STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0062	1	

REFERENCE: BR-0062

PROJECT: 67062

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	11+22 - 25+09	4-5	6
-DET-	10+36 - 24+30	4-5	6

CROSS SECTIONS

LINE	STATION	SHEETS
-DET-	12+50 - 16+62	7-16
-DET-	17+82 - 23+00	17-28

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *ANSON*

PROJECT DESCRIPTION *BRIDGE NO. 14 OVER SOUTH FORK JONES CREEK ON US 52*

INVENTORY

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

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

NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

J. HOLLAND

R. MAFFIA

M. EDWARDS

BRIDGER DRILLING

INVESTIGATED BY *J. HOLLAND*

DRAWN BY *J. HOLLAND*

CHECKED BY *J. CRENSHAW*

SUBMITTED BY *SCHNABEL ENG.*

DATE *JUNE 2023*

Schnabel ENGINEERING

NORTH CAROLINA LICENSED SEAL 2818 GEOLOGIST JASON A. HOLLAND

DocuSigned by:
Jason Holland
DF15142D0C8348A...
SIGNATURE

06/28/2023
DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
BR-0062	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

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

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- 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
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LL < 31
MODERATELY COMPRESSIBLE	LL = 31 - 50
HIGHLY COMPRESSIBLE	LL > 50

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

RECOMMENDATION SYMBOLS

- UNDERCUT
- SHALLOW UNDERCUT
- UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
- UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
- UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

ABBREVIATIONS

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

SAMPLE ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [X] CME-45C
- [ ] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [X] W/ ADVANCER
- [X] TRICONE 2 7/8 " STEEL TEETH
- [ ] TRICONE _____ " TUNG.-CARB.
- [ ] CORE BIT
- [X] 2 15/16 " DRAG BIT

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

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

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [X] KESSLER DCP

ROCK DESCRIPTION

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

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

WEATHERING

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

ROCK HARDNESS

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

FRACTURE SPACING

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

BEDDING

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

INDURATION

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

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

TERMS AND DEFINITIONS

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

AQUIFER - A WATER BEARING FORMATION OR STRATA.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BENCH MARK: BM-1 (N:416759.314, E:6949.430)
-L- STA. 19+32.74, 39.27' RT (-DET- STA. 18+50.34, 13.86' LT)
ELEVATION: 240.46 FEET

NOTES:

BORING AND GROUND SURFACE ELEVATIONS OBTAINED FROM 'br0062_ls_tin.tin' FILE DATED 03/29/2021

PAVEMENT/ABC STONE

CAR - CASING ADVANCER REFUSAL

FIAD - FILLED IMMEDIATELY AFTER DRILLING

DATE: 8-15-14

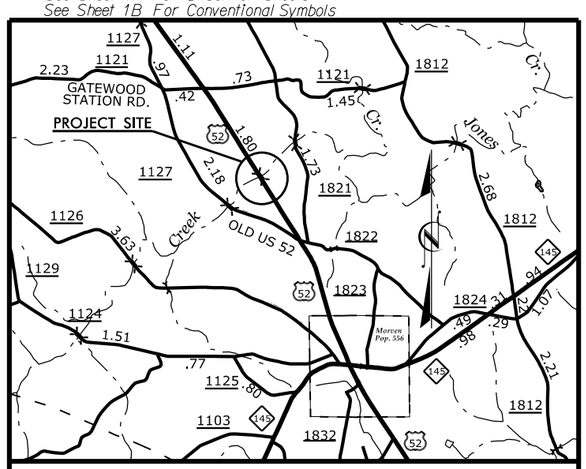
09/08/99

PROJECT: BR-0062

CONTRACT:

$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$$$

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ANSON COUNTY

LOCATION: REPLACEMENT OF BRIDGE 030014 OVER SOUTH FORK JONES CREEK ON US 52

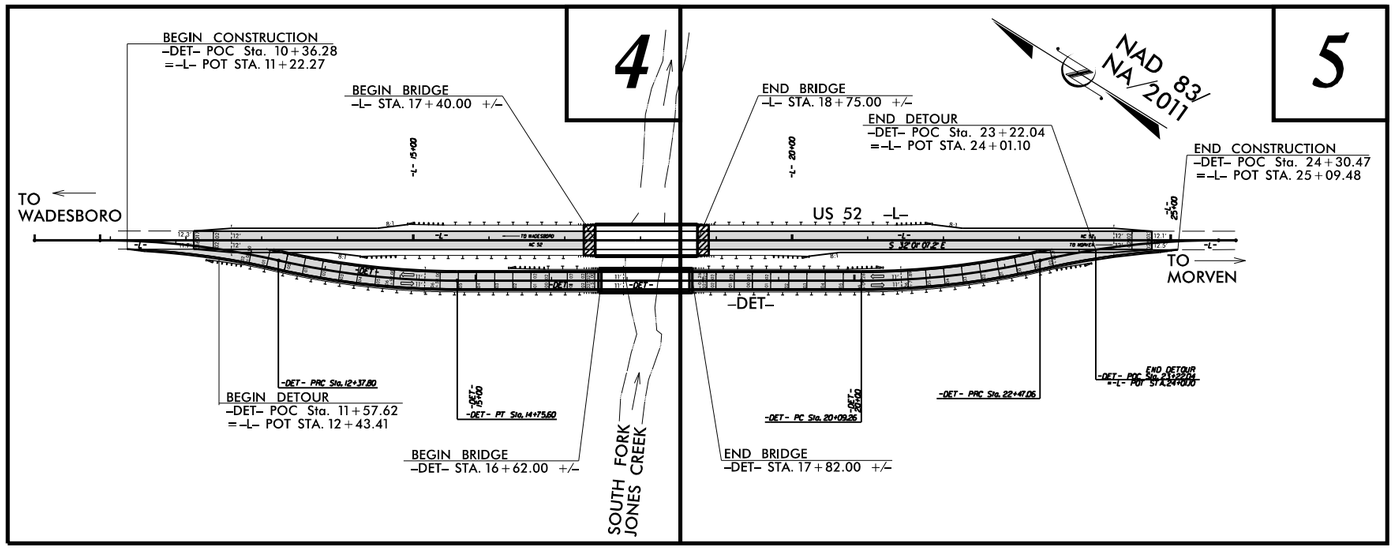
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0062	3	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
67062.1.1		PE	

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

ROW PLANS



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2024 = 4,110
ADT 2045 = 4,700
K = 8 %
D = 55 %
T = 16 % *
V = 60 MPH

* (TTST = 12% + DUAL = 4%)
FUNC CLASS = MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT BR-0062 =	0.214 MILES
LENGTH STRUCTURE PROJECT BR-0062 =	0.026 MILES
TOTAL LENGTH PROJECT BR-0062 =	0.240 MILES

NCDOT CONTACT: GARLAND HAYWOOD, PE
BRIDGE PROGRAM MANAGER – NCDOT DIVISION 10

Prepared for:
DIVISION OF HIGHWAYS
DIVISION TEN
716 West Main Street, Albemarle NC, 28001

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 20, 2023

LETTING DATE: JANUARY 16, 2024

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

GREG S. PURVIS, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

Schnabel ENGINEERING
Schnabel Engineering South, P.C.
1133 Military Cutoff Road, Suite 210 / Wilmington, NC 28405
T 910.769.1621
schnabel-eng.com

June 19, 2023

STATE PROJECT: 67062.1.1

TIP NUMBER: BR-0062

COUNTY: Anson

DESCRIPTION: BRIDGE NO. 14 OVER SOUTH FORK JONES CREEK ON US-52

SUBJECT: Geotechnical Roadway Inventory Report

Project Description

The project consists of the design and replacement of the existing roadway approach, the design and construction of an onsite detour and bridge, and the design and replacement of the existing bridge. The proposed structure is a 135-foot long, 3 span bridge that will replace Bridge No. 14 on the existing alignment. The proposed alignments and structures are approximately 0.53 miles in total length.

The field investigation was conducted in May of 2023 utilizing a track-mounted CME 45C, trailer-mounted CME-45C, and hand tools. Standard Penetration Tests (SPT) were performed at selected locations. Borings were advanced with a NW casing advancer, as well as a tricone roller bit for mud rotary methods. Rock coring was attempted at 2 interior bent locations, B1-A and B2-A, resulting in no recovery. Hand augers and Dynamic Cone Penetrometer tests were performed at locations where the drill rig could not access. Representative soil samples were collected and forwarded to an approved testing facility for soil quality analysis, moisture content, and AASHTO classification.

