REFERENCE: R-2561CA

PROJECT: 34466

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *COLUMBUS*

PROJECT DESCRIPTION *NEW INTERCHANGE AT THE INTERSECTION OF NC 87 AND NC 11*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2561CA	1	226

CONTENTS

LINE	STATION	PLAN	PROFILE
-LI-	10+00.00 - 28+31.59	4-5	N/A
-L2-	10+00.00 - 28+32.97	4-5	N/A
-L-	28+31.59 - 84+16.32	5-8	N/A
-L3-	84+16.32 - 103+44.23	8-9	N/A
-L4-	84+16.32 - 103+44.23	8-9	N/A
-LPB-	10+00.00 - 20+94.26	7	N/A
-RPB-	10+00.00 - 25+78.41	6-7	N/A
-LPD-	10+00.00 - 20+57.22	7	N/A
-RPD-	10+00.00 - 24+92.89	7	N/A
-Y-	10+00.00 - 55+70.17	7, 10-12	N/A
-Y2-	9+23.00 - 15+22.86	5	N/A
-Y2A-	9+99.22 - 19+25.00	5-6	N/A
-Y3-	10+00.00 - 14+60.57	5, 13	N/A
-YDET-	18+00.00 - 53+26.82	7, 10-11	N/A
-DRI-	10+00.00 - 12+08.25	9	N/A
-DR2-	10+00.00 - 12+07.90	9	N/A
-DR3-	10+00.00 - 12+31.14	11	N/A
-DR4-	10+00.00 - 11+99.81	11	N/A
-DR5-	10+00.00 - 12+50.15	7	N/A

INVENTORY

CROSS SECTIONS

LINE	STATION	SHEETS
-LI-	11+00.00	14
-LI-	13+00.00	15
-LI-	15+00.00	16
-LI-	17+00.00	17
-LI-	19+00.00	18
-LI-	21+00.00	19
-LI-	23+00.00 - 28+00.00	20-23
-L-	28+50.00 - 29+50.00	24-25
-L-	30+50.00 - 36+50.00	26-30
-L-	37+50.00 - 47+00.00	31-40
-L-	48+50.00	41
-L-	50+00.00 - 58+50.00	42-51
-L-	60+50.00	52
-L-	62+50.00	53
-L-	64+50.00 - 71+00.00	54-64
-L-	72+00.00 - 76+50.00	65-70
-L-	77+50.00 - 81+00.00	71-74
-L-	82+50.00	75
-L3-	84+50.00	76
-L3-	86+50.00 - 100+50.00	77-83
-LPB-	12+50.00 - 15+50.00	84-85
-RPB-	14+50.00 - 25+00.00	86-92
-LPD-	12+75.00 - 15+00.00	93-94
-RPD-	15+00.00 - 21+00.00	95-98
-RPD-	22+00.00	99
-RPD-	24+00.00	100
-Y-	11+00.00 - 18+00.00	101-108
-Y-	19+00.00 - 22+50.00	109-111
-Y-	23+50.00	112
-Y-	25+50.00	113
-Y-	27+50.00	114
-Y-	29+50.00	115
-Y-	31+50.00	116
-Y-	33+00.00	117
-Y-	35+00.00	118
-Y-	37+00.00	119
-Y-	39+00.00	120
-Y-	41+00.00	121
-Y-	43+00.00	122
-Y-	45+00.00	123
-Y-	49+00.00	124
-Y2-	12+00.00	125
-Y2-	13+25.00 - 14+75.00	126-127
-Y2A-	11+00.00	128
-Y2A-	13+00.00	129
-Y2A-	15+00.00	130
-Y2A-	17+00.00	131
-Y2A-	19+00.00	132
-Y3-	11+00.00 - 14+50.00	133-136

CROSS SECTIONS

LINE	STATION	SHEETS
-YDET-	24+00.00	137
-YDET-	26+00.00	138
-YDET-	27+00.00	139
-YDET-	28+00.00	140
-YDET-	29+50.00 - 30+00.00	141-142
-YDET-	32+00.00	143
-YDET-	34+00.00 - 38+00.00	144-146
-YDET-	40+00.00	147
-YDET-	42+00.00	148
-YDET-	44+00.00	149
-YDET-	45+00.00 - 48+00.00	150-151
-DRI-	10+75.00 - 11+75.00	152-153
-DR2-	10+50.00 - 11+75.00	154-155
-DR3-	10+25.00	156
-DR3-	11+75.00	157
-DR4-	11+00.00	158
-DR5-	10+00.00 - 11+75.00	159-161

APPENDICES

APPENDIX	TITLE	SHEETS
A	LABORATORY RESULTS	162-226

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 MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE 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

S. PAPKE

C. DRISCOLL

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N. EVANS

TRIGON EXPLORATIONS

MID-ATLANTIC DRILLING

INVESTIGATED BY *C. DRISCOLL*

DRAWN BY *C. DRISCOLL*

CHECKED BY *T. WELLS*

SUBMITTED BY *KLEINFELDER, INC.*

DATE *SEPTEMBER 2020*

Prepared in the Office of:

KLEINFELDER
Bright People. Right Solutions.
422 GALLIMORE DAIRY ROAD, SUITE B.
GREENSBORO, NC 27409
NC FIRM LICENSE NO. F-1312

NORTH CAROLINA PROFESSIONAL SEAL 037998 ENGINEER THOMAS R. WELLS

T. R. Wells 9/8/20

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
R-2561CA	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 SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
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
- [X] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] MOBILE B-57
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [X] TRICONE 1 15/16" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

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

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

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: SEE BELOW FOR BENCHMARKS FOR BRIDGE BORINGS

ELEVATION: N/A FEET

NOTES:

ROADWAY BORING ELEVATIONS OBTAINED FROM PROJECT TIN FILE r2561ca_ls_tin.tin, RECEIVED ON SEPTEMBER 10, 2019

FIAD - FILLED IMMEDIATELY AFTER DRILLING

BL-102 AT STA. 16+91.69 -Y- 17' LT (227,196 FT.N., 2,217,392 FT.E)
ELEVATION: 22.94 FT
BM-2 AT STA. 33+28.44 -Y- 103' LT (228,744 FT.N., 2,217,948 FT.E)
ELEVATION: 38.19 FT
BY-115 AT STA. 71+20.16 -L- 55' RT (227,813 FT.N., 2,219,352 FT.E)
ELEVATION: 24.22 FT

DATE: 8-15-14

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R–2561CA	3	226

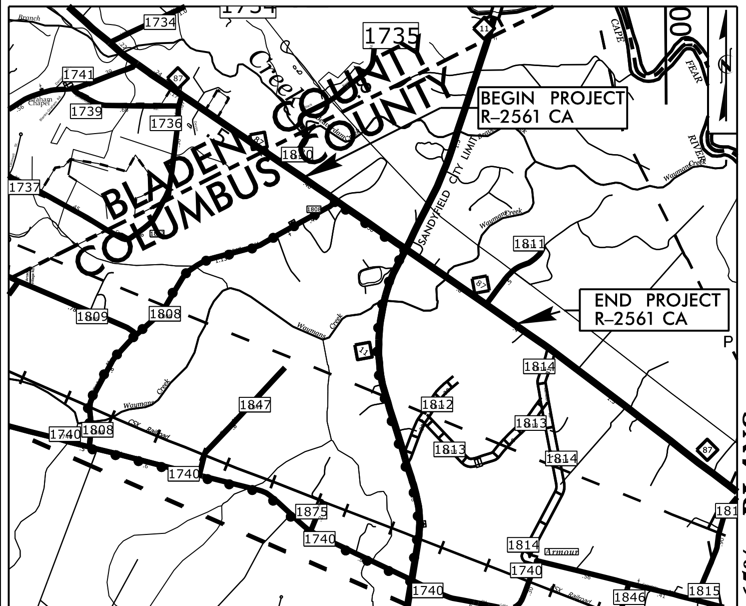
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34466.4.5	N/A	P.E.
	N/A	R/W & UTILITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

COLUMBUS COUNTY

LOCATION: NC 87 (OLD STAGE RD.)/NC 11 (GENERAL HOWE RD.) INTERCHANGE
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

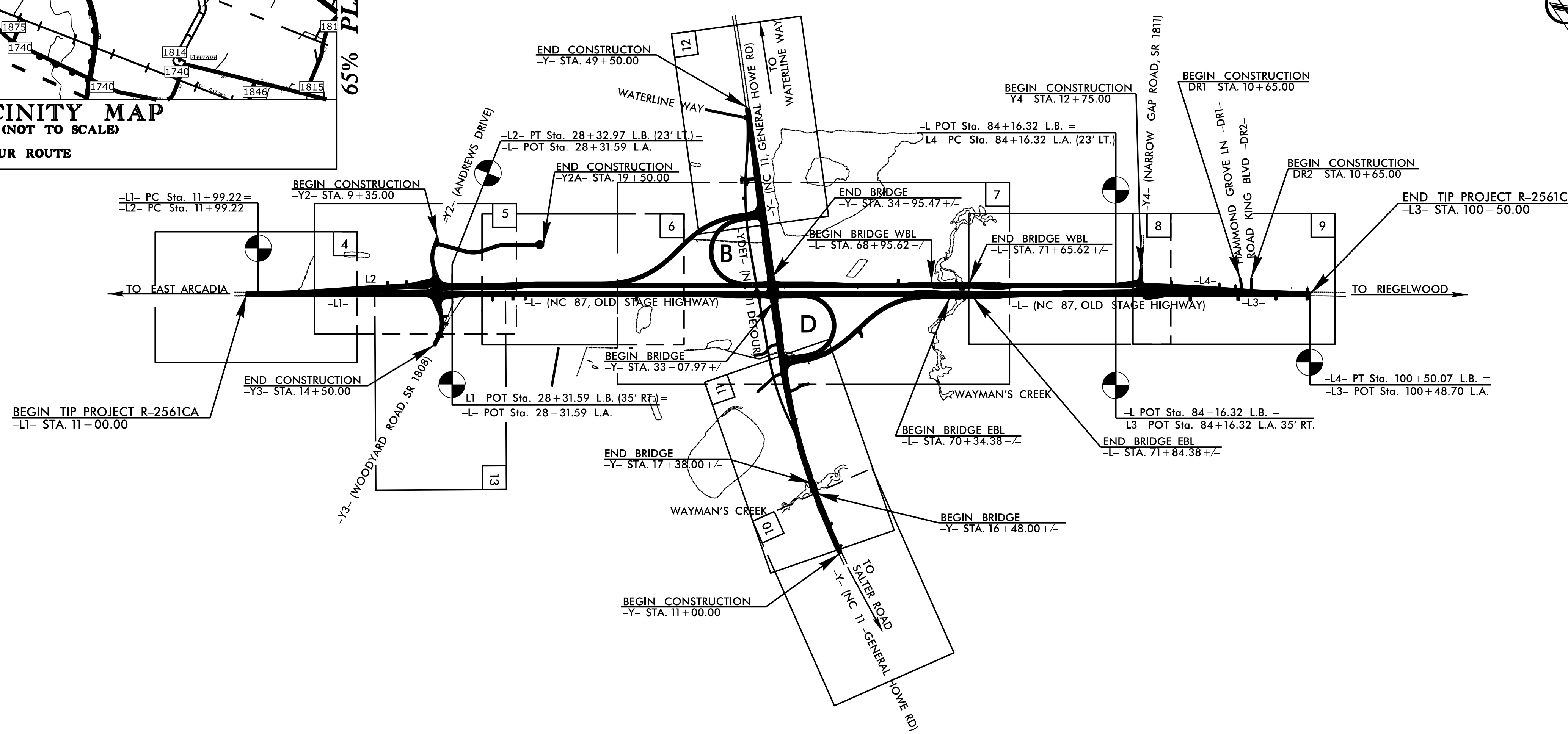
TIP PROJECT: R–2561CA



VICINITY MAP
(NOT TO SCALE)

DETOUR ROUTE

65% PLANS



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF SANDYFIELD.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD _.
THIS IS A PARTIAL CONTOLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

RIGHT OF WAY ACQUISITION HAS BEEN RELEASED ON THE FOLLOWING PARCELS: 24, 26, 27, 29, 33, 34, 35, 36, 37, 41, 42, 44, 48, 51, 52, AND 53.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2020 = 7182
ADT 2040 = 9000
K = 9 %
D = 60 %
T = 24 % *
V = 60 MPH
* TTST = 20% DUAL = 4%
FUNC CLASS =
MINOR ARTERIAL
"REGIONAL TEIR"

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R–2561CA = 1.644 MILES
LENGTH OF STRUCTURE TIP PROJECT R–2561CA = 0.051 MILES
TOTAL LENGTH OF TIP PROJECT R–2561CA = 1.695 MILES

PLANS PREPARED FOR THE NCDOT BY:

SEPI
Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 6, 2019

LETTING DATE:
JULY 21, 2020

STEVEN L. SCOTT, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

JOHN B. GAUTHIER
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _______________ *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: _______________ *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

CONTRACT:

09/08/99

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TWells AT KA211387

September 8, 2020

STATE PROJECT: 34466.4.1 (R-2561CA)
COUNTY: Columbus
DESCRIPTION: New Interchange at Intersection of NC 87 and NC 11 in Columbus County

SUBJECT: GEOTECHNICAL REPORT - INVENTORY

PROJECT DESCRIPTION

This project consists of a widening of existing NC-87 (-L1-, -L2, -L-, -L3-, -L4-) from west of Andrews Drive to east of Rd King Boulevard. This project will also include a widening of NC-11 (-Y-), construction of new alignment roadway (-Y2A-) intersecting Andrews Dr, reconstruction of Munns Road (-Y2-), Woodyard Road (-Y3-), Narrow Gap Road (-Y4-), Hammond Grove Lane (-DR1-), Rd King Boulevard (-DR2-), and associated driveways (-DR3-, -DR4-, and -DR5-). In addition, there will be a new interchange at NC-87/NC11 (-LPB-, -RPB-, -LPD-, RPD-) and a detour of NC 811 (-YDET-) to facilitate construction of the bridge on NC 11 over NC 87.

The geotechnical investigation was conducted between July 2019 and August 2019. Standard Penetration Test borings were advanced with a Mobile B-57, CME-55, and CME-45C drill rigs with automatic hammers. Hand Augers were also performed in areas where the use of a drill rig was restricted or underground and overhead utility conflicts were observed. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by Geotechnics, Inc.

The following alignments, totaling 5.60 miles, were investigated. Plan sheets and cross sections of these alignments are included in this report.

LINE	STATIONS
-L1-	10+00 to 28+32
-L2-	10+00 to 28+33
-L-	28+32 to 84+16
-L3-	84+16 to 103+44
-L4-	84+16 to 103+44
-LPB-	10+00 to 20+94
-RPB-	10+00 to 25+78
-LPD-	10+00 to 20+57
-RPD-	10+00 to 24+93
-Y-	10+00 to 55+70
-Y2-	9+23 to 15+23
-Y2A-	9+99 to 19+24
-Y3-	10+00 to 14+61
-YDET-	18+00 to 53+27
-DR1-	10+00 to 12+08
-DR2-	10+00 to 12+08
-DR3-	9+50 to 12+31
-DR4-	10+00 to 12+00
-DR5-	10+00 to 12+50

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PHYSIOGRAPHY AND GEOLOGY

The project is located in the Coastal Plain Physiographic Province. The project corridor is comprised primarily of residential properties, agricultural land and undeveloped wooded areas. The general topography along the project is generally flat to gently sloping.

Geologically, the project area consists of Coastal Plain soils belonging to the Waccamaw and Peedee Formations consisting of fossiliferous sand, with silt and clay and patches of sandy molluscan-mold limestone.

SOIL PROPERTIES

Soils encountered during this investigation are separated into three categories based on origin. They consist of roadway embankment, alluvial soil, and Coastal Plain soil.

Roadway Embankment soils are present along the existing roadways on the project. The roadway embankment encountered generally consist of moist to saturated, very loose to medium dense, silty coarse to fine sands (A-2-4), and moist to wet, loose to medium dense, clayey sands (A-2-6).

Alluvial soils are present along the existing streams and creeks on the project. The alluvial soils encountered generally consist of saturated, loose, fine to coarse sands (A-1), dry to saturated, very loose to medium dense, silty coarse to fine sands (A-2-4) with trace wood fragments, moist, loose, clayey sands (A-2-6), and moist to wet, very soft to soft, slightly to moderately plastic, sandy clays and silty clays (A-6, A-7) with trace organic matter. The plasticity index of the alluvial clay tested was 20.

Coastal Plain soils are derived from the Waccamaw and Peedee formations. The Coastal Plain soils from the Waccamaw formation generally consists of moist to saturated, very loose to medium dense, coarse to fine sands (A-1), moist to saturated, very loose to medium dense, silty sands (A-2-4) with a trace of organic matter, moist to saturated, very loose to medium dense, slightly to highly plastic, clayey sands (A-2-6, A-2-7), moist, loose, fine sands (A-3), moist to wet, very soft to stiff, non-plastic to slightly plastic, sandy silts (A-4) with little organic matter, and moist to saturated, very loose to medium dense, slightly to highly plastic, sandy clays to silty clays (A-6, A-7). The plasticity index of the clays tested ranged from 16 to 37.

The Coastal Plain soils from the Peedee formation generally consists of moist to wet, medium dense to very dense, silty sands (A-2-4) with trace wood fragments, moist to saturated, very loose to very dense, slightly to moderately plastic, clayey sands (A-2-6, A-2-7) with trace rock fragments, and moist, medium stiff, sandy silts (A-4), and moist to saturated, soft to hard, slightly to highly plastic, sandy clays to silty clays (A-6, A-7) with trace shell fragments.

GROUNDWATER

Groundwater was encountered at elevations ranging from 52.0 to 8.0 feet and typically ranges from 0 to 16 feet below the existing ground surface.

AREAS OF SPECIAL GEOTECHNICAL INTEREST

1) Moderately and Highly Plastic Soils: Moderately and highly plastic clays (PI > 16) and/or soils with more than 50% passing a 200 sieve were encountered on the project at the following locations:

LINE	STATIONS	OFFSETS
-L1-	23+75 to 28+32	LT to RT

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-L-	28+32 to 28+75	LT to RT
-L-	31+25 to 35+75	LT to RT
-L-	37+75 to 39+75	LT to RT
-L-	40+25 to 45+75	LT to RT
-L-	50+25 to 53+25	LT to RT
-L-	55+75 to 57+75	LT to RT
-L-	64+75 to 67+75	LT to RT
-L-	69+25 to 70+75	LT to RT
-L-	73+25 to 75+75	LT to RT
-L-	77+50 to 80+25	RT
-L3-	87+25 to 88+75	LT to RT
-L3-	91+25 to 100+75	LT to RT
-RPB-	14+25 to 19+25	LT to RT
-RPB-	21+75 to 25+25	LT to RT
-LPD-	12+75 to 15+25	LT to RT
-RPD-	16+25 to 19+75	LT to RT
-Y-	11+25 to 16+75	LT to RT
-Y-	19+25 to 22+25	LT to RT
-Y2-	12+30 to 14+70	LT to RT
-Y3-	11+30 to 12+20	LT to RT
-Y3-	12+30 to 14+61	LT to RT
-YDET-	34+35 to 37+25	LT to RT
-YDET-	44+75 to 47+25	LT to RT
-DR1-	10+80 to 11+70	LT to RT
-DR2-	10+80 to 11+70	LT to RT
-DR5-	10+20 to 11+20	LT to RT

2) Groundwater: The following areas exhibit a high water table, seasonal high groundwater or the potential for groundwater related construction problems:

LINE	STATIONS	OFFSETS
-L1-	13+50 to 28+25	LT to RT
-L-	28+50 to 65+50	LT to RT
-L-	68+00 to 84+00	LT to RT
-L3-	93+00 to 96+00	LT to RT
-LPD-	12+50 to 16+00	LT to RT
-RPB-	14+50 to 25+00	LT to RT
-LPD-	12+75 to 15+00	LT to RT
-RPD-	15+00 to 23+50	LT to RT
-Y-	12+75 to 33+25	LT to RT
-Y-	34+75 to 38+75	LT to RT
-Y2-	11+00 to 15+00	LT to RT
-Y2A-	10+00 to 19+50	LT to RT
-Y3-	10+00 to 12+75	LT to RT
-YDET-	28+50 to 29+75	LT to RT
-YDET-	32+25 to 53+00	LT to RT
-DR3-	9+50 to 12+25	LT to RT
-DR5-	10+00 to 12+25	LT to RT

3) Alluvial Soil: Alluvial Soil was encountered on the project at the following locations:

LINE	STATIONS	OFFSETS
-L1-	15+00 to 16+50	LT to RT
-L-	67+50 to 72+50	LT to RT
-Y-	12+50 to 19+00	LT
-Y-	16+50 to 19+00	RT
-Y-	27+00 to 29+00	LT to RT
-Y-	37+75 to 38+25	LT to RT
-Y-	38+00 to 47+00	LT to RT
-Y-	47+50 to 49+00	LT to RT

Prepared by,
KLEINFELDER, INC.
NC License No. F-1312

F. Christopher Driscoll
Staff Professional

Thomas R. Wells, PE
Senior Professional

FCD/TRW:cas

Bulk and Undisturbed Samples

Sample No.	Alignment	STA.	Offset	Depth (ft)	Tests Performed
CBR-1	-L-	98+50	52’ RT	0.5-4.0	Standard Proctor, CBR
CBR-2	-YDET-	24+00	CL	0.0-6.0	Standard Proctor, CBR
ST-1	-Y-	31+50	30’ LT	20.0-22.0	Consolidation, CU Triaxial
ST-2	-L-	70+31	30’ RT	29.5-31.5	Consolidation, CU Triaxial
ST-3	-L-	71+80	28’ RT	19.9-21.9	Consolidation
ST-4	-L-	34+99	12’ LT	19.7-21.7	Consolidation, CU Triaxial

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R-2561CA	4
R/W SHEET NO.	

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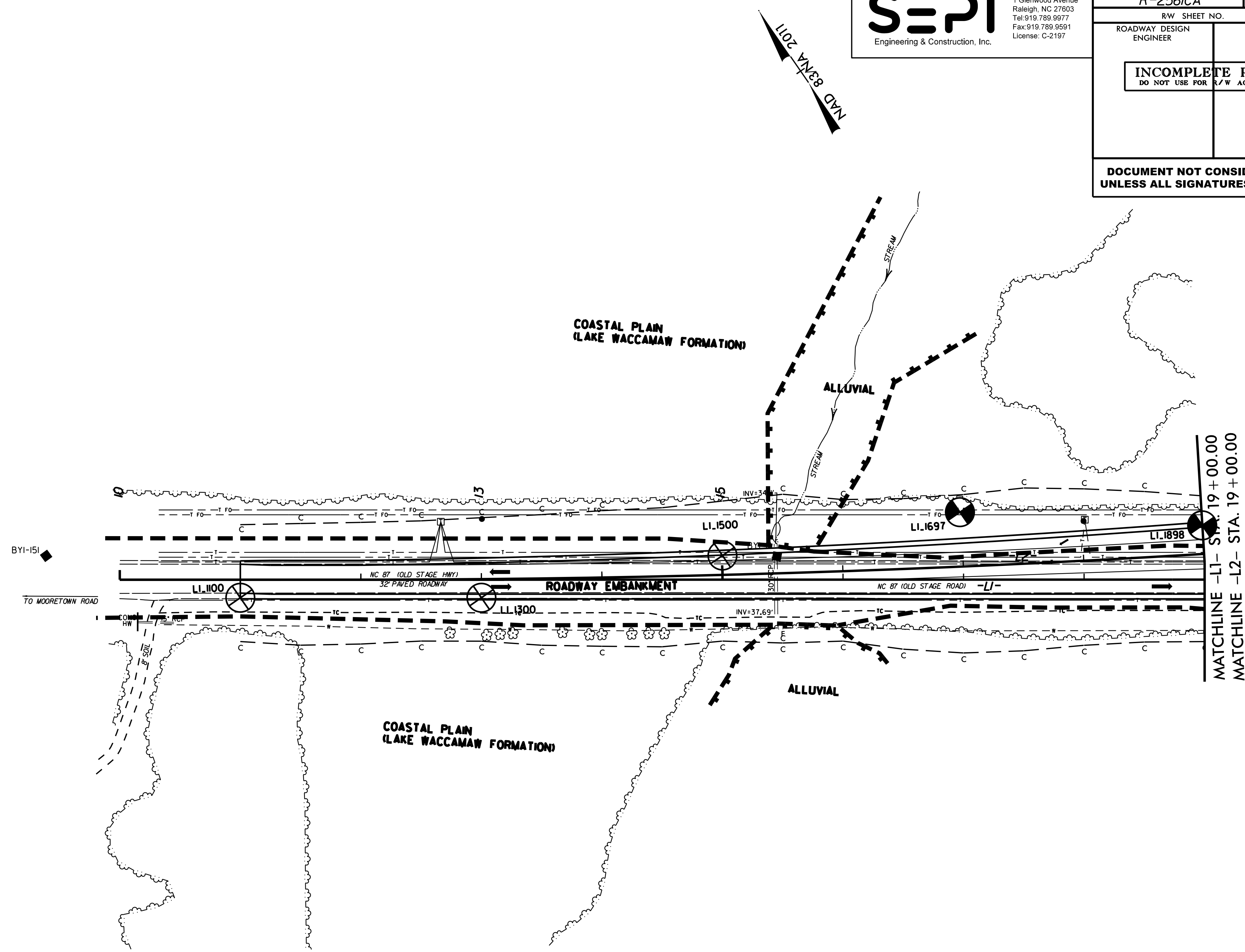

REVISIONS

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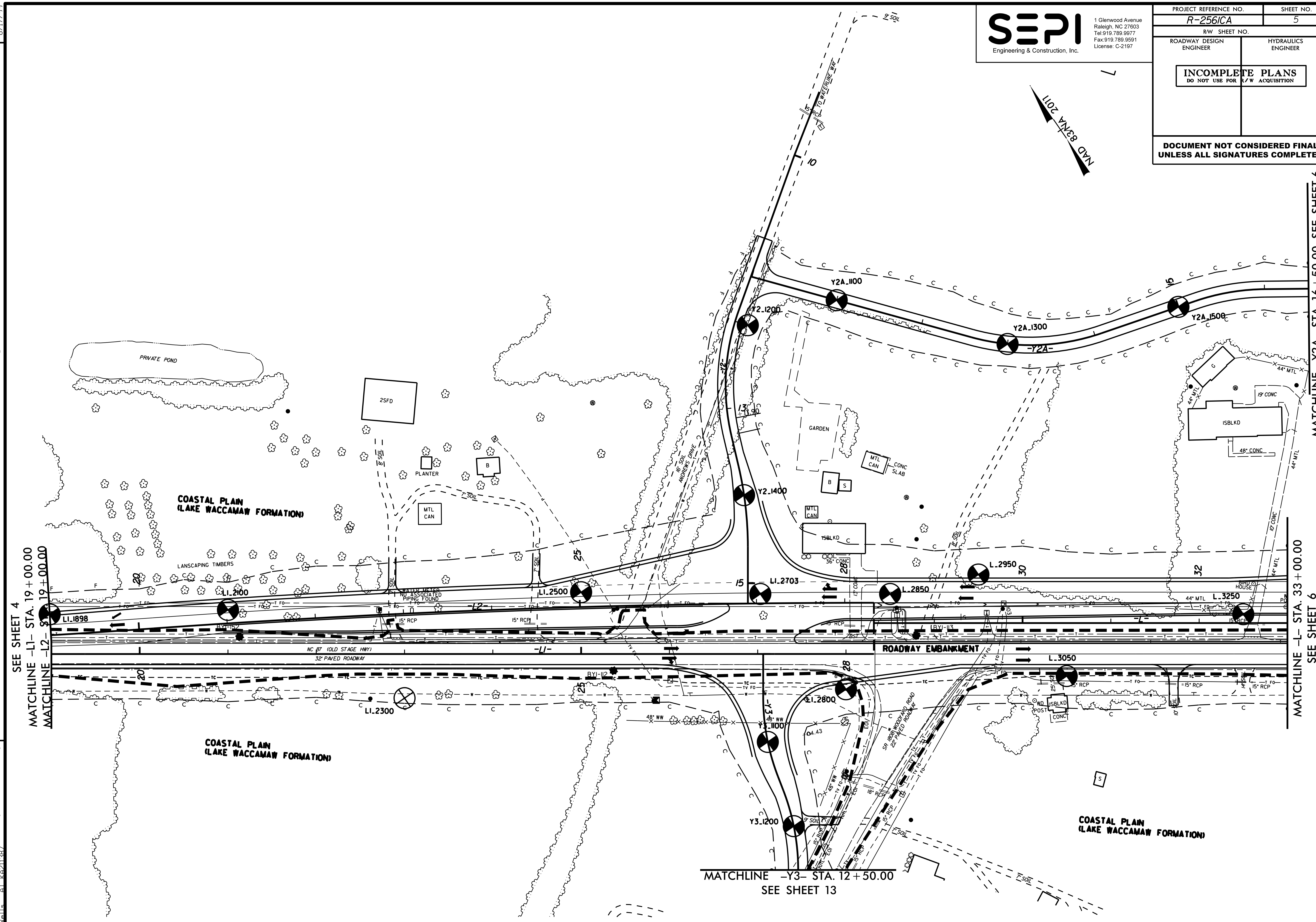
NAD 83/NA 2011
PRIVATE POND
2SFD
PLANTER
B
MTL CAN
8' SOIL
7' SOIL
COASTAL PLAIN
(LAKE WACCAMAW FORMATION)
LANSCAPING TIMBERS
WATER METER NO ASSOCIATED PIPING FOUND
15" RCP
L1_1898
L1_2100
L1_2300
L1_2500
L1_2703
L1_2800
L_2850
L_2950
L_3050
L_3250
BYI-112
BYI-113
-L2-
-L1-
-L-
NC 87 (OLD STAGE HWY)
32' PAVED ROADWAY
ROADWAY EMBANKMENT
16' SOIL
ANDREWS DRIVE
TO WATERLINE WAY
Y2_1200
Y2_1400
-Y2-
Y2A_1100
Y2A_1300
Y2A_1500
-Y2A-
GARDEN
MTL CAN
CONC SLAB
B
S
1SBLKD
36" CONC
13' CONC
G
44" MTL
19' CONC
48" CONC
10' CONC
BIRD HOUSE
WD POST
CONC
25' SOIL
14' SOIL
10' SOIL
48" WW
Y3_1100
Y3_1200
-Y3-
9' SOIL
18" RCP
SR 1808 WOODYARD ROAD
22' PAVED ROADWAY
EOI
BST
MATCHLINE -L1- STA. 19+00.00
MATCHLINE -L2- STA. 19+00.00
SEE SHEET 4
MATCHLINE -Y2A- STA. 16+50.00 SEE SHEET 6
MATCHLINE -L- STA. 33+00.00
SEE SHEET 6
MATCHLINE -Y3- STA. 12+50.00
SEE SHEET 13

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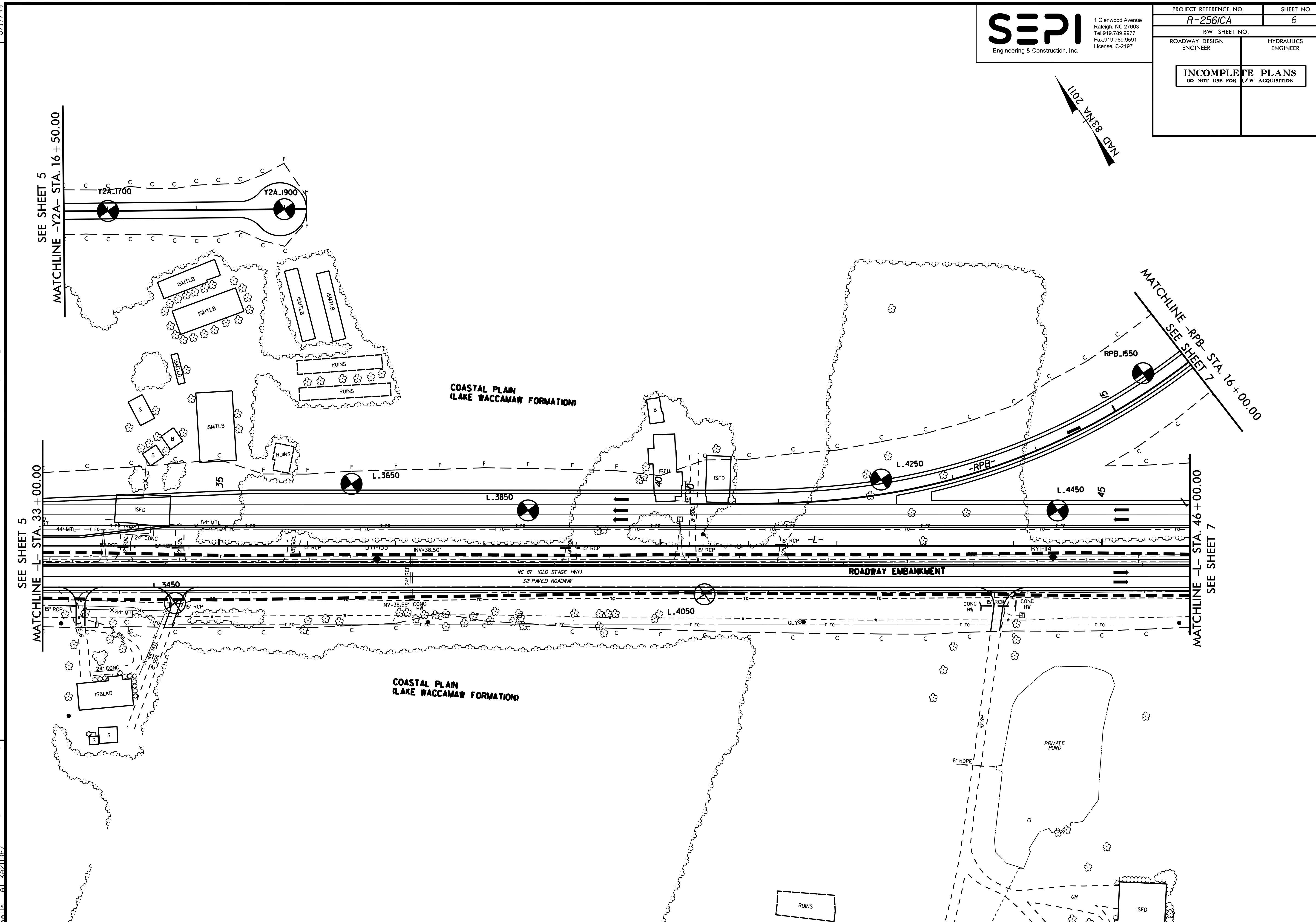

NAD 83/NA 2011
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MATCHLINE -Y2A- STA. 16+50.00
Y2A_1700
Y2A_1900
SEE SHEET 5
MATCHLINE -L- STA. 33+00.00
MATCHLINE -RPB- STA. 16+00.00
SEE SHEET 7
MATCHLINE -L- STA. 46+00.00
SEE SHEET 7
COASTAL PLAIN
(LAKE WACCAMAW FORMATION)
ISMTLB
RUINS
ISFD
ISBLKD
L_3450
L_3650
L_3850
L_4050
L_4250
L_4450
RPB_1550
-RPB-
-L-
NC 87 (OLD STAGE HWY)
32' PAVED ROADWAY
ROADWAY EMBANKMENT
BYI-155
BYI-114
INV=38.50'
INV=38.59'
CONC HW
15" RCP
24" RCP
24" CONC
44" MTL
54" MTL
48" CONC
8' SOIL
GUY
PRIVATE POND
6" HDPE
10' GR
GR
35
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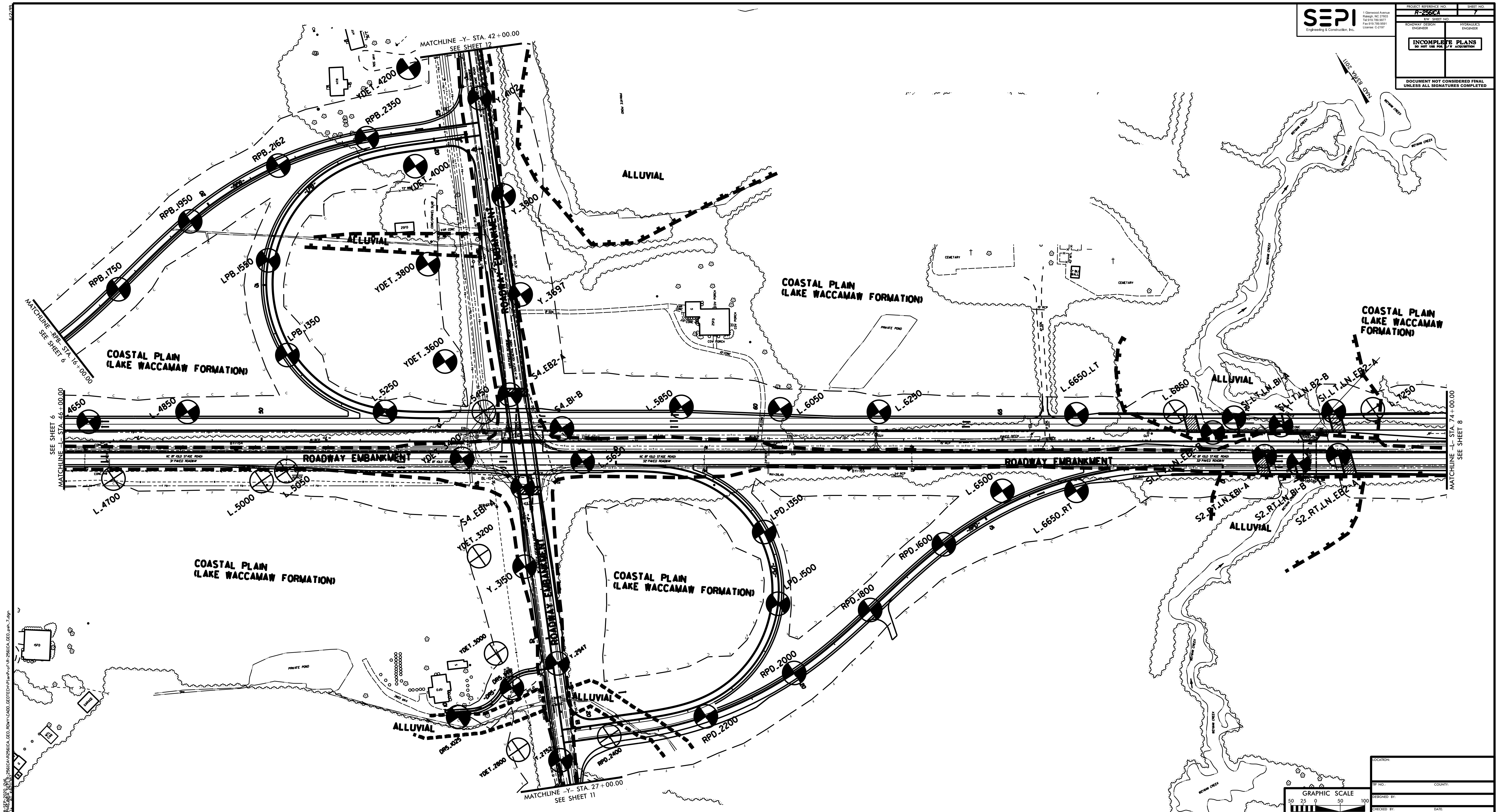

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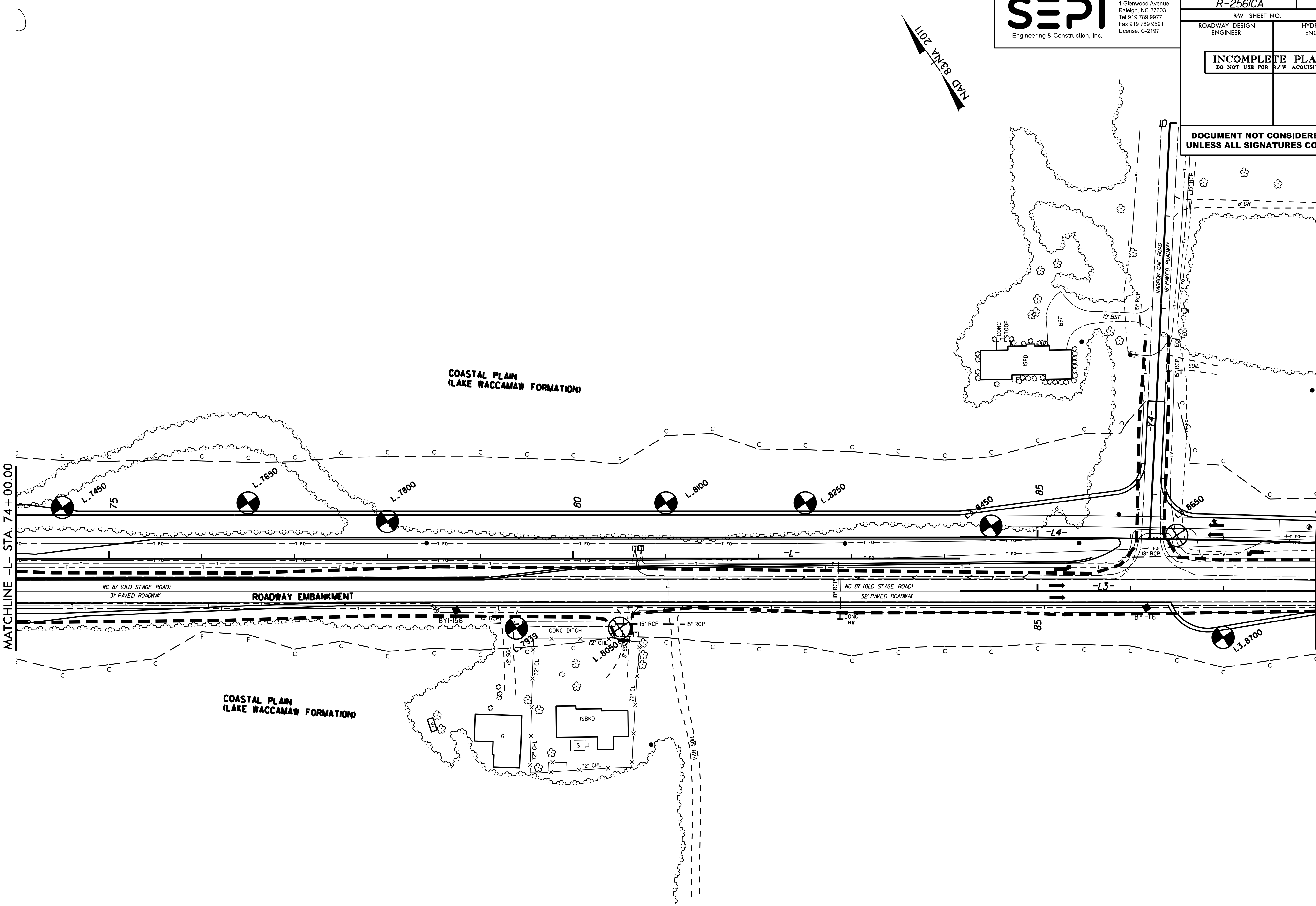

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Fax:919.789.9591
License: C-2197

INCOMPLETE PLANS
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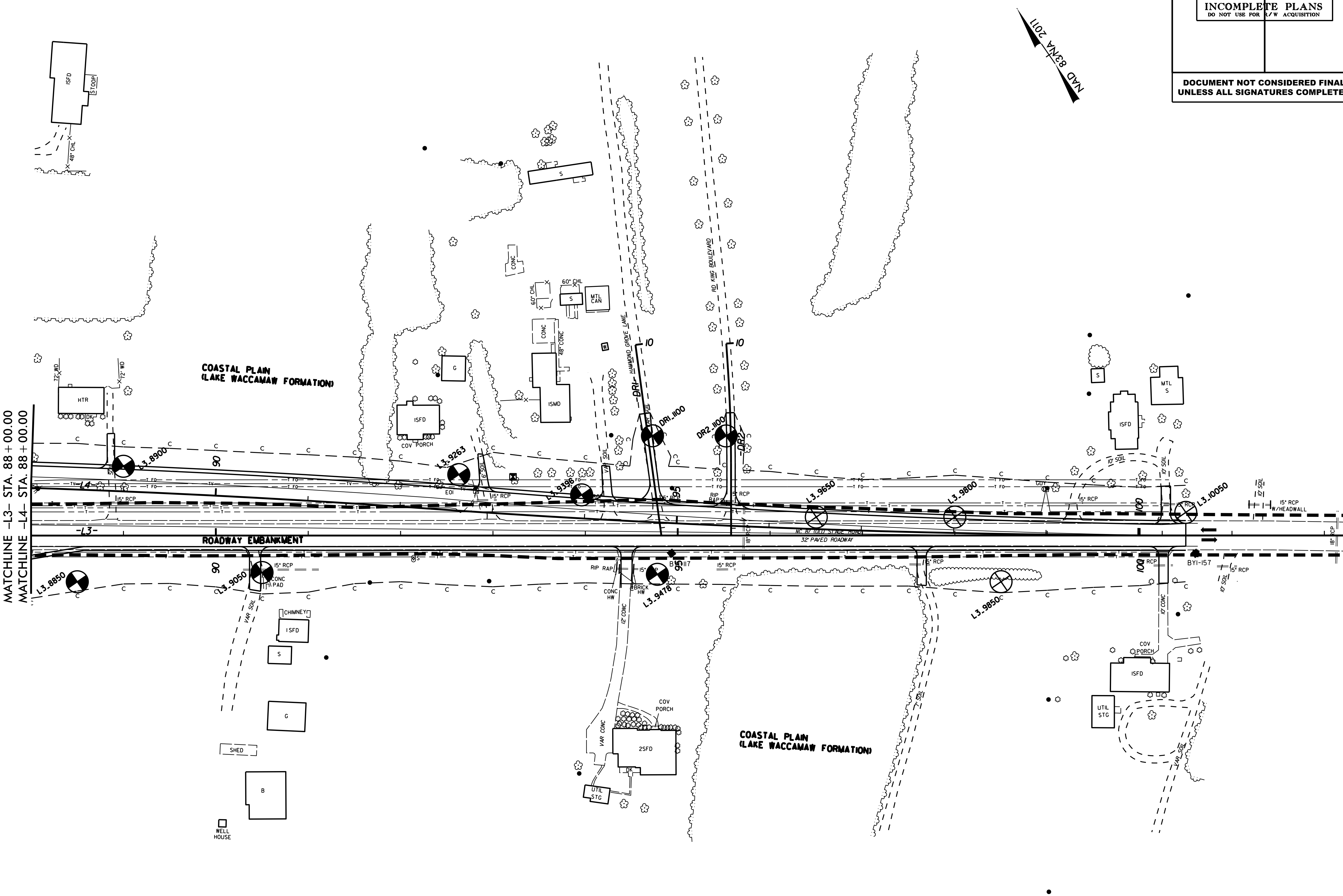
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



REVISIONS

8/17/99

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TWells AT KA211387

PROJECT REFERENCE NO.	SHEET NO.
R-2561CA	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEPI Engineering & Construction, Inc.

1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

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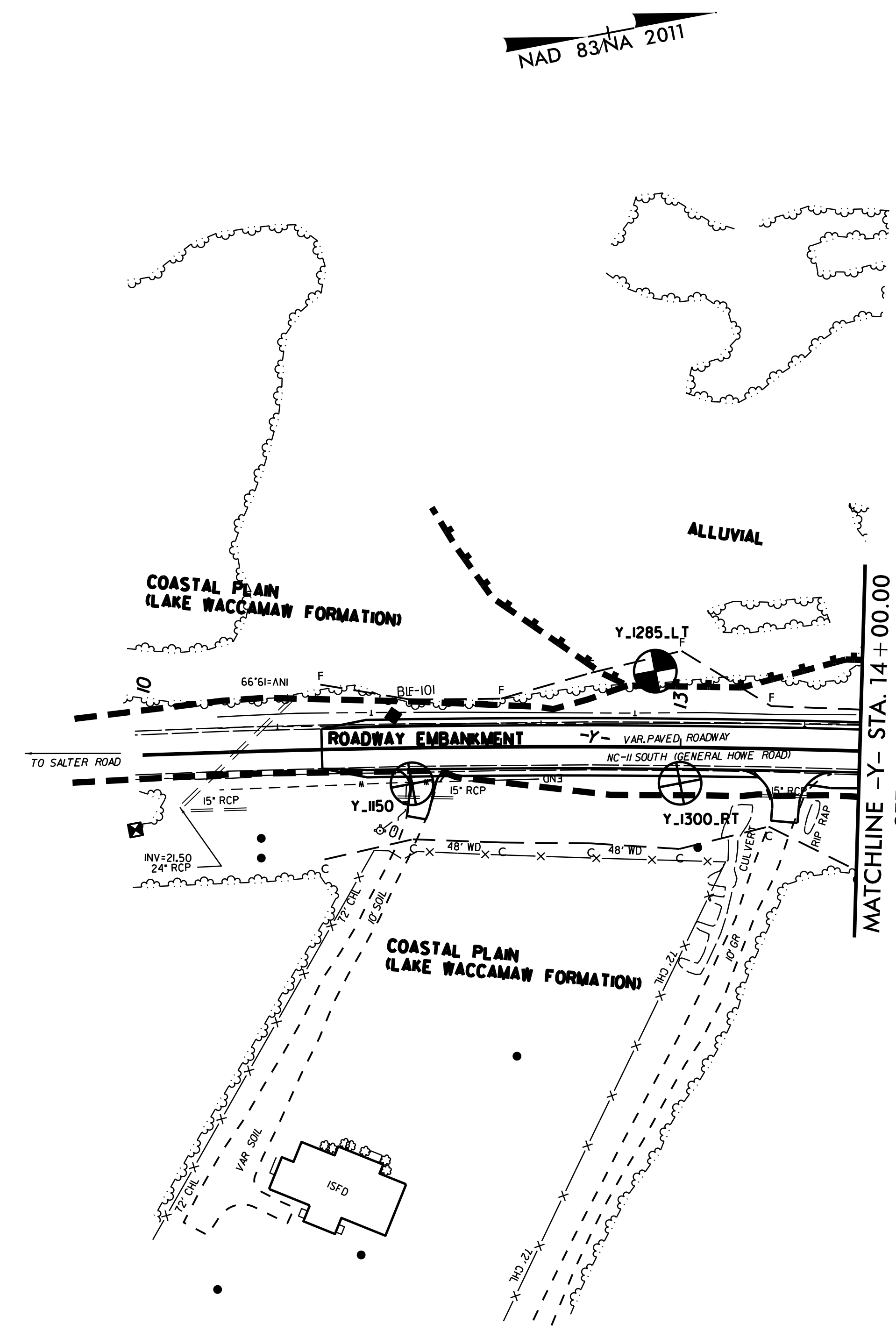

REVISIONS

8/17/99

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TWells AT KA211387

8/17/99
REVISIONS
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TWells AT KA211387

SEPI
Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

PROJECT REFERENCE NO.	SHEET NO.
R-2561CA	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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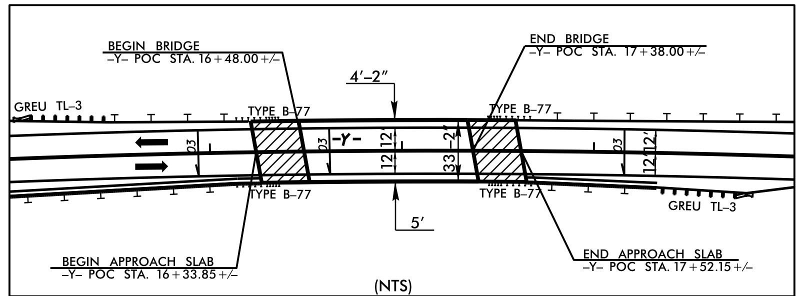
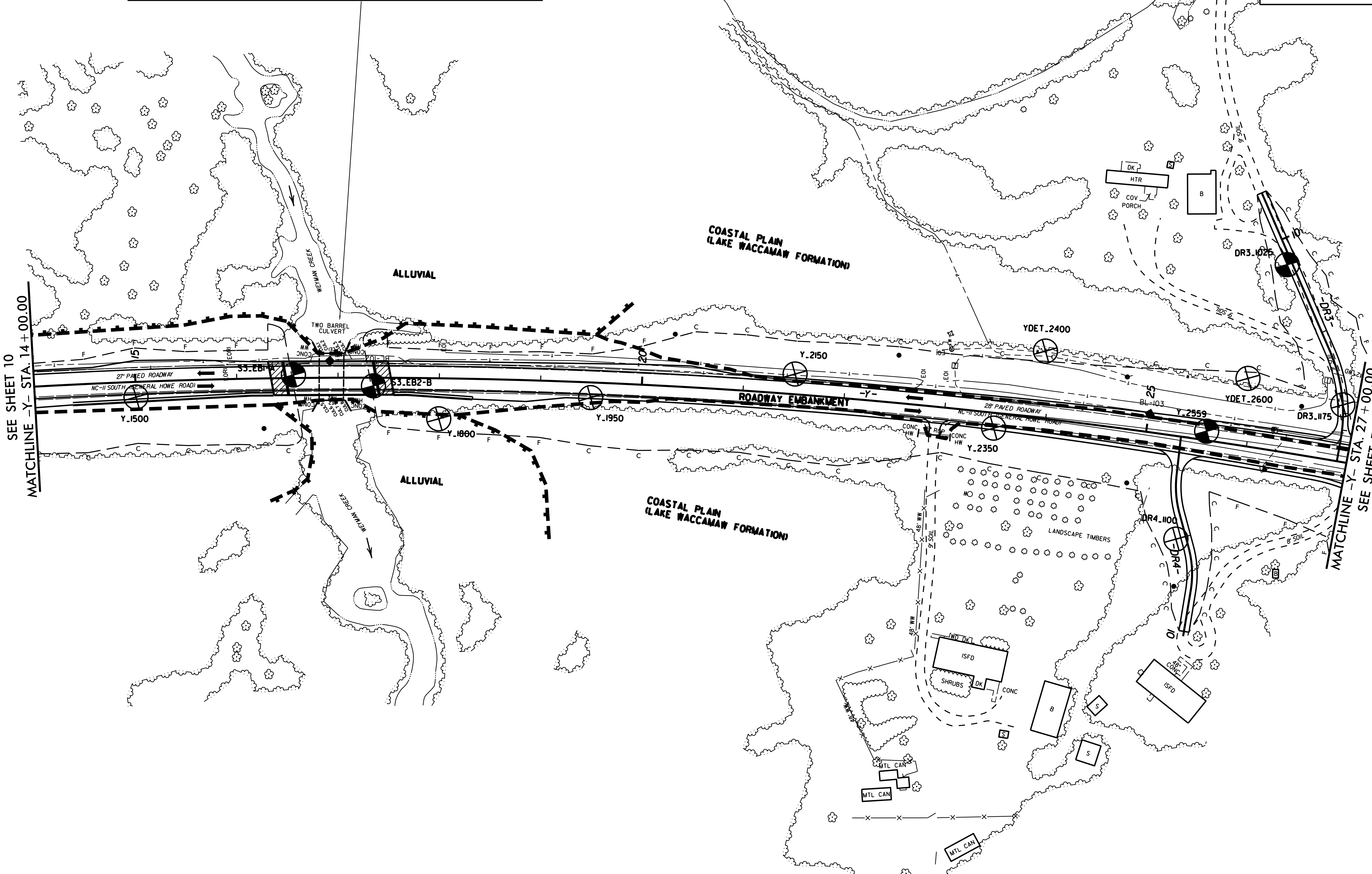


Sketch showing Dimensions of Pavement in Relation to Proposed Bridge Width



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SEPI
Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

PROJECT REFERENCE NO.	SHEET NO.
R-2561CA	12

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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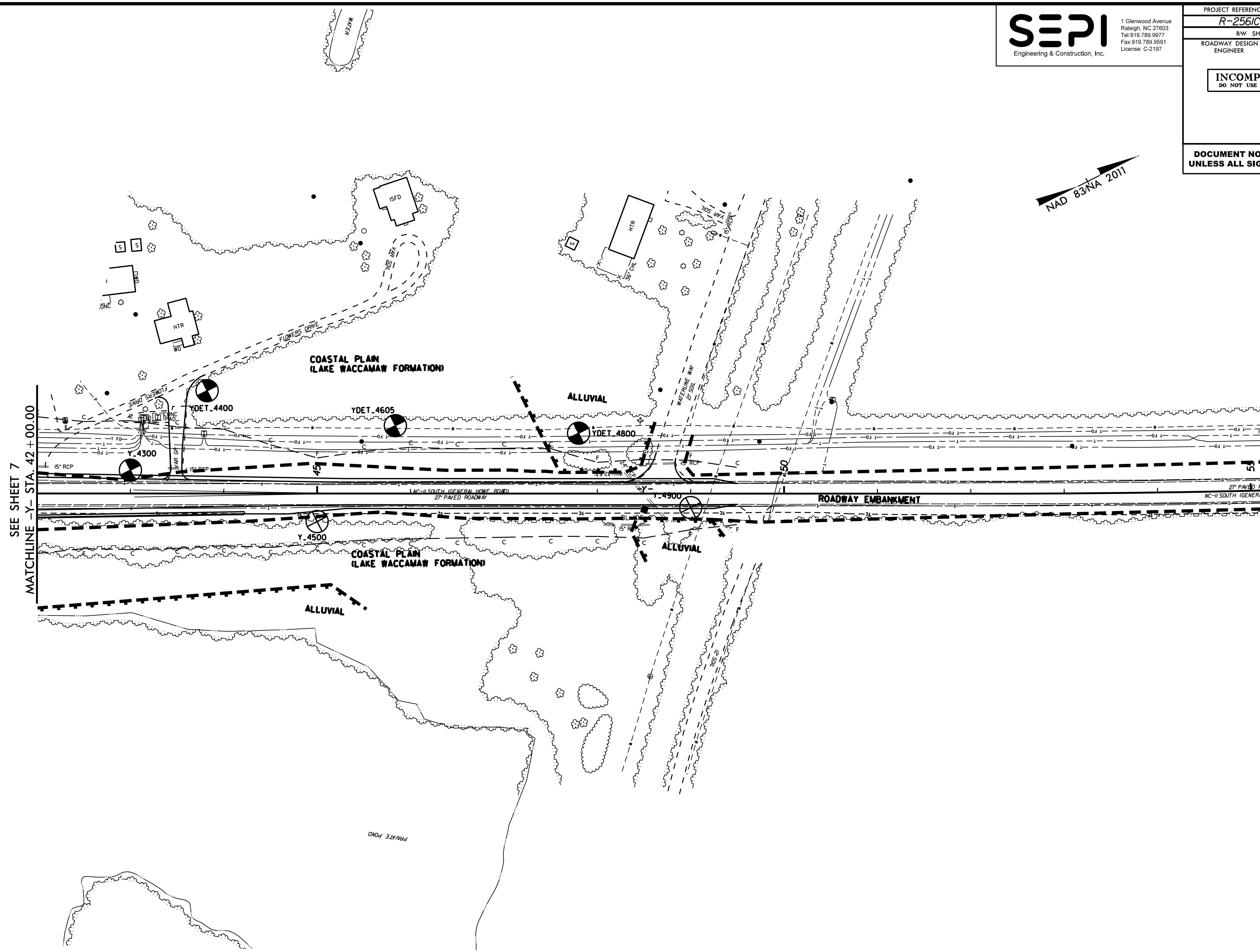
UNLESS ALL SIGNATURES COMPLETED



