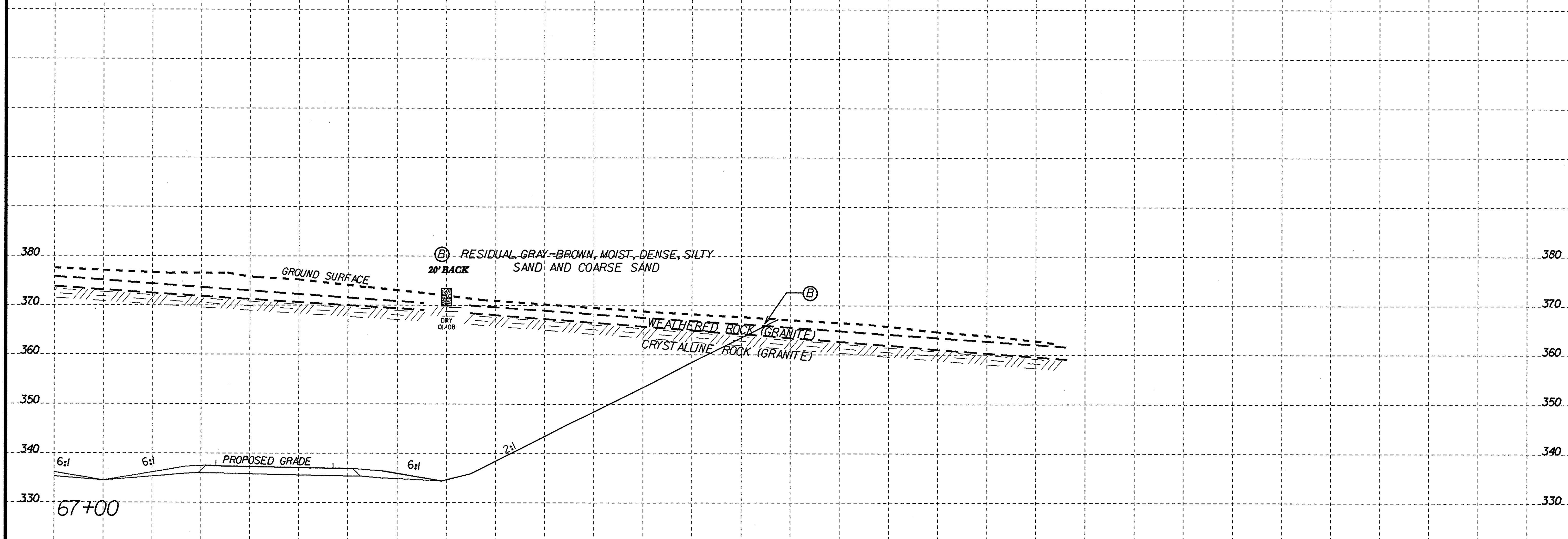
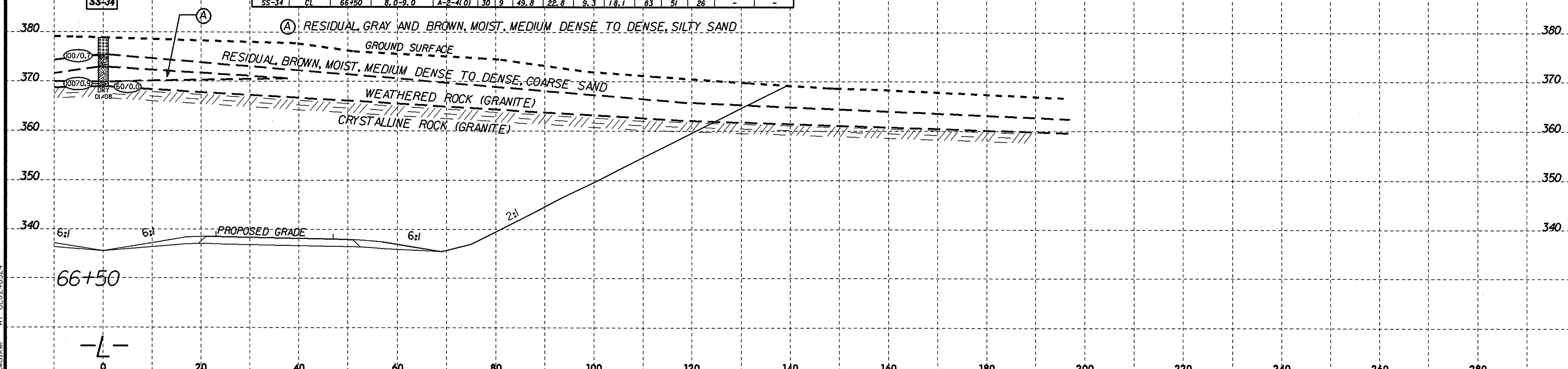


SOIL TEST RESULTS

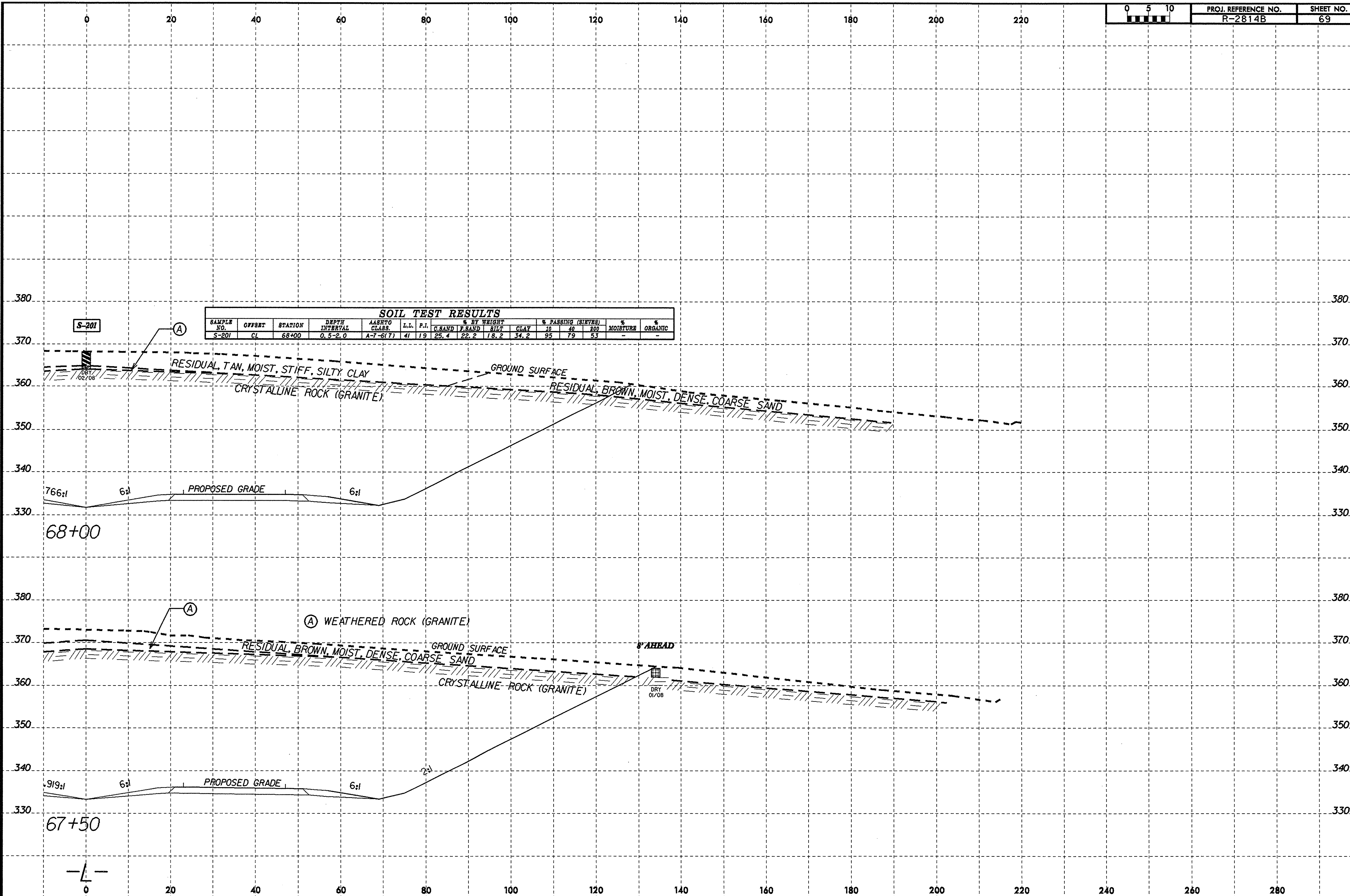
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-34	CL	66+50	8.0-9.0	A-2-4(0)	30	9	49.8	22.8	9.3	18.1	83	51	26	-	-

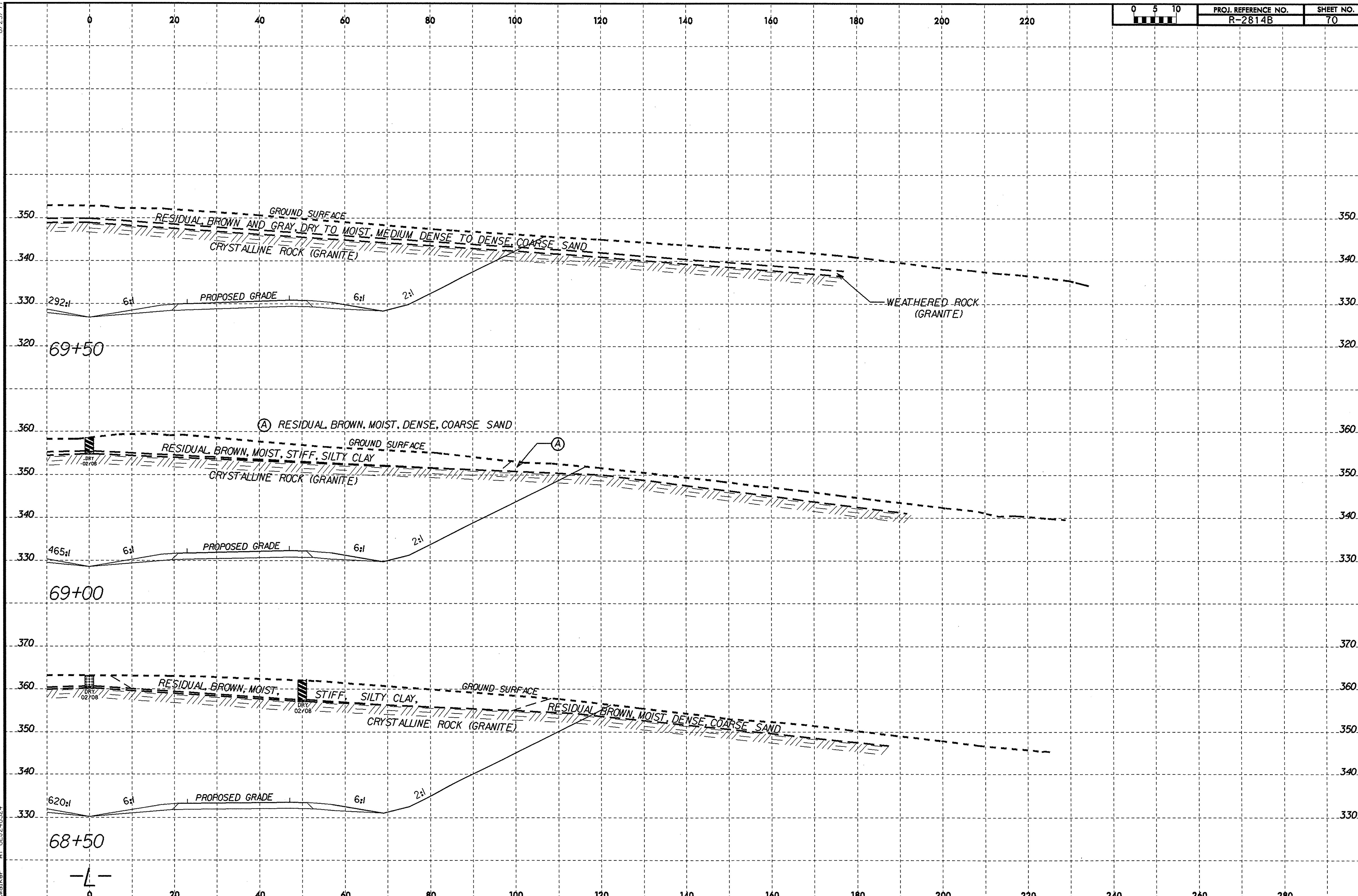


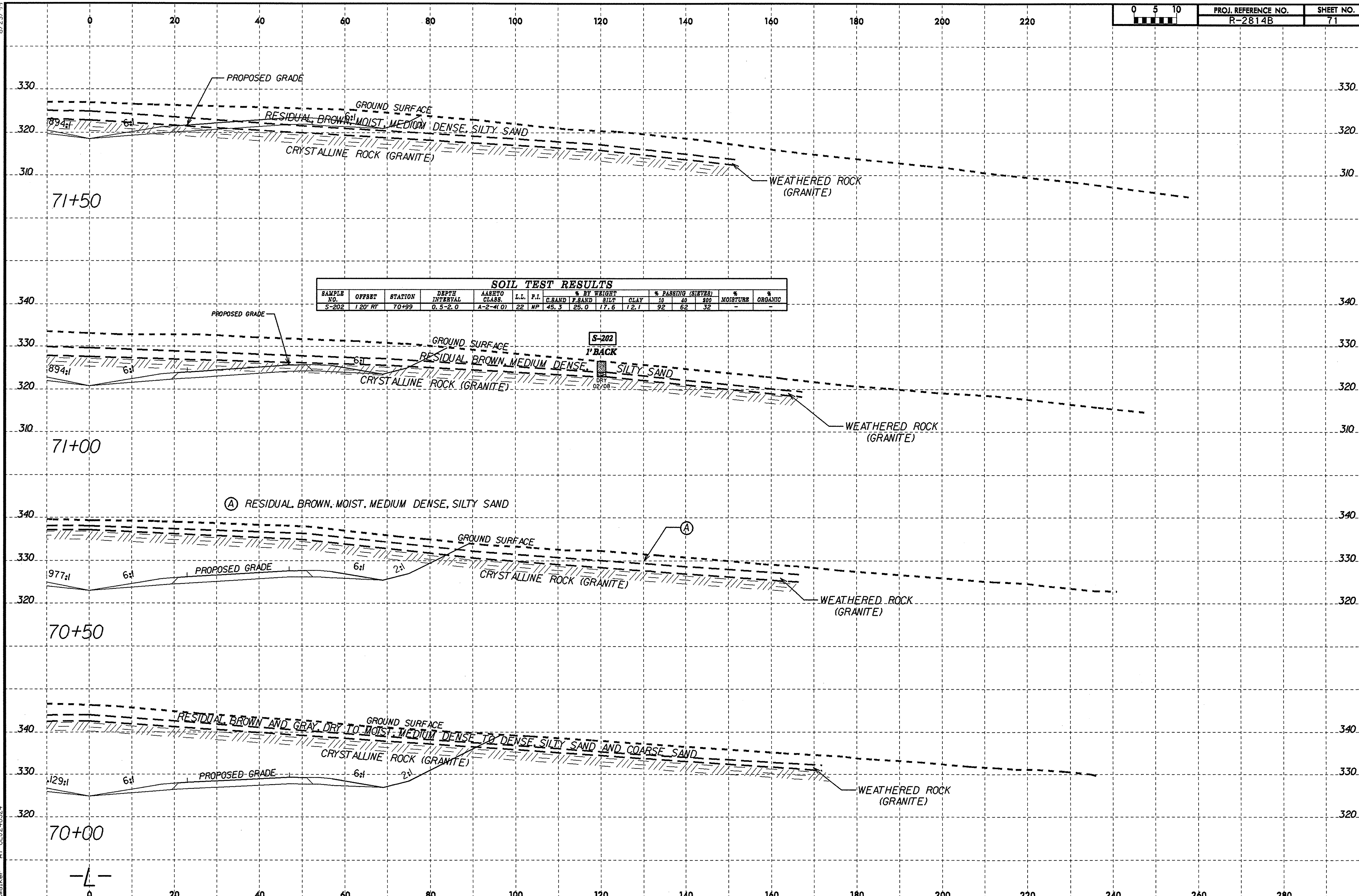
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	69

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
S-201	CL	68+00	0.5-2.0	A-7-6(7)	41	19	25.4	22.2	18.2	34.2	95	79	53	-	-




PROJ. REFERENCE NO. R-2814B
SHEET NO. 70
0 5 10
GROUND SURFACE
RESIDUAL, BROWN AND GRAY, DRY TO MOIST, MEDIUM DENSE TO DENSE, COARSE SAND
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
PROPOSED GRADE
292:1
6:1
2:1
69+50
Ⓐ RESIDUAL, BROWN, MOIST, DENSE, COARSE SAND
RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY
DRY 02/08
465:1
69+00
RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY,
RESIDUAL, BROWN, MOIST, DENSE, COARSE SAND
620:1
68+50
-L-

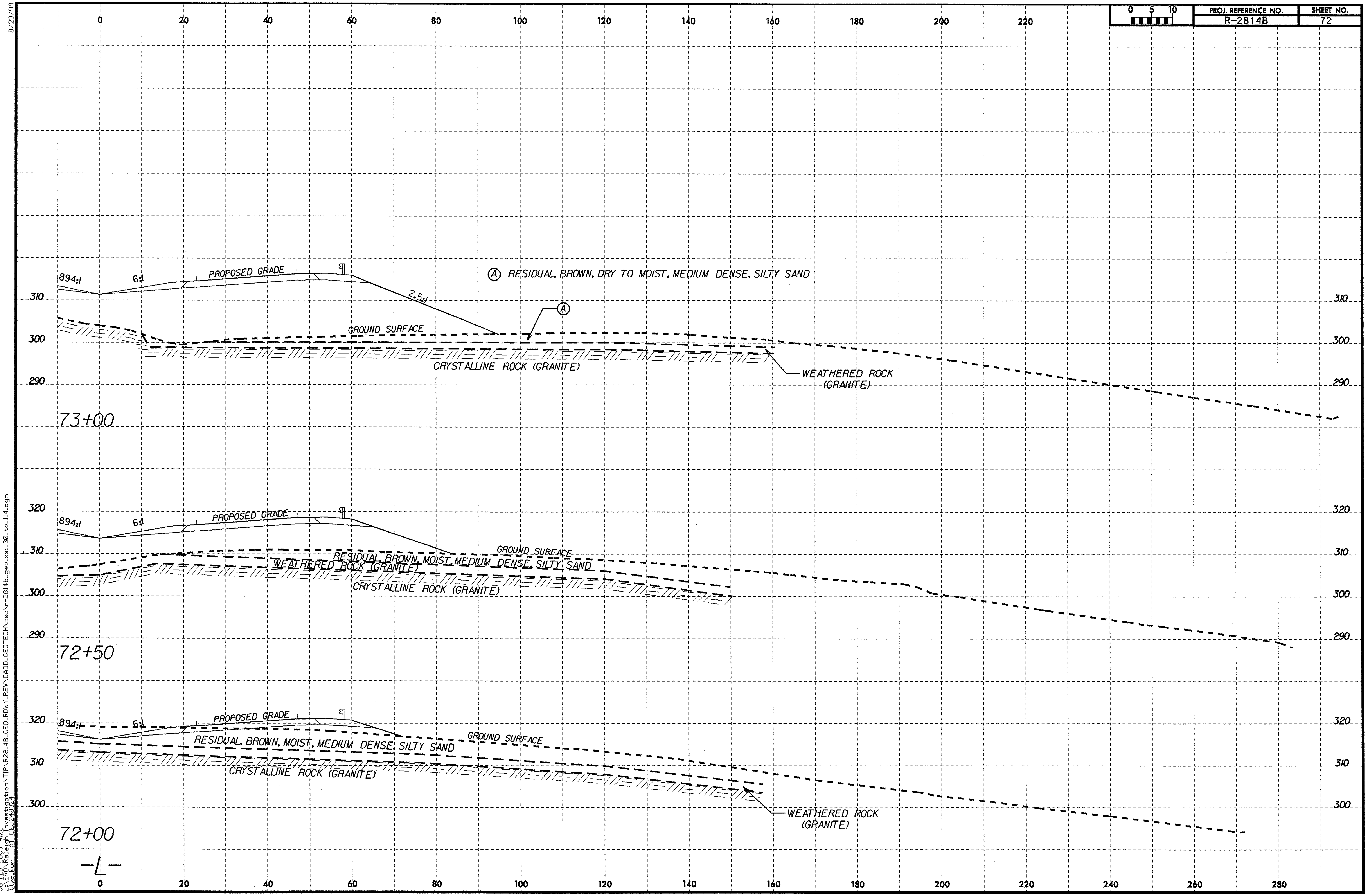


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-202	120' RT	70+99	0.5-2.0	A-2-4(0)	22	NP	45.3	25.0	17.6	12.1	92	62	32	-	-

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	72



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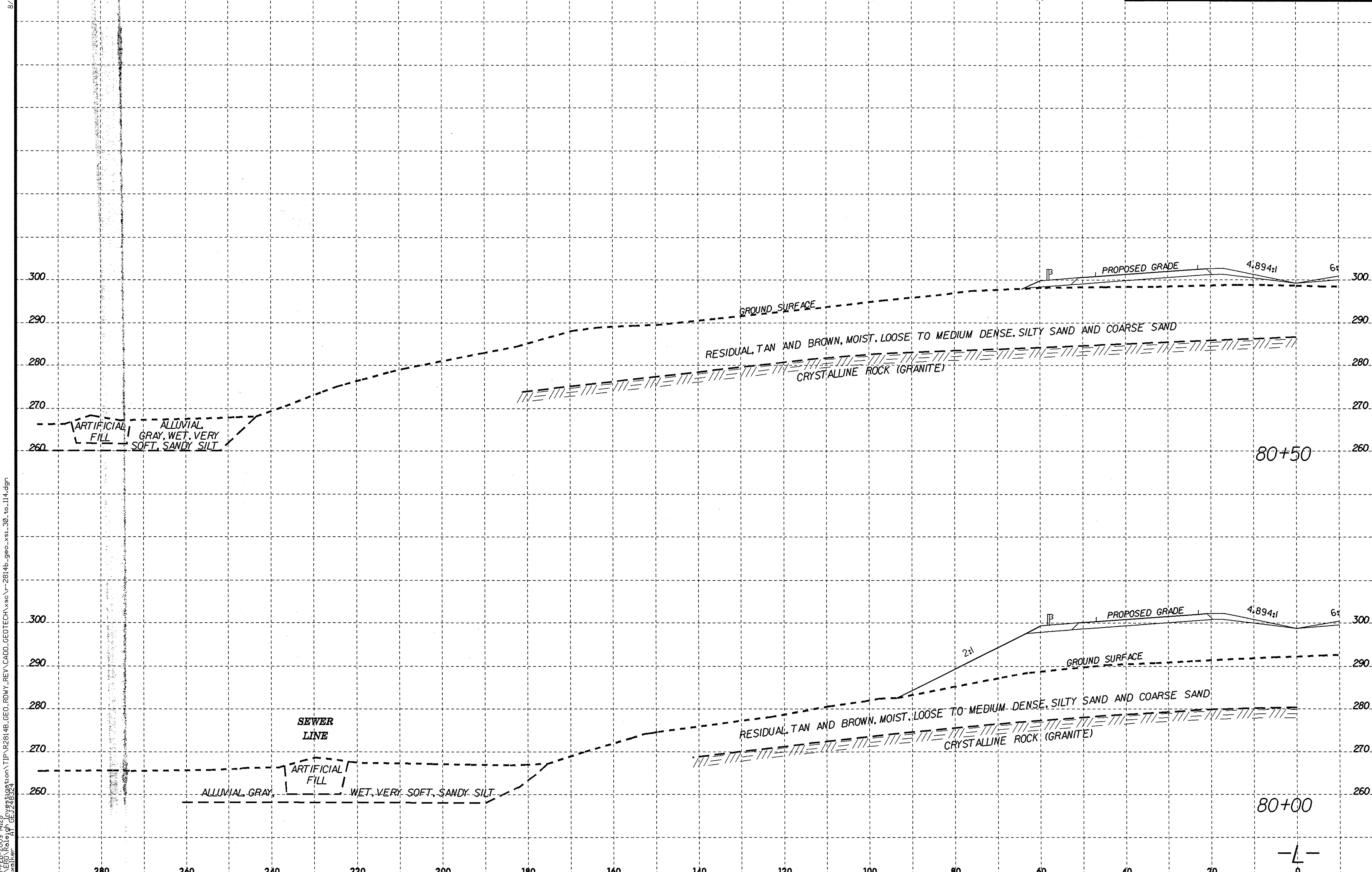
ttwalker AT GEJ248324

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	73



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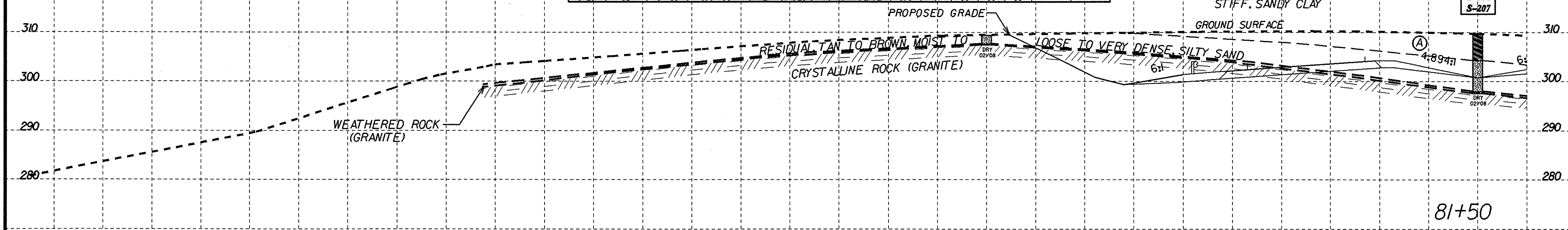
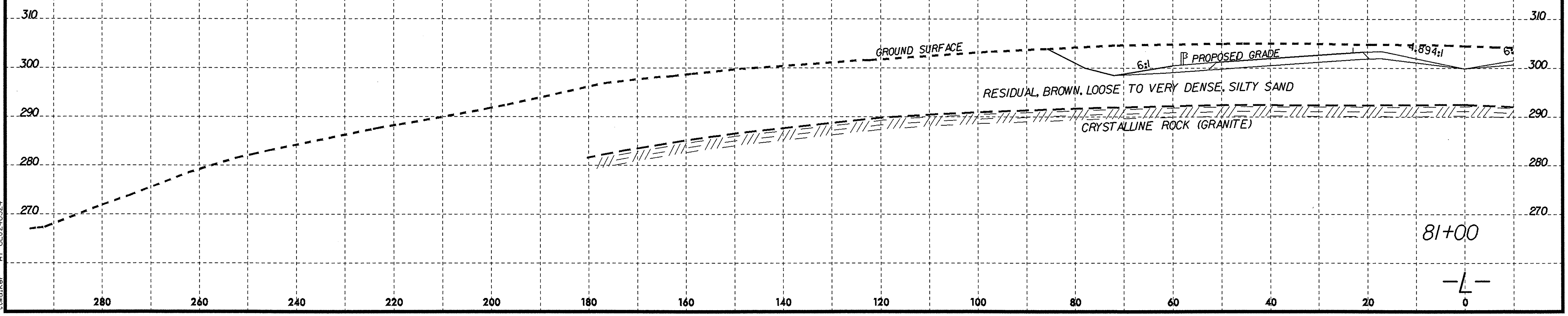
ttwalker AT GEJ2248324

8/23/99

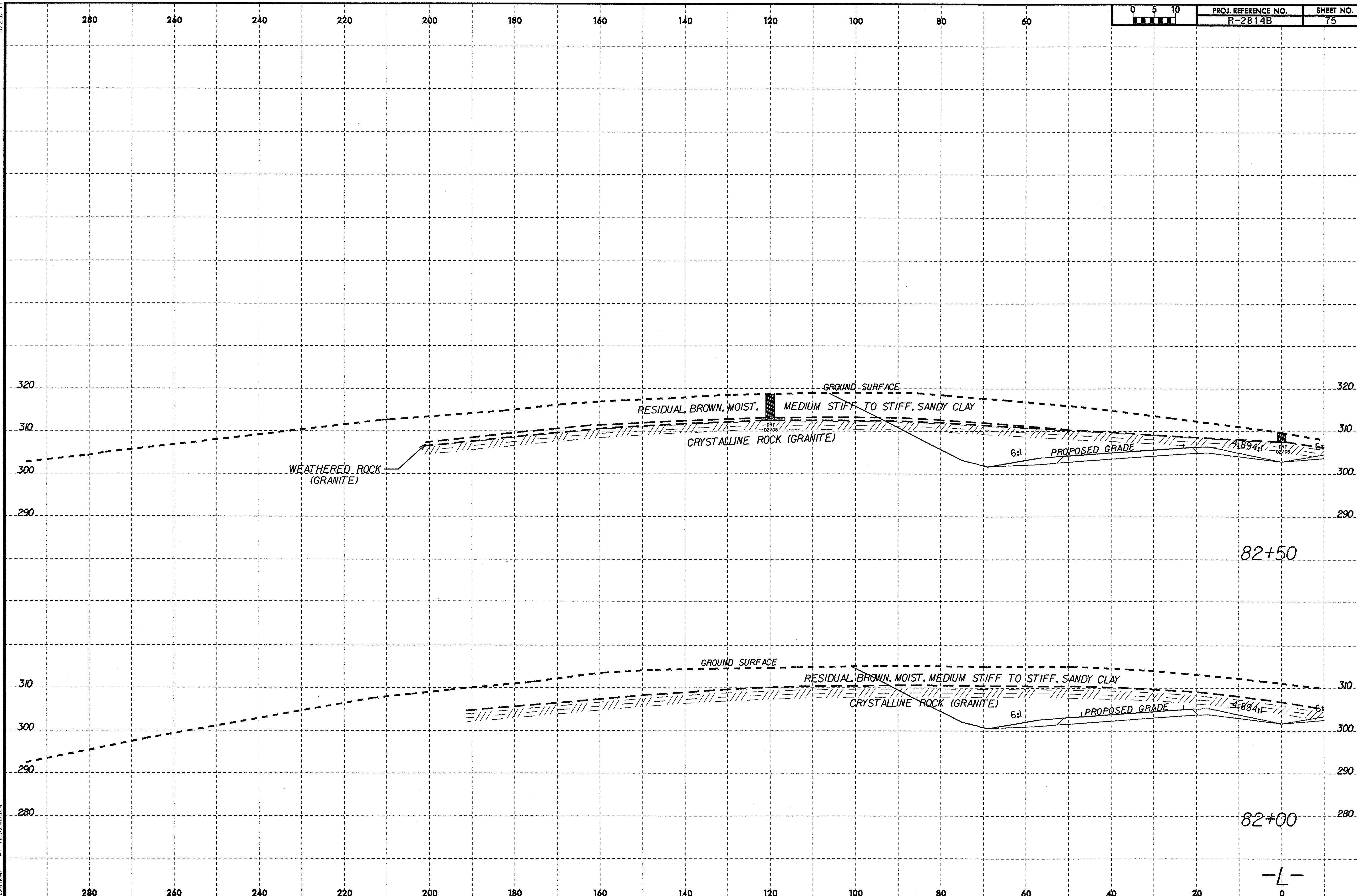
SOIL TEST RESULTS

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
S-206	CL	81 +50	1.0-2.5	A-6(4)	39	16	37.3	18.1	16.4	28.2	97	70	47	-	-
S-207	CL	81 +50	6.0-7.5	A-2-4(0)	25	NP	43.7	24.2	18.0	14.1	98	68	35	-	-





PROJ. REFERENCE NO.	SHEET NO.
R-2814B	75



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ttwalker AT GEJ248324

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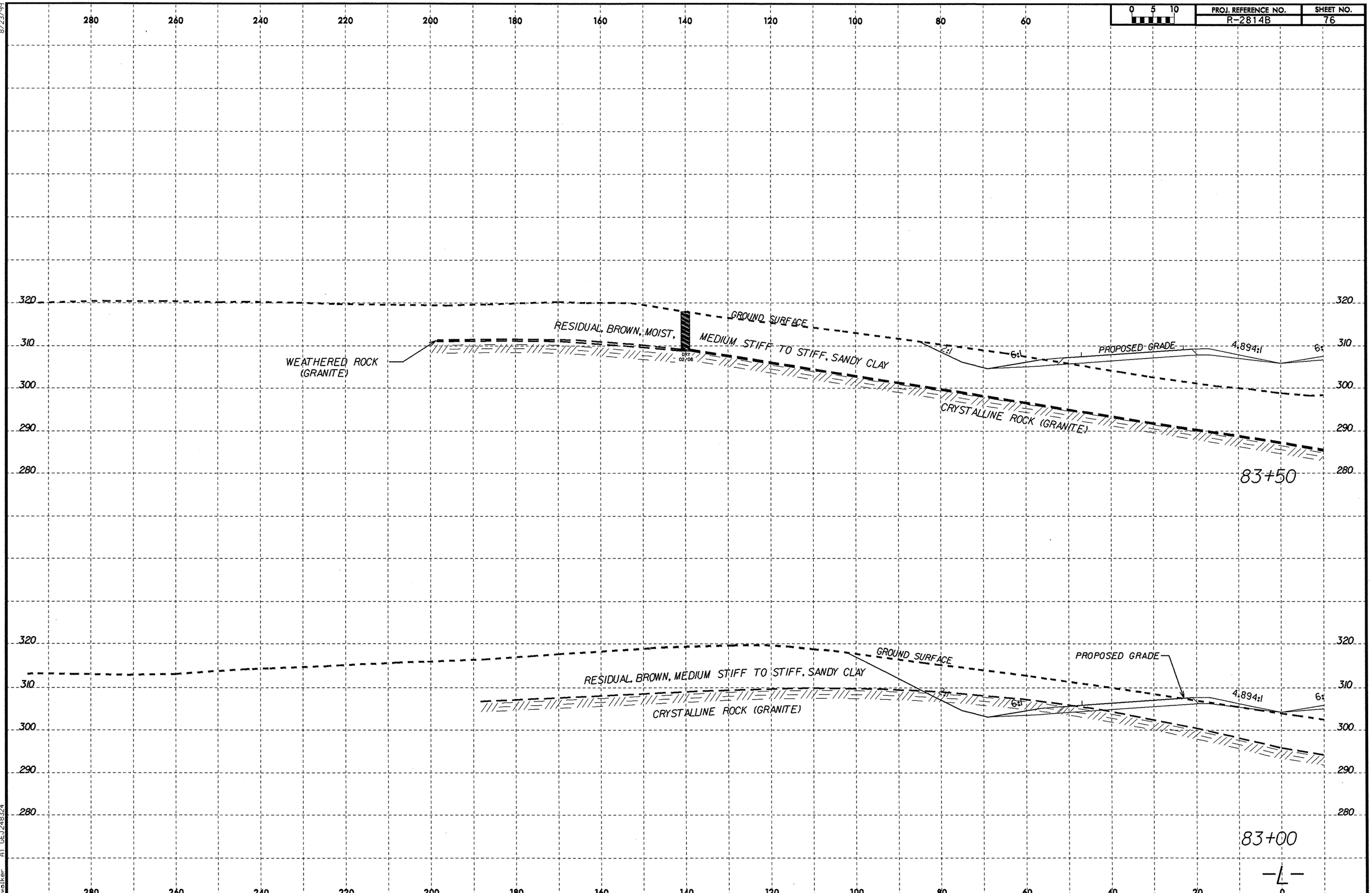
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	76