The following alignments were investigated:

Line	Station			Length (ft)
-L-	11+22	to	25+09	1,387
-DET-	10+36	to	24+30	1,394
			Total	2,781 feet (~0.53 miles)

Physiography and Geology

The project is located in the Inner Piedmont Physiographic Province. According to the NCGS Geologic map of North Carolina, the project lies in an area where Pennsylvanian to Permian intrusive rocks of the Carolina Slate Belt are present, overlain by weathered residual soils in the shallow subsurface. Saprolitic residual soils were observed beneath alluvial deposits. Topography along the project corridor is gently rolling, with natural ground elevations ranging from approximately 215.0± to 265.0± feet above sea level.

Soil Properties

Soil and rock encountered along the project corridor are divided into five categories based on origin: roadway embankment soils, alluvial soils, residual soils, weathered rock, and crystalline rock.

Roadway embankment soils consisting of soft to hard, sandy and clayey SILT (A-4, A-5) and medium stiff to stiff sandy and silty CLAY (A-6, A-7-5) were encountered along the proposed -L- alignment and stiff, sandy CLAY (A-6) and medium stiff to stiff, sandy and clayey SILT (A-4, A-5) along the proposed -DET- alignment. Tricone refusal was encountered in boulder fill at -L- Sta. 20+82. Soil moistures were typically moist to wet. These soils varied in thickness from 6.0 to 21.0 feet. Within the cohesive roadway embankment soils, moisture content tested was 28%. The plasticity index (PI) within the cohesive soil tested was 3.

Alluvial soils consisting of dense, silty SAND (A-2-4) and stiff, silty CLAY (A-7-6) were encountered along the proposed -L- alignment. Very loose to medium dense, SAND, silty SAND, and clayey SAND (A-3, A-2-4, A-2-6) and very soft to stiff, sandy and silty CLAY (A-6, A-7-5, A-7-6) were encountered along the proposed -DET- alignment. These soils are micaceous, have wood fragments, trace to moderate organic matter, and gravel. These soils varied in thickness from 7.4 to 18.0 feet. Soil moistures were typically moist to saturated. Within the cohesive alluvial soils, moisture contents ranged from 18% to 39%. Plasticity Indices (PI) within the cohesive soils range from 9 to 27.

Residual soils consisting of medium dense to very dense SAND and silty SAND (A-1-b, A-2-4) were encountered along the corridor. These soils are micaceous, saprolitic, and contain rock fragments. These soils varied in thickness from 6.5 to 16.1 feet. Soil moistures were typically moist.

Weathered rock consisting of gray, brown, orange, white, and black, intrusive granites were encountered along the corridor. Auger refusal was noted beneath some of these layers on/in crystalline rock. Top of weathered rock elevations varied from 199.0± feet to 210.3± feet above sea level.

Crystalline rock was identified at some points along the corridor by split spoon refusal. Rock coring was attempted at 2 interior bent locations resulting in no recovery, so no other information could be gathered. Crushed rock fragments observed in the split spoon sampler, and USGS geologic maps, confirm bedrock consists of granite. Top of rock elevation was observed to be 196.0± feet to 205.0± feet above sea level.

Groundwater

Groundwater data was collected in May of 2023, during a time of average precipitation. All borings, except DET_2000SPT-A, which was filled immediately after drilling, were left open for a minimum of 24 hours to equilibrate with the surrounding conditions. Groundwater elevations generally varied with topography and ranged from 237.9 feet to 224.3 feet above sea level.

Areas of Special Geotechnical Interest

A. Alluvial Soils were encountered in the following sections:

Alignment	Begin Station	End Station
-L-	11+22	25+09
-DET-	10+36	24+30

Schnabel Engineering
1133 Military Cutoff Road, Suite 210
Wilmington, NC 28405

PROJECT REFERENCE NO.	SHEET NO.
BR-0062	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/17/99

REVISIONS

NC GRID
NAD 83 NA 2011

BEGIN CONSTRUCTION
-DET- POC Sta. 10+36.28
=-L- POT STA.11+22.27

BL-5

BRUNSWICK TIMBER, LLC
DB 672 PG 237

WOODS

EXISTING R/W

ALLUVIAL

ROADWAY EMBANKMENT

BL-4

-L-

-EL-

TO WADESBORO
NC 52

EBI-A

EBI-B

BRIDGE #14

-DET-

EBI-DET

BM-2

CONC MON

JS

SOUTH FORK OF JONES CREEK

N 63°21'36" E
242.75'

S 63°21'36" W
1140.72'

MATCH LINE -L- STA. 18+53 SEE SHEET 5

-DET- PC Sta. 10+00.00
=-L- POT STA.10+86.38

-DET- PRC Sta. 12+37.80

BEGIN DETOUR
-DET- POC Sta. 11+57.62
=-L- POT STA.12+43.41

-DET- PT Sta. 14+75.60

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PROJECT REFERENCE NO.	SHEET NO.
BR-0062	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/17/99

REVISIONS

NC GRID NAD 83 NA 2011

MATCH LINE -L- STA. 18+53 SEE SHEET 4

ALLUVIAL

ALLUVIAL

ALLUVIAL

ROADWAY EMBANKMENT

ROADWAY EMBANKMENT

EB2-A

EB2-B

EB2-DET

ROADWAY EMBANKMENT

ROADWAY EMBANKMENT

ROADWAY EMBANKMENT

BM-1

-DET-

-DET-

-L-

-L-

-L-

NC 52

TO MORVEN

BL-3

EXISTING R/W

ALLUVIAL

ALLUVIAL

ALLUVIAL

WOODS

WLB

BTM

HUGH L. PARKER and wife BETTY H. PARKER DB 721PG 101

BILLY LYNN WALL and wife MYRTLE EDDINS WALL DB 224 PG 275

-DET- PC Sta. 20+09.26

-DET- PRC Sta. 22+47.06

END DETOUR
-DET- POC Sta. 23+22.04
=-L- POT STA. 24+01.10

END CONSTRUCTION
-DET- POC Sta. 24+30.47
=-L- POT STA. 25+09.48

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PROJECT REFERENCE NO.	SHEET NO.
BR-0062	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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-32	23' LT	15+83	23.3-24.8	A-7-6(18)	42	20	2.8	14.1	42.2	40.9	100	99	88	24	-
SS-65	7' RT	17+40	13.5-15.0	A-7-5(15)	57	27	29.6	12.4	23.6	34.3	80	62	48	29	-
SS-66	7' RT	17+40	18.5-20.0	A-4(4)	26	6	2.2	12.0	70.8	15.1	100	99	88	34	-
SS-74	6' RT	18+75	8.5-10.0	A-5(1)	49	3	36.2	22.9	26.6	14.3	71	52	32	28	-
SS-76	6' RT	18+75	18.5-20.0	A-7-6(17)	42	16	1.4	9.3	48.5	40.8	100	99	92	35	-

(RE2) **ROADWAY EMBANKMENT:** MEDIUM STIFF TO VERY STIFF, RED BROWN, GRAY, AND ORANGE, SANDY AND CLAYEY SILT (A-4, A-5), CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

(AL1) **ALLUVIAL:** VERY SOFT TO STIFF, GRAY, BLUE, BROWN, AND ORANGE, SANDY, SILTY, AND ORGANIC CLAY (A-6, A-7-5, A-7-6), CONTAINS GRAVEL AND WOOD FRAGMENTS, HIGHLY PLASTIC, MICACEOUS, WET