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TWells AT KA211387

SEPI Engineering & Construction, Inc.	1 Glenwood Avenue Raleigh, NC 27603 Tel:919.789.9977 Fax:919.789.9591 License: C-2197

PROJECT REFERENCE NO.	SHEET NO.
R-2561CA	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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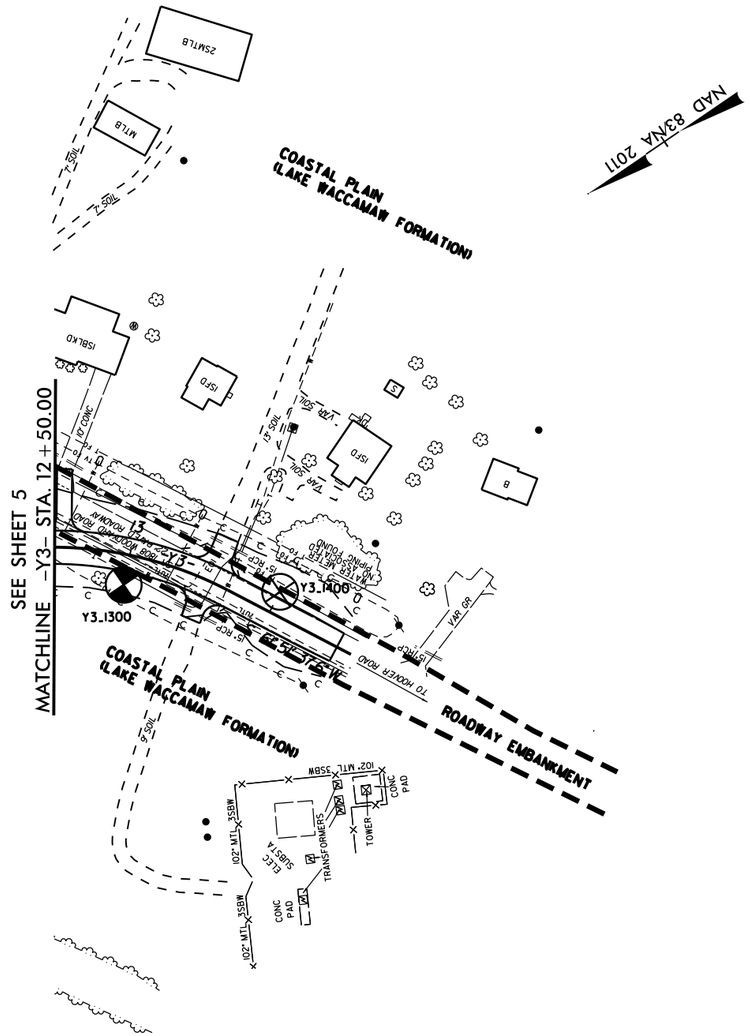
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

8/17/99



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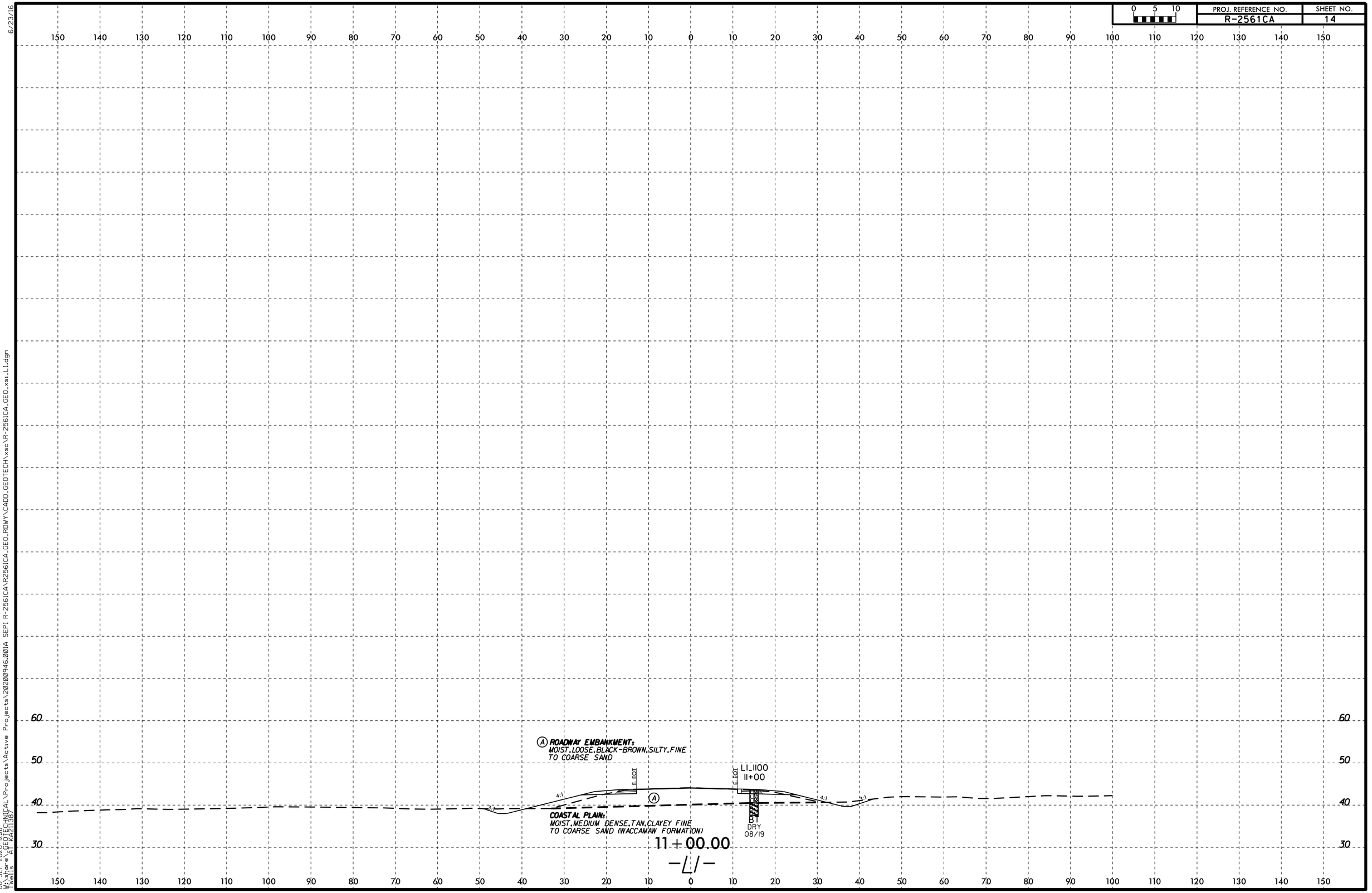

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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	15

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

60 50 40 30

A ROADWAY EMBANKMENT:
MOIST, LOOSE, BLACK, SILTY, COARSE TO FINE SAND

L2 STA. 13+00.00
OFFSET 0.44'

LI_1300
13+00

LT E.EOT

RT E.EOT

4:1

3:1

B

COASTAL PLAIN:
MOIST, LOOSE, BROWN, FINE TO COARSE SAND (WACCAMAW FORMATION)

BT
DRY
08/19

13+00.00

-L1-

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

6/23/16

08-SEP-2020 12:16
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Wells AT KA21138

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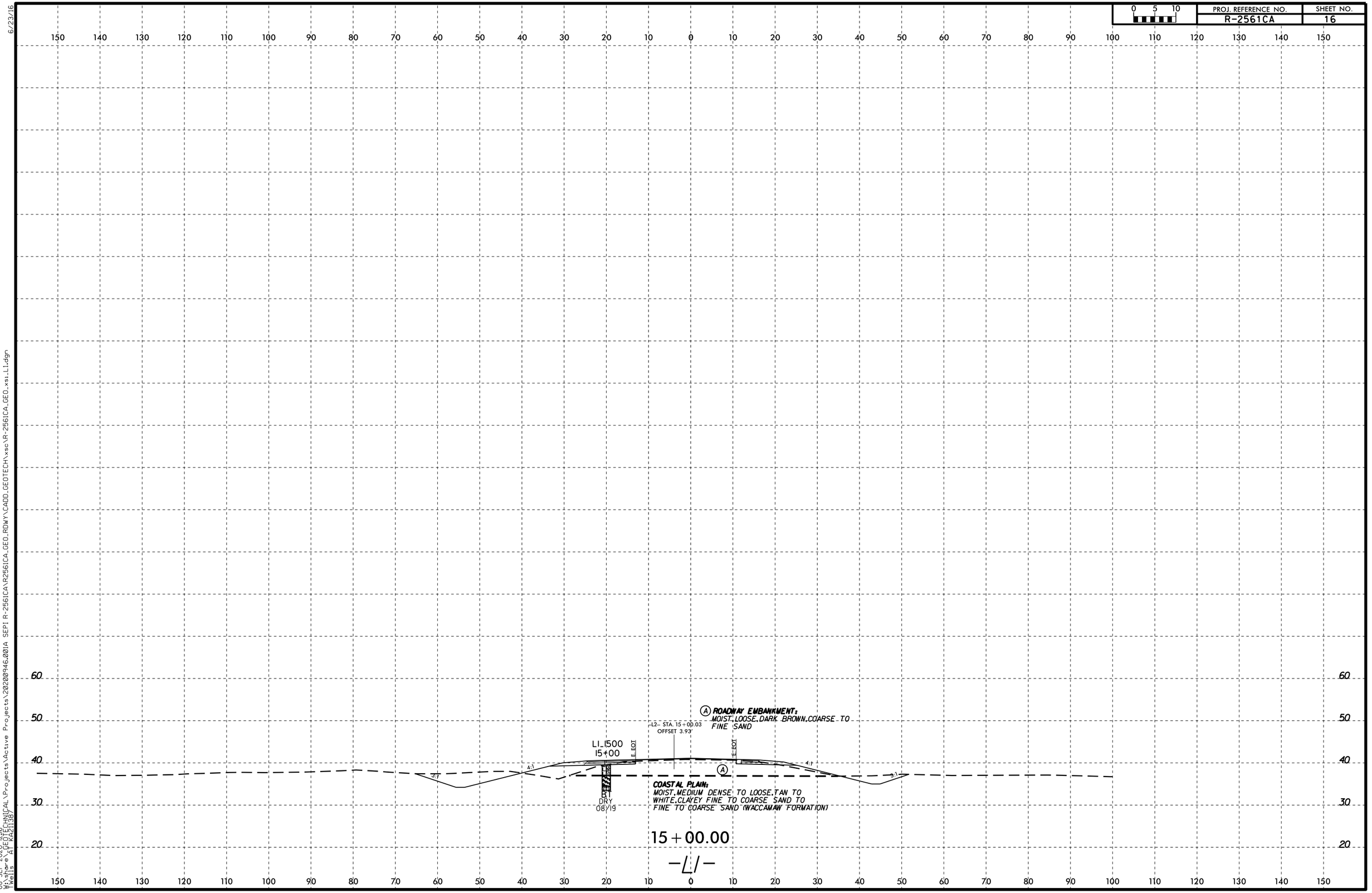

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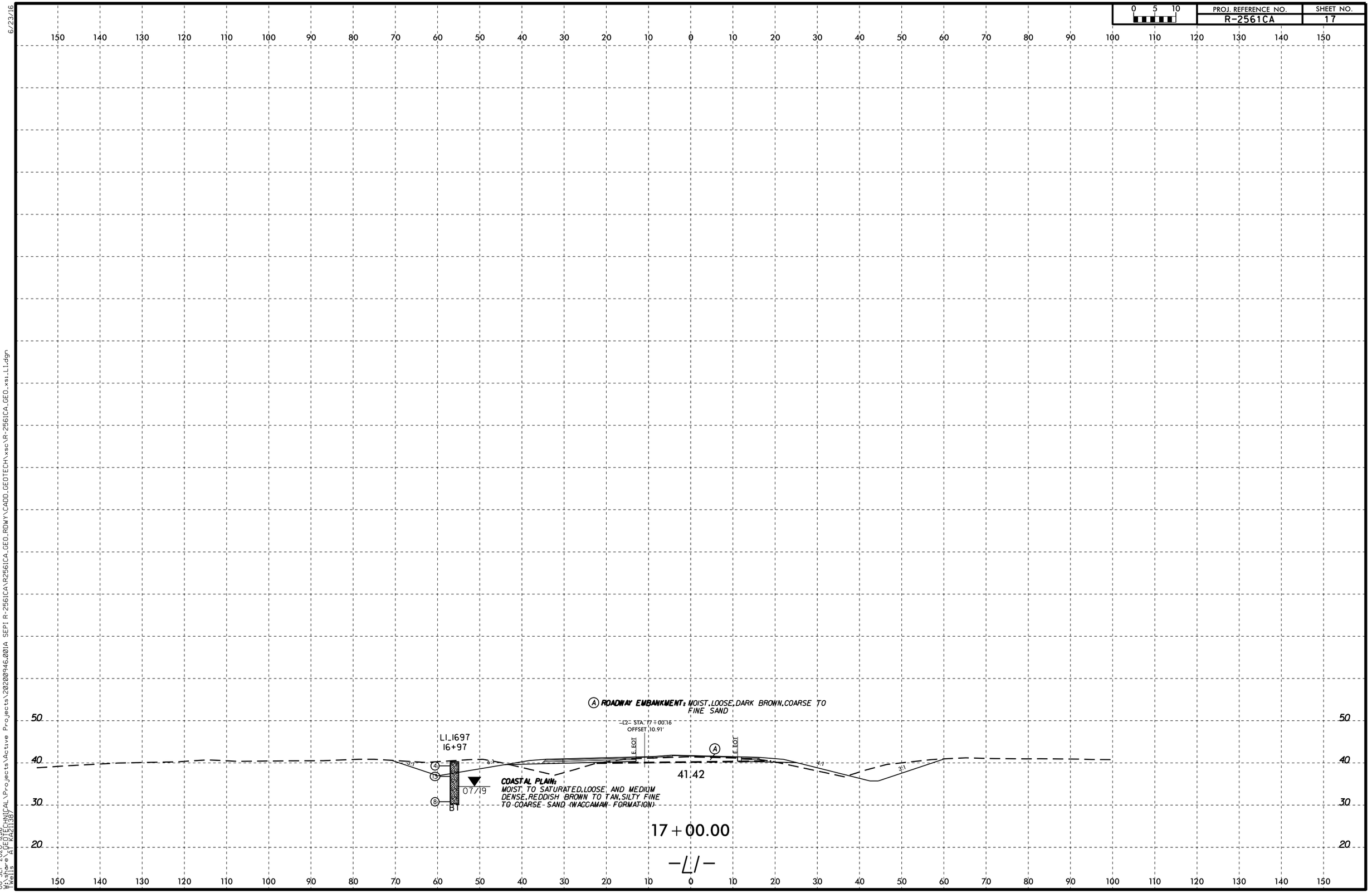
Wells AT KP21138



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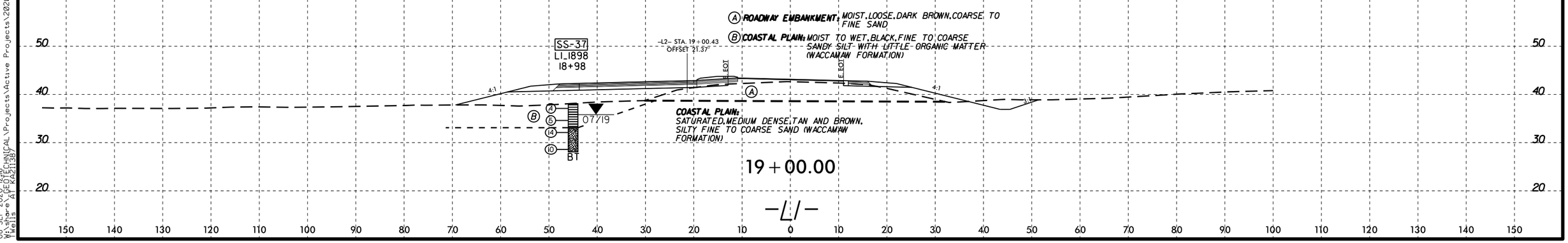
Wells AT KA21138



19+00.00

-L1-

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Wells AT KA21138

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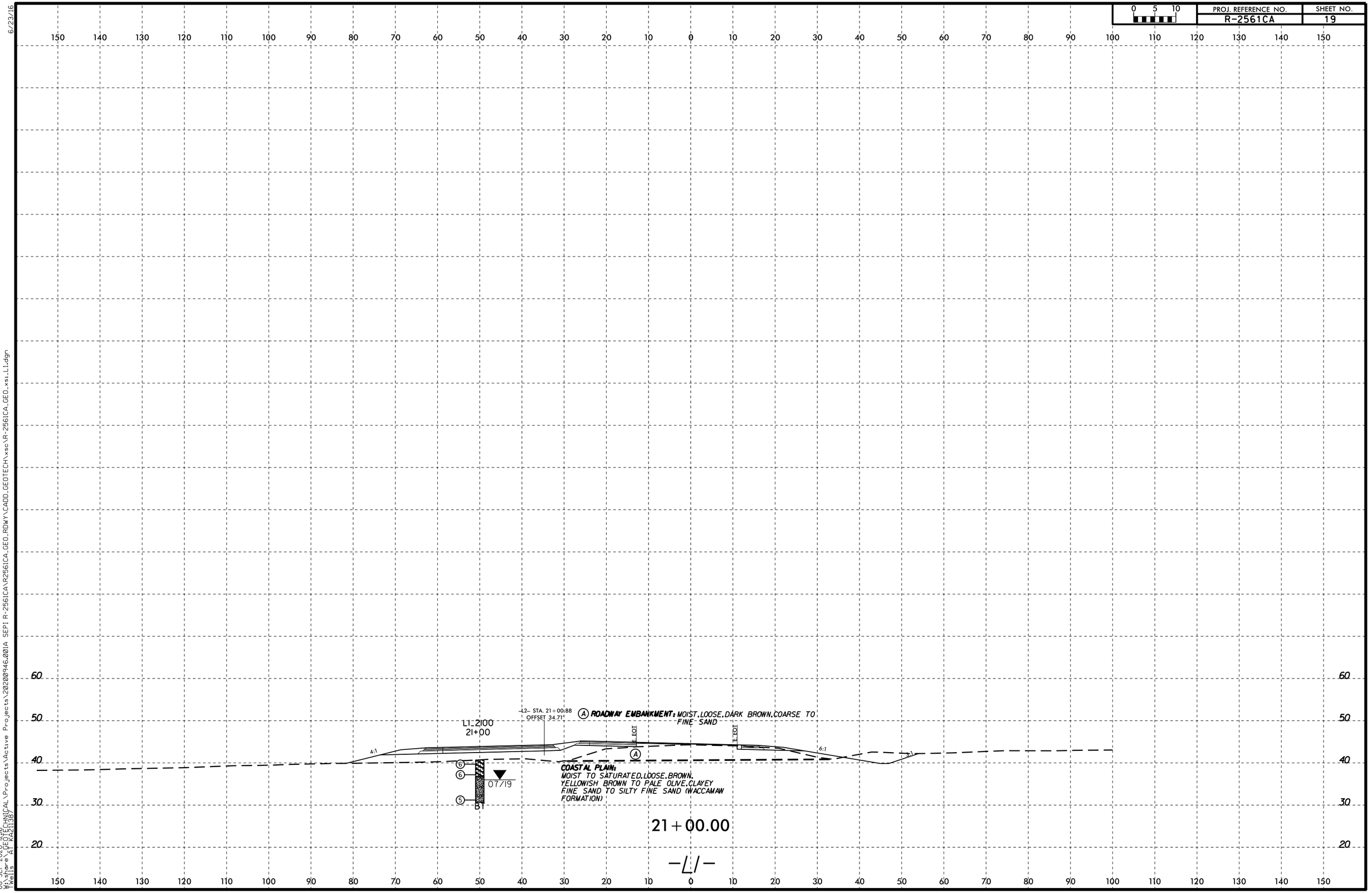

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Wells AT KA21138

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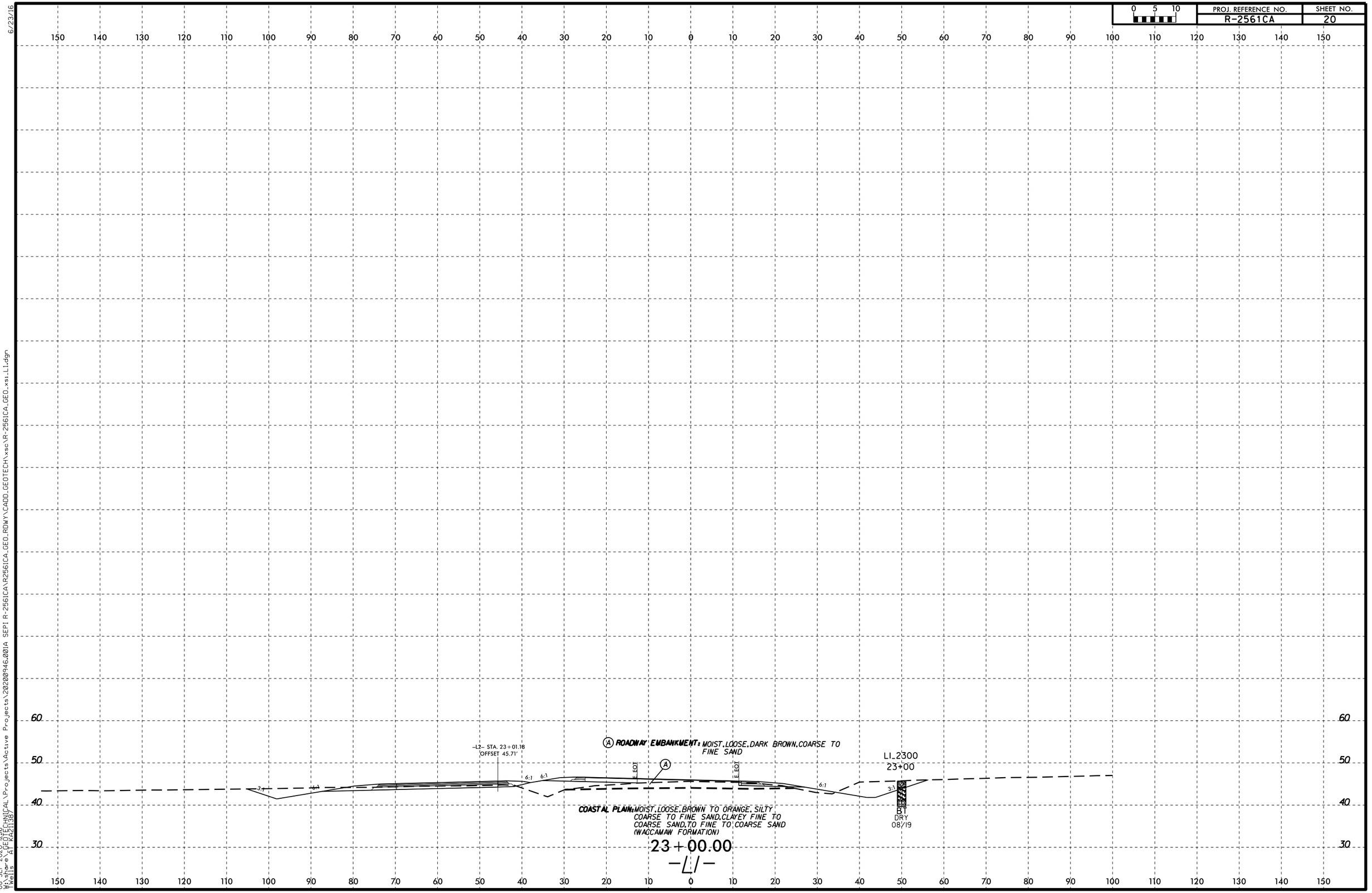

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Wells AT KP21138

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

LI_2500
25+00

–L2– STA. 25+01.33
OFFSET 53.22'

07/19

B1

(A) **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

COASTAL PLAIN: MOIST, SOFT TO STIFF, MODERATELY PLASTIC, TAN, FINE SANDY CLAY (WACCAMAW FORMATION)

SATURATED, LOOSE, TAN, SILTY, FINE TO COARSE SAND (WACCAMAW FORMATION)

25+00.00

–L2– STA. 24+51.30
OFFSET 51.67'

(A) **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

COASTAL PLAIN: MOIST, SOFT TO STIFF, MODERATELY PLASTIC, TAN, FINE SANDY CLAY (WACCAMAW FORMATION)

SATURATED, LOOSE, TAN, SILTY, FINE TO COARSE SAND (WACCAMAW FORMATION)

24+50.00

–L2– STA. 24+01.27
OFFSET 49.90'

(A) **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

COASTAL PLAIN: MOIST, SOFT TO STIFF, MODERATELY PLASTIC, TAN, FINE SANDY CLAY (WACCAMAW FORMATION)

SATURATED, LOOSE, TAN, SILTY, FINE TO COARSE SAND (WACCAMAW FORMATION)

24+00.00

–L2– STA. 23+51.23
OFFSET 47.91'

(A) **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

COASTAL PLAIN: MOIST, LOOSE, BROWN TO ORANGE, SILTY COARSE TO FINE SAND, CLAYEY FINE TO COARSE SAND AND FINE TO COARSE SAND (WACCAMAW FORMATION)

23+50.00

–L/–

08-SEP-2020 12:16
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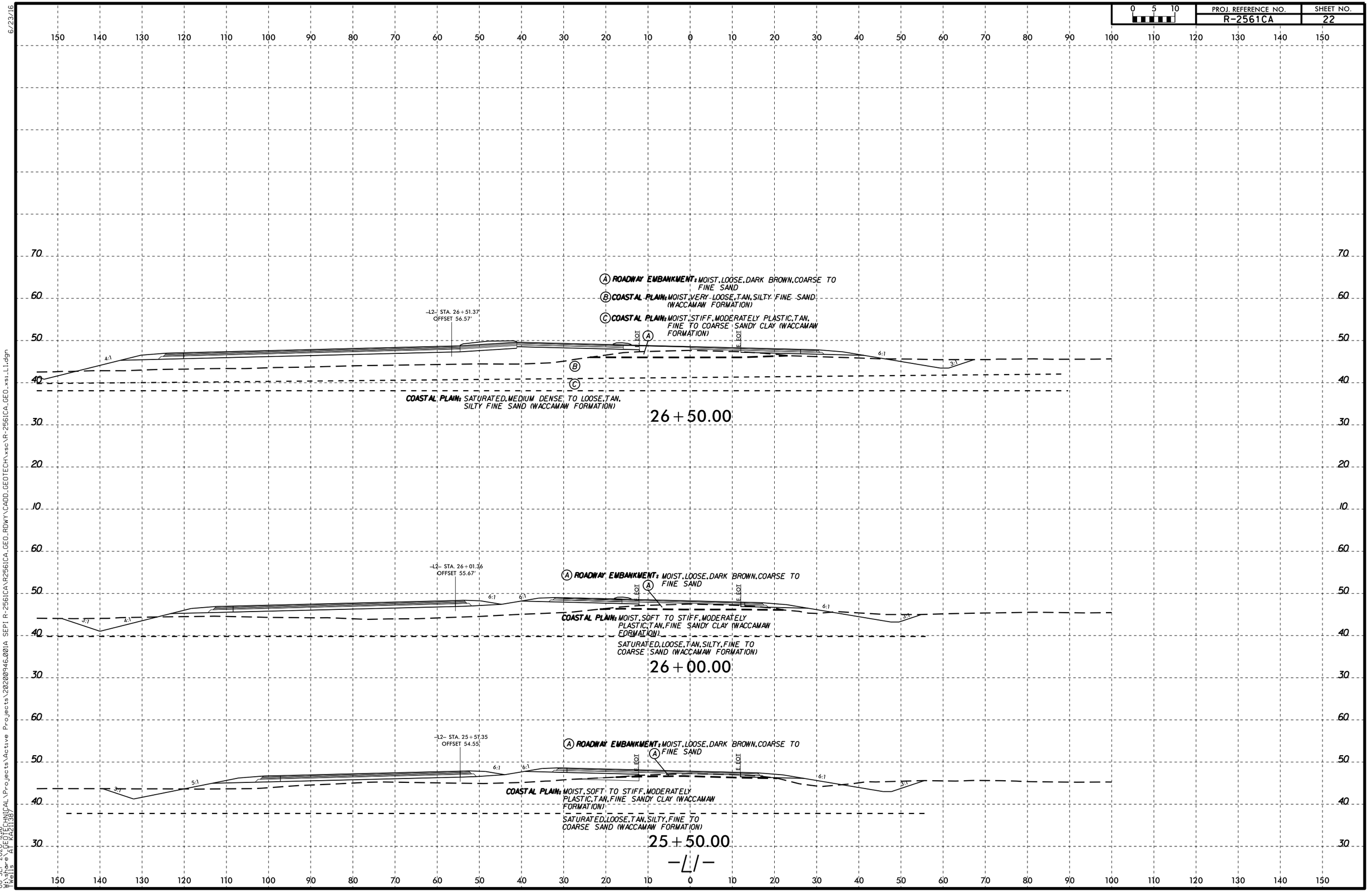
Wells AT KA211387



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Wells AT KP21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	23

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND
Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, MODERATELY PLASTIC, BROWN, CLAYEY SAND (WACCAMAW FORMATION)
Ⓒ **COASTAL PLAIN:** MOIST, VERY LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)
Ⓓ **COASTAL PLAIN:** MOIST, SOFT, MODERATELY PLASTIC, BROWN, FINE SANDY CLAY (WACCAMAW FORMATION)

–L2– STA. 28+01.37
OFFSET 57.96'

LI_2800
28+00

4:1 3:1 6:1 6:1 6:1 3:1

B EOT E EOT

Ⓐ Ⓑ Ⓒ Ⓓ

COASTAL PLAIN: SATURATED, LOOSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

07/19

B1

28+00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND
Ⓑ **COASTAL PLAIN:** MOIST, VERY LOOSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)
Ⓒ **COASTAL PLAIN:** MOIST, STIFF, MODERATELY PLASTIC, TAN, FINE TO COARSE SANDY CLAY (WACCAMAW FORMATION)

–L2– STA. 27+51.37
OFFSET 57.71'

–Y3–

4:1 3:1 4.9:1

B EOT E EOT

Ⓐ Ⓑ Ⓒ

COASTAL PLAIN: SATURATED, MEDIUM DENSE TO LOOSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

27+50.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND
Ⓑ **COASTAL PLAIN:** MOIST, VERY LOOSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)
Ⓒ **COASTAL PLAIN:** MOIST, STIFF, MODERATELY PLASTIC, TAN, FINE TO COARSE SANDY CLAY (WACCAMAW FORMATION)

SS-1
LI_2703
27+03

–L2– STA. 27+01.37
OFFSET 57.25'

–Y2– –Y3–

B EOT E EOT

Ⓐ Ⓑ Ⓒ

07/19

B1

COASTAL PLAIN: SATURATED, MEDIUM DENSE TO LOOSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

27+00.00

–L/–

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Wells AT KA21138

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

70 60 50 40 30 20

Ⓐ **ROADWAY EMBANKMENT:** MOIST.LOOSE.DARK BROWN.COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST.VERY LOOSE.DARK BROWN. SILTY FINE SAND (WACCAMAW FORMATION)

Ⓒ **COASTAL PLAIN:** MOIST.VERY LOOSE.MODERATELY PLASTIC. BROWN.CLAYEY FINE TO COARSE SAND (WACCAMAW FORMATION)

6:1 6:1 6:1 6:1 3:1 3:1

Ⓐ Ⓑ Ⓒ

COASTAL PLAIN: WET TO SATURATED.LOOSE.TAN.SILTY FINE SAND (WACCAMAW FORMATION)

29+00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST.LOOSE.DARK BROWN.COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST.VERY LOOSE.DARK BROWN. SILTY FINE SAND (WACCAMAW FORMATION)

Ⓒ **COASTAL PLAIN:** MOIST.VERY LOOSE.MODERATELY PLASTIC. BROWN.CLAYEY FINE TO COARSE SAND (WACCAMAW FORMATION)

SS-2
L-2850
28+50

6:1 6:1 6:1 6:1 3:1 3:1

Ⓐ Ⓑ Ⓒ

2 3 8 8

Q7/19

BT

COASTAL PLAIN: WET TO SATURATED.LOOSE.TAN.SILTY FINE SAND (WACCAMAW FORMATION)

28+50.00
-L-

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

70 60 50 40 30 20

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08-SEP-2020 12:16
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Wells AT KAZILIS

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	25

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

60 50 40 30 20 10 0 -10 -20 -30 -40 -50

L_2950
29+50

3:1

4
2
24
BT
DRY
07/19

COASTAL PLAIN:
MOIST,VERY LOOSE TO MEDIUM DENSE,
BROWN,TAN,AND GRAY,
SILTY FINE SAND TO CLAYEY
FINE SAND (WACCAMAW FORMATION)

6:1 6:1 6:1 3:1

(A) **ROADWAY EMBANKMENT:**
MOIST,LOOSE,DARK BROWN,COARSE TO
FINE SAND

(A)

29+50.00

—L—

6/23/16

08-SEP-2020 12:16
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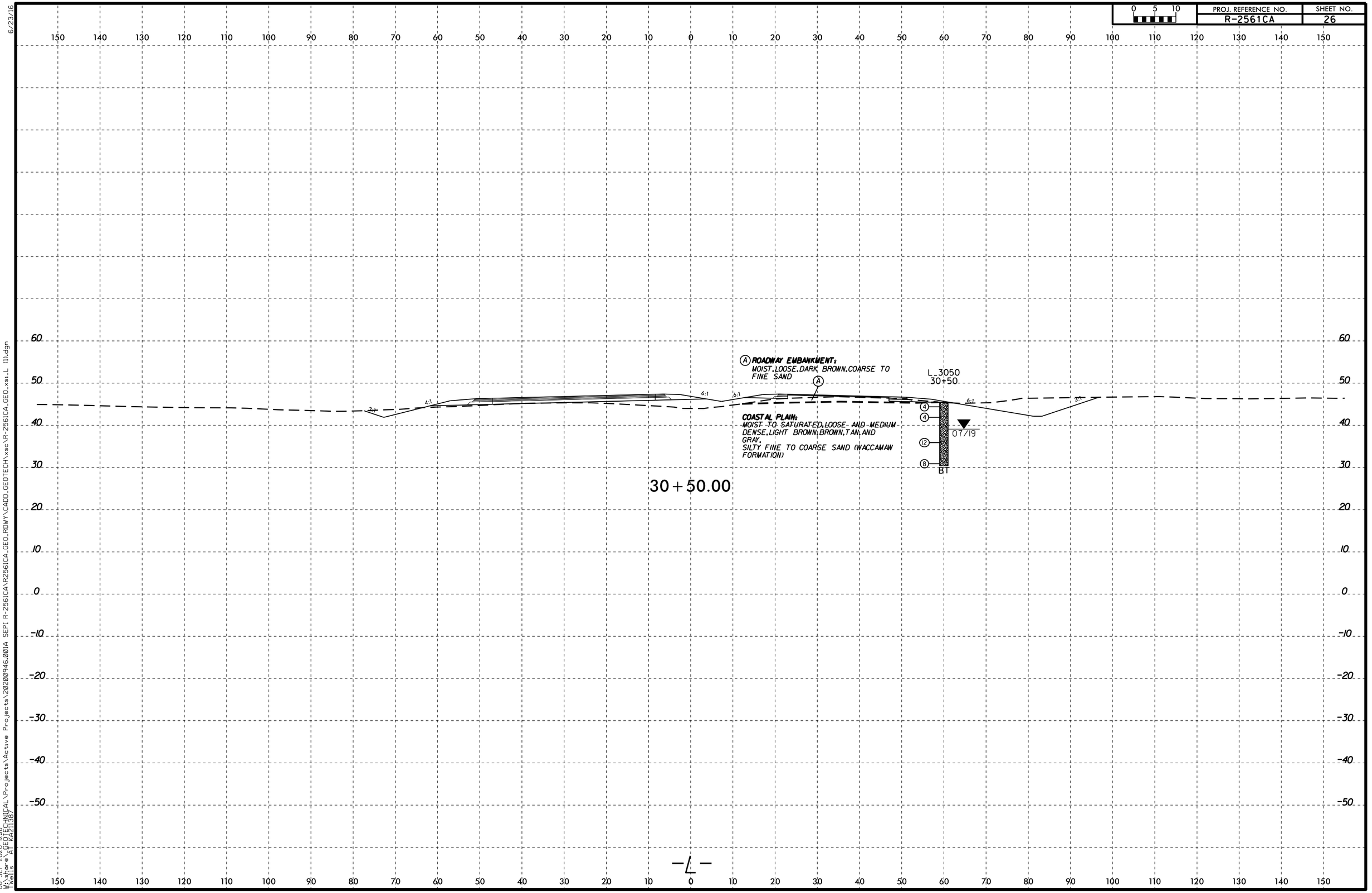
AT Wells KAZ1138/



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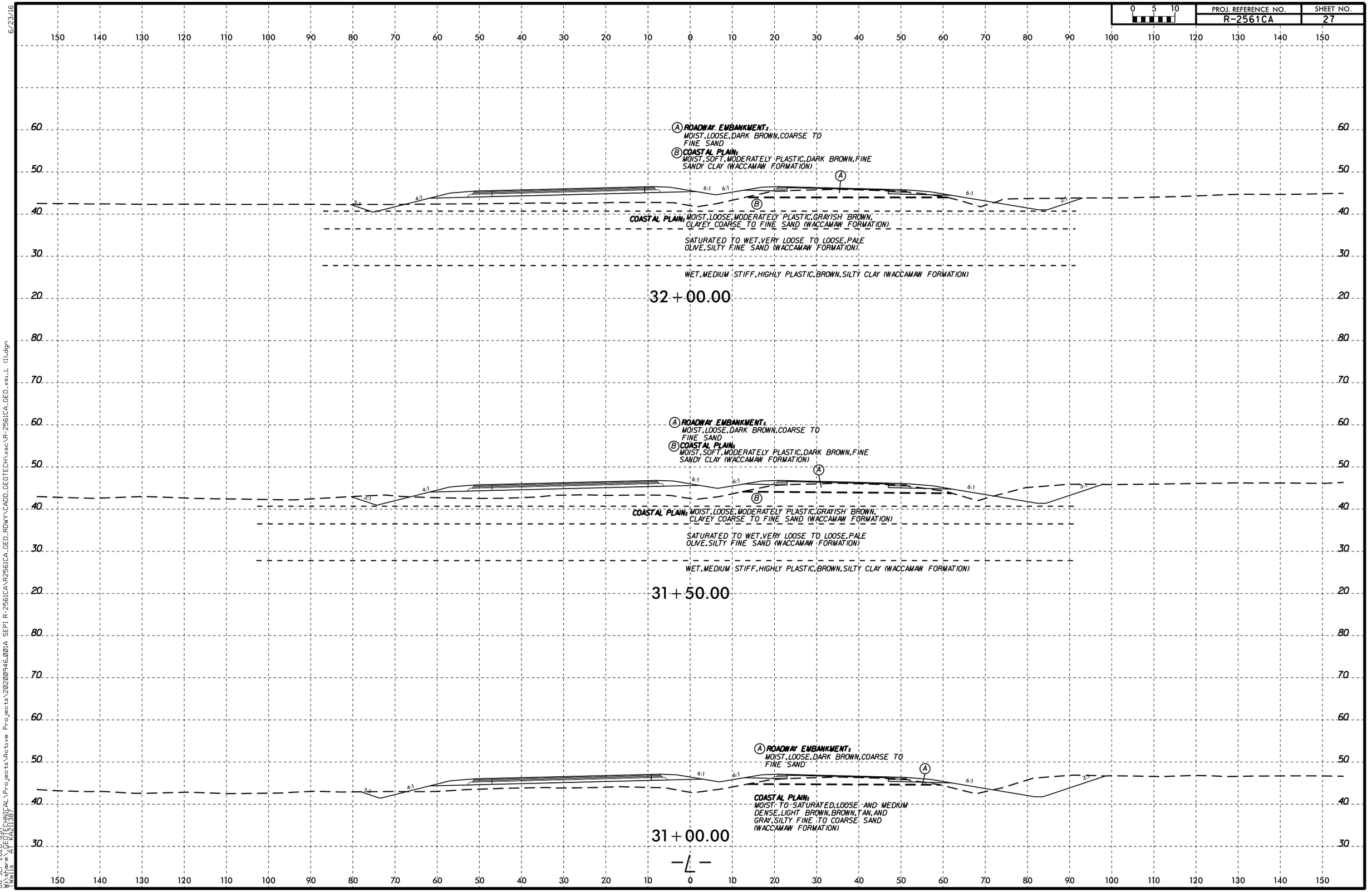
AT Wells



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Wells AT KA21138

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	R-2561CA	28

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

60 50 40 30 20

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST, SOFT, MODERATELY PLASTIC, DARK BROWN, FINE SANDY CLAY (WACCAMAW FORMATION)

6:1 6:1 6:1

COASTAL PLAIN: MOIST, LOOSE, MODERATELY PLASTIC, GRAYISH BROWN, CLAYEY COARSE TO FINE SAND (WACCAMAW FORMATION)

SATURATED TO WET, VERY LOOSE TO LOOSE, PALE OLIVE, SILTY FINE SAND (WACCAMAW FORMATION)

WET, MEDIUM STIFF, HIGHLY PLASTIC, BROWN, SILTY CLAY (WACCAMAW FORMATION)

33+50.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST, SOFT, MODERATELY PLASTIC, DARK BROWN, FINE SANDY CLAY (WACCAMAW FORMATION)

3:1 4:1 6:1 6:1 6:1 3:1

COASTAL PLAIN: MOIST, LOOSE, MODERATELY PLASTIC, GRAYISH BROWN, CLAYEY COARSE TO FINE SAND (WACCAMAW FORMATION)

SATURATED TO WET, VERY LOOSE TO LOOSE, PALE OLIVE, SILTY FINE SAND (WACCAMAW FORMATION)

WET, MEDIUM STIFF, HIGHLY PLASTIC, BROWN, SILTY CLAY (WACCAMAW FORMATION)

33+00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST, SOFT, MODERATELY PLASTIC, DARK BROWN, FINE SANDY CLAY (WACCAMAW FORMATION)

SS-3
L - 3250
32+50

3:1 4:1 6:1 6:1 6:1 3:1

3 5 07/19 **COASTAL PLAIN:** MOIST, LOOSE, MODERATELY PLASTIC, GRAYISH BROWN, CLAYEY COARSE TO FINE SAND (WACCAMAW FORMATION)

2 SATURATED TO WET, VERY LOOSE TO LOOSE, PALE OLIVE, SILTY FINE SAND (WACCAMAW FORMATION)

5 BT WET, MEDIUM STIFF, HIGHLY PLASTIC, BROWN, SILTY CLAY (WACCAMAW FORMATION)

32+50.00

—L—

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

6/23/16
08-SEP-2020 12:17
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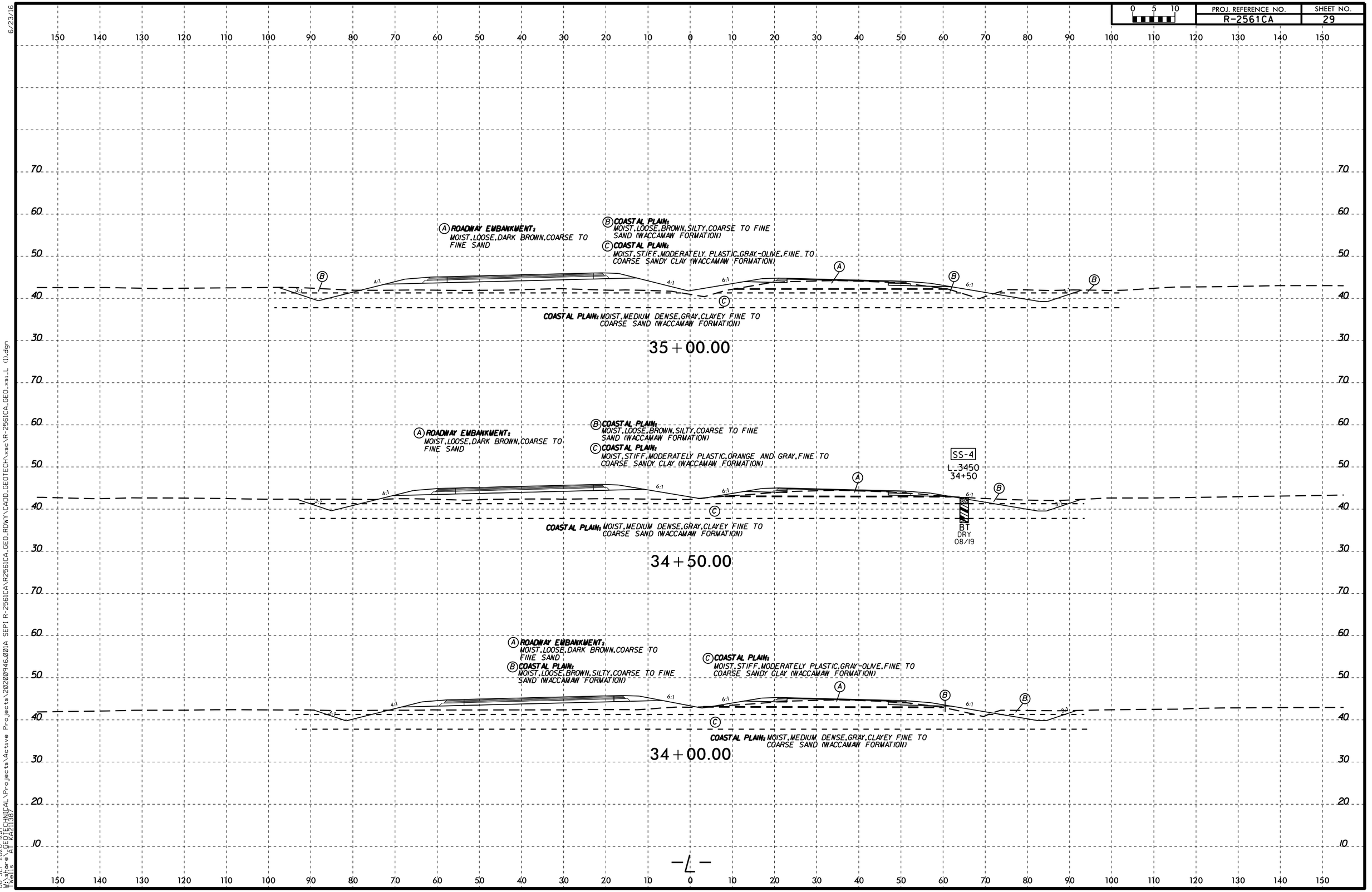
Wells, AT KPA2138



6/23/16
08-SEP-2020 12:17
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Wells AT KA21138

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

60 50 40 30 20 10 70 60 50 40 30

SS-5
L -3650
36+50

4:1 5.5:1 6:1 5:1 3:1

Ⓐ ROADWAY EMBANKMENT:
MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

COASTAL PLAIN:
MOIST, MEDIUM STIFF, DARK GRAY, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

07/19

SATURATED, LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

BT

36+50.00

Ⓐ ROADWAY EMBANKMENT:
MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

4:1 5:1 6:1 6:1 3:1

COASTAL PLAIN:
MOIST, MEDIUM STIFF, DARK GRAY, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

SATURATED, LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

36+00.00

Ⓐ ROADWAY EMBANKMENT:
MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

Ⓑ COASTAL PLAIN:
MOIST, LOOSE, BROWN, SILTY, COARSE TO FINE SAND (WACCAMAW FORMATION)

Ⓒ COASTAL PLAIN:
MOIST, STIFF, MODERATELY PLASTIC, GRAY-OLIVE, FINE TO COARSE SANDY CLAY (WACCAMAW FORMATION)

4:1 4:1 6:1 6:1 3:1

COASTAL PLAIN: MOIST, MEDIUM DENSE, GRAY, CLAYEY FINE TO COARSE SAND (WACCAMAW FORMATION)

35+50.00

-L-

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

6/23/16

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Wells AT KA21138

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

60 50 40 30 20

(A) ROADWAY EMBANKMENT:
MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

(B) COASTAL PLAIN:
MOIST, MEDIUM STIFF, GRAY, FINE SANDY CLAY (WACCAMAW FORMATION)

4:1 5.1:1 6:1 4:1 3:1

COASTAL PLAIN: MOIST, SOFT, MODERATELY PLASTIC, GRAY, SILTY CLAY (WACCAMAW FORMATION)

SATURATED, MEDIUM DENSE, GRAY AND YELLOW, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

39 + 00.00

(A) ROADWAY EMBANKMENT:
MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

(B) COASTAL PLAIN:
MOIST, MEDIUM STIFF, GRAY, FINE SANDY CLAY (WACCAMAW FORMATION)

L_3850
38+50

8 4 07/19 15 B1

4:1 6:1 6:1 4:1 3:1

COASTAL PLAIN: MOIST, SOFT, MODERATELY PLASTIC, GRAY, SILTY CLAY (WACCAMAW FORMATION)

SATURATED, MEDIUM DENSE, GRAY AND YELLOW, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

38 + 50.00

(A) ROADWAY EMBANKMENT:
MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

(B) COASTAL PLAIN:
MOIST, MEDIUM STIFF, GRAY, FINE SANDY CLAY (WACCAMAW FORMATION)

4:1 5.75 6:1 4:1 3:1

COASTAL PLAIN: MOIST, SOFT, MODERATELY PLASTIC, GRAY, SILTY CLAY (WACCAMAW FORMATION)

SATURATED, MEDIUM DENSE, GRAY AND YELLOW, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

38 + 00.00

(A) ROADWAY EMBANKMENT:
MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

(B) COASTAL PLAIN:
MOIST, MEDIUM STIFF, GRAY, FINE SANDY CLAY (WACCAMAW FORMATION)

4:1 5.6:1 6:1 6:1 6:1

COASTAL PLAIN: MOIST, SOFT, MODERATELY PLASTIC, GRAY, SILTY CLAY (WACCAMAW FORMATION)

SATURATED, MEDIUM DENSE, GRAY AND YELLOW, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

37 + 50.00

–L–

6/23/16

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Wells, AT KA21138

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

80 70 60 50 40 30 20 10 0

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST, STIFF, MODERATELY TO HIGHLY PLASTIC, GRAY, FINE SANDY CLAY TO SILTY CLAY (WACCAMAW FORMATION)

4:1 5:1 6:1 4:1 3:1

COASTAL PLAIN: WET, LOOSE, GRAY, FINE TO COARSE SAND (WACCAMAW FORMATION)

40+00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST, MEDIUM STIFF, GRAY, FINE SANDY CLAY (WACCAMAW FORMATION)

4:1 41.25 4.4:1 6:1 4:1 3:1

COASTAL PLAIN: MOIST, SOFT, MODERATELY PLASTIC, GRAY, SILTY CLAY (WACCAMAW FORMATION)

SATURATED, MEDIUM DENSE, GRAY AND YELLOW, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

39+50.00

60 50 40 30 20

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

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Wells, AT KA21138

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	33

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

60 50 40 70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

–RPB– STA. 10+65.97

Ⓑ **COASTAL PLAIN:** MOIST, MEDIUM STIFF TO SOFT, MODERATELY TO HIGHLY PLASTIC, GRAY, SILTY CLAY (WACCAMAW FORMATION)

6:1 6:1 5.14:1 6:1 4:1 3:1

COASTAL PLAIN: WET, GRAY, FINE TO COARSE SAND (WACCAMAW FORMATION)

41+00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

–RPB– STA. 10+15.97

Ⓑ **COASTAL PLAIN:** MOIST, STIFF, MODERATELY TO HIGHLY PLASTIC, GRAY, SILTY CLAY (WACCAMAW FORMATION)

6:1 6:1 5:1 6:1 4:1 3:1

L_4050
40+50

BT 08/19

COASTAL PLAIN: WET, LOOSE, GRAY, FINE TO COARSE SAND (WACCAMAW FORMATION)

40+50.00

–L–

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Wells, AT KA21138

PROJ. REFERENCE NO.	SHEET NO.
R-2561CA	34

0 5 10

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

60 50 40 30 20 70 60 50 40 30

Ⓐ **ROADWAY EMBANKMENT:** MOIST.LOOSE.DARK BROWN.COARSE TO FINE SAND

–RPB– STA. 11+66.11

Ⓒ **COASTAL PLAIN:** MOIST.MEDIUM STIFF.TAN.COARSE TO FINE SANDY SILT (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST.LOOSE.HIGHLY PLASTIC.RED-GRAY.CLAYEY. FINE TO COARSE SAND (WACCAMAW FORMATION)

SATURATED.LOOSE TO MEDIUM DENSE.YELLOW-TAN. SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

4:1 6:1 6:1 6:1 4:1 3:1

42+00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST.LOOSE.DARK BROWN.COARSE TO FINE SAND

–RPB– STA. 11+15.99

Ⓑ **COASTAL PLAIN:** MOIST.STIFF.MODERATELY TO HIGHLY PLASTIC.GRAY. SILTY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: WET.LOOSE.GRAY.FINE TO COARSE SAND (WACCAMAW FORMATION)

4:1 6:1 5.43:1 6:1 4:1 3:1

41+50.00

–L–

6/23/16

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Wells, AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	35

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

60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60

SS-6
L=4250
42+50

-RPB- STA. 12+16.49

07/19

BT

(A) **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

(B) **COASTAL PLAIN:** MOIST, MEDIUM STIFF, TAN, COARSE TO FINE SANDY SILT (WACCAMAW FORMATION)

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

COASTAL PLAIN: MOIST, LOOSE, HIGHLY PLASTIC, RED-GRAY, CLAYEY, FINE TO COARSE SAND (WACCAMAW FORMATION)

SATURATED, LOOSE TO MEDIUM DENSE, YELLOW-TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

42+50.00

—L—

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

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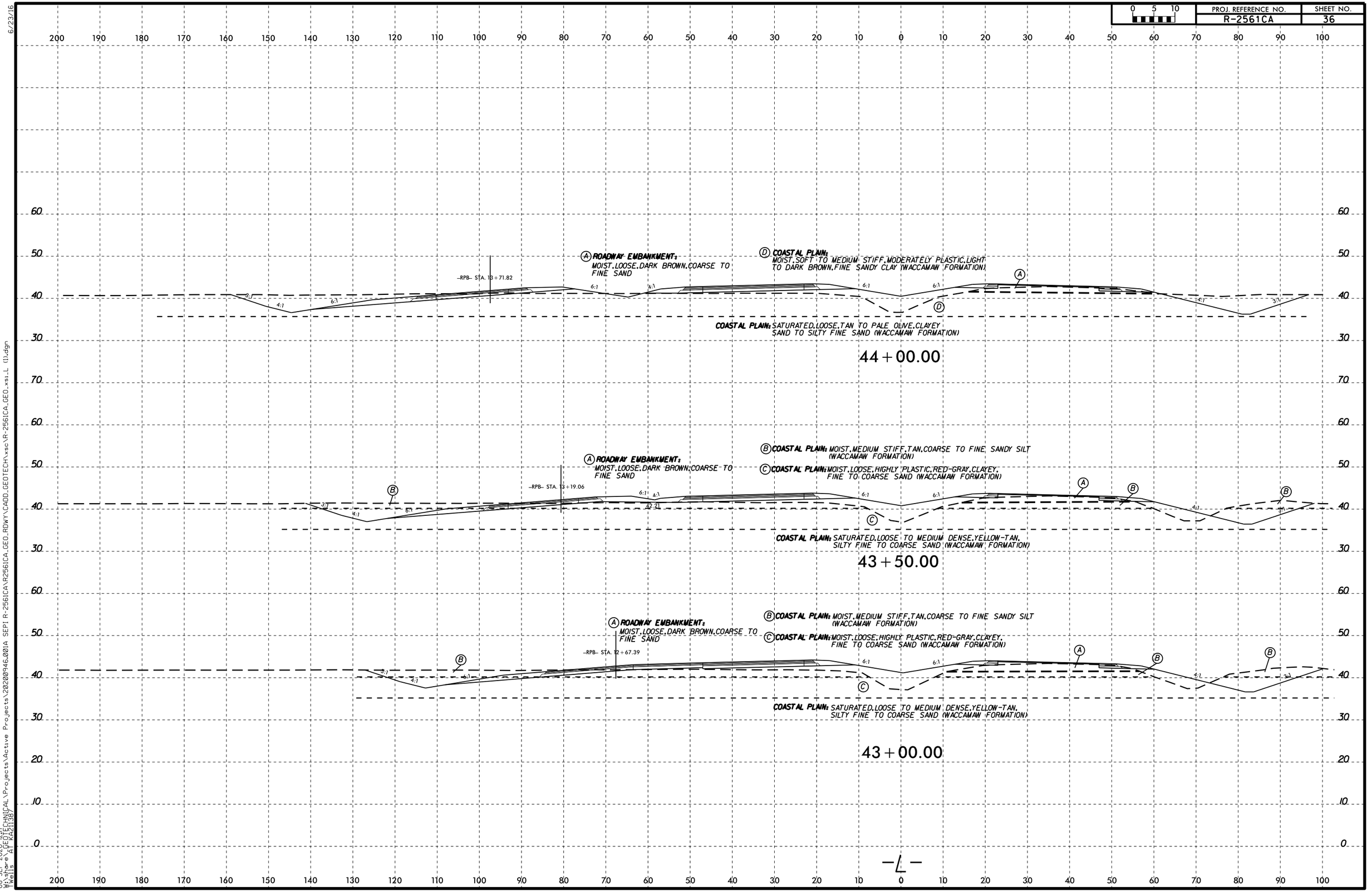
AT Wells KAZ1138/