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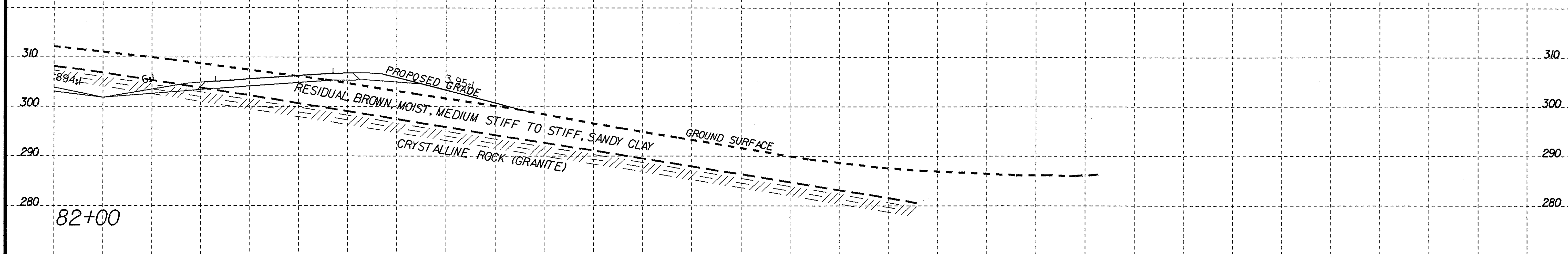
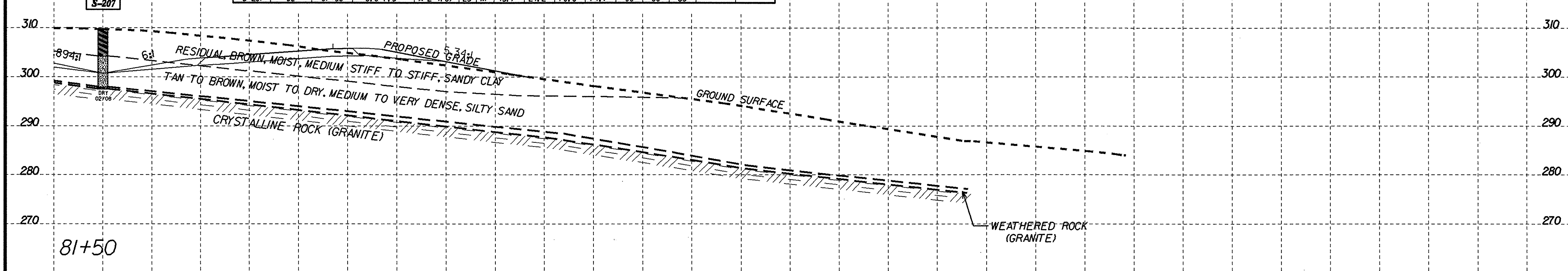
tswalker AT DEVELOPER

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	77



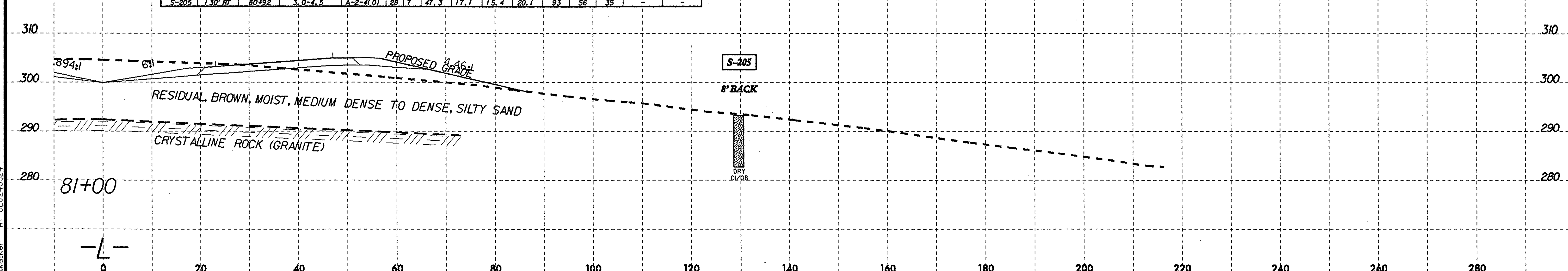
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-206	CL	81+50	1.0-2.5	A-6(4)	39	16	37.3	18.1	16.4	28.2	97	70	47	-	-
S-207	CL	81+50	6.0-7.5	A-2-4(0)	25	NP	43.7	24.2	18.0	14.1	98	68	35	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-205	130' RT	80+92	3.0-4.5	A-2-4(0)	28	7	47.3	17.1	15.4	20.1	93	56	35	-	-



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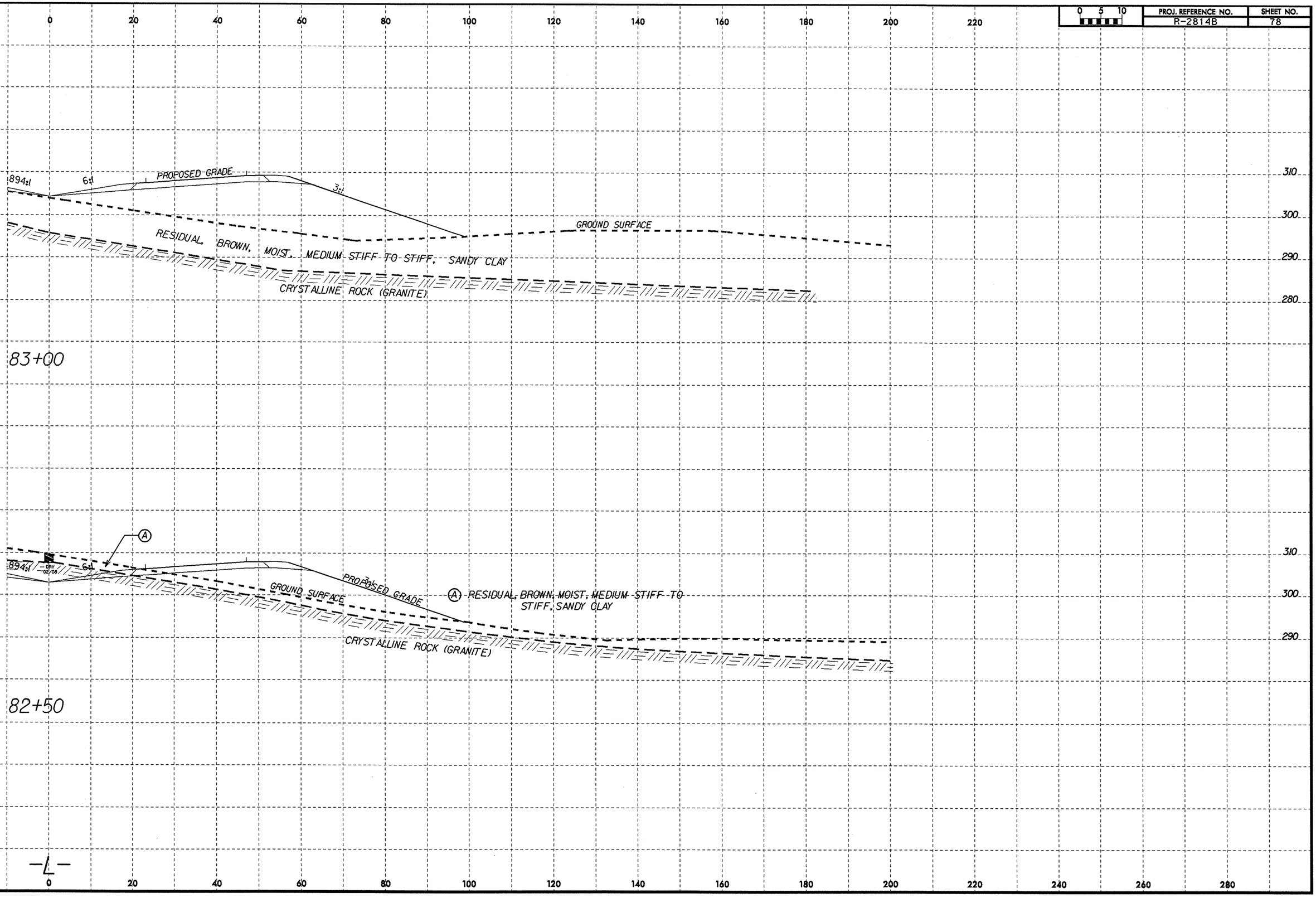
twalker AT GE7248324

8/23/99



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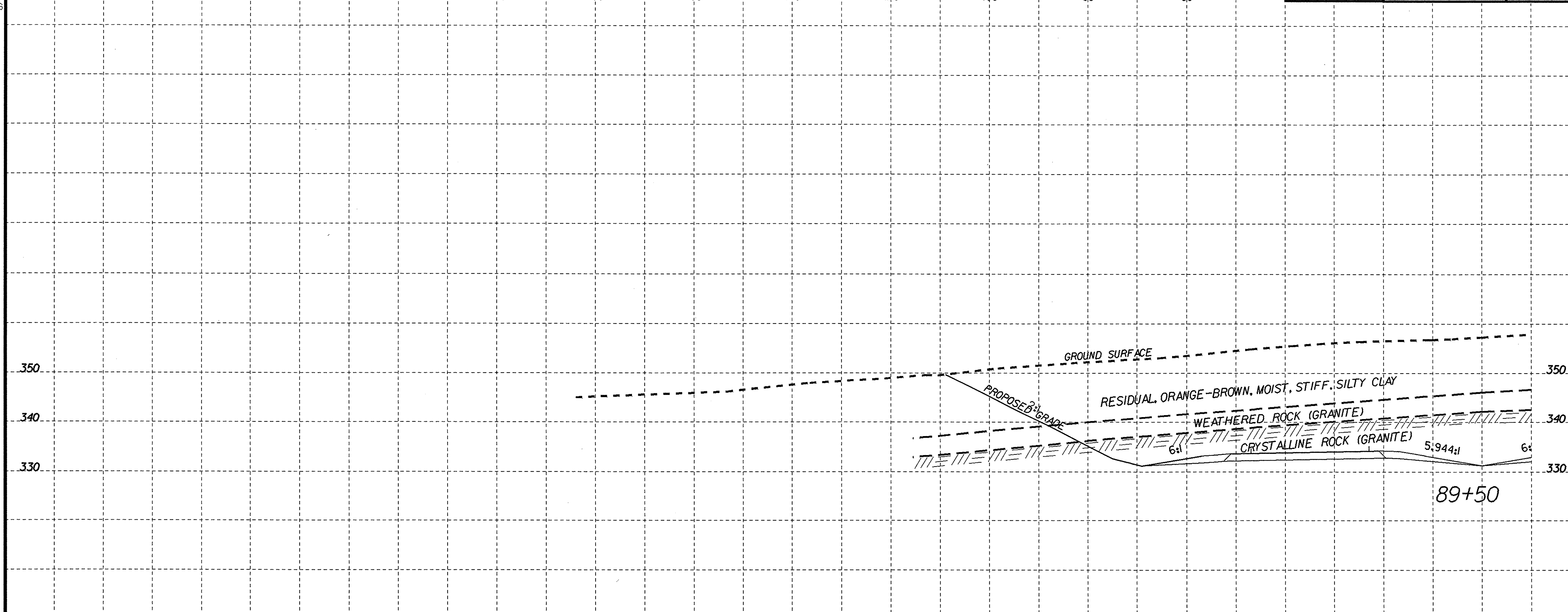
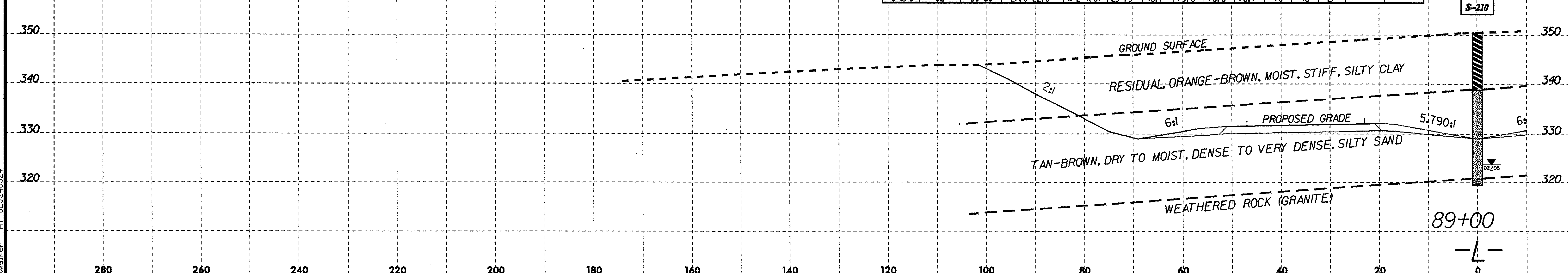
ttwalker AT GEJ248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	79



SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-209	CL	89+00	3.0-4.5	A-7-5(7)	46	14	28.0	12.7	19.0	40.3	96	75	58	-	-
S-210	CL	89+00	21.0-22.5	A-2-4(0)	29	9	45.7	19.5	18.6	16.1	70	46	27	-	-



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ttwalker AT GEJ248324

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	80

280 260 240 220 200 180 160 140 120 100 80 60

370 360 350 340

GROUND SURFACE
RESIDUAL BROWN MOIST STIFF SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
2:1
6:1 PROPOSED GRADE 6:1 6:1

90+50

360 350 340 330

GROUND SURFACE
RESIDUAL ORANGE-BROWN MOIST STIFF SILTY CLAY
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
6:1 PROPOSED GRADE 6:1 6:1

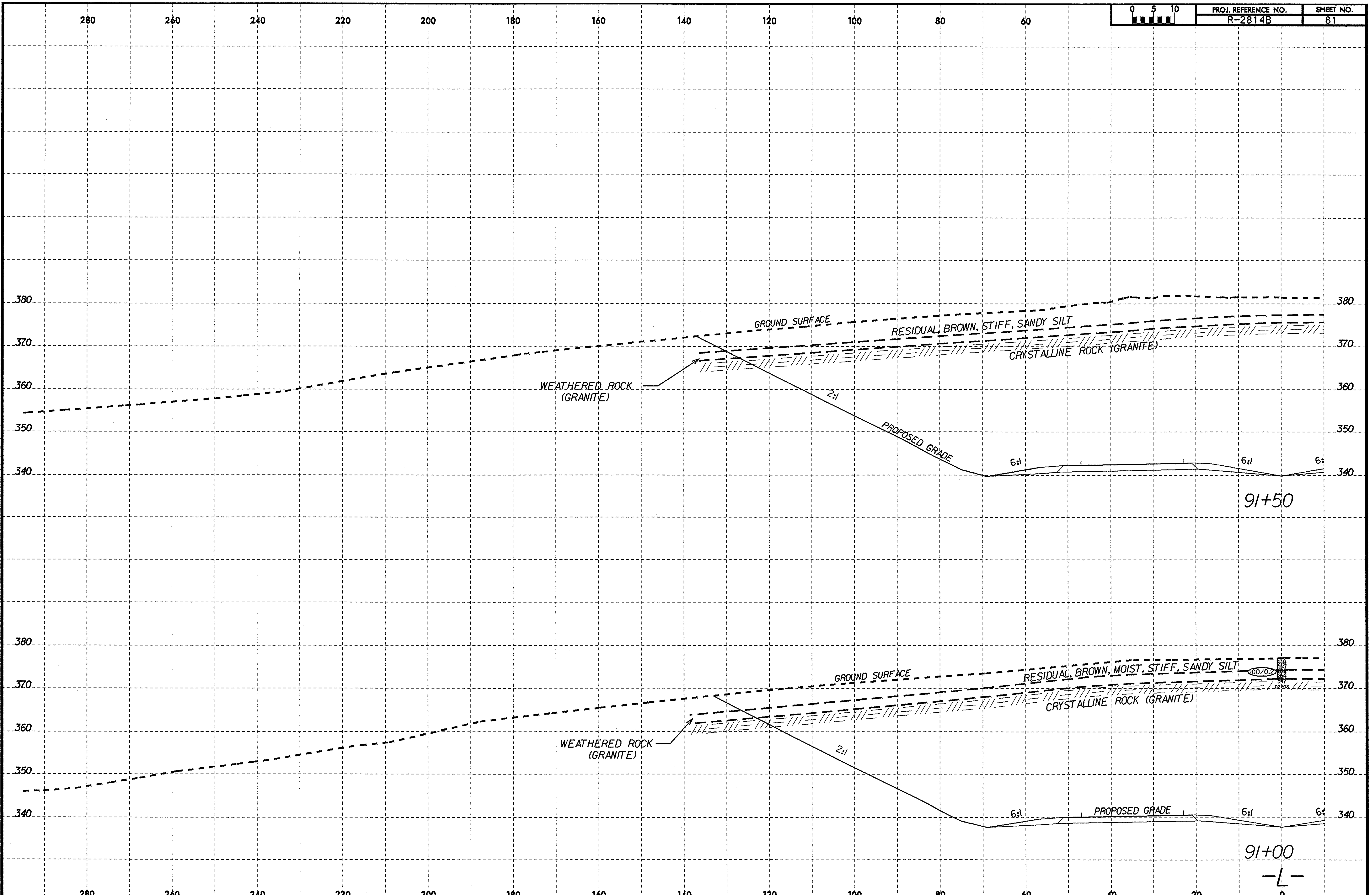
90+00

-L-

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0

06-FEB-2009 14:29
c:\projects\station\TIP\R2814B_GEO_RDWY_REV\CADD_GEOTECH\xsc\r-2814b_geo_xs1_30_to_114.dgn
ttwalker
AT GEJ248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	81


0 5 10
280 260 240 220 200 180 160 140 120 100 80 60
380
370
360
350
340
GROUND SURFACE
RESIDUAL, BROWN, STIFF, SANDY SILT
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
2:1
PROPOSED GRADE
6:1
91+50
GROUND SURFACE
RESIDUAL, BROWN, MOIST, STIFF, SANDY SILT
100/0.2
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
2:1
PROPOSED GRADE
6:1
91+00
-L-
280 260 240 220 200 180 160 140 120 100 80 60 40 20 0

8/23/99

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ttwalker AT GE1248324

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	82

0 5 10

280 260 240 220 200 180 160 140 120 100 80 60

380 370 360 350 340

GROUND SURFACE

RESIDUAL ORANGE-BROWN MOIST STIFF SILTY CLAY

CRYSTALLINE ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

2:1 PROPOSED GRADE

6:1 6:1 6:

92+50

390 380 370 360 350 340

Ⓐ RESIDUAL, BROWN, MOIST, STIFF, SANDY CLAY

GROUND SURFACE

CRYSTALLINE ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

2:1 PROPOSED GRADE

6:1 6:1 6:

DRY 02/08

92+00

-L-

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0

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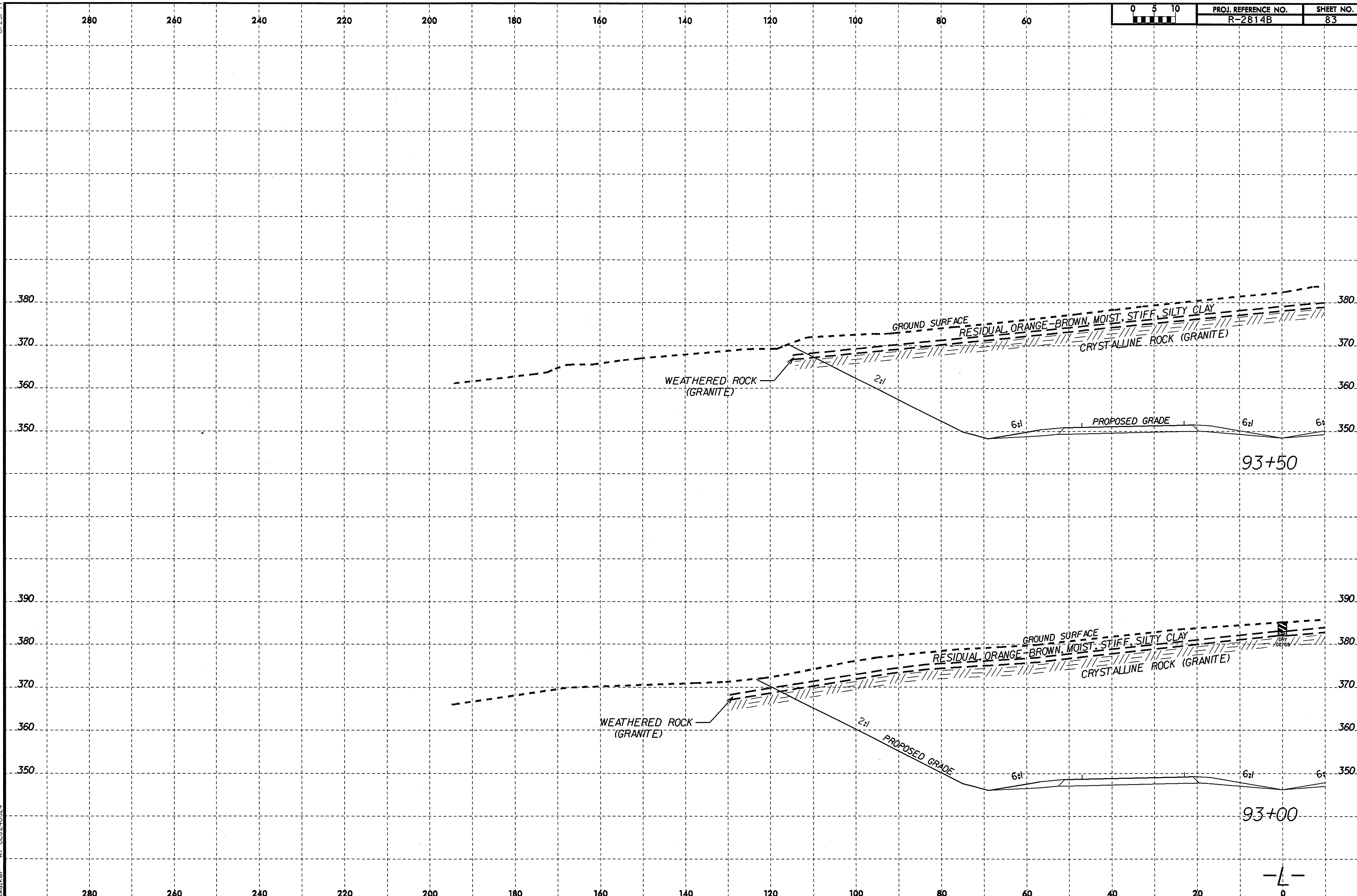
Lowsley
Layout: Layout1 DEL248024

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	83



0 5 10
280 260 240 220 200 180 160 140 120 100 80 60
380
370
360
350
GROUND SURFACE
RESIDUAL ORANGE-BROWN, MOIST, STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
2:1
6:1
PROPOSED GRADE
93+50
390
380
370
360
350
GROUND SURFACE
RESIDUAL ORANGE-BROWN, MOIST, STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
2:1
PROPOSED GRADE
6:1
93+00
-L-
280 260 240 220 200 180 160 140 120 100 80 60 40 20 0

8/23/99

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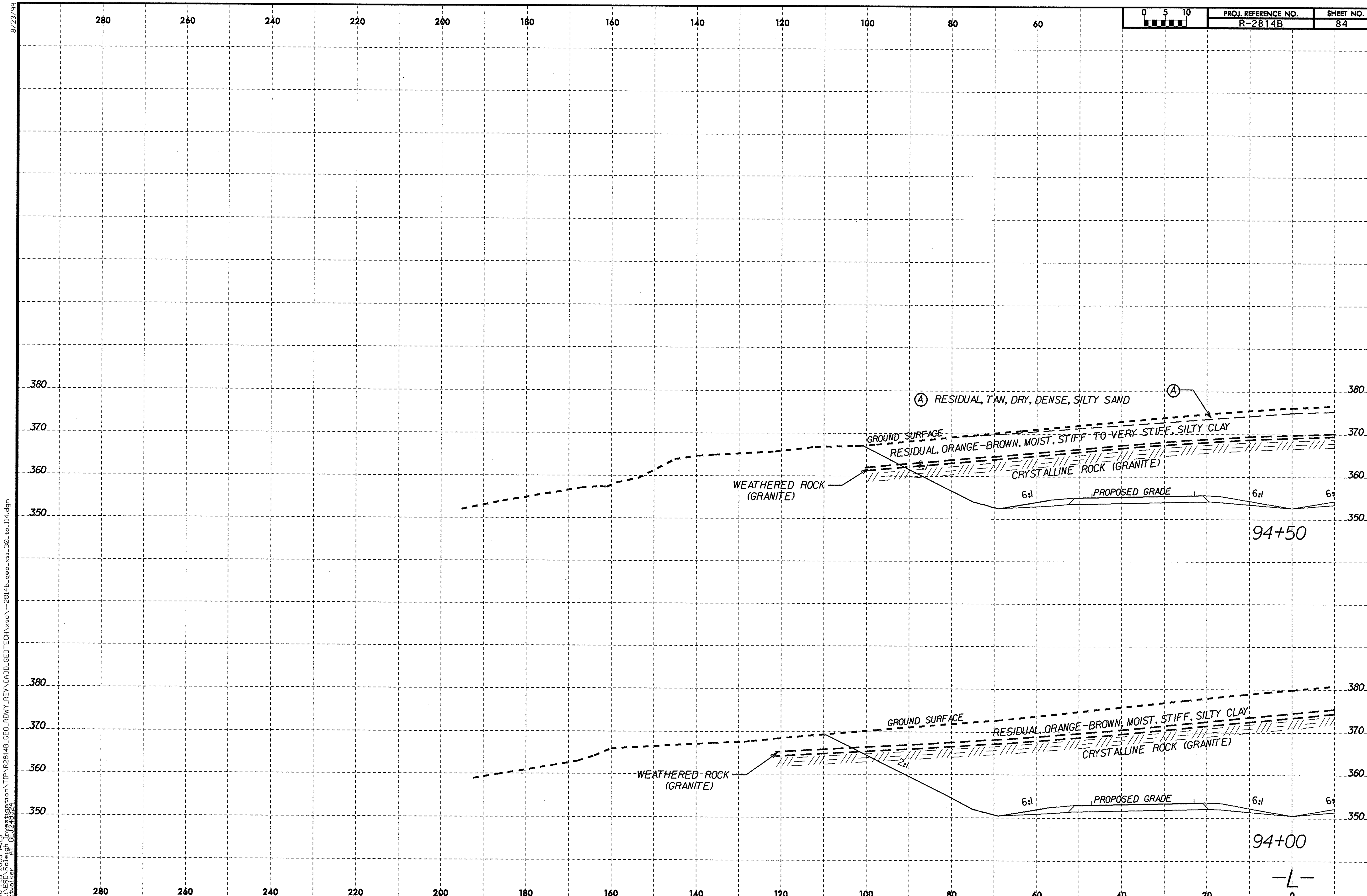
ttwalker AT GEJ2448324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	84



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ttwalker AT GEJ248324

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	85

280 260 240 220 200 180 160 140 120 100 80 60

370 360 350 340

PROPOSED GRADE

3:1 6:1

Ⓐ RESIDUAL, ORANGE-BROWN, STIFF TO VERY STIFF, SILTY CLAY

GROUND SURFACE

Ⓐ

CRYSTALLINE ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

96+00

370 360 350

PROPOSED GRADE

6:1 6:1 6:1

RESIDUAL, ORANGE-BROWN, MOIST, STIFF TO VERY STIFF, SILTY CLAY

GROUND SURFACE

CRYSTALLINE ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

95+50

390 380 370 360 350

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
S-211	CL	95+00	3.0-4.5	A-7-6(7)	42	18	33.6	15.9	18.2	32.2	100	74	53	-	-

S-211

DRY 02/08

RESIDUAL, TAN, DRY, DENSE, SILTY SAND

GROUND SURFACE

2:1

ORANGE-BROWN, MOIST, STIFF TO VERY STIFF, SILTY CLAY

CRYSTALLINE ROCK (GRANITE)

6:1 6:1 6:1

WEATHERED ROCK (GRANITE)

95+00

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0

-L-

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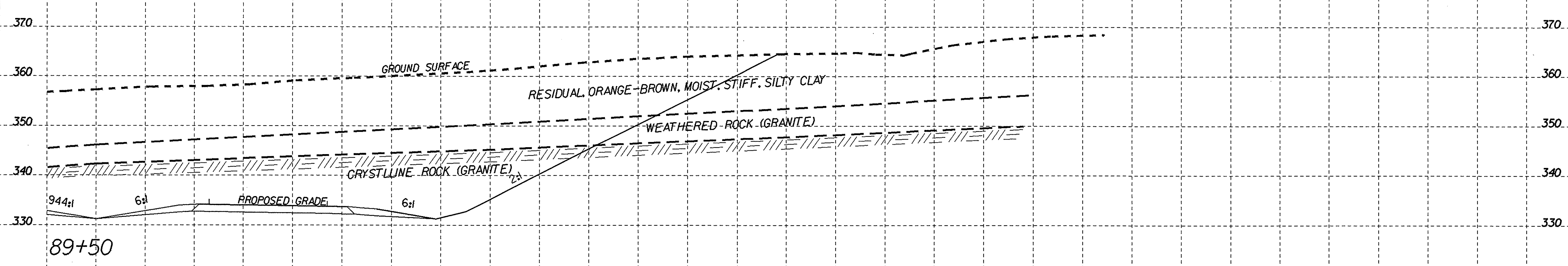
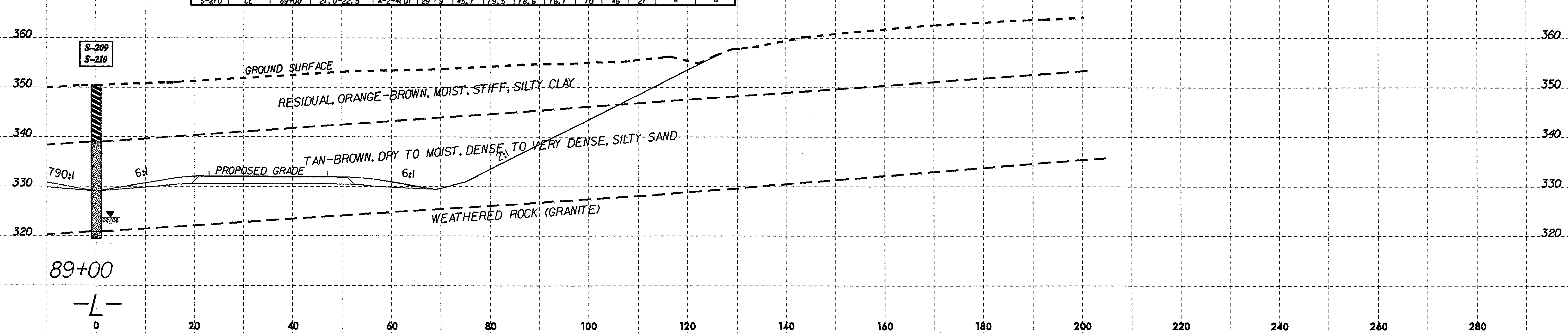
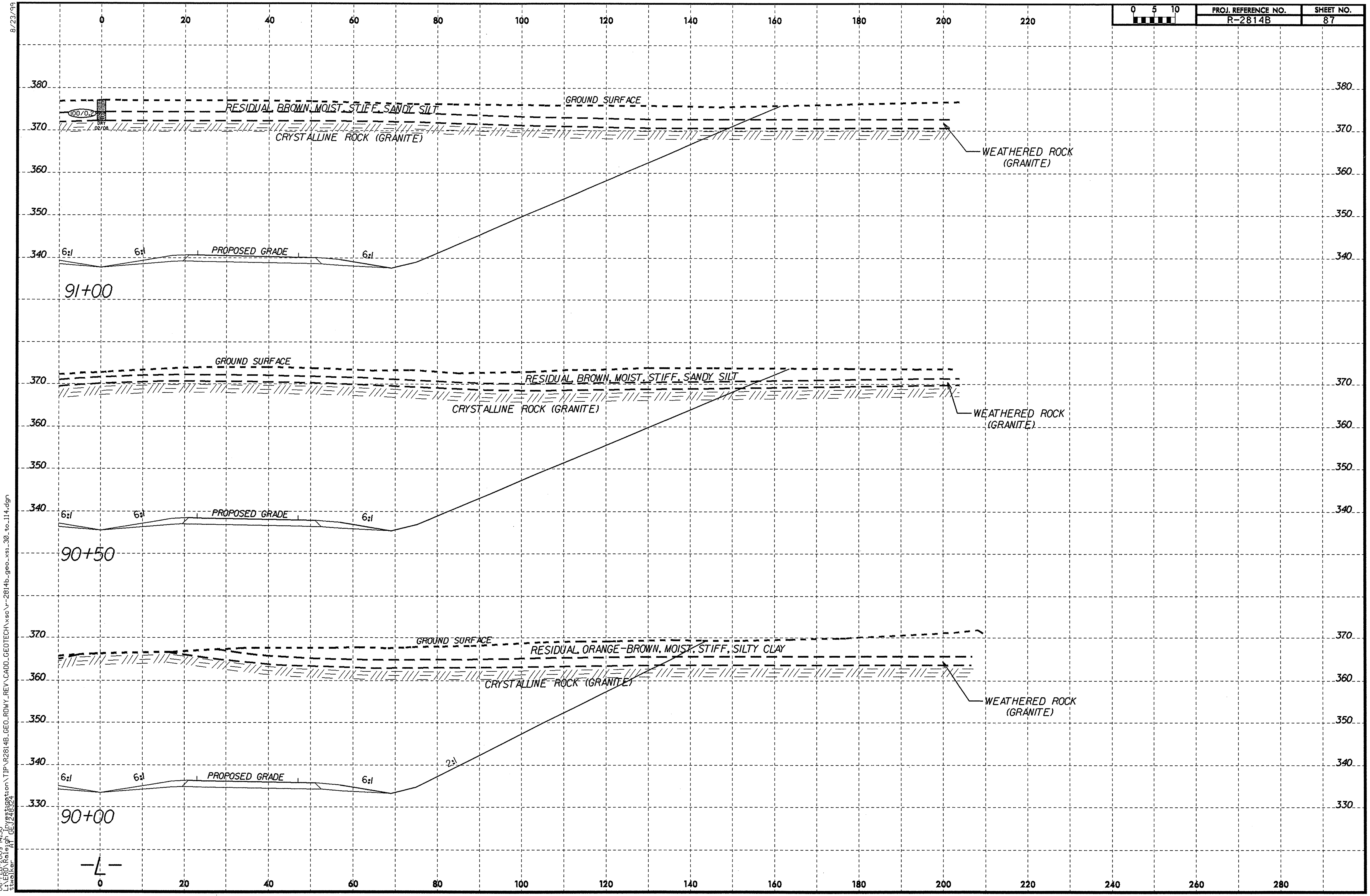
tlwalker