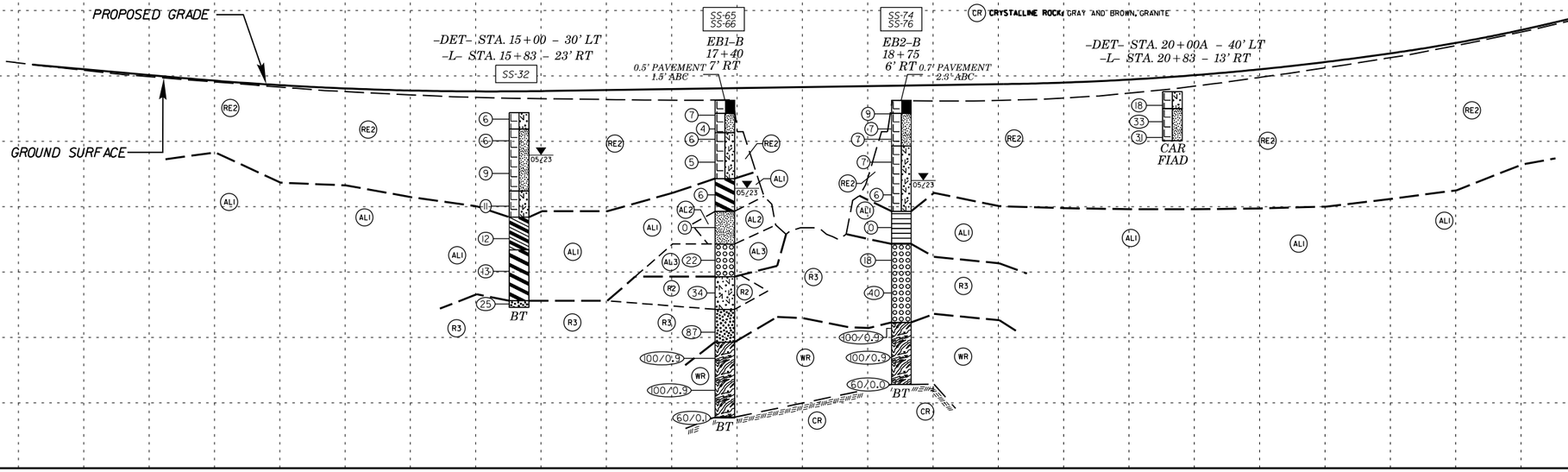
(AL2) **ALLUVIAL:** VERY SOFT, GRAY, SILT (A-4), WITH LITTLE SAND, WET

(AL3) **ALLUVIAL:** MEDIUM DENSE TO DENSE, GRAY, SAND AND GRAVEL (A-1-b), WET

(R3) **RESIDUAL:** MEDIUM DENSE TO VERY DENSE, GRAY, SAND AND SITLY SAND (A-1-b, A-2-4), CONTAINS ROCK FRAGMENTS, MICACEOUS, MOIST TO SATURATED

(WR) **WEATHERED ROCK:** GRAY AND BROWN, GRANITE

(CR) **CRYSTALLINE ROCK:** GRAY AND BROWN, GRANITE



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-97	20' RT	13+00	3.5-5.0	A-6(3)	29	11	29.6	22.7	23.9	23.9	87	69	45	22	-
SS-99	20' RT	13+00	8.5-10.0	A-2-4(0)	38	3	43.5	28.5	20.6	7.4	73	51	24	25	-
SS-89	CL	16+62	3.5-5.0	A-4(4)	24	9	14.3	17.5	40.3	28.0	98	90	72	18	-
SS-80	15' RT	20+00	1.0-2.5	A-7-6(17)	42	16	1.7	9.3	46.1	42.9	100	99	92	39	-
ST-2	CL	16+62	3.0-5.0	A-4(2)	22	6	13.7	18.6	39.9	28.23	99	92	72	18	-

✱ NOTE: ST-2 WAS OBTAINED AT OFFSET BORING PROBE 5' LT

(RE1) **ROADWAY EMBANKMENT:** STIFF, GRAY AND BROWN, SANDY CLAY (A-6), CONTAINS GRAVEL, MICACEOUS, MOIST

(RE2) **ROADWAY EMBANKMENT:** MEDIUM STIFF TO VERY STIFF, RED BROWN, AND GRAY, SANDY AND CLAYEY SILT (A-4, A-5), WITH LITTLE SAND, CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

(AL1) **ALLUVIAL:** VERY SOFT TO STIFF, RED, ORANGE, BROWN, AND GRAY, SANDY AND SILTY CLAY (A-6, A-7-6), WITH TRACE ORGANIC MATTER, CONTAINS ROOT FRAGMENTS, MICACEOUS, MOIST TO WET

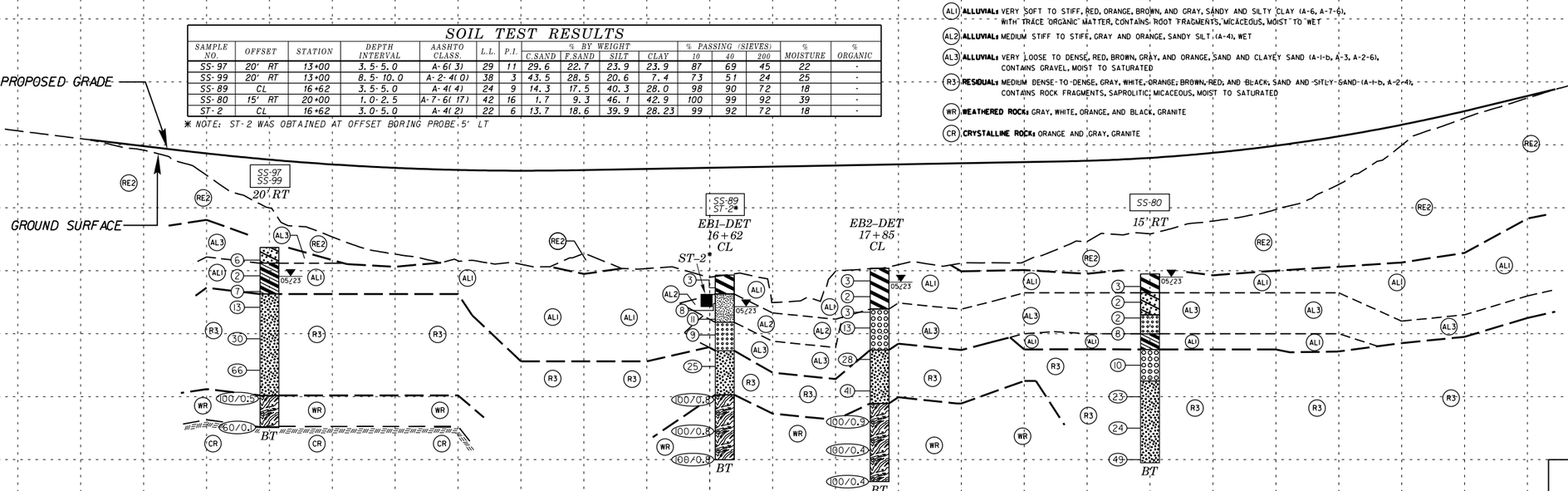
(AL2) **ALLUVIAL:** MEDIUM STIFF TO STIFF, GRAY AND ORANGE, SANDY SILT (A-4), WET

(AL3) **ALLUVIAL:** VERY LOOSE TO DENSE, RED, BROWN, GRAY, AND ORANGE, SAND AND CLAYEY SAND (A-1-b, A-3, A-2-6), CONTAINS GRAVEL, MOIST TO SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE TO DENSE, GRAY, WHITE, ORANGE, BROWN, RED, AND BLACK, SAND AND SITLY SAND (A-1-b, A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST TO SATURATED

(WR) **WEATHERED ROCK:** GRAY, WHITE, ORANGE, AND BLACK, GRANITE

(CR) **CRYSTALLINE ROCK:** ORANGE AND GRAY, GRANITE



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	BR-0062	7

(AL1) **ALLUVIAL:** VERY SOFT TO MEDIUM STIFF, ORANGE AND GRAY, SANDY CLAY (A-6), WET

(AL3) **ALLUVIAL:** LOOSE, BROWN, CLAYEY SAND (A-2-6), MOIST

(R3) **RESIDUAL:** MEDIUM DENSE TO VERY DENSE, GRAY AND ORANGE, SILTY SAND (A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

(WR) **WEATHERED ROCK:** ORANGE AND GRAY, GRANITE

(CR) **CRYSTALLINE ROCK:** ORANGE AND GRAY, GRANITE

ROADWAY EMBANKMENT: MEDIUM STIFF TO VERY STIFF, BROWN, GRAY, AND ORANGE, SANDY AND CLAYEY SILT (A-4, A-5), CONTAINS GRAVEL AND ROOTS, MOIST

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-DET-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	8

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-97	20' RT	13+00	3.5-5.0	A-6(3)	29	11	29.6	22.7	23.9	23.9	87	69	45	22	-
SS-99	20' RT	13+00	8.5-10.0	A-2-4(0)	38	3	43.5	28.5	20.6	7.4	73	51	24	25	-

(AL) **ALLUVIAL:** VERY SOFT TO VERY STIFF, ORANGE AND GRAY, SANDY CLAY (A-6), WET

(AL3) **ALLUVIAL:** LOOSE, BROWN, CLAYEY SAND (A-2-6), MOIST

(R3) **RESIDUAL:** MEDIUM DENSE TO VERY DENSE, GRAY AND ORANGE, SILTY SAND (A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

(WR) **WEATHERED ROCK:** ORANGE AND GRAY, GRANITE

(CR) **CRYSTALLINE ROCK:** ORANGE AND GRAY, GRANITE

-DET- STA. 13+04 - 80' LT
-L- STA. 14+00 - 40' LT

0.022 0.022

A-1

ROADWAY EMBANKMENT: MEDIUM STIFF TO VERY STIFF, BROWN, GRAY, AND ORANGE, SANDY AND CLAYEY SILT (A-4, A-5), CONTAINS GRAVEL AND ROOTS, MOIST