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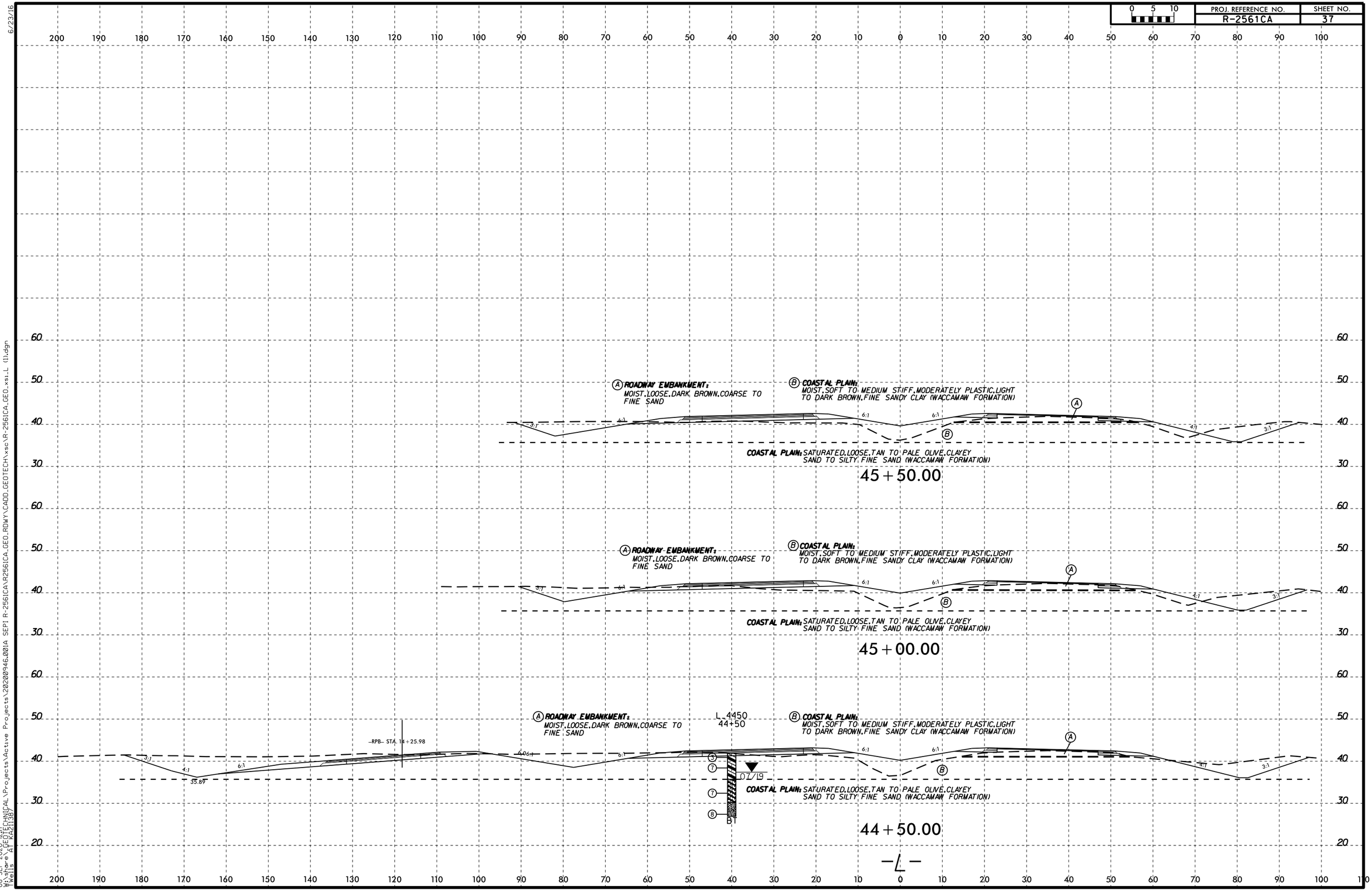
Wells, AT KA21138



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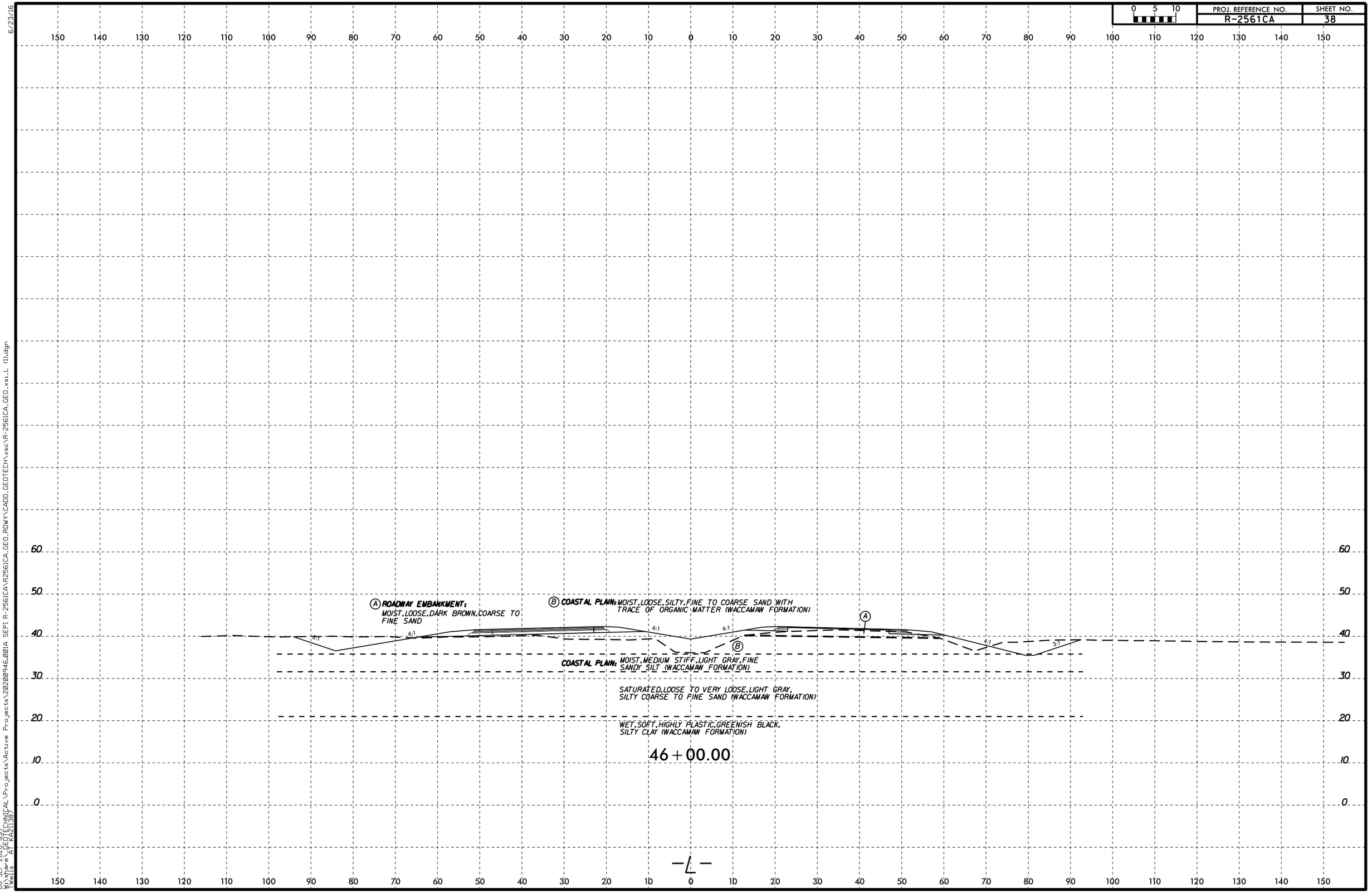
Wells, AT (A21138)



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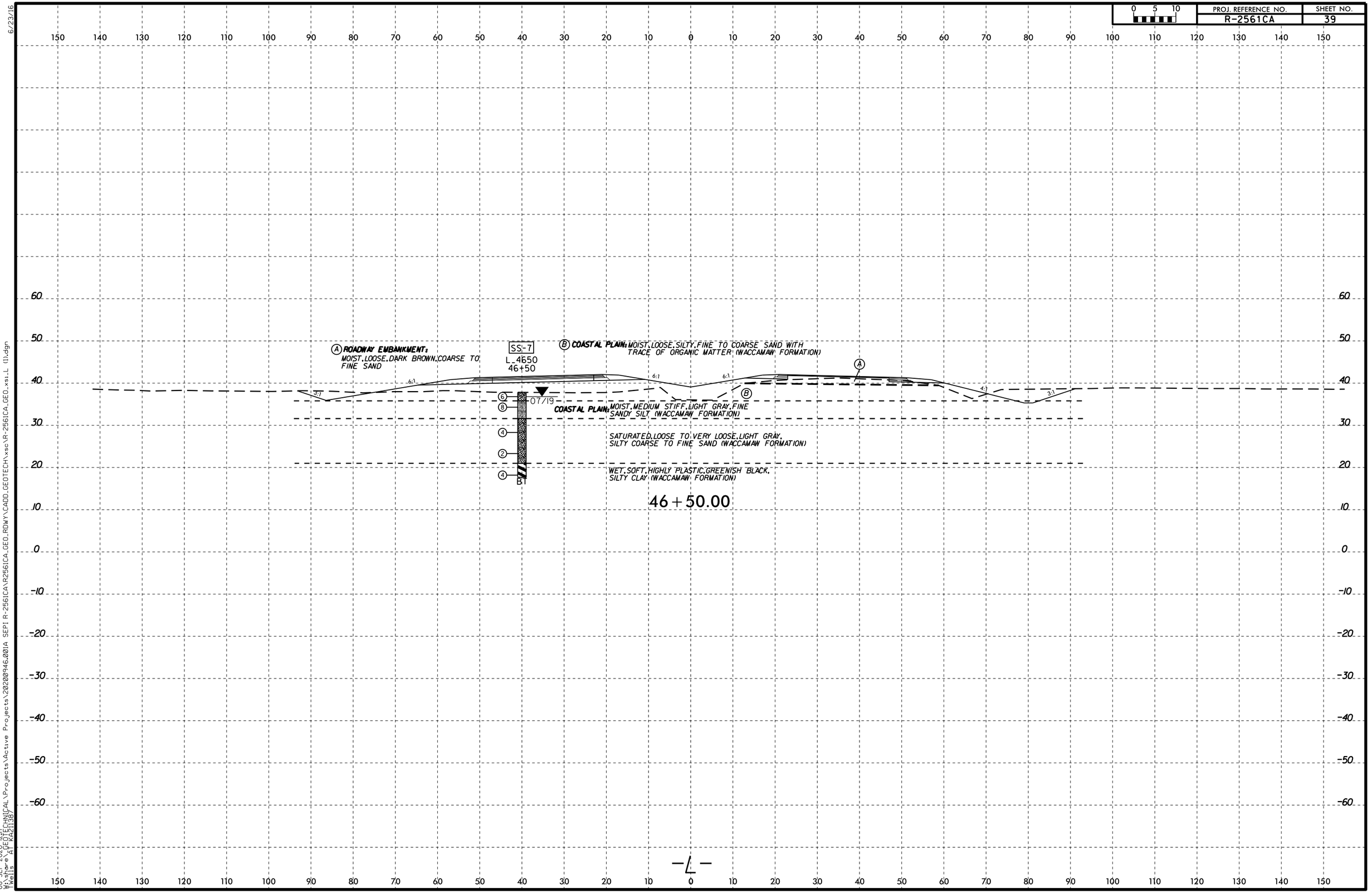
Wells AT KA21138



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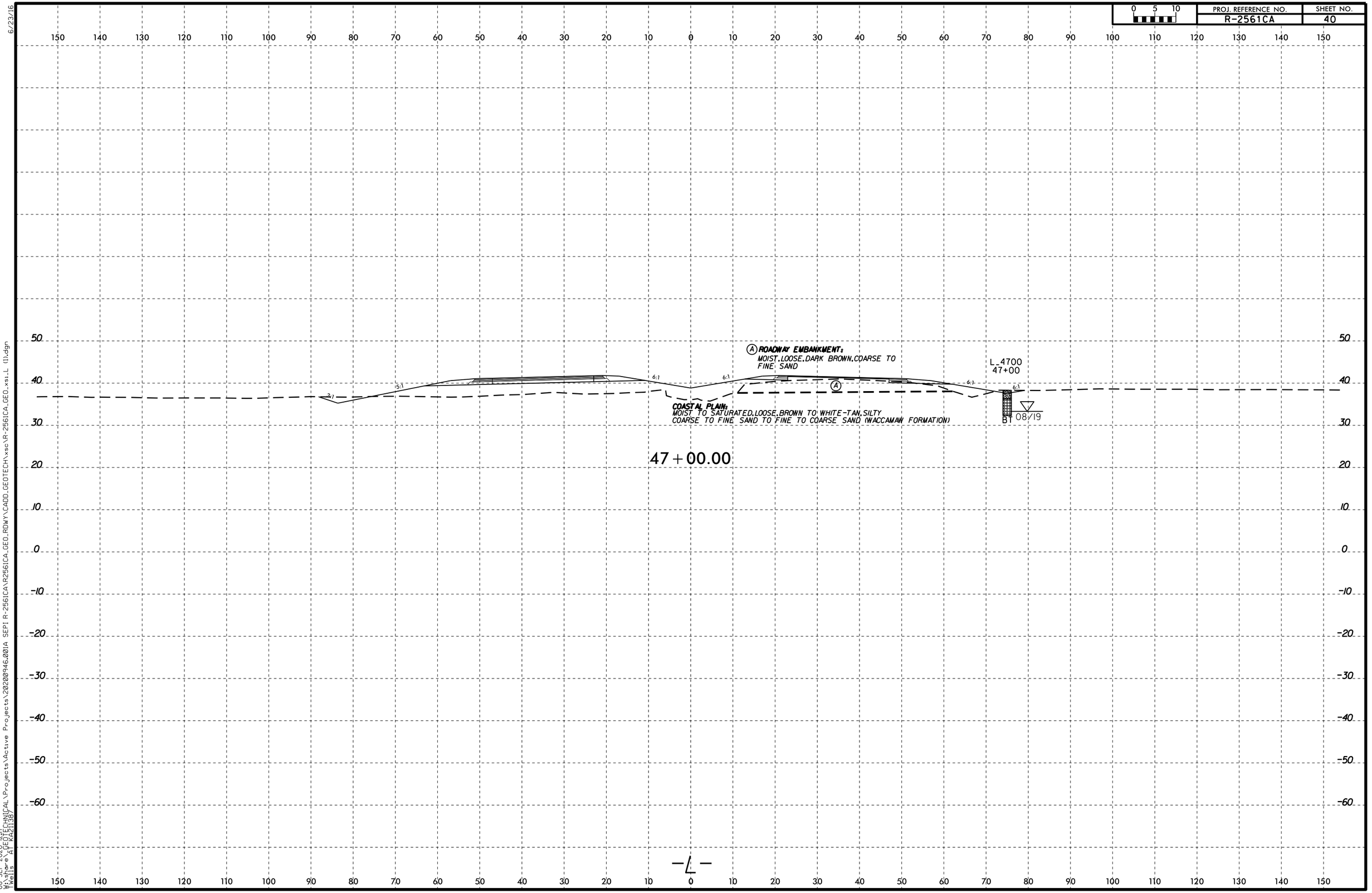
Wells AT KA21138



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Wells, AT KA21138

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	41

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

60 50 40 30 20

SS-8
L_4850
48+50

(A) **ROADWAY EMBANKMENT:** MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

(B) **COASTAL PLAIN:** MOIST, VERY SOFT, BROWN, COARSE TO FINE SANDY SILT (WACCAMAW FORMATION)

3:1 4:1 6:1 6:1 6:1 6:1 6:1 6:1

2 11 07/19

3

6

BT

COASTAL PLAIN: MOIST TO SATURATED, MEDIUM DENSE TO VERY LOOSE, BROWN TO PALE OLIVE, CLAYEY FINE TO COARSE SAND TO SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

48+50.00

-L-

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

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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	42

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

80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60

Ⓐ **ROADWAY EMBANKMENT:**
MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

3:1 4:1 6:1 6:1 6:1 5.75:1 6:1 6:1

L_5000
50+00

Ⓐ

COASTAL PLAIN:
MOIST TO WET, LOOSE AND MEDIUM DENSE, BROWN, ORANGE AND TAN, SILTY (COARSE TO FINE SAND, CLAYEY; FINE TO COARSE SAND TO FINE TO COARSE SAND (WACCAMAW FORMATION)

BT
FIAD

50+00.00

—L—

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

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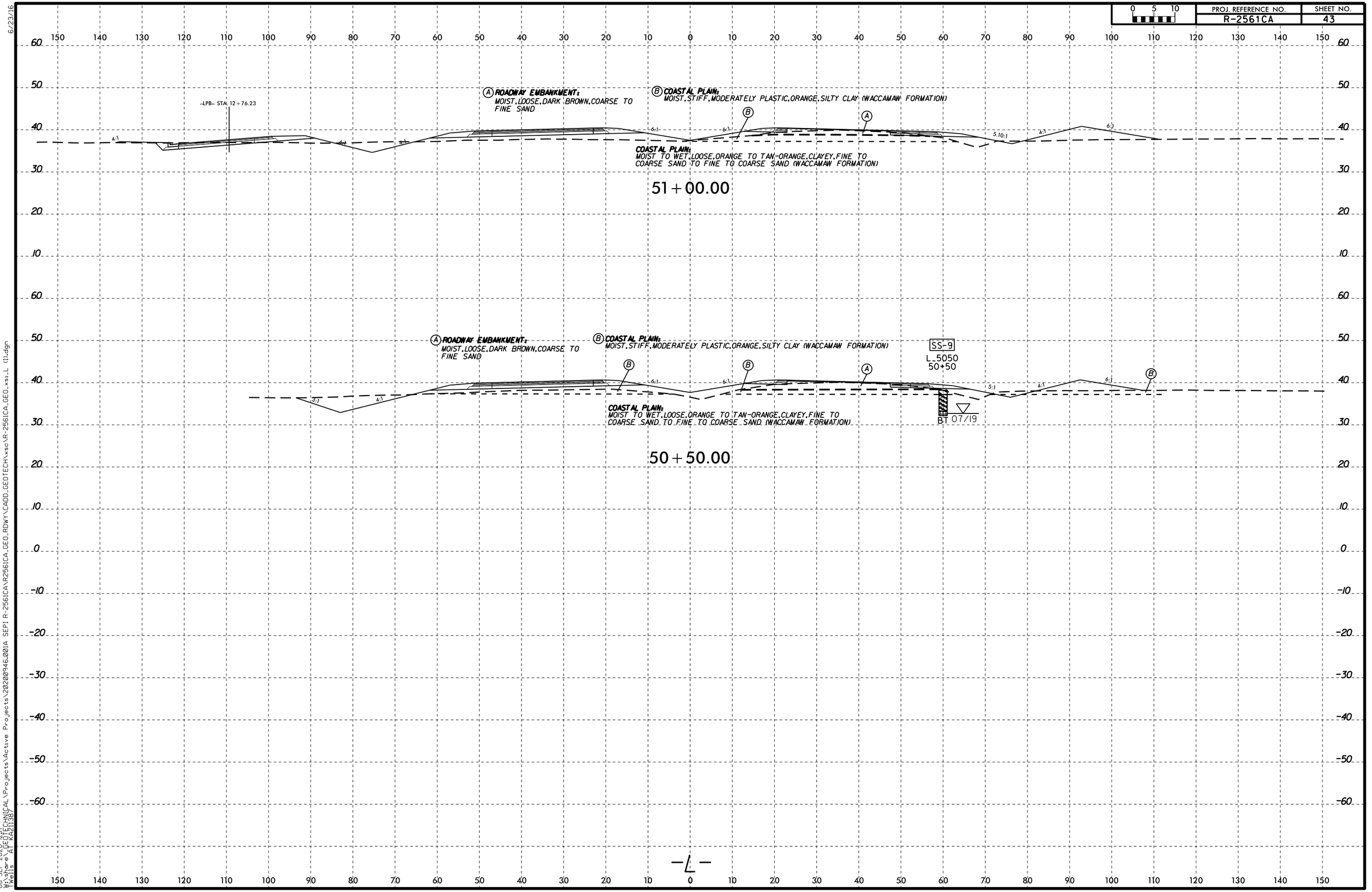
Wells AT KA21138

0 5 10



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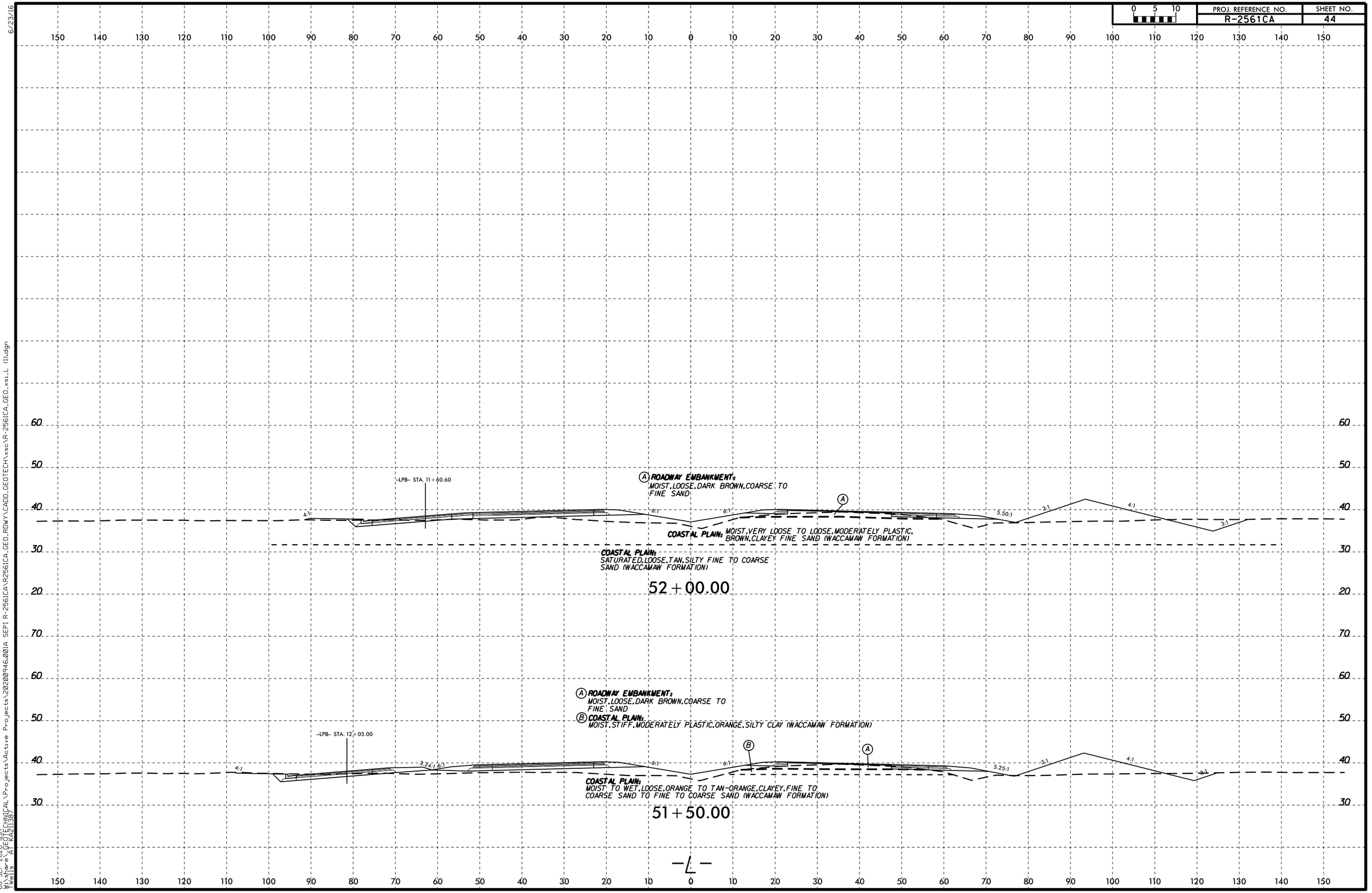
Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	44



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Wells, AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	45

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

60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60

-LPB- STA. 10+59.18

Ⓐ ROADWAY EMBANKMENT: MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

3:1 4:1 8:1 8:1 6:1 2.5:1 4:1 3:1

COASTAL PLAIN: MOIST, VERY LOOSE TO LOOSE, MODERATELY PLASTIC, BROWN, CLAYEY FINE SAND (WACCAMAW FORMATION)

SATURATED, LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

53+00.00

-LPB- STA. 11+09.38

L_5250
52+50

Ⓐ ROADWAY EMBANKMENT: MOIST, LOOSE, DARK BROWN, COARSE TO FINE SAND

4:1 6:1 6:1 5.75:1 2.5:1 4:1 3:1

Ⓒ Ⓓ 07/19

Ⓑ BT

COASTAL PLAIN: MOIST, VERY LOOSE TO LOOSE, MODERATELY PLASTIC, BROWN, CLAYEY FINE SAND (WACCAMAW FORMATION)

SATURATED, LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

52+50.00

-L-

08-SEP-2020 12:17
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Wells AT KA21138

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

50 40 30 20 10 0

SEE -Y- STA. 35+50
tie to ditch at 35+50 -Y- LT

4:1 2:1 10:1 10:1 2:1 4:1 3:1

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, BROWN, SILTY FINE TO COARSE SAND
Ⓑ **COASTAL PLAIN:** MOIST, MEDIUM STIFF, YELLOWISH BROWN, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

SS-34
YDET_3400
54+05

Ⓐ
Ⓑ
④
⑧
⑥
⑧
07/19
BT

COASTAL PLAIN:
WET, LOOSE, RED AND YELLOWISH BROWN, CLAYEY FINE TO COARSE SAND TO COARSE SAND (WACCAMAW FORMATION)

54+00.00

-LPB- STA. 10+09.17

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, BROWN, SILTY FINE TO COARSE SAND
Ⓑ **COASTAL PLAIN:** MOIST, MEDIUM STIFF, YELLOWISH BROWN, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

4:1 10:1 10:1 2:1 4:1 3:1

COASTAL PLAIN:
WET, LOOSE, RED AND YELLOWISH BROWN, CLAYEY FINE TO COARSE SAND TO COARSE SAND (WACCAMAW FORMATION)

53+50.00

-L-

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

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08-SEP-2020 12:17
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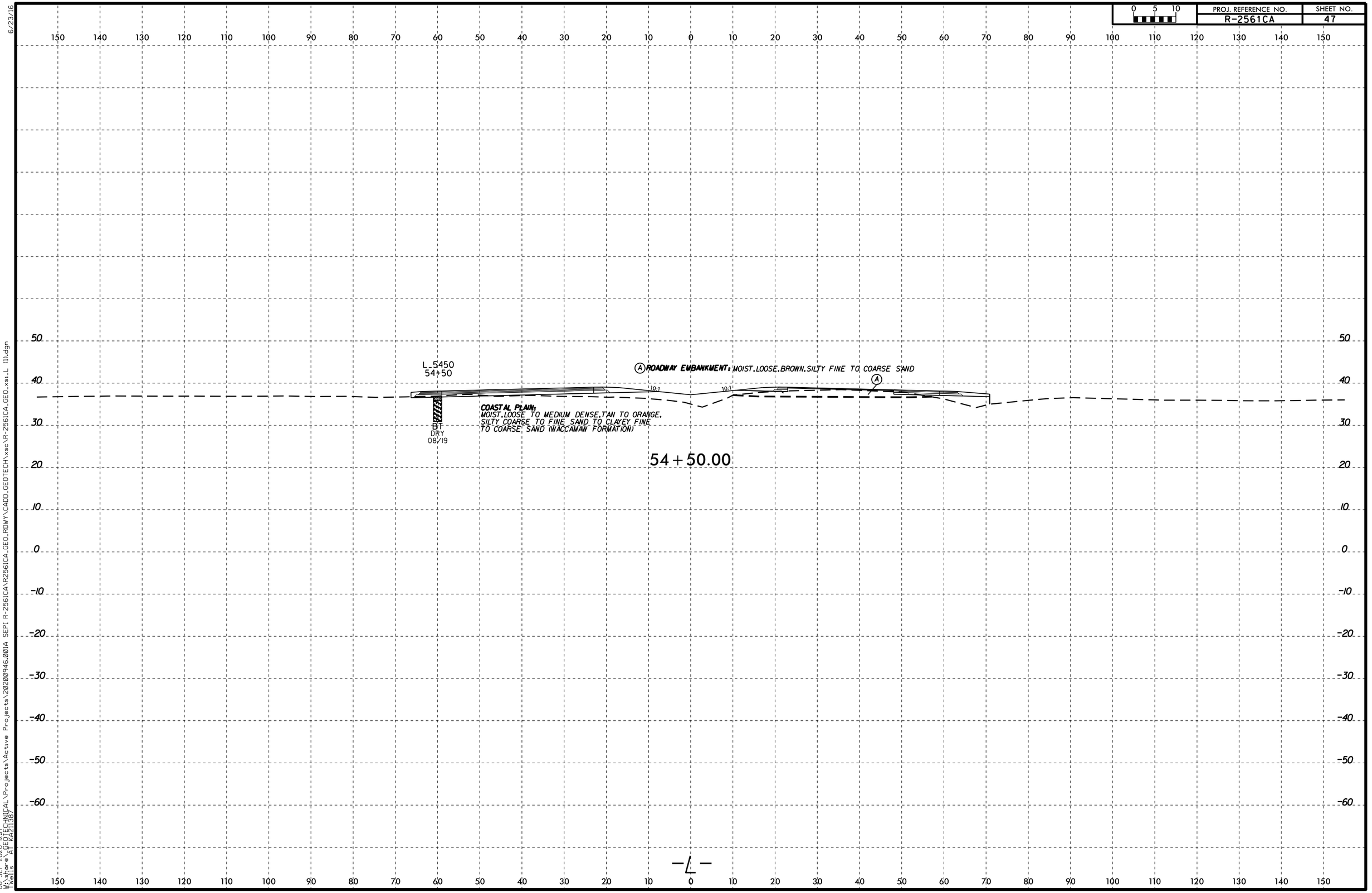
Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	47



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Wells AT KA21138

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

60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60

Ⓐ **ROADWAY EMBANKMENT:** MOIST, MEDIUM DENSE, ORANGE AND GRAY, SILTY COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** WET, VERY DENSE, MODERATELY PLASTIC, DARK GRAY, CLAYEY FINE TO COARSE SAND WITH TRACE ROCK FRAGMENTS (PEE DEE FORMATION)

S4_EB2-A
55+03

10:1 10:1

Ⓐ

18 7 14 7 3 13 15 15 20 15 9 100/0.4 16 18 20 14 15 17

07/19

ST-4

Ⓑ

BT

COASTAL PLAIN: MOIST TO SATURATED, LOOSE TO MEDIUM DENSE, ORANGE, BROWN, TAN, AND WHITE, CLAYEY FINE SAND AND COARSE TO FINE SAND (WACCAMAW FORMATION)

MOIST TO SATURATED, SOFT TO VERY STIFF, SLIGHTLY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY AND SANDY CLAY (PEE DEE FORMATION)

MOIST TO WET, STIFF TO VERY STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEE DEE FORMATION)

55+00.00

—L—

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08-SEP-2020 12:17
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Wells AT KA21138

Ⓓ **ROADWAY EMBANKMENT:** MOIST,VERY LOOSE,YELLOWISH BROWN AND DARK BROWN, SILTY FINE TO COARSE SAND

Ⓔ **COASTAL PLAIN:** MOIST TO WET,VERY SOFT,MODERATELY PLASTIC, YELLOWISH BROWN,SILTY CLAY (WACCAMAW FORMATION)

10:1 10:1

Ⓓ

Ⓔ

COASTAL PLAIN: WET,LOOSE,GRAY AND TAN,SILTY FINE TO COARSE SAND TO COARSE SAND (WACCAMAW FORMATION)

56+00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST,MEDIUM DENSE,ORANGE AND BROWN, SILTY FINE SAND TO CLAYEY FINE TO COARSE SAND

Ⓑ **COASTAL PLAIN:** WET,VERY DENSE,DARK GRAY,FINE TO COARSE SAND WITH TRACE ROCK FRAGMENTS (PEE DEE FORMATION)

Ⓒ **COASTAL PLAIN:** MOIST,DENSE,SLIGHTLY TO MODERATELY PLASTIC,DARK GRAY,CLAYEY COARSE TO FINE SAND (PEE DEE FORMATION)

S4_EBI-A
55+29

Ⓐ

10:1 10:1

COASTAL PLAIN: MOIST,MEDIUM DENSE,ORANGE,TAN AND WHITE, SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

MOIST,SOFT TO VERY STIFF,SLIGHTLY TO HIGHLY PLASTIC,DARK GRAY AND ORANGE, COARSE TO FINE SANDY CLAY TO SILTY CLAY (PEE DEE FORMATION)

Ⓑ

MOIST TO WET,VERY STIFF,MODERATELY TO HIGHLY PLASTIC, DARK GRAY,SILTY CLAY (PEE DEE FORMATION)

Ⓒ

COASTAL PLAIN: MOIST,VERY DENSE TO DENSE,DARK GRAY, SILTY SAND TO CLAYEY COARSE TO FINE SAND WITH WOOD FRAGMENTS (PEE DEE FORMATION)

55+50.00

15 12 10 4 14 15 16 15 15 9 60/0.1 17 18 21 36 17 18 100/0.4 49

BT
FIAD

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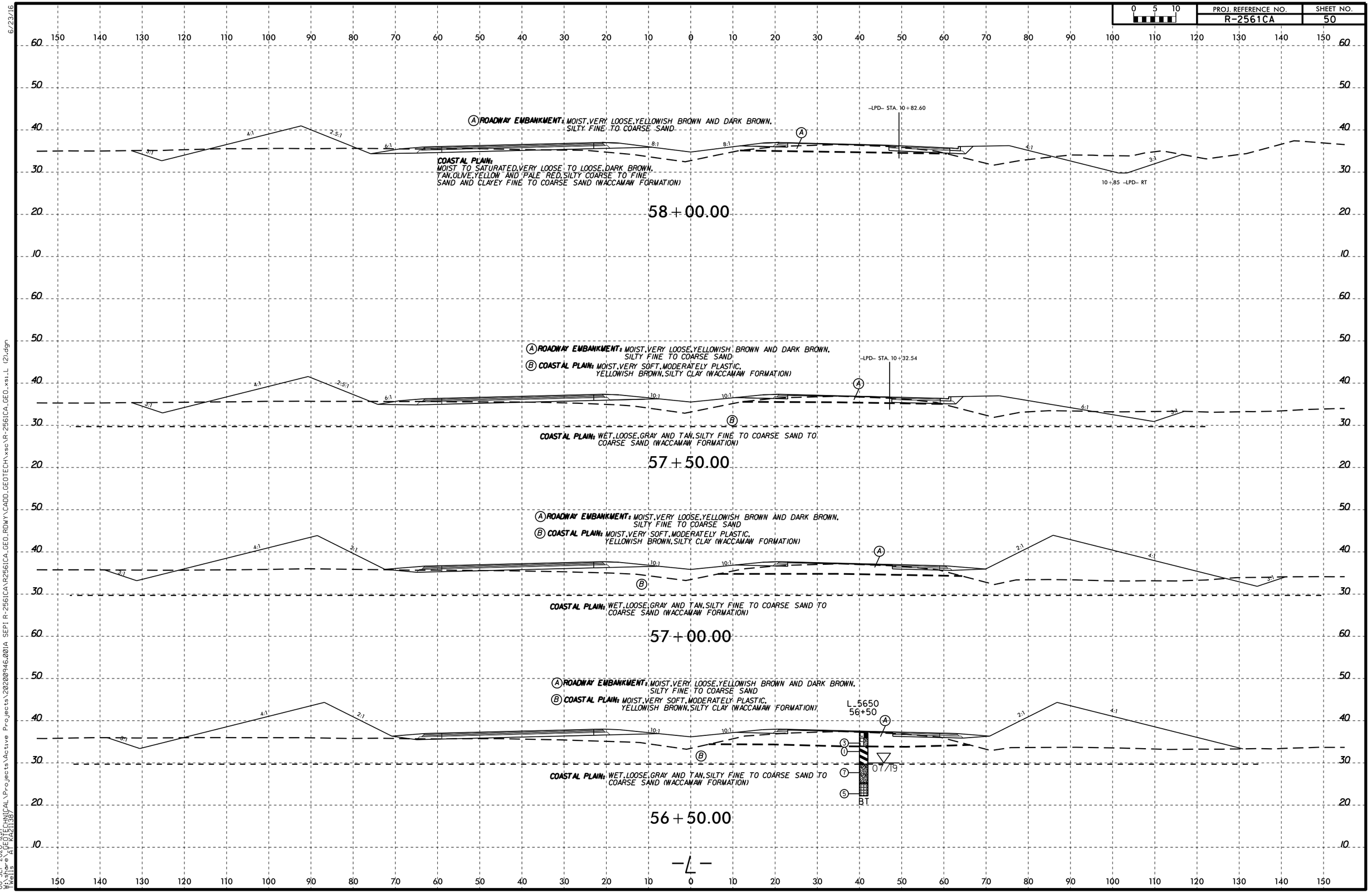
Wells AT KA21138



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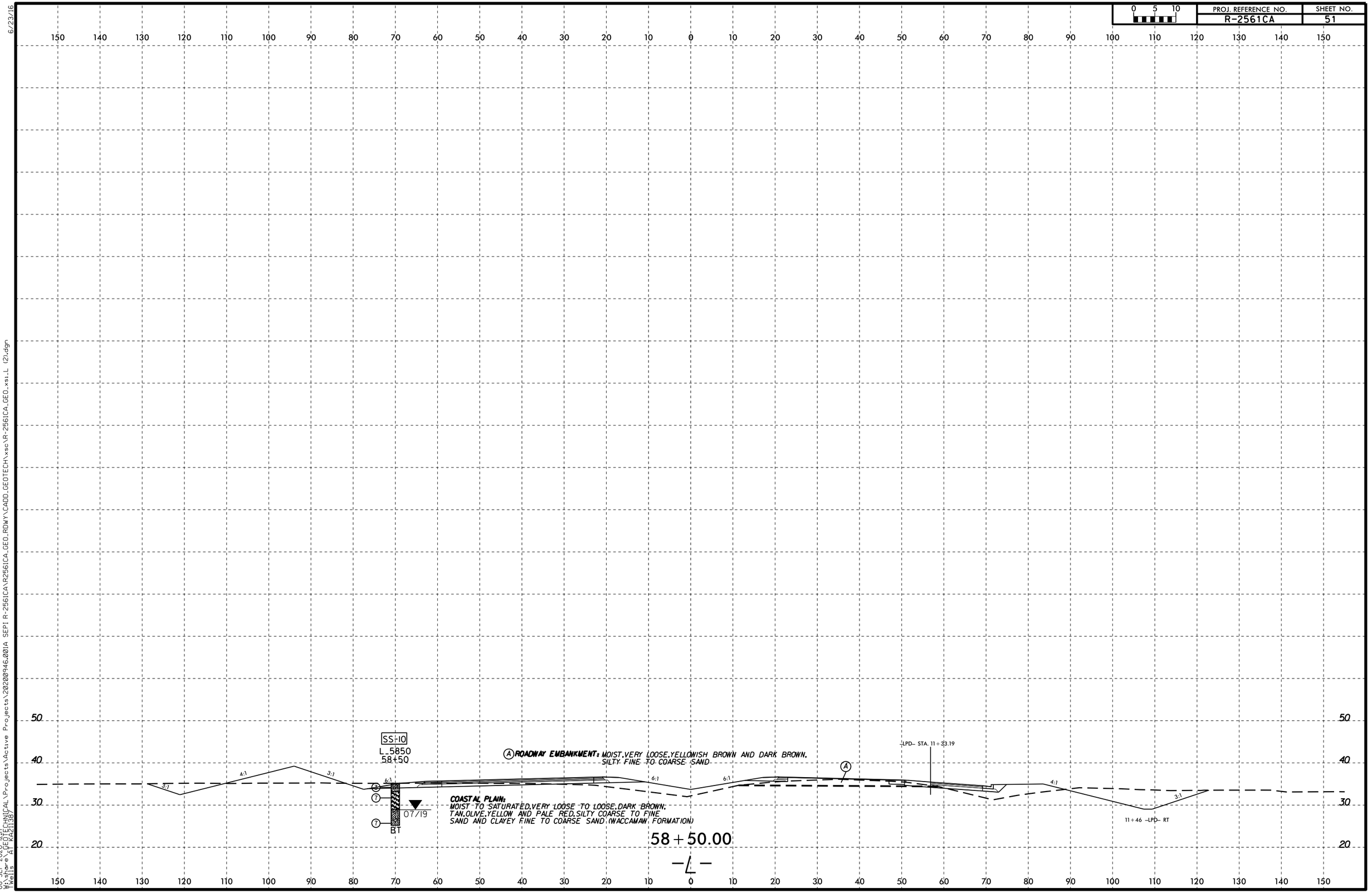

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Wells AT KA21138

L_6050
60+50

Ⓐ **ROADWAY EMBANKMENT:** MOIST, VERY LOOSE, YELLOWISH BROWN AND DARK BROWN, SILTY FINE TO COARSE SAND

5
14
13
BT

07/19

COASTAL PLAIN:
MOIST TO WET, VERY LOOSE TO MEDIUM DESNE, GREENISH BLACK TO PALE OLIVE AND TAN, CLAYEY COARSE TO FINE SAND TO SILTY COARSE TO FINE SAND (PEEDEE FORMATION)

6:1 6:1 6:1 6:1 6:1 4:1 3:1

60 + 50.00

—L—

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Wells AT KA21138

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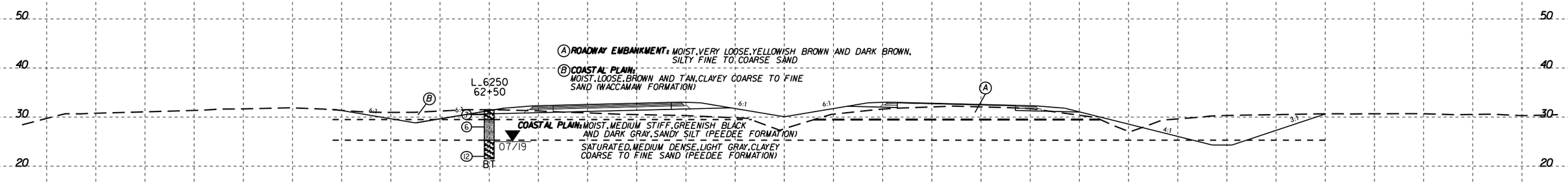

62 + 50.00

-L-

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Wells, AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
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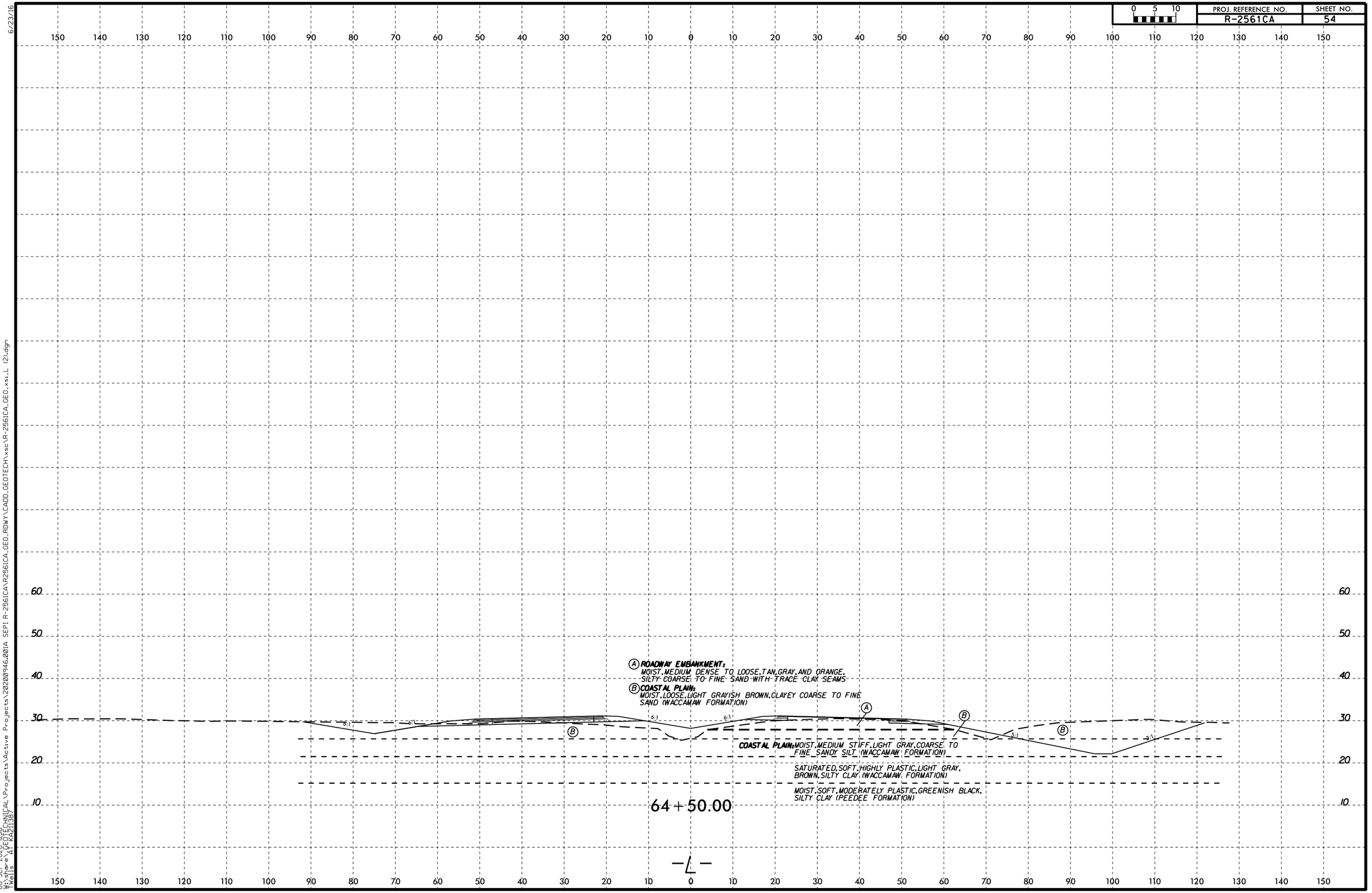

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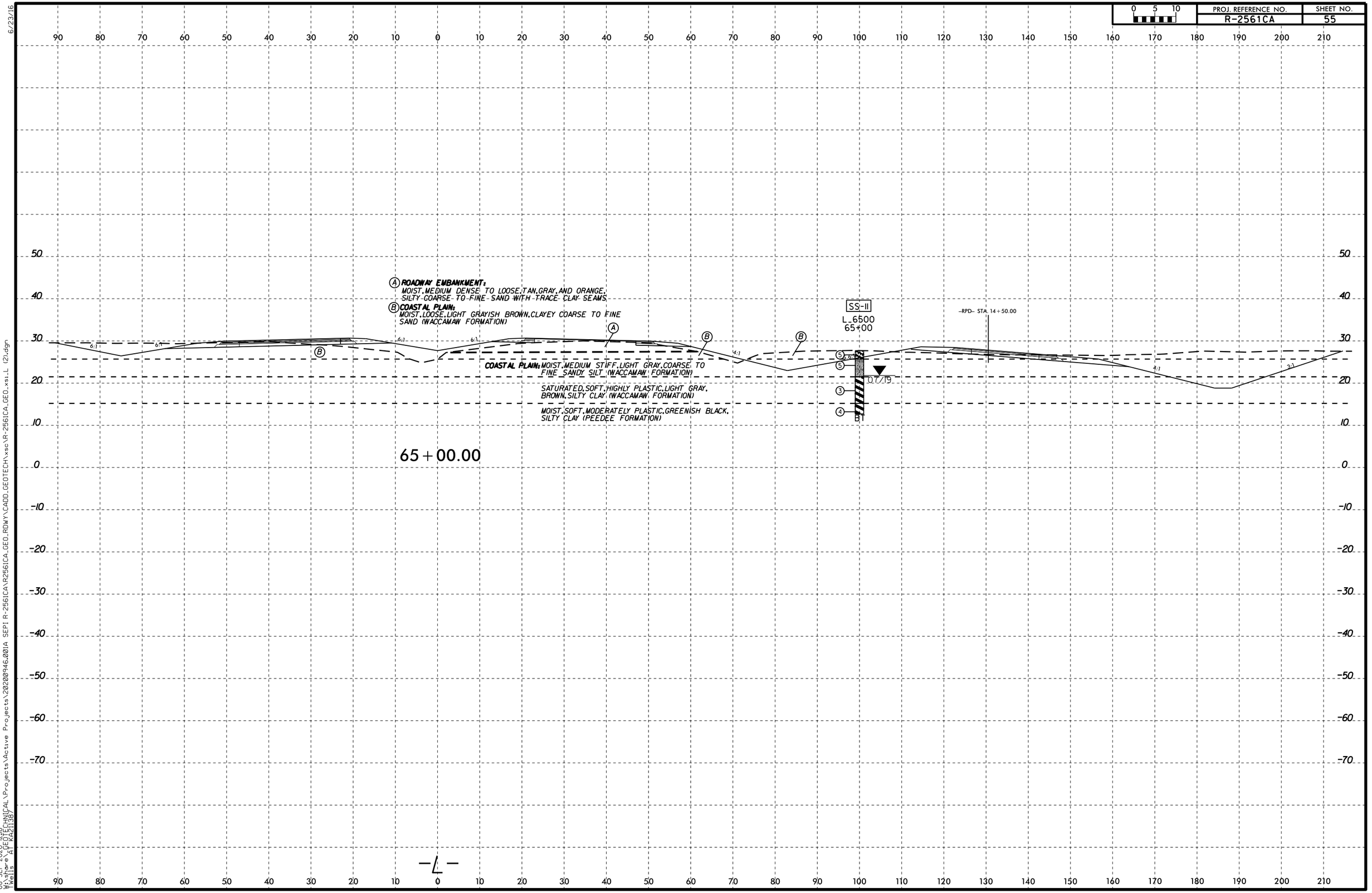
Wells, AT KA21138



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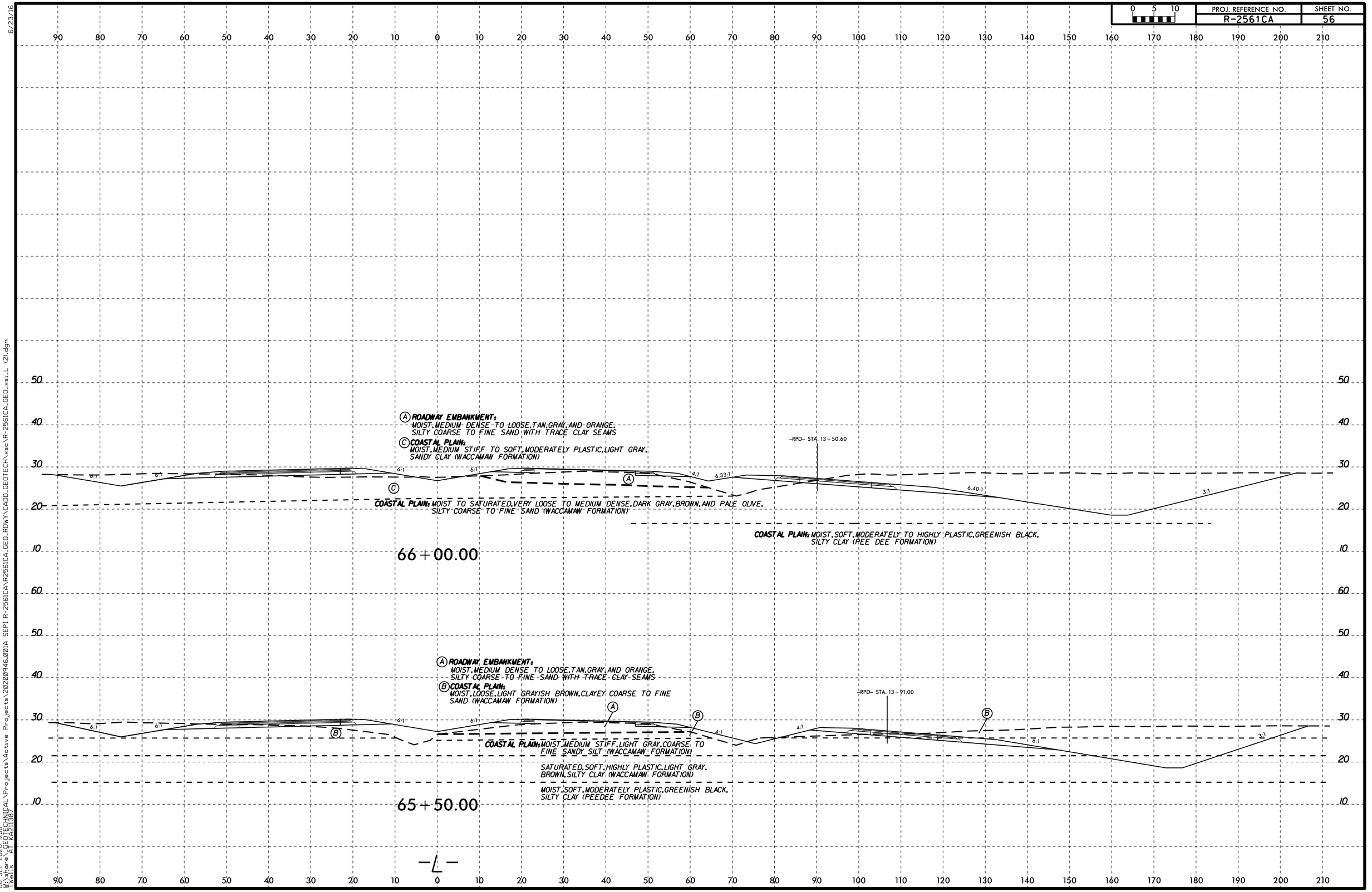
Wells AT KA21138



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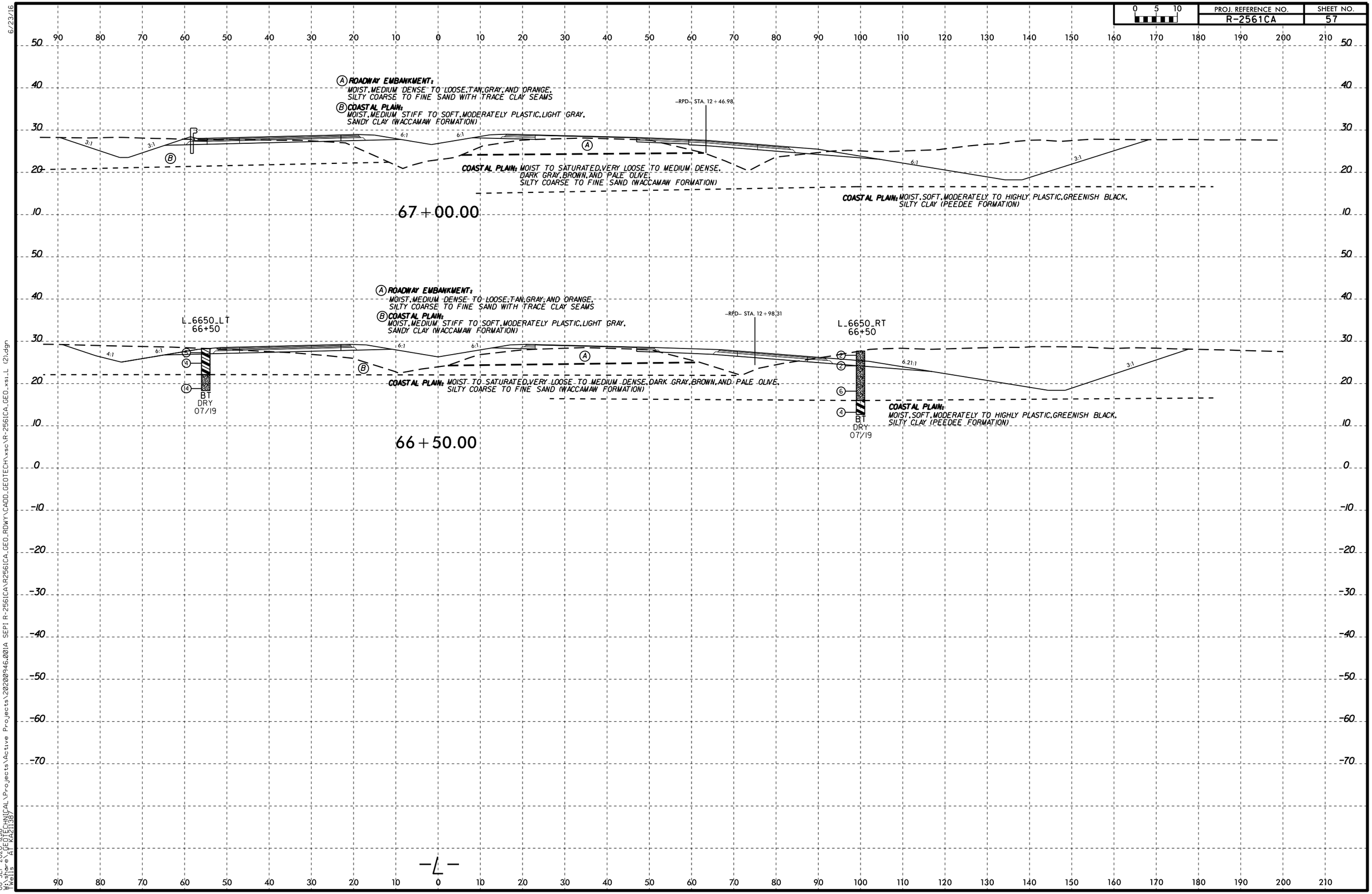
wells AT KA21136