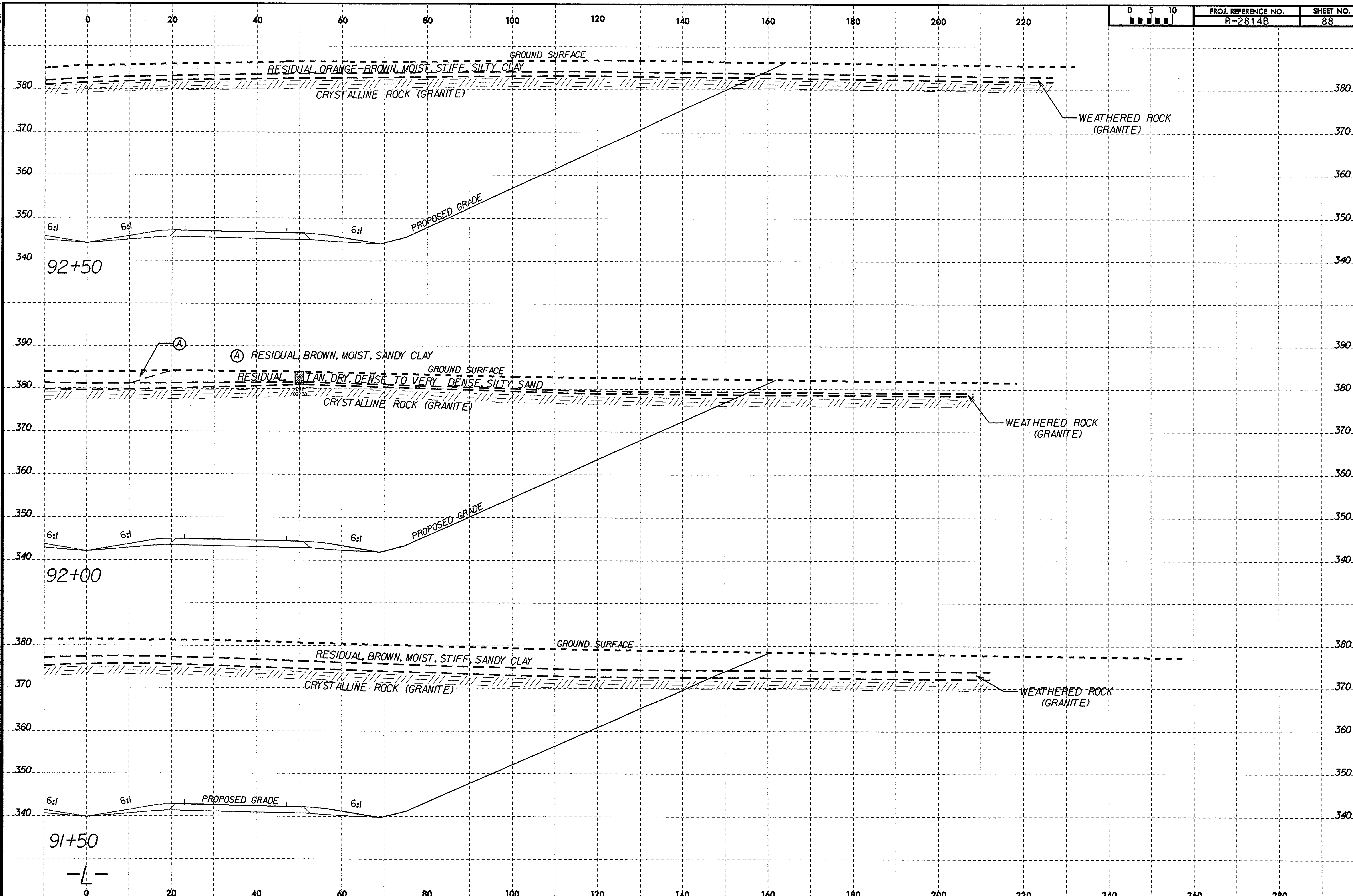


SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-209	CL	89+00	3.0-4.5	A-7-5(7)	46	14	28.0	12.7	19.0	40.3	96	75	58	-	-
S-210	CL	89+00	21.0-22.5	A-2-4(0)	29	9	45.7	19.5	18.6	16.1	70	46	27	-	-




PROJ. REFERENCE NO.
R-2814B
SHEET NO.
87
0 5 10
8/23/99
GROUND SURFACE
RESIDUAL BROWN MOIST STIFF SANDY SILT
100/0.2
DRY
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
PROPOSED GRADE
6:1
91+00
GROUND SURFACE
RESIDUAL BROWN MOIST STIFF SANDY SILT
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
PROPOSED GRADE
6:1
90+50
GROUND SURFACE
RESIDUAL ORANGE-BROWN, MOIST, STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
PROPOSED GRADE
6:1
2:1
90+00
-L-
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280
380 370 360 350 340 330
06-FEB-2009 14:30

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	88



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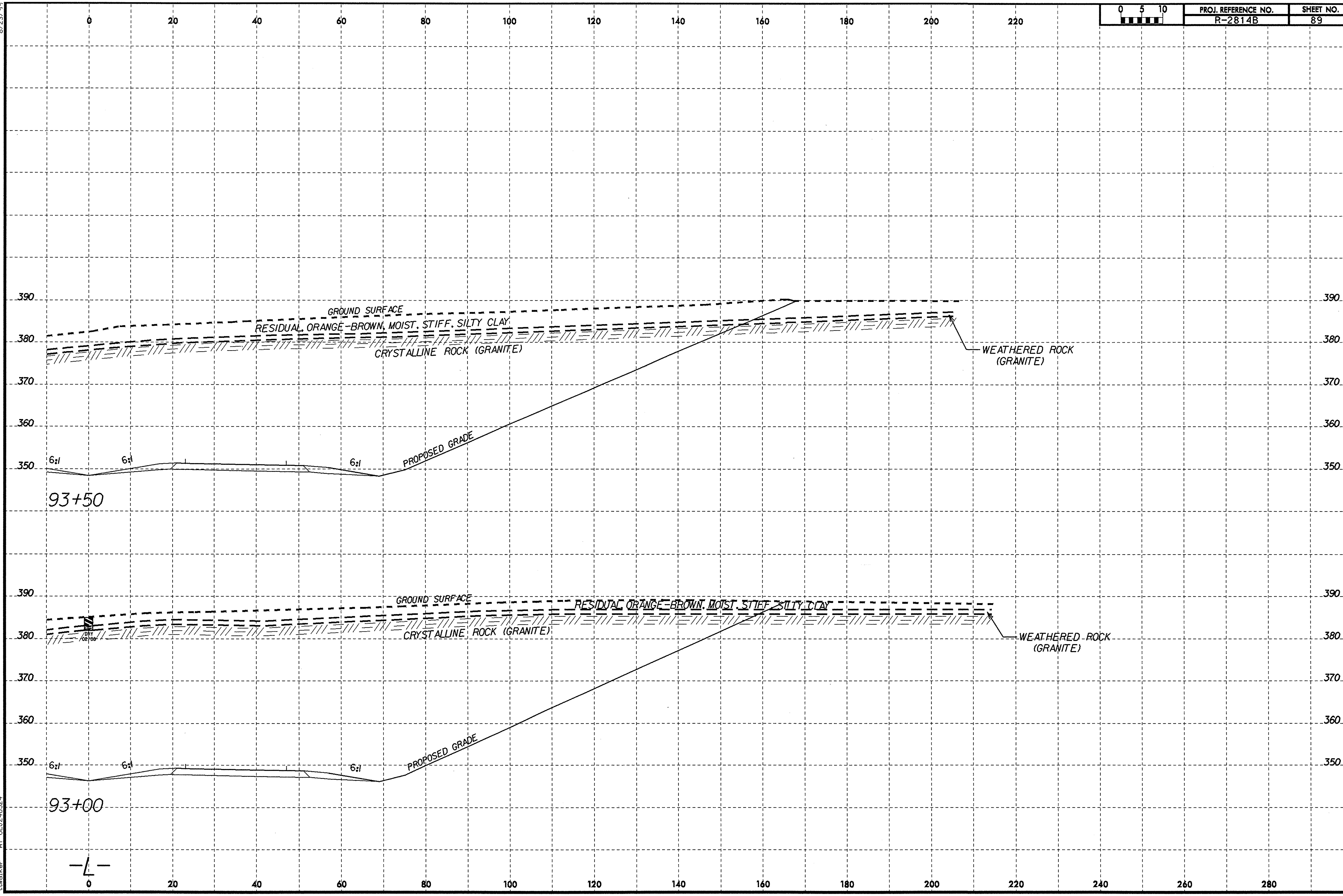
twalker AT GEJ248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	89



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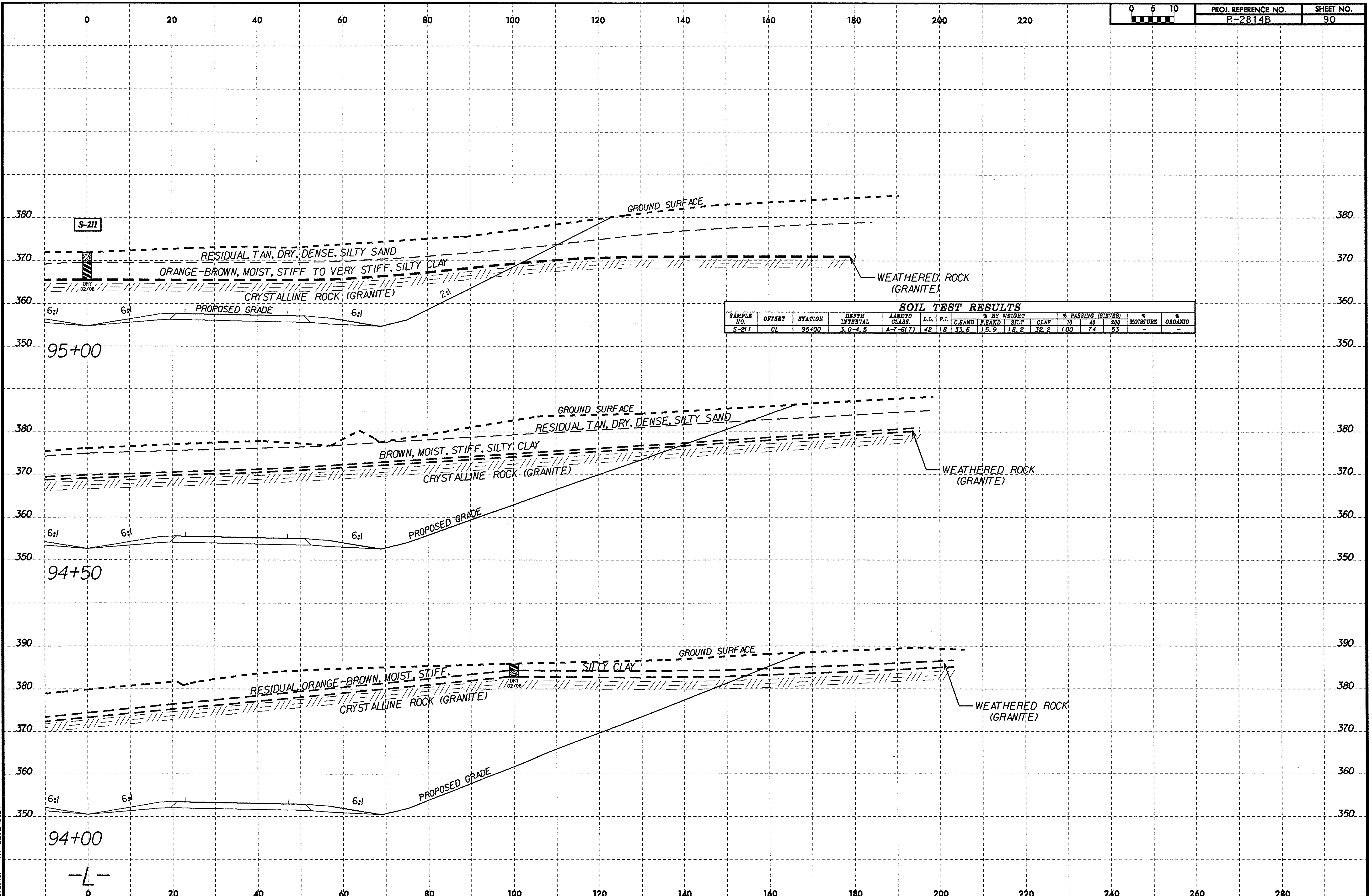
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	90



0 5 10
S-211
GROUND SURFACE
RESIDUAL, TAN, DRY, DENSE, SILTY SAND
ORANGE-BROWN, MOIST, STIFF TO VERY STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
DRY 02/08
PROPOSED GRADE
6:1
2:1
95+00
RESIDUAL, TAN, DRY, DENSE, SILTY SAND
BROWN, MOIST, STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
94+50
SILTY CLAY
RESIDUAL, ORANGE-BROWN, MOIST, STIFF,
CRYSTALLINE ROCK (GRANITE)
WEATHERED ROCK (GRANITE)
94+00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-211	CL	95+00	3.0-4.5	A-7-6(7)	42	18	33.6	15.9	18.2	32.2	100	74	53	-	-

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ttwalker AT GEJ248324

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	91

0 20 40 60 80 100 120 140 160 180 200 220

380
370
360

6:1 6:1 PROPOSED GRADE 6:1 4.75:1

GROUND SURFACE

RESIDUAL, ORANGE-BROWN, MOIST, STIFF TO VERY STIFF, SILTY CLAY

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

96+50

380
370
360
350

PROPOSED GRADE

GROUND SURFACE

6:1 6:1 2.10:1

RESIDUAL, ORANGE-BROWN, MOIST, STIFF TO VERY STIFF, SILTY CLAY

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

96+00

390
380
370
360
350

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, ORANGE-BROWN, MOIST, STIFF TO VERY STIFF, SILTY CLAY

6:1 6:1 6:1 5.5:1

CRYSTALLINE ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

95+50

-L-

0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

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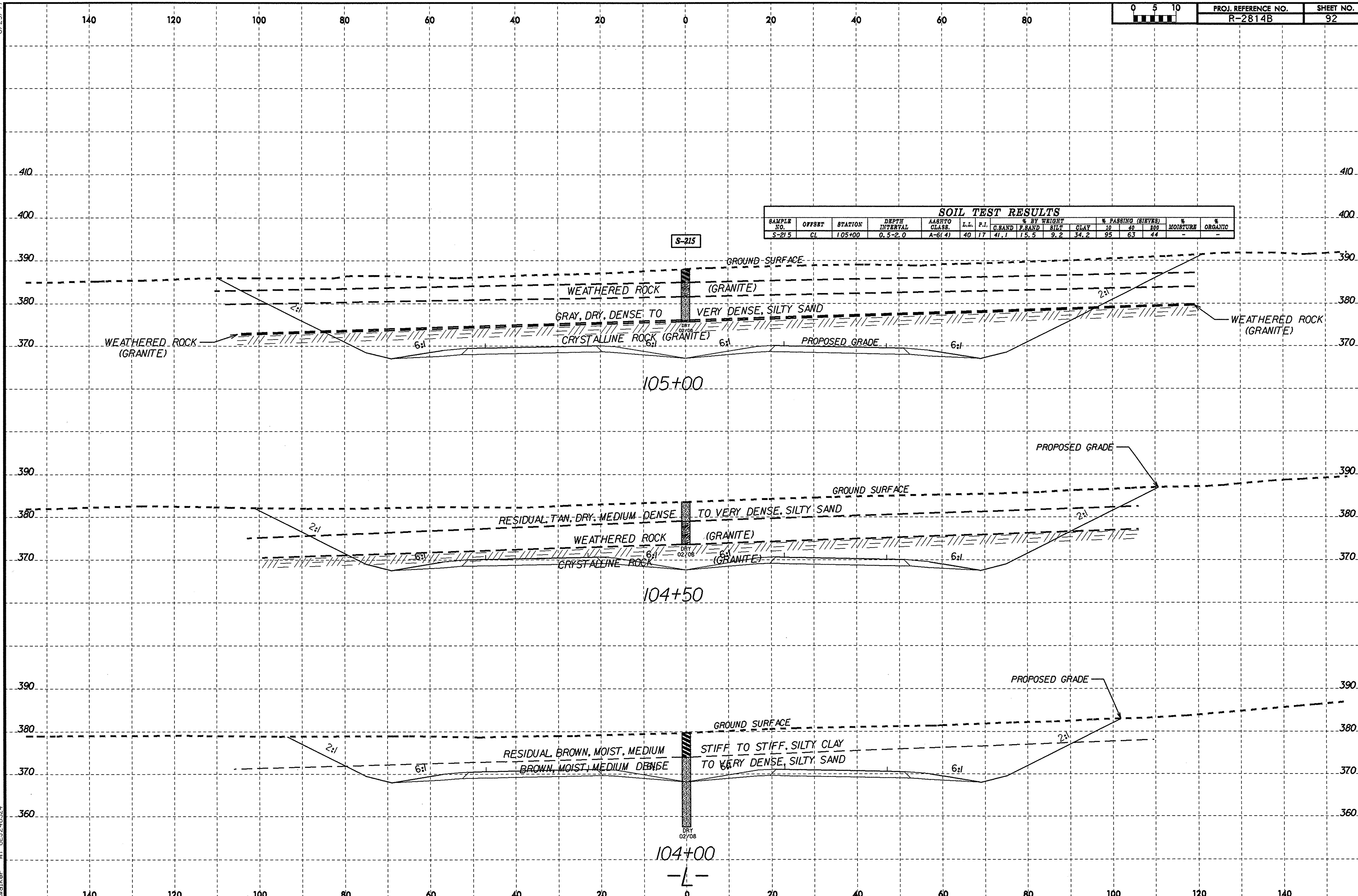
tswisher ATT_GEV240324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	92

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-215	CL	105+00	0.5-2.0	A-6(4)	40	17	41.1	15.5	9.2	34.2	95	63	44	-	-



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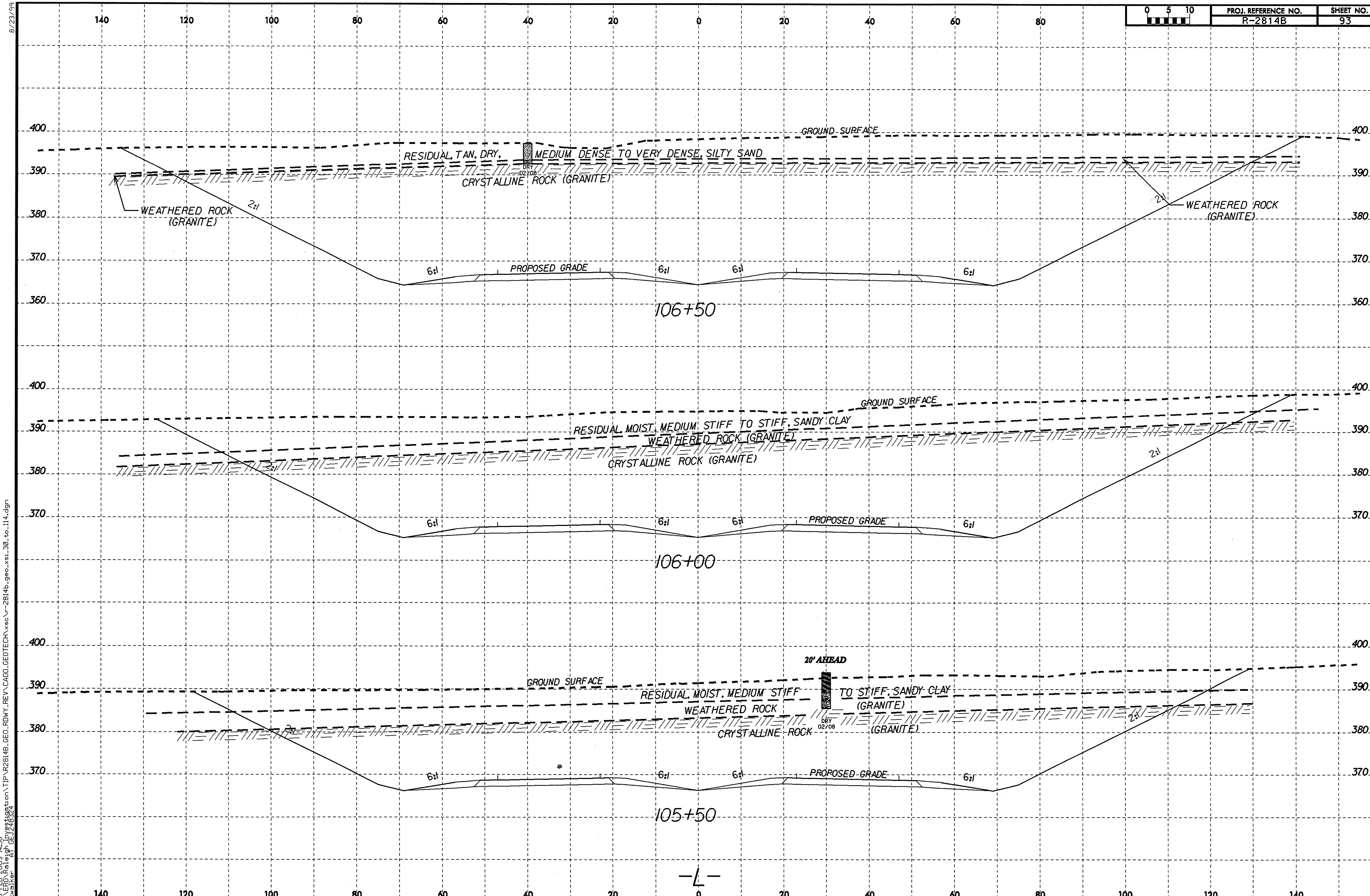
ttwalker AT GEJ248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	93



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ttwalker AT GEJ248324

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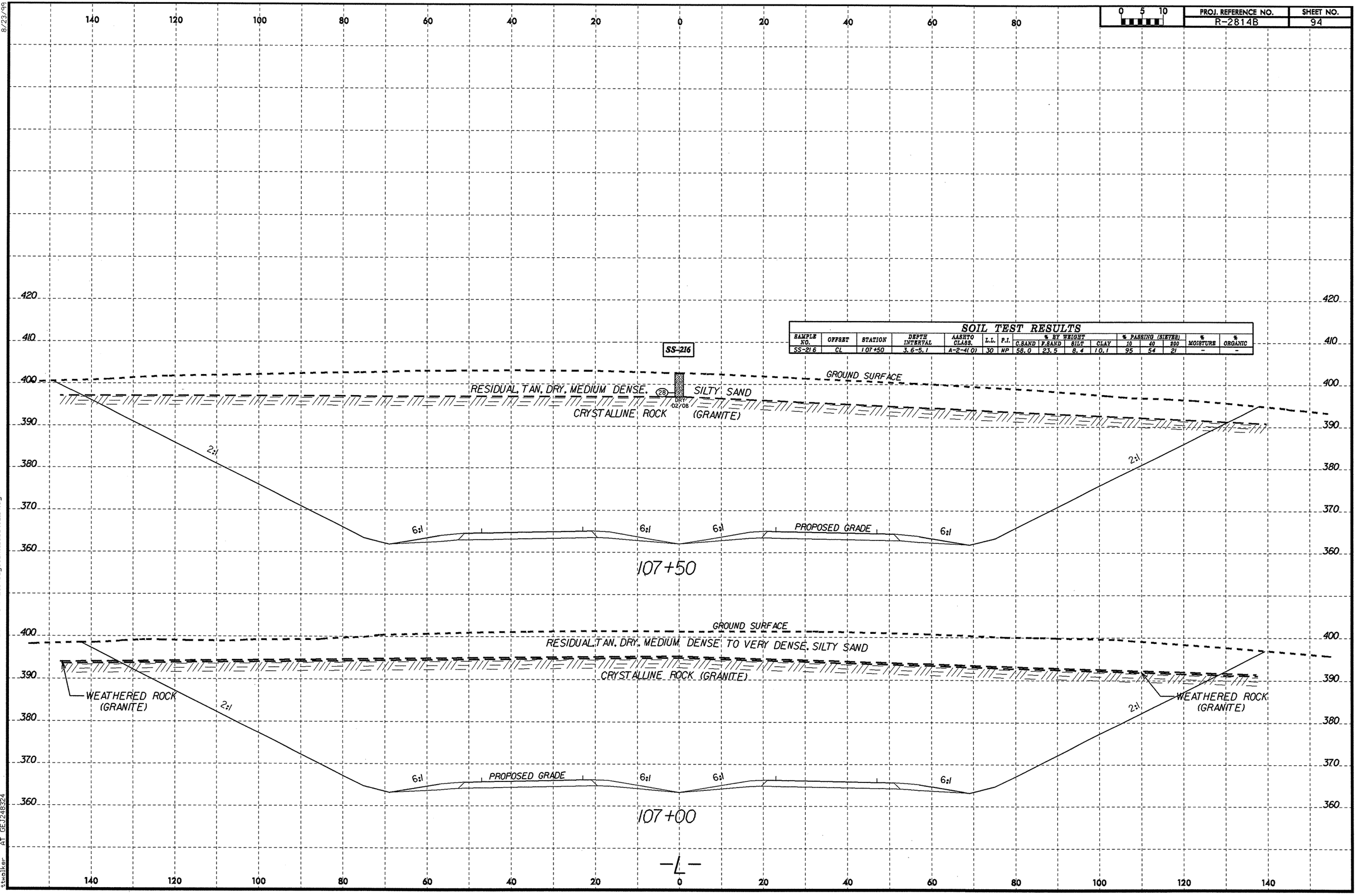
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	94

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-216	CL	107+50	3.6-5.1	A-2-4(0)	30	NP	58.0	23.5	8.4	10.1	95	54	21	-	-



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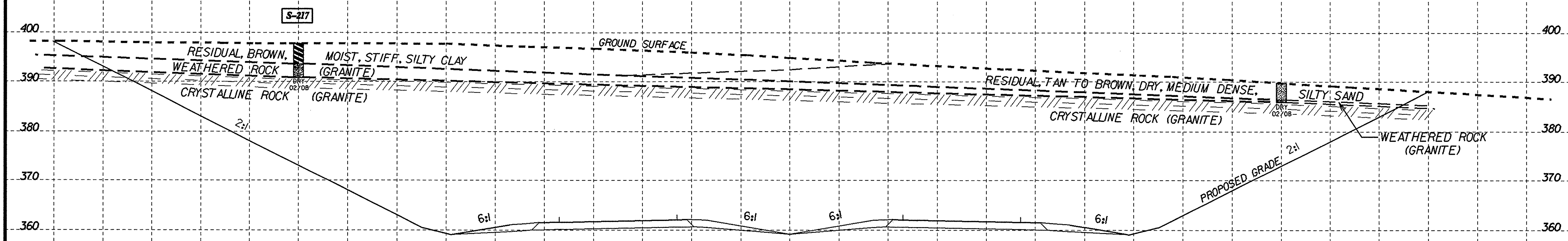
tswisher AT GE3248324

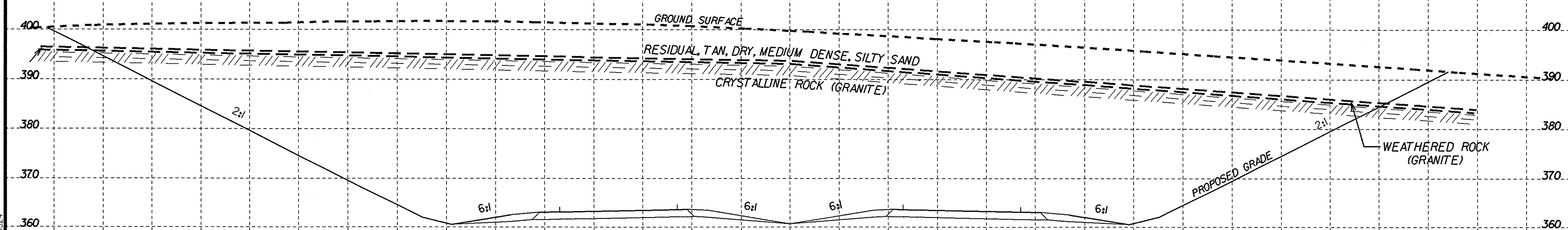
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	95

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		
S-217	100' LT	108+50	2.5-4.0	A-7-6(10)	50	25	35.6	14.9	11.2	38.3	99	71	52	-	-



108+50



108+00

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ttwalker AT GEJ248324

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PROJ. REFERENCE NO.	SHEET NO.
R-2814B	96

0 5 10

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

390 380 370 360 350

RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
GROUND SURFACE
2:1
6:1
PROPOSED GRADE
6:1
6:1
6:1
2:1

110+00

390 380 370 360

RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
DRY
-QZ'08'
GROUND SURFACE
2:1
6:1
PROPOSED GRADE
6:1
6:1
6:1
2:1

109+50

390 380 370 360

WEATHERED ROCK (GRANITE)
RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
GROUND SURFACE
2:1
6:1
PROPOSED GRADE
6:1
6:1
6:1
2:1
WEATHERED ROCK (GRANITE)

109+00

-L-

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

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jstucker

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	97

0 5 10

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

370 360 350

DRY 02/08

2:1 PROPOSED GRADE

CRYSTALLINE ROCK (GRANITE)

GROUND SURFACE

RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY

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

111+50

380 370 360 350

2:1 PROPOSED GRADE

RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY

GROUND SURFACE

CRYSTALLINE ROCK (GRANITE)

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

111+00

380 370 360 350

2:1 PROPOSED GRADE

RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY

GROUND SURFACE

CRYSTALLINE ROCK (GRANITE)

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

110+50

-L-

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

8/23/99

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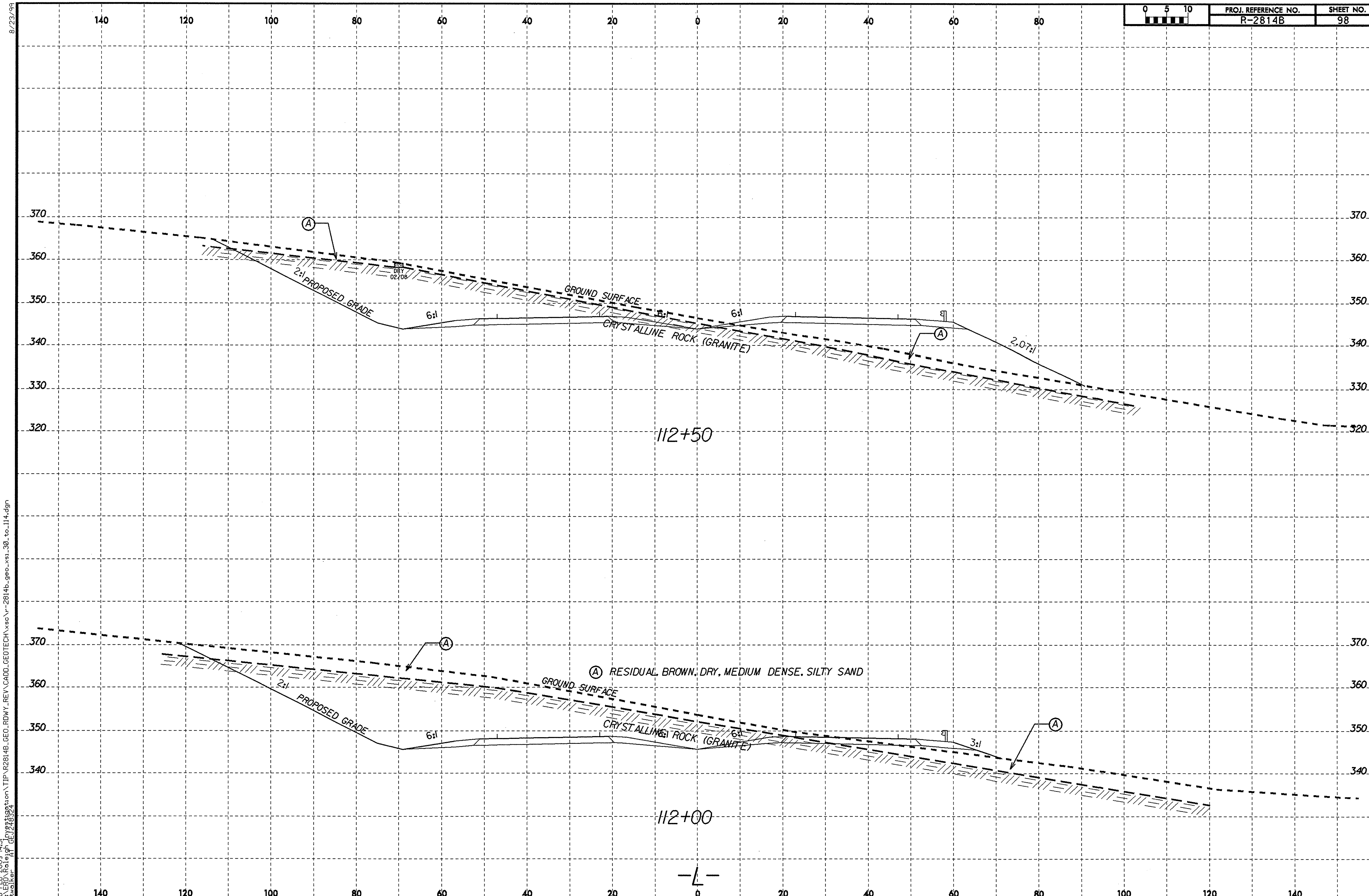
twalker AT GEJ2408324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	98