2:1

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SS-97
SS-99

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13+00.00
-DET-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	9

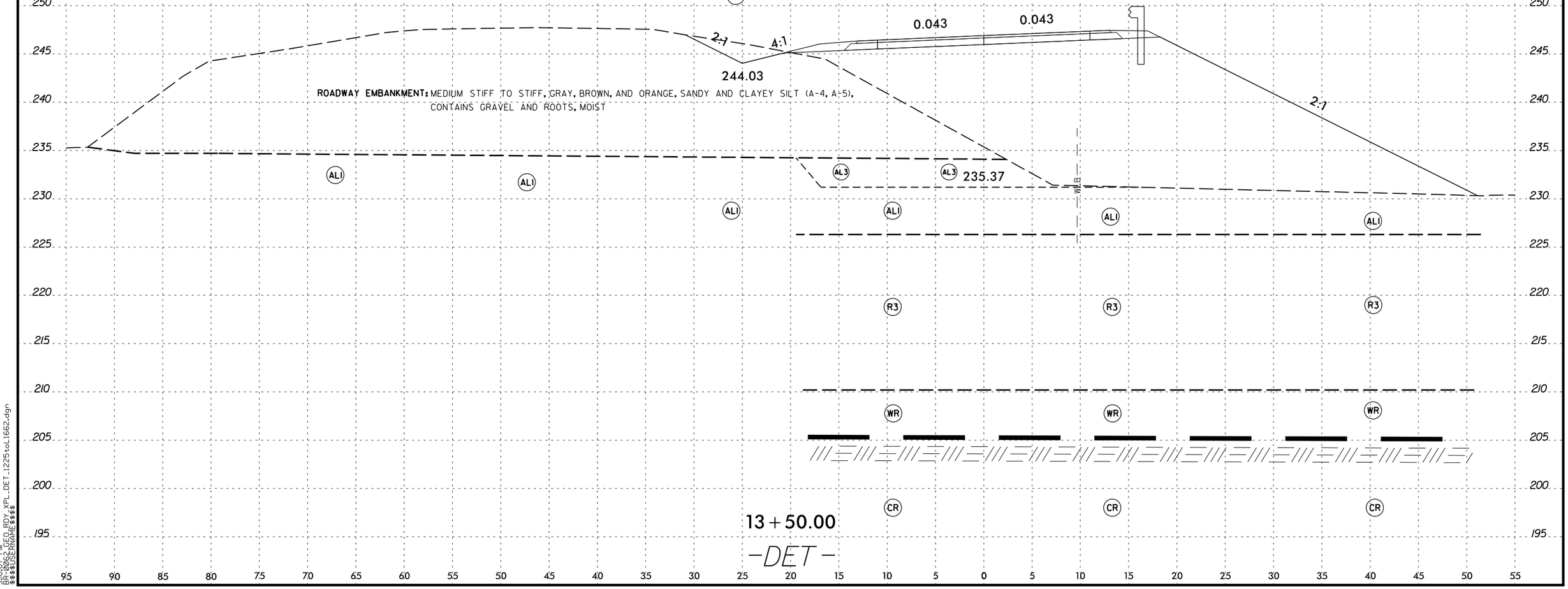
(AL1) **ALLUVIAL:** VERY SOFT TO VERY STIFF, ORANGE AND GRAY, SANDY CLAY (A-6), WET

(AL3) **ALLUVIAL:** LOOSE, BROWN, CLAYEY SAND (A-2-6), MOIST

(R3) **RESIDUAL:** MEDIUM DENSE TO VERY DENSE, GRAY AND ORANGE, SILTY SAND (A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

(WR) **WEATHERED ROCK:** ORANGE AND GRAY, GRANITE

(CR) **CRYSTALLINE ROCK:** ORANGE AND GRAY, GRANITE



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-DET-

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	10

(AL1) **ALLUVIAL:** VERY SOFT TO VERY STIFF, ORANGE AND GRAY, SANDY CLAY (A-6), WET

(AL3) **ALLUVIAL:** LOOSE, BROWN, CLAYEY SAND (A-2-6), MOIST

(R3) **RESIDUAL:** MEDIUM DENSE TO VERY DENSE, GRAY AND ORANGE, SILTY SAND (A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

(WR) **WEATHERED ROCK:** ORANGE AND GRAY, GRANITE

(CR) **CRYSTALLINE ROCK:** ORANGE AND GRAY, GRANITE

ROADWAY EMBANKMENT: MEDIUM STIFF TO STIFF, GRAY, BROWN, AND ORANGE, SANDY AND CLAYEY SILT (A-4, A-5), CONTAINS GRAVEL AND ROOTS, MOIST

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W-LB

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-DET-

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BR-0062_GEO_RDY_XPL_DET_1225to1662.dgn
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	11

(ALI) **ALLUVIAL:** VERY SOFT TO VERY STIFF, ORANGE AND GRAY, SANDY CLAY (A-6), WET

(R3) **RESIDUAL:** MEDIUM DENSE TO VERY DENSE, GRAY AND ORANGE, SILTY SAND (A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

(WR) **WEATHERED ROCK:** ORANGE AND GRAY, GRANITE

(CR) **CRYSTALLINE ROCK:** ORANGE AND GRAY, GRANITE

ROADWAY EMBANKMENT: MEDIUM STIFF TO STIFF, RED AND GRAY, SANDY AND CLAYEY SILT (A-4, A-5), CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

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WLB

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-DET-

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	12

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-32	30' LT	15+00	23.3-24.8	A-7-6(18)	42	20	2.8	14.1	42.2	40.9	100	99	88	24	-

(RE2) **ROADWAY EMBANKMENT:** MEDIUM STIFF TO STIFF, RED AND GRAY, SANDY AND CLAYEY SILT (A-4, A-5), CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

(ALI) **ALLUVIAL:** STIFF, GRAY, BLUE, AND BROWN, SANDY AND SILTY CLAY (A-7-6), CONTAINS GRAVEL, MICACEOUS, WET

(R3) **RESIDUAL:** MEDIUM DENSE, GRAY, SILTY SAND (A-2-4), WITH TRACE CLAY CONTAINS ROCK FRAGMENTS, SATURATED

SS-32

-DET- STA. 15+00 - 30' LT
-L- STA. 15+83 - 23' RT

6
6
9
11
12
13
25

05/23

BT

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WLB

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RE2 RE2 RE2 RE2

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R3 R3 R3 R3 R3

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-DET-

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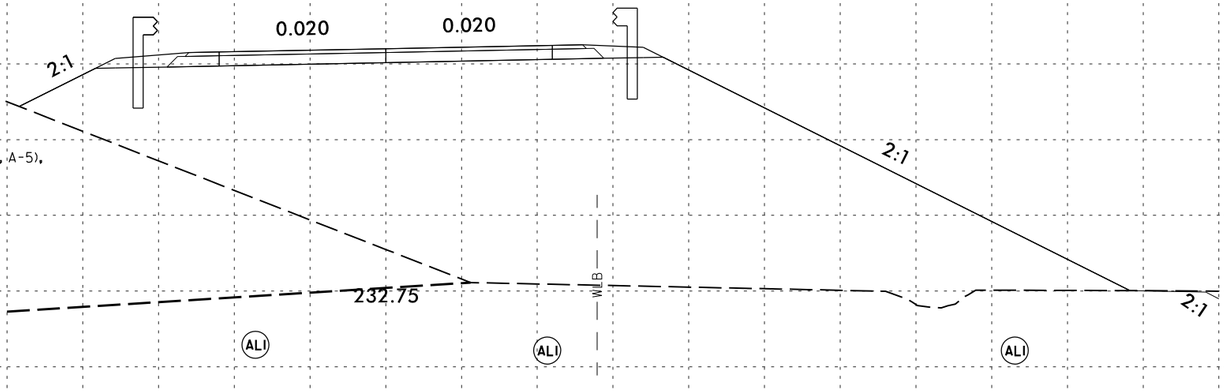
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	13

(RE2) **ROADWAY EMBANKMENT:** MEDIUM STIFF TO STIFF, RED AND GRAY, SANDY AND CLAYEY SILT (A-4, A-5), CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