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Wells, AT (KH2138)

PROJ. REFERENCE NO.	SHEET NO.
R-2561CA	58

0 5 10

90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210

50 40 30 20 10 0

Ⓐ **ROADWAY EMBANKMENT:**
MOIST, MEDIUM DENSE TO LOOSE, TAN, GRAY, AND ORANGE, SILTY COARSE TO FINE SAND WITH TRACE CLAY SEAMS

Ⓑ **COASTAL PLAIN:**
MOIST, MEDIUM STIFF TO SOFT, MODERATELY PLASTIC, LIGHT GRAY, SANDY CLAY (WACCAMAW FORMATION)

-RPD- STA. 11+96.82

3:1 6:1 6:1 6:1 3:1

COASTAL PLAIN: MOIST TO SATURATED, VERY LOOSE TO MEDIUM DENSE, DARK GRAY, BROWN, AND PALE OLIVE, SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, SOFT, MODERATELY TO HIGHLY PLASTIC, GREENISH BLACK, SILTY CLAY (PEEDEE FORMATION)

67+50.00

-L-

6/23/16

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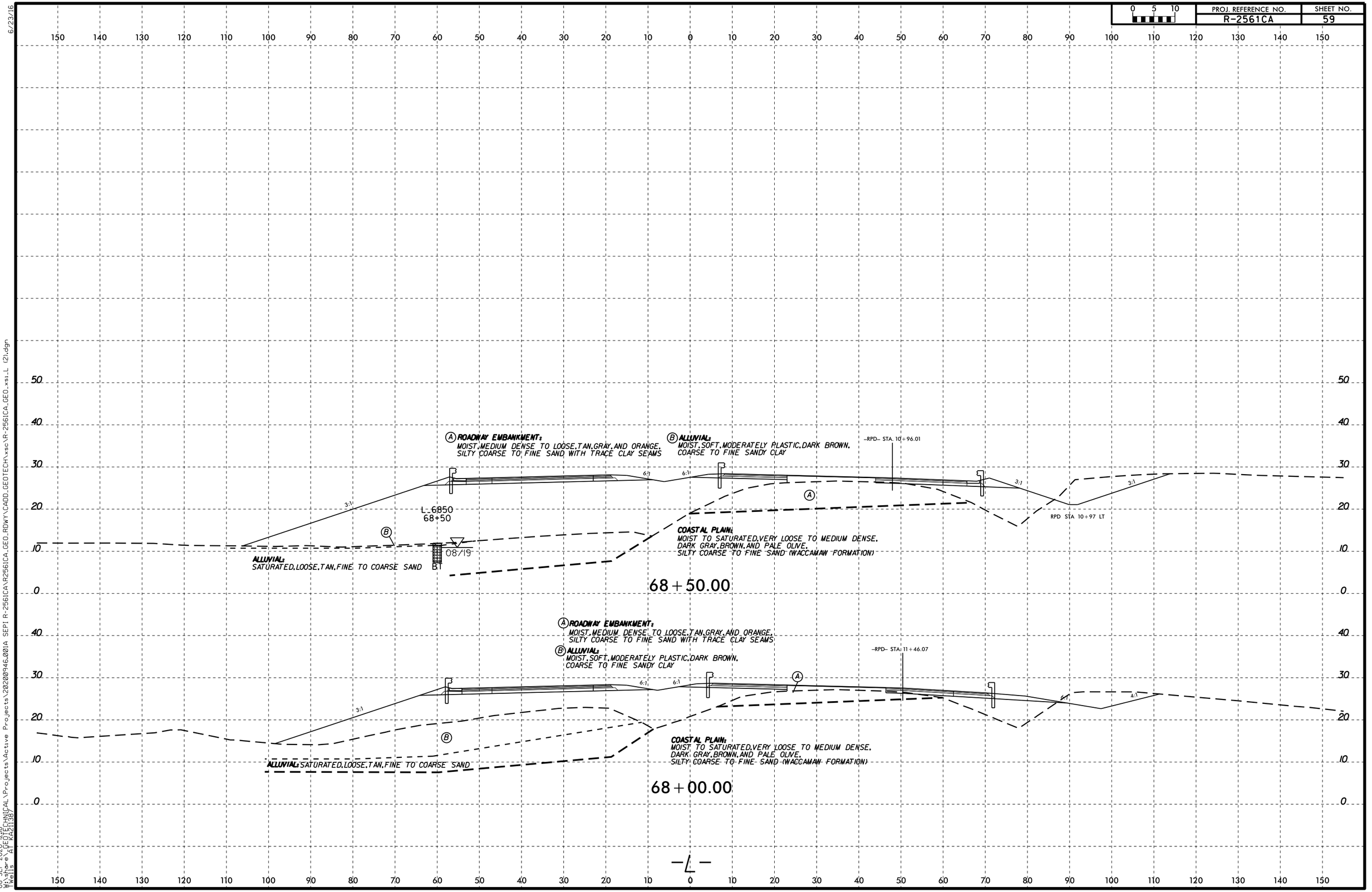
Wells, AT KA21138



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Wells AT KA21138

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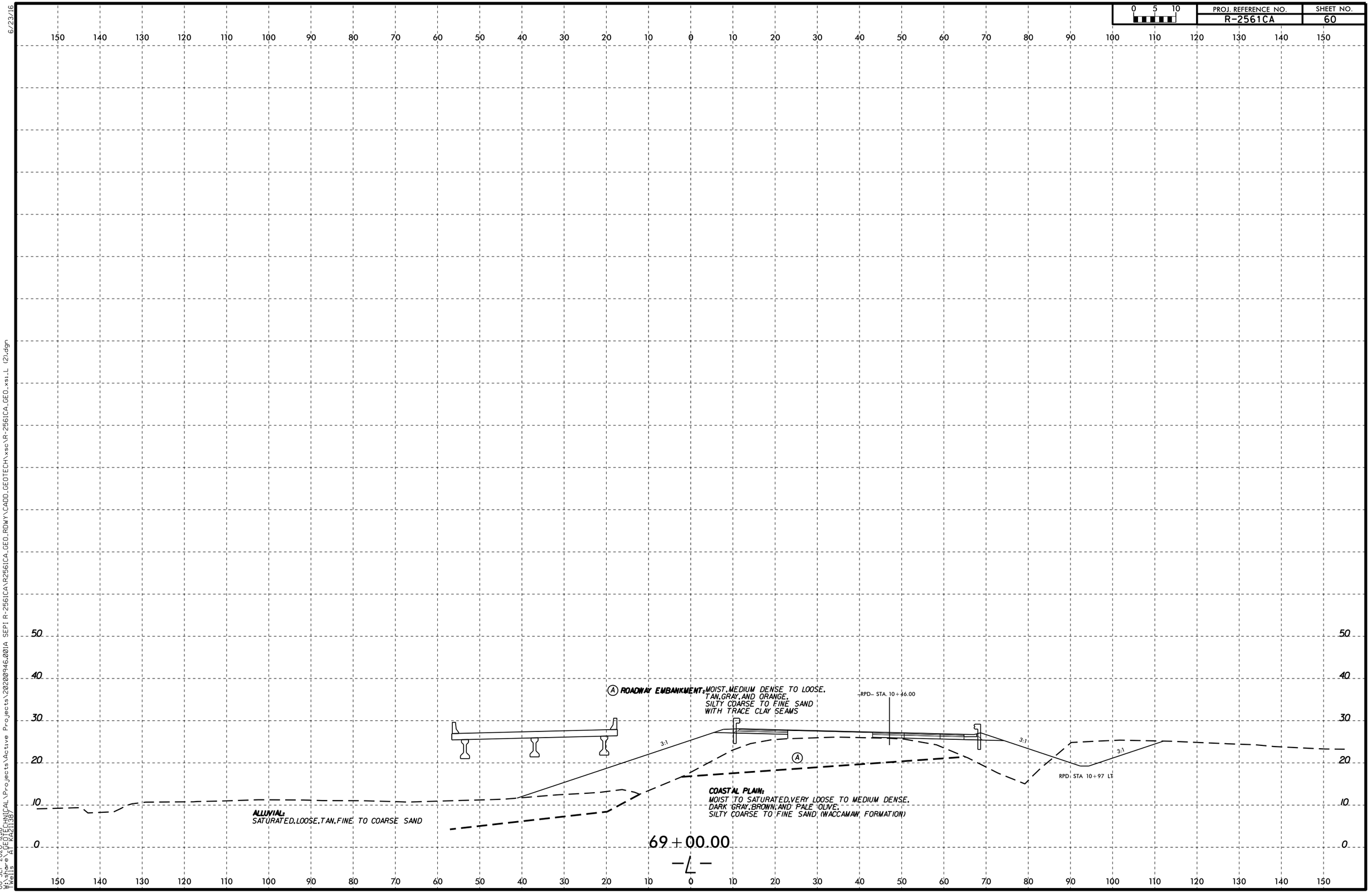
	R-2561CA	60



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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	61

SI_LT_LN_BI-A
69+69

SI_LT_LN_EBI-B
69+26

Ⓐ **ROADWAY EMBANKMENT:** MOIST, MEDIUM DENSE TO LOOSE, TAN, GRAY, AND ORANGE, SILTY COARSE TO FINE SAND WITH TRACE CLAY SEAMS

Ⓑ **ALLUVIAL:** MOIST, VERY LOOSE, ORANGE, SILTY COARSE TO FINE SAND

3:1

3:1

3:1

07/19

07/19

ALLUVIAL: MOIST, VERY LOOSE, GRAY TO BROWN, SILTY FINE SAND WITH WOOD FRAGMENTS

ALLUVIAL: MOIST, VERY SOFT TO SOFT, SLIGHTLY TO MODERATELY PLASTIC, GRAY TO BROWN, SILTY CLAY TO FINE SANDY CLAY

COASTAL PLAIN: MOIST, SOFT TO STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY TO BLUE, SILTY CLAY, FINE SANDY CLAY (PEEDEE FORMATION)

MOIST, LOOSE TO VERY DENSE, SLIGHTLY PLASTIC, DARK GRAY, CLAYEY FINE TO COARSE SAND TO CLAYEY COARSE TO FINE SAND (PEEDEE FORMATION)

MOIST, STIFF TO HARD, SLIGHTLY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY AND COARSE TO FINE SANDY CLAY WITH TRACE SHELL FRAGMENTS (PEEDEE FORMATION)

MOIST, VERY DENSE TO MEDIUM DENSE, BLUE TO DARK GRAY, SILTY FINE TO COARSE SAND TO CLAYEY COARSE TO FINE SAND WITH TRACE WOOD FRAGMENTS (PEEDEE FORMATION)

BT

BT

69+50.00

—L—

6/23/16

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Wells AT KA21387

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

50 40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70

(A) **ALLUVIAL:** MOIST TO WET, VERY LOOSE TO LOOSE, GRAY, TAN, AND WHITE, SILTY FINE TO COARSE SAND WITH WOOD FRAGMENTS

(B) **ALLUVIAL:** WET, VERY SOFT, MODERATELY PLASTIC, BROWN AND GRAY, SILTY CLAY

3:1

3:1

3:1

ROADWAY EMBANKMENT:
MOIST, MEDIUM DENSE TO LOOSE, TAN, GRAY, AND ORANGE, SILTY COARSE TO FINE SAND WITH TRACE CLAY SEAMS

(A)

(B)

COASTAL PLAIN:
MOIST, SOFT TO STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

MOIST, LOOSE TO VERY DENSE, SLIGHTLY TO MODERATELY PLASTIC, DARK GRAY, CLAYEY FINE TO COARSE SAND (PEEDEE FORMATION)

MOIST, VERY STIFF, MODERATELY PLASTIC, DARK GRAY, FINE SANDY CLAY TO SILTY CLAY WITH TRACE SHELL MATTER (PEEDEE FORMATION)

MOIST, MEDIUM DENSE TO DENSE, SLIGHTLY TO MODERATELY PLASTIC, DARK GRAY, CLAYEY FINE TO COARSE SAND (PEEDEE FORMATION)

MOIST, VERY STIFF, MODERATELY PLASTIC, DARK GRAY, SILTY CLAY WITH TRACE SHELL FRAGMENTS (PEEDEE FORMATION)

MOIST, VERY DENSE, BLUE TO GRAY, SILTY FINE TO COARSE SAND WITH TRACE WOOD FRAGMENTS (PEEDEE FORMATION)

70+00.00

-L-

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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	63

Ⓐ **ALLUVIAL:** MOIST TO WET, VERY LOOSE TO LOOSE, GRAY, TAN, AND WHITE, SILTY FINE TO COARSE SAND WITH WOOD FRAGMENTS

Ⓑ **ALLUVIAL:** WET, VERY SOFT, MODERATELY PLASTIC, BROWN AND GRAY, SILTY CLAY

Ⓒ **COASTAL PLAIN:** MOIST, HARD, MODERATELY PLASTIC, DARK GRAY, FINE SANDY CLAY WITH TRACE TO LITTLE SHELL FRAGMENTS (PEEDEE FORMATION)

S1_LT_LN_B2-B
70+64

S2_RT_LN_EB1-A
70+31

ROADWAY EMBANKMENT: MOIST, MEDIUM DENSE TO LOOSE, TAN, GRAY, AND ORANGE, SILTY COARSE TO FINE SAND WITH TRACE CLAY SEAMS

07/19

07/19

ST-2

COASTAL PLAIN:
MOIST, SOFT TO STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

MOIST, LOOSE TO VERY DENSE, SLIGHTLY TO MODERATELY PLASTIC, DARK GRAY, CLAYEY FINE TO COARSE SAND (PEEDEE FORMATION)

MOIST, VERY STIFF, MODERATELY PLASTIC, DARK GRAY, FINE SANDY CLAY TO SILTY CLAY WITH TRACE SHELL MATTER (PEEDEE FORMATION)

MOIST, MEDIUM DENSE TO DENSE, SLIGHTLY TO MODERATELY PLASTIC, DARK GRAY, CLAYEY FINE TO COARSE SAND (PEEDEE FORMATION)

MOIST, VERY STIFF, MODERATELY PLASTIC, DARK GRAY, SILTY CLAY WITH TRACE SHELL FRAGMENTS (PEEDEE FORMATION)

MOIST, VERY DENSE, BLUE TO GRAY, SILTY FINE TO COARSE SAND WITH TRACE WOOD FRAGMENTS (PEEDEE FORMATION)

BT

BT

70+50.00

6/23/16

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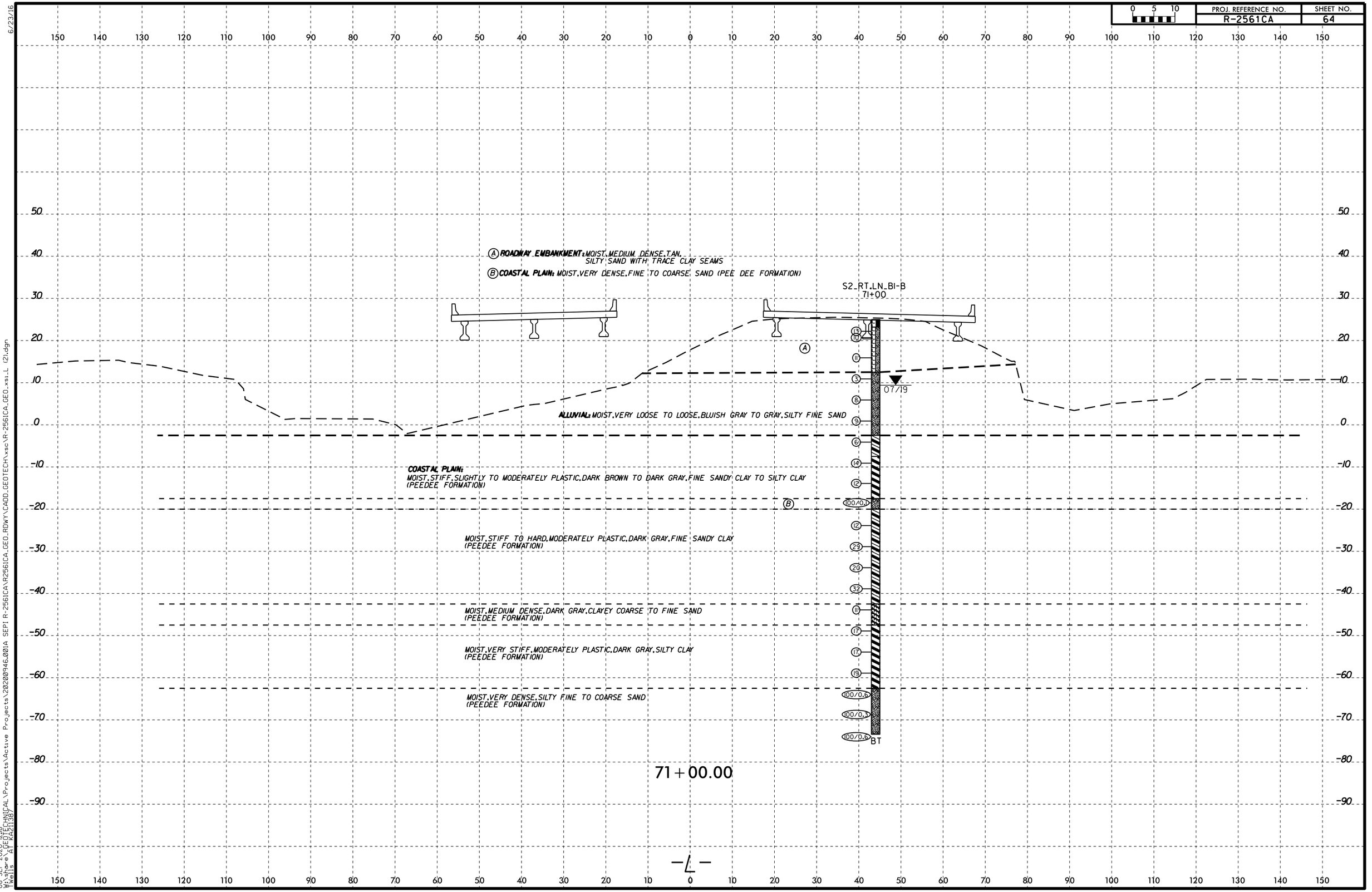
Wells AT KA21138



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Wells AT KH211587

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	65

(A) **ROADWAY EMBANKMENT:** MOIST, MEDIUM DENSE, TAN TO GRAY, SILTY COARSE TO FINE SAND AND CLAYEY SAND WITH CLAY SEAMS

(B) **COASTAL PLAIN:** MOIST, MEDIUM DENSE, DARK GRAY, CLAYEY COARSE TO FINE SAND (PEEDEE FORMATION)

(C) **ALLUVIAL:** MOIST, VERY LOOSE TO LOOSE, TAN, SILTY COARSE TO FINE SAND

(D) **ALLUVIAL:** MOIST, STIFF TO VERY SOFT, DARK GRAY AND GRAY, MODERATELY TO HIGHLY PLASTIC, SILTY CLAY TO FINE SANDY CLAY WITH TRACE OF ORGANIC MATTER AND WOOD FRAGMENTS

S1_LT_LN_EB2-A
71+71

S2_RT_LN_EB2-A
71+80

3:1 6:1 6:1 3:1

3 9 10 15 15 16 16 15 10 50/0.0 15 17 18 13 13 26 17 27

BT
FIAD

15 12 11 3 WOH 7 14 14 100/0.4 18 15 19 26 13 15 18 16

07/19

ST-3

BT

ALLUVIAL: MOIST, MEDIUM DENSE, BROWN, SILTY FINE SAND

COASTAL PLAIN:
MOIST, STIFF TO VERY STIFF, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

MOIST, LOOSE TO VERY DENSE, DARK GRAY TO BROWN, CLAYEY FINE TO COARSE SAND TO SILTY FINE TO COARSE SAND (PEEDEE FORMATION)

MOIST, STIFF TO VERY STIFF, SLIGHTLY TO MODERATELY PLASTIC, DARK GRAY, CLAYEY COARSE TO FINE SANDY CLAY TO SILTY CLAY (PEEDEE FORMATION)

72+00.00

-L-

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

60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70

6/23/16

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W:\Wells AT KAZ1136

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	66

L_7250
72+50

BT
DRY
08/19

COASTAL PLAIN:
MOIST, LOOSE, BROWN TO WHITE-TAN, SILTY COARSE TO FINE SAND TO FINE SAND

ROADWAY EMBANKMENT:
MOIST, MEDIUM DENSE, TAN TO GRAY, SILTY COARSE TO FINE SAND AND CLAYEY SAND WITH CLAY SEAMS

3:1
3:1
5:1
5:1
3:1

72+50.00

L

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Wells, AT KA21138

6/23/16

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

40 30 20 10 0 40 30 20 10 60 50 40 30 20 10

Ⓐ **COASTAL PLAIN:** MOIST, LOOSE, LIGHT TO DARK BROWN, SILTY FINE SAND (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, STIFF, HIGHLY PLASTIC, GREENSH BLACK, SILTY CLAY (PEEDEE FORMATION)

ROADWAY EMBANKMENT: MOIST, MEDIUM DENSE, TAN TO GRAY, SILTY COARSE TO FINE SAND AND CLAYEY SAND WITH CLAY SEAMS

3:1 4:1 6:1 6:1 3:1

74+00.00

Ⓐ **COASTAL PLAIN:** MOIST, LOOSE, LIGHT TO DARK BROWN, SILTY FINE SAND (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, STIFF, HIGHLY PLASTIC, GREENSH BLACK, SILTY CLAY (PEEDEE FORMATION)

ROADWAY EMBANKMENT: MOIST, MEDIUM DENSE, TAN TO GRAY, SILTY COARSE TO FINE SAND AND CLAYEY SAND WITH CLAY SEAMS

3:1 3:1 6:1 6:1 3:1

73+50.00

COASTAL PLAIN: MOIST, LOOSE, BROWN TO WHITE-TAN, COARSE TO FINE SAND

ROADWAY EMBANKMENT: MOIST, MEDIUM DENSE, TAN TO GRAY, SILTY COARSE TO FINE SAND AND CLAYEY SAND WITH CLAY SEAMS

3:1 3:1 6:1 6:1 3:1

73+00.00

—L—

60 50 40 30 20 10 60 50 40 30 20 10

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

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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	68

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

40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80

Ⓐ **COASTAL PLAIN:** MOIST, LOOSE, LIGHT TO DARK BROWN, SILTY FINE SAND (WACCAMAW FORMATION)

Ⓑ **ROADWAY EMBANKMENT:** MOIST, MEDIUM DENSE, TAN TO GRAY, SILTY COARSE TO FINE SAND AND CLAYEY SAND WITH CLAY SEAMS

3:1 4:1 6:1 6:1 6:1 2% BERM

COASTAL PLAIN: MOIST, STIFF, HIGHLY PLASTIC, GREENSH BLACK, SILTY CLAY (PEEDEE FORMATION)

75 + 00.00

SS-12
L_7450
74+50

Ⓐ **COASTAL PLAIN:** MOIST, LOOSE, LIGHT TO DARK BROWN, SILTY FINE SAND (WACCAMAW FORMATION)

3:1 4:1 6:1 6:1 4:1 2% BERM

Ⓐ 07/19
Ⓑ
⑫
⑭
BT

ROADWAY EMBANKMENT: MOIST, MEDIUM DENSE, TAN TO GRAY, SILTY COARSE TO FINE SAND AND CLAYEY SAND WITH CLAY SEAMS

COASTAL PLAIN: MOIST, STIFF, HIGHLY PLASTIC, GREENSH BLACK, SILTY CLAY (PEEDEE FORMATION)

74 + 50.00

—L—

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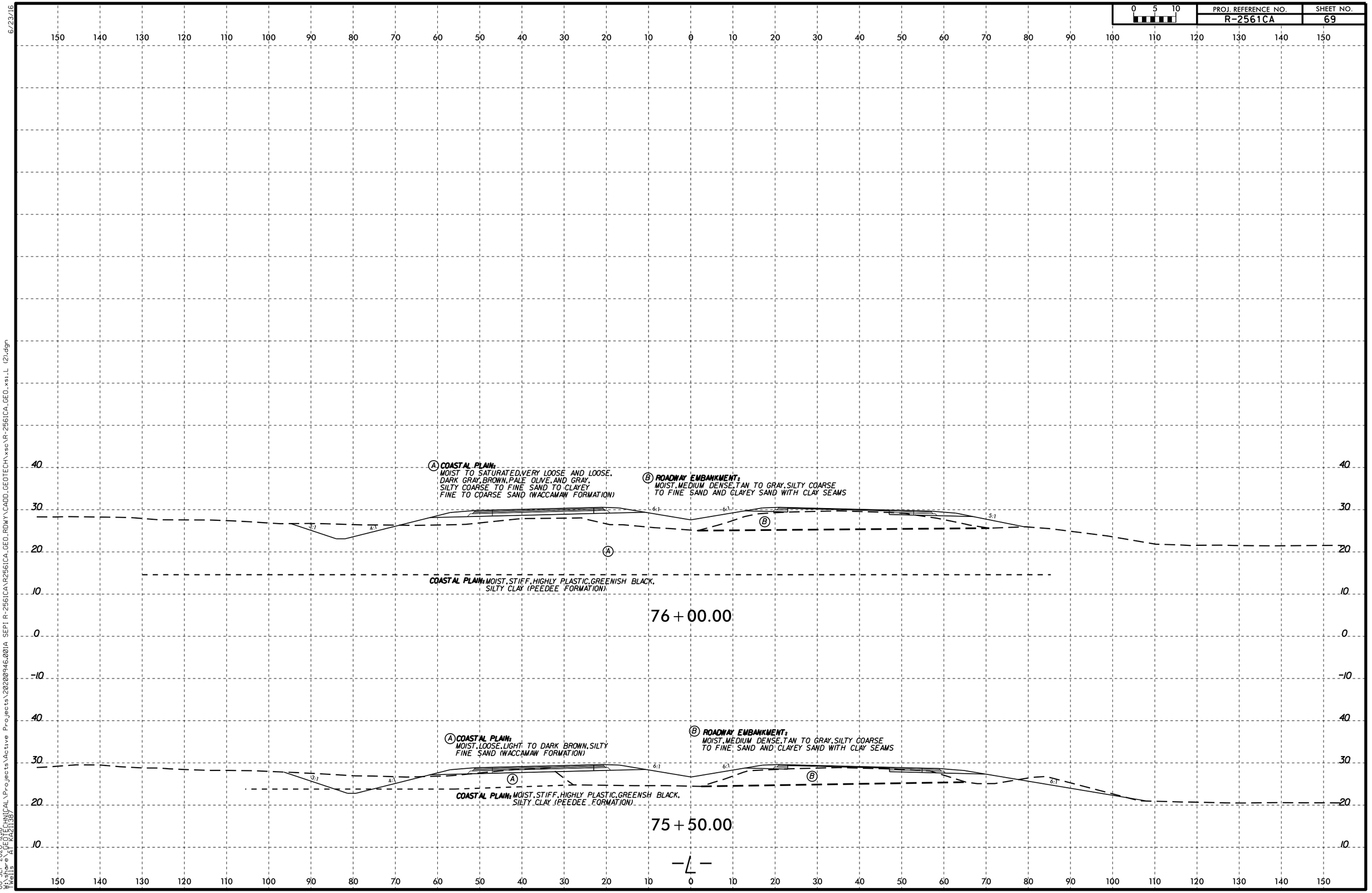

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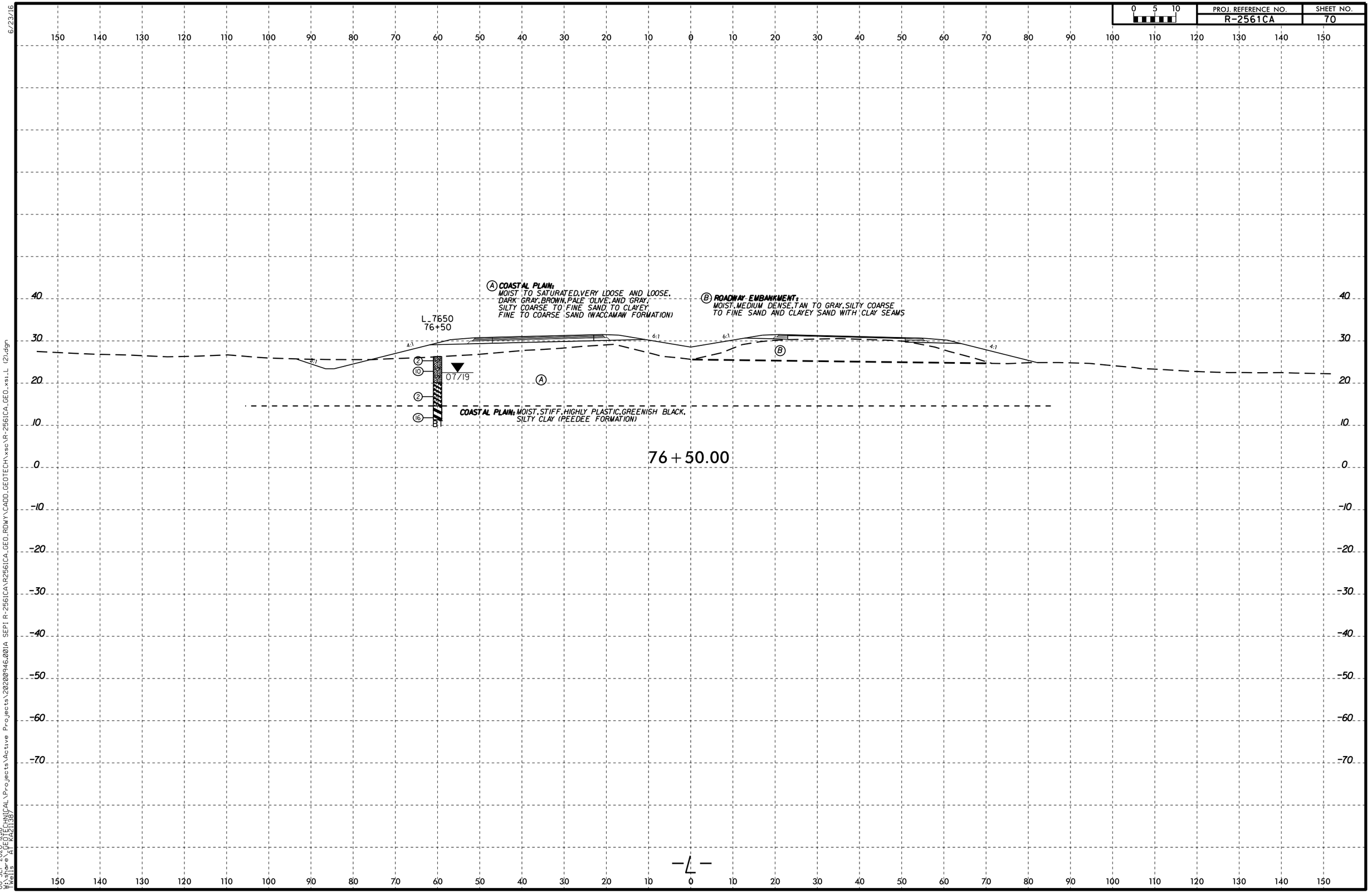
Wells, AT KPA (138)



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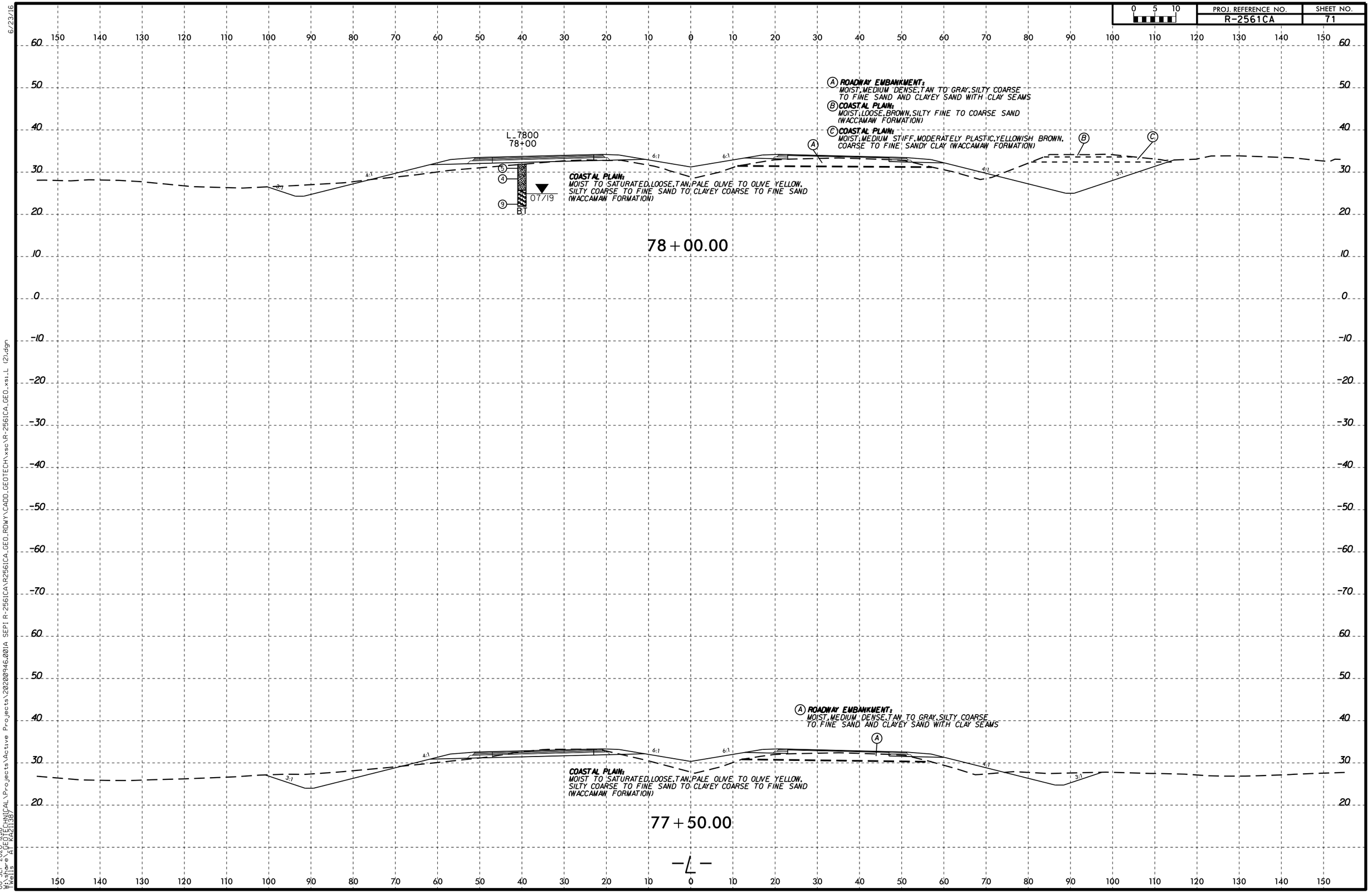
AT KP21138



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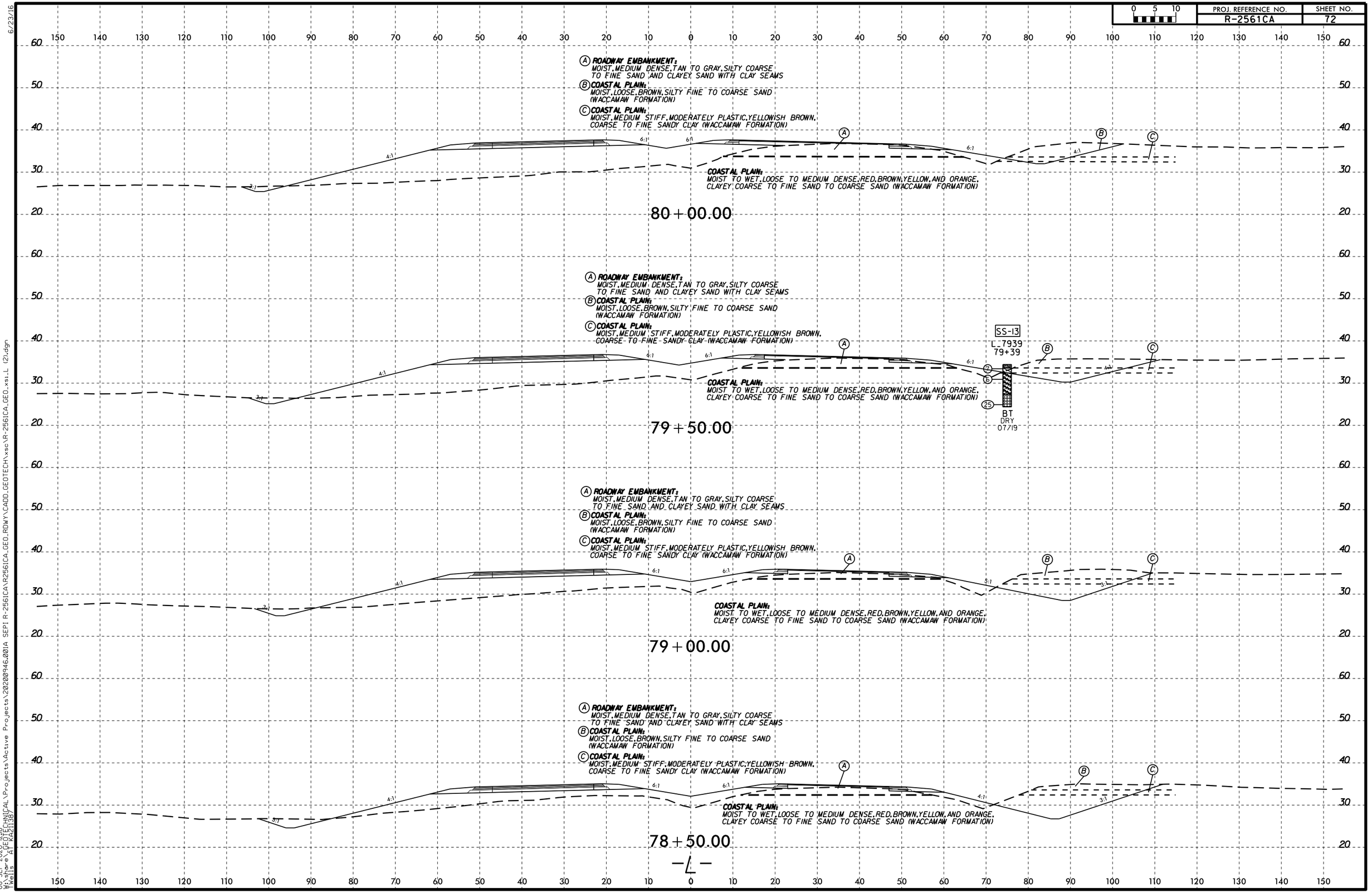
Wells AT KA21138



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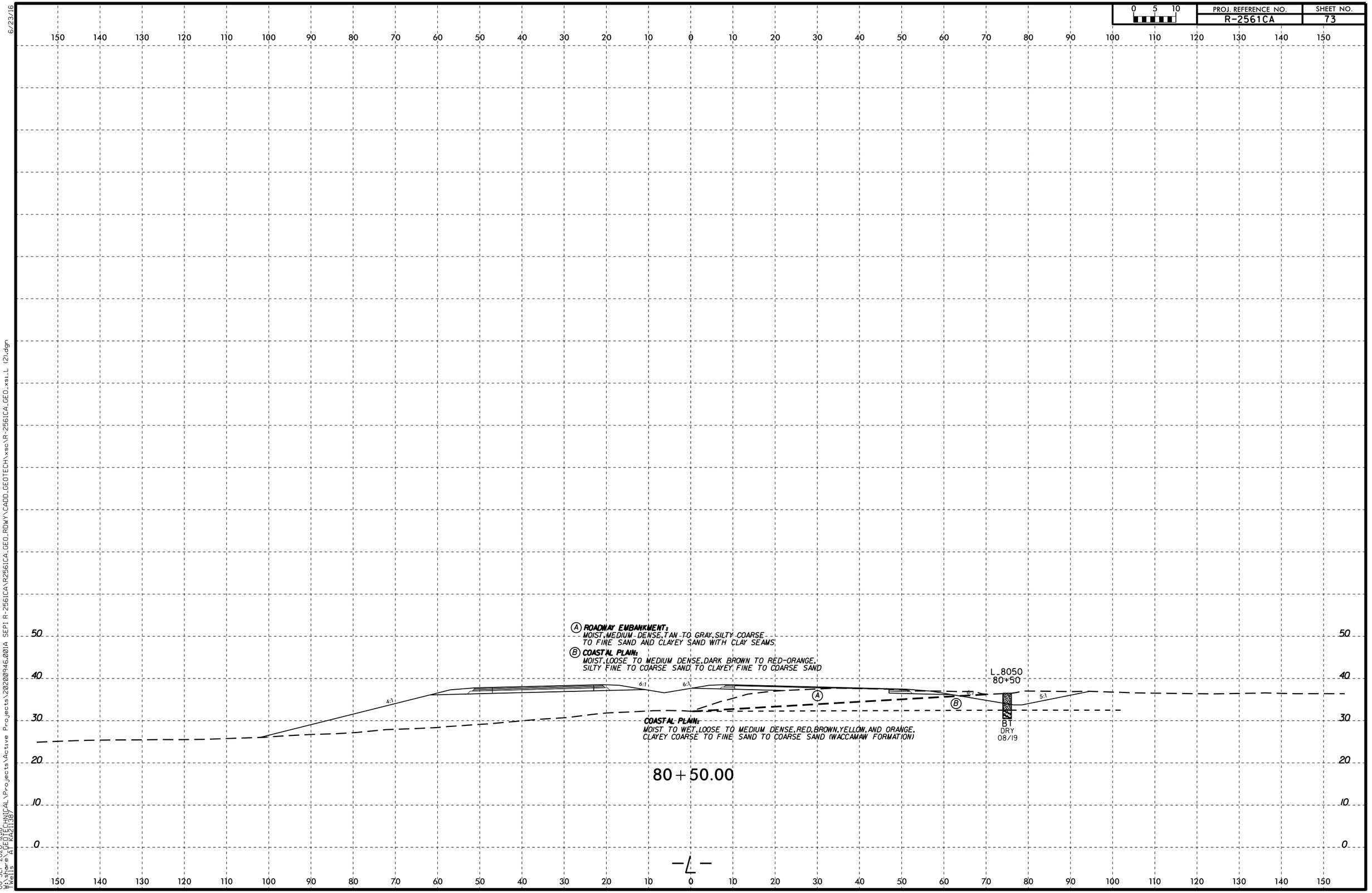
Wells, AT KA21138



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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	74

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

60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70

(A) **ROADWAY EMBANKMENT:** MOIST, MEDIUM DENSE, TAN TO GRAY, SILTY COARSE TO FINE SAND AND CLAYEY SAND WITH CLAY SEAMS

(B) **COASTAL PLAIN:** MOIST, LOOSE, BROWN, CLAYEY, COARSE TO FINE SAND (WACCAMAW FORMATION)

6:1 6:1 6:1 6:1 6:1 5:1 3:1

L 8100
81+00

4 3 07/19

COASTAL PLAIN: WET, SOFT DARK GRAY, SANDY SILT (WACCAMAW FORMATION)

5 SATURATED, VERY LOOSE, OLIVE YELLOW, CLAYEY, FINE TO COARSE SAND (WACCAMAW FORMATION)

SATURATED, MEDIUM STIFF, HIGHLY PLASTIC, GREENISH BLACK, SILTY CLAY (PEEDEE FORMATION)

8 B1

81+00.00

-L-

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

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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	75

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

50 40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70

L-8250
82+50

Ⓐ **ROADWAY EMBANKMENT:**
MOIST, MEDIUM DENSE, TAN TO GRAY, SILTY COARSE TO FINE SAND AND CLAYEY SAND WITH CLAY SEAMS

4:1 3:1 6:1 6:1 6:1 6:1 Ⓐ

Ⓩ Ⓔ Ⓑ Ⓒ Ⓑ B1

07/19

COASTAL PLAIN:
MOIST TO SATURATED, VERY LOOSE, AND LOOSE, BROWN, TAN, AND PALE OLIVE, CLAYEY COARSE TO FINE SAND, SILTY COARSE TO FINE SAND AND FINE TO COARSE SAND (WACCAMAW FORMATION)

MOIST, MEDIUM STIFF, HIGHLY PLASTIC, GREENISH BLACK AND GRAY, SILTY CLAY (PEEDEE FORMATION)

82+50.00

—L—

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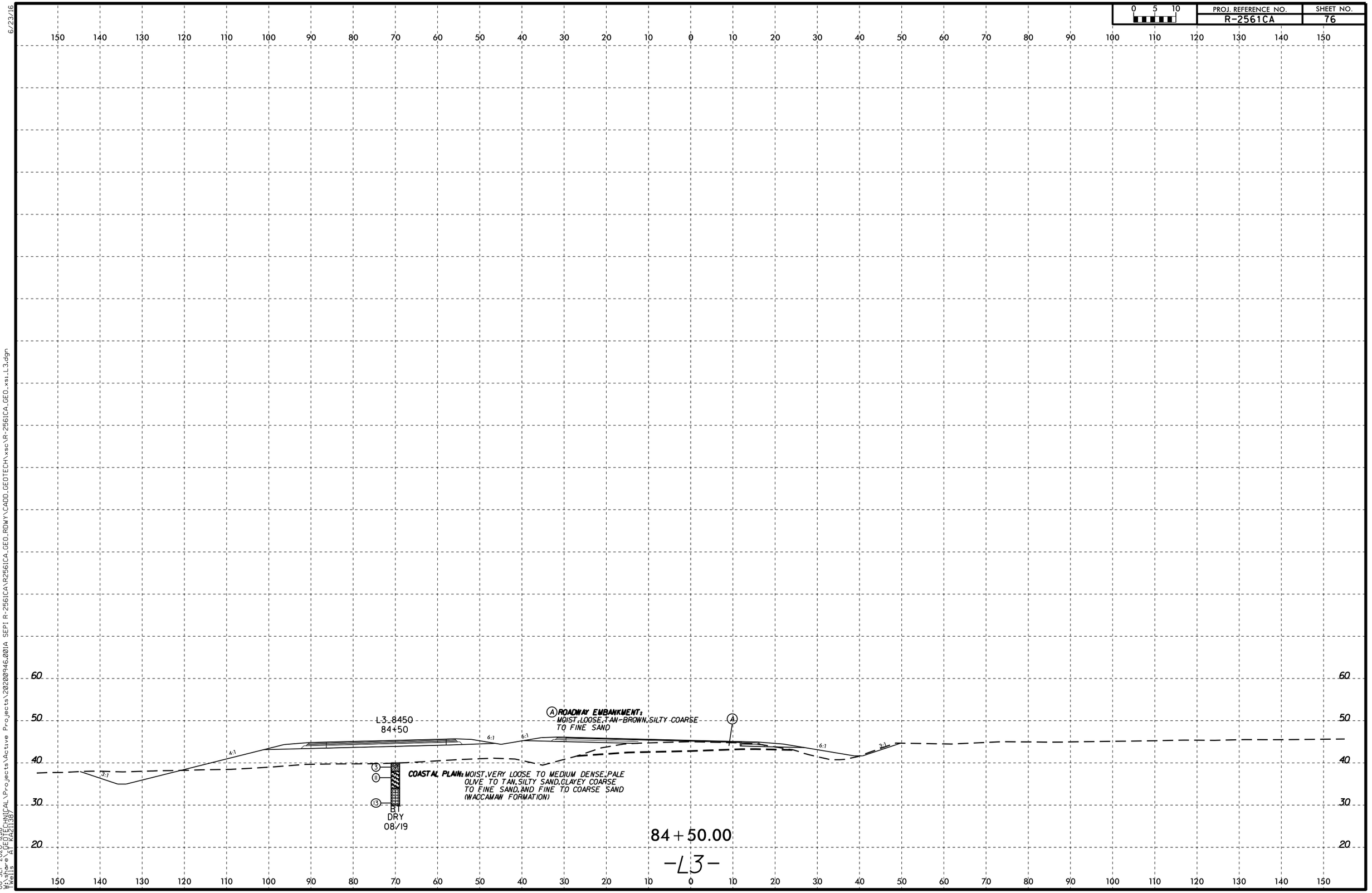
AT Wells

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	76



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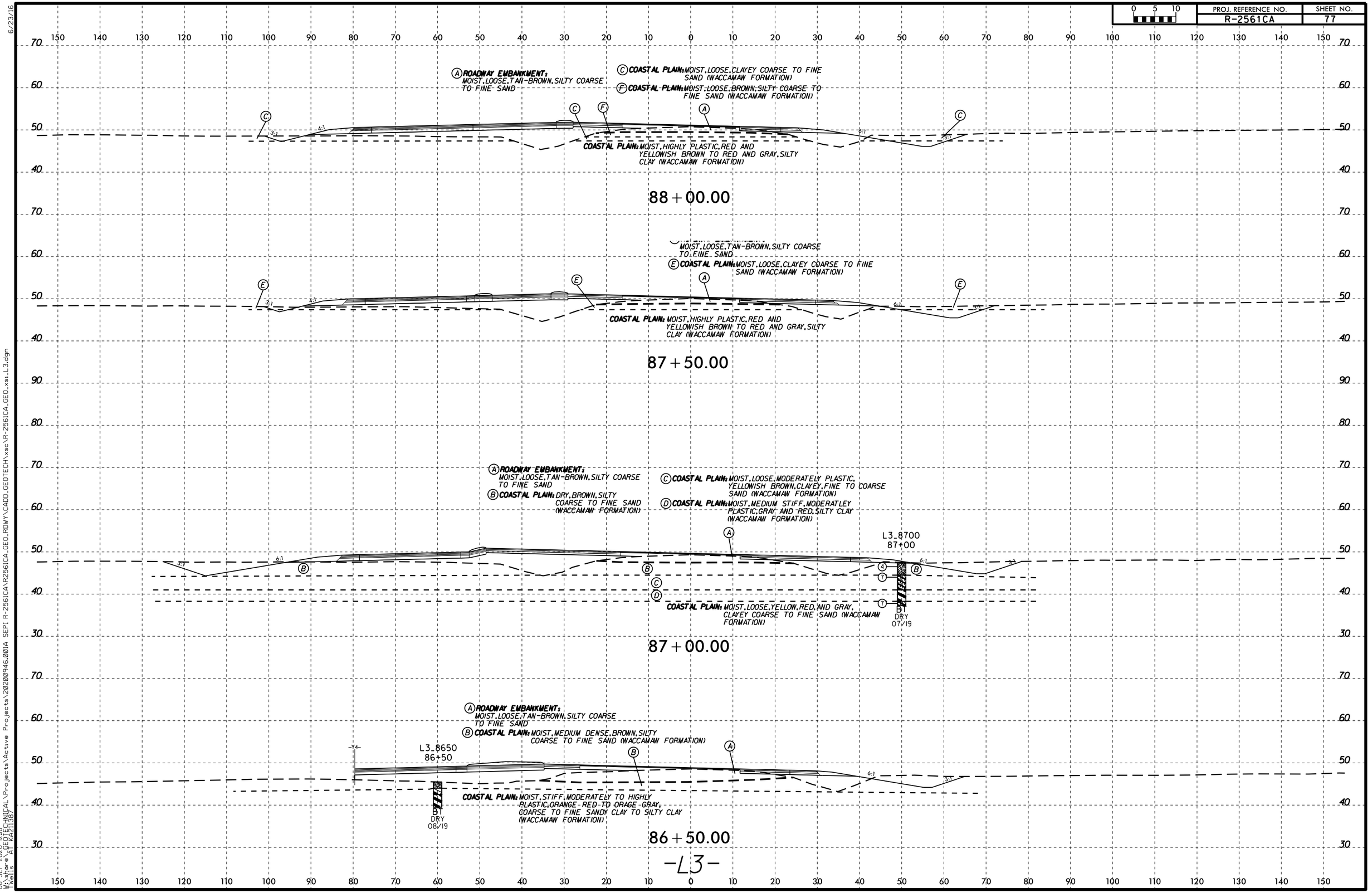
Wells AT KPZ1138/



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Wells AT KA21138

PROJ. REFERENCE NO.	SHEET NO.
R-2561CA	78

0 5 10

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

70 60 50 40 30

(A) ROADWAY EMBANKMENT: MOIST, LOOSE, TAN-BROWN, SILTY COARSE TO FINE SAND

(D) COASTAL PLAIN: MOIST, MEDIUM STIFF, YELLOWISH BROWN AND RED, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, STIFF, HIGHLY PLASTIC, RED, GRAY, AND YELLOWISH BROWN, SILTY CLAY (WACCAMAW FORMATION)

3:1 4:1 4:1 5:1

90 + 00.00

(A) ROADWAY EMBANKMENT: MOIST, LOOSE, TAN-BROWN, SILTY COARSE TO FINE SAND

(D) COASTAL PLAIN: MOIST, MEDIUM STIFF, BROWN, TAN, COARSE TO FINE, SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, STIFF, HIGHLY PLASTIC, RED AND TAN, SILTY CLAY (WACCAMAW FORMATION)

3:1 4:1 5:1 3:1

89 + 50.00

SS-15
L3_8900
89+00

(A) ROADWAY EMBANKMENT: MOIST, LOOSE, TAN-BROWN, SILTY COARSE TO FINE SAND

(D) COASTAL PLAIN: MOIST, MEDIUM STIFF, BROWN, TAN, COARSE TO FINE, SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, STIFF, HIGHLY PLASTIC, RED AND TAN, SILTY CLAY (WACCAMAW FORMATION)

BT
DRY
07/19

3:1 4:1 6:1 3:1

89 + 00.00

(A) ROADWAY EMBANKMENT: MOIST, LOOSE, TAN-BROWN, SILTY COARSE TO FINE SAND

(B) COASTAL PLAIN: MOIST, LOOSE, BROWN, SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

(C) COASTAL PLAIN: MOIST, LOOSE, CLAYEY COARSE TO FINE SAND (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, HIGHLY PLASTIC, RED AND YELLOWISH BROWN TO RED AND GRAY, SILTY CLAY (WACCAMAW FORMATION)

SS-14
L3_8850
88+50

BT
DRY
07/19

3:1 4:1 6:1 3:1

88 + 50.00

-L3-

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Wells AT KH2(138)

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

70 60 50 70 60 50 40 70 80 70 60 50 40

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN-BROWN, SILTY COARSE TO FINE SAND

COASTAL PLAIN: DRY, MODERATELY TO HIGHLY PLASTIC, DARK BROWN, GRAY, RED, AND TAN, COARSE TO FINE SANDY CLAY TO SILTY CLAY (WACCAMAW FORMATION)

2:1 4:1 4:1 3:1

92+00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN-BROWN, SILTY COARSE TO FINE SAND

COASTAL PLAIN: DRY, MODERATELY TO HIGHLY PLASTIC, DARK BROWN, GRAY, RED, AND TAN, COARSE TO FINE SANDY CLAY TO SILTY CLAY (WACCAMAW FORMATION)

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

91+50.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN-BROWN, SILTY COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, BROWN, SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

Ⓒ **COASTAL PLAIN:** MOIST, MEDIUM STIFF, YELLOWISH BROWN AND RED, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, STIFF, HIGHLY PLASTIC, RED, GRAY, AND YELLOWISH BROWN, SILTY CLAY (WACCAMAW FORMATION)

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

91+00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN-BROWN, SILTY COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, BROWN, SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

Ⓒ **COASTAL PLAIN:** MOIST, MEDIUM STIFF, YELLOWISH BROWN AND RED, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

SS-16
L3 9050
90+50

MOIST, STIFF, HIGHLY PLASTIC, RED, GRAY, AND YELLOWISH BROWN, SILTY CLAY (WACCAMAW FORMATION)