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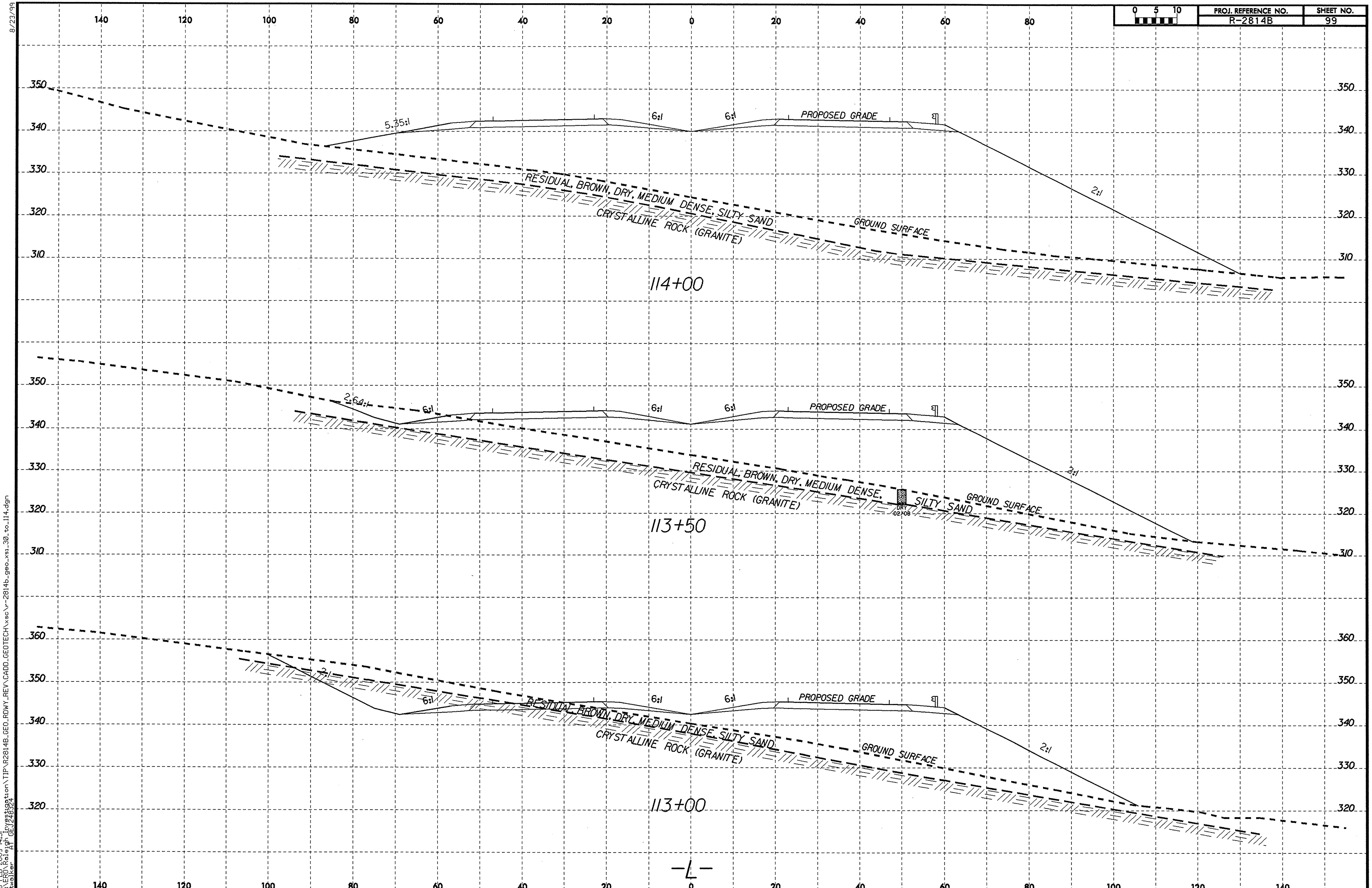
ttwalker AT GE1248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	99


0 5 10
5.35:1
6:1
6:1
PROPOSED GRADE
2:1
RESIDUAL, BROWN, DRY, MEDIUM DENSE, SILTY SAND
CRYSTALLINE ROCK (GRANITE)
GROUND SURFACE
114+00
2.64:1
6:1
6:1
6:1
PROPOSED GRADE
2:1
RESIDUAL, BROWN, DRY, MEDIUM DENSE, SILTY SAND
CRYSTALLINE ROCK (GRANITE)
GROUND SURFACE
DRY 02/08
113+50
2:1
6:1
6:1
6:1
PROPOSED GRADE
2:1
RESIDUAL, BROWN, DRY, MEDIUM DENSE, SILTY SAND
CRYSTALLINE ROCK (GRANITE)
GROUND SURFACE
113+00
-L-
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140
350 340 330 320 310
360 350 340 330 320

8/23/99

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ttwalker AT GE1248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	100

0 5 10

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

360 350 340 330

GROUND SURFACE

RESIDUAL TAN-BROWN TO BROWN, MOIST, STIFF, SILTY CLAY AND SANDY CLAY

CRYSTALLINE ROCK (GRANITE)

RESIDUAL TAN, DRY, MEDIUM DENSE, COARSE SAND

DRY 02708

PROPOSED GRADE

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

119+50

GROUND SURFACE

RESIDUAL TAN, DRY, MED. DENSE, COARSE SAND

RESIDUAL TAN-BROWN, MOIST, STIFF, SANDY CLAY

CRYSTALLINE ROCK (GRANITE)

PROPOSED GRADE

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

119+00

PROPOSED GRADE

GROUND SURFACE

RESIDUAL TAN-BROWN, MOIST, STIFF, SANDY CLAY

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

118+50

-L-

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

8/23/99

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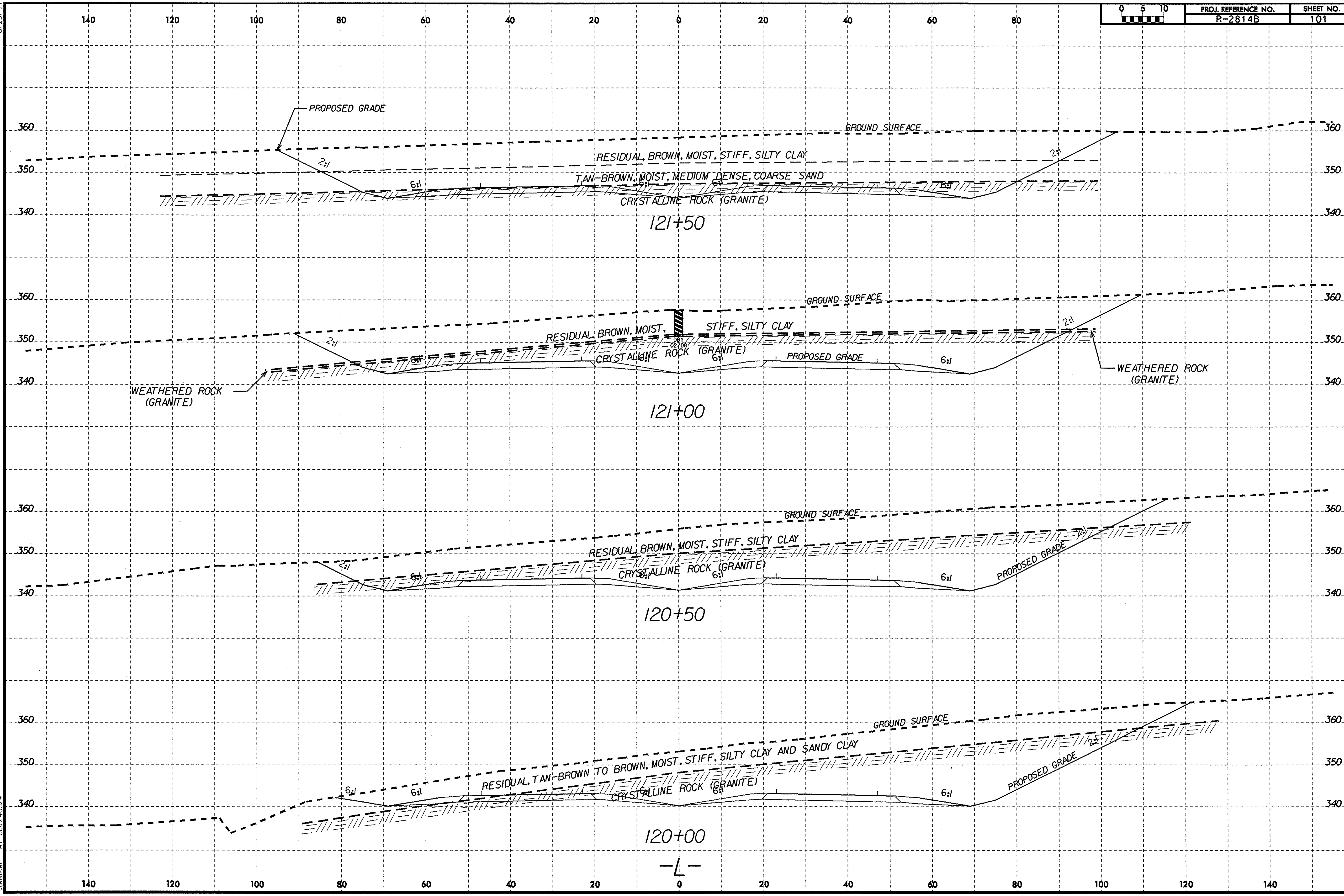
swalker
ATT CE/Z18324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	101



0 5 10
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY
TAN-BROWN, MOIST, MEDIUM DENSE, COARSE SAND
CRYSTALLINE ROCK (GRANITE)
2:1
6:1
121+50
GROUND SURFACE
RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
PROPOSED GRADE
WEATHERED ROCK (GRANITE)
121+00
GROUND SURFACE
RESIDUAL, BROWN, MOIST, STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
PROPOSED GRADE
120+50
GROUND SURFACE
RESIDUAL, TAN-BROWN TO BROWN, MOIST, STIFF, SILTY CLAY AND SANDY CLAY
CRYSTALLINE ROCK (GRANITE)
PROPOSED GRADE
120+00
-L-
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140
360 350 340

8/23/99

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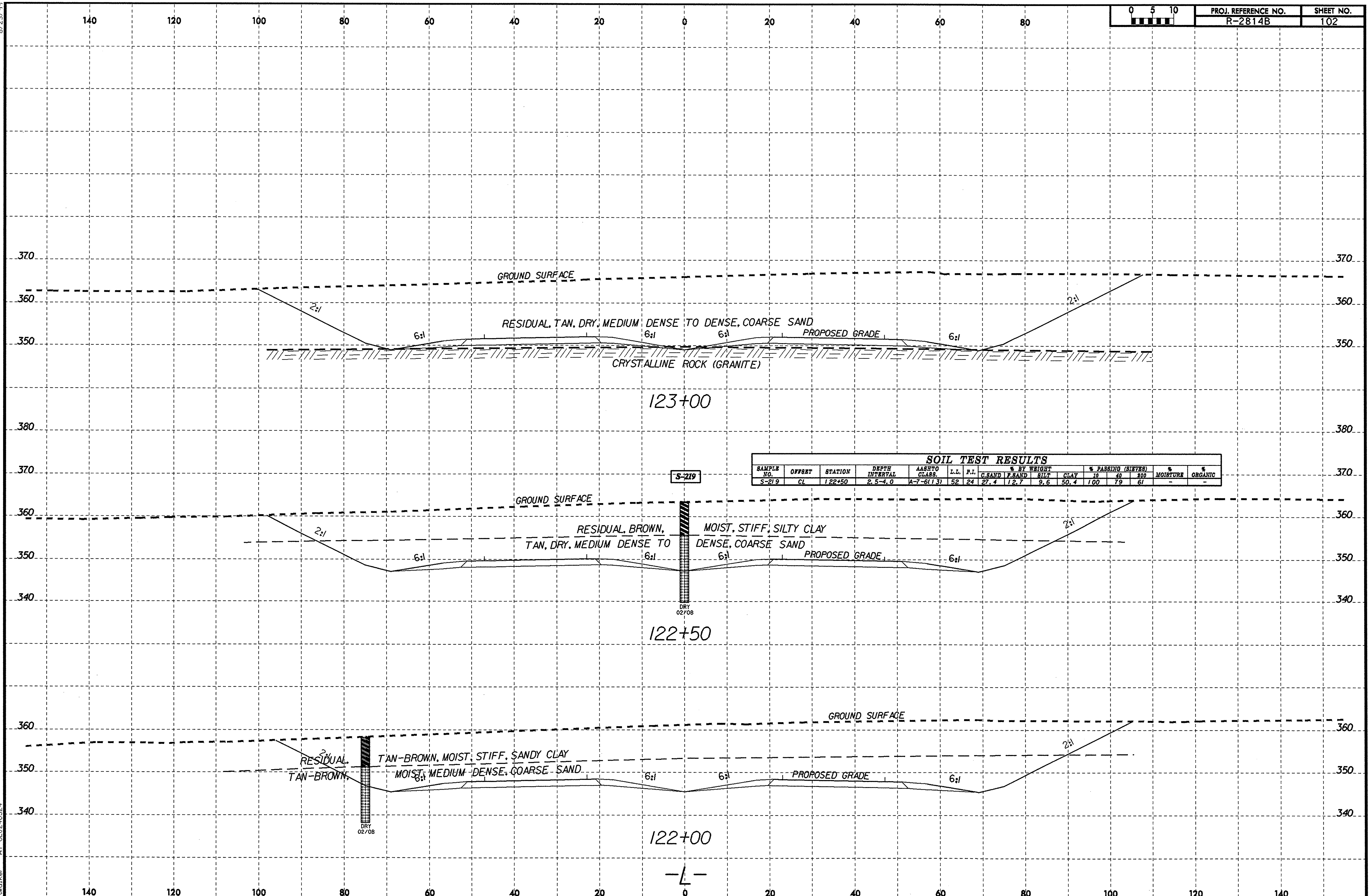
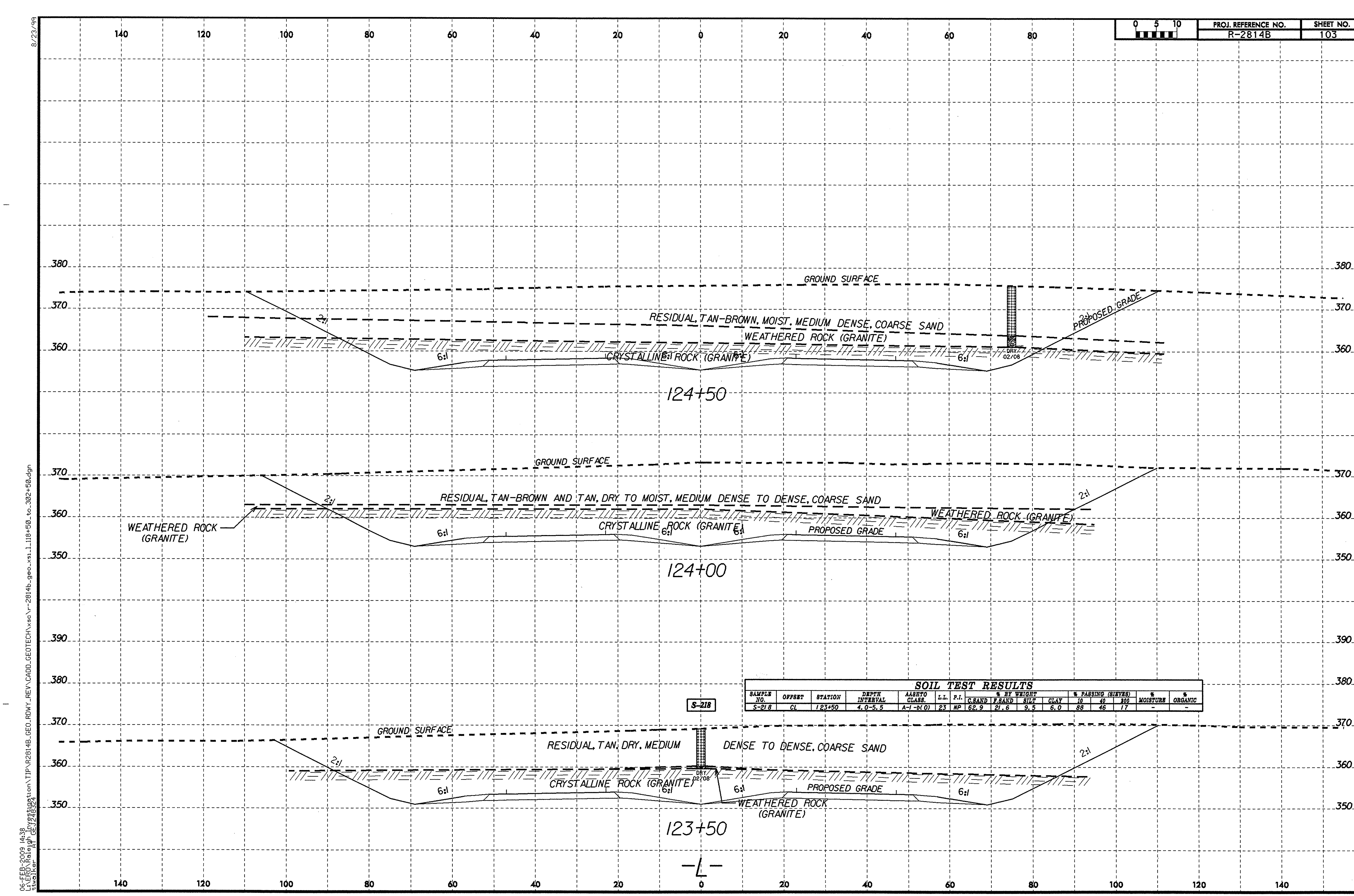
ttwalker AT GEJ248324



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-219	CL	122+50	2.5-4.0	A-7-6(13)	52	24	27.4	12.7	9.6	50.4	100	79	61	-	-

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	103


8/23/99
0 5 10
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM DENSE, COARSE SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
PROPOSED GRADE
2:1
6:1
DRY/ 02/08
124+50
GROUND SURFACE
RESIDUAL, TAN-BROWN AND TAN, DRY TO MOIST, MEDIUM DENSE TO DENSE, COARSE SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
PROPOSED GRADE
124+00
S-218
GROUND SURFACE
RESIDUAL, TAN, DRY, MEDIUM DENSE TO DENSE, COARSE SAND
CRYSTALLINE ROCK (GRANITE)
PROPOSED GRADE
WEATHERED ROCK (GRANITE)
123+50
-L-
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140
380 370 360 350 390
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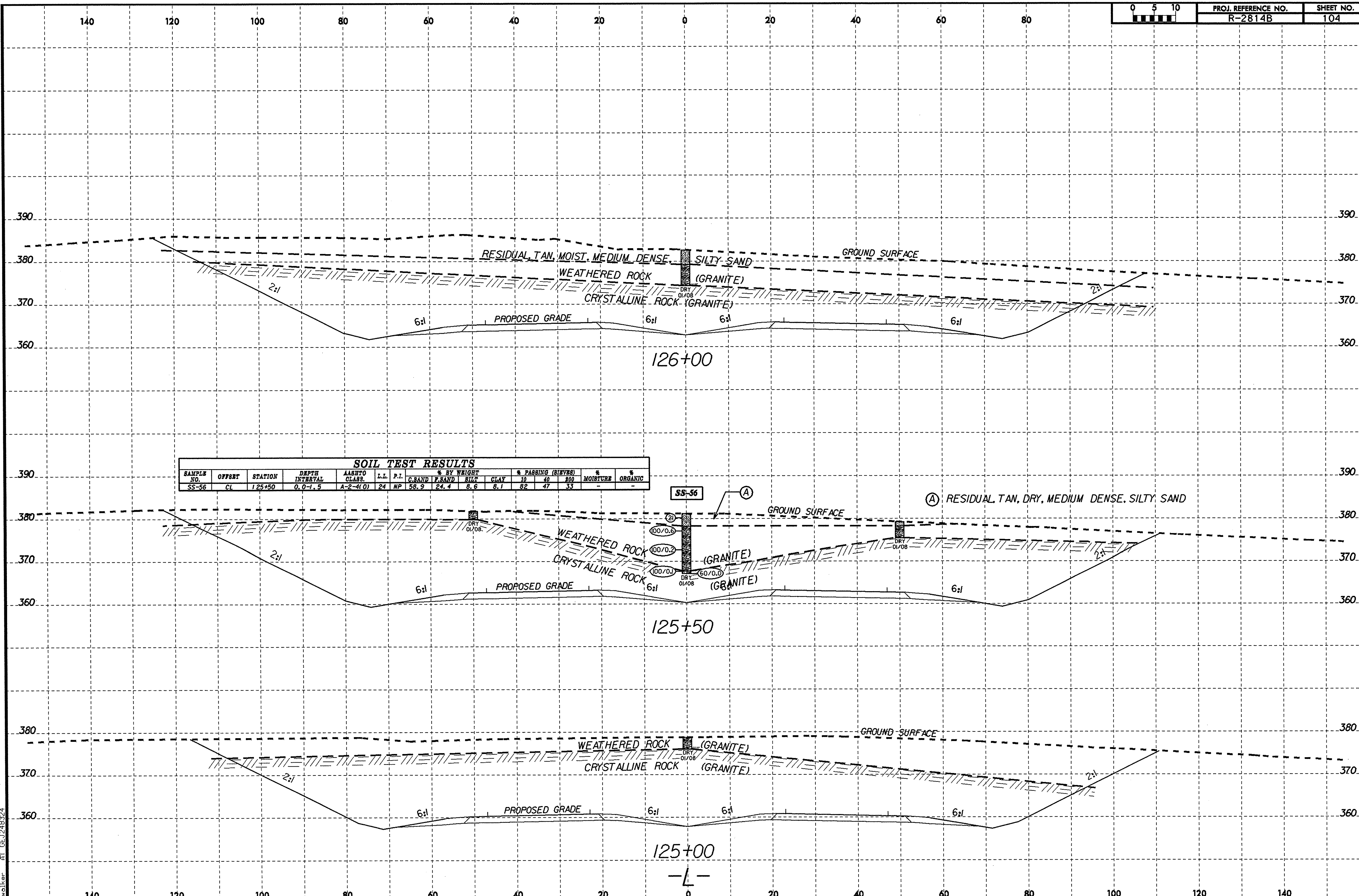
ttwalker AT GEI248324

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-218	CL	123+50	4.0-5.5	A-1-b(0)	23	NP	62.9	21.6	9.5	6.0	88	46	17	-	-

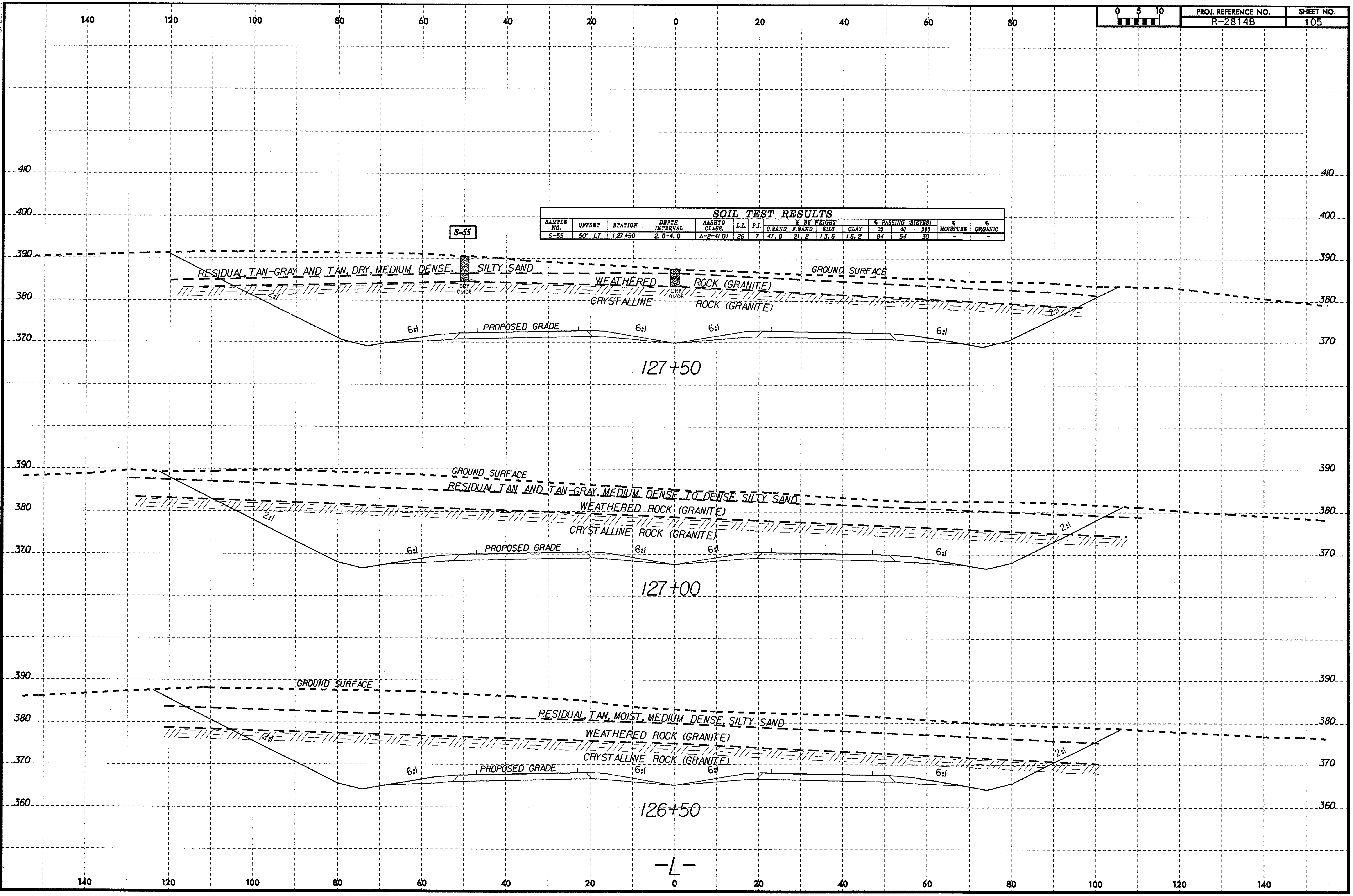
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	104



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-56	CL	125+50	0.0-1.5	A-2-4(0)	24	NP	58.9	24.4	8.6	8.1	82	47	33	-	-

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	105



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-55	50' LT	127+50	2.0-4.0	A-2-4(0)	26	7	47.0	21.2	13.6	18.2	84	54	30	-	-

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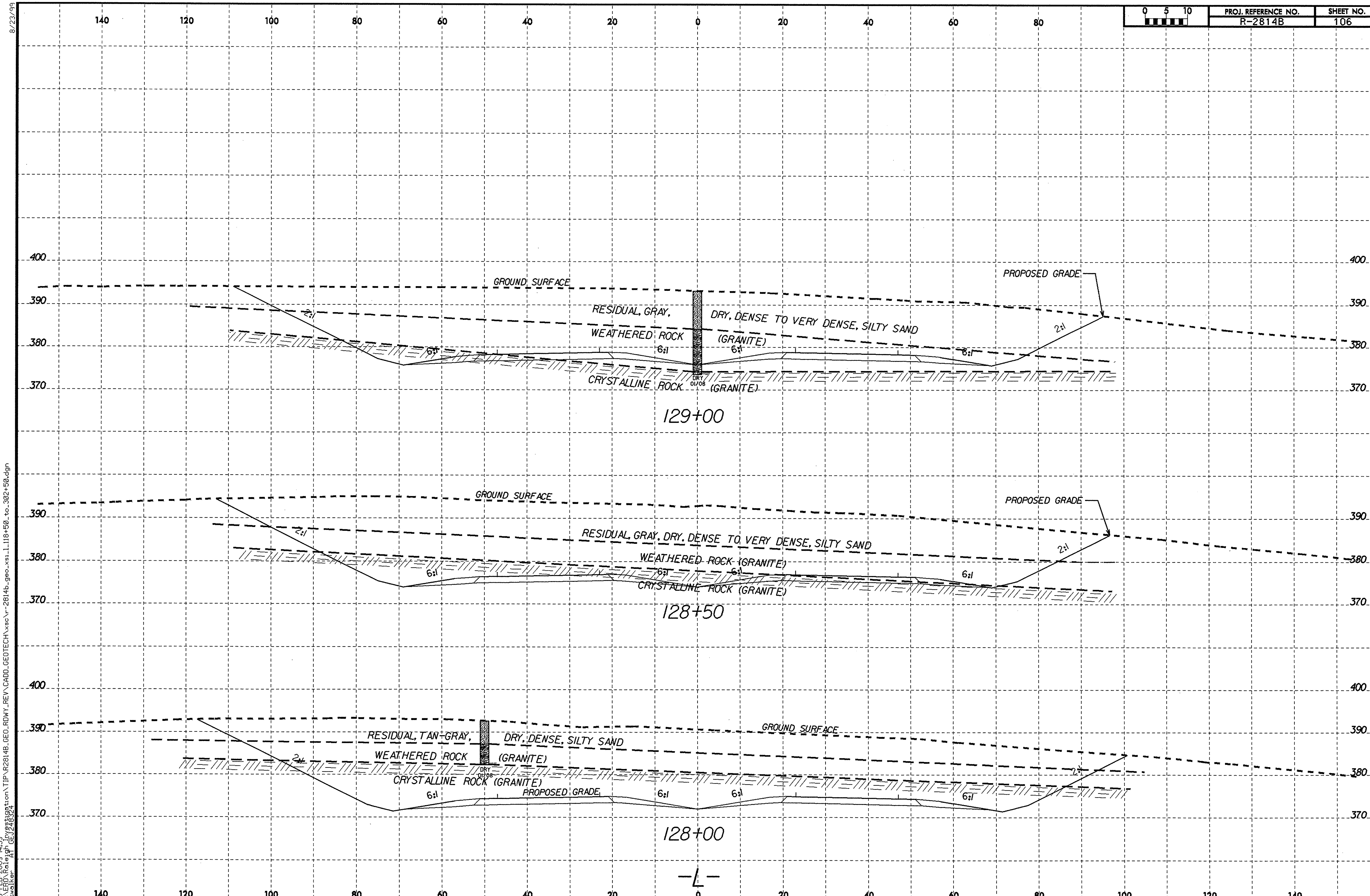
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	106



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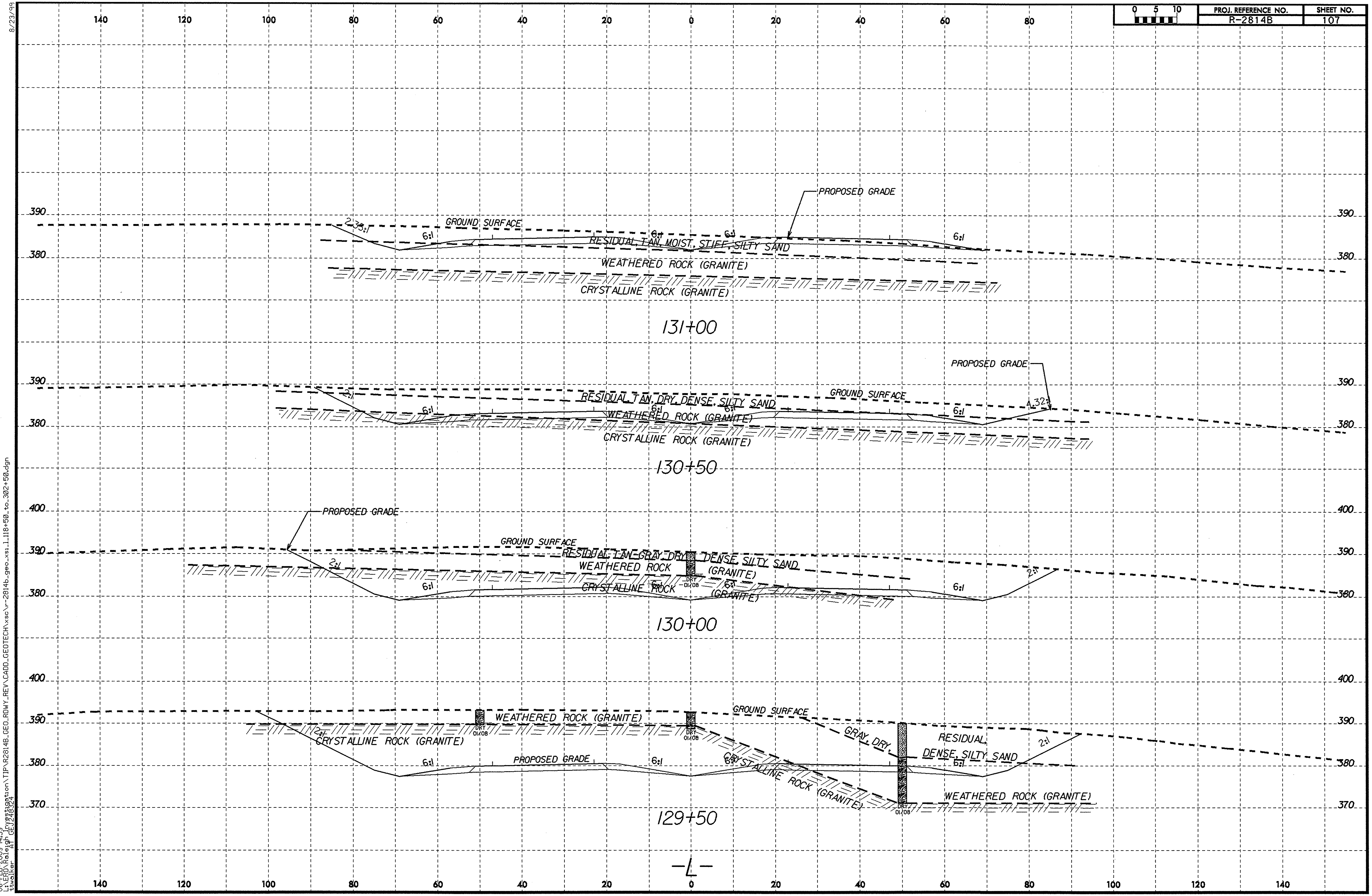
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	107