(ALI) **ALLUVIAL:** STIFF, GRAY, BLUE, AND BROWN, SANDY AND SILTY CLAY (A-7-6), CONTAINS GRAVEL, MICACEOUS, WET

(R3) **RESIDUAL:** MEDIUM DENSE, GRAY, SILTY SAND (A-2-4), WITH TRACE CLAY CONTAINS ROCK FRAGMENTS, SATURATED



ROADWAY EMBANKMENT: MEDIUM STIFF TO STIFF, RED AND GRAY, SANDY AND CLAYEY SILT (A-4, A-5), CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

15+50.00

-DET-

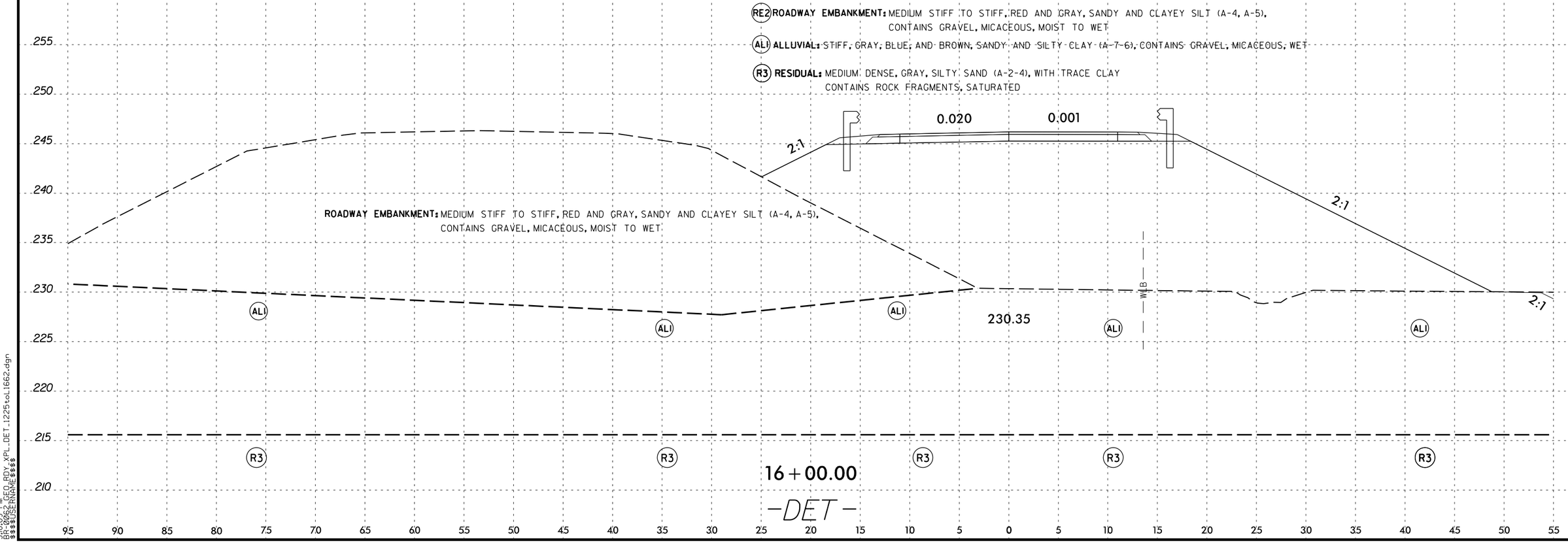
5:10:08 PM
BR-0062_DED_RDY_XPL_DET_1225to1662.dgn
$$$$USERNAME$$$$

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	14

(RE2) **ROADWAY EMBANKMENT:** MEDIUM STIFF TO STIFF, RED AND GRAY, SANDY AND CLAYEY SILT (A-4, A-5), CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

(ALI) **ALLUVIAL:** STIFF, GRAY, BLUE, AND BROWN, SANDY AND SILTY CLAY (A-7-6), CONTAINS GRAVEL, MICACEOUS, WET

(R3) **RESIDUAL:** MEDIUM DENSE, GRAY, SILTY SAND (A-2-4), WITH TRACE CLAY CONTAINS ROCK FRAGMENTS, SATURATED



16+00.00

-DET-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	15

(AL1) **ALLUVIAL:** SOFT TO MEDIUM STIFF, GRAY AND BROWN, SILTY CLAY (A-7-5), WITH TRACE TO SOME SAND, HIGHLY PLASTIC, MICACEOUS, MOIST TO WET

(AL2) **ALLUVIAL:** VERY SOFT TO STIFF, GRAY AND ORANGE, SANDY SILT (A-4), WET

(AL3) **ALLUVIAL:** LOOSE TO MEDIUM DENSE, GRAY, SAND (A-3, A-1-b), WITH TRACE CLAY, CONTAINS GRAVEL, MOIST TO SATURATED

(R2) **RESIDUAL:** HARD, GRAY, CLAYEY SILT (A-5), CONTAINS ROCK FRAGMENTS, MICACEOUS, MOIST

(R3) **RESIDUAL:** MEDIUM DENSE TO VERY DENSE, GRAY AND ORANGE, SILTY SAND (A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

(WR) **WEATHERED ROCK:** BROWN, ORANGE, AND GRAY, GRANITE

(CR) **CRYSTALLINE ROCK:** ORANGE AND GRAY, GRANITE

ROADWAY EMBANKMENT: SOFT TO MEDIUM STIFF, RED, GRAY, AND BROWN, SILT AND CLAYEY SILT (A-4, A-5), WITH SOME SAND, CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

0.022 0.022

2:1 2:1

228.99

16+50.00

-DET-

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-65	7' RT	17+40	13.5-15.0	A-7-5(15)	57	27	29.6	12.4	23.6	34.3	80	62	48	29	-
SS-66	7' RT	17+40	18.5-20.0	A-4(4)	26	6	2.2	12.0	70.8	15.1	100	99	88	34	-
SS-89	CL	16+62	3.5-5.0	A-4(4)	24	9	14.3	17.5	40.3	28.0	98	90	72	18	-
ST-2	CL	16+62	3.0-5.0	A-4(2)	22	6	13.7	18.6	39.9	28.2	99	92	72	18	-

* NOTE: ST-2 WAS OBTAINED AT OFFSET BORING PROBE 5' LT

RE2 **ROADWAY EMBANKMENT:** SOFT TO MEDIUM STIFF, RED, GRAY, AND BROWN, SILT AND CLAYEY SILT (A-4, A-5), WITH SOME SAND, CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

ALI **ALLUVIAL:** SOFT TO MEDIUM STIFF, GRAY AND BROWN, SILTY CLAY (A-7-5), WITH TRACE TO SOME SAND, HIGHLY PLASTIC, MICACEOUS, MOIST TO WET

AL2 **ALLUVIAL:** VERY SOFT TO STIFF, GRAY AND ORANGE, SANDY SILT (A-4), WET

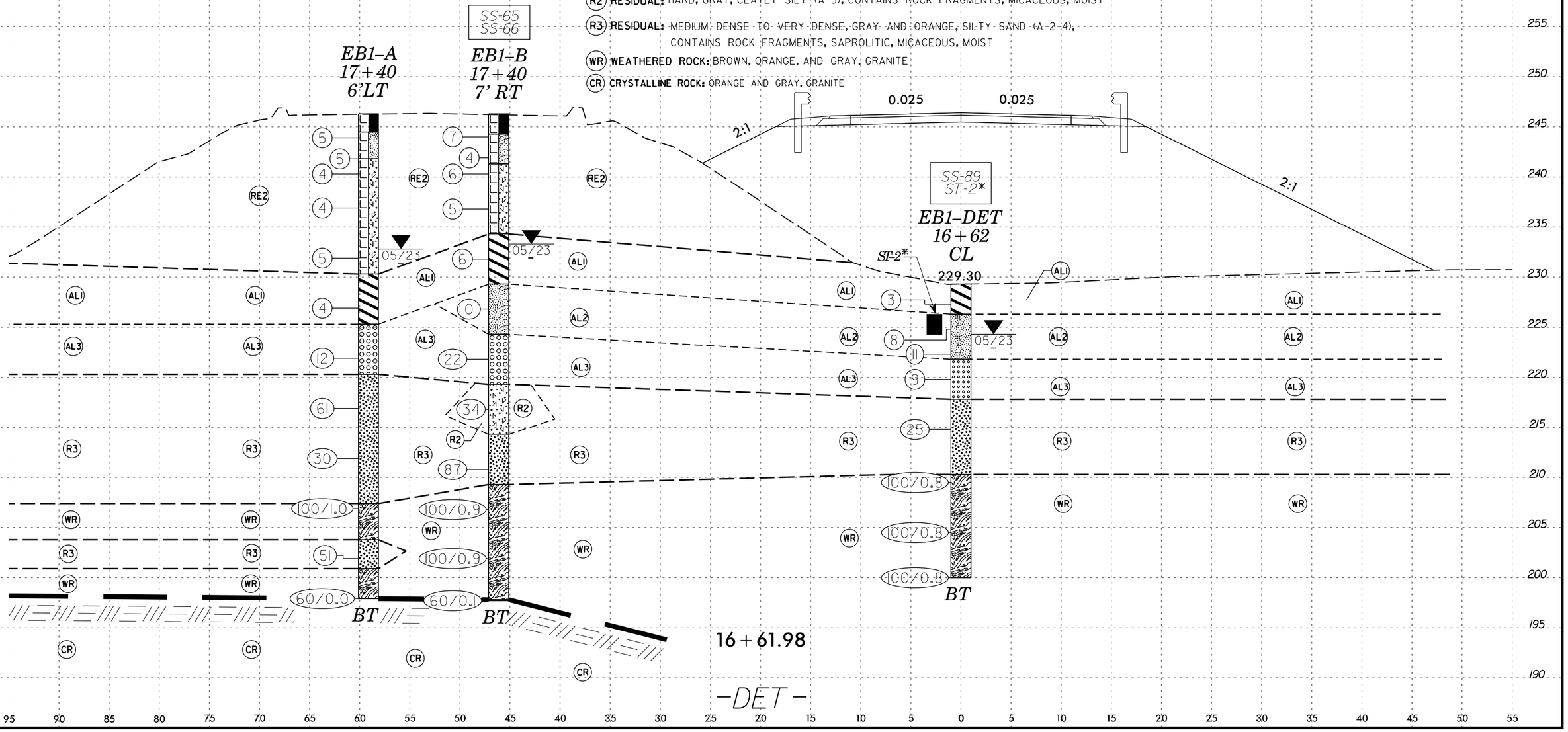
AL3 **ALLUVIAL:** LOOSE TO MEDIUM DENSE, GRAY, SAND (A-3, A-1-b), WITH TRACE CLAY, CONTAINS GRAVEL, MOIST TO SATURATED