7 5 10

BT
DRY
07/19

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

90+50.00

-L3-

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

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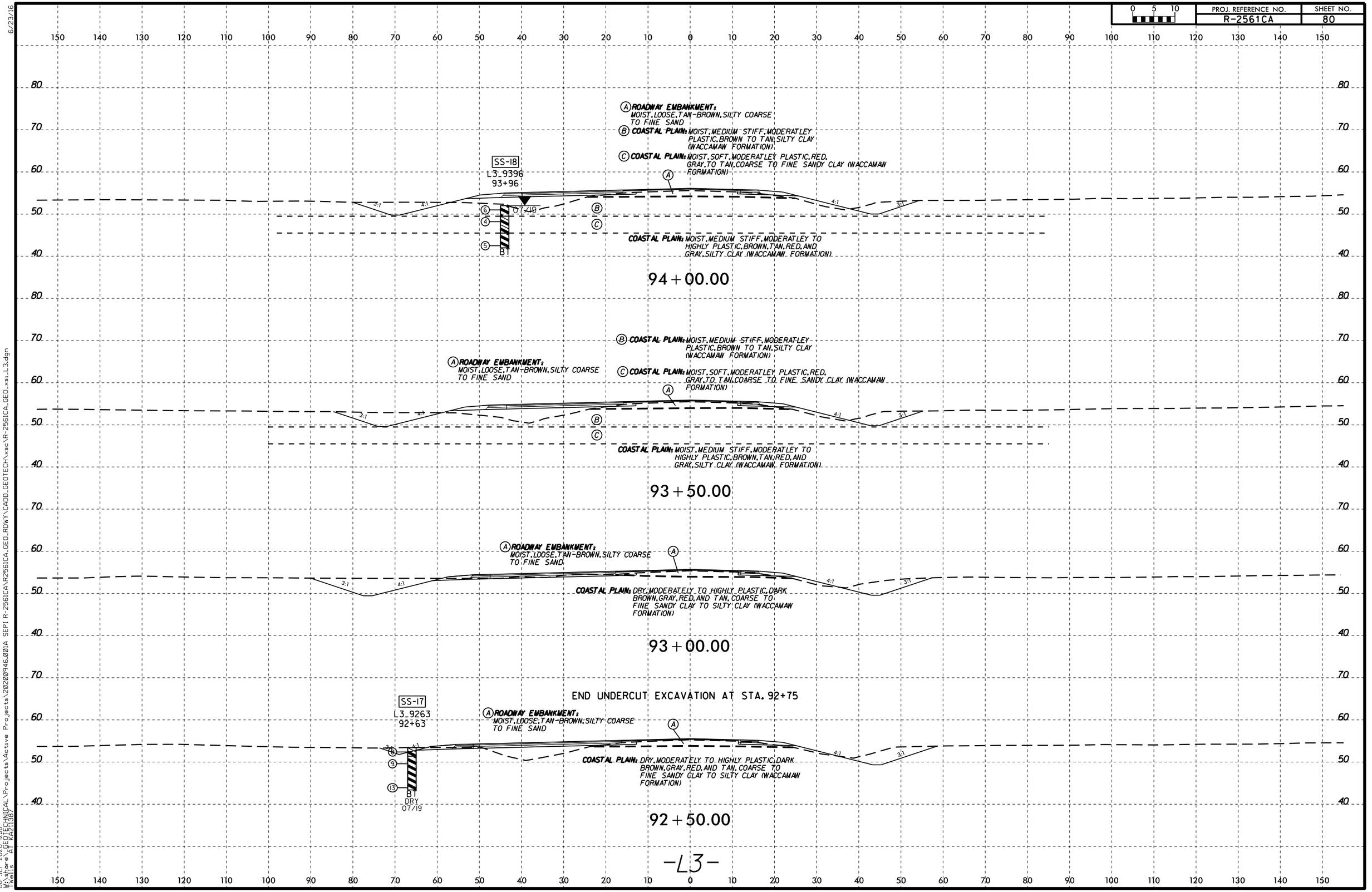
Wells AT KA21138



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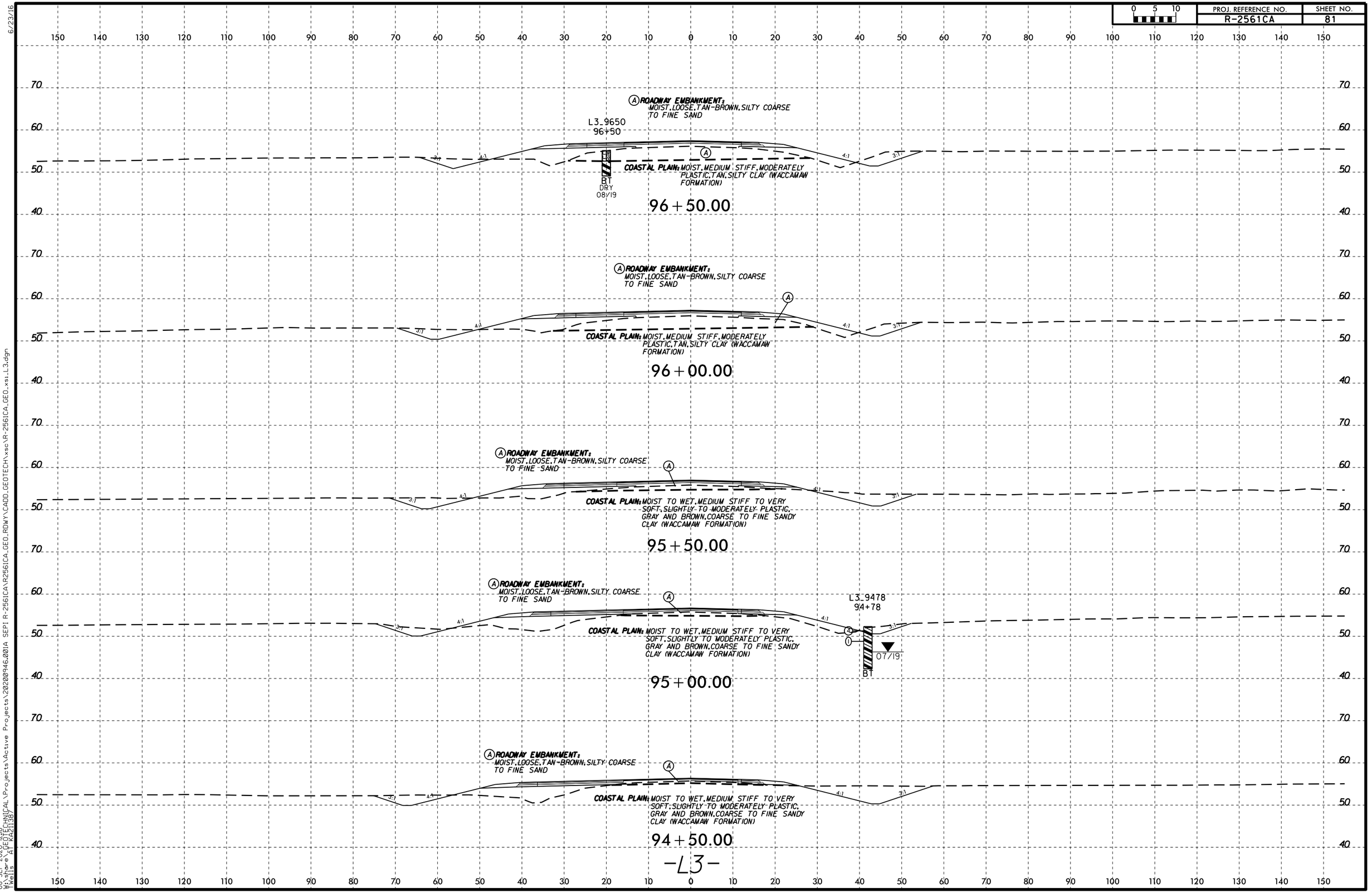
Wells AT KA21138



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AT KP21138

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

70 60 50 80

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, BROWN, SILTY COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, WHITE-TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, STIFF, MODERATELY PLASTIC, ORANGE-RED, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

3:1 6:1 6:1 3:1

99 + 00.00

70 60 50 80

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, BROWN, SILTY COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, WHITE-TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

S-19
L3_9850
98+50

COASTAL PLAIN: MOIST, STIFF, MODERATELY PLASTIC, ORANGE-RED, SILTY CLAY (WACCAMAW FORMATION)

3:1 6:1 6:1 3:1

BT
DRY
08/19

98 + 50.00

70 60 50 80 40

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, BROWN, SILTY COARSE TO FINE SAND

L3_9800
98+00

COASTAL PLAIN: MOIST, STIFF, MODERATELY PLASTIC, RED, SILTY CLAY (WACCAMAW FORMATION)

3:1 6:1 5:1 3:1

BT
DRY
08/19

98 + 00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, BROWN, SILTY COARSE TO FINE SAND

COASTAL PLAIN: MOIST, STIFF, MODERATELY PLASTIC, RED, SILTY CLAY (WACCAMAW FORMATION)

3:1 5:1 4:1 3:1

97 + 50.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN-BROWN, SILTY COARSE TO FINE SAND

COASTAL PLAIN: MOIST, MEDIUM STIFF, MODERATELY PLASTIC, TAN, SILTY CLAY (WACCAMAW FORMATION)

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

97 + 00.00

-L3-

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

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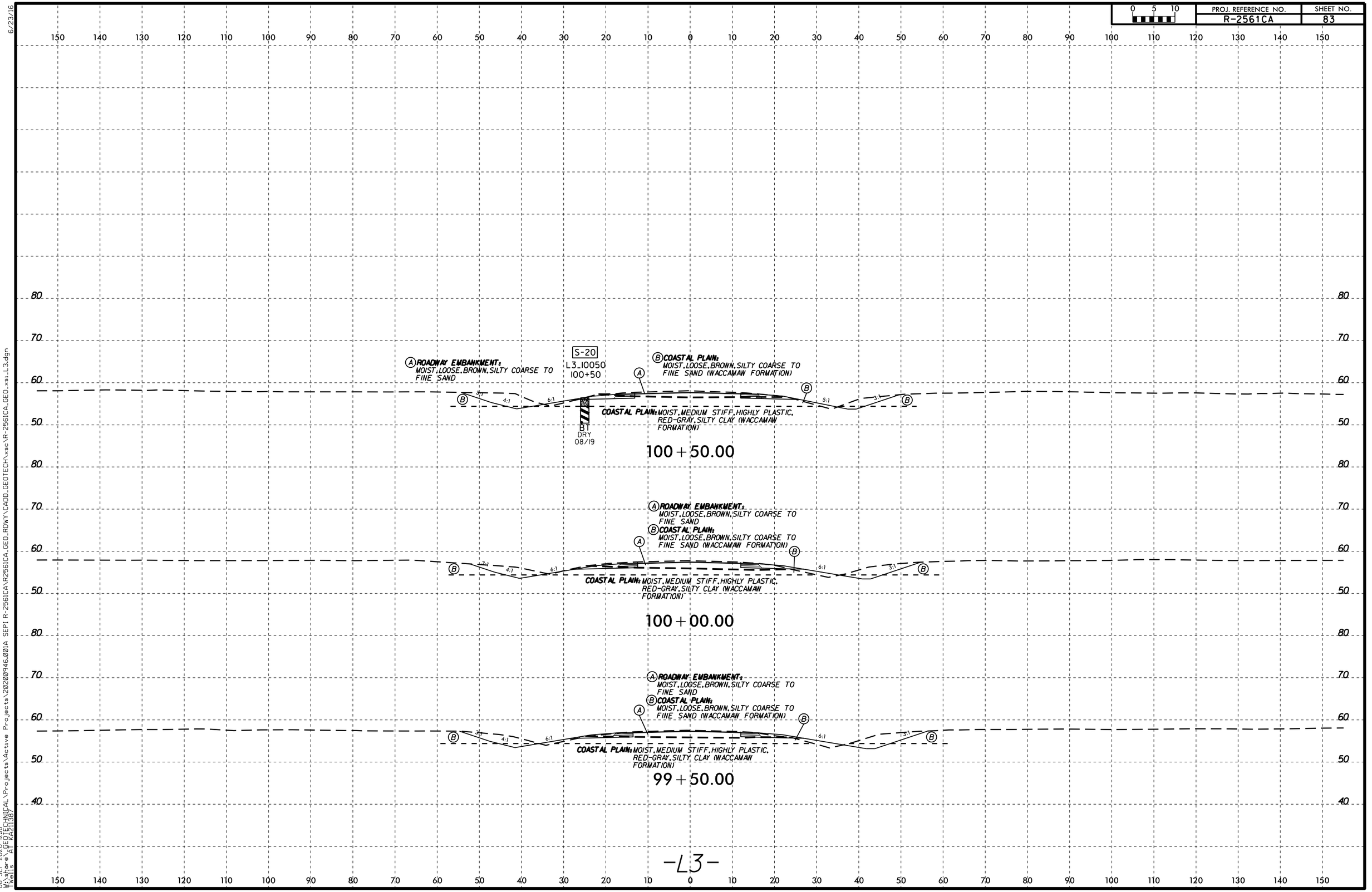
Wells AT KA21138



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Wells AT KAZ1138

Ⓐ **COASTAL PLAIN:** MOIST, LOOSE, SILTY FINE TO COARSE SAND WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

COASTAL PLAIN: WET TO SATURATED, MEDIUM DENSE TO LOOSE, LIGHT GRAY TO TAN, CLAYEY FINE SAND TO SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

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

14+00.00

SS-21
LPB 1350
13*50

Ⓐ **COASTAL PLAIN:** MOIST, LOOSE, SILTY FINE TO COARSE SAND WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

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

07/19

6 12 6

B1

COASTAL PLAIN: WET TO SATURATED, MEDIUM DENSE TO LOOSE, LIGHT GRAY TO TAN, CLAYEY FINE SAND TO SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

13+50.00

Ⓐ **COASTAL PLAIN:** MOIST, LOOSE, SILTY FINE TO COARSE SAND WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

3:1 6.5:1 4:1 3:1

COASTAL PLAIN: WET TO SATURATED, MEDIUM DENSE TO LOOSE, LIGHT GRAY TO TAN, CLAYEY FINE SAND TO SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

13+00.00

Ⓐ **COASTAL PLAIN:** MOIST, LOOSE, SILTY FINE TO COARSE SAND WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

OUT TO 3-FT BASE DITCH ACROSS INFIELD

4:1

COASTAL PLAIN: WET TO SATURATED, MEDIUM DENSE TO LOOSE, LIGHT GRAY TO TAN, CLAYEY FINE SAND TO SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

12+50.00

-LPB-

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Wells AT KA21138

LPB I550
I5+50

4
17
4
BT

07/19

COASTAL PLAIN:
MOIST, LOOSE TO MEDIUM DENSE, BLACK-GRAY TO TAN, SILTY FINE TO COARSE SAND AND FINE TO COARSE SAND (WACCAMAW FORMATION)

15+50.00

COASTAL PLAIN:
MOIST, LOOSE TO MEDIUM DENSE, BLACK-GRAY TO TAN, SILTY FINE TO COARSE SAND AND FINE TO COARSE SAND (WACCAMAW FORMATION)

15+00.00

(A) **COASTAL PLAIN:**
MOIST, LOOSE, SILTY FINE TO COARSE SAND WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

(A) **COASTAL PLAIN:** WET TO SATURATED, MEDIUM DENSE TO LOOSE, LIGHT GRAY TO TAN, CLAYEY FINE SAND TO SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

14+50.00

-LPB-

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Wells AT KH21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	86

16 + 00.00

Ⓐ **COASTAL PLAIN:** MOIST, SOFT TO MEDIUM STIFF, MODERATELY PLASTIC, BROWN, DARK BROWN, TAN, AND LIGHT GRAY, SILTY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: WET TO SATURATED, MEDIUM DENSE TO LOOSE, TAN TO LIGHT BROWN, SILTY FINE SAND TO CLAYEY COARSE TO FINE SAND (WACCAMAW FORMATION)

15 + 50.00

SS-22
RPB 1550
15+50

Ⓐ **COASTAL PLAIN:** MOIST, SOFT TO MEDIUM STIFF, MODERATELY PLASTIC, BROWN, DARK BROWN, TAN, AND LIGHT GRAY, SILTY CLAY (WACCAMAW FORMATION)

3
5
12
7
07/19

COASTAL PLAIN: WET TO SATURATED, MEDIUM DENSE TO LOOSE, TAN TO LIGHT BROWN, SILTY FINE SAND TO CLAYEY COARSE TO FINE SAND (WACCAMAW FORMATION)

15 + 00.00

Ⓐ **COASTAL PLAIN:** MOIST, SOFT TO MEDIUM STIFF, MODERATELY PLASTIC, BROWN, DARK BROWN, TAN, AND LIGHT GRAY, SILTY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: WET TO SATURATED, MEDIUM DENSE TO LOOSE, TAN TO LIGHT BROWN, SILTY FINE SAND TO CLAYEY COARSE TO FINE SAND (WACCAMAW FORMATION)

14 + 50.00

Ⓐ **COASTAL PLAIN:** MOIST, SOFT TO MEDIUM STIFF, MODERATELY PLASTIC, BROWN, DARK BROWN, TAN, AND LIGHT GRAY, SILTY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: WET TO SATURATED, MEDIUM DENSE TO LOOSE, TAN TO LIGHT BROWN, SILTY FINE SAND TO CLAYEY COARSE TO FINE SAND (WACCAMAW FORMATION)

-RPB-

3:1 6:1 6:1 6:1

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Wells AT KA21138

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Wells AT KP21138

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

60 50 40 30 20 70 60 50 40 30 20 10 70 60 50 40 30 20

SS-23
RPB 1750
17+50

Ⓑ **COASTAL PLAIN:** MOIST, SOFT, LIGHT TO DARK BROWN, FINE SANDY SILT (WACCAMAW FORMATION)
Ⓒ **COASTAL PLAIN:** MOIST, STIFF, MODERATELY PLASTIC, BROWN, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

3:1 6:1 6:1 6:1

4 9 6

07/19

BT

COASTAL PLAIN: SATURATED, LOOSE, LIGHT TAN, SILTY FINE SAND (WACCAMAW FORMATION)

17+50.00

Ⓑ **COASTAL PLAIN:** MOIST, SOFT, LIGHT TO DARK BROWN, FINE SANDY SILT (WACCAMAW FORMATION)
Ⓒ **COASTAL PLAIN:** MOIST, STIFF, MODERATELY PLASTIC, BROWN, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

3:1 6:1 6:1 6:1

COASTAL PLAIN: SATURATED, LOOSE, LIGHT TAN, SILTY FINE SAND (WACCAMAW FORMATION)

17+00.00

Ⓐ **COASTAL PLAIN:** MOIST, SOFT TO MEDIUM STIFF, MODERATELY PLASTIC, BROWN, DARK BROWN, TAN, AND LIGHT GRAY, SILTY CLAY (WACCAMAW FORMATION)

3:1 6:1 6:1 6:1

COASTAL PLAIN: WET TO SATURATED, MEDIUM DENSE TO LOOSE, TAN TO LIGHT BROWN, SILTY FINE SAND TO CLAYEY COARSE TO FINE SAND (WACCAMAW FORMATION)

16+50.00

-RPB-

SS-24
RPB_I950
19+50

Ⓒ **COASTAL PLAIN:** WET TO MOIST,VERY SOFT GREENISH BLACK, COARSE TO FINE SANDY SILT WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST,LOOSE TO MEDIUM DENSE,SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

07/19

B1

19+50.00

Ⓒ **COASTAL PLAIN:** WET TO MOIST,VERY SOFT GREENISH BLACK, COARSE TO FINE SANDY SILT WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST,LOOSE TO MEDIUM DENSE,SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

19+00.00

Ⓐ **COASTAL PLAIN:** MOIST,SOFT,LIGHT TO DARK BROWN,FINE SANDY SILT (WACCAMAW FORMATION)

Ⓑ **COASTAL PLAIN:** MOIST,STIFF,MODERATELY PLASTIC, BROWN,COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: SATURATED,LOOSE,LIGHT TAN,SILTY FINE SAND (WACCAMAW FORMATION)

18+50.00

Ⓐ **COASTAL PLAIN:** MOIST,SOFT,LIGHT TO DARK BROWN,FINE SANDY SILT (WACCAMAW FORMATION)

Ⓑ **COASTAL PLAIN:** MOIST,STIFF,MODERATELY PLASTIC, BROWN,COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: SATURATED,LOOSE,LIGHT TAN,SILTY FINE SAND (WACCAMAW FORMATION)

18+00.00

-RPB-

6/23/16
08-SEP-2020 12:18
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Wells AT KA21138

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

60 50 40 30 20 10

21+35.00

Ⓐ **COASTAL PLAIN:** WET, SOFT, GREENISH BLACK, COARSE TO FINE SANDY SILT WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

Ⓐ **COASTAL PLAIN:** WET, LOOSE, LIGHT GRAY AND WHITE, SILTY FINE SAND TO CLAYEY FINE TO COARSE SAND (WACCAMAW FORMATION)

WET, SOFT, HIGHLY PLASTIC, GREENISH BLACK, SILTY CLAY (PEEDEE FORMATION)

–LPB– STA. 16+55.20

4:1 3.5:1 4:1 4:1

50 40 30

21+00.00

Ⓐ **COASTAL PLAIN:** WET TO MOIST, VERY SOFT GREENISH BLACK, COARSE TO FINE SANDY SILT WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

–LPB– STA. 16+18.61

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

Ⓐ **COASTAL PLAIN:** MOIST, LOOSE TO MEDIUM DENSE, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

60 50 40 30

20+50.00

Ⓐ **COASTAL PLAIN:** WET TO MOIST, VERY SOFT GREENISH BLACK, COARSE TO FINE SANDY SILT WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

3:1 4:1 6:1 3:1

Ⓐ **COASTAL PLAIN:** MOIST, LOOSE TO MEDIUM DENSE, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

50 40 30

20+00.00

Ⓐ **COASTAL PLAIN:** WET TO MOIST, VERY SOFT GREENISH BLACK, COARSE TO FINE SANDY SILT WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

3:1 4:1 6:1 3:1

Ⓐ **COASTAL PLAIN:** MOIST, LOOSE TO MEDIUM DENSE, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

50 40 30 20

–RPB–

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

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Wells AT KA21138

6/23/16

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Wells AT KA21138

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

70 60 50 40 30 20 10

Ⓑ **COASTAL PLAIN:** MOIST, SOFT, MODERATELY PLASTIC, LIGHT BROWN, SILTY CLAY (WACCAMAW FORMATION)

Ⓒ **COASTAL PLAIN:** MOIST, MEDIUM DENSE, MODERATELY PLASTIC, GRAYISH BROWN, CLAYEY SAND (WACCAMAW FORMATION)

-LPB- STA. 17+70.11

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

COASTAL PLAIN: SATURATED, LOOSE, TAN, SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

22+50.00

Ⓑ **COASTAL PLAIN:** MOIST, SOFT, MODERATELY PLASTIC, LIGHT BROWN, SILTY CLAY (WACCAMAW FORMATION)

Ⓒ **COASTAL PLAIN:** MOIST, MEDIUM DENSE, MODERATELY PLASTIC, GRAYISH BROWN, CLAYEY SAND (WACCAMAW FORMATION)

-LPB- STA. 17+20.89

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

COASTAL PLAIN: SATURATED, LOOSE, TAN, SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

22+00.00

SS-25
RPB 2162
21+62

Ⓐ **COASTAL PLAIN:** WET, SOFT, GREENISH BLACK, COARSE TO FINE SANDY SILT WITH LITTLE ORGANIC MATTER (WACCAMAW FORMATION)

-LPB- STA. 16+82.84

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

2 7 5 3 15 — 07/19 — BT

COASTAL PLAIN: WET, LOOSE, LIGHT GRAY AND WHITE, SILTY FINE SAND TO CLAYEY FINE TO COARSE SAND (WACCAMAW FORMATION)

WET, SOFT, HIGHLY PLASTIC, GREENISH BLACK, SILTY CLAY (PEEDEE FORMATION)

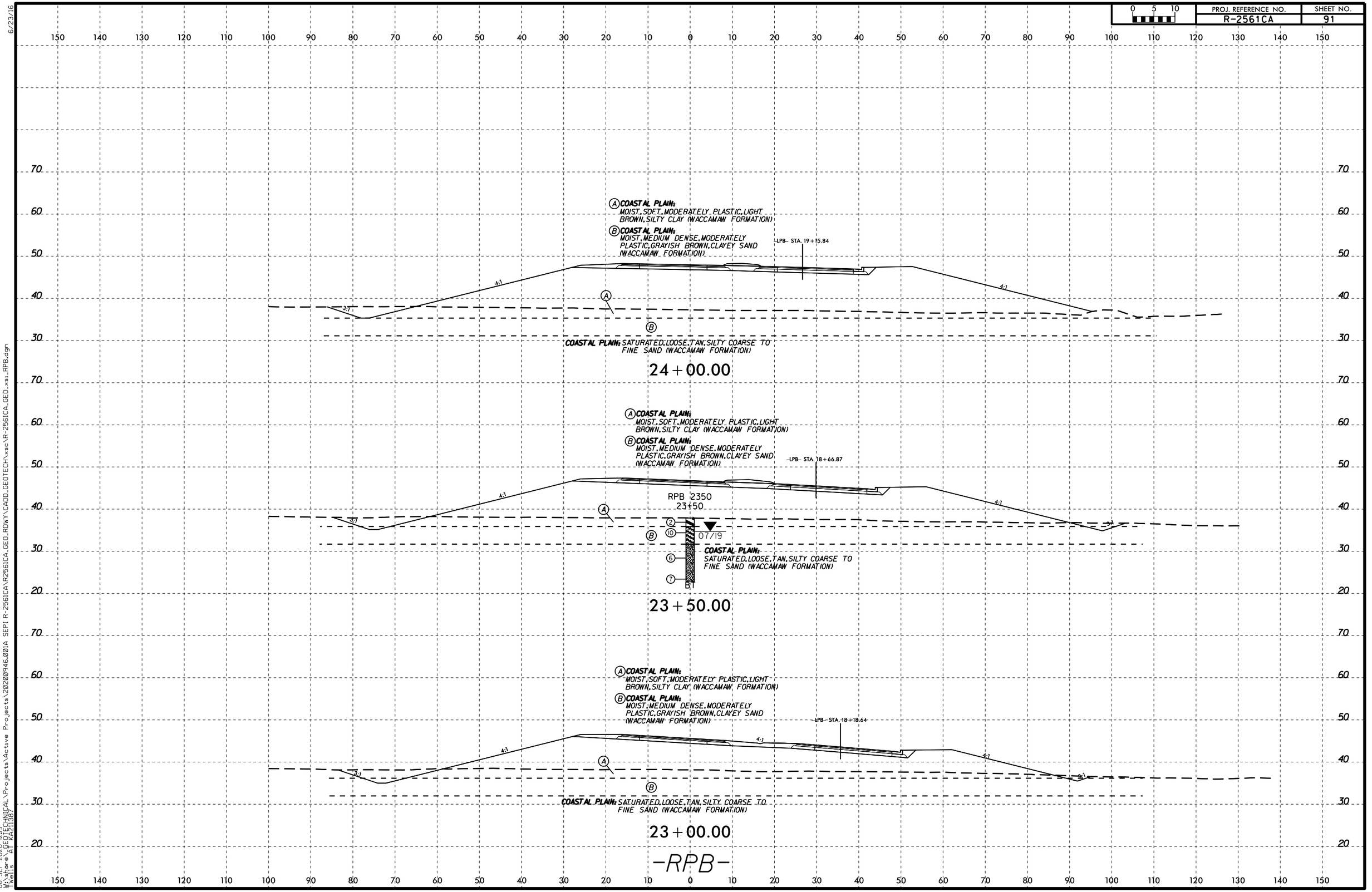
21+62.05

-RPB-

70 60 50 40 30 20 10

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

0 5 10



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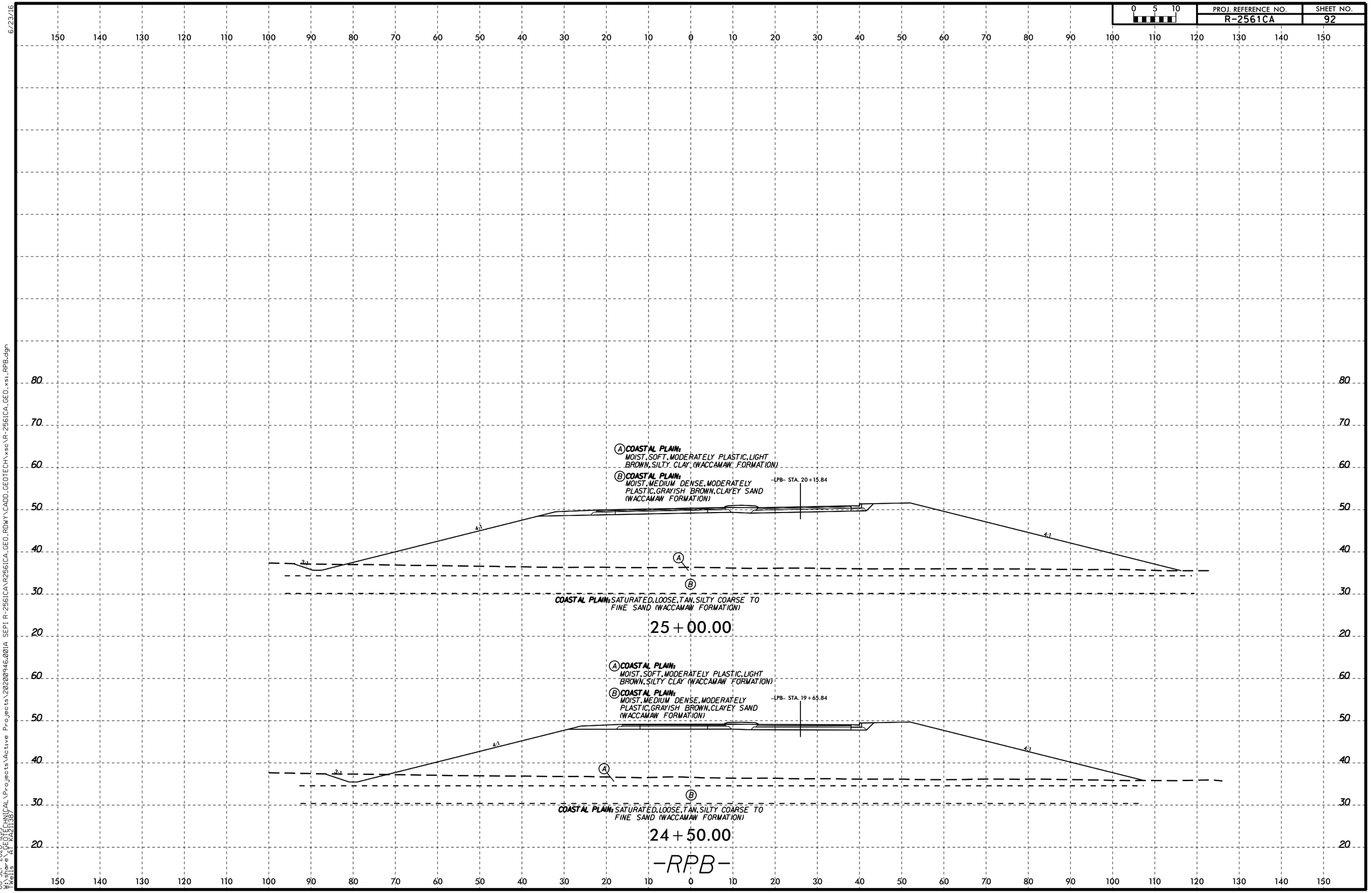
Wells AT KA21138



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Wells AT KA21138

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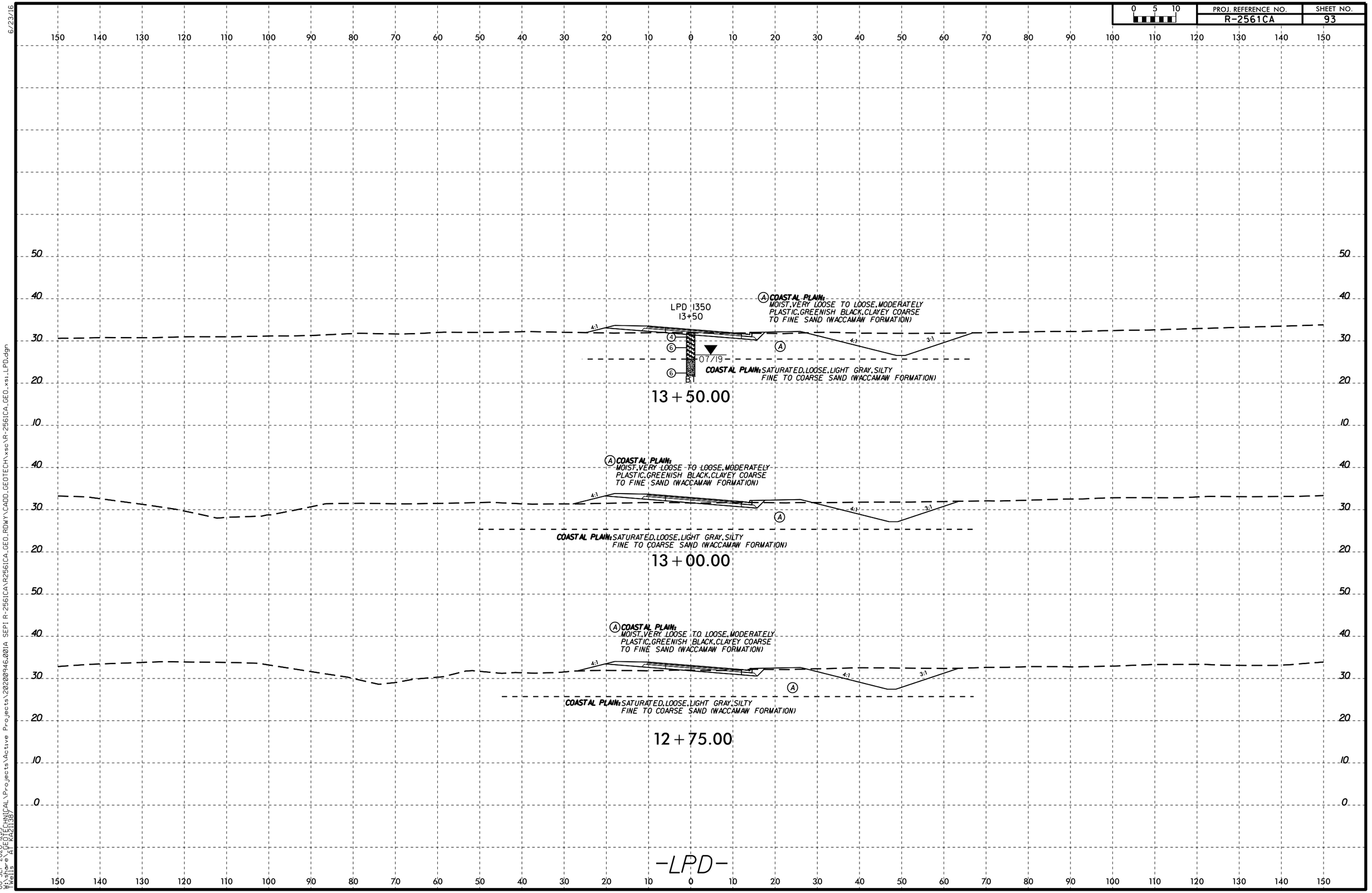
Wells AT KP21138



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Wells AT KA21138

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

60 50 40 30 20 50 40 30 20 50 40 30 20 10 0

SS-26
LPD 1500
15+00

Ⓐ **COASTAL PLAIN:** MOIST, VERY SOFT TO MEDIUM STIFF, MODERATELY PLASTIC, LIGHT GRAYISH BROWN, SILTY CLAY TO COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

4:1 4:1

2 8 A

07/19

9 BT

COASTAL PLAIN: WET, LOOSE, LIGHT GRAY, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

15+00.00

Ⓐ **COASTAL PLAIN:** MOIST, VERY SOFT TO MEDIUM STIFF, MODERATELY PLASTIC, LIGHT GRAYISH BROWN, SILTY CLAY TO COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

4:1 4:1 A

COASTAL PLAIN: WET, LOOSE, LIGHT GRAY, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

14+50.00

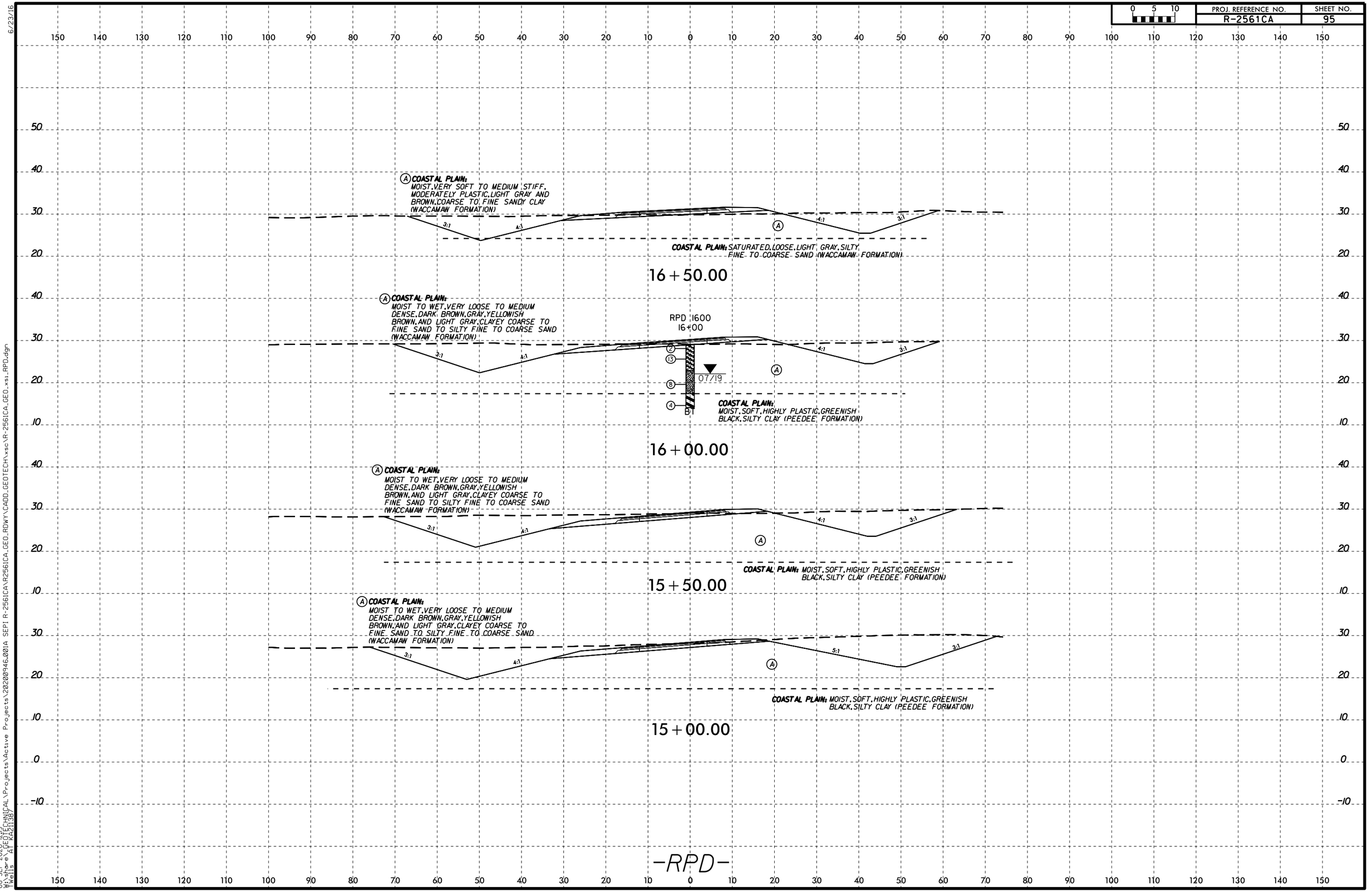
Ⓐ **COASTAL PLAIN:** MOIST, VERY SOFT, MODERATELY PLASTIC, LIGHT GRAYISH BROWN, SILTY CLAY TO COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

4:1 4:1 A

COASTAL PLAIN: WET, LOOSE, LIGHT GRAY, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

14+00.00

-LPD-



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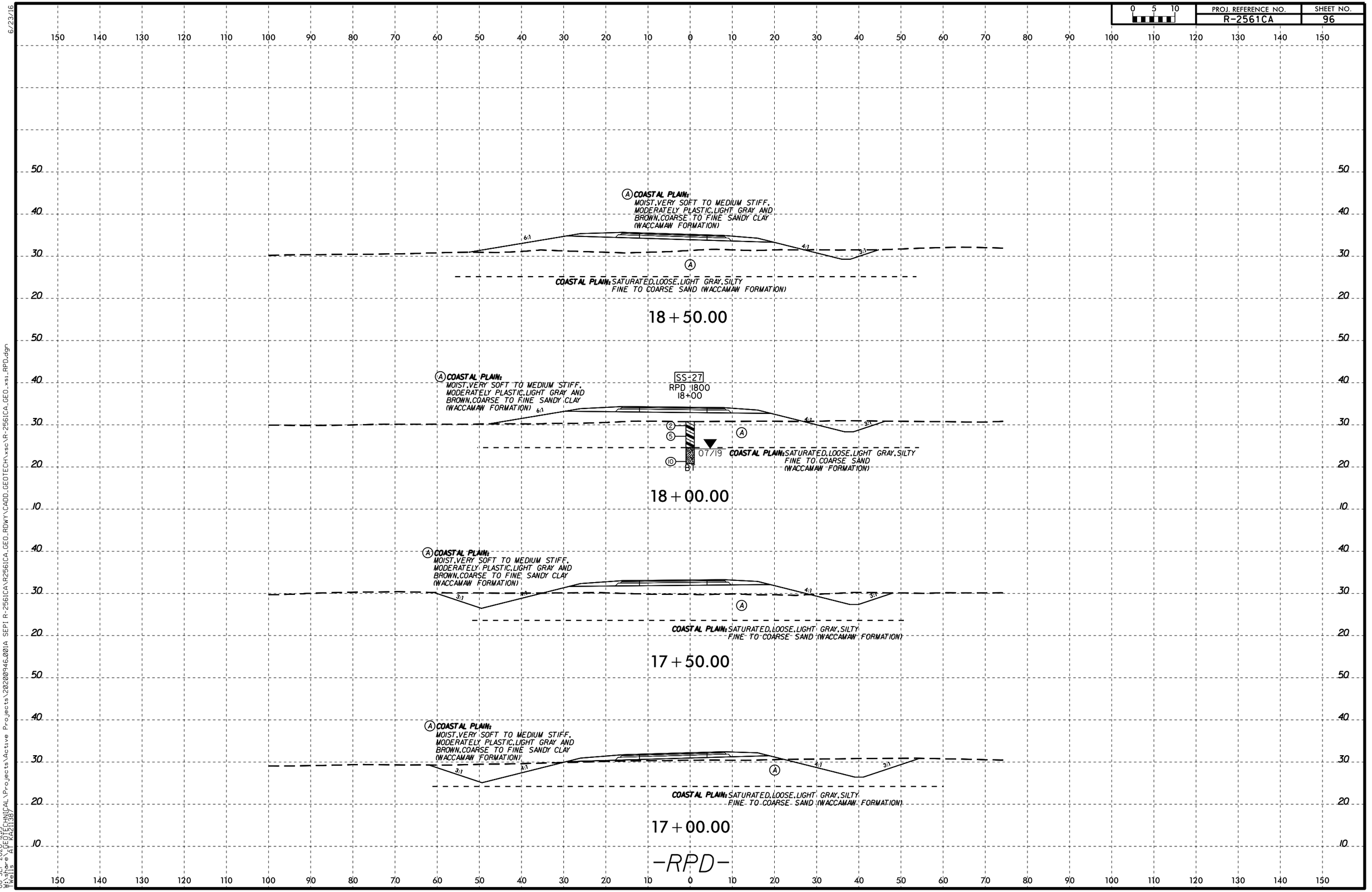
Wells AT KA21138



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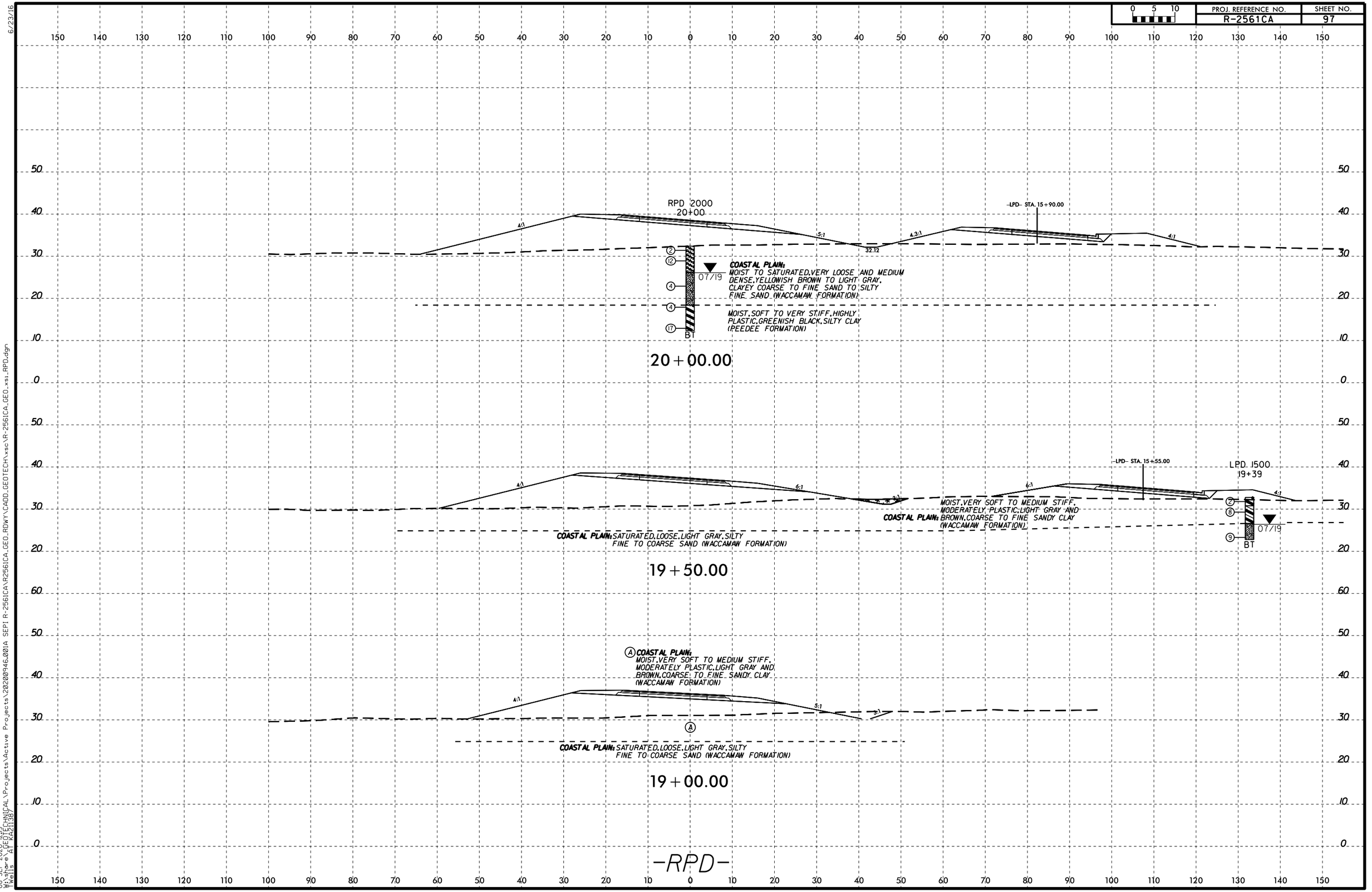
Wells AT KA21138



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Wells AT KA21138

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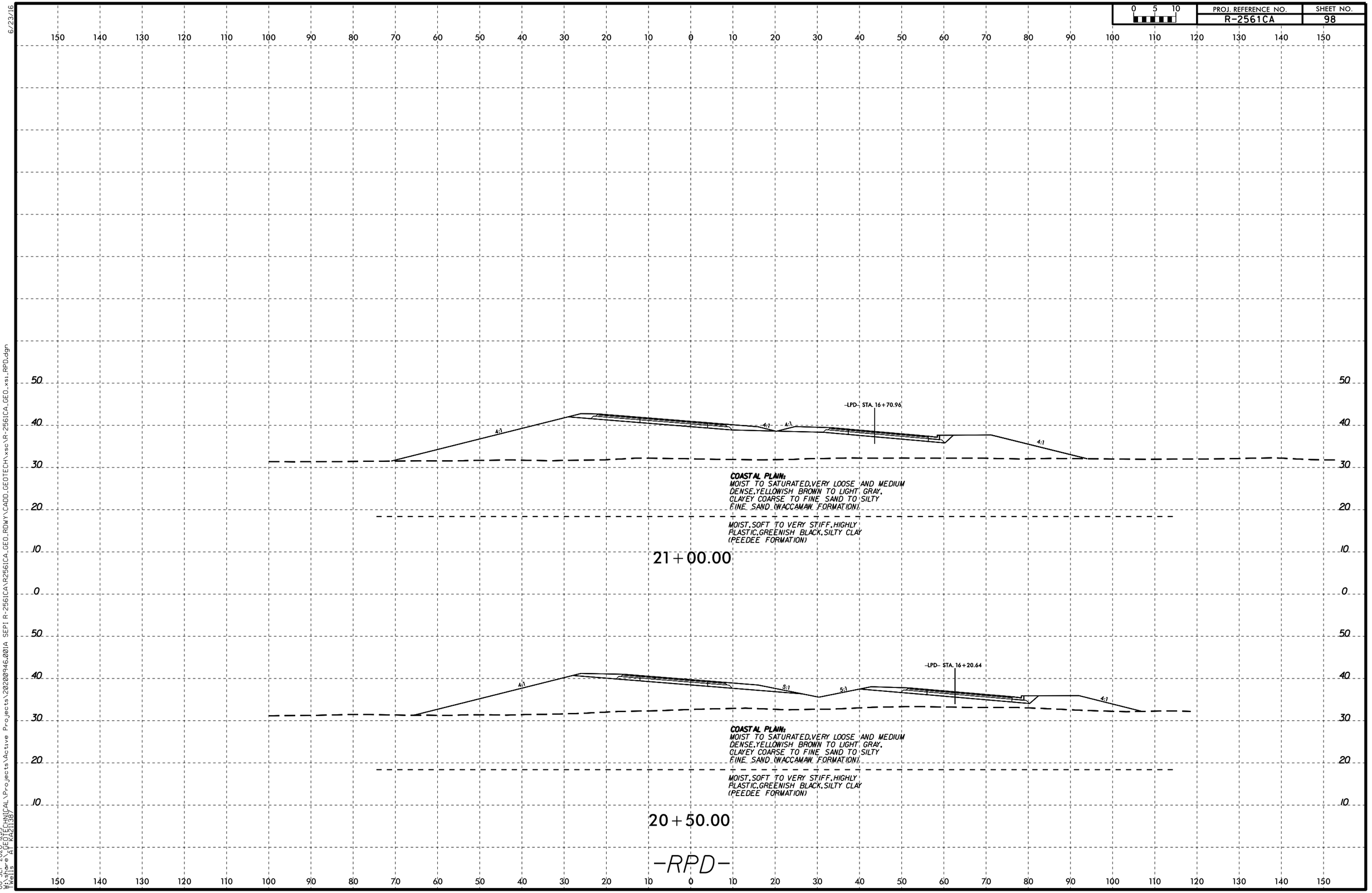

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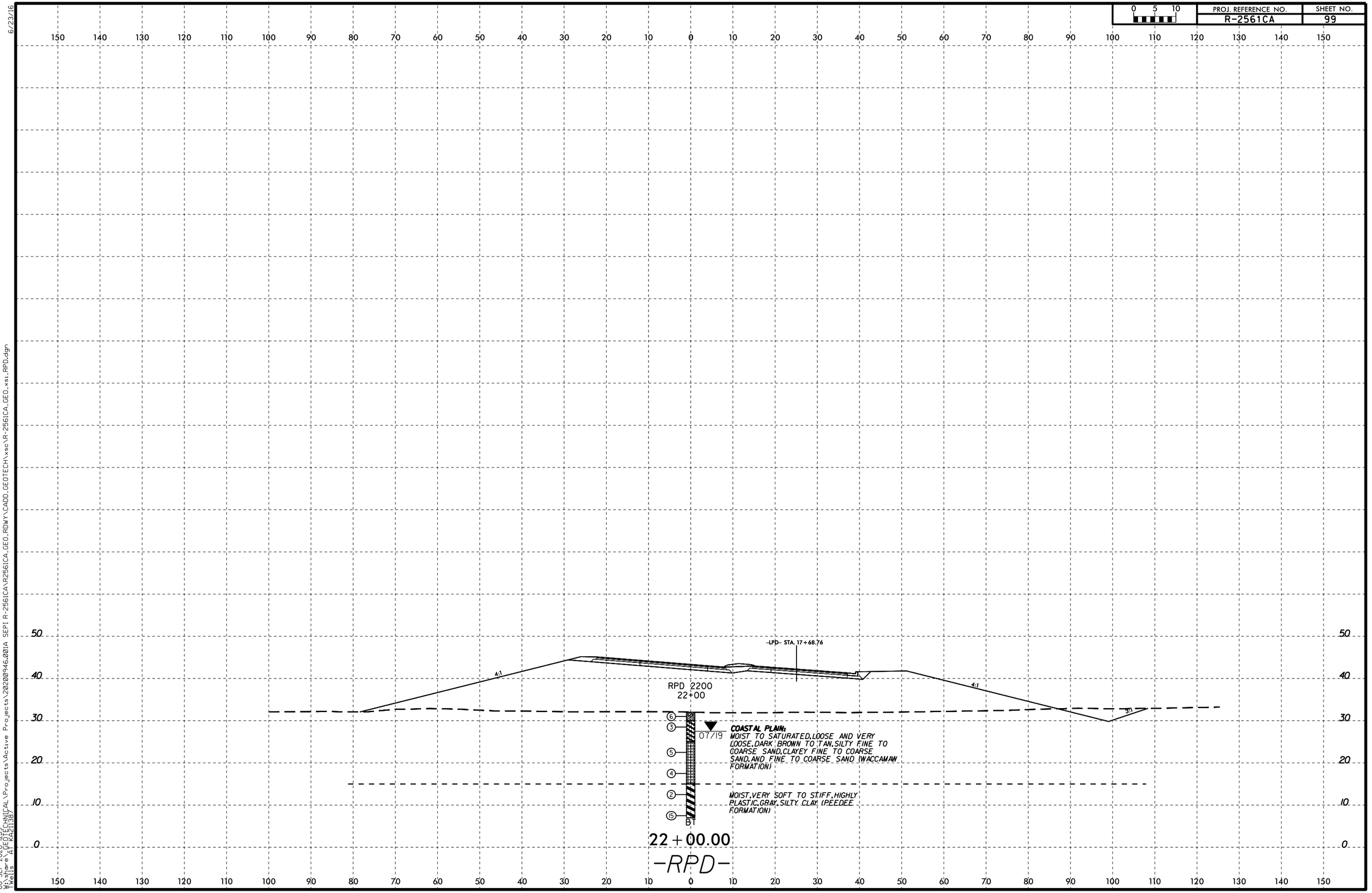
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	99



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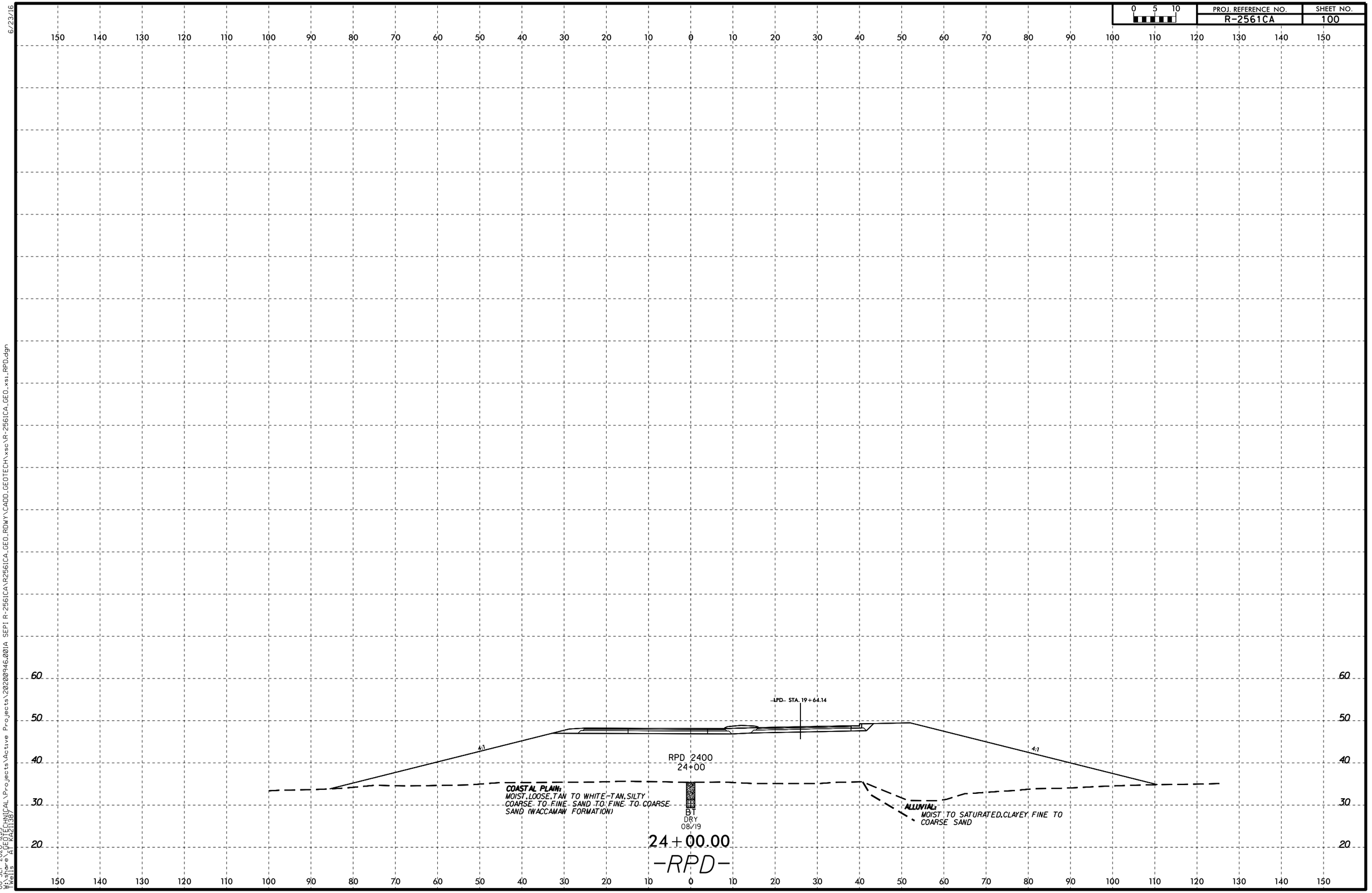
Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	100



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Wells AT KA21138

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN, SILTY FINE TO COARSE SAND
Ⓓ **ROADWAY EMBANKMENT:** MOIST, STIFF, TAN, COARSE TO FINE SANDY SILT.
Ⓔ **ALLUVIAL:** SATURATED, VERY LOOSE, BLACK, SILTY FINE TO COARSE SAND
COASTAL PLAIN: MOIST TO SATURATED, MEDIUM STIFF, HIGHLY PLASTIC, GRAY, TAN, AND BLACK, SILTY CLAY (PEEDEE FORMATION)

12 + 50.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN, SILTY FINE TO COARSE SAND
Ⓑ **COASTAL PLAIN:** MOIST, MEDIUM STIFF, MODERATELY PLASTIC, RED AND BROWN, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)
Ⓒ **COASTAL PLAIN:** MOIST, LOOSE, RED AND BROWN, FINE TO COARSE SAND (WACCAMAW FORMATION)
COASTAL PLAIN: MOIST, STIFF, HIGHLY PLASTIC, BLACK, SILTY CLAY (WACCAMAW FORMATION)

12 + 00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN, SILTY FINE TO COARSE SAND
Ⓑ **COASTAL PLAIN:** MOIST, MEDIUM STIFF, MODERATELY PLASTIC, RED AND BROWN, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)
Ⓒ **COASTAL PLAIN:** MOIST, LOOSE, RED AND BROWN, FINE TO COARSE SAND (WACCAMAW FORMATION)
COASTAL PLAIN: MOIST, STIFF, HIGHLY PLASTIC, BLACK, SILTY CLAY (WACCAMAW FORMATION)

Y_1150
11+50
BT
DRY
08/19

11 + 50.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN, SILTY FINE TO COARSE SAND
Ⓑ **COASTAL PLAIN:** MOIST, MEDIUM STIFF, MODERATELY PLASTIC, RED AND BROWN, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)
Ⓒ **COASTAL PLAIN:** MOIST, LOOSE, RED AND BROWN, FINE TO COARSE SAND (WACCAMAW FORMATION)
COASTAL PLAIN: MOIST, STIFF, HIGHLY PLASTIC, BLACK, SILTY CLAY (WACCAMAW FORMATION)

11 + 00.00

-Y-

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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	102

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

40 30 20 10 0 -10

Ⓐ **ROADWAY EMBANKMENT:**
MOIST, LOOSE, TAN,
SILTY FINE TO COARSE SAND
Ⓑ **ROADWAY EMBANKMENT:**
MOIST, STIFF, TAN, COARSE TO FINE SANDY SILT.