0 5 10
140 120 100 80 60 40 20 0 20 40 60 80
390
380
PROPOSED GRADE
GROUND SURFACE
2.33:1
6:1
6:1
6:1
6:1
RESIDUAL, TAN, MOIST, STIFF, SILTY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
131+00
PROPOSED GRADE
GROUND SURFACE
2:1
6:1
6:1
6:1
6:1
4.32:1
RESIDUAL, TAN, DRY, DENSE, SILTY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
130+50
400
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-GRAY, DRY, DENSE, SILTY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
6:1
6:1
6:1
2:1
DRY 01/08
130+00
370
GROUND SURFACE
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
PROPOSED GRADE
GRAY, DRY,
RESIDUAL,
DENSE, SILTY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
2:1
6:1
6:1
6:1
6:1
2:1
DRY 01/08
129+50
-L-
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

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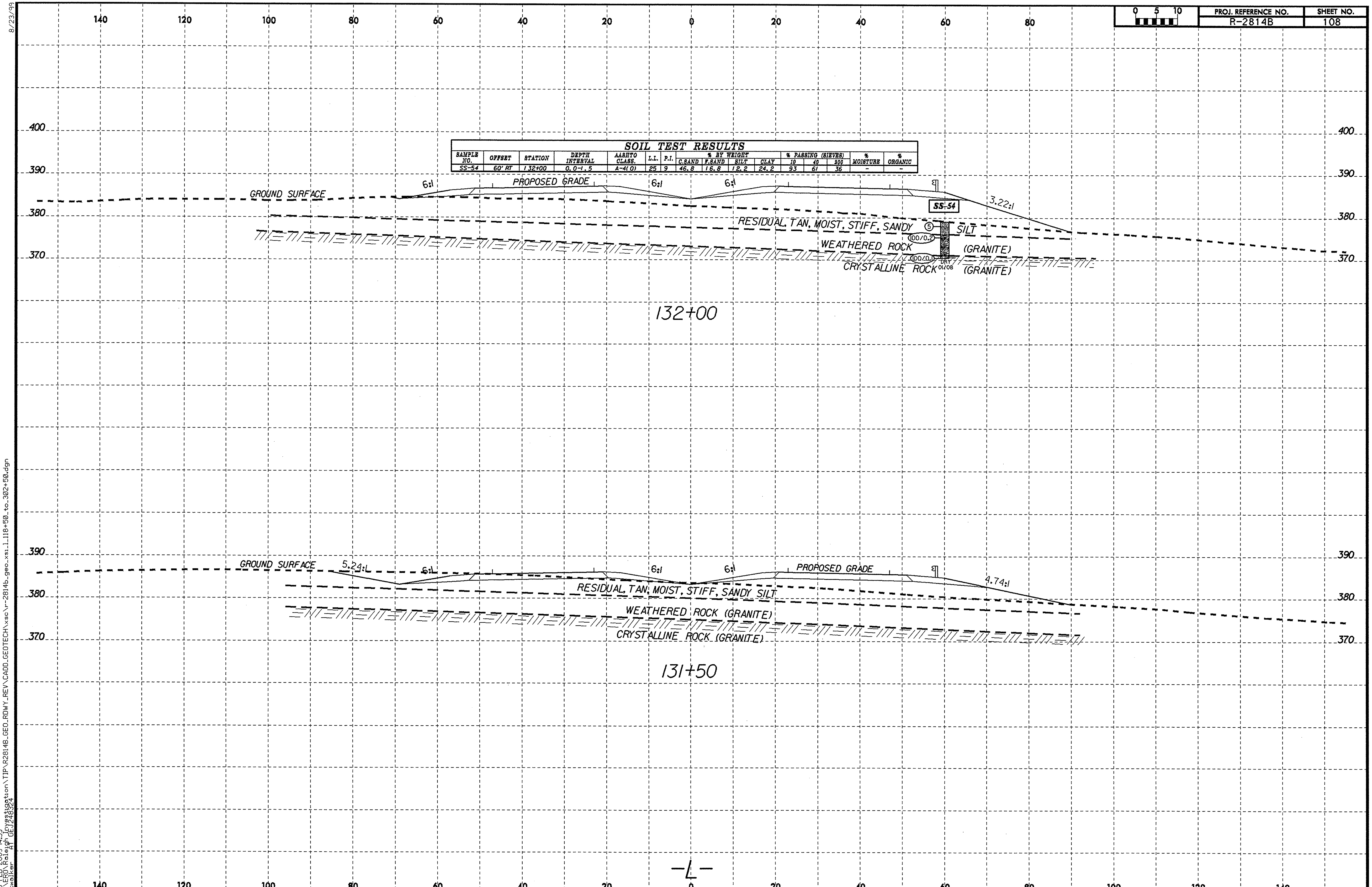
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	108

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	60' RT	132+00	0.0-1.5	A-4(0)	25	9	46.8	16.8	12.2	24.2	93	61	36	-	-



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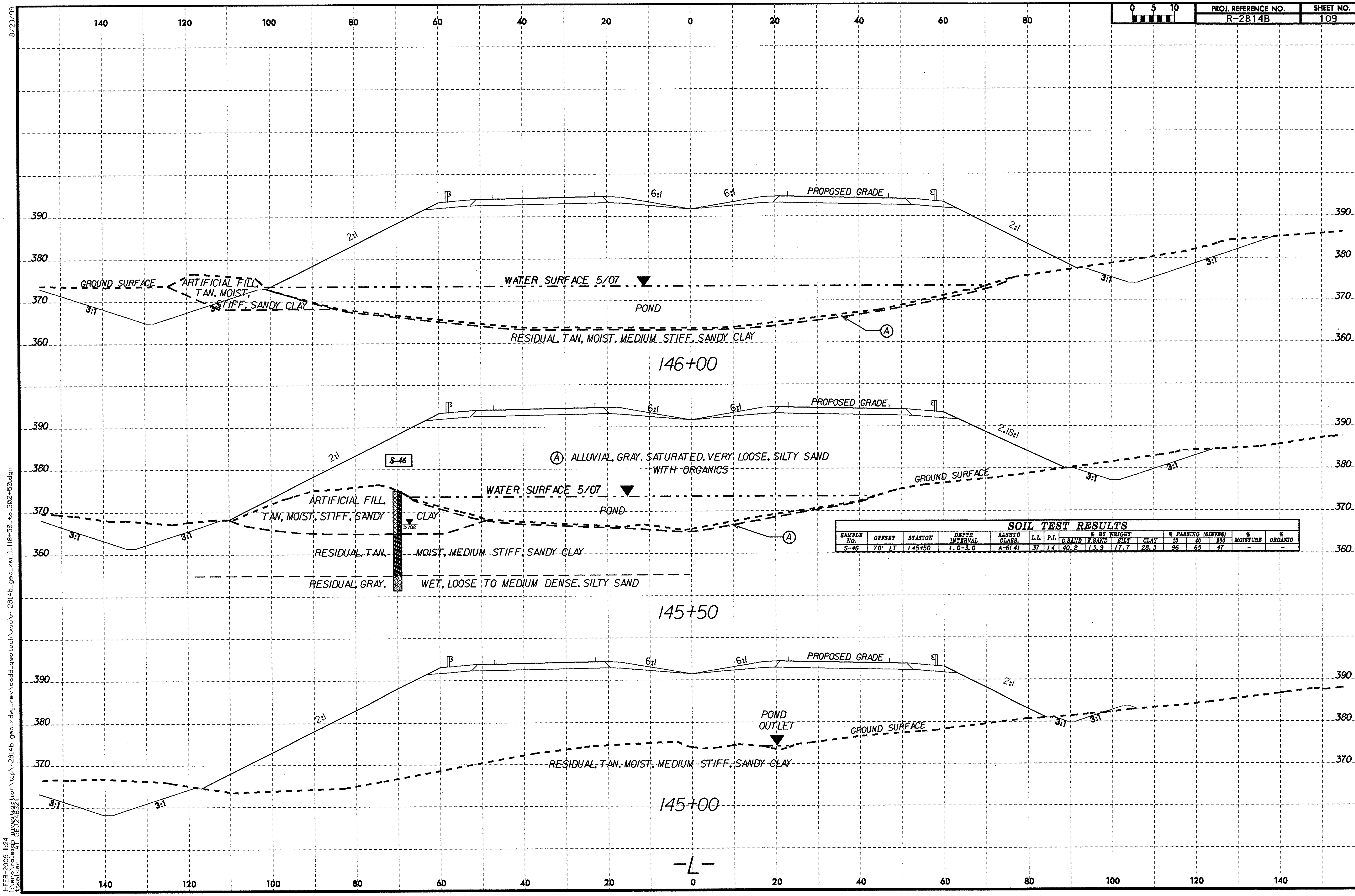
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	109



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-46	70' LT	145+50	1.0-3.0	A-6(4)	37	14	40.2	13.9	17.7	28.3	96	65	47	-	-

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	110

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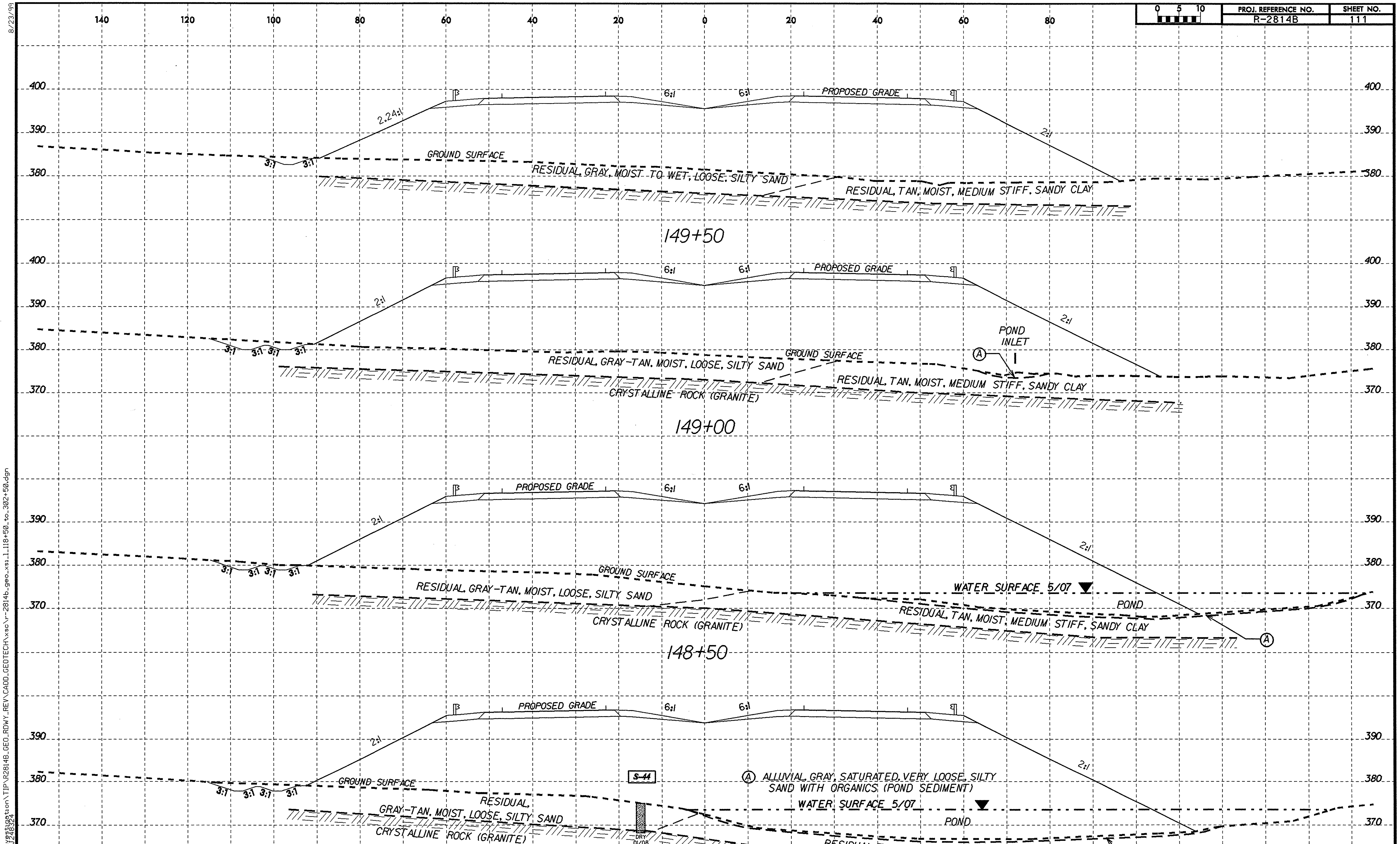
ttwalker AT GEJ248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	111



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-44	15 LT	148+00	0.0-3.0	A-2-4(0)	26	6	54.3	14.1	11.4	20.2	94	49	32	-	-

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ttwalker AT GEJ248324

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	112

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

430
420

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

2:1 6:1 4.758:1 5:1 6:1 2:1

DRY 01/08

CRYSTALLINE ROCK (GRANITE)

166+50

PROPOSED GRADE

S-106

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-106	70' LT	166+00	0.0-5.4	A-7-6(13)	54	29	35.4	10.3	5.9	48.5	98	70	55	-	-

430
420

GROUND SURFACE

2:1 6:1 4.800:1 5:1 6:1 2:1

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

DRY 01/08 DRY 01/08

CRYSTALLINE ROCK (GRANITE)

166+00

440
430
420
410
400

S-107

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-107	70' LT	165+50	5.0-9.0	A-1-b(0)	26	NP	57.4	22.4	12.1	8.1	85	47	20	-	-

2:1 6:1

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN, MOIST, VERY DENSE, COARSE SAND

4.895:1 5:1 PROPOSED GRADE 6:1 GROUND SURFACE 2.16:1

DRY 01/08

CRYSTALLINE ROCK (GRANITE)

165+50

GROUND SURFACE

2:1 6:1 5:1 4.910:1 PROPOSED GRADE 6:1 2.29:1

RESIDUAL, RED-BROWN, MOIST, HARD, SILTY CLAY

CRYSTALLINE ROCK (GRANITE)

165+00

-L-

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

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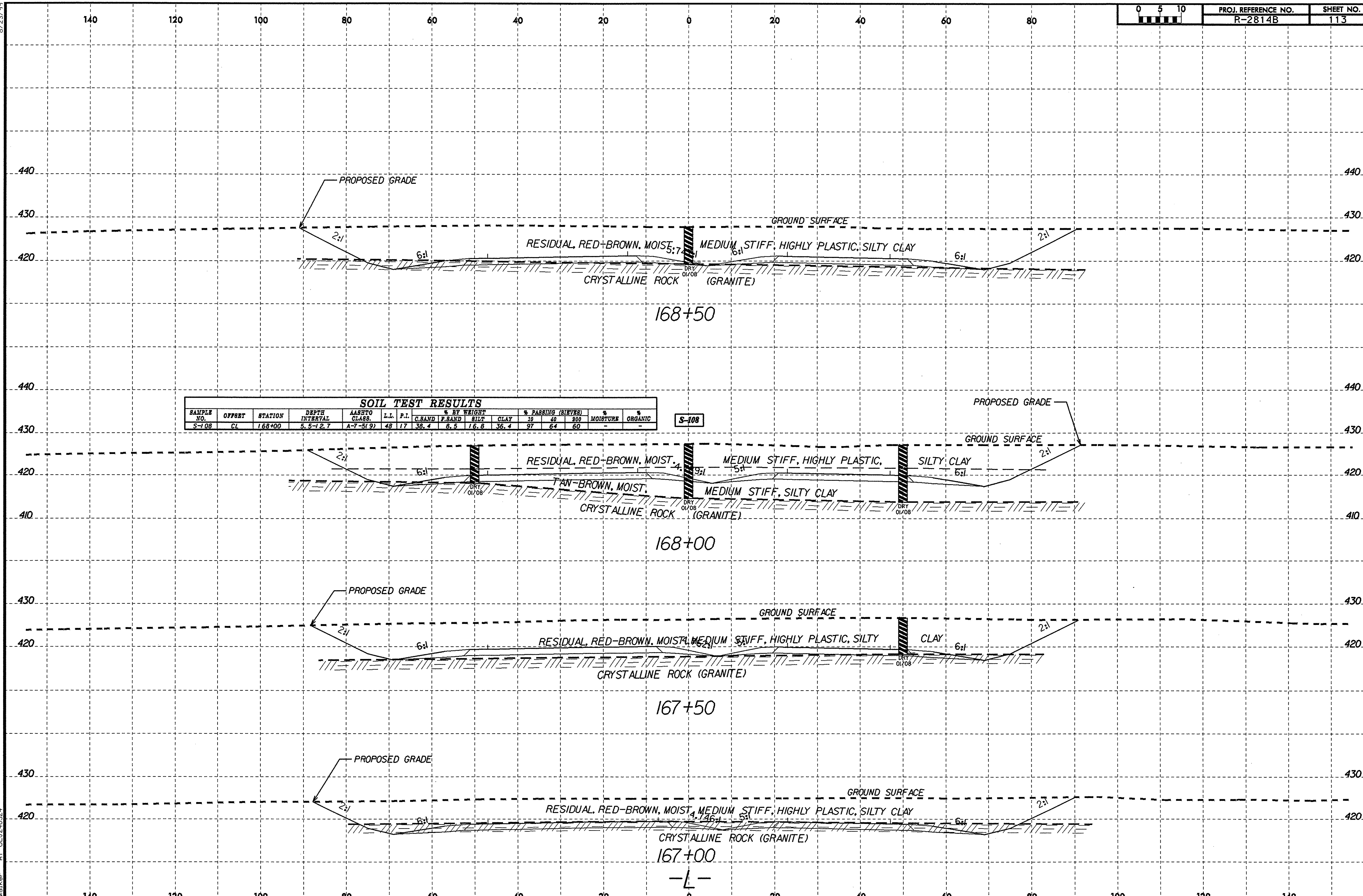
ttwalker
AT GE248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	113



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
S-108	CL	168+00	5.5-12.7	A-7-5(9)	48	17	38.4	8.5	16.8	36.4	97	64	60	-	-

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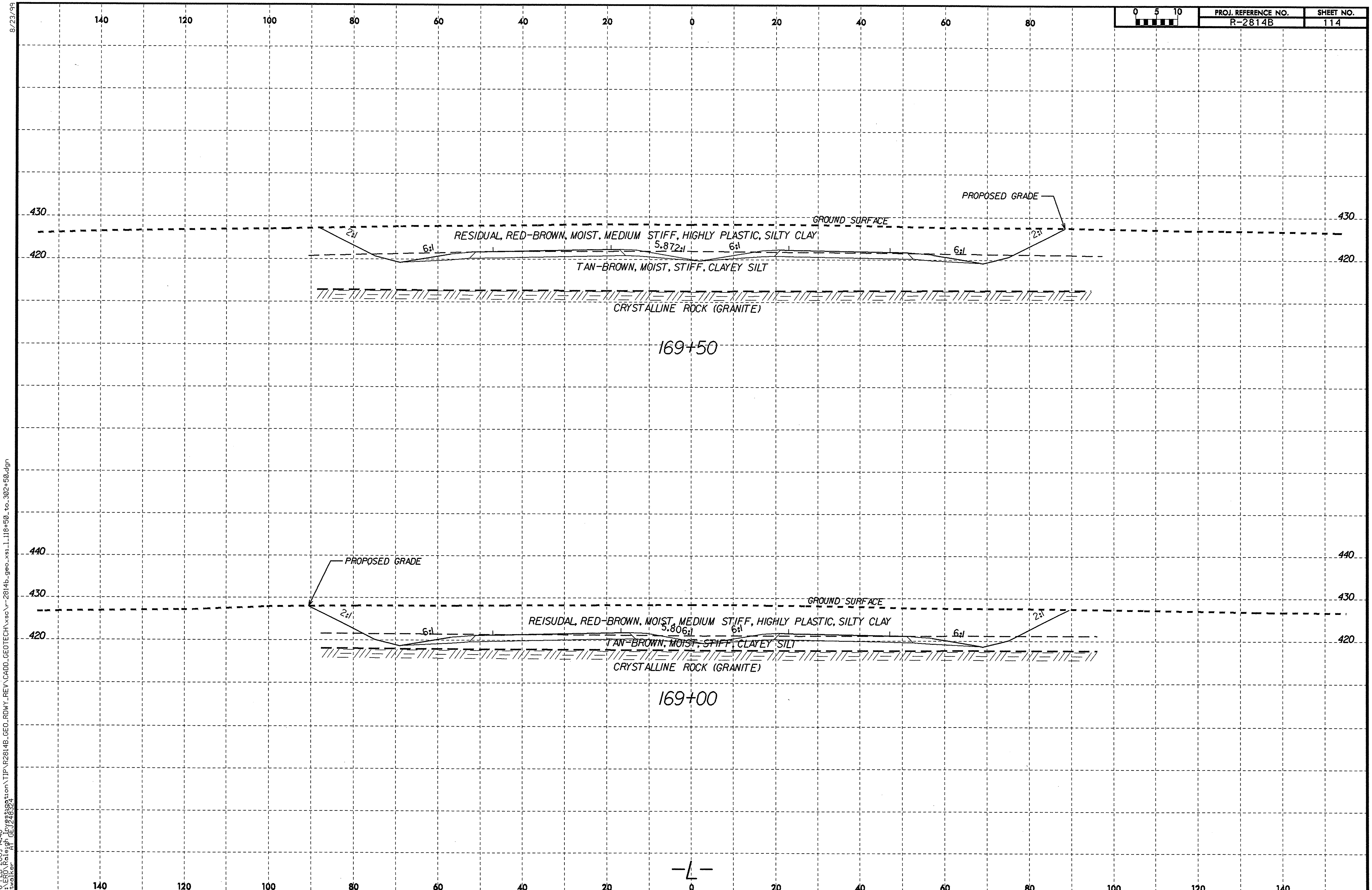
ttwalker AT GEJ248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	114



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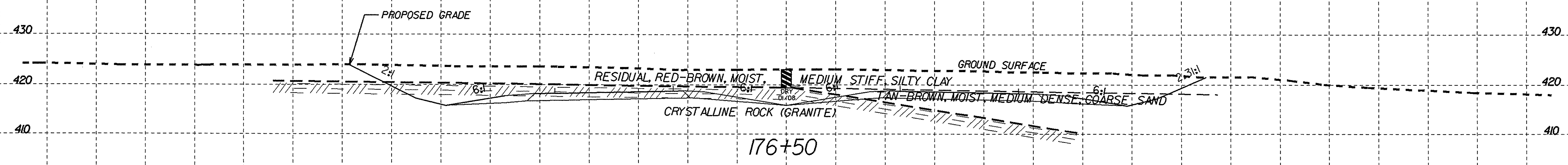
ttwalker AT GE4248324

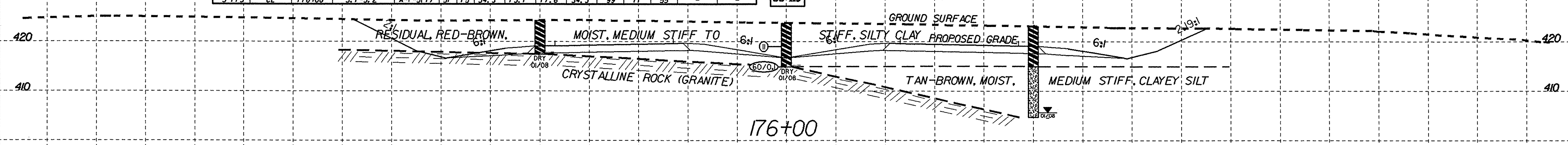
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	115

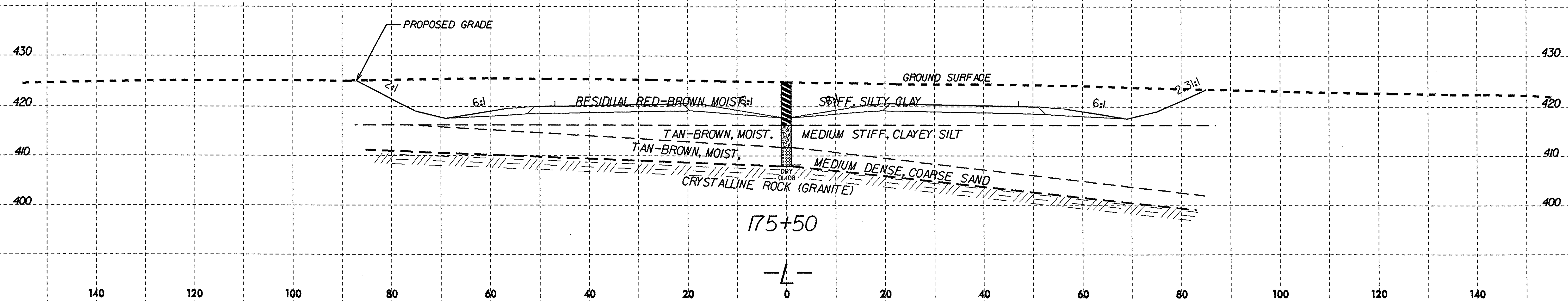


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-113	CL	176+00	3.7-5.2	A-7-5(7)	51	15	34.3	13.7	17.6	34.3	99	71	55	-	-

SS-113





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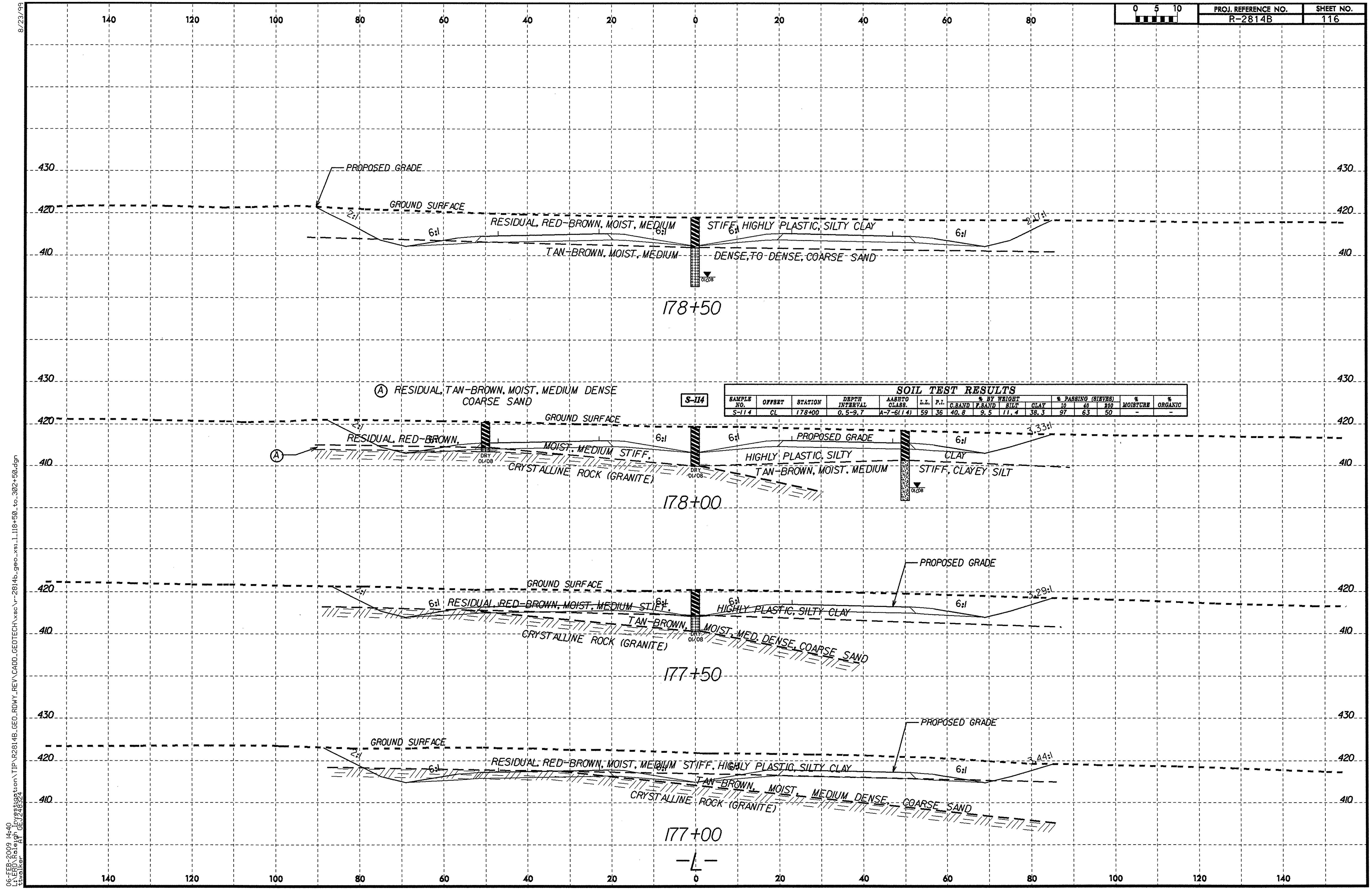
ttwalker AT GEJ248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	116



8/23/99
0 5 10
140 120 100 80 60 40 20 0 20 40 60 80
430
420
410
PROPOSED GRADE
GROUND SURFACE
2:1
6:1
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
2.17:1
TAN-BROWN, MOIST, MEDIUM DENSE, TO DENSE, COARSE SAND
01/08
178+50
Ⓐ RESIDUAL, TAN-BROWN, MOIST, MEDIUM DENSE COARSE SAND
S-114
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
PROPOSED GRADE
3.33:1
DRY 01/08
CRYSTALLINE ROCK (GRANITE)
TAN-BROWN, MOIST, MEDIUM STIFF, CLAYEY SILT
178+00
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
3.29:1
TAN-BROWN, MOIST, MED. DENSE, COARSE SAND
CRYSTALLINE ROCK (GRANITE)
177+50
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
3.44:1
TAN-BROWN, MOIST, MEDIUM DENSE, COARSE SAND
CRYSTALLINE ROCK (GRANITE)
177+00
-L-
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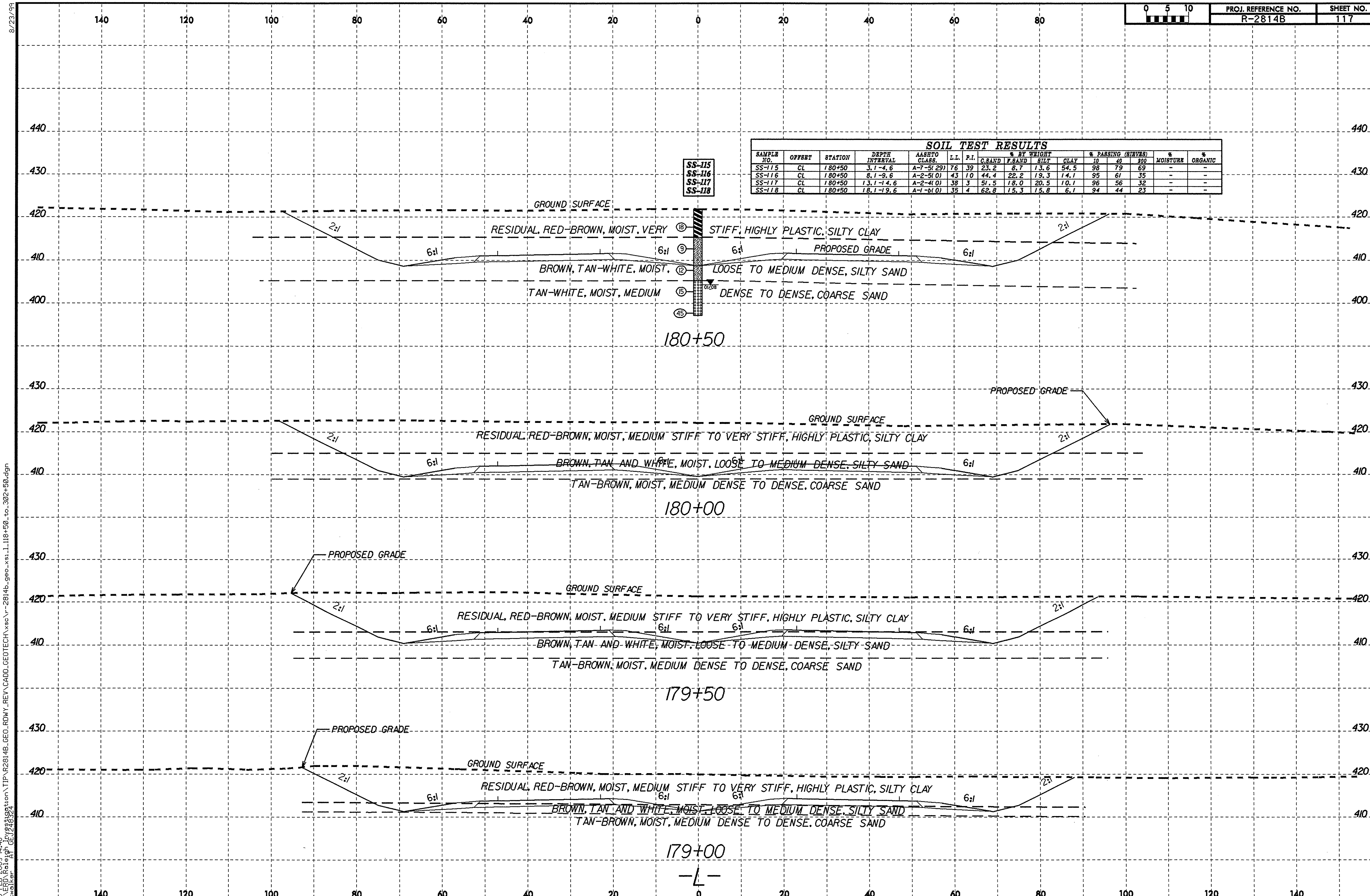
ttwalker AT GEJ248324

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-114	CL	178+00	0.5-9.7	A-7-6(14)	59	36	40.8	9.5	11.4	38.3	97	63	50	-	-

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	117



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-115	CL	180+50	3.1-4.6	A-7-5(29)	76	39	23.2	8.7	13.6	54.5	98	79	69	-	-
SS-116	CL	180+50	8.1-9.6	A-2-5(0)	43	10	44.4	22.2	19.3	14.1	95	61	35	-	-
SS-117	CL	180+50	13.1-14.6	A-2-4(0)	38	3	51.5	18.0	20.5	10.1	96	56	32	-	-
SS-118	CL	180+50	18.1-19.6	A-1-b(0)	35	4	62.8	15.3	15.8	6.1	94	44	23	-	-