R2 **RESIDUAL:** HARD, GRAY, CLAYEY SILT (A-5), CONTAINS ROCK FRAGMENTS, MICACEOUS, MOIST

R3 **RESIDUAL:** MEDIUM DENSE TO VERY DENSE, GRAY AND ORANGE, SILTY SAND (A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

WR **WEATHERED ROCK:** BROWN, ORANGE, AND GRAY, GRANITE

CR **CRYSTALLINE ROCK:** ORANGE AND GRAY, GRANITE



0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
BR-0062	17

RE2 **ROADWAY EMBANKMENT:** MEDIUM STIFF TO STIFF, RED AND BROWN, SILT AND CLAYEY SILT (A-4, A-5), WITH LITTLE TO SOME SAND, CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

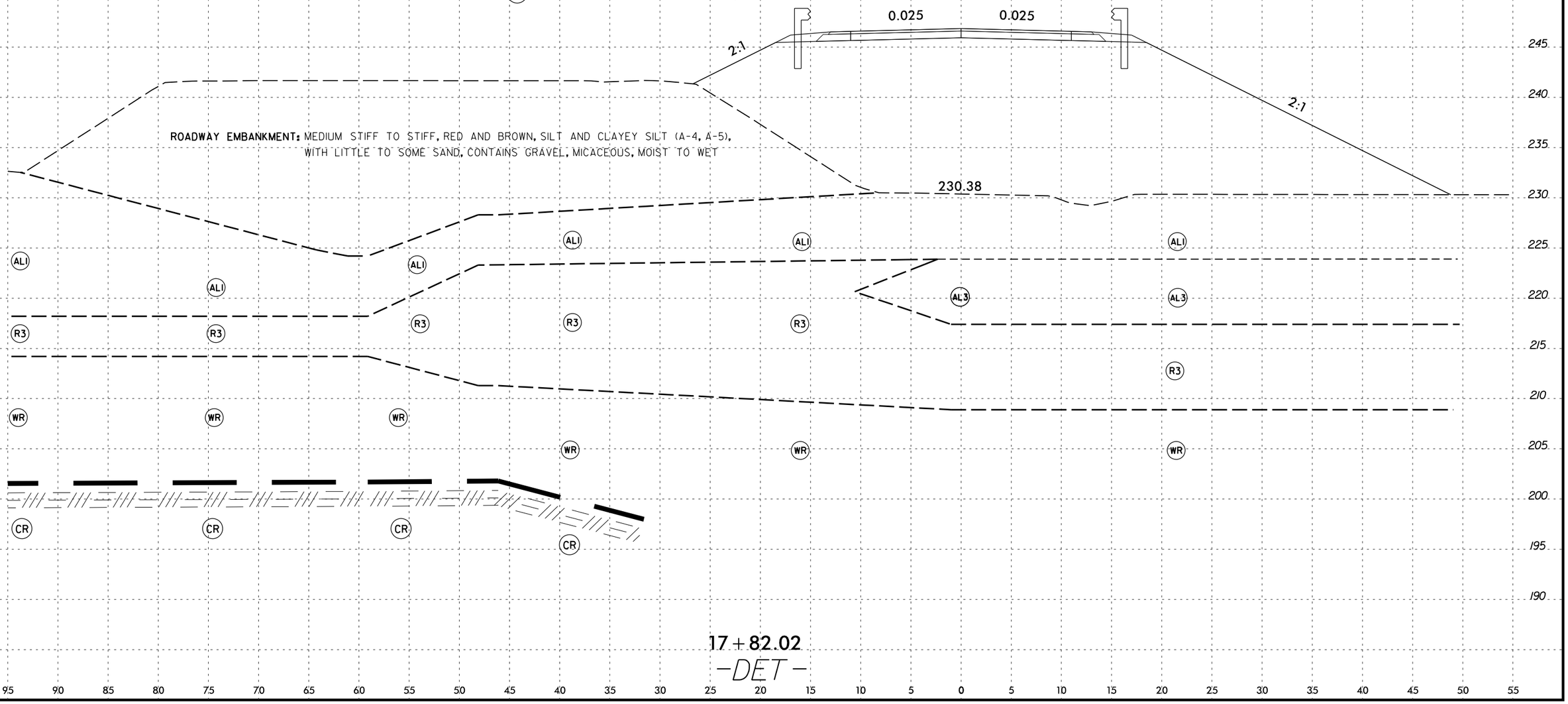
ALI **ALLUVIAL:** SOFT TO MEDIUM STIFF, RED, BROWN, GRAY, BLUE, AND RED, SANDY AND SILTY CLAY AND ORGANIC SILTY CLAY (A-7-5, A-7-6), CONTAINS WOOD FRAGMENTS, MOIST TO WET

AL3 **ALLUVIAL:** VERY LOOSE TO MEDIUM DENSE, GRAY, SAND AND GRAVEL (A-1-b), SATURATED

R3 **RESIDUAL:** MEDIUM DENSE TO DENSE, GRAY, WHITE, AND BLACK, SAND AND SILTY SAND (A-1-b, A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST TO SATURATED

WR **WEATHERED ROCK:** GRAY, WHITE, AND BROWN, GRANITE

CR **CRYSTALLINE ROCK:** GRAY AND WHITE, GRANITE



17+82.02

-DET-

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-38	7' LT	18+75	23.5-25.0	A-7-6(17)	43	15	1.8	6.4	49.5	42.3	99	98	93	43	-
SS-74	6' RT	18+75	8.5-10.0	A-5(1)	49	3	36.2	22.9	26.6	14.3	71	52	32	28	-
SS-76	6' RT	18+75	18.5-20.0	A-7-6(17)	42	16	1.4	9.3	48.5	40.8	100	99	92	35	-
S-4	45' LT	19+00	1.0-1.5	A-7-5(15)	60	21	19.8	16.9	29.1	34.2	85	74	57	27	-

(RE2) **ROADWAY EMBANKMENT:** MEDIUM STIFF TO STIFF, RED AND BROWN, SILT AND CLAYEY SILT (A-4, A-5), WITH LITTLE TO SOME SAND, CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

(ALI) **ALLUVIAL:** SOFT TO MEDIUM STIFF, RED, BROWN, GRAY, BLUE, AND RED, SANDY AND SILTY CLAY AND ORGANIC SILTY CLAY (A-7-5, A-7-6), CONTAINS WOOD FRAGMENTS, MOIST TO WET

(AL3) **ALLUVIAL:** VERY LOOSE TO MEDIUM DENSE, GRAY, SAND AND GRAVEL (A-1-b), SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE TO DENSE, GRAY, WHITE, AND BLACK, SAND AND SILTY SAND (A-1-b, A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST TO SATURATED