ALLUVIAL:
SATURATED, VERY LOOSE, BLACK, SILTY FINE
TO COARSE SAND

COASTAL PLAIN:
MOIST TO SATURATED, MEDIUM STIFF, HIGHLY PLASTIC,
GRAY, TAN, AND BLACK, SILTY CLAY
(PEEDEE FORMATION)

14 + 00.00

40 30 20 10 0 -10

Ⓐ **ROADWAY EMBANKMENT:**
MOIST, LOOSE, TAN,
SILTY FINE TO COARSE SAND
Ⓑ **ROADWAY EMBANKMENT:**
MOIST, STIFF, TAN, COARSE TO FINE SANDY SILT.

ALLUVIAL:
SATURATED, VERY LOOSE, BLACK, SILTY FINE
TO COARSE SAND

COASTAL PLAIN:
MOIST TO SATURATED, MEDIUM STIFF, HIGHLY PLASTIC,
GRAY, TAN, AND BLACK, SILTY CLAY
(PEEDEE FORMATION)

13 + 50.00

40 30 20 10 0 50 40 30 20 10 0

Ⓐ **ROADWAY EMBANKMENT:**
MOIST, LOOSE, TAN,
SILTY FINE TO COARSE SAND
Ⓑ **ROADWAY EMBANKMENT:**
MOIST, STIFF, TAN, COARSE TO FINE SANDY SILT.

SS-28
Y_1289_LT
12+89

S-29
S-30
Y_1300_RT
13+00

ALLUVIAL:
SATURATED, VERY LOOSE, BLACK, SILTY FINE
TO COARSE SAND

WOH
1
5
07/19
BT

COASTAL PLAIN:
MOIST TO SATURATED, MEDIUM STIFF, HIGHLY PLASTIC,
GRAY, TAN, AND BLACK, SILTY CLAY
(PEEDEE FORMATION)

08/19
BT

13 + 00.00

-Y-

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

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08-SEP-2020 12:19
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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	103

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

40
30
20
10
0

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, BROWN, SILTY FINE TO COARSE SAND

Y-1500
15+00

08/19
BT

ALLUVIAL:
SATURATED, VERY LOOSE, BLACK, SILTY FINE TO COARSE SAND

COASTAL PLAIN:
MOIST TO SATURATED, MEDIUM STIFF, HIGHLY PLASTIC, GRAY, TAN, AND BLACK, SILTY CLAY (PEEDEE FORMATION)

15+00.00

Ⓐ **ROADWAY EMBANKMENT:**
MOIST, LOOSE, TAN, SILTY FINE TO COARSE SAND

Ⓑ **ROADWAY EMBANKMENT:**
MOIST, STIFF, TAN, COARSE TO FINE, SANDY SILT.

ALLUVIAL:
SATURATED, VERY LOOSE, BLACK, SILTY FINE TO COARSE SAND

COASTAL PLAIN:
MOIST TO SATURATED, MEDIUM STIFF, HIGHLY PLASTIC, GRAY, TAN, AND BLACK, SILTY CLAY (PEEDEE FORMATION)

14+50.00

-Y-

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

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Wells AT KA21138

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50 40 30 20 10 0 -10 -20 -30 -40 -50

Ⓐ **ROADWAY EMBANKMENT:**
WET, MEDIUM DENSE TO DENSE, ORANGE TO BROWN, SILTY FINE TO COARSE SAND

Ⓑ **ALLUVIAL:**
WET, SOFT, MODERATELY PLASTIC, BLUISH GRAY, FINE SANDY CLAY

Ⓒ **ALLUVIAL:**
MOIST, MEDIUM DENSE, TAN, SILTY FINE SAND

Ⓓ **COASTAL PLAIN:**
VERY DENSE CLAYEY SAND (PEEDEE FORMATION)

Ⓔ **COASTAL PLAIN:**
MOIST, MEDIUM DENSE, MODERATELY PLASTIC, DARK GRAY, CLAYEY FINE TO COARSE SAND (PEEDEE FORMATION)

COASTAL PLAIN:
MOIST, STIFF TO VERY STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY TO FINE SANDY CLAY (PEEDEE FORMATION)

MOIST, VERY STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

MOIST, VERY STIFF AND HARD, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

15 + 50.00

-Y-

6/23/16

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AT Wells
AT Kazi138

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

50 40 30 20 10 0 -10 -20 -30 -40 -50

Ⓐ **ROADWAY EMBANKMENT:**
WET,MEDIUM DENSE TO DENSE,ORANGE TO BROWN, SILTY FINE TO COARSE SAND

Ⓑ **ALLUVIAL:**
WET,SOFT,MODERATELY PLASTIC,BLUISH GRAY, FINE SANDY CLAY

Ⓒ **ALLUVIAL:**
MOIST,MEDIUM DENSE,TAN,SILTY FINE SAND

Ⓓ **COASTAL PLAIN:**
VERY DENSE,CLAYEY SAND (PEEDEE FORMATION)

Ⓔ **COASTAL PLAIN:**
MOIST,MEDIUM DENSE,MODERATELY PLASTIC,DARK GRAY, CLAYEY FINE TO COARSE SAND (PEEDEE FORMATION)

COASTAL PLAIN:
MOIST,STIFF TO VERY STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY,SILTY CLAY TO FINE SANDY CLAY (PEEDEE FORMATION)

MOIST,VERY STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY,SILTY CLAY (PEEDEE FORMATION)

MOIST,VERY STIFF AND HARD, MODERATELY TO HIGHLY PLASTIC, DARK GRAY,SILTY CLAY (PEEDEE FORMATION)

16+00.00
-Y-

6/23/16
08-SEP-2020 12:19
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Wells AT KAZITAS

Ⓐ **ROADWAY EMBANKMENT:**
WET, MEDIUM DENSE TO DENSE, ORANGE TO BROWN, SILTY FINE TO COARSE SAND

Ⓑ **ALLUVIAL:**
WET, SOFT, MODERATELY PLASTIC, BLUISH GRAY, FINE SANDY CLAY

Ⓒ **ALLUVIAL:**
MOIST, MEDIUM DENSE, TAN, SILTY FINE SAND

Ⓓ **COASTAL PLAIN:**
VERY DENSE, CLAYEY SAND (PEE DEE FORMATION)

Ⓔ **COASTAL PLAIN:**
MOIST, MEDIUM DENSE, MODERATELY PLASTIC, DARK GRAY, CLAYEY FINE TO COARSE SAND (PEE DEE FORMATION)

S3-EBI-A
16+56

07/19

COASTAL PLAIN:
MOIST, STIFF TO VERY STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY TO FINE SANDY CLAY (PEE DEE FORMATION)

COASTAL PLAIN:
MOIST, VERY STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEE DEE FORMATION)

COASTAL PLAIN:
MOIST, VERY STIFF TO HARD, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEE DEE FORMATION)

BT

16 + 50.00

–Y–

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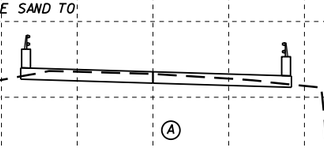
Wells AT KRZ1138

Ⓐ **ROADWAY EMBANKMENT:**
WET, MEDIUM DENSE, BROWN, CLAYEY FINE TO COARSE SAND TO SILTY FINE TO COARSE SAND

Ⓑ **COASTAL PLAIN:**
FINE TO COARSE SAND (PEEDEE FORMATION)



ALLUVIAL: WET, LOOSE TO MEDIUM DENSE, DARK GRAY, BLUISH GRAY, TO TAN SILTY FINE TO COARSE SAND

COASTAL PLAIN:
WET, STIFF TO MEDIUM STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

Ⓑ

MOIST, VERY STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

MOIST, MEDIUM DENSE, DARK GRAY, CLAYEY SAND (PEEDEE FORMATION)

WET, VERY STIFF TO HARD, MODERATELY PLASTIC, SILTY CLAY (PEEDEE FORMATION)

17 + 00.00

–Y–

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Wells AT KA21138

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Wells AT KA21138

Y_1800
18+00

ROADWAY EMBANKMENT:
WET,MEDIUM DENSE,BROWN,CLAYEY FINE TO COARSE SAND TO SILTY FINE TO COARSE SAND

ALLUVIAL:
SATURATED,LOOSE,BROWN,SILTY FINE TO COARSE SAND

08/19
BT

18+00.00

Ⓐ **ROADWAY EMBANKMENT:**
WET,MEDIUM DENSE,BROWN,CLAYEY FINE TO COARSE SAND TO SILTY FINE TO COARSE SAND

Ⓑ **COASTAL PLAIN:**
VERY DENSE,FINE TO COARSE SAND (PEEDEE FORMATION)

S3_EB2-B
17+35

23/25

Ⓐ 4 7 14 15 15 15 7 50/0.0 17 15 24 18 17 20 33 21 19

ALLUVIAL:
WET,LOOSE TO MEDIUM DENSE,DARK GRAY, BLUISH GRAY,TO TAN SILTY FINE TO COARSE SAND

COASTAL PLAIN:
WET,STIFF TO MEDIUM STIFF,MODERATELY TO HIGHLY PLASTIC, DARK GRAY,SILTY CLAY (PEEDEE FORMATION)

Ⓑ

MOIST,VERY STIFF,MODERATELY TO HIGHLY PLASTIC, DARK GRAY,SILTY CLAY (PEEDEE FORMATION)

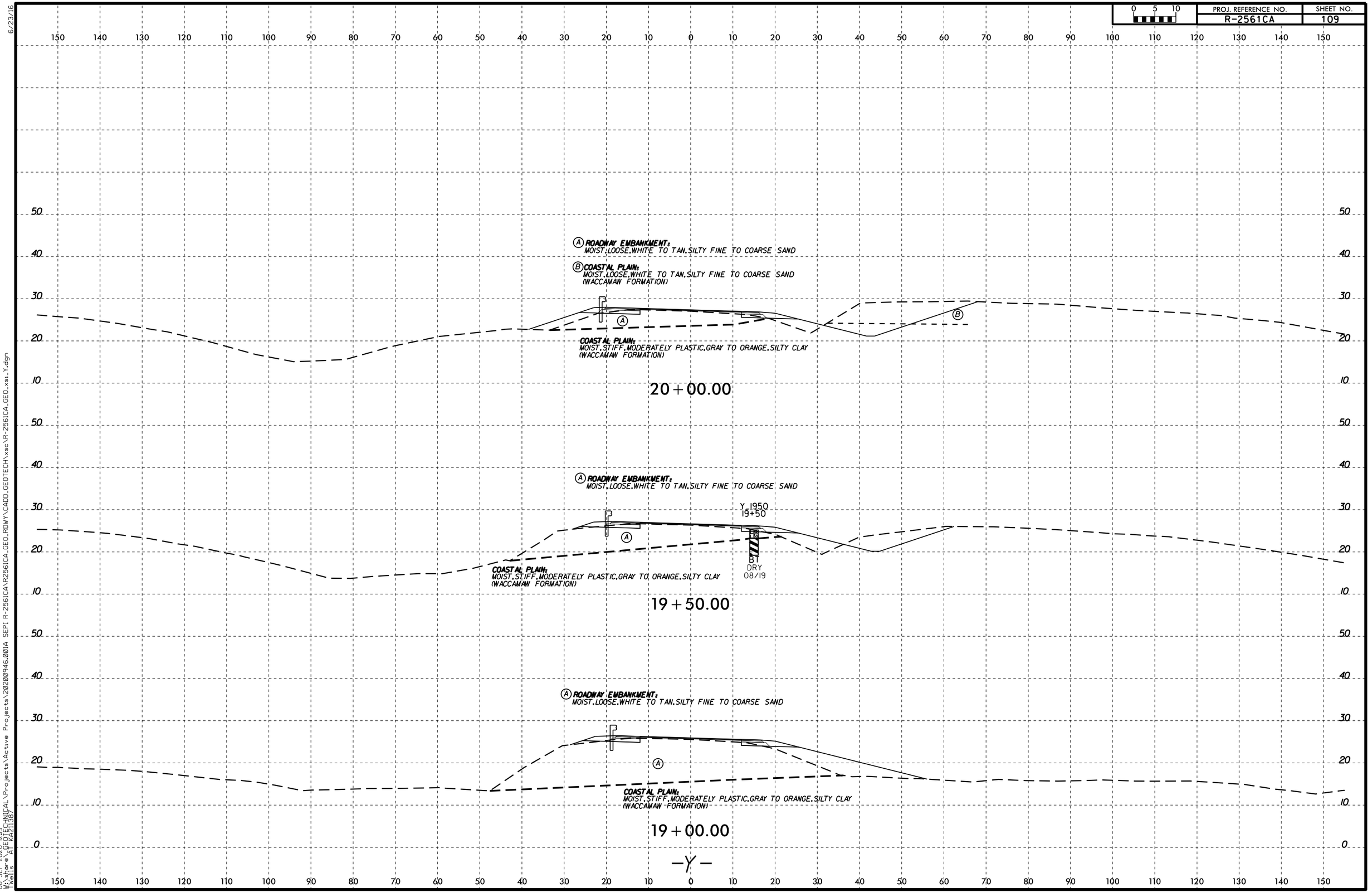
MOIST,MEDIUM DENSE, DARK GRAY,CLAYEY SAND (PEEDEE FORMATION)

WET,VERY STIFF TO HARD,MODERATELY PLASTIC, SILTY CLAY (PEEDEE FORMATION)

BT
CAVED

17+50.00

-Y-



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Wells AT KP21138

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

50 40 30 20 50 40 30 20 50

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, WHITE TO TAN, SILTY FINE TO COARSE SAND

Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, STIFF, MODERATELY PLASTIC, GRAY TO ORANGE, SILTY CLAY (WACCAMAW FORMATION)

22+00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, WHITE TO TAN, SILTY FINE TO COARSE SAND

Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

Y-2150
21+50

BT
DRY
08/19

COASTAL PLAIN: MOIST, STIFF, MODERATELY PLASTIC, GRAY TO ORANGE, SILTY CLAY (WACCAMAW FORMATION)

21+50.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, WHITE TO TAN, SILTY FINE TO COARSE SAND

Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, STIFF, MODERATELY PLASTIC, GRAY TO ORANGE, SILTY CLAY (WACCAMAW FORMATION)

21+00.00

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, WHITE TO TAN, SILTY FINE TO COARSE SAND

Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, WHITE TO TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, STIFF, MODERATELY PLASTIC, GRAY TO ORANGE, SILTY CLAY (WACCAMAW FORMATION)

20+50.00

50 40 30 20 10 0

-Y-

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

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Wells AT KA21138

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

50
40
30
20
10
0

Ⓐ **ROADWAY EMBANKMENT:**
MOIST, LOOSE, WHITE TO TAN, SILTY FINE TO COARSE SAND

Ⓑ **COASTAL PLAIN:**
MOIST, LOOSE, TAN, SILTY FINE TO COARSE SAND
(WACCAMAW FORMATION)

Ⓑ **COASTAL PLAIN:**
MOIST, STIFF, MODERATELY PLASTIC, GRAY TO ORANGE, SILTY CLAY
(WACCAMAW FORMATION)

22+50.00

-Y-

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

50
40
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6/23/16

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Wells AT KA21138

6/23/16

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	R-2561CA	112

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

50
40
30
20
10

Ⓐ **ROADWAY EMBANKMENT:** ASPHALT

Ⓐ

Y-2350
23+50

08/19

BT

COASTAL PLAIN:
SATURATED, MEDIUM DENSE, WHITE TO TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

23+50.00

-Y-

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

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Wells AT KA21138

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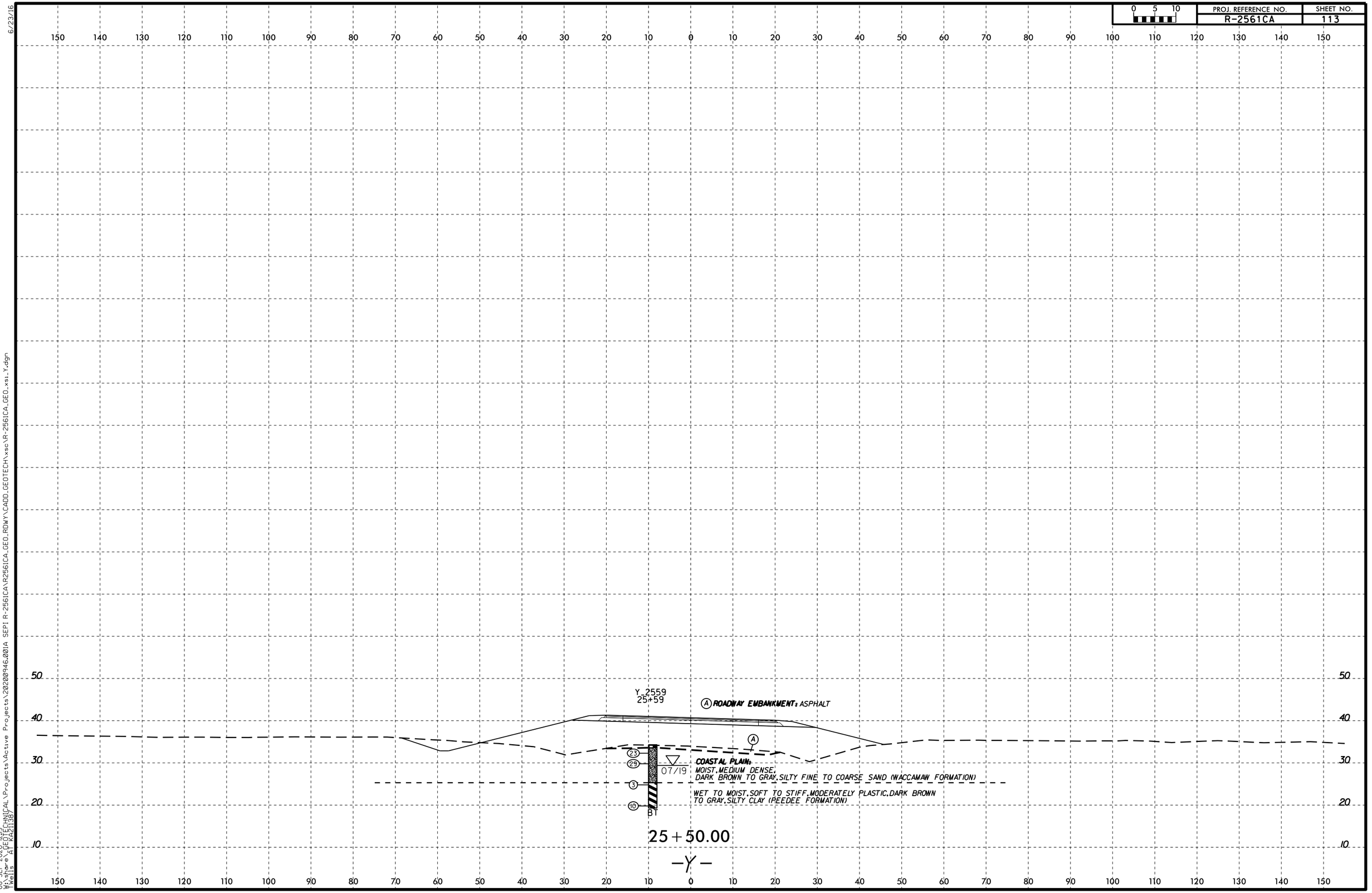
	R-2561CA	113



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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	114

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

60 50 40 30 20 10 0

Ⓐ **ROADWAY EMBANKMENT:**
MOIST, LOOSE, BROWN, CLAYEY FINE TO COARSE SAND

RPD
LPD

Y-2752
27+52

6
9
A
07/19
9
3
13
12
BT.

COASTAL PLAIN:
MOIST TO WET, LOOSE,
BROWN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

WET TO MOIST, SOFT TO STIFF, MODERATELY PLASTIC,
GRAY, SILTY CLAY (PEEDEE FORMATION)

27+50.00

-Y-

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

60 50 40 30 20 10 0

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Wells AT KA21138

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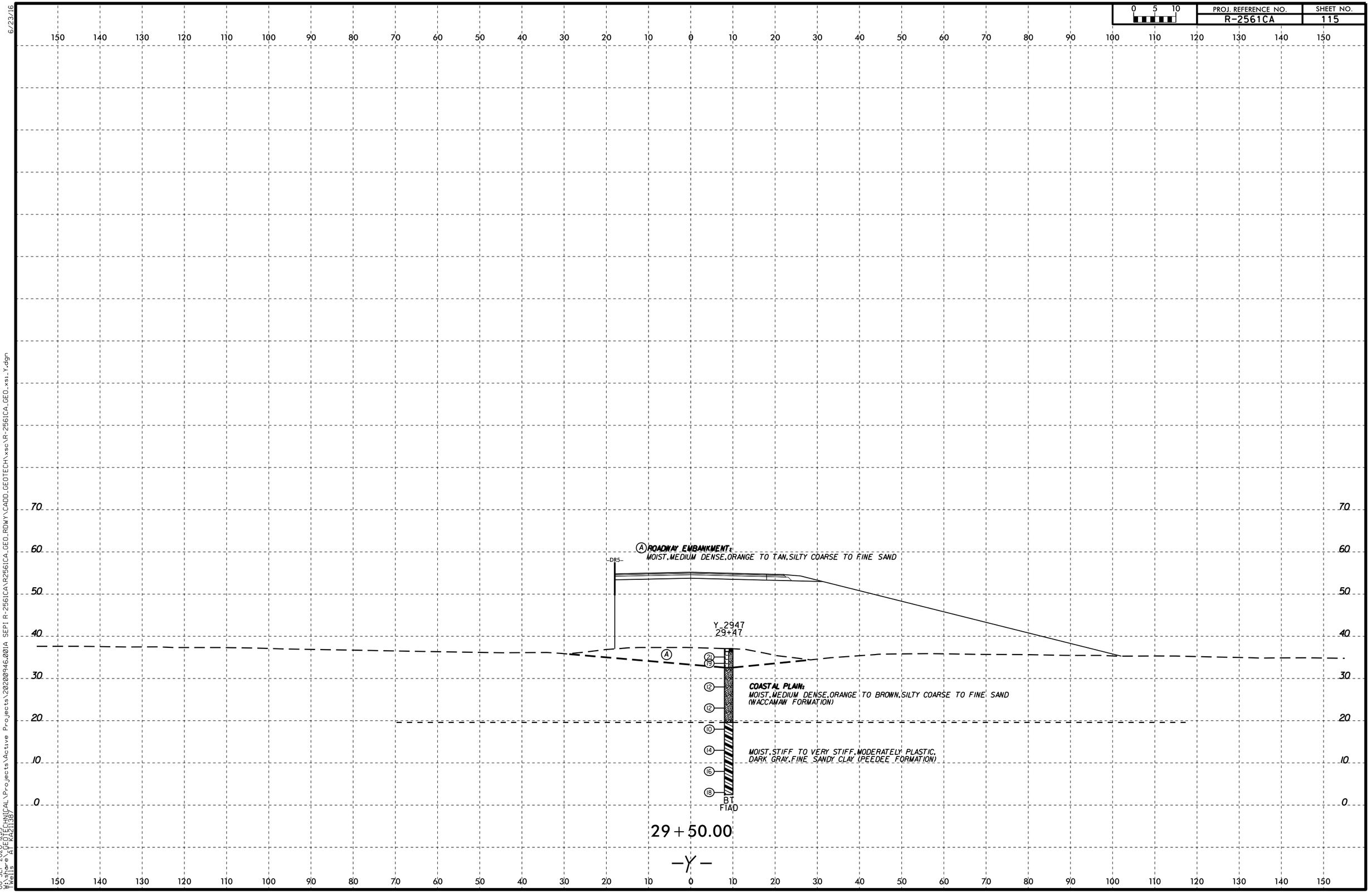
	R-2561CA	115



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Wells AT KA21138

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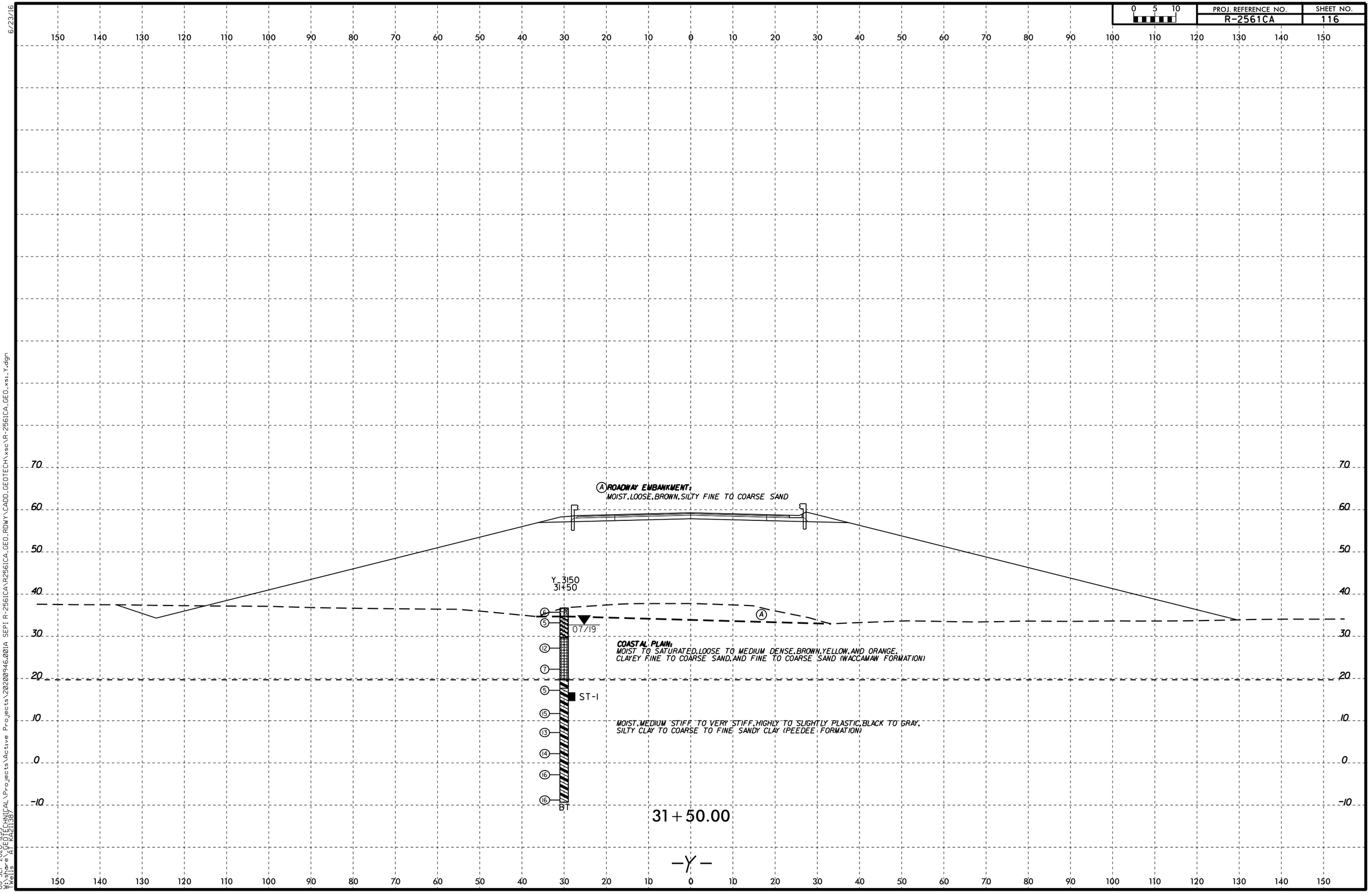
	R-2561CA	116



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Wells AT KA21138

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

80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60

Ⓐ **ROADWAY EMBANKMENT:**
MOIST, MEDIUM DENSE, ORANGE AND BROWN, CLAYEY FINE TO COARSE SAND

Ⓑ **COASTAL PLAIN:**
VERY DENSE, SILTY FINE TO COARSE SAND (PEEDEE FORMATION)

S4_EBI-A
33+10

Ⓐ

15
11
12
10
4
14
15
16
15
15
9
60/0.1
17
18
21
36
17
18
100/0.4
49

BT
FIAD

COASTAL PLAIN:
MOIST, MEDIUM DENSE, TAN, WHITE, TO DARK GRAY, SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

MOIST, SOFT TO STIFF, SLIGHTLY TO MODERATELY PLASTIC, ORANGE TO DARK GRAY, SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN:
MOIST, STIFF TO VERY STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

Ⓑ

MOIST, VERY STIFF, MODERATELY TO HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

MOIST, DENSE, SLIGHTLY TO MODERATELY PLASTIC, DARK GRAY, CLAYEY COARSE TO FINE SAND (PEEDEE FORMATION)

MOIST, VERY STIFF, MODERATELY PLASTIC, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

MOIST, DENSE, SLIGHTLY TO MODERATELY PLASTIC, DARK GRAY, SILTY SAND TO CLAYEY COARSE TO FINE SAND WITH WOOD FRAGMENTS (PEEDEE FORMATION)

33+00.00
-Y-

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AT Wells KAZ1138

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

80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

Ⓐ ROADWAY EMBANKMENT
MOIST, MEDIUM DENSE, ORANGE AND GRAY, SILTY FINE SAND

S4_EB2-A
34+99

Ⓐ

18 7 14 7 3 13 15 15 20 15 9 100/0.4 16 18 20 14 15 17

07/19

BT

COASTAL PLAIN:
MOIST TO SATURATED, LOOSE AND MEDIUM DENSE, ORANGE, BROWN, TAN, AND WHITE, CLAYEY SILTY FINE SAND TO SILTY, FINE TO COARSE SAND (WACCAMAW FORMATION)

SATURATED TO WET, SOFT TO VERY STIFF, HIGHLY TO MODERATELY PLASTIC, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

WET, VERY DENSE, MODERATELY PLASTIC, DARK GRAY, CLAYEY FINE TO COARSE SAND WITH TRACE ROCK FRAGMENTS (PEEDEE FORMATION)

WET, VERY STIFF TO STIFF, MODERATELY PLASTIC, DARK GRAY, SILTY CLAY (PEEDEE FORMATION)

35+00.00

-Y-

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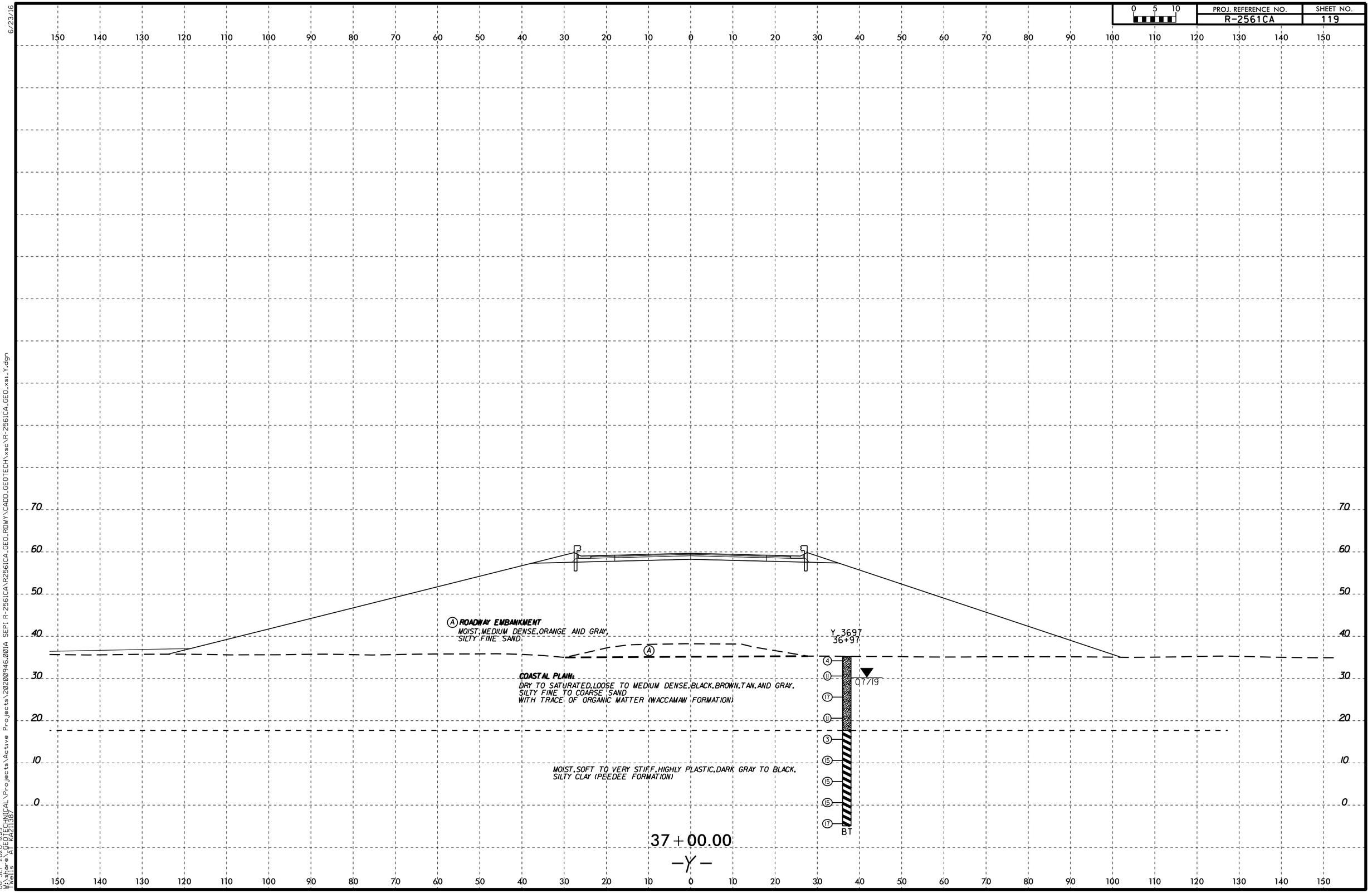
Wells AT KA21138



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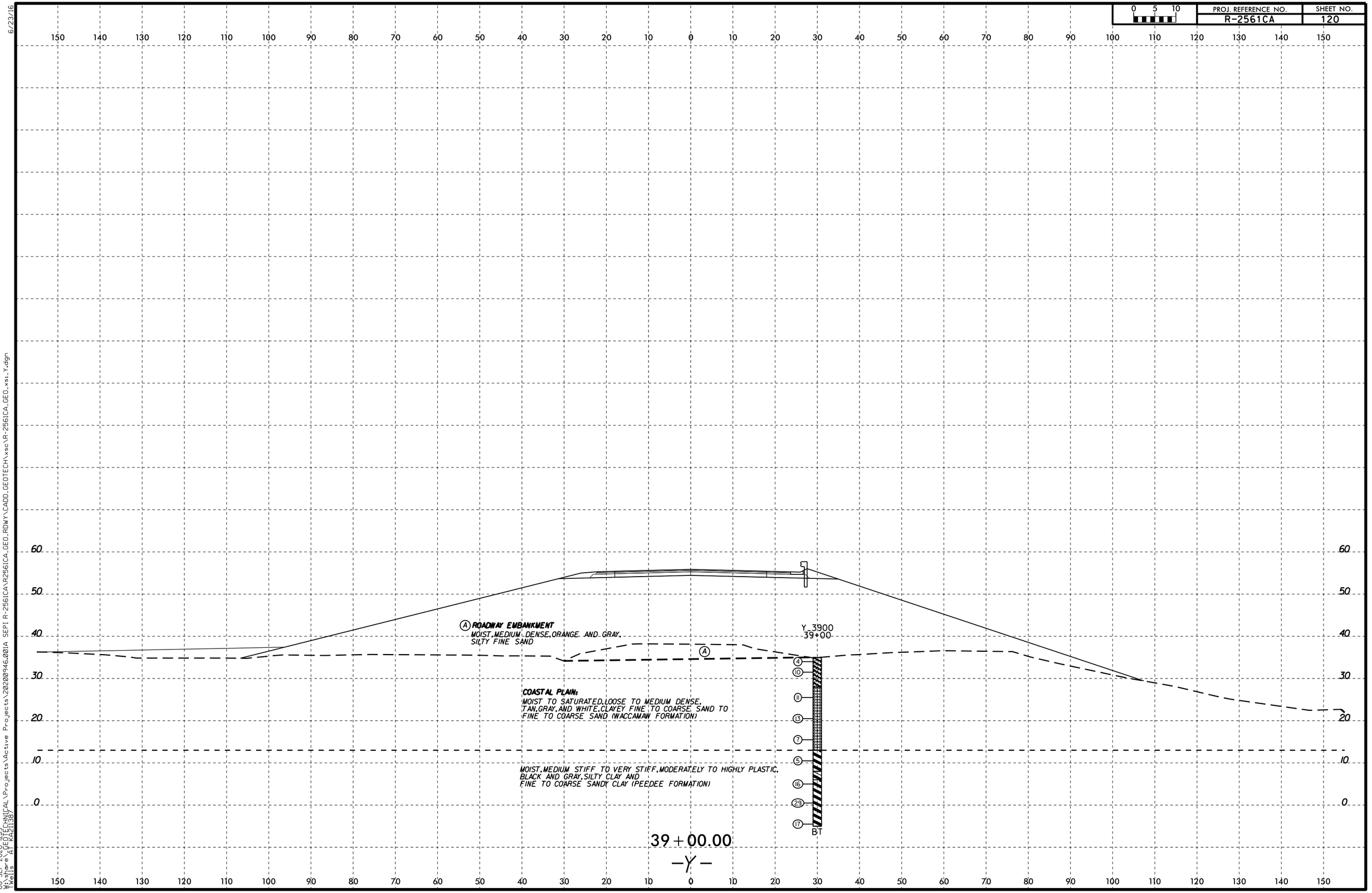

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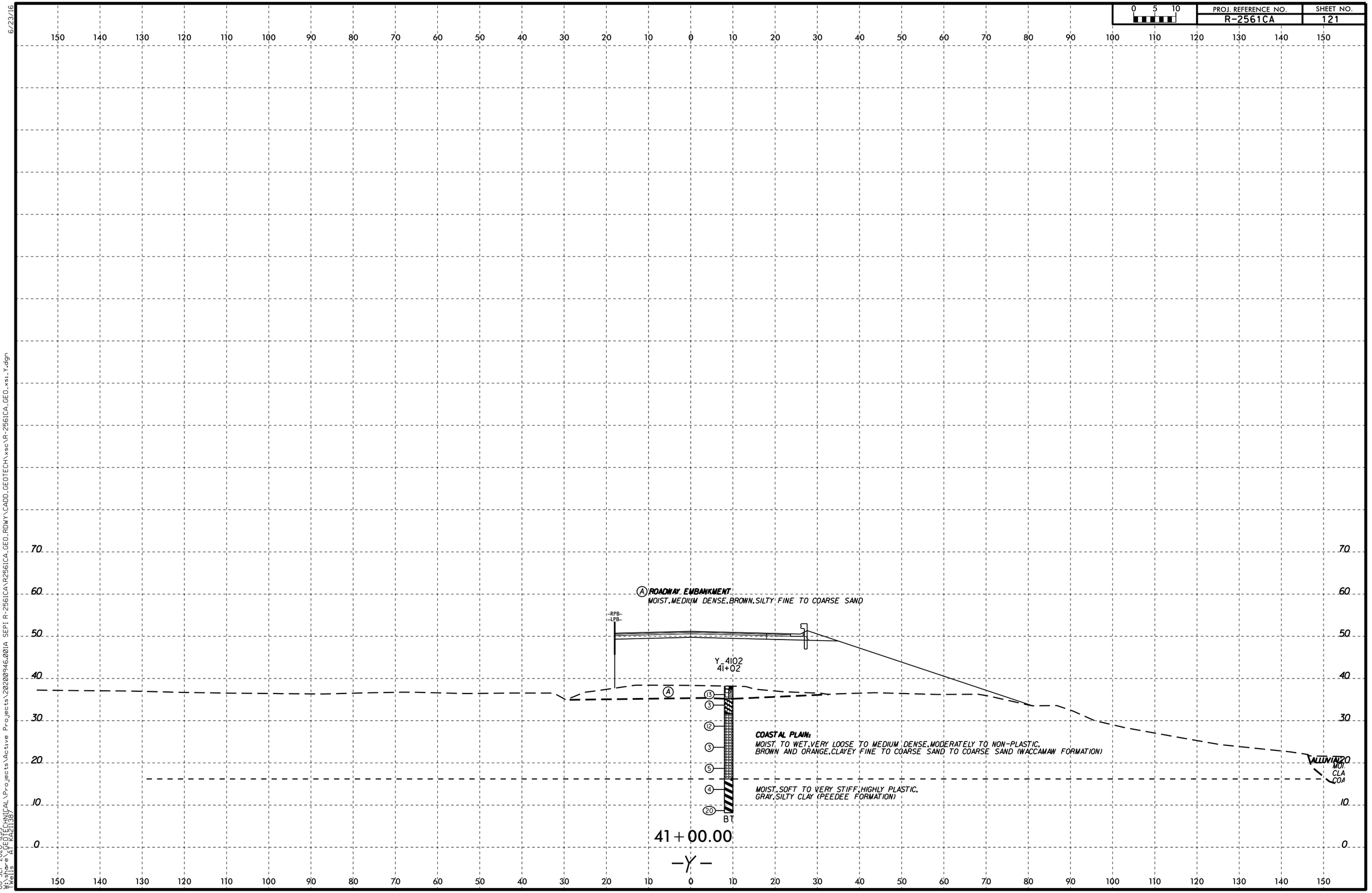
Wells AT KA21138



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Wells AT KA21138

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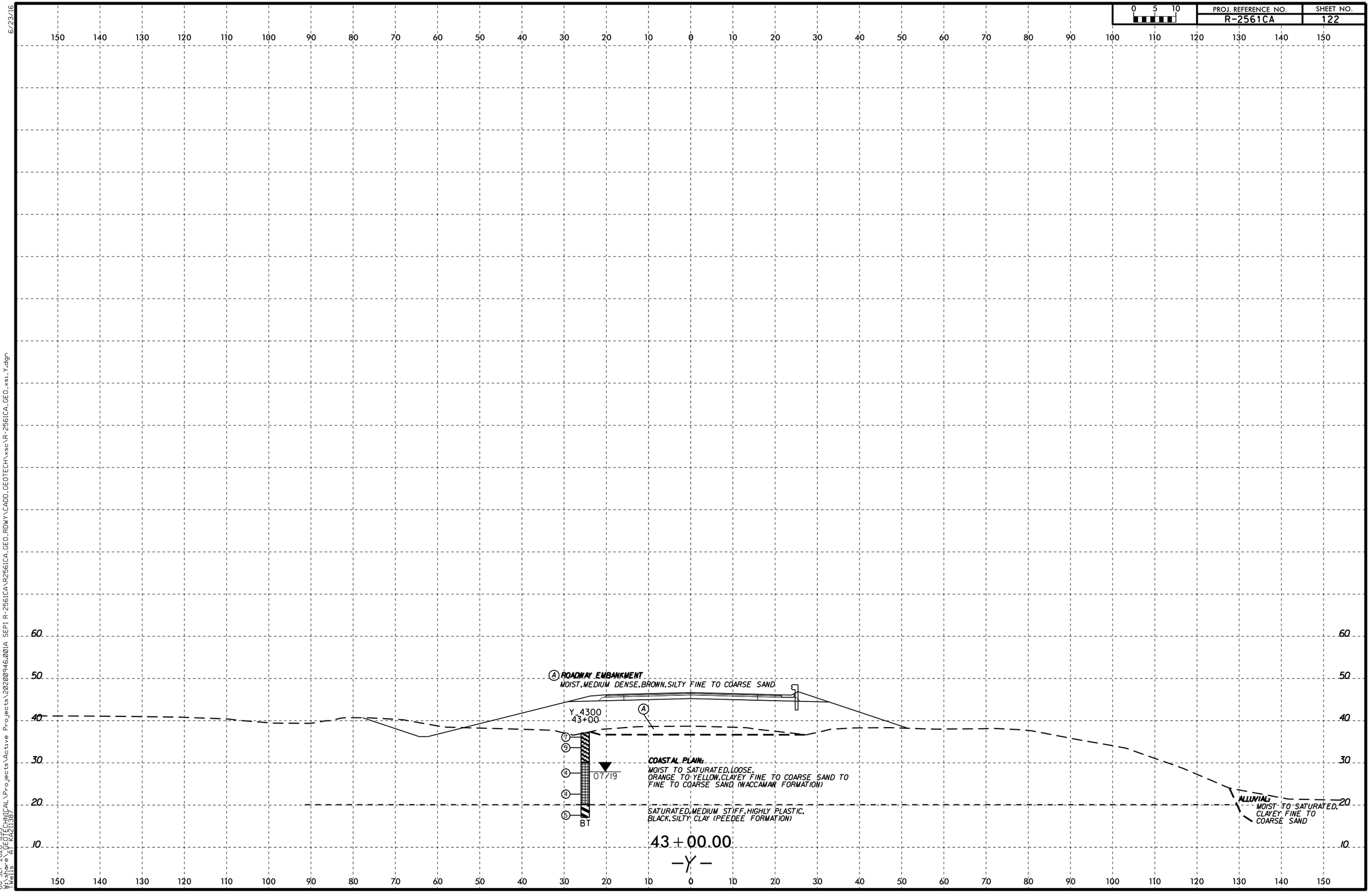

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AT KA21138

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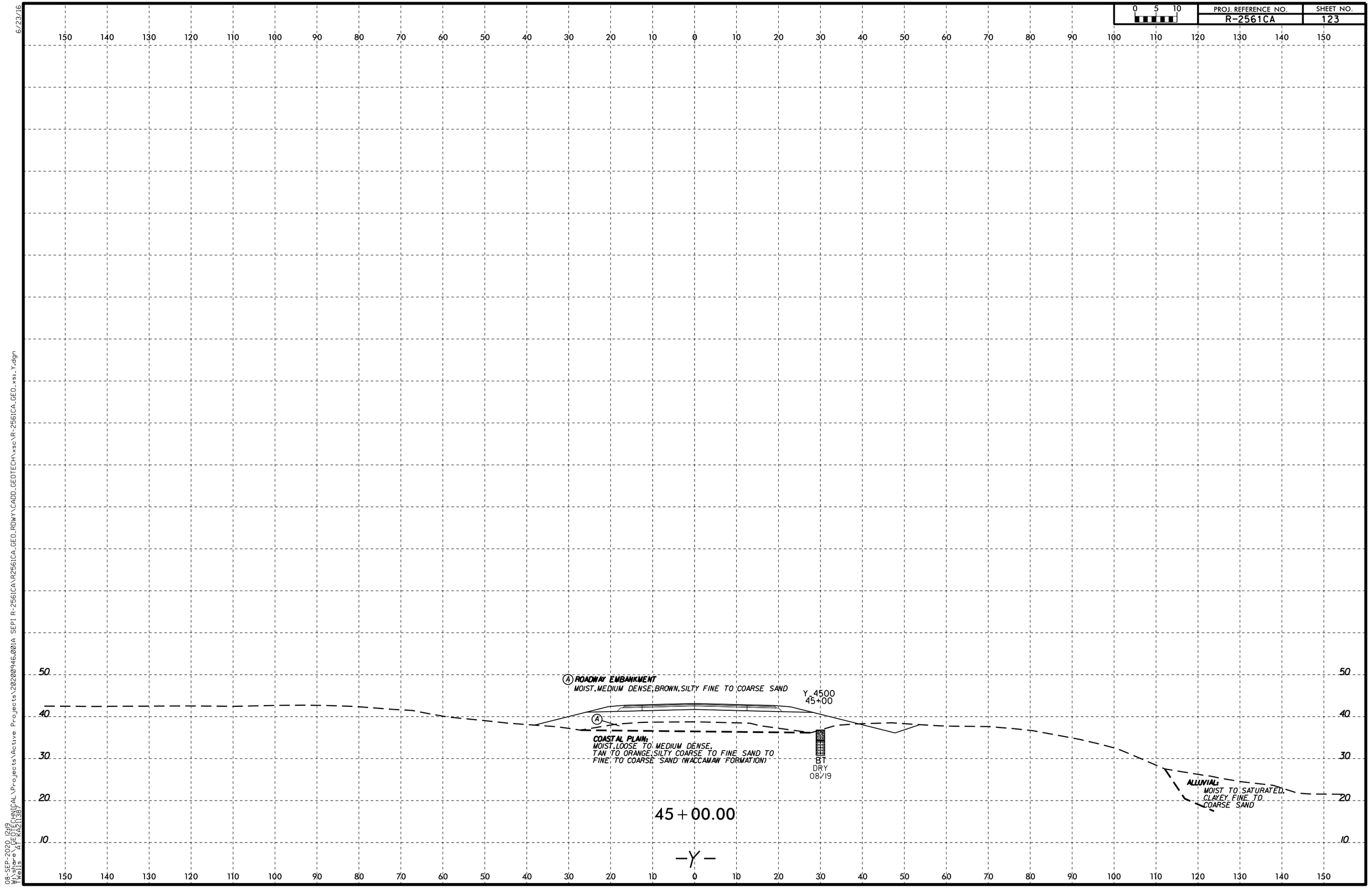
	R-2561CA	123



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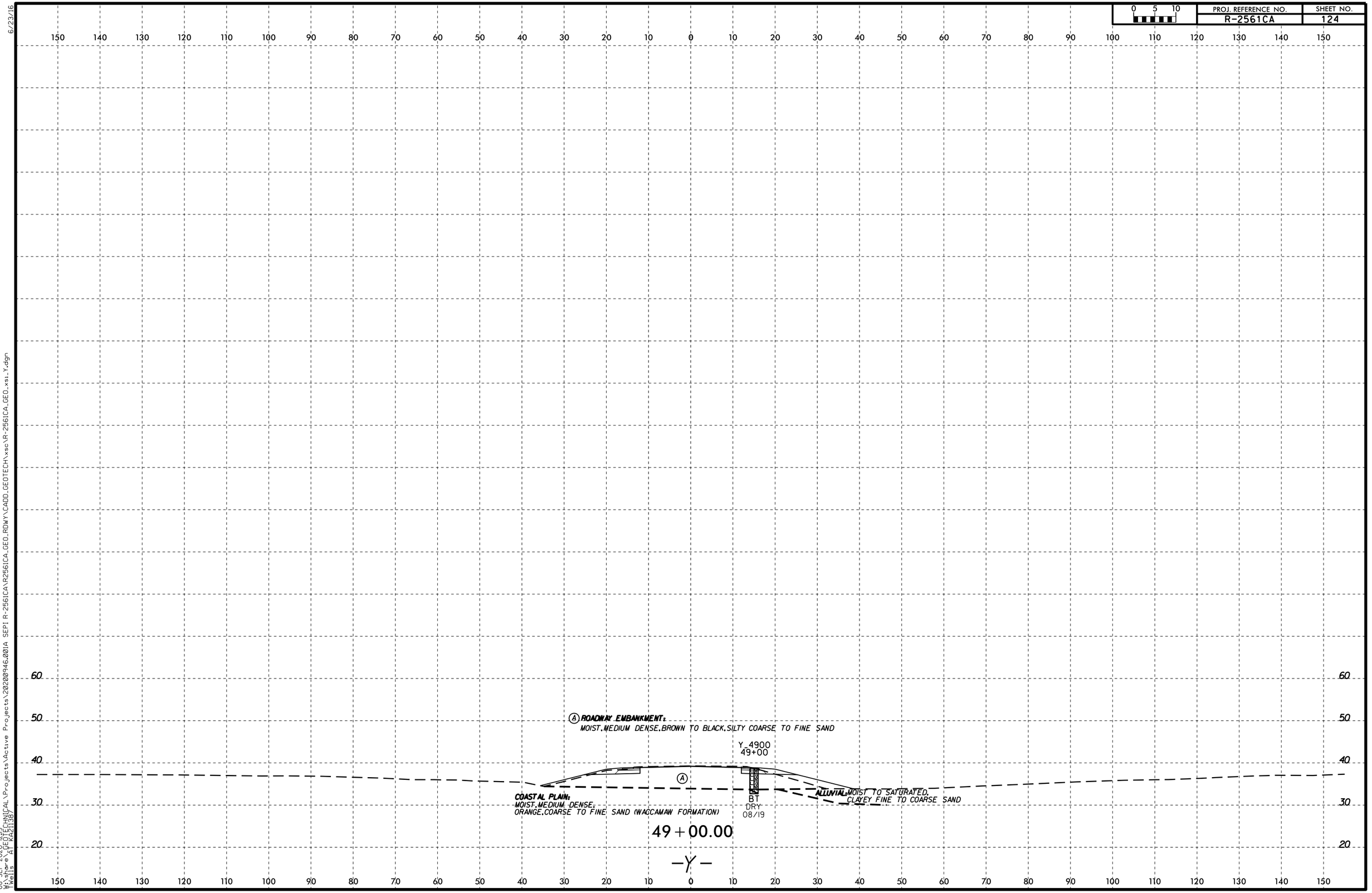
Wells AT KA21138



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AT KA21138

Ⓐ **COASTAL PLAIN:** MOIST,VERY LOOSE,TAN,CLAYEY FINE SAND (WACCAMAW FORMATION)
Ⓑ **COASTAL PLAIN:** MOIST,MEDIUM STIFF,MODERATELY PLASTIC,FINE SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: SATURATED TO WET,VERY LOOSE TO LOOSE, TAN,SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

13 + 00.00

Ⓐ **COASTAL PLAIN:** MOIST,VERY LOOSE,TAN,CLAYEY FINE SAND (WACCAMAW FORMATION)
Ⓑ **COASTAL PLAIN:** MOIST,MEDIUM STIFF,MODERATELY PLASTIC,FINE SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: SATURATED TO WET,VERY LOOSE TO LOOSE, TAN,SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

12 + 75.00

Ⓐ **COASTAL PLAIN:** MOIST,VERY LOOSE,TAN,CLAYEY FINE SAND (WACCAMAW FORMATION)
Ⓑ **COASTAL PLAIN:** MOIST,MEDIUM STIFF,MODERATELY PLASTIC,FINE SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: SATURATED TO WET,VERY LOOSE TO LOOSE, TAN,SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

12 + 50.00

COASTAL PLAIN: MOIST,VERY LOOSE TO MEDIUM DENSE, BROWN TO DARK BROWN AND GRAY,SILTY FINE SAND (WACCAMAW FORMATION)

12 + 25.00

Y2 1200
12+00

COASTAL PLAIN: MOIST,VERY LOOSE TO MEDIUM DENSE, BROWN TO DARK BROWN AND GRAY,SILTY FINE SAND (WACCAMAW FORMATION)

12 + 00.00

-Y2-

6/23/16
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Wells AT KA21138

0 5 10

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

70 60 50 40 30 20

Ⓐ **COASTAL PLAIN:** MOIST,VERY LOOSE,TAN,CLAYEY FINE SAND (WACCAMAW FORMATION)
Ⓑ **COASTAL PLAIN:** MOIST,MEDIUM STIFF,MODERATELY PLASTIC,FINE SANDY CLAY (WACCAMAW FORMATION)

Y2-1400
14+00

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

3 6 07/19 WOR 8 B1

COASTAL PLAIN: SATURATED TO WET,VERY LOOSE TO LOOSE, TAN,SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

14+00.00

Ⓐ **COASTAL PLAIN:** MOIST,VERY LOOSE,TAN,CLAYEY FINE SAND (WACCAMAW FORMATION)
Ⓑ **COASTAL PLAIN:** MOIST,MEDIUM STIFF,MODERATELY PLASTIC,FINE SANDY CLAY (WACCAMAW FORMATION)

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

COASTAL PLAIN: SATURATED TO WET,VERY LOOSE TO LOOSE, TAN,SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

13+75.00

Ⓐ **COASTAL PLAIN:** MOIST,VERY LOOSE,TAN,CLAYEY FINE SAND (WACCAMAW FORMATION)
Ⓑ **COASTAL PLAIN:** MOIST,MEDIUM STIFF,MODERATELY PLASTIC,FINE SANDY CLAY (WACCAMAW FORMATION)

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

COASTAL PLAIN: SATURATED TO WET,VERY LOOSE TO LOOSE, TAN,SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

13+50.00

Ⓐ **COASTAL PLAIN:** MOIST,VERY LOOSE,TAN,CLAYEY FINE SAND (WACCAMAW FORMATION)
Ⓑ **COASTAL PLAIN:** MOIST,MEDIUM STIFF,MODERATELY PLASTIC,FINE SANDY CLAY (WACCAMAW FORMATION)