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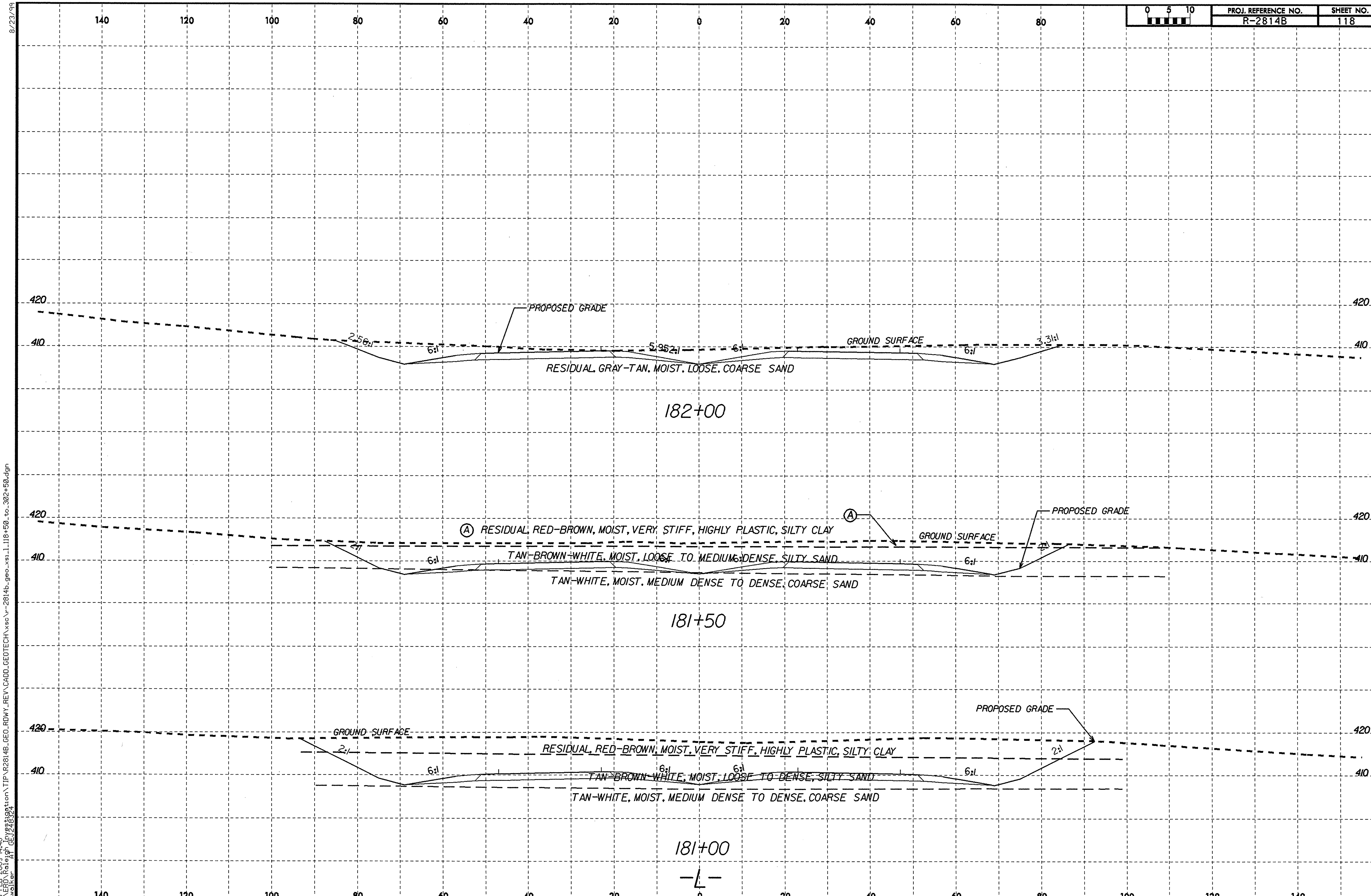
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	118



0 5 10
140 120 100 80 60 40 20 0 20 40 60 80
420
410
PROPOSED GRADE
GROUND SURFACE
2.56:1
6:1
5.952:1
6:1
6:1
3.31:1
RESIDUAL, GRAY-TAN, MOIST, LOOSE, COARSE SAND
182+00
PROPOSED GRADE
Ⓐ RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY
GROUND SURFACE
2:1
6:1
TAN-BROWN-WHITE, MOIST, LOOSE TO MEDIUM DENSE, SILTY SAND
6:1
2:1
TAN-WHITE, MOIST, MEDIUM DENSE TO DENSE, COARSE SAND
181+50
PROPOSED GRADE
GROUND SURFACE
2:1
RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY
2:1
6:1
6:1
6:1
6:1
TAN-BROWN-WHITE, MOIST, LOOSE TO DENSE, SILTY SAND
TAN-WHITE, MOIST, MEDIUM DENSE TO DENSE, COARSE SAND
181+00
-L-
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

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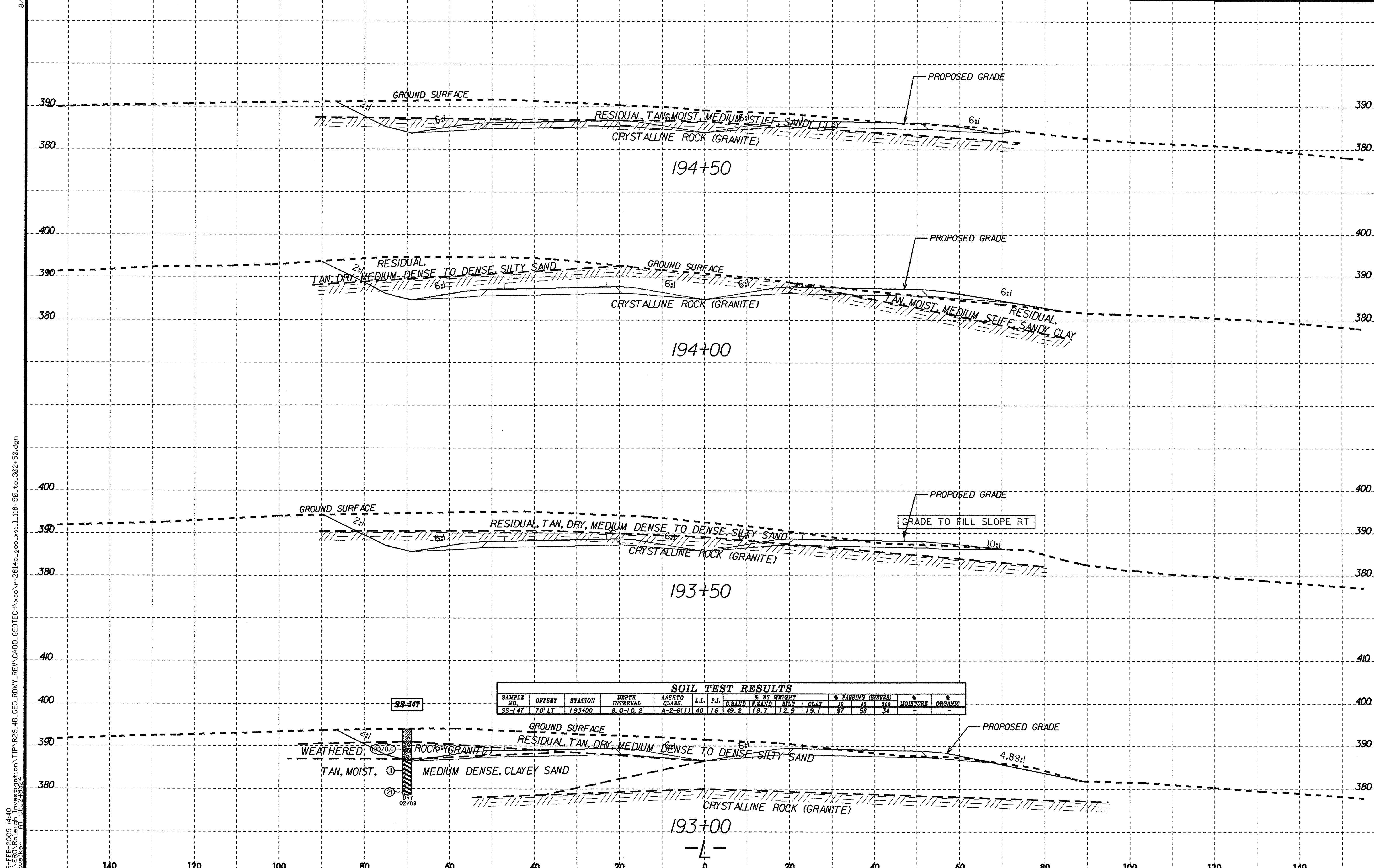
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	119



8/23/99
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN, MOIST, MEDIUM STIFF, SANDY CLAY
CRYSTALLINE ROCK (GRANITE)
194+50
RESIDUAL, TAN, DRY, MEDIUM DENSE TO DENSE, SILTY SAND
RESIDUAL, TAN, MOIST, MEDIUM STIFF, SANDY CLAY
194+00
GRADE TO FILL SLOPE RT
193+50
SS-147
WEATHERED ROCK (GRANITE)
TAN, MOIST, MEDIUM DENSE, CLAYEY SAND
DRY 02/08
193+00
-L-
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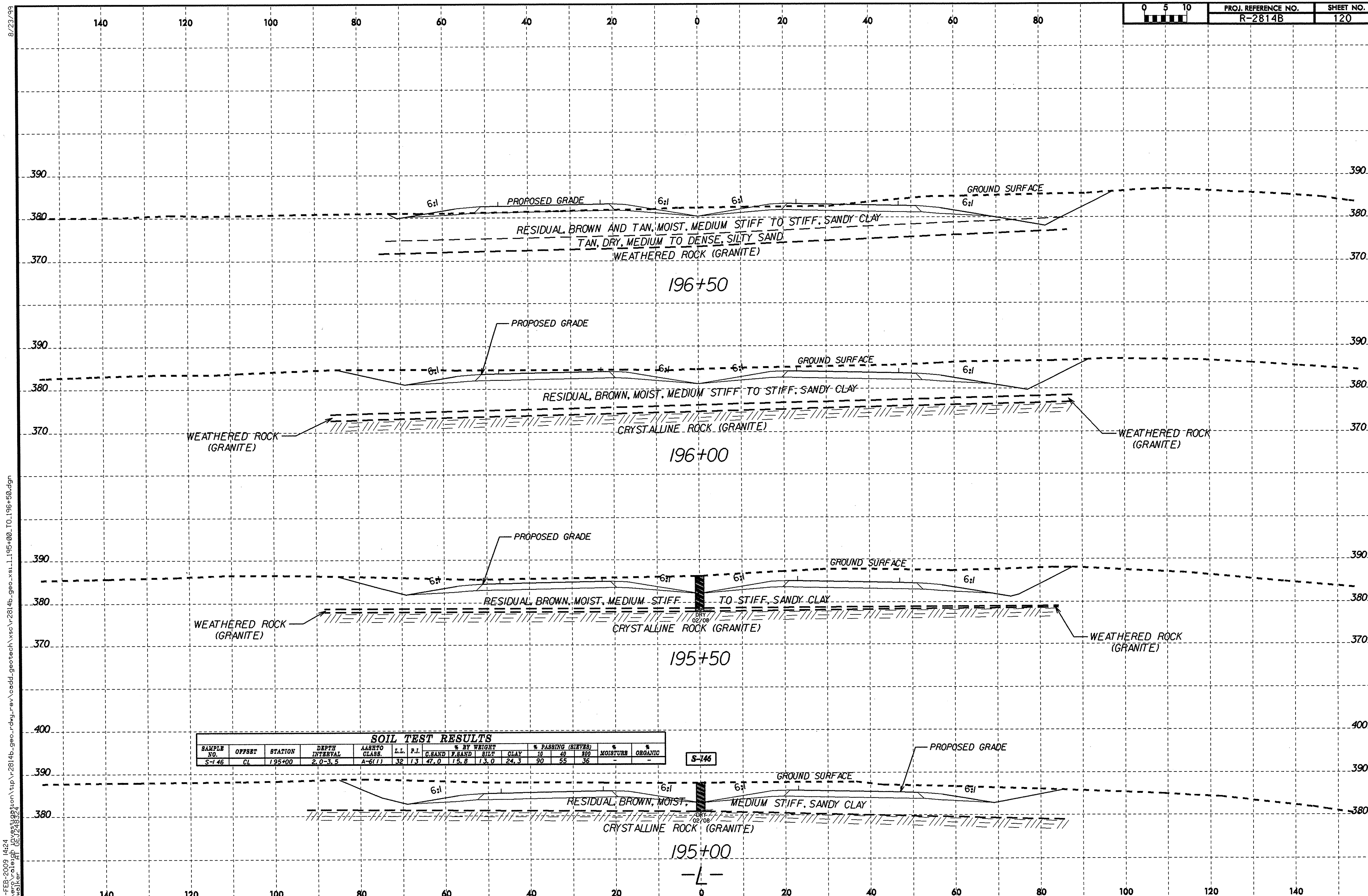
ttwalker AT GEJ248324

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-147	70' LT	193+00	8.0-10.2	A-2-6(1)	40	16	49.2	18.7	12.9	19.1	97	58	34	-	-

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	120



0 5 10
140 120 100 80 60 40 20 0 20 40 60 80
390
380
370
PROPOSED GRADE
GROUND SURFACE
6:1
RESIDUAL, BROWN AND TAN, MOIST, MEDIUM STIFF TO STIFF, SANDY CLAY
TAN, DRY, MEDIUM TO DENSE, SILTY SAND
WEATHERED ROCK (GRANITE)
196+50
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, BROWN, MOIST, MEDIUM STIFF TO STIFF, SANDY CLAY
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
196+00
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, BROWN, MOIST, MEDIUM STIFF TO STIFF, SANDY CLAY
DRY 02/08
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
195+50
400
S-146
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, BROWN, MOIST, MEDIUM STIFF, SANDY CLAY
DRY 02/08
CRYSTALLINE ROCK (GRANITE)
195+00
-L-
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-146	CL	195+00	2.0-3.5	A-6(1)	32	13	47.0	15.8	13.0	24.3	90	55	36	-	-

8/23/99

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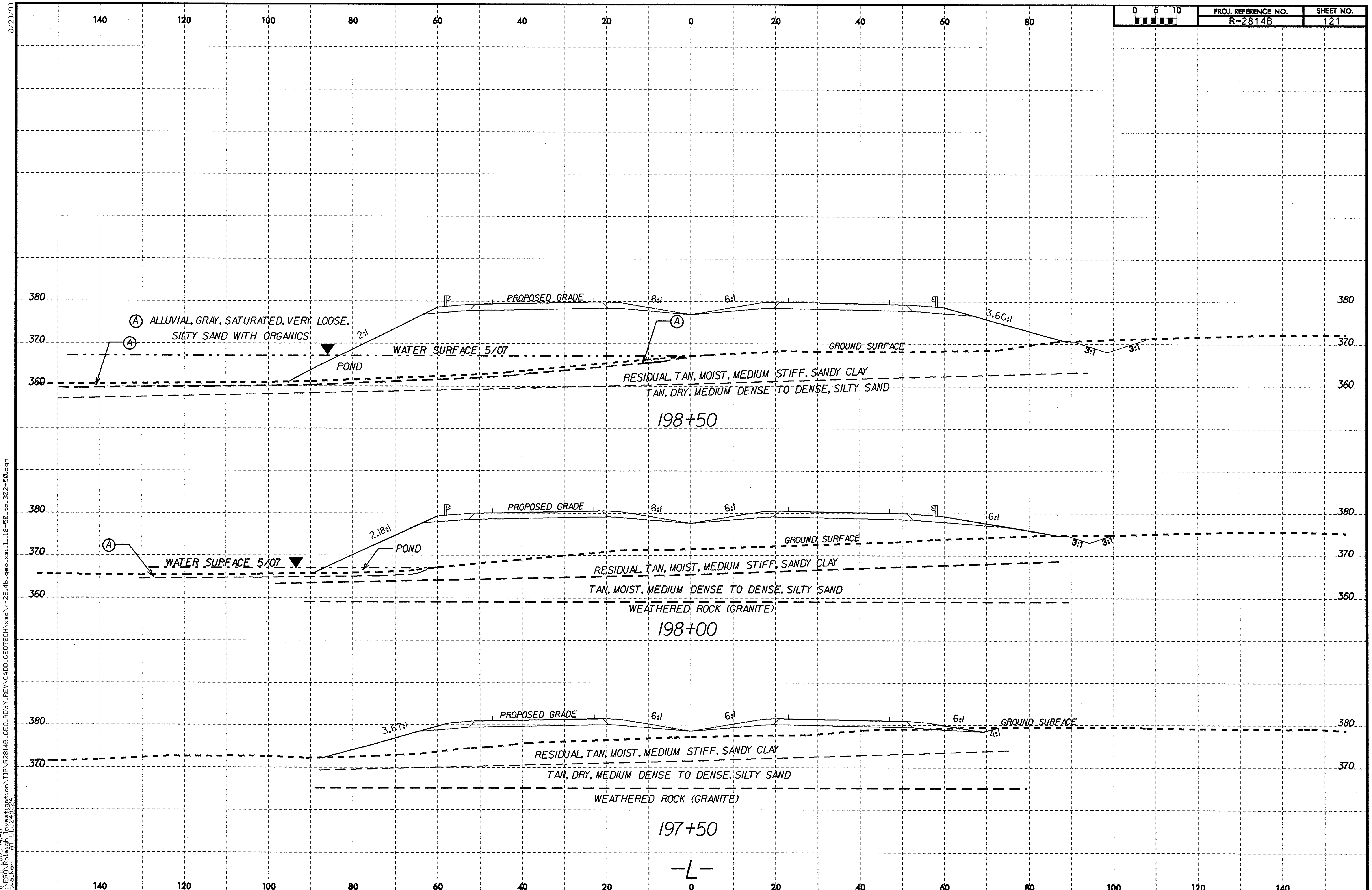

PROJ. REFERENCE NO.
R-2814B
SHEET NO.
121
0 5 10
8/23/99
(A) ALLUVIAL, GRAY, SATURATED, VERY LOOSE, SILTY SAND WITH ORGANICS
PROPOSED GRADE
2:1
6:1
6:1
3.60:1
WATER SURFACE 5/07
POND
GROUND SURFACE
3:1
3:1
RESIDUAL, TAN, MOIST, MEDIUM STIFF, SANDY CLAY
TAN, DRY, MEDIUM DENSE TO DENSE, SILTY SAND
198+50
PROPOSED GRADE
2.18:1
6:1
6:1
6:1
POND
WATER SURFACE 5/07
GROUND SURFACE
3:1
3:1
RESIDUAL, TAN, MOIST, MEDIUM STIFF, SANDY CLAY
TAN, MOIST, MEDIUM DENSE TO DENSE, SILTY SAND
WEATHERED ROCK (GRANITE)
198+00
PROPOSED GRADE
3.67:1
6:1
6:1
6:1
4:1
GROUND SURFACE
RESIDUAL, TAN, MOIST, MEDIUM STIFF, SANDY CLAY
TAN, DRY, MEDIUM DENSE TO DENSE, SILTY SAND
WEATHERED ROCK (GRANITE)
197+50
-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	122

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

380 370 360

6:1 6:1 PROPOSED GRADE

2:1 2:1

Ⓐ ALLUVIAL, GRAY, SATURATED, VERY LOOSE, SILTY SAND WITH ORGANICS

WATER SURFACE 5/07

ARTIFICIAL FILL (EARTH DAM)

POND

GROUND SURFACE

3:1 3:1 3:1 3:1

RESIDUAL, TAN, MOIST, MEDIUM STIFF, SANDY CLAY

200+00

380 370 360

6:1 6:1 PROPOSED GRADE

2:1 2:1

WATER SURFACE 5/07

ARTIFICIAL FILL (EARTH DAM)

GROUND SURFACE

POND

3:1 3:1

RESIDUAL, TAN, MOIST, MEDIUM STIFF, SANDY CLAY

199+50

380 370 360

PROPOSED GRADE 6:1 6:1

2:1 2.2|:1

Ⓐ

WATER SURFACE 5/07

POND

3:1 3:1

GROUND SURFACE

RESIDUAL, TAN, MOIST, MEDIUM STIFF, SANDY CLAY

TAN, DRY, MEDIUM DENSE TO DENSE, SILTY SAND

199+00

—L—

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

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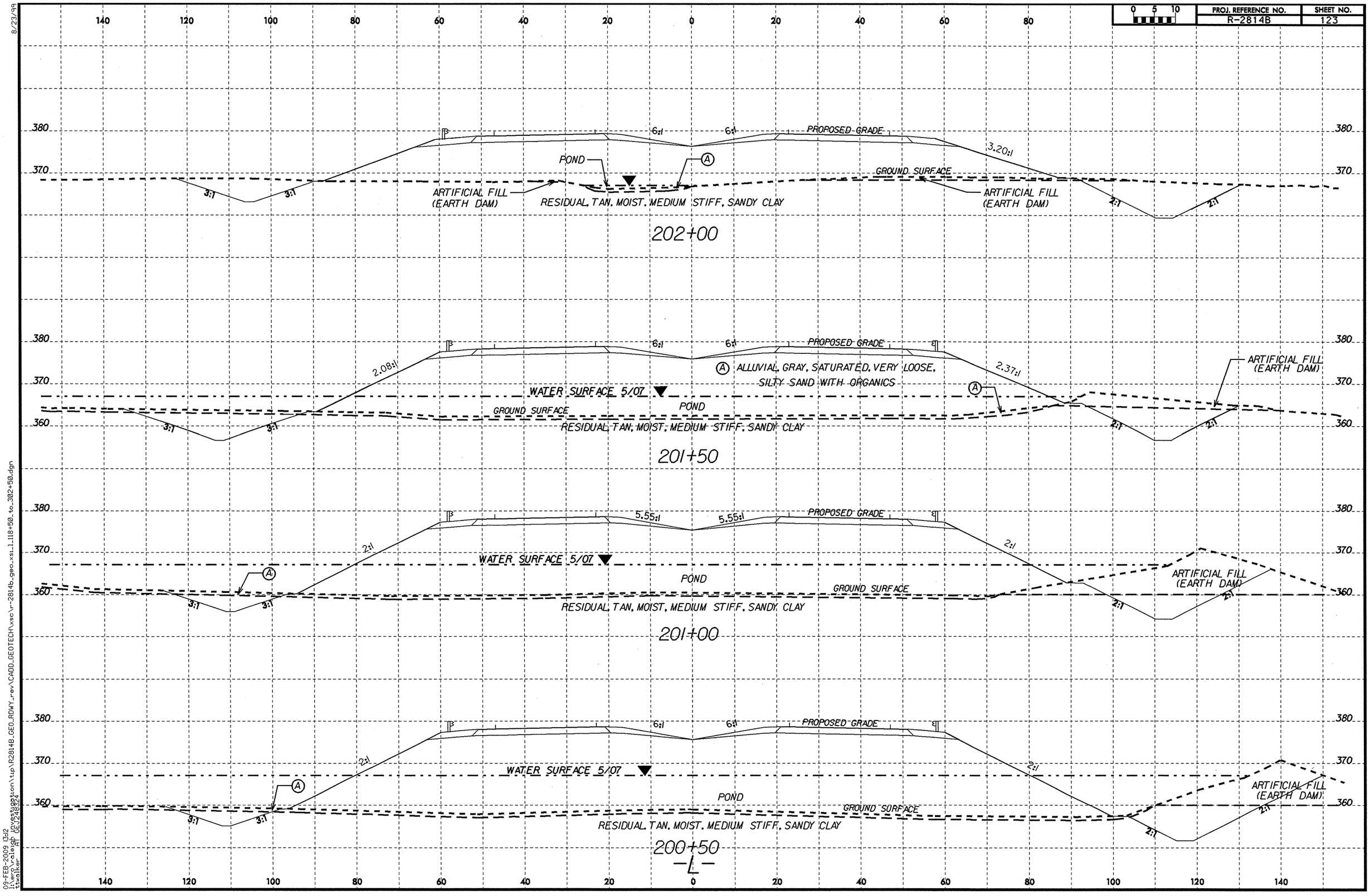
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	123



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AT DE7248324

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	124

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

380
370

GROUND SURFACE
2:1
2:1
6:1
6:1
6:1
PROPOSED GRADE
3:1
Ⓐ
WATER SURFACE 5/07
POND
2:1
2:1
RESIDUAL, TAN, MOIST TO WET, MEDIUM STIFF, SANDY CLAY

204+00

380
370

PROPOSED GRADE
3.12:1
2:1
2:1
6:1
6:1
Ⓐ
3.08:1
WATER SURFACE 5/07
POND
GROUND SURFACE
2:1
2:1
RESIDUAL, TAN, MOIST, MEDIUM STIFF, SANDY CLAY

203+50

ARTIFICIAL FILL (EARTH DAM)
380
370
GROUND SURFACE
Ⓐ
4.82:1
2:1
2:1
6:1
6:1
PROPOSED GRADE
3:1
WATER SURFACE 5/07
POND
2:1
2:1
RESIDUAL, TAN, MOIST, MEDIUM STIFF, SANDY CLAY
ARTIFICIAL FILL (EARTH DAM)

203+00

Ⓐ ALLUVIAL, GRAY, SATURATED, VERY LOOSE, SILTY SAND WITH ORGANICS

380
370
PROPOSED GRADE
6:1
6:1
Ⓐ
POND
6:1
WATER SURFACE 5/07
GROUND SURFACE
ARTIFICIAL FILL (EARTH DAM)
ARTIFICIAL FILL (EARTH DAM)
2:1
2:1
RESIDUAL, TAN, MOIST, MEDIUM STIFF, SANDY CLAY

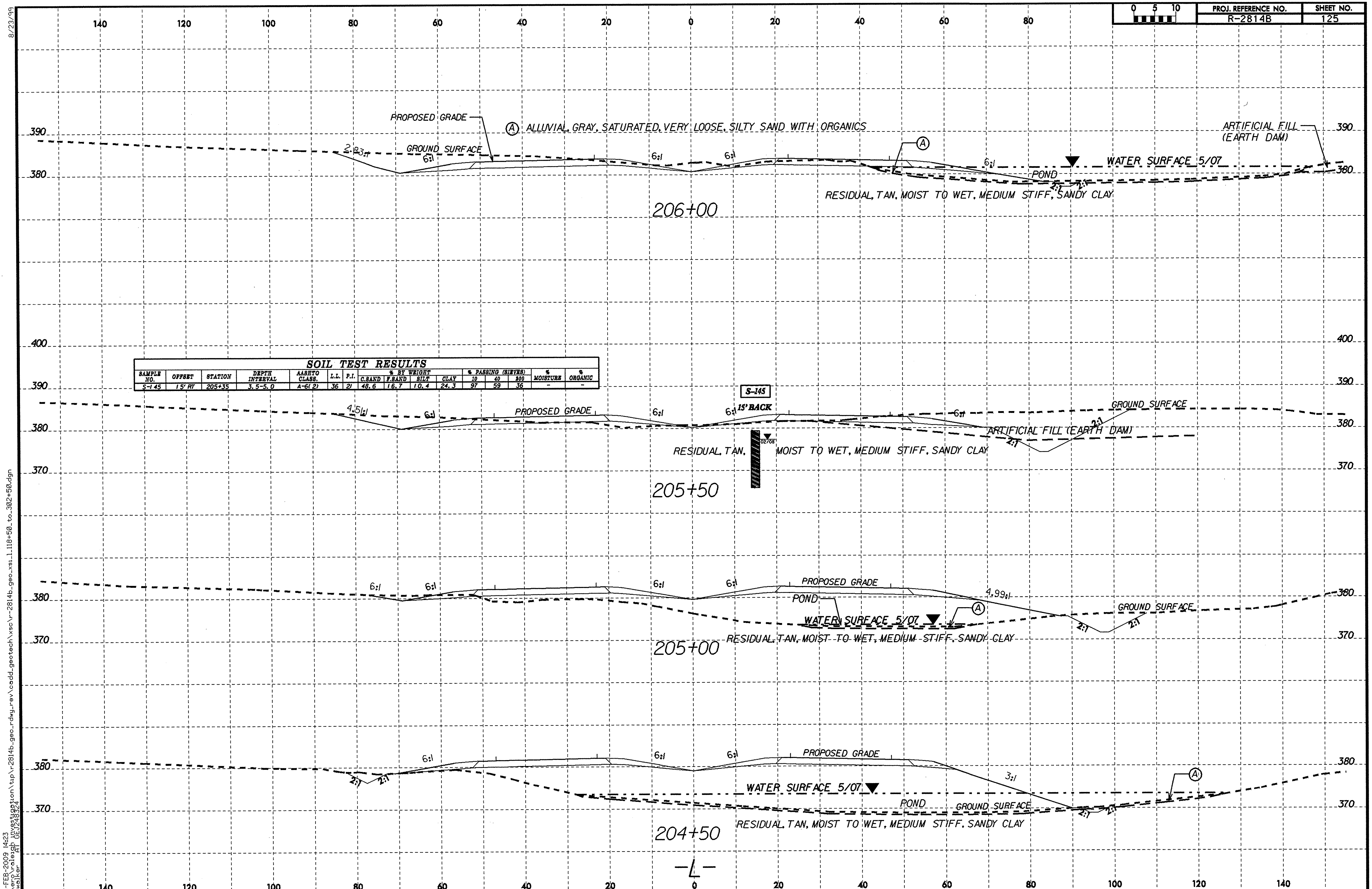
202+50

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

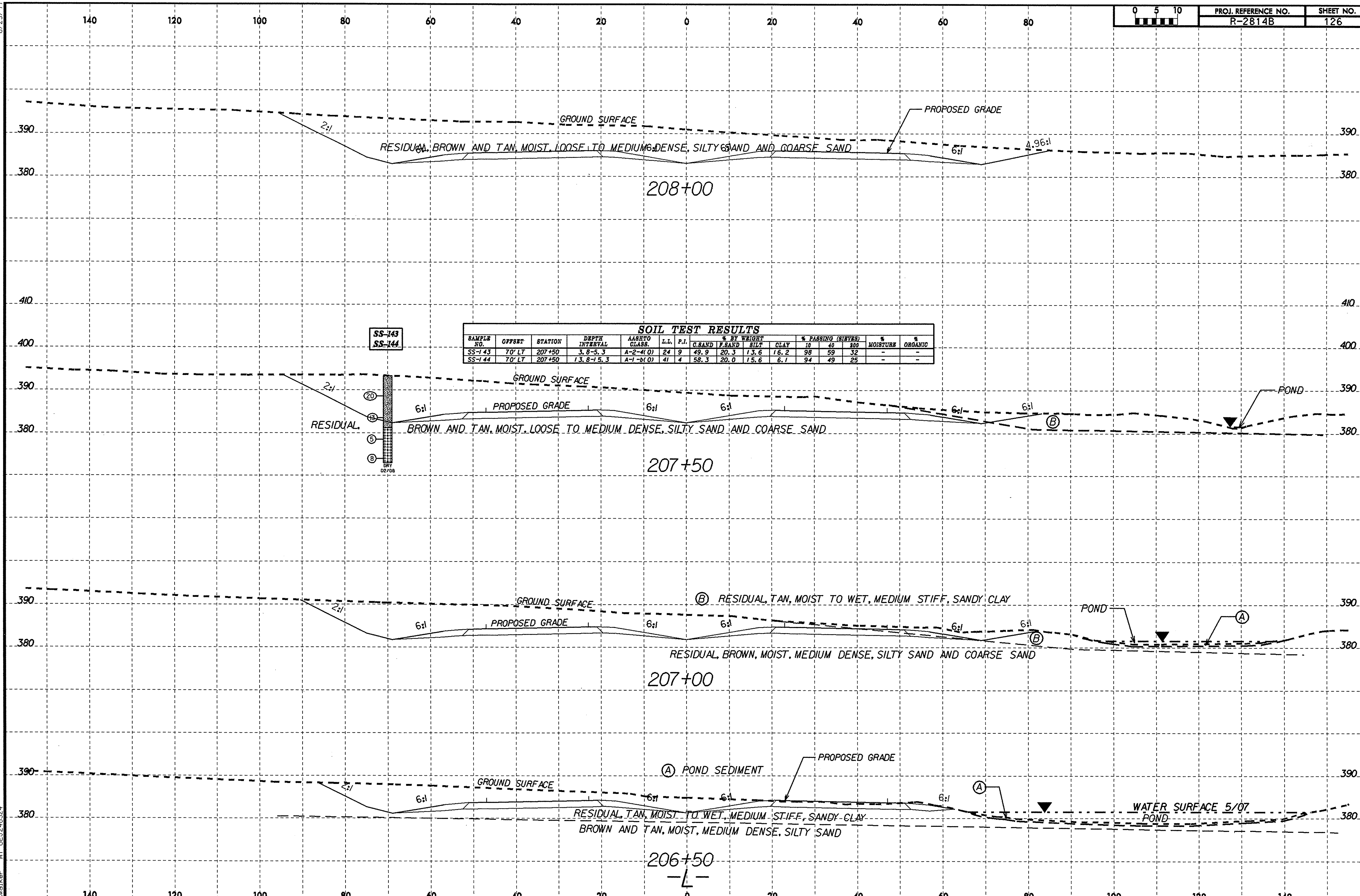
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	125

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
S-145	15' RT	205+35	3.5-5.0	A-6(2)	36	21	48.6	16.7	10.4	24.3	97	59	36	-	-



PROJ. REFERENCE NO.	SHEET NO.
R-2814B	126



0 5 10
140 120 100 80 60 40 20 0 20 40 60 80
390
380
GROUND SURFACE
PROPOSED GRADE
2:1
6:1
4.96:1
RESIDUAL, BROWN AND TAN, MOIST, LOOSE TO MEDIUM DENSE, SILTY SAND AND COARSE SAND
208+00
410
400
SS-143
SS-144
RESIDUAL, BROWN AND TAN, MOIST, LOOSE TO MEDIUM DENSE, SILTY SAND AND COARSE SAND
POND
20
13
5
8
DRY 02/08
207+50
(B) RESIDUAL, TAN, MOIST TO WET, MEDIUM STIFF, SANDY CLAY
POND
(A)
(B)
RESIDUAL, BROWN, MOIST, MEDIUM DENSE, SILTY SAND AND COARSE SAND
207+00
(A) POND SEDIMENT
WATER SURFACE 5/07
POND
RESIDUAL, TAN, MOIST TO WET, MEDIUM STIFF, SANDY CLAY
BROWN AND TAN, MOIST, MEDIUM DENSE, SILTY SAND
206+50
-L-
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