(WR) **WEATHERED ROCK:** GRAY, WHITE, AND BROWN, GRANITE

(CR) **CRYSTALLINE ROCK:** GRAY AND WHITE, GRANITE

SS-38
EB2-A
18+75
7' LT

SS-74
SS-76
EB2-B
18+75
6' RT

S-4
-DET- STA. 18+18 - 98' LT
-L- STA. 19+00 - 45' LT

AR
DRY

0.025 0.025

2:1

2:1

EB2-DET
17+85
CL

230.96

05/23

BT

18+00.00
-DET-

(AL1) **ALLUVIAL:** SOFT TO MEDIUM STIFF, RED, BROWN, GRAY, BLUE, AND RED, SANDY AND SILTY CLAY AND ORGANIC SILTY CLAY (A-7-5, A-7-6), CONTAINS WOOD FRAGMENTS, MOIST TO WET

(AL3) **ALLUVIAL:** VERY LOOSE TO MEDIUM DENSE, GRAY, SAND AND GRAVEL (A-1-b), SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE TO DENSE, GRAY, WHITE, AND BLACK, SAND AND SILTY SAND (A-1-b, A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST TO SATURATED

(WR) **WEATHERED ROCK:** GRAY, WHITE, AND BROWN, GRANITE

ROADWAY EMBANKMENT: MEDIUM STIFF TO STIFF, RED AND BROWN, SILT AND CLAYEY SILT (A-4, A-5), WITH LITTLE TO SOME SAND, CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

0.020 0.006

2:1 2:1

WLB

231.21

18+50.00

-DET-

6/23/16

5:10:10 PM
BR-0062_GEO_RDY_XPL_DET_1782to2375.dgn
$$$$USERNAME$$$$

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	20

(AL1) **ALLUVIAL:** SOFT, GRAY, BROWN AND RED, SANDY AND SILTY CLAY (A-7-6), WET

(AL3) **ALLUVIAL:** VERY LOOSE MEDIUM DENSE, GRAY, SAND AND GRAVEL (A-1-b), SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE TO DENSE, GRAY, SAND AND SILTY SAND (A-1-b, A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST TO SATURATED

(WR) **WEATHERED ROCK:** GRAY, WHITE, BLACK, AND ORANGE, GRANITE

ROADWAY EMBANKMENT: MEDIUM STIFF TO STIFF, RED AND BROWN, SILT AND CLAYEY SILT (A-4, A-5), WITH LITTLE TO SOME SAND, CONTAINS GRAVEL, MICACEOUS, MOIST TO WET

0.020 0.014

2:1 2:1

WLB

231.45

19+00.00

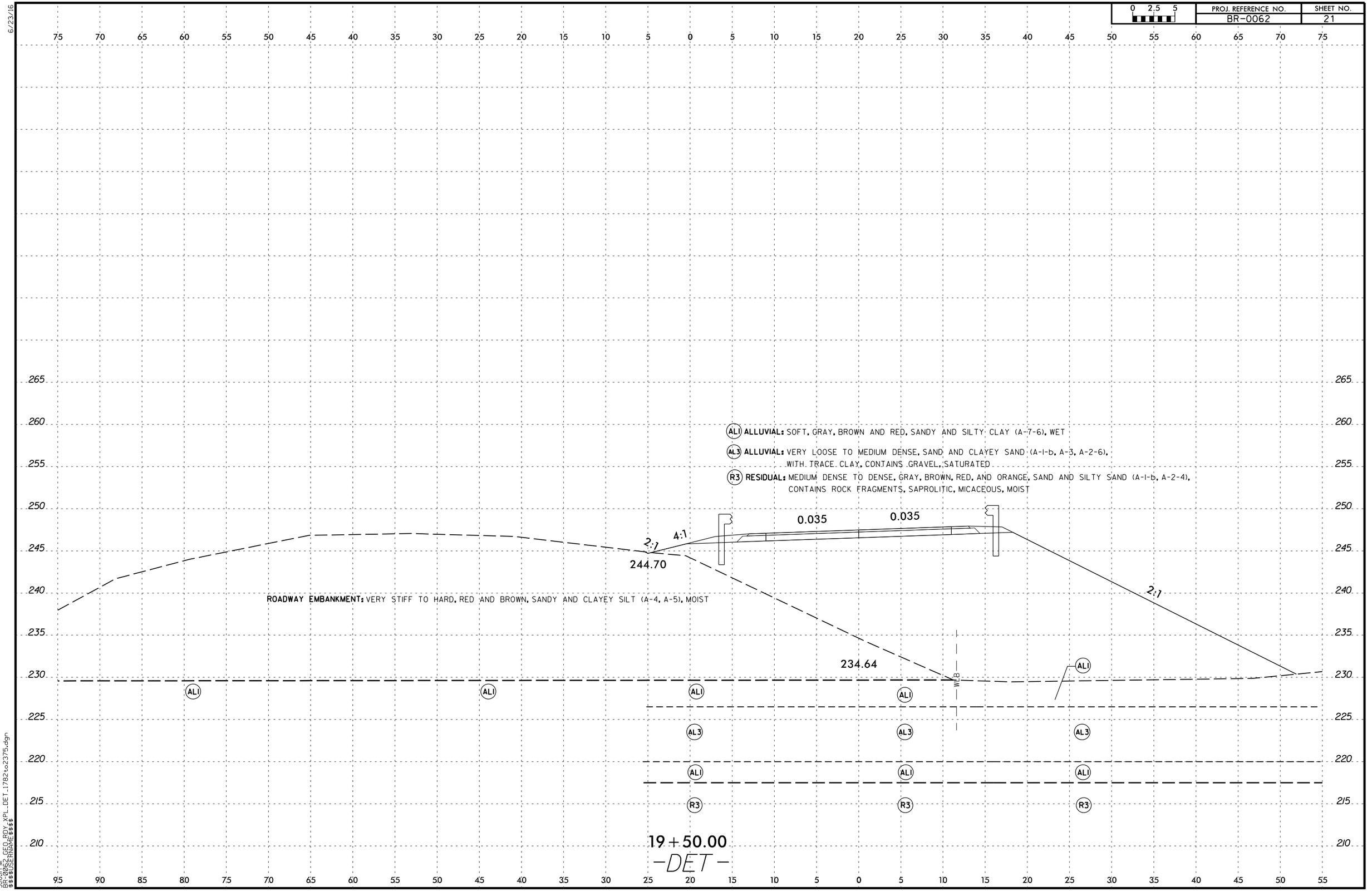
-DET-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	21

(ALI) **ALLUVIAL:** SOFT, GRAY, BROWN AND RED, SANDY AND SILTY CLAY (A-7-6), WET

(AL3) **ALLUVIAL:** VERY LOOSE TO MEDIUM DENSE, SAND AND CLAYEY SAND (A-1-b, A-3, A-2-6), WITH TRACE CLAY, CONTAINS GRAVEL, SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE TO DENSE, GRAY, BROWN, RED, AND ORANGE, SAND AND SILTY SAND (A-1-b, A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST



19+50.00
-DET-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	22

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-80	15' RT	20+00	1.0-2.5	A-7-6(17)	42	16	1.7	9.3	46.1	42.9	100	99	92	39	-

(ALI) **ALLUVIAL:** SOFT, GRAY, BROWN, AND RED, SANDY AND SILTY CLAY (A-7-6), WET

(AL3) **ALLUVIAL:** VERY LOOSE TO MEDIUM DENSE, SAND AND CLAYEY SAND (A-1-b, A-3, A-2-6), WITH TRACE CLAY, CONTAINS GRAVEL, SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE TO DENSE, GRAY, BROWN, RED, AND ORANGE, SAND AND SILTY SAND (A-1-b, A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