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

COASTAL PLAIN: SATURATED TO WET,VERY LOOSE TO LOOSE, TAN,SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

13+25.00

-Y2-

70 60 50 40 30 20

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

6/23/16

08-SEP-2020 12:19
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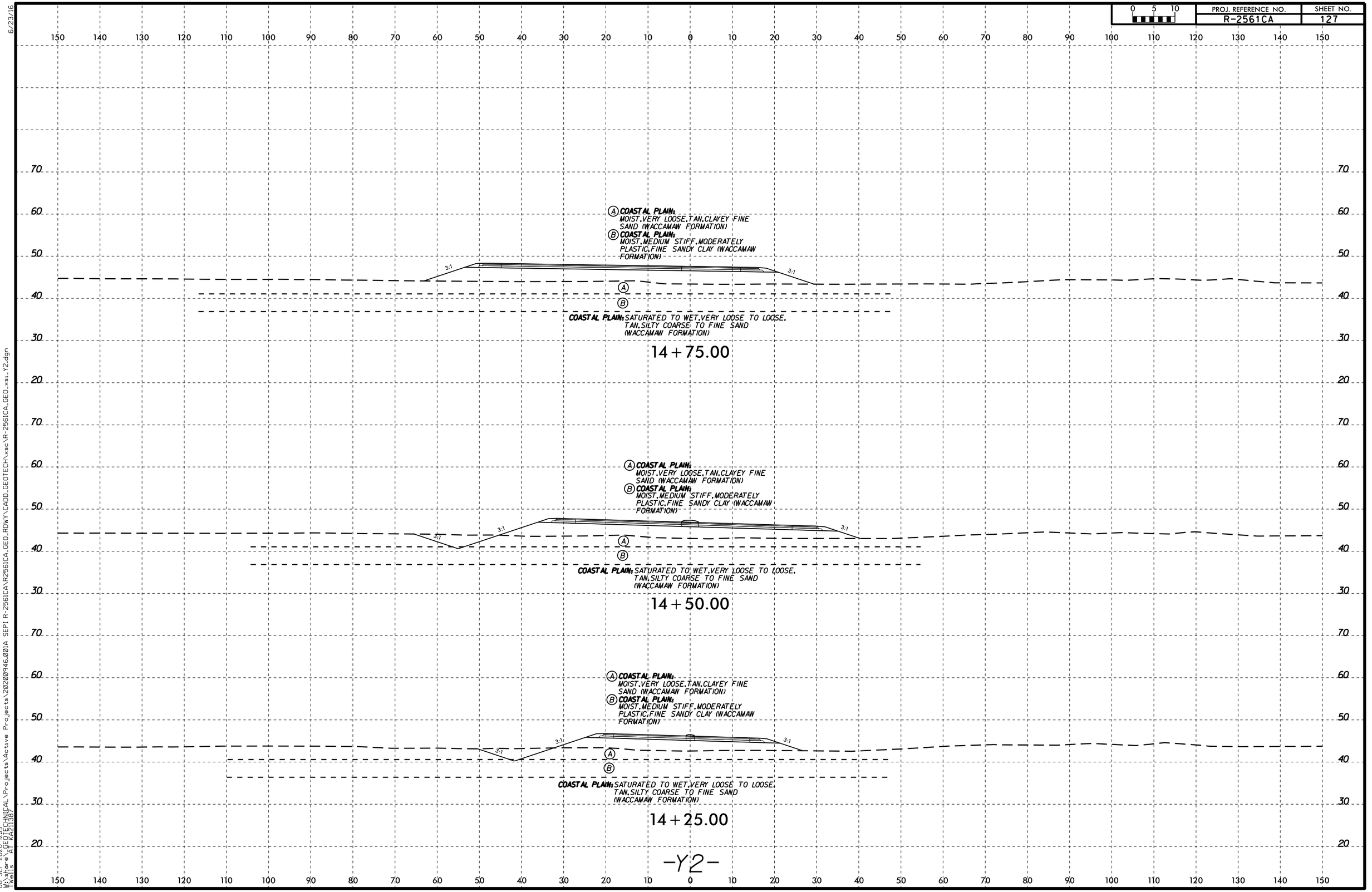
Wells AT KA21138



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Wells, AT KPA(138)
6/23/16

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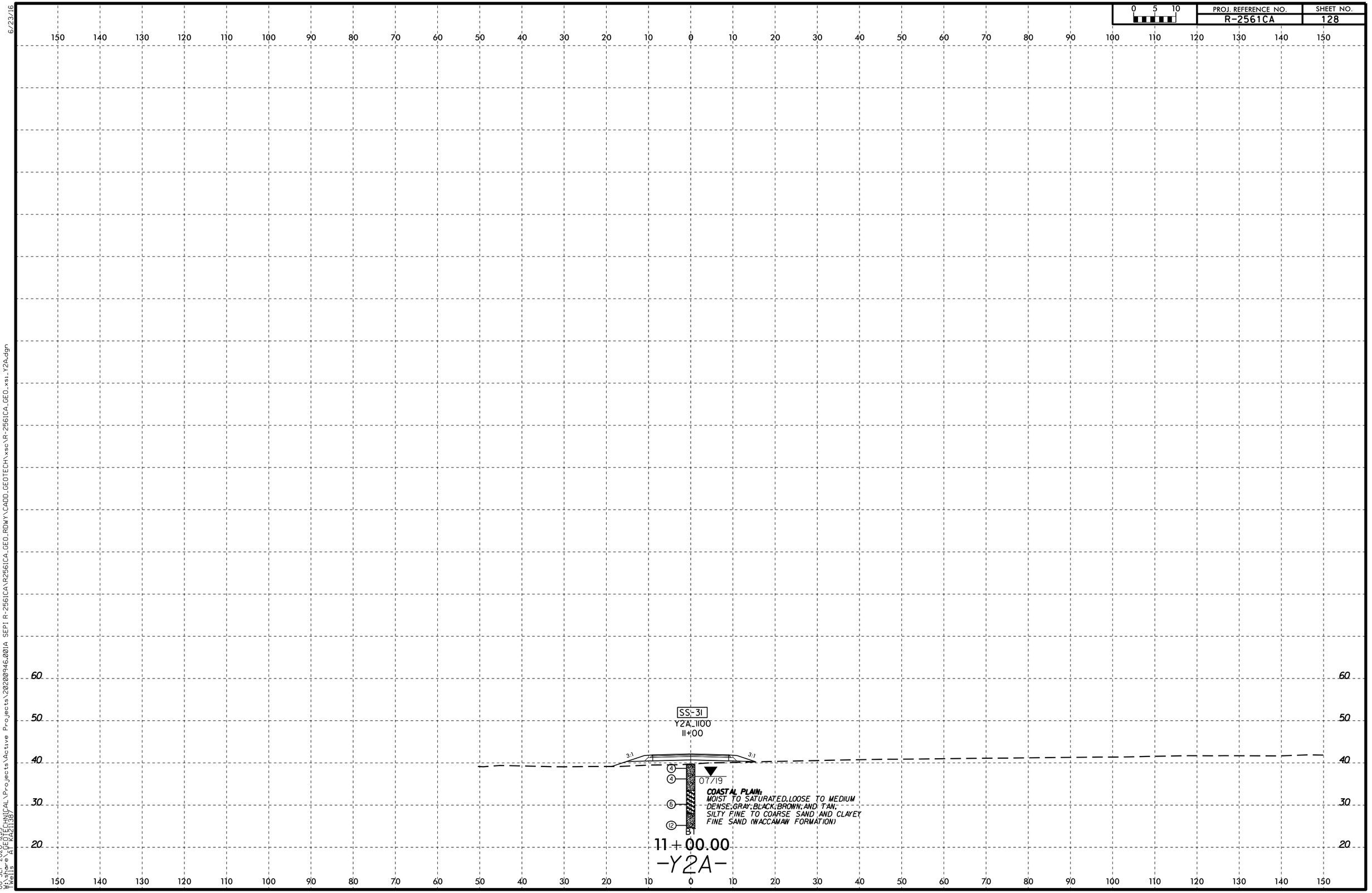
	R-2561CA	128



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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	129

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

60
50
40
30
20

Y2A_I300
I3+00

3:1 3:1

2
4
11
4

07/19

BT

COASTAL PLAIN:
MOIST TO SATURATED, VERY LOOSE TO MEDIUM DENSE, GRAY, BLACK, AND BROWN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

13+00.00

-Y2A-

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

6/23/16

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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	130

SS-32
Y2A_I500
I5+00

A **COASTAL PLAIN:** MOIST, VERY SOFT, BROWN, FINE TO COARSE SANDY SILT (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, MEDIUM STIFF, BROWN, FINE SANDY CLAY (WACCAMAW FORMATION)
SATURATED TO WET, VERY LOOSE TO LOOSE, LIGHT GRAY TO PALE OLIVE, CLAYEY FINE SAND TO SILTY FINE SAND (WACCAMAW FORMATION)

07/19

BT

15+00.00
-Y2A-

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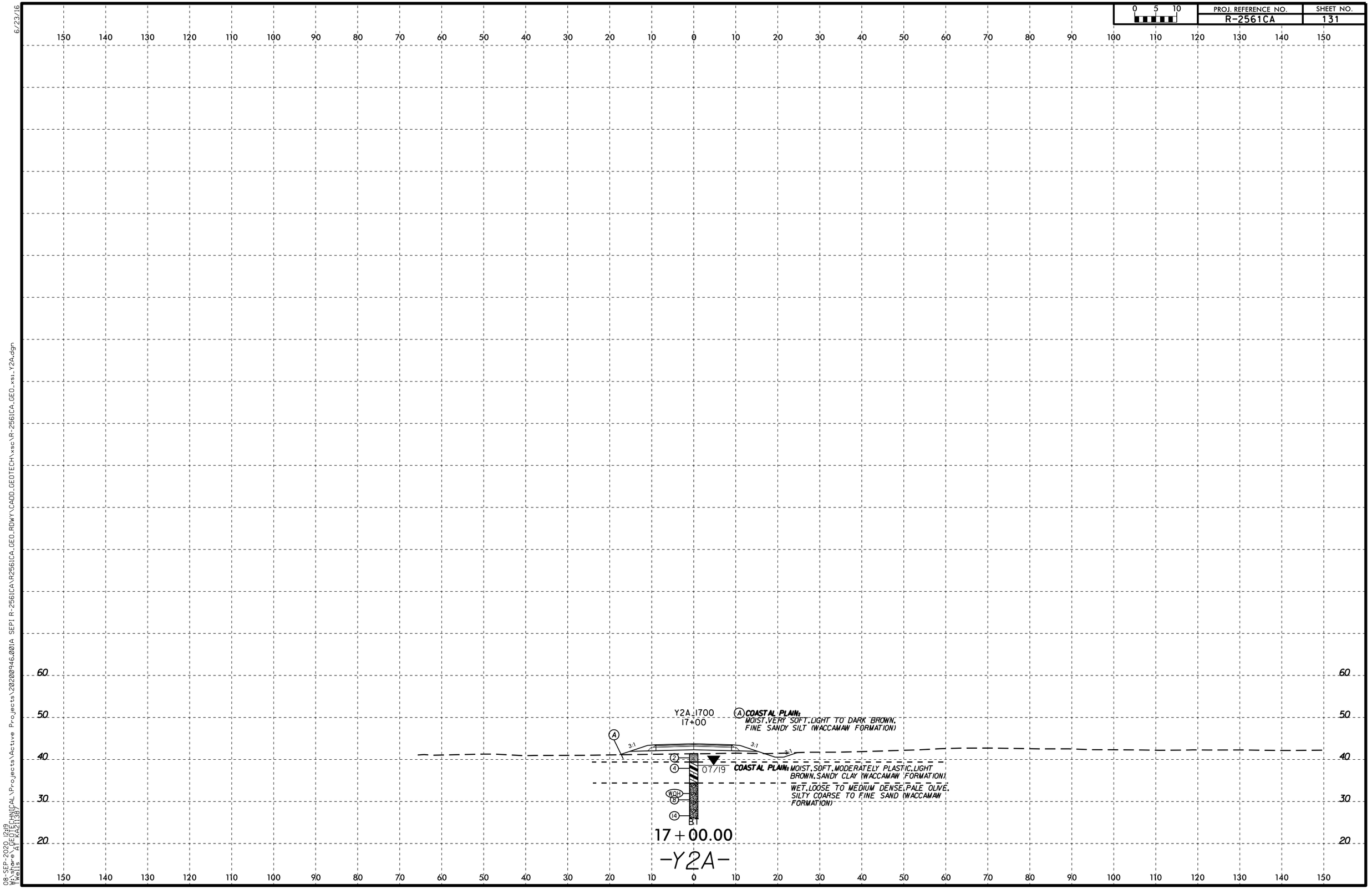
Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	131



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Wells AT KP21138
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	132

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

60 50 40 30 20

SS-33
Y2A_1900
19+00

6.75:1 3:1

COASTAL PLAIN

MOIST, VERY SOFT, LIGHT GRAY TO DARK BROWN, FINE SANDY SILT (WACCAMAW FORMATION)

07/19

WET, VERY LOOSE TO LOOSE, PALE OLIVE TO TAN, SILTY FINE SAND (WACCAMAW FORMATION)

19+00.00
-Y2A-

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

60 50 40 30 20

08-SEP-2020 12:19
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Wells AT KA21138

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

60 50 40 30

Ⓒ COASTAL PLAIN: MOIST, MEDIUM DENSE, BROWN, SILTY FINE SAND (WACCAMAW FORMATION)

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

Ⓒ

COASTAL PLAIN: MOIST, LOOSE, MODERATELY PLASTIC, BROWN, CLAYEY FINE SAND (WACCAMAW FORMATION)

MOIST, TO SATURATED, MEDIUM DENSE TO LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

11+75.00

60 50 40 30

Ⓑ COASTAL PLAIN: MOIST, LOOSE, MODERATELY PLASTIC, BROWN, CLAYEY FINE SAND (WACCAMAW FORMATION)

Ⓑ

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

COASTAL PLAIN: MOIST, TO SATURATED, MEDIUM DENSE TO LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

11+50.00

80 70 60 50 40 30

Ⓐ COASTAL PLAIN: MOIST, LOOSE, LIGHT GRAYISH BLACK, SILTY FINE SAND (WACCAMAW FORMATION)

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

Ⓐ

COASTAL PLAIN: MOIST, LOOSE, MODERATELY PLASTIC, TAN, CLAYEY FINE SAND (WACCAMAW FORMATION)

SATURATED, LOOSE, PALE OLIVE, SILTY FINE SAND (WACCAMAW FORMATION)

11+25.00

60 50 40 30

Y3_1100
11+00

Ⓐ COASTAL PLAIN: MOIST, LOOSE, LIGHT GRAYISH BLACK, SILTY FINE SAND (WACCAMAW FORMATION)

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

Ⓐ

6
7
6

07/19

B1

COASTAL PLAIN: MOIST, LOOSE, MODERATELY PLASTIC, TAN, CLAYEY FINE SAND (WACCAMAW FORMATION)

SATURATED, LOOSE, PALE OLIVE, SILTY FINE SAND (WACCAMAW FORMATION)

11+00.00

-Y3-

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

6/23/16

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Wells AT KH211387

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

70 60 50 40 80 70 60 50 40 30 70 60 50 40 30 20

Ⓐ ROADWAY EMBANKMENT

Ⓑ COASTAL PLAIN: MOIST, LOOSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

Ⓒ COASTAL PLAIN: MOIST, LOOSE, MODERATELY PLASTIC, BROWN, CLAYEY FINE SAND (WACCAMAW FORMATION)

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

COASTAL PLAIN: MOIST, MEDIUM DENSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

12 + 50.00

Ⓐ ROADWAY EMBANKMENT

Ⓑ COASTAL PLAIN: MOIST, MEDIUM DENSE, BROWN, SILTY FINE SAND (WACCAMAW FORMATION)

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

COASTAL PLAIN: MOIST, LOOSE, MODERATELY PLASTIC, BROWN, CLAYEY FINE SAND (WACCAMAW FORMATION)

MOIST, TO SATURATED, MEDIUM DENSE TO LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

12 + 25.00

Ⓐ ROADWAY EMBANKMENT

Ⓑ COASTAL PLAIN: MOIST, MEDIUM DENSE, BROWN, SILTY FINE SAND (WACCAMAW FORMATION)

Y3_1200
12+00

12 5 16 5 8 BT

07/19

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

COASTAL PLAIN: MOIST, LOOSE, MODERATELY PLASTIC, BROWN, CLAYEY FINE SAND (WACCAMAW FORMATION)

MOIST, TO SATURATED, MEDIUM DENSE TO LOOSE, TAN, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

12 + 00.00

-Y3-

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Wells AT KA21138

Ⓐ **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN, SILTY COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST, STIFF, MODERATELY PLASTIC, ORANGE, FINE TO COARSE SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, MEDIUM DENSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

13 + 50.00

Ⓐ **ROADWAY EMBANKMENT**

Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

Ⓒ **COASTAL PLAIN:** MOIST, LOOSE, MODERATELY PLASTIC, BROWN, CLAYEY FINE SAND (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, MEDIUM DENSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

13 + 25.00

Ⓐ **ROADWAY EMBANKMENT**

Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

Ⓒ **COASTAL PLAIN:** MOIST, LOOSE, MODERATELY PLASTIC, BROWN, CLAYEY FINE SAND (WACCAMAW FORMATION)

Y3_1300
13+00

BT
DRY
07/19

COASTAL PLAIN: MOIST, MEDIUM DENSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

13 + 00.00

Ⓐ **ROADWAY EMBANKMENT**

Ⓑ **COASTAL PLAIN:** MOIST, LOOSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

Ⓒ **COASTAL PLAIN:** MOIST, LOOSE, MODERATELY PLASTIC, BROWN, CLAYEY FINE SAND (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, MEDIUM DENSE, TAN, SILTY FINE SAND (WACCAMAW FORMATION)

12 + 75.00

-Y3-

6/23/16

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Wells AT KA21138

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

80 70 60 50 40

(A) **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN, SILTY COARSE TO FINE SAND

(B) **COASTAL PLAIN:** MOIST, STIFF, MODERATELY PLASTIC, ORANGE, FINE TO COARSE SANDY CLAY (WACCAMAW FORMATION)

COASTAL PLAIN: MOIST, MEDIUM DENSE, ORANGE-RED, FINE TO COARSE SAND (WACCAMAW FORMATION)

14 + 50.00

(A) **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN, SILTY COARSE TO FINE SAND

(B) **COASTAL PLAIN:** MOIST, STIFF, MODERATELY PLASTIC, ORANGE, FINE TO COARSE SANDY CLAY (WACCAMAW FORMATION)

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

COASTAL PLAIN: MOIST, MEDIUM DENSE, ORANGE-RED, FINE TO COARSE SAND (WACCAMAW FORMATION)

14 + 25.00

(A) **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN, SILTY COARSE TO FINE SAND

(B) **COASTAL PLAIN:** MOIST, STIFF, MODERATELY PLASTIC, ORANGE, FINE TO COARSE SANDY CLAY (WACCAMAW FORMATION)

Y3_1400
14+00

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

BT
DRY
08/19

COASTAL PLAIN: MOIST, MEDIUM DENSE, ORANGE-RED, FINE TO COARSE SAND (WACCAMAW FORMATION)

14 + 00.00

(A) **ROADWAY EMBANKMENT:** MOIST, LOOSE, TAN, SILTY COARSE TO FINE SAND

(B) **COASTAL PLAIN:** MOIST, STIFF, MODERATELY PLASTIC, ORANGE, FINE TO COARSE SANDY CLAY (WACCAMAW FORMATION)

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

COASTAL PLAIN: MOIST, MEDIUM DENSE, ORANGE-RED, FINE TO COARSE SAND (WACCAMAW FORMATION)

13 + 75.00

-Y3-

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

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A. Wells
AT K42113B7

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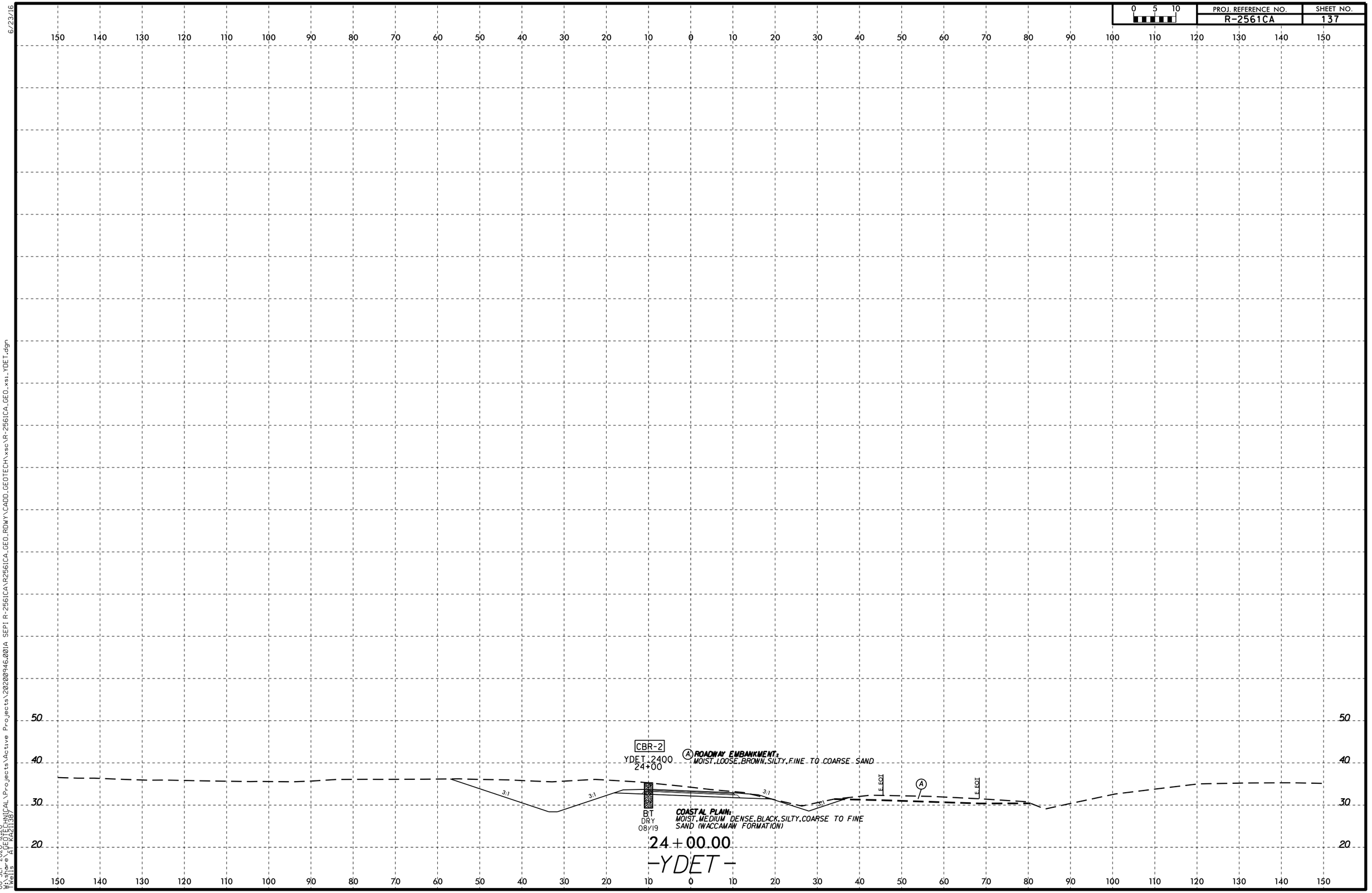

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Wells AT KA21138

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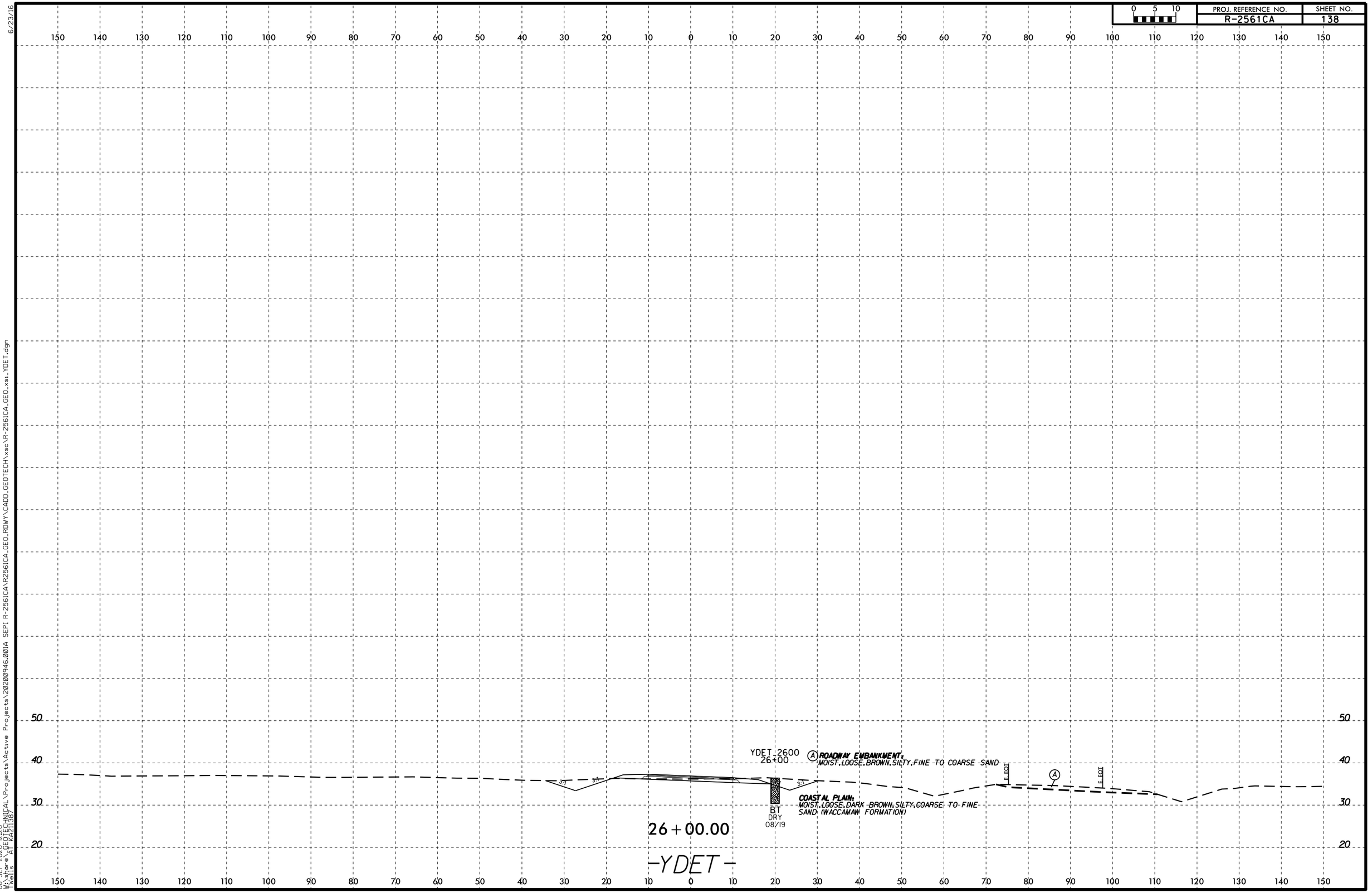
	R-2561CA	138



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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	139

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

50
40
30
20

3:1

3:1

COASTAL PLAIN:
MOIST, MEDIUM DENSE, WHITE TO TAN, SILTY, COARSE TO FINE SAND (WACCAMAW FORMATION)

DR3_II75
26+96

BT
DRY
08/19

Ⓐ **ROADWAY EMBANKMENT:**
MOIST, LOOSE, BROWN, SILTY, FINE TO COARSE SAND

E.EOT

Ⓐ

E.EOT

27+00.00

-YDET-

50
40
30
20

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

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Wells AT KA21138

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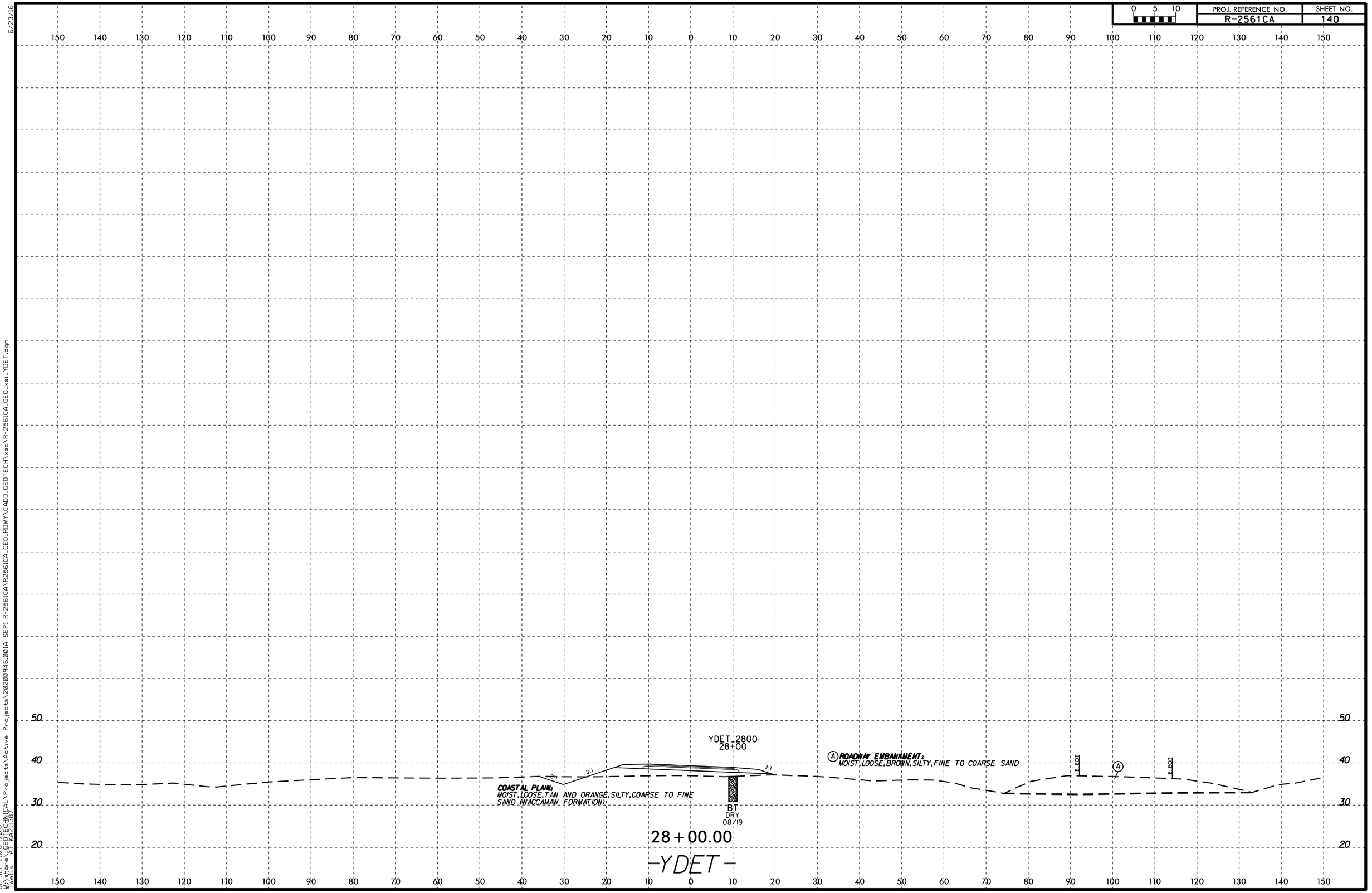
	R-2561CA	140



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Wells AT KP21138

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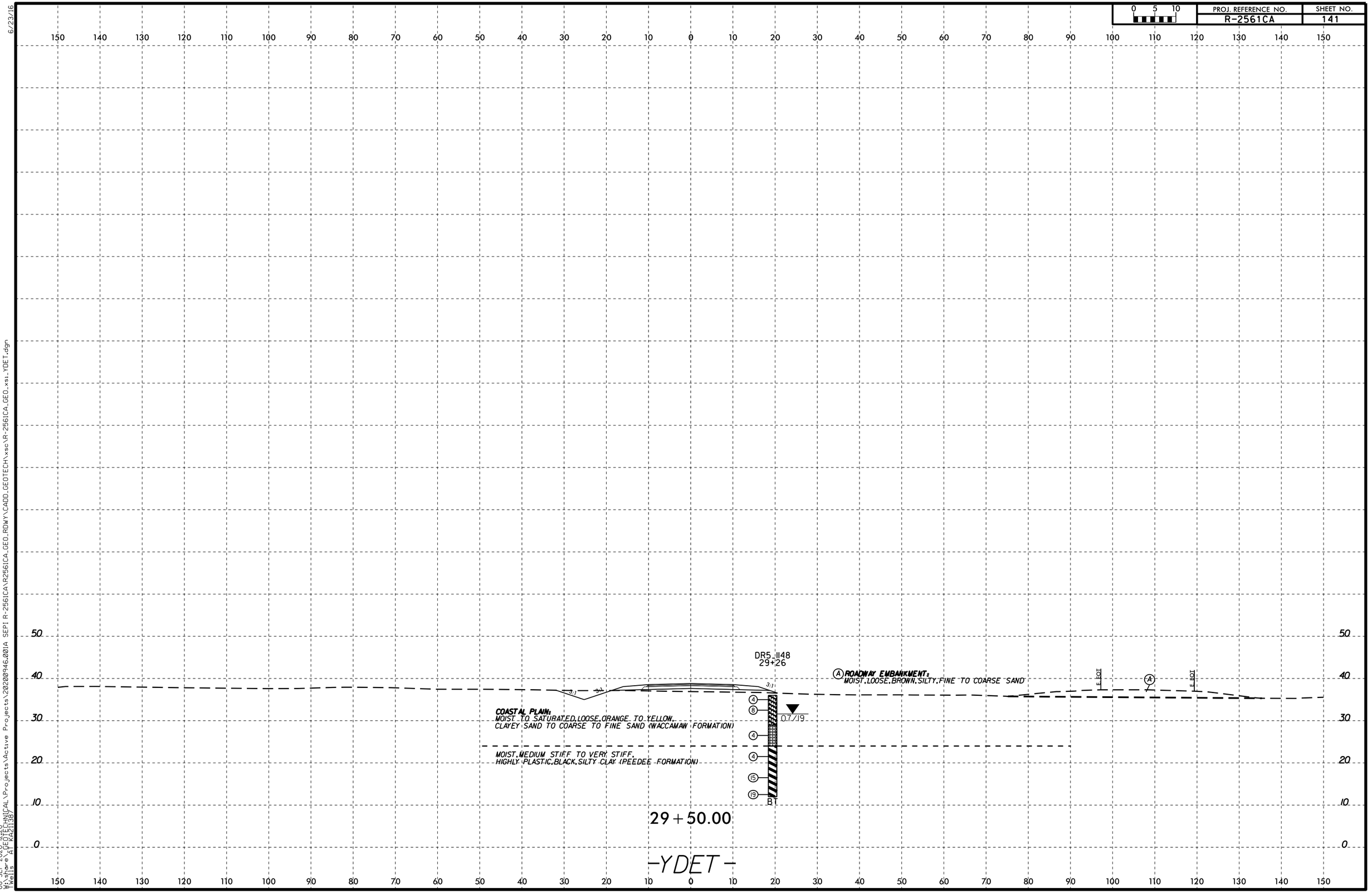
	R-2561CA	141



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Wells AT KA21138

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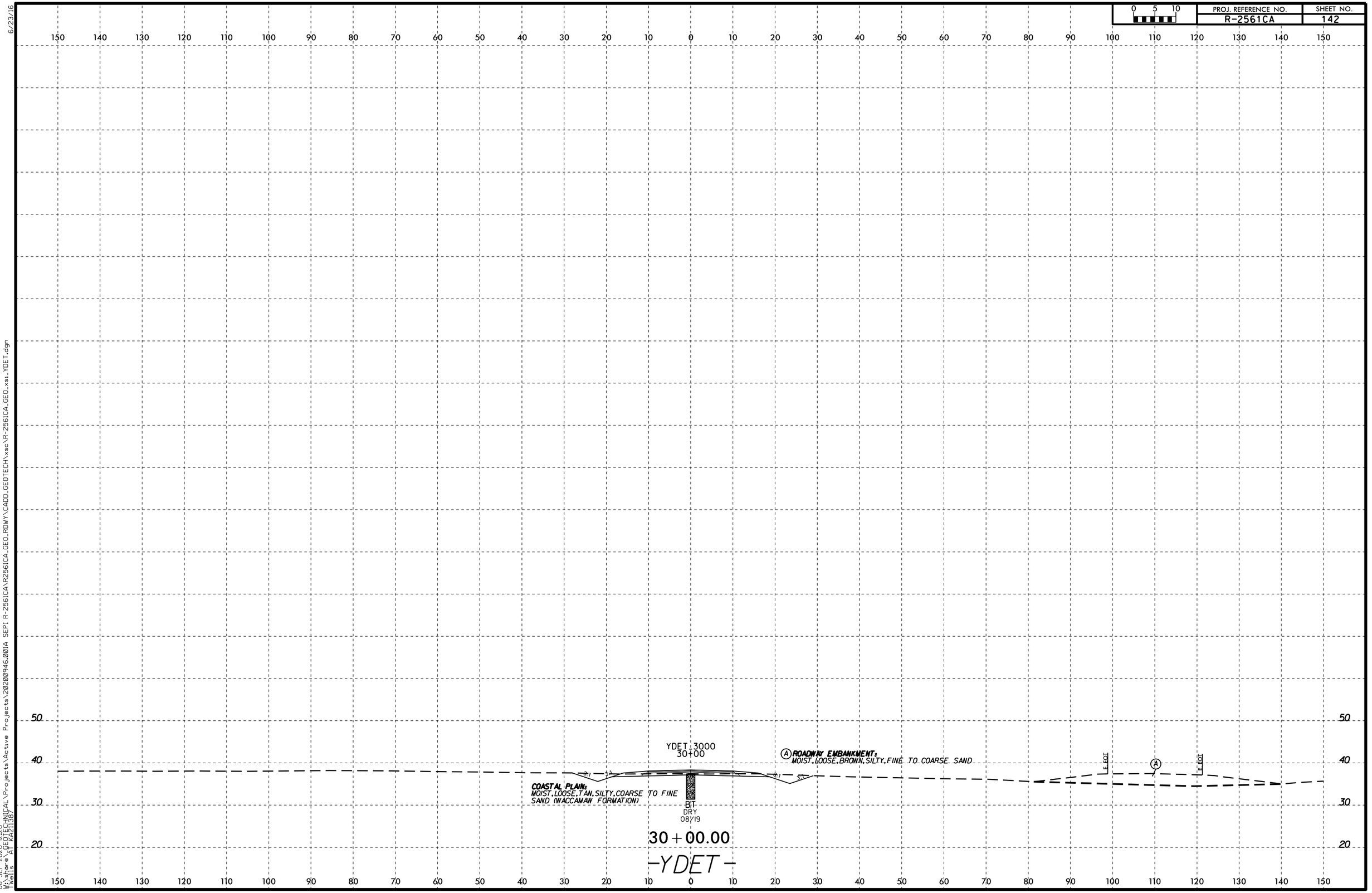
	R-2561CA	142



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Wells AT KA21138

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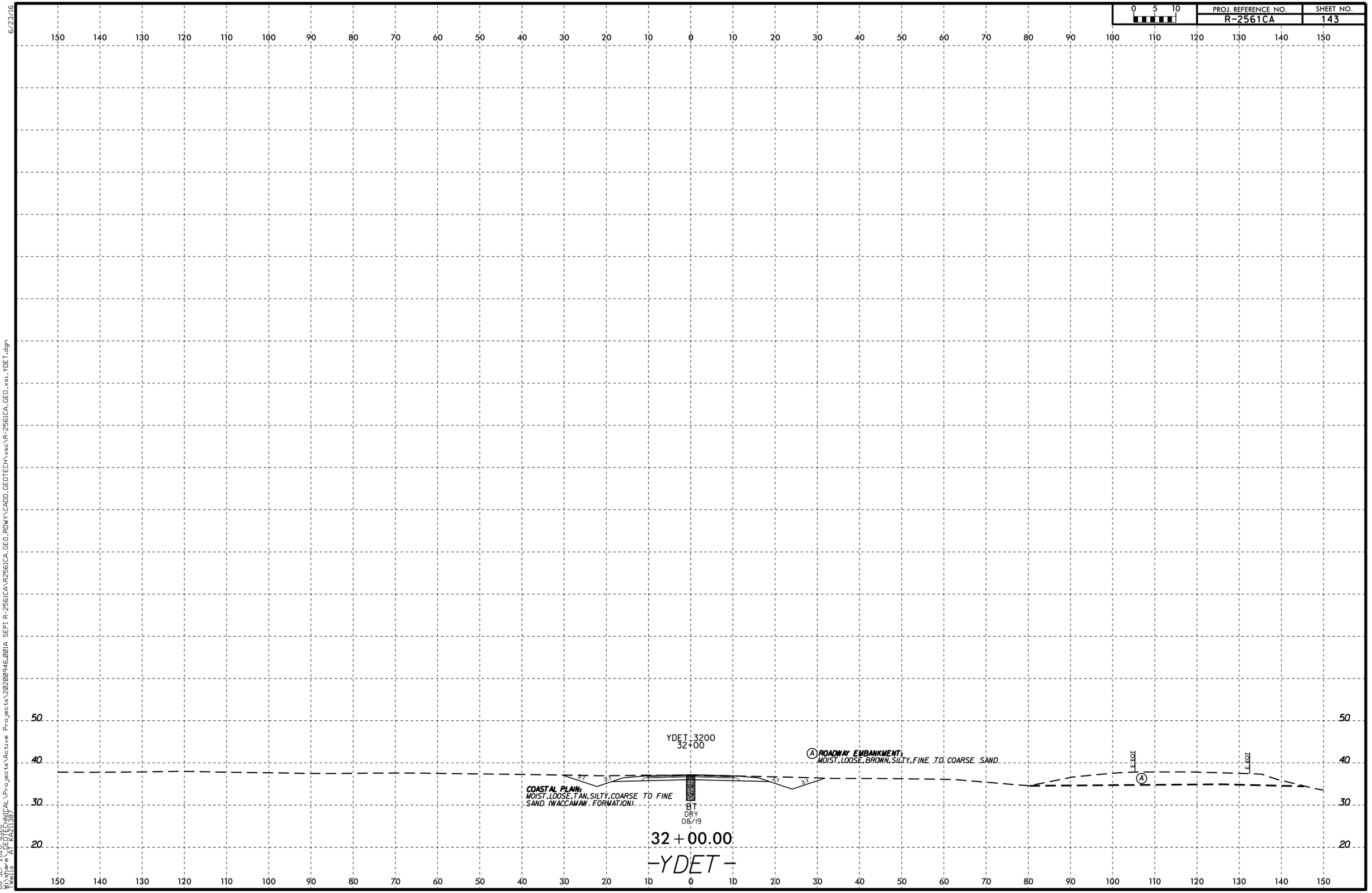
	R-2561CA	143



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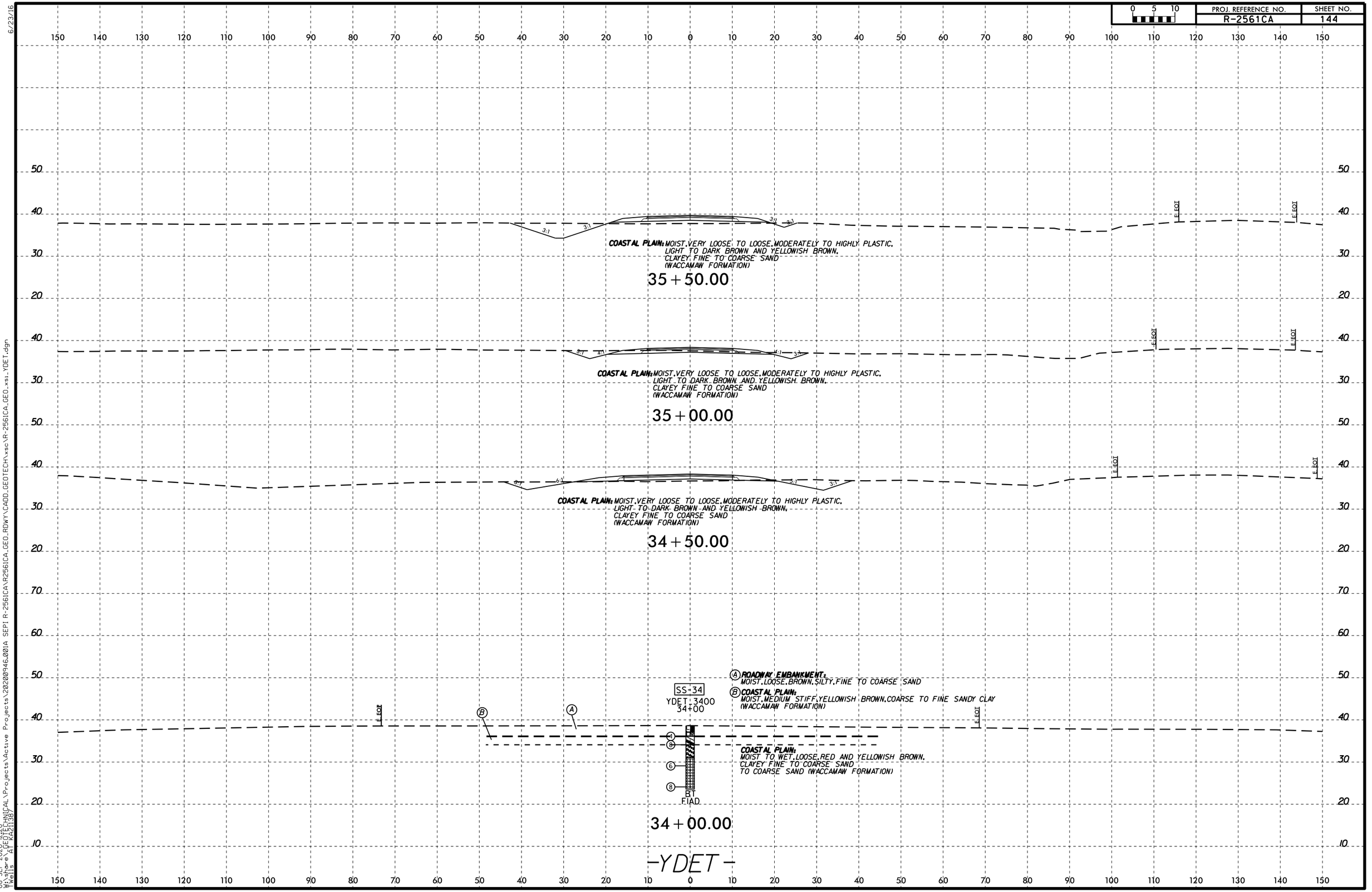
Wells AT KA21138



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Wells AT KA21138

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

50 40 30 20 10

E.EOT E.EOT

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

COASTAL PLAIN: MOIST TO SATURATED, LOOSE, GREENISH BLACK, GRAY, BROWN, AND LIGHT BROWN, CLAYEY FINE SAND TO SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

37+50.00

50 40 30

E.EOT E.EOT

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

COASTAL PLAIN: MOIST, VERY LOOSE TO LOOSE, MODERATELY TO HIGHLY PLASTIC, LIGHT TO DARK BROWN AND YELLOWISH BROWN, CLAYEY FINE TO COARSE SAND (WACCAMAW FORMATION)

37+00.00

50 40 30

E.EOT E.EOT

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

COASTAL PLAIN: MOIST, VERY LOOSE TO LOOSE, MODERATELY TO HIGHLY PLASTIC, LIGHT TO DARK BROWN AND YELLOWISH BROWN, CLAYEY FINE TO COARSE SAND (WACCAMAW FORMATION)

36+50.00

60 50 40 30 20

SS-35
YDET 3600
36+00

E.EOT E.EOT

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

2 10 7 BT 07/19

COASTAL PLAIN: MOIST, VERY LOOSE TO LOOSE, MODERATELY TO HIGHLY PLASTIC, LIGHT TO DARK BROWN AND YELLOWISH BROWN, CLAYEY FINE TO COARSE SAND (WACCAMAW FORMATION)

36+00.00

-YDET-

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

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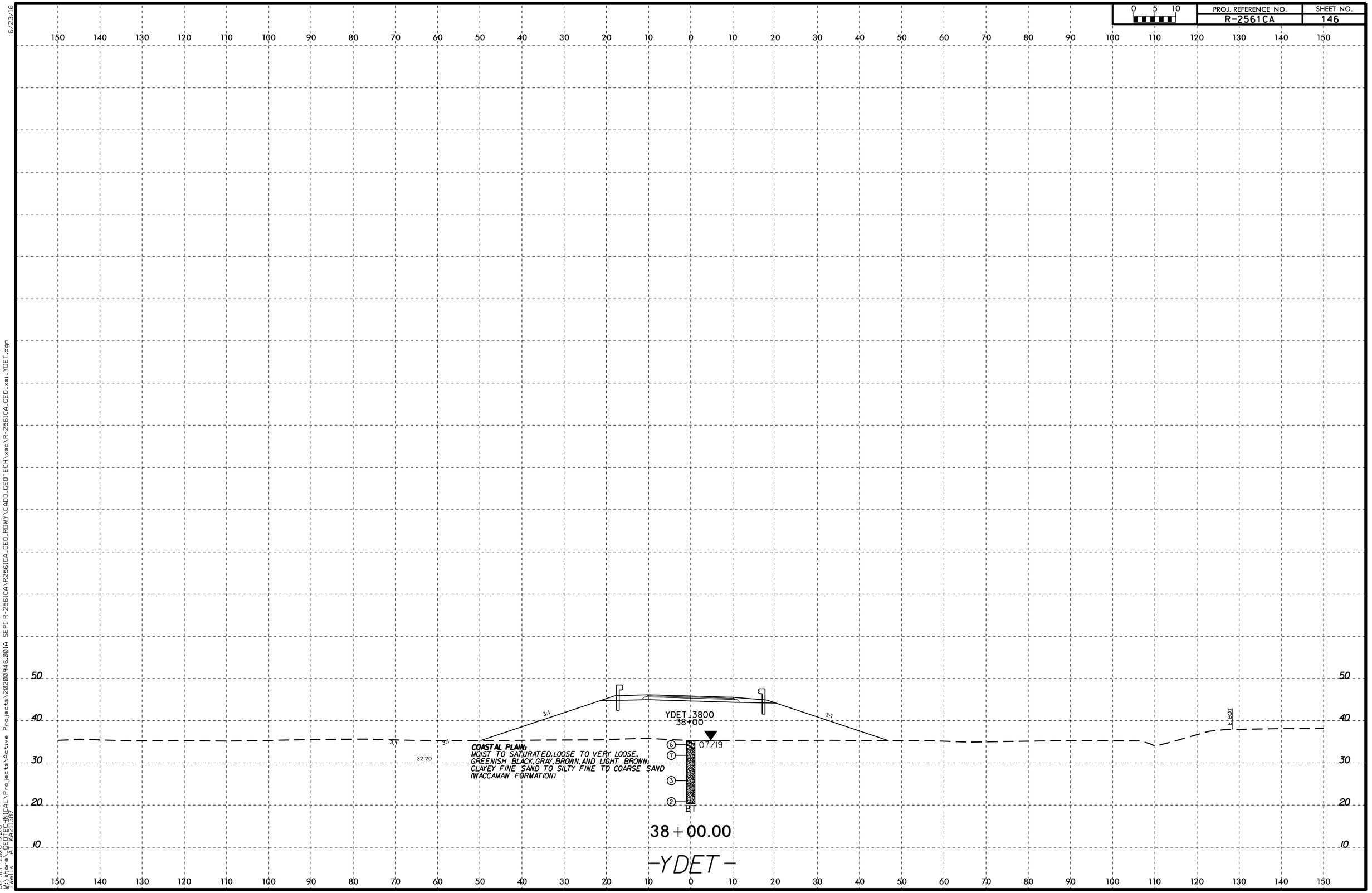
Wells AT KAZ1138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	146



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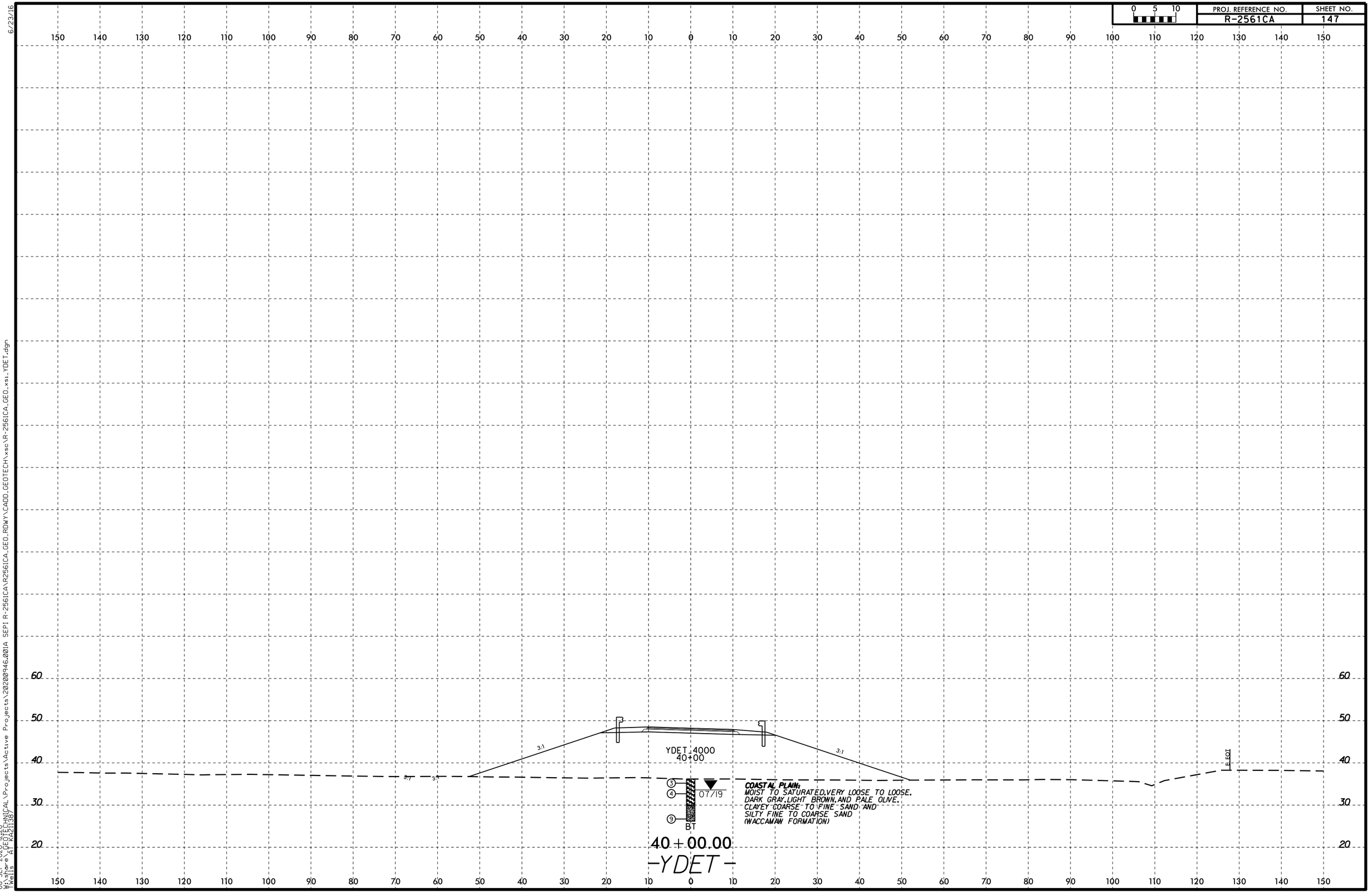
Wells AT KA21138



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Wells AT KA21138

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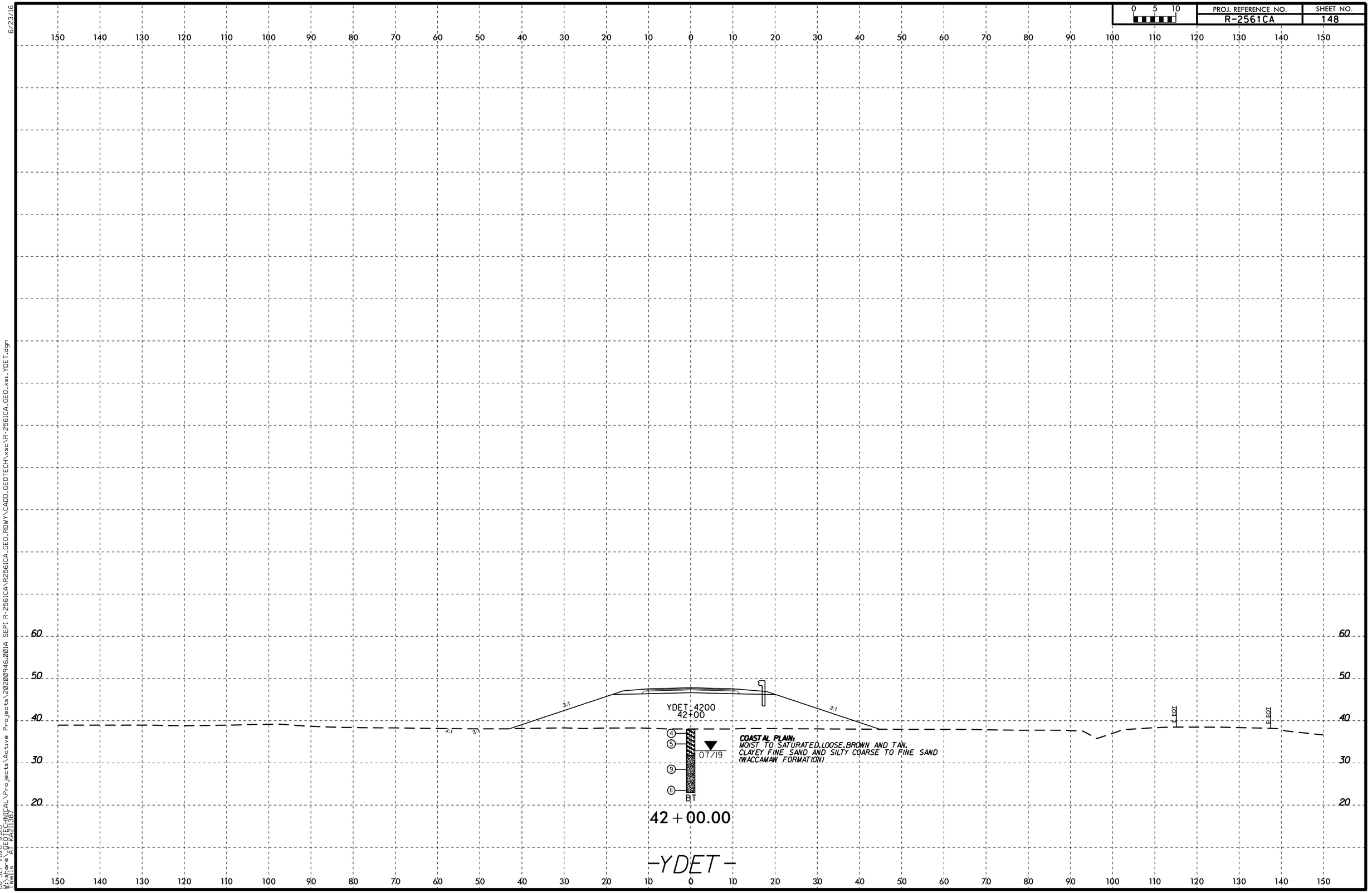
	R-2561CA	148