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-143	70' LT	207+50	3.8-5.3	A-2-4(0)	24	9	49.9	20.3	13.6	16.2	98	59	32	-	-
SS-144	70' LT	207+50	13.8-15.3	A-1-b(0)	41	4	58.3	20.0	15.6	6.1	94	49	25	-	-

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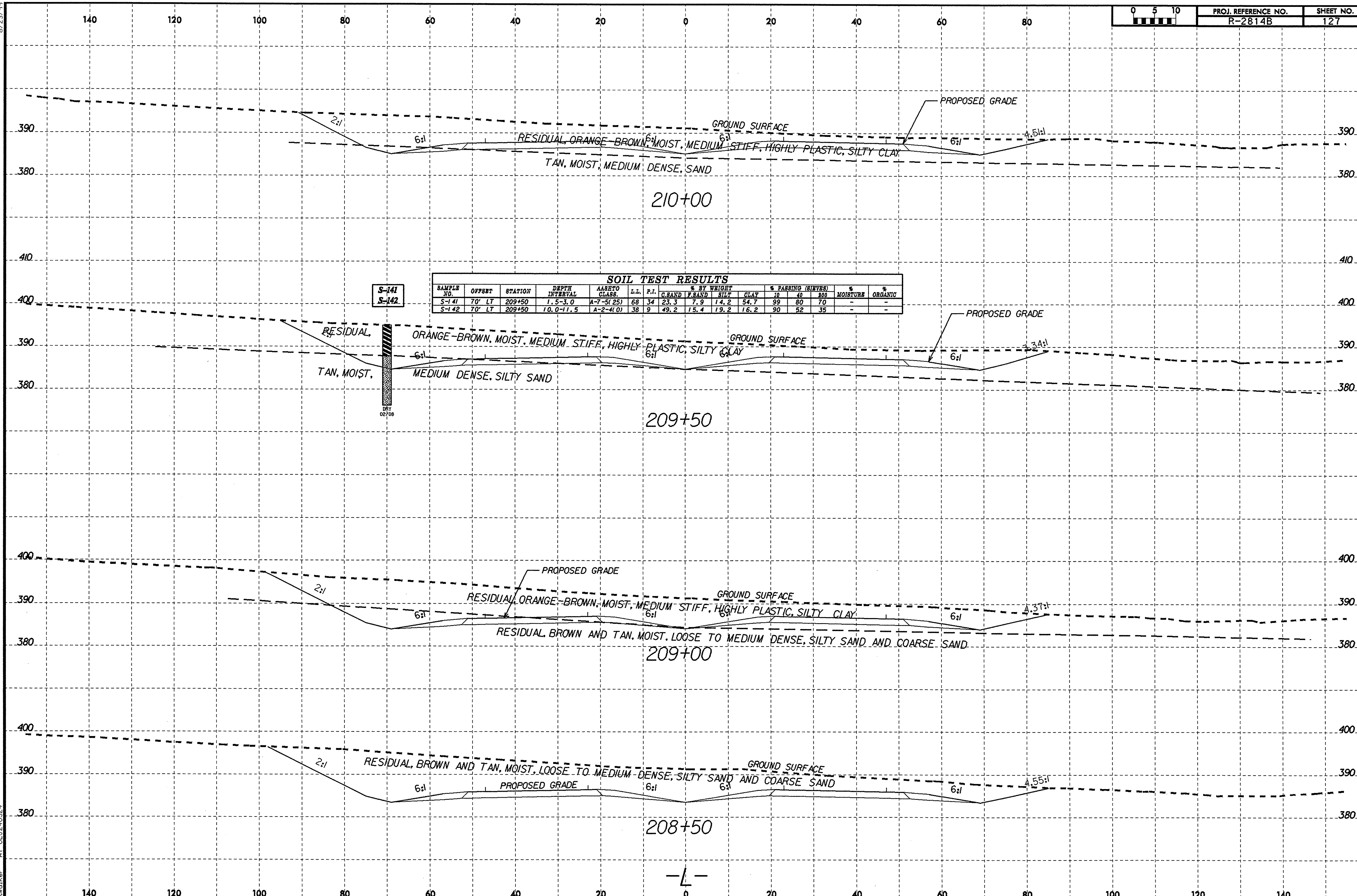
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	127



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-141	70' LT	209+50	1.5-3.0	A-7-5(25)	68	34	23.3	7.9	14.2	54.7	99	80	70	-	-
S-142	70' LT	209+50	10.0-11.5	A-2-4(0)	38	9	49.2	15.4	19.2	16.2	90	52	35	-	-

8/23/99

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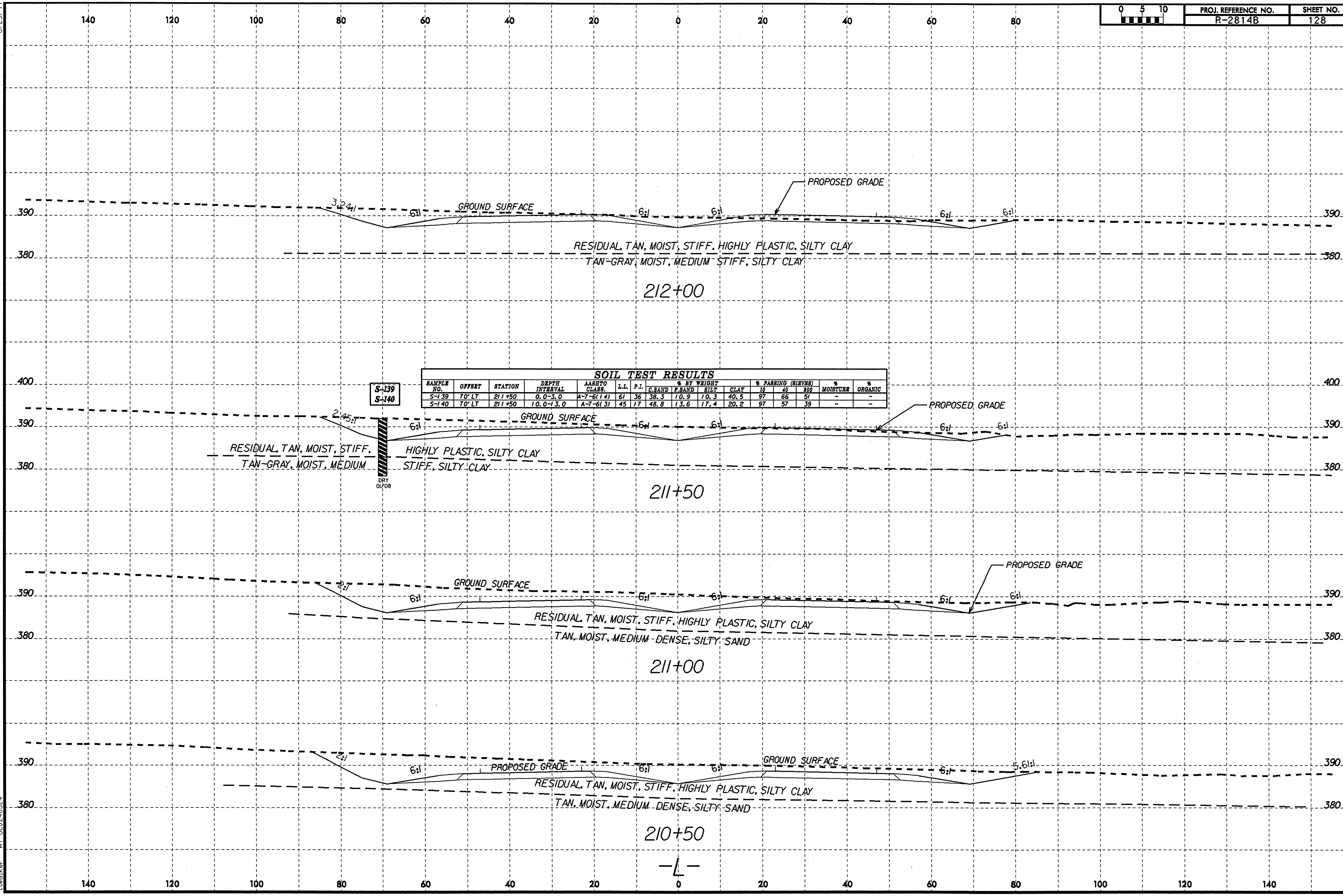
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	128



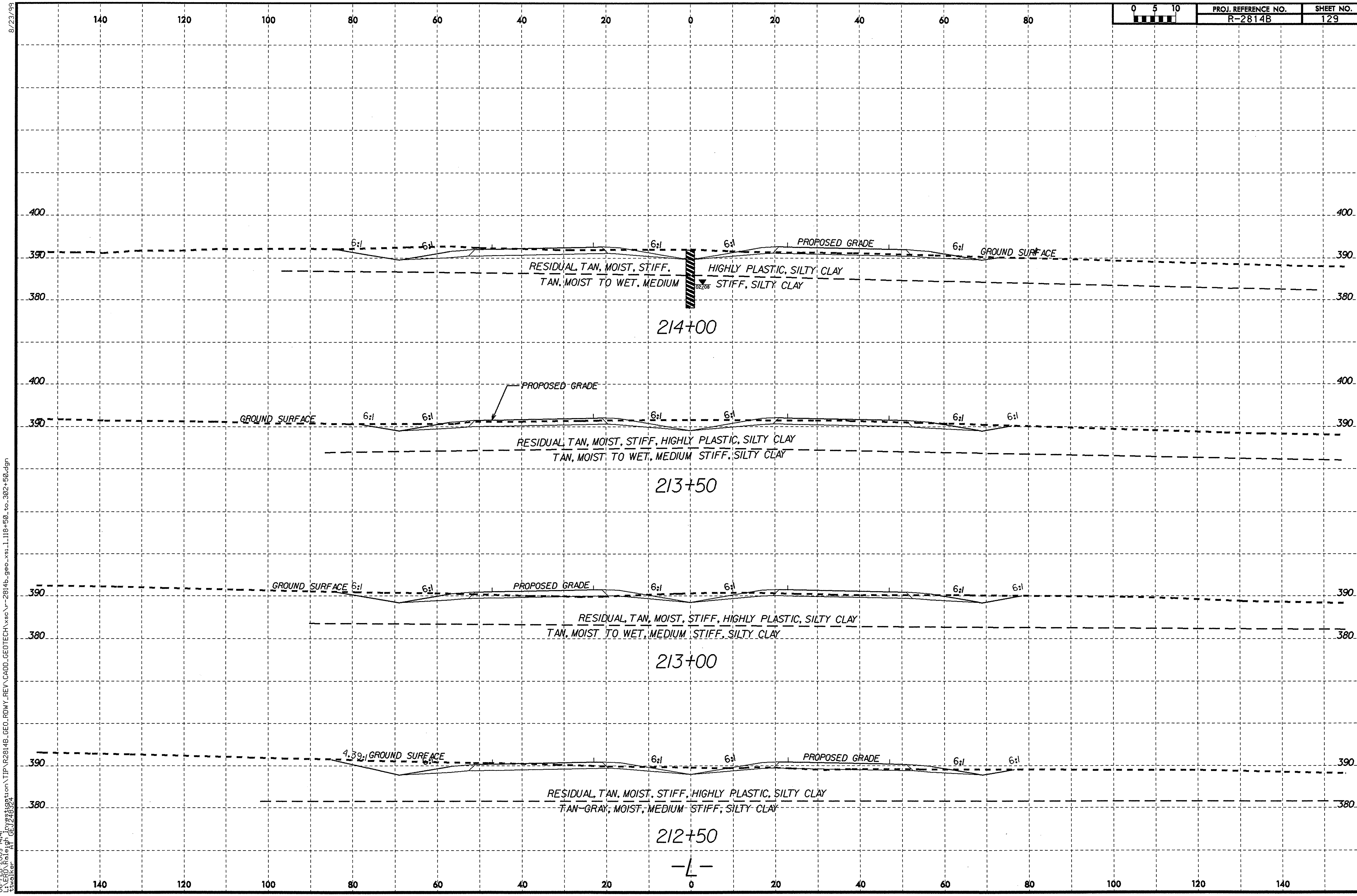
0 5 10
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140
390
380
400
3.24:1
6:1
5.61:1
2.45:1
2:1
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-GRAY, MOIST, MEDIUM STIFF, SILTY CLAY
212+00
S-139
S-140
RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-GRAY, MOIST, MEDIUM STIFF, SILTY CLAY
DRY 01/08
211+50
RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN, MOIST, MEDIUM DENSE, SILTY SAND
211+00
RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN, MOIST, MEDIUM DENSE, SILTY SAND
210+50
-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-139	70' LT	211+50	0.0-3.0	A-7-6(14)	61	36	38.3	10.9	10.3	40.5	97	66	51	-	-
S-140	70' LT	211+50	10.0-13.0	A-7-6(3)	45	17	48.8	13.6	17.4	20.2	97	57	39	-	-

8/23/99

06-FEB-2009 14:41
L:\ERO\Raleigh Investigation\TIP\R2814B_GEO_RDWY_REV\CADD_GEOTECH\xsc\r-2814b_geo_xsl_l_118+50_to_302+50.dgn
ttwalker AT GEJ248324



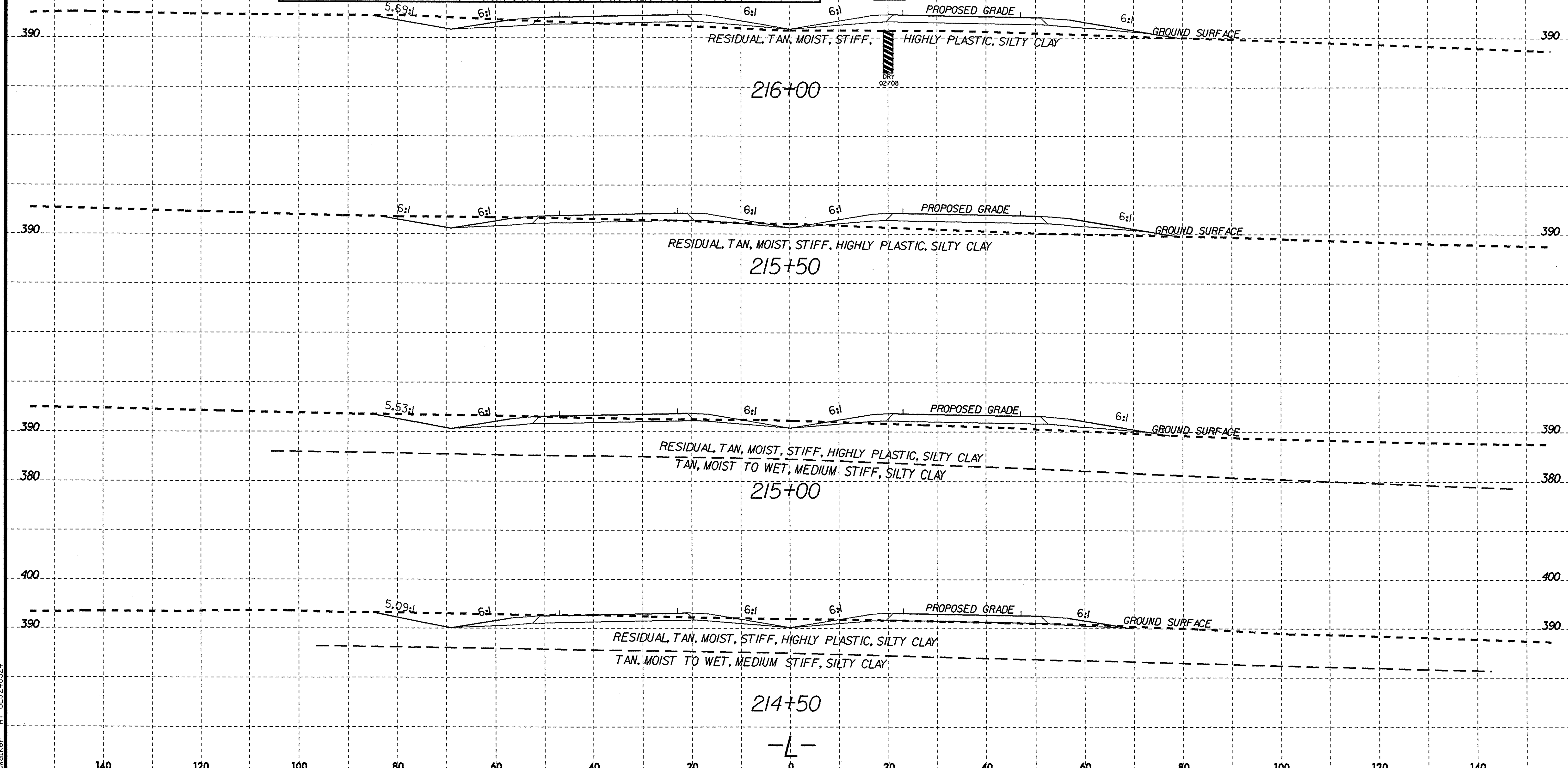
PROJ. REFERENCE NO.
R-2814B
SHEET NO.
129
0 5 10
PROPOSED GRADE
GROUND SURFACE
6:1
RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN, MOIST TO WET, MEDIUM STIFF, SILTY CLAY
214+00
213+50
213+00
4.39:1
TAN-GRAY, MOIST, MEDIUM STIFF, SILTY CLAY
212+50
-L-
400
390
380
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140
8/23/99
06-FEB-2009 14:41

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	130

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-138	20' RT	216+00	0.0-4.0	A-7-5(36)	75	36	11.9	5.7	19.6	62.8	100	91	84	-	-



140 120 100 80 60 40 20 0 20 40 60 80
S-138
400
390
5.69:1
6:1
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
DRY 02/08
216+00
390
6:1
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
215+50
390
380
5.53:1
6:1
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN, MOIST TO WET, MEDIUM STIFF, SILTY CLAY
215+00
400
390
5.09:1
6:1
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN, MOIST TO WET, MEDIUM STIFF, SILTY CLAY
214+50
-L-
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

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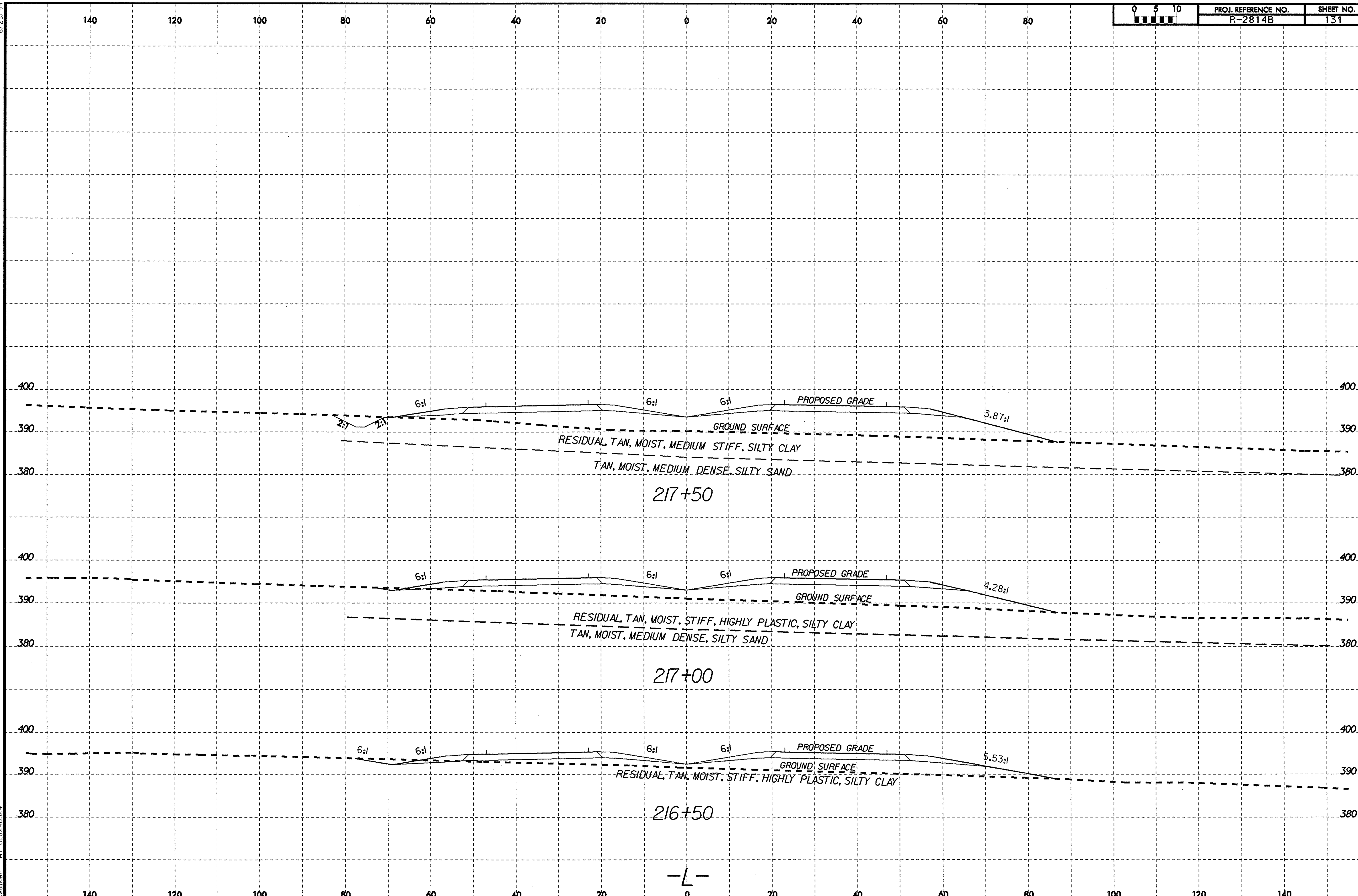
ttwalker AT GE1248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	131



0 5 10
140 120 100 80 60 40 20 0 20 40 60 80
400
390
380
6:1
6:1
6:1
PROPOSED GRADE
3.87:1
2:1
2:1
GROUND SURFACE
RESIDUAL, TAN, MOIST, MEDIUM STIFF, SILTY CLAY
TAN, MOIST, MEDIUM DENSE, SILTY SAND
217+50
6:1
6:1
6:1
PROPOSED GRADE
4.28:1
GROUND SURFACE
RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN, MOIST, MEDIUM DENSE, SILTY SAND
217+00
6:1
6:1
6:1
6:1
PROPOSED GRADE
5.53:1
GROUND SURFACE
RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
216+50
-L-
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

8/23/99

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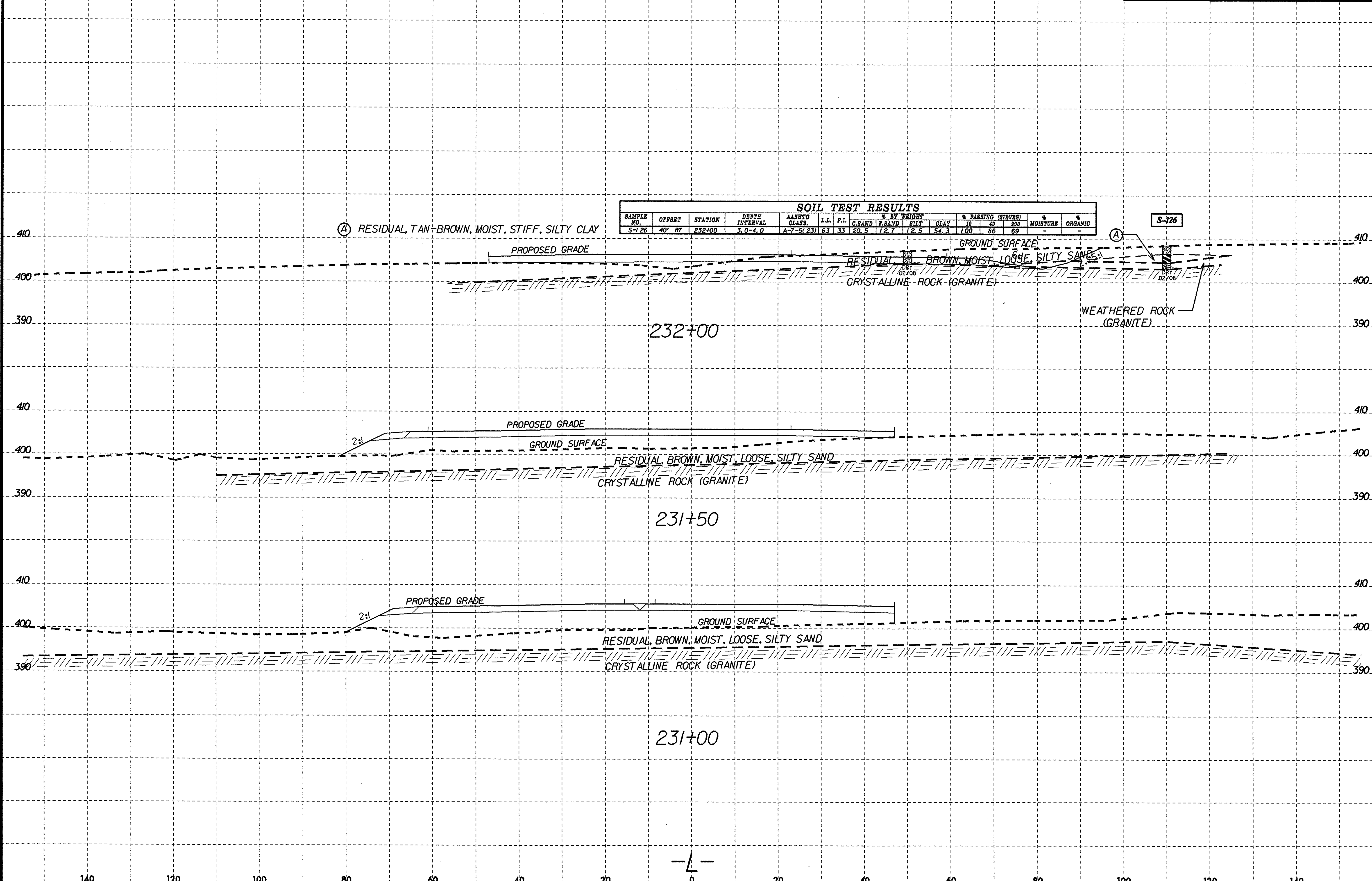
ttwalker AT GE1248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	132



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
S-126	40' RT	232+00	3.0-4.0	A-7-5(23)	63	33	20.5	12.7	12.5	54.3	100	86	69	-	-

8/23/99

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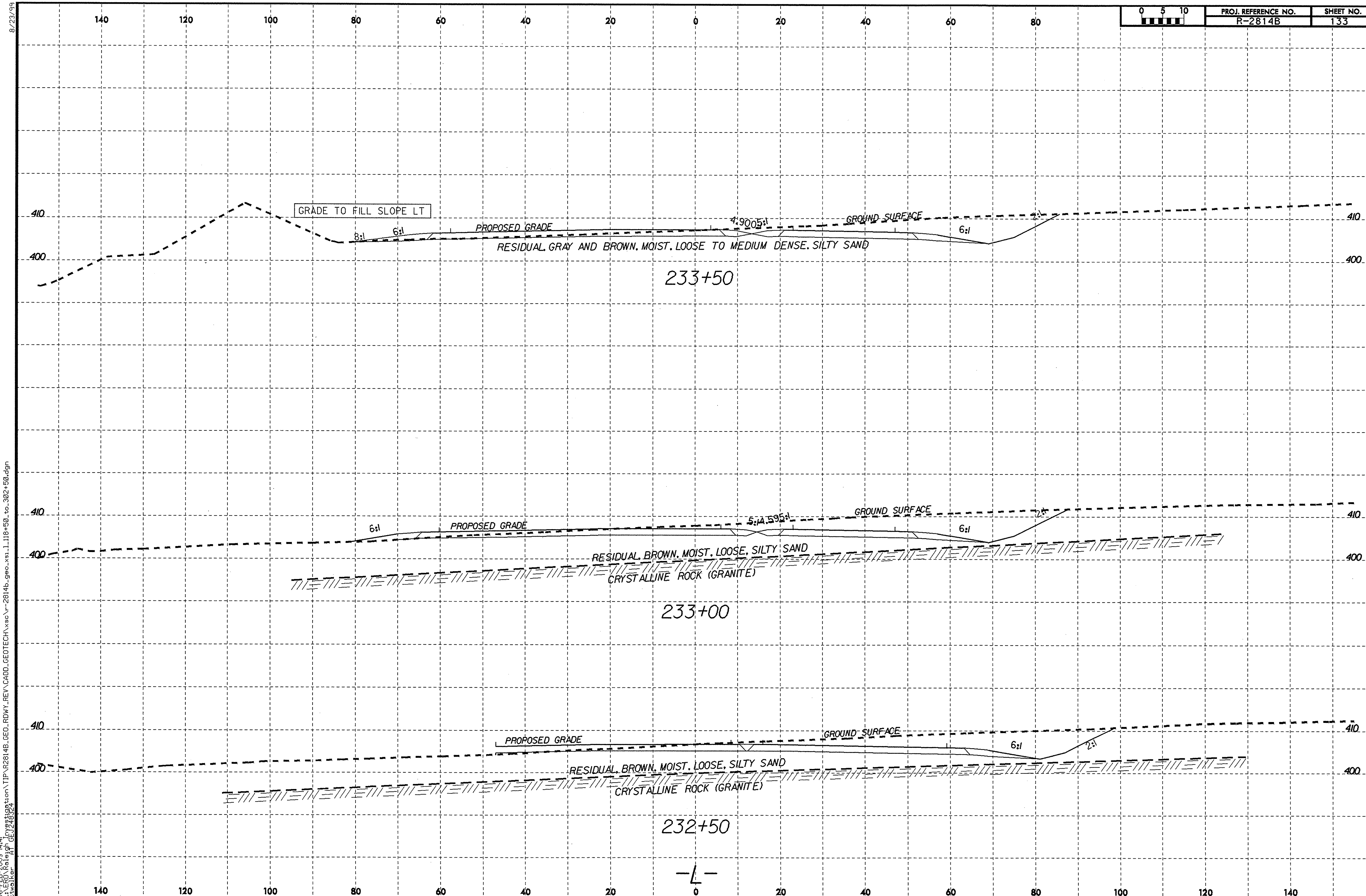
ttwalker AT GEJ248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	133



GRADE TO FILL SLOPE LT
8:1
6:1
PROPOSED GRADE
4.9005:1
GROUND SURFACE
6:1
2:1
RESIDUAL, GRAY AND BROWN, MOIST, LOOSE TO MEDIUM DENSE, SILTY SAND
233+50
6:1
PROPOSED GRADE
5:4.595:1
GROUND SURFACE
6:1
2:1
RESIDUAL, BROWN, MOIST, LOOSE, SILTY SAND
CRYSTALLINE ROCK (GRANITE)
233+00
PROPOSED GRADE
GROUND SURFACE
6:1
2:1
RESIDUAL, BROWN, MOIST, LOOSE, SILTY SAND
CRYSTALLINE ROCK (GRANITE)
232+50
-L-

8/23/99

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ttwalker AT GEJ248324

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	134

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

360
350

GROUND SURFACE
PROPOSED GRADE
0.08 FT./FT.
2:1
6:1
6:1
RESIDUAL, TAN, GRAY, AND BROWN, MOIST, LOOSE TO MEDIUM DENSE, CLAYEY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)

270+50

370
360
350

2:1
RESIDUAL
6:1
GROUND SURFACE
0.08 FT./FT.
PROPOSED GRADE
6:1
TAN, GRAY, AND BROWN, MOIST, LOOSE TO MEDIUM DENSE,
CLAYEY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)
DRY 01/08
DRY 01/08

270+00

370
360
350

10' AHEAD
2.14:1
DRY 01/08
6:1
GROUND SURFACE
4:1
0.011 FT./FT.
PROPOSED GRADE
6:1
RESIDUAL, TAN-GRAY, MOIST, LOOSE, CLAYEY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)

269+50

370
360
350

2.55:1
6:1
GROUND SURFACE
4:1
0.067 FT./FT.
PROPOSED GRADE
6:1
RESIDUAL, TAN-GRAY, MOIST, LOOSE, CLAYEY SAND
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)

269+00

-L-

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

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LEVELED.plt
ttwalker

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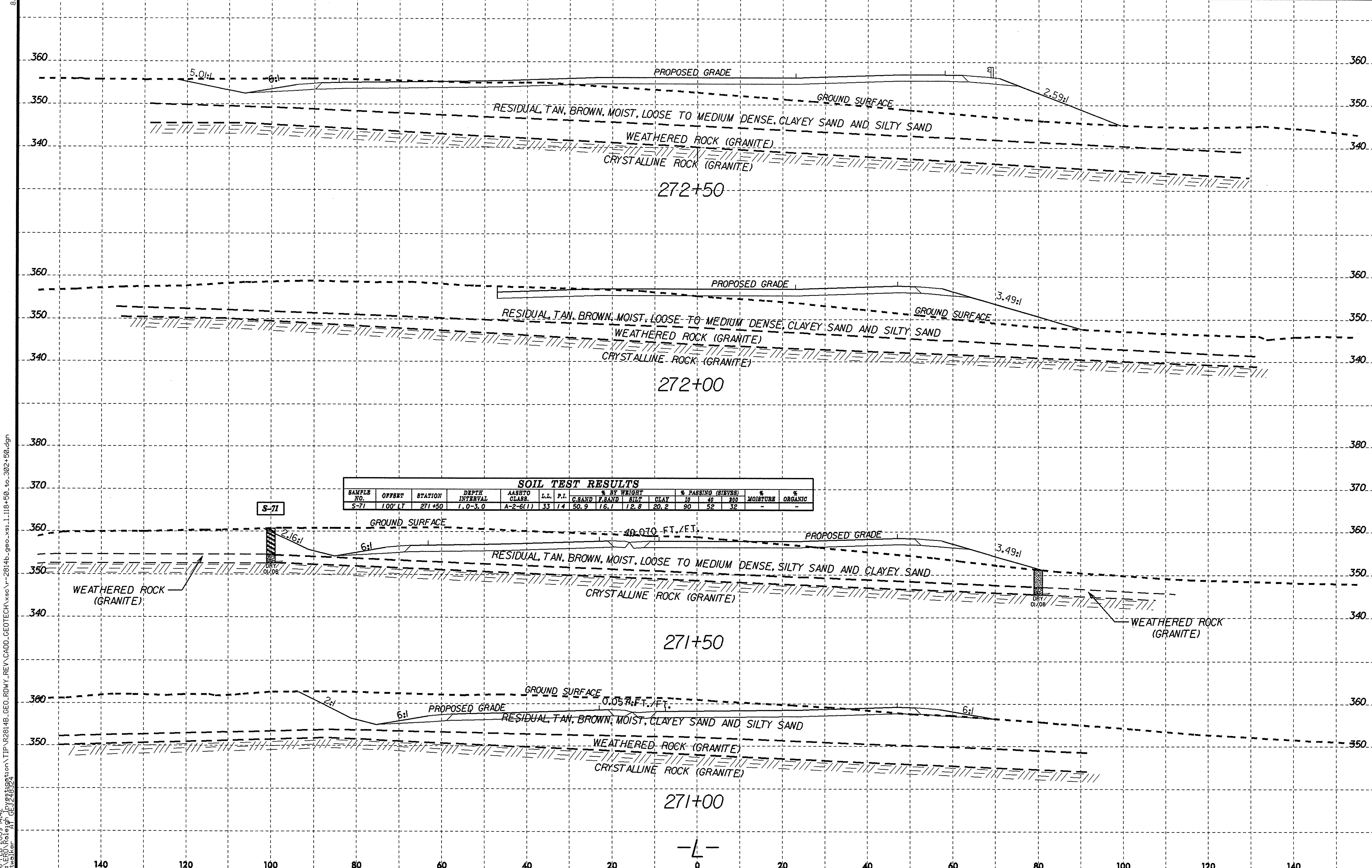
AT GEI 248324