-DET- STA. 20+00A - 40' LT
-L- STA. 20+83 - 13' RT

18
33
31

CAR
FIAD

2:1
4:1
244.87
0.056
0.056
2:1
235.86

SS-80

-DET- STA. 20+00

WB
05/23

3
2
2
8
10
23
24
49

BT

ROADWAY EMBANKMENT: VERY STIFF TO HARD, RED AND BROWN, SANDY AND CLAYEY SILT (A-4, A-5), MOIST

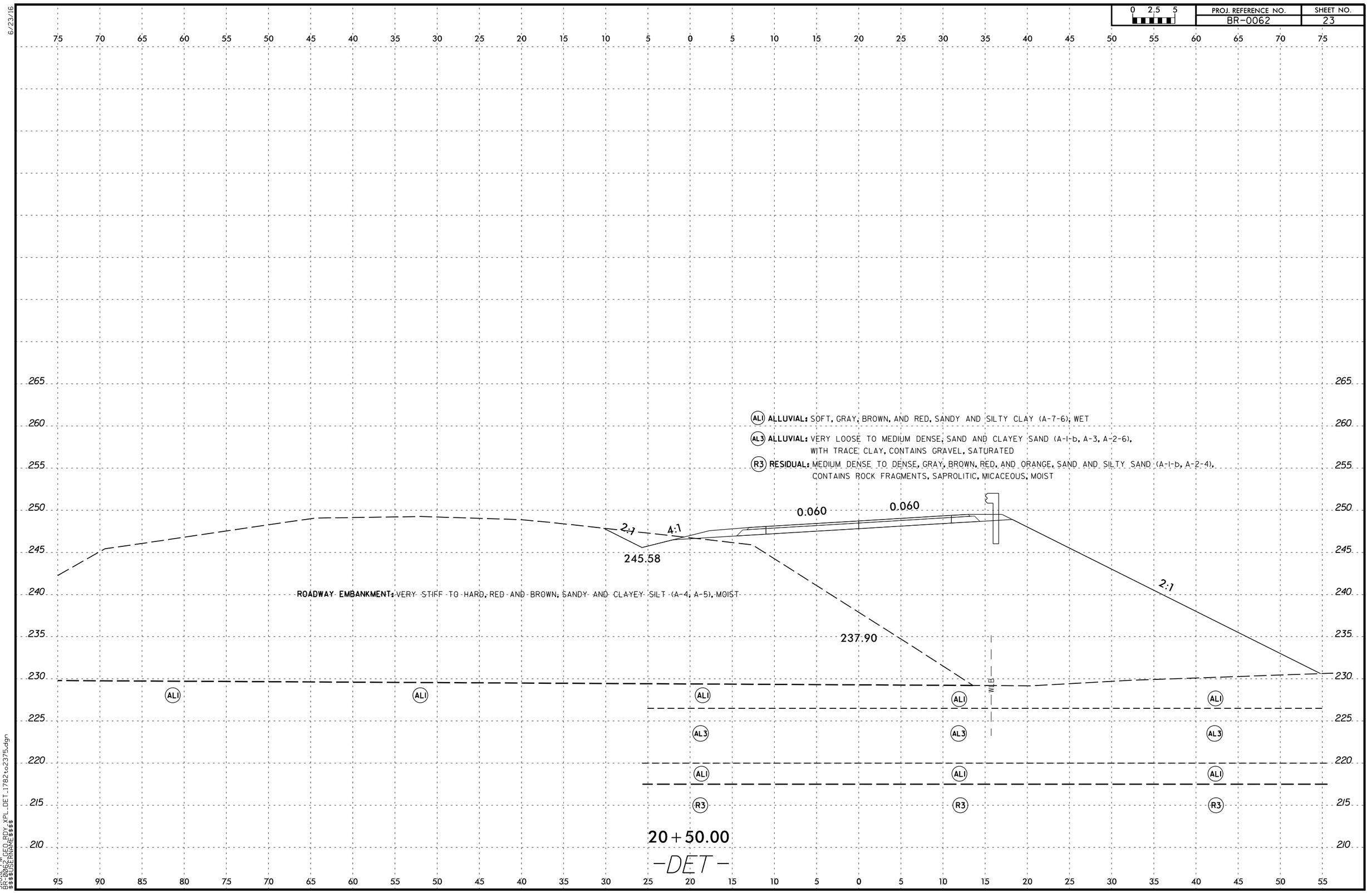
20+00.00
-DET-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	23

(AL1) **ALLUVIAL:** SOFT, GRAY, BROWN, AND RED, SANDY AND SILTY CLAY (A-7-6), WET

(AL3) **ALLUVIAL:** VERY LOOSE TO MEDIUM DENSE, SAND AND CLAYEY SAND (A-1-b, A-3, A-2-6), WITH TRACE CLAY, CONTAINS GRAVEL, SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE TO DENSE, GRAY, BROWN, RED, AND ORANGE, SAND AND SILTY SAND (A-1-b, A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST



0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
BR-0062	24

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

(AL1) **ALLUVIAL:** SOFT, GRAY, BROWN, AND RED, SANDY AND SILTY CLAY (A-7-6), WET

(AL3) **ALLUVIAL:** VERY LOOSE TO MEDIUM DENSE, SAND AND CLAYEY SAND (A-1-b, A-3, A-2-6), WITH TRACE CLAY, CONTAINS GRAVEL, SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE TO DENSE, GRAY, BROWN, RED, AND ORANGE, SAND AND SILTY SAND (A-1-b, A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

ROADWAY EMBANKMENT: VERY STIFF TO HARD, RED AND BROWN, SANDY AND CLAYEY SILT (A-4, A-5), MOIST

265 260 255 250 245 240 235 230 225 220 215 210

0.048 0.048

2:1 4:1 2:1

246.94 239.74

WT.B

(AL1) (AL3) (R3)

21+00.00

-DET-

90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	25

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

265
260
255
250
245
240
235
230
225
220
215
210

(ALI) **ALLUVIAL:** SOFT, GRAY, BROWN, AND RED, SANDY AND SILTY CLAY (A-7-6), WET

(AL3) **ALLUVIAL:** VERY LOOSE TO MEDIUM DENSE, SAND AND CLAYEY SAND (A-1-b, A-3, A-2-6), WITH TRACE CLAY, CONTAINS GRAVEL, SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE TO DENSE, GRAY, BROWN, RED, AND ORANGE, SAND AND SILTY SAND (A-1-b, A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

0.027 0.027

2:1 4:1

248.70

ROADWAY EMBANKMENT: VERY STIFF TO HARD, RED AND BROWN, SANDY AND CLAYEY SILT (A-4, A-5), MOIST

243.72

2:1

WLEB

(ALI) (AL3) (R3)

90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

21+50.00

-DET-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	26

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-55	30' RT	22+00	3.5-5.0	A-7-6(18)	42	18	3.1	6.4	47.5	43.0	100	98	93	37	-

(ALI) **ALLUVIAL:** SOFT TO STIFF, GRAY, BROWN, AND ORANGE, SILTY CLAY (A-7-6), CONTAINS ROOT FRAGMENTS, WITH TRACE ORGANIC MATTER, WET

(AL3) **ALLUVIAL:** MEDIUM DENSE, RED AND ORANGE, SAND AND GRAVEL (A-1-b), SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE, GRAY AND ORANGE, SILTY SAND (A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

(WR) **WEATHERED ROCK:** GRAY, GRANITE

0.006 0.006

249.92

ROADWAY EMBANKMENT: VERY STIFF TO HARD, RED AND BROWN, SANDY AND CLAYEY SILT (A-4, A-5), MOIST

2:1

SS-55

05/23 WLB

2
4
8
13
13
29
17
100/0.4

BT

22+00.00

-DET-

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
BR-0062	27

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

(ALI) **ALLUVIAL:** SOFT TO STIFF, GRAY, BROWN, AND ORANGE, SILTY CLAY (A-7-6), CONTAINS ROOT FRAGMENTS, WITH TRACE ORGANIC MATTER, WET

(AL3) **ALLUVIAL:** MEDIUM DENSE, RED AND ORANGE, SAND AND GRAVEL (A-1-b), SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE, GRAY AND ORANGE, SILTY SAND (A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

ROADWAY EMBANKMENT: VERY STIFF TO HARD, RED AND BROWN, SANDY AND CLAYEY SILT (A-4, A-5), MOIST

0.015 0.015

254.26

2:1

WTB

265 260 255 250 245 240 235 230 225 220 215

22+50.00

-DET-

85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BR-0062	28

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

275 270 265 260 255 250 245 240 235 230 225 220 215

(ALI) **ALLUVIAL:** SOFT TO STIFF, GRAY, BROWN, AND ORANGE, SILTY CLAY (A-7-6), CONTAINS ROOT FRAGMENTS, WITH TRACE ORGANIC MATTER, WET

(AL3) **ALLUVIAL:** MEDIUM DENSE, RED AND ORANGE, SAND AND GRAVEL (A-1-b), SATURATED

(R3) **RESIDUAL:** MEDIUM DENSE, GRAY AND ORANGE, SILTY SAND (A-2-4), CONTAINS ROCK FRAGMENTS, SAPROLITIC, MICACEOUS, MOIST

0.020

257.45

ROADWAY EMBANKMENT: VERY STIFF TO HARD, RED AND BROWN, SANDY AND CLAYEY SILT (A-4, A-5), MOIST

2:1

ALI ALI ALI ALI

AL3 AL3

R3 R3

23+00.00

-DET-