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	135



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-71	100' LT	271+50	1.0-3.0	A-2-6(1)	33	14	50.9	16.1	12.8	20.2	90	52	32	-	-

8/23/99

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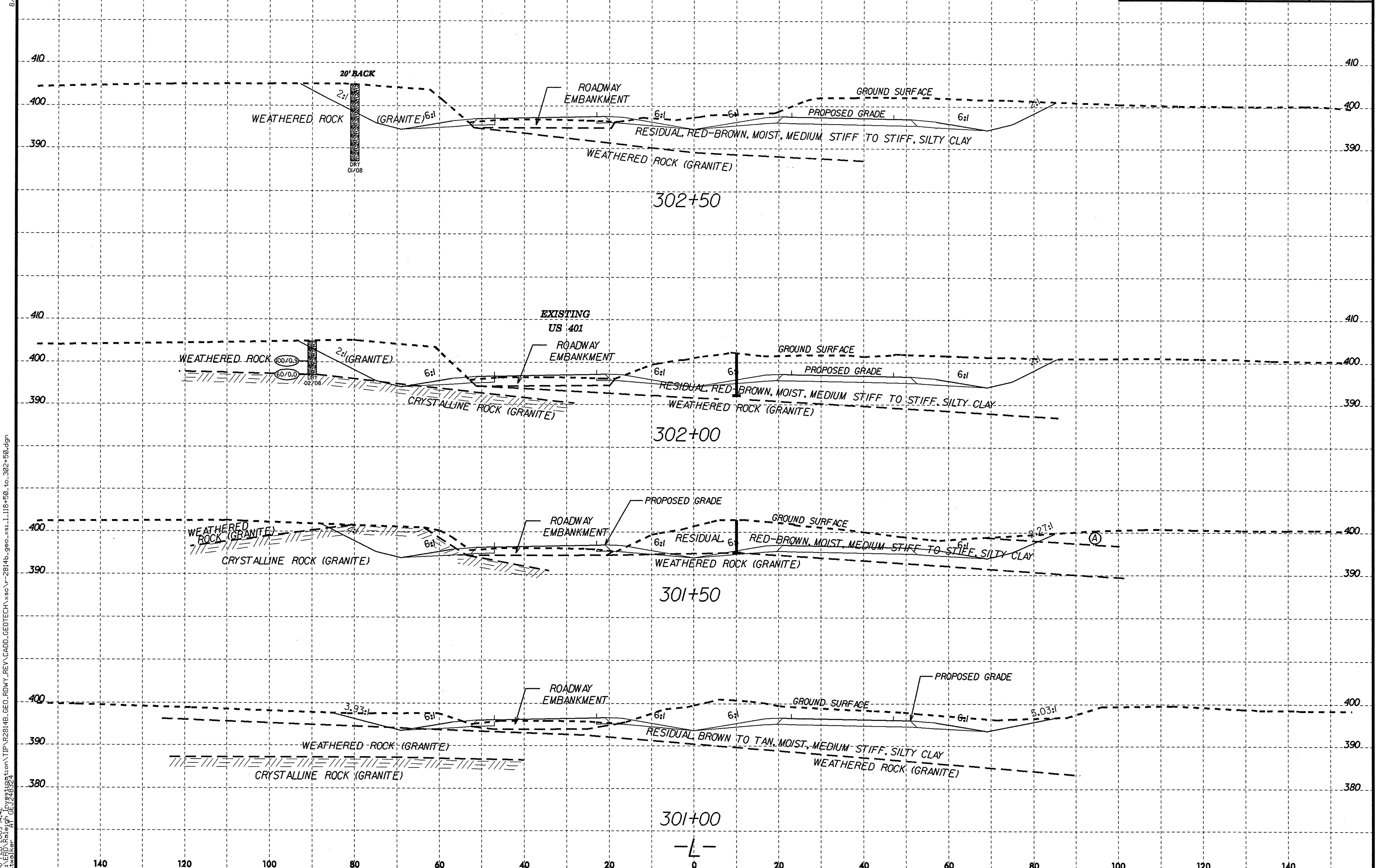
twalker AT GE3248324

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	136



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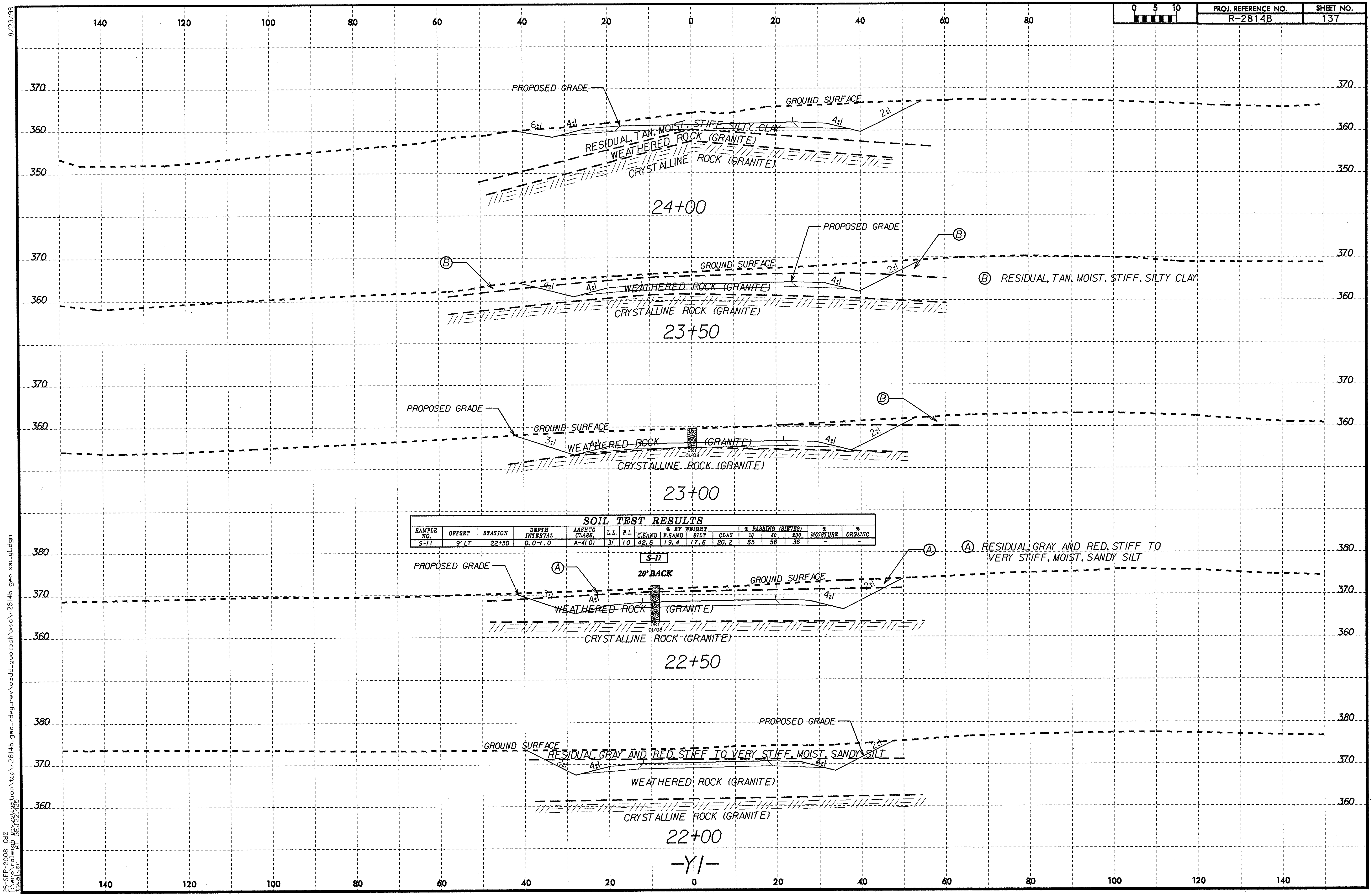
ttwalker AT GEJ248324



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-11	9' LT	22+30	0.0-1.0	A-4(0)	31	10	42.8	19.4	17.6	20.2	85	58	36	-	-

8/23/99

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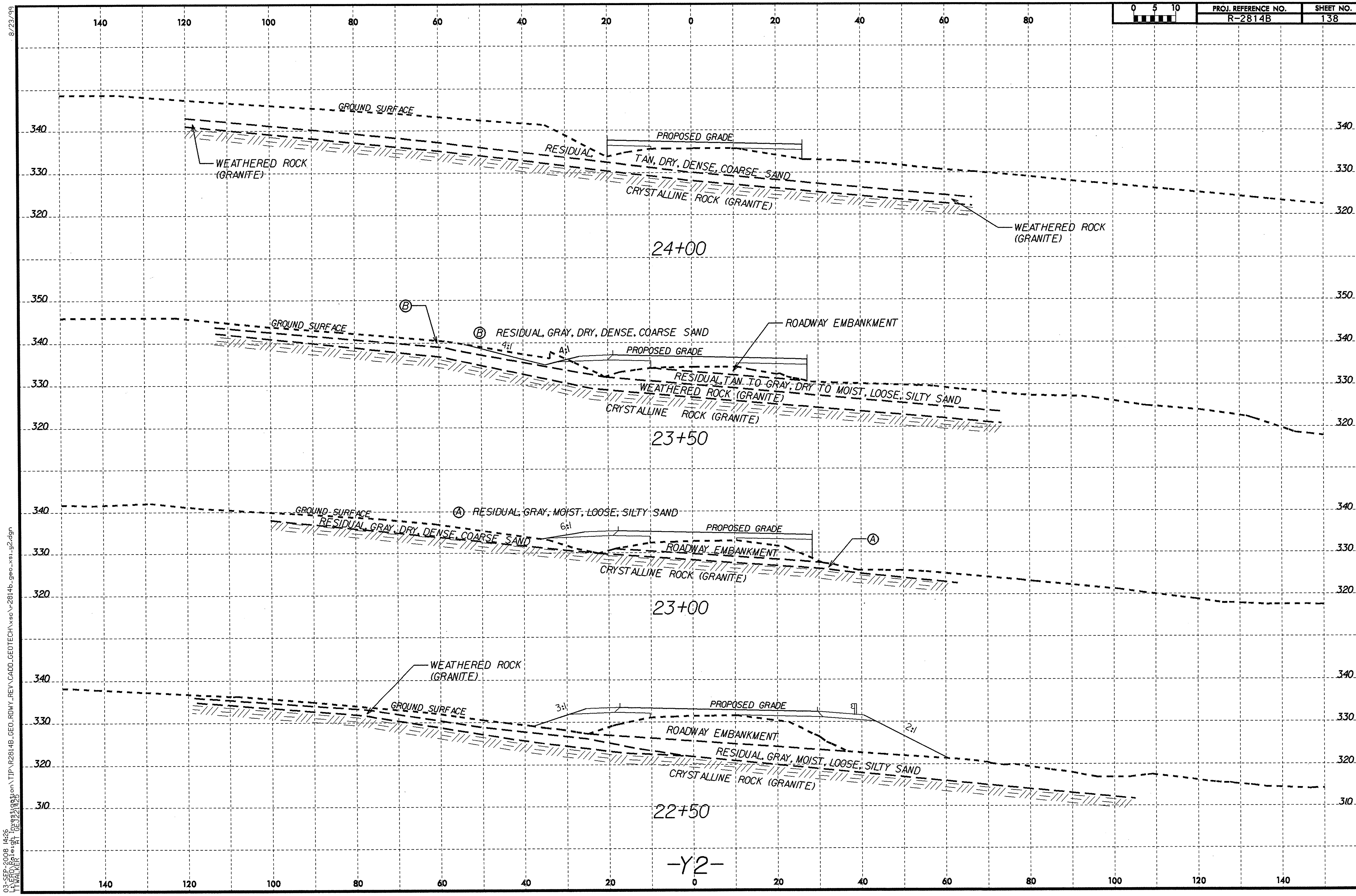
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	138



8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	139

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

350 340 330 320

GROUND SURFACE

WEATHERED ROCK (GRANITE)

2:1

1:1

PROPOSED GRADE

RESIDUAL, TAN, DRY, STIFF, SANDY SILT

CRYSTALLINE ROCK (GRANITE)

3:1

WEATHERED ROCK (GRANITE)

25+50

350 340 330 320 310

GROUND SURFACE

WEATHERED ROCK (GRANITE)

RESIDUAL TAN, DRY, DENSE, SILTY SAND

PROPOSED GRADE

4:1

GROUND SURFACE

CRYSTALLINE ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

25+00

340 330 320

GROUND SURFACE

WEATHERED ROCK (GRANITE)

RESIDUAL, TAN, DRY, DENSE, COARSE SAND

PROPOSED GRADE

5:1

CRYSTALLINE ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

24+50

-Y2-

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

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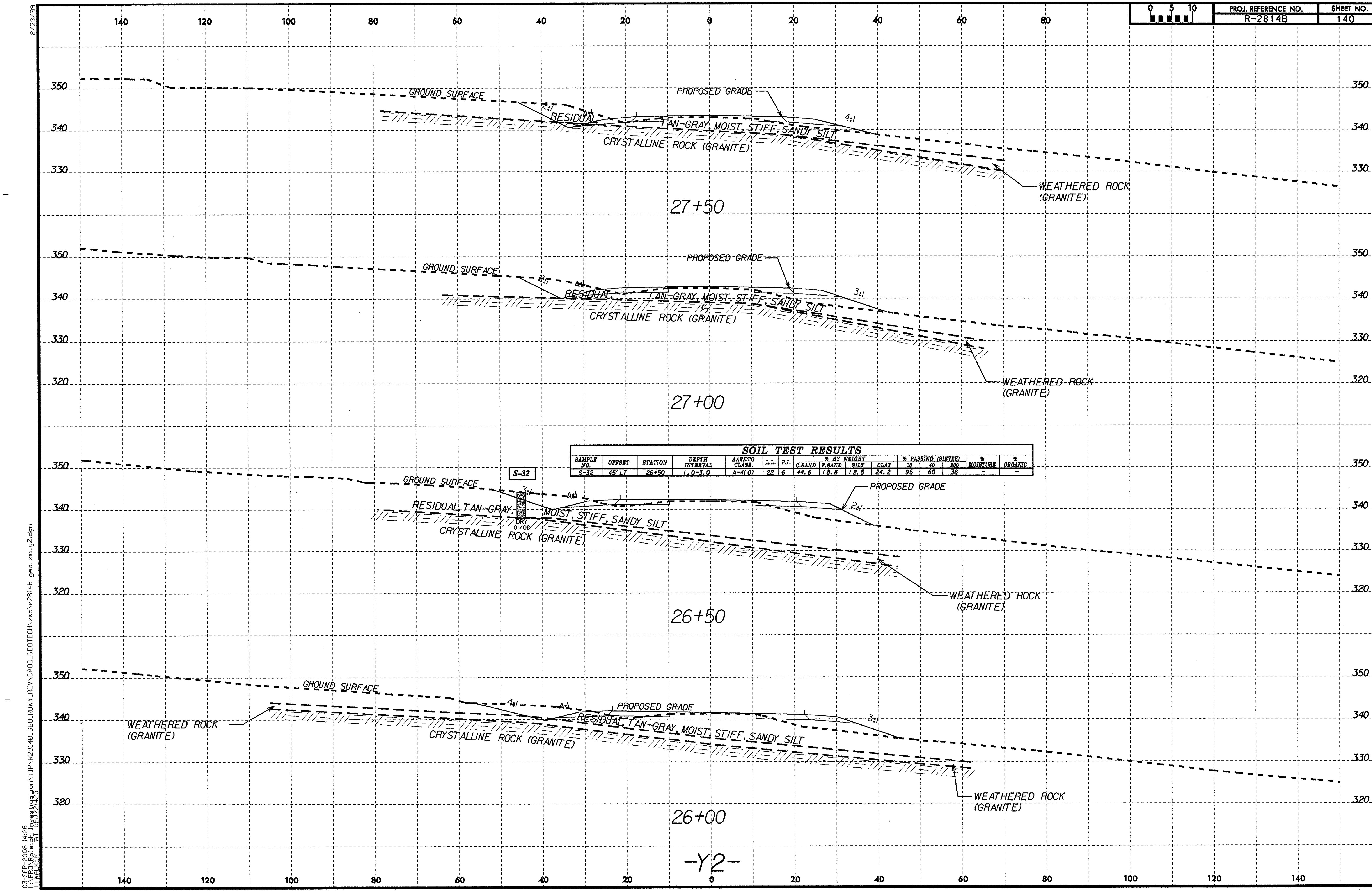
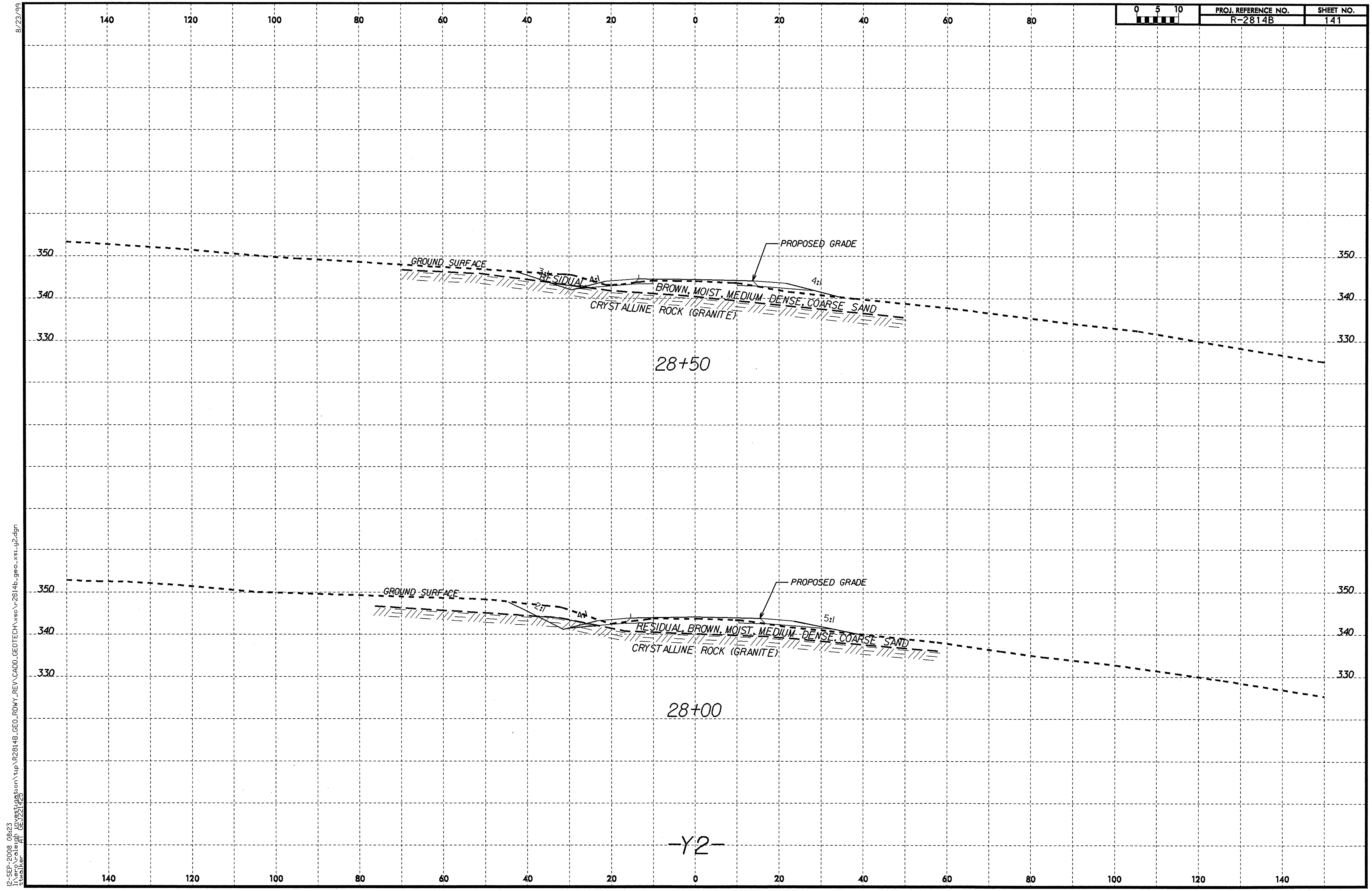
I:\WALKER AT GEJ221425

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	140



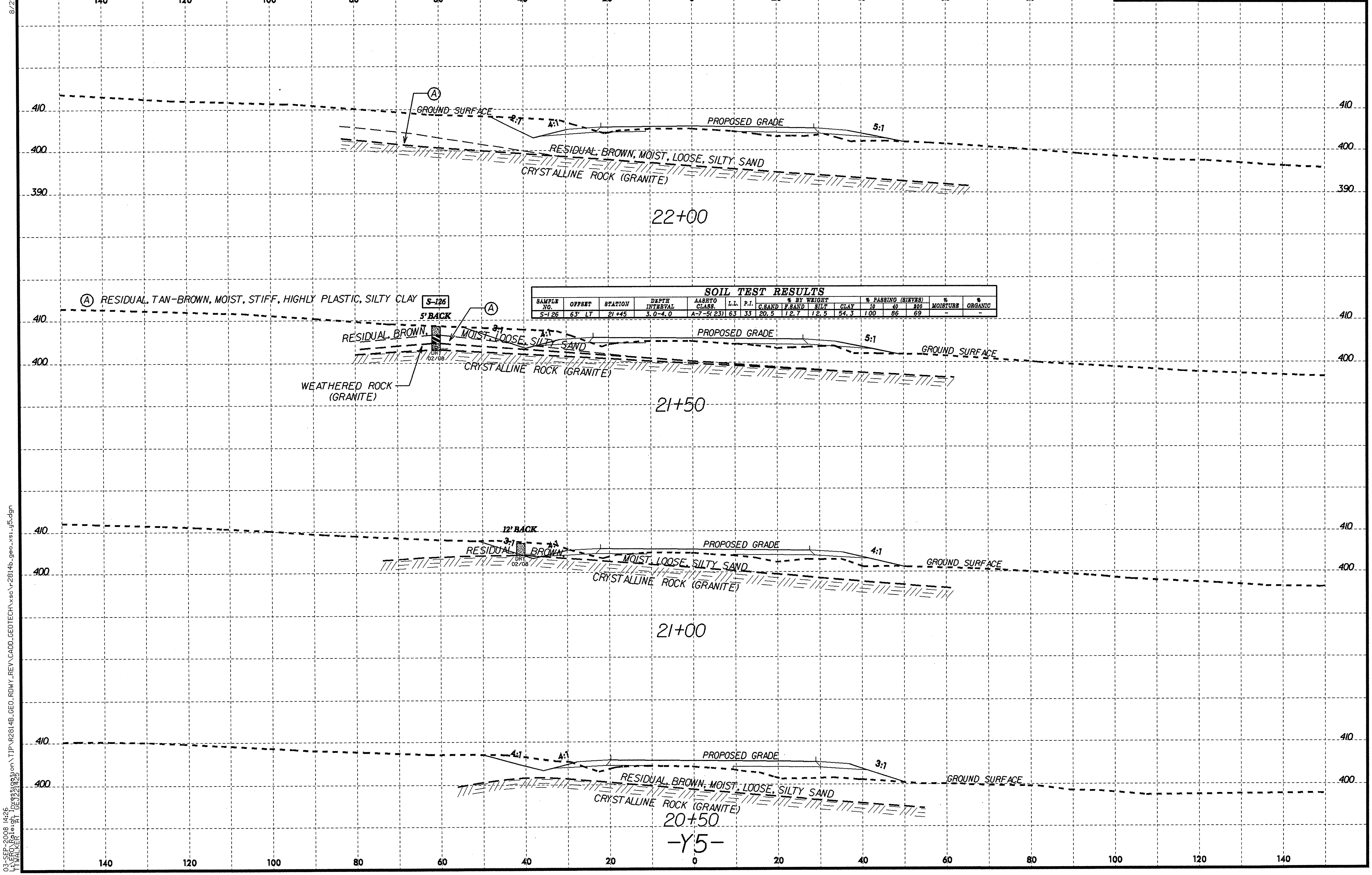
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-32	45' LT	26+50	1.0-3.0	A-4(0)	22	6	44.6	18.8	12.5	24.2	95	60	38	-	-



8/23/99
0 5 10
PROJ. REFERENCE NO.
R-2814B
SHEET NO.
141
PROPOSED GRADE
GROUND SURFACE
RESIDUAL
BROWN, MOIST, MEDIUM DENSE, COARSE SAND
CRYSTALLINE ROCK (GRANITE)
4:1
3:1
28+50
PROPOSED GRADE
GROUND SURFACE
2:1
5:1
RESIDUAL, BROWN, MOIST, MEDIUM DENSE, COARSE SAND
CRYSTALLINE ROCK (GRANITE)
28+00
-Y2-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2814B	142



8/23/99
140
120
100
80
60
40
20
0
410
400
390
GROUND SURFACE
PROPOSED GRADE
2:1
4:1
5:1
3:1
RESIDUAL, BROWN, MOIST, LOOSE, SILTY SAND
CRYSTALLINE ROCK (GRANITE)
22+00
Ⓐ RESIDUAL, TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
S-126
5' BACK
DRY 02/08
WEATHERED ROCK (GRANITE)
21+50
12' BACK
RESIDUAL, BROWN, MOIST, LOOSE, SILTY SAND
21+00
20+50
-Y5-
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LTWALKER AT GEI2424425

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-126	63' LT	21+45	3.0-4.0	A-7-5(23)	63	33	20.5	12.7	12.5	54.3	100	86	69	-	-

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	143

0 5 10

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

410
400

GROUND SURFACE
4:1
4:1
PROPOSED GRADE
4:1
RESIDUAL, BROWN TO GRAY, MOIST, LOOSE, SILTY SAND
TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
WEATHERED ROCK (GRANITE)

24+00

410
400

GROUND SURFACE
3:1
4:1
PROPOSED GRADE
4:1
RESIDUAL
BROWN TO GRAY, MOIST, LOOSE, SILTY SAND
TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)

23+50

410
400

GROUND SURFACE
3:1
4:1
PROPOSED GRADE
5:1
RESIDUAL
BROWN TO GRAY, MOIST, LOOSE, SILTY SAND
TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)

23+00

410
400

GROUND SURFACE
3:1
4:1
PROPOSED GRADE
5:1
RESIDUAL
BROWN TO GRAY, MOIST, LOOSE, SILTY SAND
TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
WEATHERED ROCK (GRANITE)
CRYSTALLINE ROCK (GRANITE)

22+50

-Y5-

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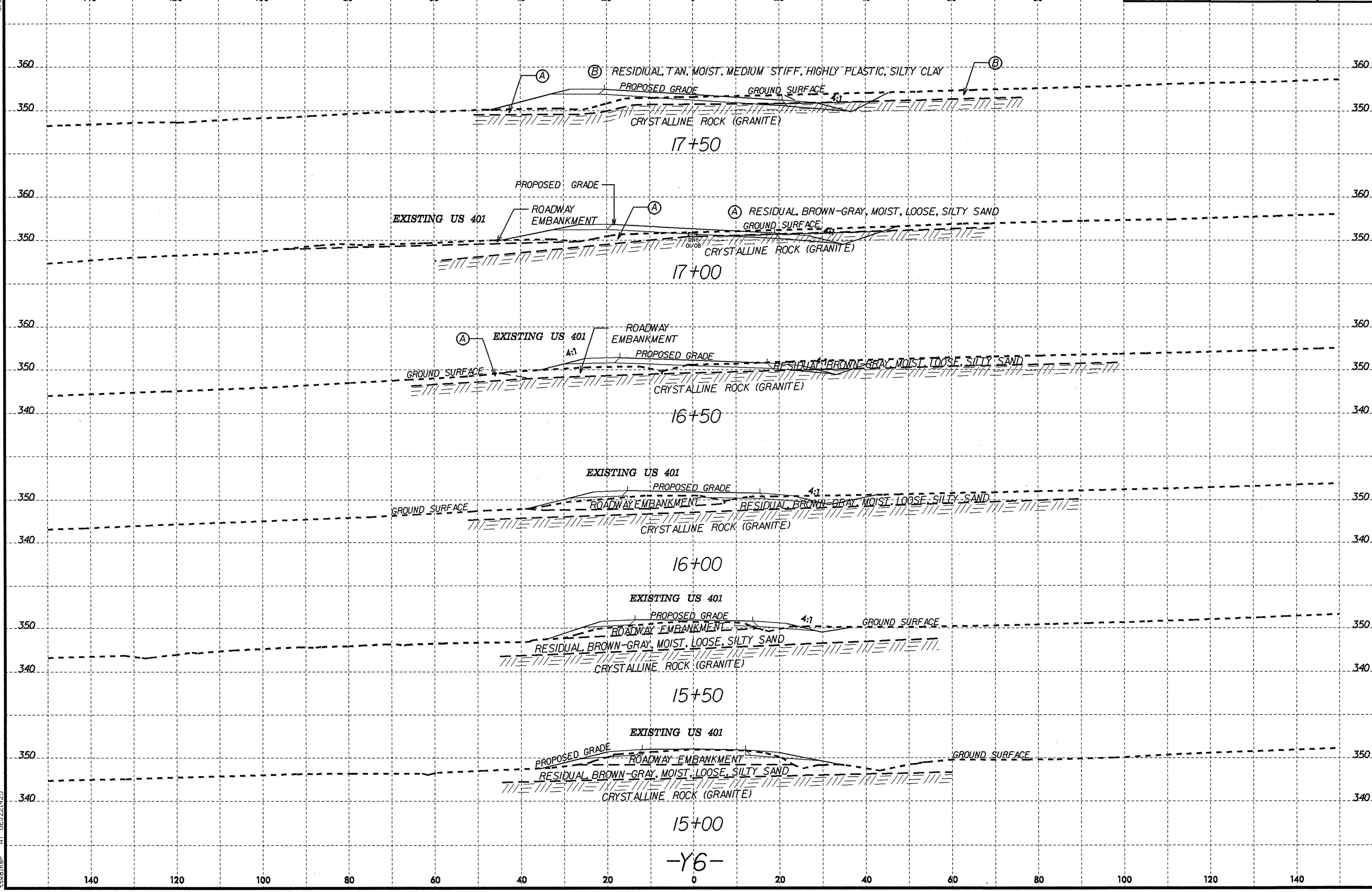
PROJ. REFERENCE NO.	SHEET NO.
R-2814B	144



0 5 10
RESIDIUAL, TAN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
PROPOSED GRADE
GROUND SURFACE
4:1
CRYSTALLINE ROCK (GRANITE)
17+50
PROPOSED GRADE
EXISTING US 401
ROADWAY EMBANKMENT
RESIDUAL, BROWN-GRAY, MOIST, LOOSE, SILTY SAND
GROUND SURFACE
CRYSTALLINE ROCK (GRANITE)
17+00
EXISTING US 401
ROADWAY EMBANKMENT
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, BROWN-GRAY, MOIST, LOOSE, SILTY SAND
CRYSTALLINE ROCK (GRANITE)
16+50
EXISTING US 401
PROPOSED GRADE
GROUND SURFACE
ROADWAY EMBANKMENT
RESIDUAL, BROWN-GRAY, MOIST, LOOSE, SILTY SAND
CRYSTALLINE ROCK (GRANITE)
16+00
EXISTING US 401
PROPOSED GRADE
ROADWAY EMBANKMENT
GROUND SURFACE
RESIDUAL, BROWN-GRAY, MOIST, LOOSE, SILTY SAND
CRYSTALLINE ROCK (GRANITE)
15+50
EXISTING US 401
PROPOSED GRADE
ROADWAY EMBANKMENT
GROUND SURFACE
RESIDUAL, BROWN-GRAY, MOIST, LOOSE, SILTY SAND
CRYSTALLINE ROCK (GRANITE)
15+00
-Y6-

8/23/99

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twalker AT GEJ221425

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	145

0 5 10

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

360
350

4:1 PROPOSED GRADE GROUND SURFACE 4:1

RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

19+50

360
350

Ⓐ

4:1 PROPOSED GRADE Ⓐ RESIDUAL, TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY 4:1

GROUND SURFACE

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

19+00

Ⓒ RESIDUAL, TAN, MOIST, MEDIUM STIFF TO STIFF, HIGHLY PLASTIC, SILTY CLAY

360
350
340

Ⓒ Ⓒ

4:1 PROPOSED GRADE GROUND SURFACE 4:1

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

18+50

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-70	35' RT	18+00	1.0-2.0	A-7-6(9)	51	28	37.9	16.5	13.2	32.3	98	70	47	-	-

S-70

360
350
340

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN, MOIST, MEDIUM STIFF HIGHLY PLASTIC, SILTY CLAY

CRYSTALLINE ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

WEATHERED ROCK (GRANITE)

18+00

-Y6-

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

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tswalker

PROJ. REFERENCE NO.	SHEET NO.
R-2814B	146

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-71	49' RT	20+61	1.0-3.0	A-2-6(1)	33	14	50.9	16.1	12.8	20.2	90	52	32	-	-