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Wells AT KA21138

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	149

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

60 50 40 30 20 10

A **COASTAL PLAIN:**
MOIST, LOOSE, TAN,
COARSE TO FINE SAND (WACCAMAW FORMATION)

B **COASTAL PLAIN:**
MOIST, VERY SOFT, ORANGE TO GRAY,
COARSE TO FINE SANDY SILT (WACCAMAW FORMATION)

YDET-4400
44+00

3:1 3:1

4
1
12
2
4
BT

07/19

COASTAL PLAIN:
WET TO SATURATED, MEDIUM DENSE TO VERY LOOSE, TAN, YELLOW, AND GRAY,
SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

F.EOT F.EOT

44+00.00

-YDET-

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

60 50 40 30 20 10

6/23/16

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Wells AT KA21138

PROJ. REFERENCE NO.	SHEET NO.
R-2561CA	150

0 5 10

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

60 50 40 30 20 10

(A) COASTAL PLAIN:
MOIST, LOOSE, TAN,
SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

(B) COASTAL PLAIN:
MOIST, MEDIUM STIFF, MODERATELY PLASTIC, ORANGE,
COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

SS-36
YDET-4605
46+05

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

F. EOT F. EOT

COASTAL PLAIN:
MOIST TO SATURATED, MEDIUM DENSE TO LOOSE, ORANGE, TAN, AND GRAY
SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

6 18 4 5

0.7/19

46+00.00

BT

(A) COASTAL PLAIN:
MOIST, LOOSE, TAN,
SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

(B) COASTAL PLAIN:
MOIST, MEDIUM STIFF, MODERATELY PLASTIC, ORANGE,
COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

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

F. EOT F. EOT

COASTAL PLAIN:
MOIST TO SATURATED, MEDIUM DENSE TO LOOSE, ORANGE, TAN, AND GRAY
SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

45+50.00

(A) COASTAL PLAIN:
MOIST, LOOSE, TAN,
SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

(B) COASTAL PLAIN:
MOIST, MEDIUM STIFF, MODERATELY PLASTIC, ORANGE,
COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

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

F. EOT F. EOT

COASTAL PLAIN:
MOIST TO SATURATED, MEDIUM DENSE TO LOOSE, ORANGE, TAN, AND GRAY
SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

45+00.00

60 50 40 30

-YDET-

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

6/23/16

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Wells AT KA21138

0 5 10

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

60 50 40 30 20 10 0 50 40 30 20 10 50 40 30 20

Ⓐ **ALLUVIAL:** MOIST,VERY LOOSE,DARK BROWN, CLAYEY COARSE TO FINE SAND

Ⓑ **COASTAL PLAIN:** MOIST,LOOSE,GRAY AND TAN, CLAYEY FINE TO COARSE SAND (WACCAMAW FORMATION)

Ⓒ **ROADWAY EMBANKMENT:** MOIST,LOOSE,BROWN,SILTY,FINE TO COARSE SAND

YDET 4800
48+00

5.3:1 3:1 E.EOT E.EOT

Ⓐ Ⓑ Ⓒ

③ ⑤ 07/19 ⑧ BT

COASTAL PLAIN: MOIST,LOOSE,YELLOW, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

48+00.00

Ⓒ **ALLUVIAL:** MOIST,VERY LOOSE,DARK BROWN, CLAYEY COARSE TO FINE SAND

Ⓓ **COASTAL PLAIN:** MOIST,LOOSE,GRAY AND TAN, CLAYEY FINE TO COARSE SAND (WACCAMAW FORMATION)

Ⓔ **ROADWAY EMBANKMENT:** MOIST,LOOSE,BROWN,SILTY,FINE TO COARSE SAND

Ⓒ Ⓓ Ⓔ

3:1 4:1 3:1 10:1 E.EOT E.EOT

COASTAL PLAIN: MOIST,LOOSE,YELLOW, SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

47+50.00

Ⓑ **COASTAL PLAIN:** MOIST,MEDIUM STIFF,MODERATELY PLASTIC,ORANGE, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

3:1 3:1 3:1 3:1 E.EOT E.EOT

Ⓑ

COASTAL PLAIN: MOIST TO SATURATED,MEDIUM DENSE TO LOOSE,ORANGE,TAN,AND GRAY SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

47+00.00

Ⓐ **COASTAL PLAIN:** MOIST,LOOSE,TAN, SILTY COARSE TO FINE SAND (WACCAMAW FORMATION)

Ⓑ **COASTAL PLAIN:** MOIST,MEDIUM STIFF,MODERATELY PLASTIC,ORANGE, COARSE TO FINE SANDY CLAY (WACCAMAW FORMATION)

3:1 3:1 3:1 3:1 E.EOT E.EOT

Ⓐ Ⓑ

COASTAL PLAIN: MOIST TO SATURATED,MEDIUM DENSE TO LOOSE,ORANGE,TAN,AND GRAY SILTY FINE TO COARSE SAND (WACCAMAW FORMATION)

46+50.00

-YDET-

60 50 40 30 20 10 0 50 40 30 20 10 60 50 40 30 20

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

6/23/16

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Wells AT KA21138

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

60 50 40 30 20 60 50 40 70 60 50 40 60 50 30

3:1

COASTAL PLAIN:
MOIST, MEDIUM STIFF, MODERATELY PLASTIC, BROWN, GRAY, AND TAN, COARSE TO FINE SANDY CLAY AND SILTY CLAY (WACCAMAW FORMATION)

11+50.00

3:1 3:1

COASTAL PLAIN:
MOIST, MEDIUM STIFF, MODERATELY PLASTIC, BROWN, GRAY, AND TAN, COARSE TO FINE SANDY CLAY AND SILTY CLAY (WACCAMAW FORMATION)

11+25.00

DRI_1100
11+00

7
8
9

BT
DRY
7/19

COASTAL PLAIN:
MOIST, MEDIUM STIFF TO STIFF, MODERATELY PLASTIC, BROWN, GRAY, AND TAN, COARSE TO FINE SANDY CLAY AND SILTY CLAY (WACCAMAW FORMATION)

11+00.00

COASTAL PLAIN:
MOIST, MEDIUM STIFF TO STIFF, MODERATELY PLASTIC, BROWN, GRAY, AND TAN, COARSE TO FINE SANDY CLAY AND SILTY CLAY (WACCAMAW FORMATION)

10+75.00

-DRI-

70 60 50 40 30

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

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Wells AT KPZ1138

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	153

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60 50 40 30 20

COASTAL PLAIN:
MOIST, MEDIUM STIFF, MODERATELY PLASTIC, BROWN, GRAY, AND TAN, COARSE TO FINE SANDY CLAY AND SILTY CLAY (WACCAMAW FORMATION)

11+75.00

-DRI-

08-SEP-2020 12:20
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jwells AT KPZ1138

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

60 50 40 30 20

COASTAL PLAIN:
DRY TO MOIST, STIFF,
MODERATELY PLASTIC, RED TO TAN,
SILTY CLAY (WACCAMAW FORMATION)

11 + 50.00

60 50 70

COASTAL PLAIN:
DRY TO MOIST, STIFF,
MODERATELY PLASTIC, RED TO TAN,
SILTY CLAY (WACCAMAW FORMATION)

11 + 25.00

60 50 40

DR2_1100
11+00

9
11
10
BT
DRY
7/19

COASTAL PLAIN:
DRY TO MOIST, STIFF,
MODERATELY PLASTIC, RED TO TAN,
SILTY CLAY (WACCAMAW FORMATION)

11 + 00.00

60 50 80

COASTAL PLAIN:
DRY TO MOIST, STIFF,
MODERATELY PLASTIC, RED TO TAN,
SILTY CLAY (WACCAMAW FORMATION)

10 + 75.00

70 60 50 40

COASTAL PLAIN:
DRY TO MOIST, STIFF,
MODERATELY PLASTIC, RED TO TAN,
SILTY CLAY (WACCAMAW FORMATION)

10 + 50.00

-DR2-

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

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Wells AT KA21138

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

60 50 40 30

COASTAL PLAIN:
DRY TO MOIST, STIFF, MODERATELY PLASTIC, RED TO TAN, SILTY CLAY (WACCAMAW FORMATION)

11+75.00

-DR2-

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

60 50 40 30

6/23/16
08-SEP-2020 12:20
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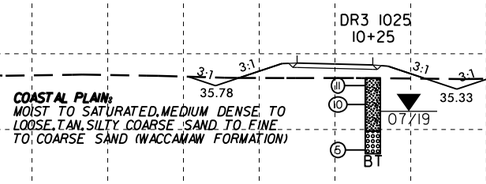
Wells AT KA21138



COASTAL PLAIN:
MOIST TO SATURATED, MEDIUM DENSE TO LOOSE, TAN, SILTY COARSE SAND TO FINE TO COARSE SAND (WACCAMAW FORMATION)

10+25.00

-DR3-

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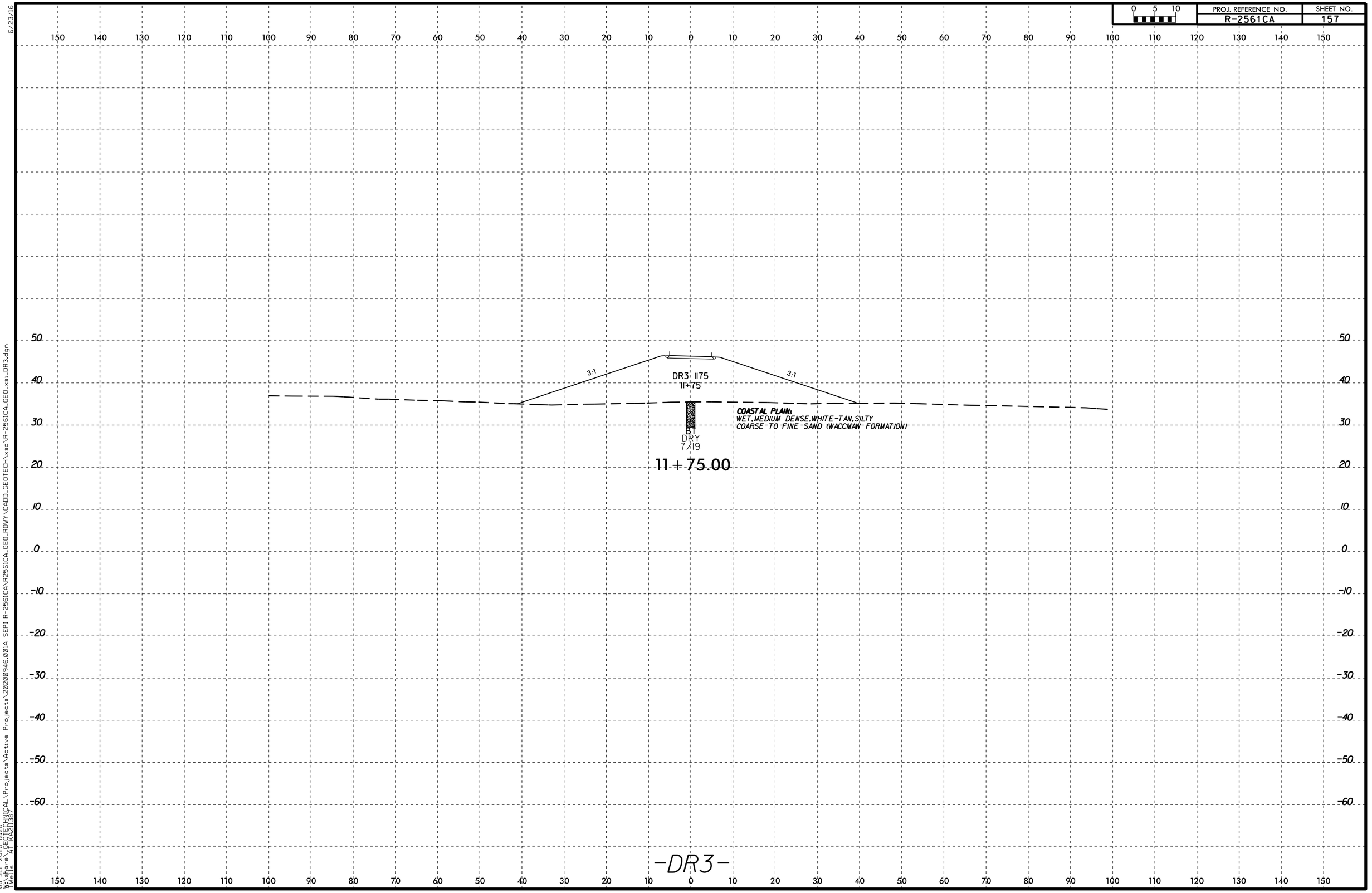
Wells AT KAZILIS

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	157



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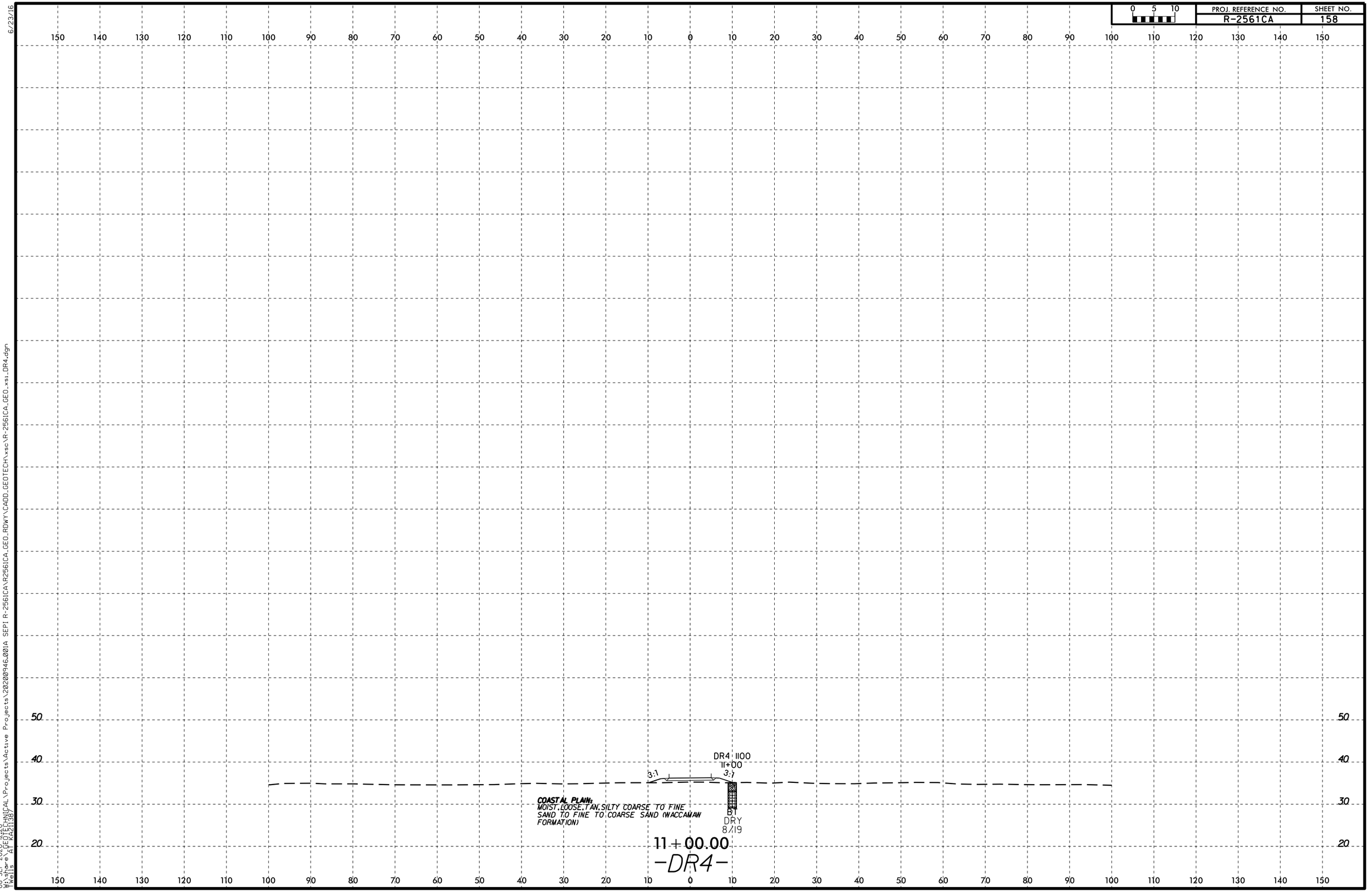
Wells AT KA21138



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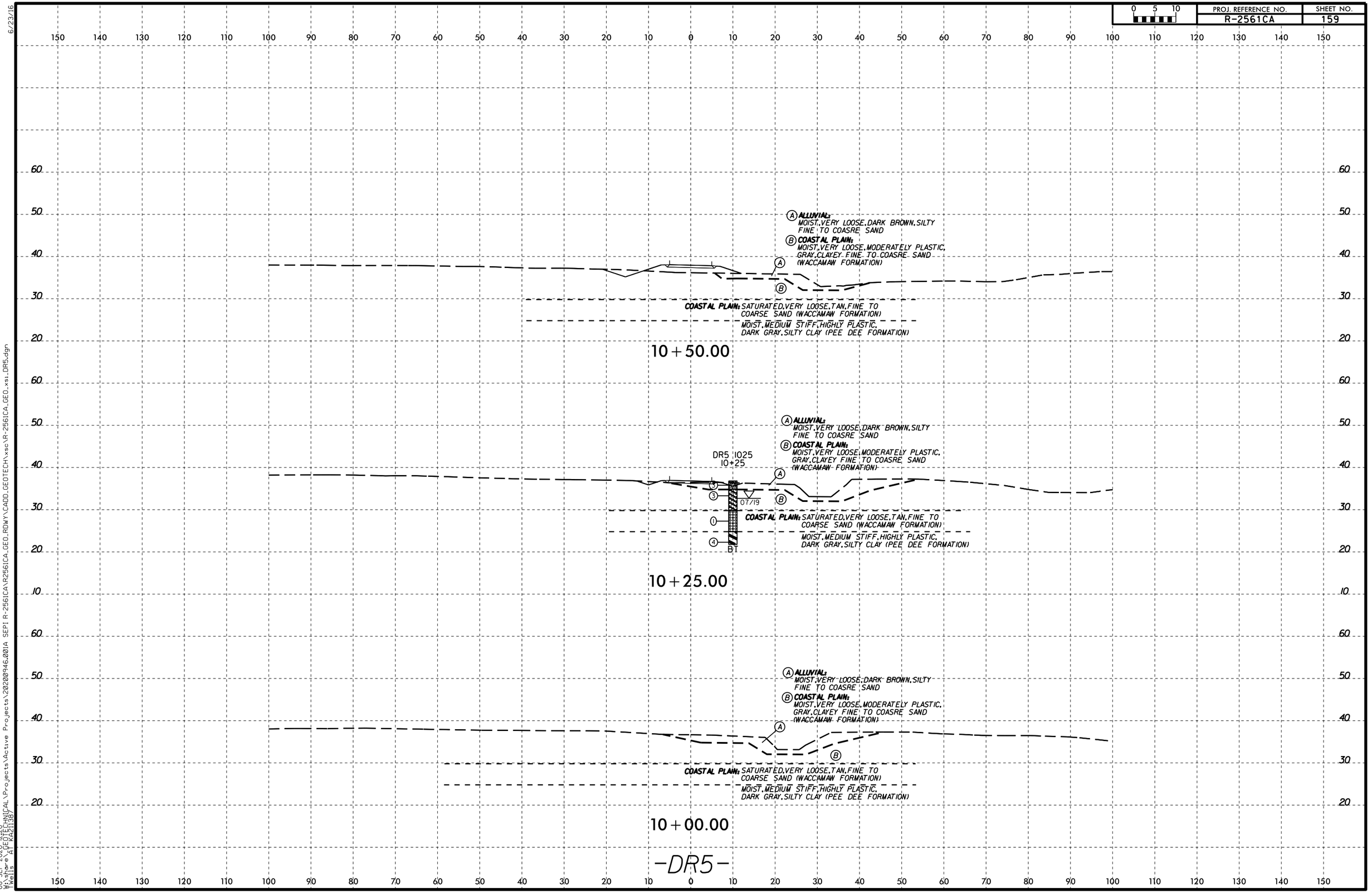
Wells AT KA21138



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Wells AT KA21138

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

50 40 30 20 10 0 60 50 40 30 20 60 50 40 30 20 10

Ⓐ **ALLUVIAL:** MOIST, VERY LOOSE, DARK BROWN, SILTY FINE TO COASRE SAND

COASTAL PLAIN: MOIST, TO SATURATED, LOOSE, ORANGE TO YELLOW, CLAYEY FINE TO COARSE SAND TO FINE TO COARSE SAND (WACCAMAW FORMATION)

MOIST, MEDIUM STIFF TO VERY STIFF, HIGHLY PLASTIC, BLACK, SILTY CLAY (PEEDEE FORMATION)

11+25.00

Ⓐ **ALLUVIAL:** MOIST, VERY LOOSE, DARK BROWN, SILTY FINE TO COASRE SAND

Ⓑ **COASTAL PLAIN:** MOIST, VERY LOOSE, MODERATELY PLASTIC, GRAY, CLAYEY FINE TO COASRE SAND (WACCAMAW FORMATION)

3:1 3:1

COASTAL PLAIN: SATURATED, VERY LOOSE, TAN, FINE TO COARSE SAND (WACCAMAW FORMATION)

MOIST, MEDIUM STIFF, HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEE DEE FORMATION)

11+00.00

Ⓐ **ALLUVIAL:** MOIST, VERY LOOSE, DARK BROWN, SILTY FINE TO COASRE SAND

Ⓑ **COASTAL PLAIN:** MOIST, VERY LOOSE, MODERATELY PLASTIC, GRAY, CLAYEY FINE TO COASRE SAND (WACCAMAW FORMATION)

COASTAL PLAIN: SATURATED, VERY LOOSE, TAN, FINE TO COARSE SAND (WACCAMAW FORMATION)

MOIST, MEDIUM STIFF, HIGHLY PLASTIC, DARK GRAY, SILTY CLAY (PEE DEE FORMATION)

10+75.00

-DR5-

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Wells AT KA21139

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2561CA	161

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

60 50 40 30 20 10 0

3:1 3:1

Ⓐ **ALLUVIAL:**
MOIST, VERY LOOSE, DARK BROWN, SILTY FINE TO COASRE SAND

Ⓐ

COASTAL PLAIN:
MOIST, TO SATURATED, LOOSE, ORANGE TO YELLOW, CLAYEY FINE TO COARSE SAND TO FINE TO COARSE SAND (WACCAMAW FORMATION)

MOIST, MEDIUM STIFF TO VERY STIFF, HIGHLY PLASTIC, BLACK, SILTY CLAY (PEEDEE FORMATION)

11+75.00

3:1 3:1

DR5 11+48
11+48

Ⓐ **ALLUVIAL:**
MOIST, VERY LOOSE, DARK BROWN, SILTY FINE TO COASRE SAND

Ⓐ

COASTAL PLAIN:
MOIST, TO SATURATED, LOOSE, ORANGE TO YELLOW, CLAYEY FINE TO COARSE SAND TO FINE TO COARSE SAND (WACCAMAW FORMATION)

4 5 4 4 15 19

07/19

B1

MOIST, MEDIUM STIFF TO VERY STIFF, HIGHLY PLASTIC, BLACK, SILTY CLAY (PEEDEE FORMATION)

11+50.00

-RPD-

60 50 40 30 20 10 0

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

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Wells AT KA21138

PROJECT REFERENCE NO.	SHEET NO.
R–2561CA	162

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX A
LABORATORY RESULTS

REFERENCE: R–2561CA

PROJECT: 34466

Prepared in the Office of:

KLEINFELDER
Bright People. Right Solutions.
422 GALLIMORE DAIRY ROAD, SUITE B.
GREENSBORO, NC 27409
NC FIRM LICENSE NO. F-132

LABORATORY SUMMARY SHEET FOR SOIL SAMPLES

PROJECT NO.: 34466.4.1 (R-2561CA)
COUNTY: COLUMBUS
NEW INTERCHANGE AT INTERSECTION OF NC 87 AND NC 11

									Atterberg Limits			Gradation Results							
Sample No.	Boring Number	Alignment	Station	Offset	Sample Depth (ft.)	Natural Moisture Content (%)	Organic Content (%)	AASHTO Class.	L.L.	P.L.	P.I.	Retained #4 Sieve	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
SS-1	L1_2703	-L1-	27+03	68' LT	2.5 - 4.0	14.6	--	A-6	40	19	21	0.0	99.7	70.8	40.7	44.4	18.0	14.4	23.2
SS-2	L_2850	-L-	28+50	33' LT	2.5 - 4.0	19.8	--	A-2-7	44	20	24	0.2	97.4	63.1	29.6	46.8	25.3	3.1	24.8
SS-3	L_3250	-L-	32+50	10' LT	2.5 - 4.0	18.5	--	A-2-6	35	16	19	0.0	99.9	78.4	29.6	47.3	24.2	3.6	24.9
S-4	L_3450	-L-	34+50	65' RT	1.5 - 5.0	17.1	--	A-6	30	14	16	0.0	99.9	91.1	51.7	23.4	28.4	20.7	27.5
SS-5	L_3650	-L-	36+50	70' LT	0.0 - 1.5	15.4	--	A-6	23	12	11	0.0	99.9	88.5	45.9	27.2	30.7	14.2	28.0
SS-6	L_4250	-L-	42+50	75' LT	2.5 - 4.0	15.3	--	A-2-7	51	21	30	0.0	99.7	77.4	33.4	52.8	14.8	2.6	29.9
SS-7	L_4650	-L-	46+50	40' LT	0.0 - 1.5	18.1	2.8	A-2-4	NP	NP	NP	0.0	100.0	88.6	20.6	43.3	38.7	12.1	5.9
SS-8	L_4850	-L-	48+50	60' LT	0.4 - 1.5	14.8	--	A-4	15	13	2	0.0	99.9	90.7	38.6	24.2	43.0	16.6	16.3
S-9	L_5050	-L-	50+50	60' RT	0.0 - 1.0	19.3	--	A-7-6	41	20	21	0.0	100.0	91.2	63.4	18.3	23.3	19.5	39.0
SS-10	L_5850	-L-	58+50	70' LT	2.5 - 4.0	16.8	--	A-2-6	33	19	14	0.1	98.1	67.0	28.3	53.2	19.2	7.2	20.5
SS-11	L_6500	-L-	65+00	100' RT	2.5 - 4.0	16.5	--	A-4	NP	NP	NP	0.0	100.0	98.8	36.5	10.2	59.1	15.1	15.6
SS-12	L_7450	-L-	74+50	55' LT	8.5 - 10.0	25.1	--	A-7-6	49	18	31	0.0	100.0	99.5	74.2	0.6	38.9	23.5	37.0
SS-13	L_7939	-L-	79+39	75' RT	0.8 - 1.5	20.4	--	A-6	40	17	23	0.0	99.9	93.7	54.8	16.3	33.6	15.2	34.8
SS-14	L3_8850	-L3-	88+50	50' RT	2.5 - 4.0	26.0	--	A-7-6	55	24	31	0.0	100.0	97.9	79.7	6.0	20.5	22.0	51.5
SS-15	L3_8900	-L3-	89+00	75' LT	2.6 - 4.1	17.6	--	A-7-6	55	18	37	0.0	100.0	99.0	71.1	6.8	26.2	16.0	51.0
SS-16	L3_9050	-L3-	90+50	40' RT	8.1 - 9.6	25.6	--	A-7-6	68	27	41	0.0	100.0	99.7	92.3	0.7	7.8	50.6	40.9
SS-17	L3_9263	-L3-	92+63	66' LT	2.8 - 4.3	24.0	--	A-7-6	47	15	32	0.0	100.0	99.1	57.7	3.6	45.2	7.0	44.2
SS-18	L3_9396	-L3-	93+96	44' LT	2.8 - 4.3	25.9	--	A-6	32	15	17	0.0	100.0	99.4	80.5	2.0	25.4	40.0	32.6
S-19	L3_9850	-L3-	98+50	50' RT	0.5 - 6.0	19.5	--	A-7-6	43	21	22	0.0	100.0	99.1	66.5	3.0	42.3	22.6	32.2
CBR-1	L3_9850	-L3-	98+50	52' RT	0.5 - 4.0	22.2	--	A-6	39	17	22	0.0	100.0	98.6	64.5	4.5	45.0	18.4	32.2
S-20	L3_10050	-L3-	100+50	25' LT	2.0 - 6.0	20.4	--	A-7-6	45	18	27	0.0	100.0	98.7	59.6	4.1	47.5	12.7	35.8
SS-21	LPB_1350	-LPB-	13+50	CL	0.0 - 1.5	21.6	4.5	A-2-4	NP	NP	NP	0.0	98.9	66.4	28.8	52.1	22.3	19.7	5.9
SS-22	RPB_1550	-RPB-	15+50	20' LT	2.5 - 4.0	26.5	--	A-7-6	43	19	24	0.1	99.8	91.6	50.5	22.7	29.9	11.7	35.7
SS-23	RPB_1750	-RPB-	17+50	CL	2.5 - 4.0	--	--	A-6	35	19	16	0.0	99.9	91.3	35.6	26.6	40.9	8.1	24.5
SS-24	RPB_1950	-RPB-	19+50	CL	0.3 - 1.5	38.9	6.2	A-4	NP	NP	NP	0.0	100.0	91.9	45.8	22.9	36.5	33.6	7.0
SS-25	RPB_2162	-RPB-	21+62	CL	0.3 - 1.5	26.7	5.8	A-4	NP	NP	NP	0.0	100.0	82.0	36.1	33.8	36.3	20.2	9.7
SS-26	LPD_1500	-LPD-	15+00	CL	2.5 - 4.0	16.8	--	A-6	38	16	22	0.0	100.0	99.1	57.6	3.6	45.4	21.6	29.4
SS-27	RPD_1800	-RPD-	18+00	CL	2.5 - 4.0	16.5	--	A-6	29	12	17	0.0	100.0	96.9	63.4	9.4	32.3	27.1	31.3
SS-28	Y_1289_LT	-Y-	12+89	25' LT	0.0 - 1.5	51.7	--	A-2-4	NP	NP	NP	0.3	98.3	69.8	11.8	52.1	38.5	6.1	3.4
S-29	Y_1300_RT	-Y-	13+00	20' RT	1.0 - 2.0	18.0	--	A-4	24	17	7	0.0	99.1	86.3	39.1	22.8	44.6	13.4	19.2
S-30	Y_1300_RT	-Y-	13+00	20' RT	2.0 - 6.0	33.4	--	A-7-6	49	21	28	0.0	99.7	96.0	53.2	6.3	48.8	11.4	33.6
ST-1	Y_3150	-Y-	31+50	30' LT	20.0 - 22.0	--	--	A-6	31	17	14	0.0	100.0	99.1	66.2	1.6	45.9	24.0	28.4
SS-31	Y2A_1100	-Y2A-	11+00	CL	2.6 - 4.1	16.6	--	A-2-4	16	13	3	0.0	99.7	82.1	34.5	37.9	31.3	13.2	17.6
SS-32	Y2A_1500	-Y2A-	15+00	CL	0.3 - 1.5	12.3	--	A-4	18	11	7	0.0	99.4	84.7	48.7	29.0	25.6	23.7	21.7
SS-33	Y2A_1900	-Y2A-	19+00	CL	3.5 - 5.0	20.1	--	A-4	21	13	8	0.0	99.9	91.9	38.7	23.9	42.0	12.7	21.4
CBR-2	YDET_2400	-YDET-	24+00	CL	0.0 - 6.0	11.0	--	A-2-4	NP	NP	NP	0.1	99.5	84.3	14.0	40.8	47.4	6.3	5.5
SS-34	YDET_3400	-YDET-	34+00	CL	4.5 - 5.0	17.8	--	A-2-6	29	18	11	0.0	100.0	93.1	27.6	39.1	34.6	4.1	22.1

LABORATORY SUMMARY SHEET FOR SOIL SAMPLES

PROJECT NO.: 34466.4.1 (R-2561CA)
COUNTY: COLUMBUS
NEW INTERCHANGE AT INTERSECTION OF NC 87 AND NC 11

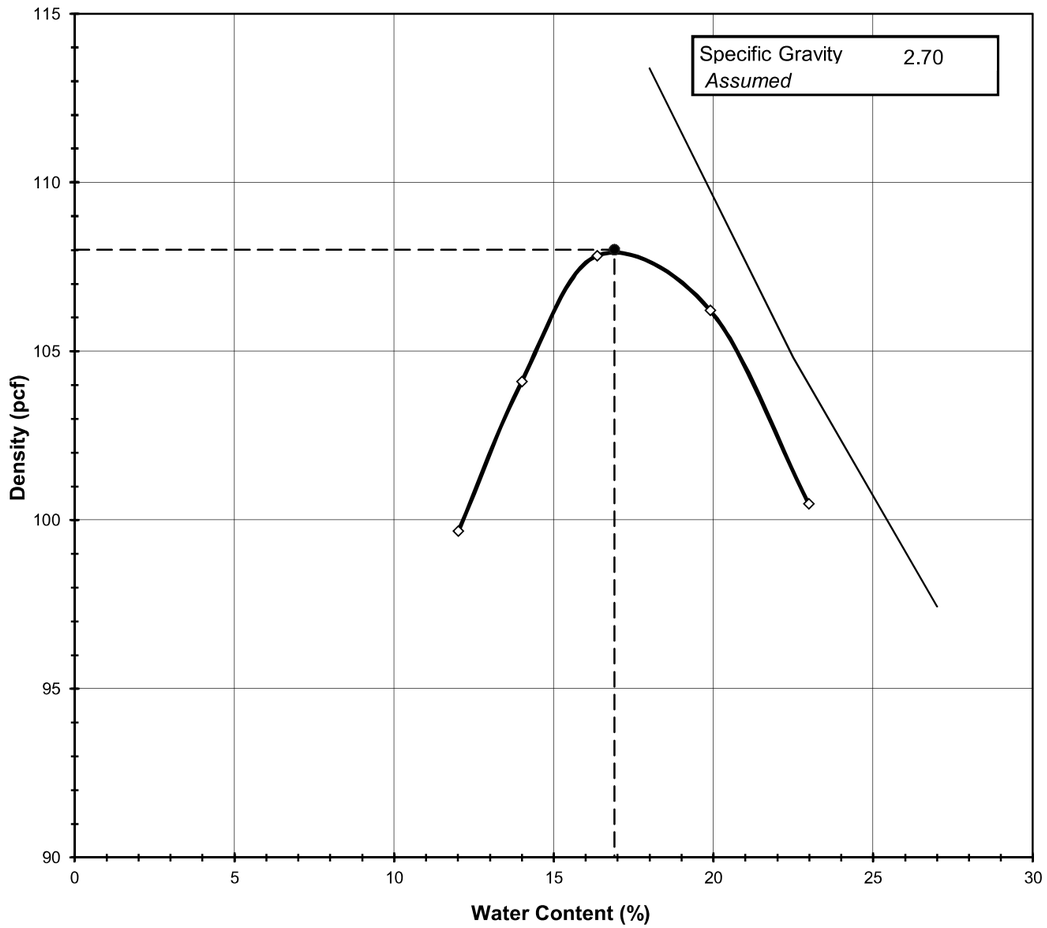
									Atterberg Limits			Gradation Results							
Sample No.	Boring Number	Alignment	Station	Offset	Sample Depth (ft.)	Natural Moisture Content (%)	Organic Content (%)	AASHTO Class.	L.L.	P.L.	P.I.	Retained #4 Sieve	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
SS-35	YDET_3600	-YDET-	36+00	CL	2.5 - 4.0	14.9	--	A-2-7	43	16	27	0.1	99.0	60.8	23.2	65.2	12.7	3.1	19.0
SS-36	YDET_4605	-YDET-	46+05	16' RT	2.0 - 4.5	17.1	--	A-6	36	17	19	0.0	100.0	94.6	57.2	17.1	29.3	20.5	33.1
ST-2	S2_RT.LN_EB1-A	-L-	70+31	30' RT	29.5 - 31.5	26.5	--	A-7-6	45	17	28	0.0	100.0	99.8	75.9	0.4	35.3	24.7	39.6
ST-3	S2_RT.LN_EB2-A	-L-	71+80	28' RT	19.9 - 21.9	--	--	A-6	37	17	20	0.0	100.0	99.9	74.9	0.1	36.6	25.1	38.2
ST-4	S4_EB2-A	-Y-	34+99	12' LT	19.7 - 21.7	41.5	--	A-7-6	49	18	31	0.0	100.0	99.8	70.0	0.3	42.7	28.1	28.9
SS-37	L1_1898	-L1-	18+98	45' LT	0.0 - 1.5	30.8	6.3	A-4	32	22	10	0.0	100.0	92.8	70.2	16.5	16.5	42.0	25.1

MOISTURE DENSITY RELATIONSHIP

AASHTO T99-18

Client:	Kleinfelder	Boring No.:	L3_9850
Client Reference:	R-2561CA	Depth (ft):	0.0-4.0
Project No.:	R-2019-209-003	Sample No.:	CBR-1
Lab ID:	R-2019-209-003-002	Test Method	**STANDARD**
		Station:	98+50
Visual Description:	Orange Silty Sandy Clay	Offset:	50' RT

Optimum Water Content **16.9**
Maximum Dry Density **108.0**



Tested By *129-05-0411* *Date* *8/13/19* *Checked By* *GEM* *Date* *8/14/19*

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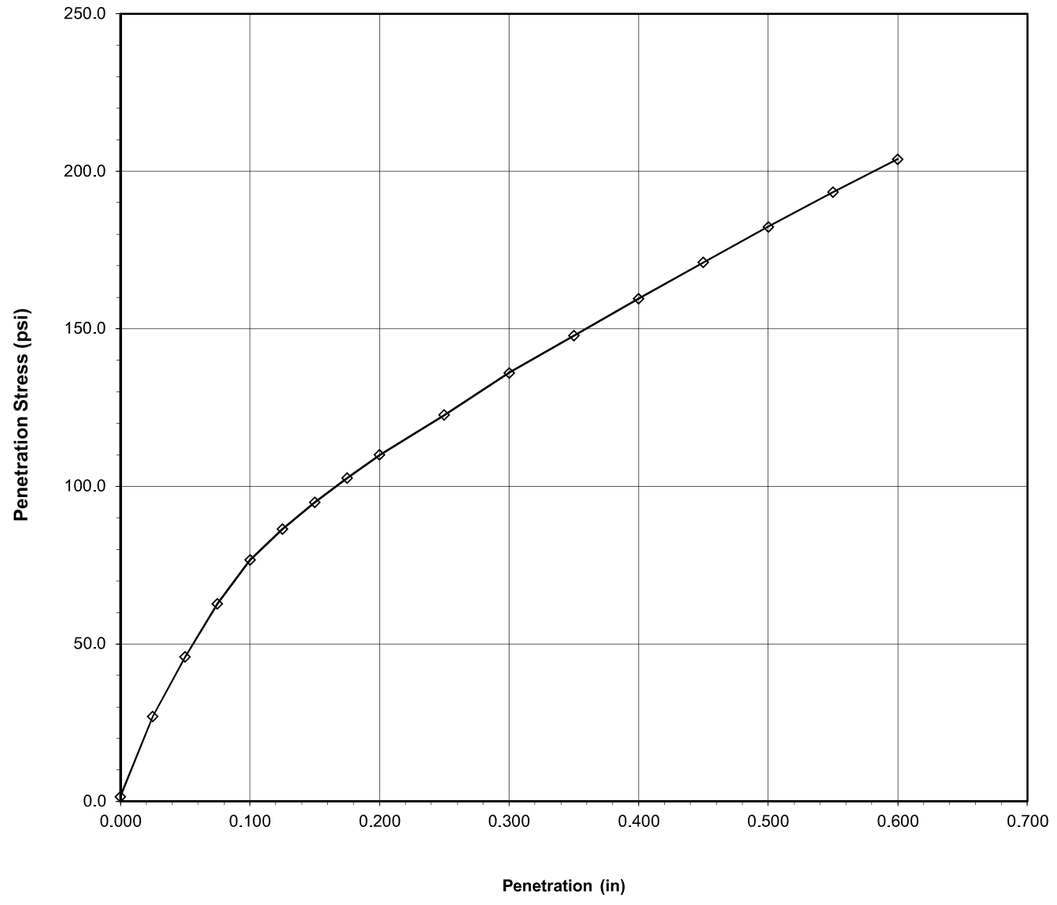
SINGLE POINT CBR TEST

AASHTO T-193-10

Client	Kleinfelder	Boring No.	L3_9850
Client Reference	R-2561CA	Depth(ft.)	0.0-4.0
Project No.	R-2019-209-003	Sample No.	CBR-1
Lab ID	R-2019-209-003-002	Visual Description	Orange Clay

CBR VALUE (0.1")	**7.7 %**	Station:	98+50
CBR VALUE (0.2")	**7.3 %**	Offset:	50' RT

Penetration Stress vs. Penetration



Tested By *129-07-0411* *Date* *8/21/2019* *Approved By* *MPS* *Date* 8/21/2019

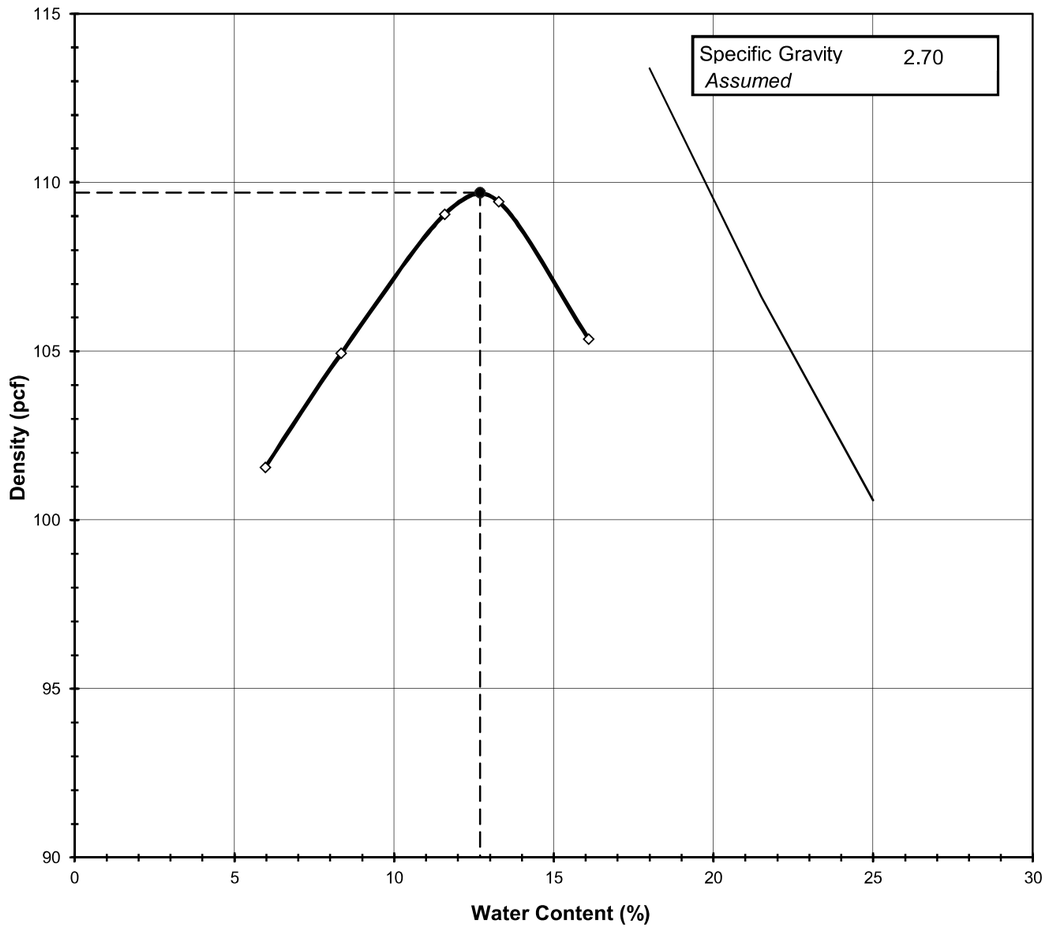
DCN: CT-S27 REVSION: 5 DATE: 1/1/2015 *K:\PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-003-002 DOT 1CBR TESTNET.xls]Graph Uncorrected*

MOISTURE DENSITY RELATIONSHIP

AASHTO T99-18

Client:	Kleinfelder	Boring No.:	YDET2400
Client Reference:	R-2561CA	Depth (ft):	0.0-5.0
Project No.:	R-2019-209-003	Sample No.:	CBR-2
Lab ID:	R-2019-209-003-001	Test Method	**STANDARD**
		Station:	24+00
Visual Description:	Black Silty Sand	Offset:	CL

Optimum Water Content **12.7**
Maximum Dry Density **109.7**



Tested By *129-05-0411* *Date* *8/12/19* *Checked By* *GEM* *Date* *8/19/19*

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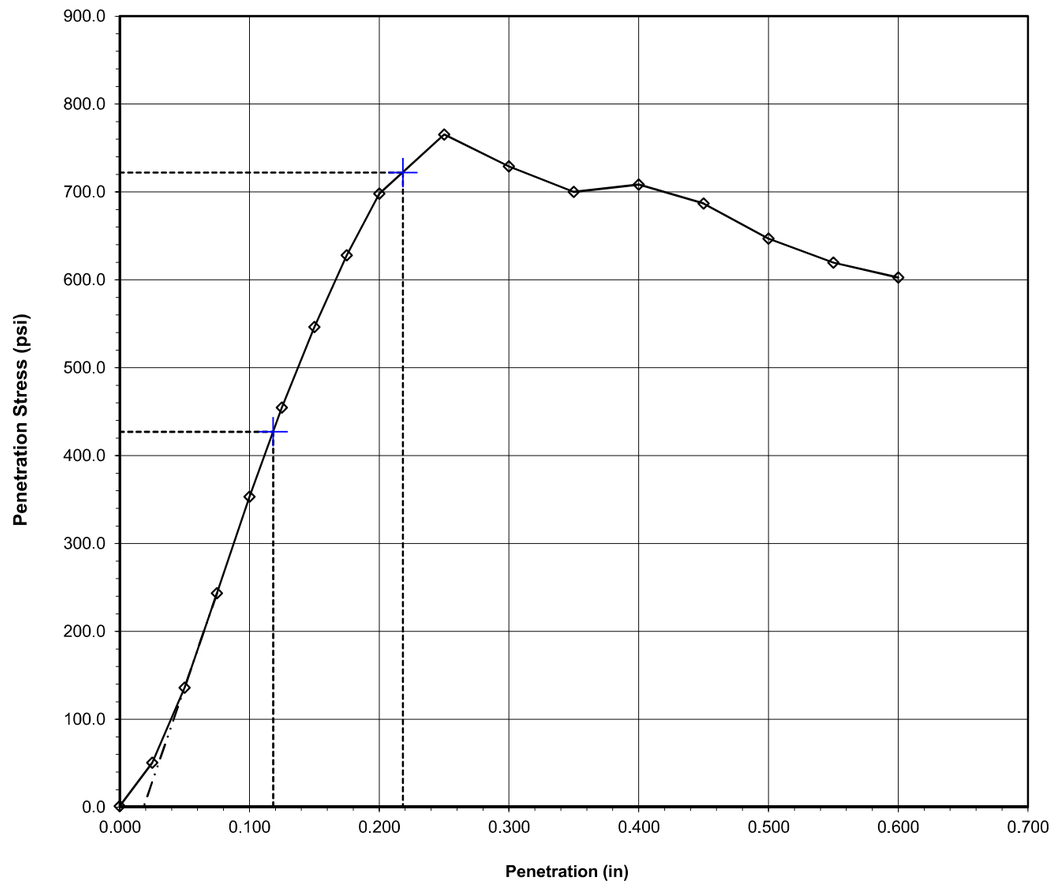
SINGLE POINT CBR TEST
AASHTO T-193-10

Client	Kleinfelder	Boring No.	YDET2400	Station:	24+00
Client Reference	R-2561CA	Depth(ft.)	0.0-5.0	Offset:	CL
Project No.	R-2019-209-003	Sample No.	CBR-2		
Lab ID	R-2019-209-003-001	Visual Description	Black Silt		

CBR VALUE (0.1") 35.3 %
CBR VALUE (0.2") 46.5 %

CORRECTED CBR VALUE (0.1") 42.7 %
CORRECTED CBR VALUE (0.2") 48.1 %

Penetration Stress vs. Penetration



Tested By 129-07-0411 *Date* 8/21/2019 *Approved By* MPS *Date* 08/21/2019

 DCN: CT-S27 REVISION: 5 DATE: 7/12/2019 PATH: *P:\PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-003-001 DOT 1CBR TESTNET.xls]Graph Uncorrected*

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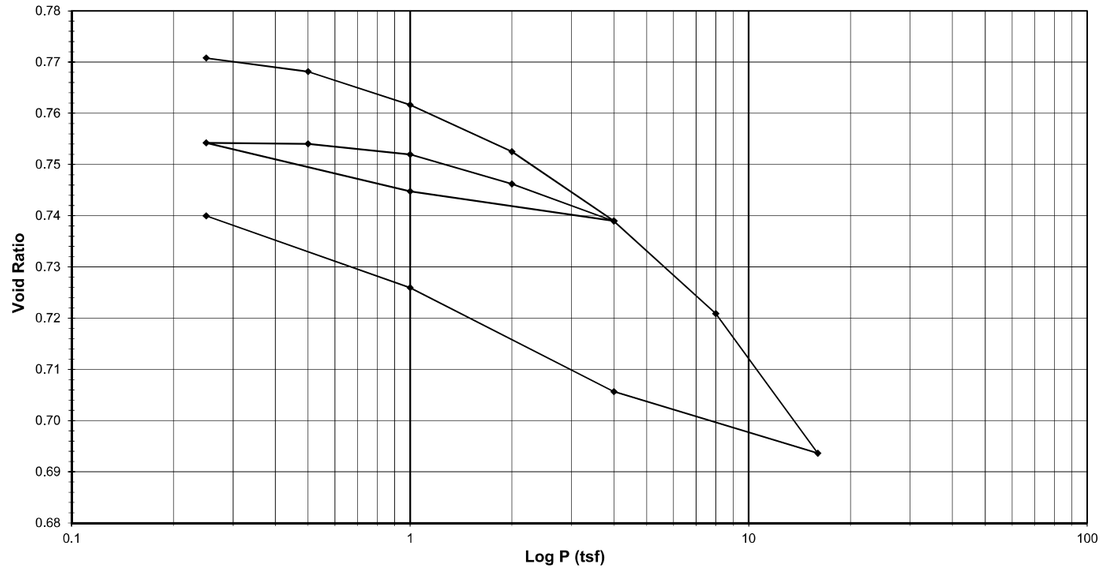
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Reference	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By 129-08-0411 *Date* 8/5/2019 *Approved By* MPS *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 6

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Reference	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R470
1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	TB-04	TB-12
Wt. Tare & WS (g)	343.05	291.89
Wt. Tare & DS (g)	299.68	259.79
Wt. Water (g)	43.37	32.10
Wt. Tare (g)	135.12	135.40
Wt. DS (g)	164.56	124.39
Water Content (%)	26.36	25.81
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.9809
Sample Volume (cc)	80.44	78.91
Wt. Wet Sample + Ring (g)	371.17	370.49
Wt. of Ring (g)	214.74	214.74
Wt. of Wet Sample (g)	156.43	155.75
Wet Density (pcf)	121.35	123.17
Wet Density (g/cc)	1.94	1.97
Water Content (%)	26.36	25.81
Wt. of Dry Sample (g)	123.80	123.80
Dry Density (pcf)	96.04	97.90
Dry Density (g/cc)	1.54	1.57
Void Ratio	0.7738	0.7400
Saturation (%)	92.98	95.20
Specific Gravity	2.73	*Measured*

Test Data Summary

Applied Pressure (tsf)	**Final Dial Reading** (div)	**Machine Deflection** (div)	**Corrected Reading** (div)	**Height of Sample** (mm)	**Volume** (cc)	**Dry Density** (g/cc)	**Void Ratio**
Seating	0	0	0	25.400	80.440	1.53906	**0.77381**
0.25	39.8	22.8	17.0	25.357	80.303	1.54168	**0.77080**
0.5	76.0	44.2	31.8	25.319	80.184	1.54397	**0.76816**
1	129.1	60.5	68.6	25.226	79.888	1.54969	**0.76165**
2	213.7	93.6	120.1	25.095	79.474	1.55776	**0.75251**
4	326.8	130.5	196.4	24.901	78.860	1.56989	**0.73897**
1	246.7	83.0	163.7	24.984	79.123	1.56467	**0.74477**
0.25	163.1	52.7	110.4	25.119	79.551	1.55625	**0.75422**
0.5	169.6	58.3	111.3	25.117	79.544	1.55639	**0.75406**
1	198.2	74.9	123.3	25.087	79.448	1.55828	**0.75194**
2	255.6	100.0	155.5	25.005	79.189	1.56338	**0.74622**
4	329.9	133.4	196.5	24.901	78.859	1.56991	**0.73895**
8	468.3	169.9	298.4	24.642	78.039	1.58640	**0.72087**
16	678.0	226.1	452.0	24.252	76.804	1.61191	**0.69364**
4	545.9	161.7	384.3	24.424	77.349	1.60057	**0.70564**
1	381.6	111.7	269.9	24.714	78.269	1.58175	**0.72593**
0.25	263.6	73.0	190.6	24.916	78.906	1.56897	**0.73999**

Tested By 129-08-0411 *Date* 8/5/2019 *Input Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 6

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Reference	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Tested By 129-08-0411 *Date* 8/5/2019 *Input Checked By* GEM *Date* 8/15/2019

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Reference	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Consolidometer No. R470

1 Division = 0.0001 (in.)

Sample Properties	Initial	Final
Water Content		
Tare Number	TB-04	TB-12
Wt. Tare & WS (g)	343.05	291.89
Wt. Tare & DS (g)	299.68	259.79
Wt. Water (g)	43.37	32.10
Wt. Tare (g)	135.12	135.40
Wt. DS (g)	164.56	124.39
Water Content (%)	26.36	25.81
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.981
Sample Volume (cc)	80.44	78.91
Wt. Wet Sample + Ring (g)	371.17	370.49
Wt. of Ring (g)	214.74	214.74
Wt. of Wet Sample (g)	156.43	155.75
Wet Density (pcf)	121.35	123.17
Wet Density (g/cc)	1.94	1.97
Water Content (%)	26.36	25.81
Wt. of Dry Sample (g)	123.80	123.80
Dry Density (pcf)	96.04	97.90
Dry Density (g/cc)	1.54	1.57
Void Ratio	0.7738	0.7400
Saturation (%)	92.98	95.20
Specific Gravity	2.73	*Measured*

C_v Test Data Summary

Load Increment (tsf)	Dial Reading @ t_{50} (div)	Machine Deflection (div)	Corrected Dial Reading @ t_{50} (div)	Sample Height @ t_{50} (cm)	Time t_{50} (min.)	C_v (cm²/sec)
0 - 0.25	28.4	22.8	5.6	2.539	**0.06**	**0.09618**
0.25 - 0.5	61.2	44.2	17.0	2.536	**0.30**	**0.01759**
0.5 - 1.0	105.0	60.5	44.5	2.529	**1.00**	**0.00525**
1.0 - 2.0	173.7	93.6	80.1	2.520	**0.90**	**0.00579**
2.0 - 4.0	277.3	130.5	146.8	2.503	**0.75**	**0.00686**
4.0 - 1.0	NA	83.0	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	52.7	NA	NA	**NA**	**NA**
0.25 - 0.5	168.5	58.3	110.2	2.512	**24.00**	**0.00022**
0.5 - 1.0	186.1	74.9	111.2	2.512	**0.50**	**0.01036**
1.0 - 2.0	229.5	100.0	129.4	2.507	**1.00**	**0.00516**
2.0 - 4.0	302.3	133.4	168.9	2.497	**0.90**	**0.00569**
4.0 - 8.0	405.6	169.9	235.7	2.480	**0.55**	**0.00918**
8.0 - 16.0	577.6	226.1	351.5	2.451	**0.56**	**0.00880**
16.0 - 4.0	NA	161.7	NA	NA	**NA**	**NA**
4.0 - 1.0	NA	111.7	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	73.0	NA	NA	**NA**	**NA**

Tested By 129-08-0411 *Date* 8/5/2019 *Input Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 6 *Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-001 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT*

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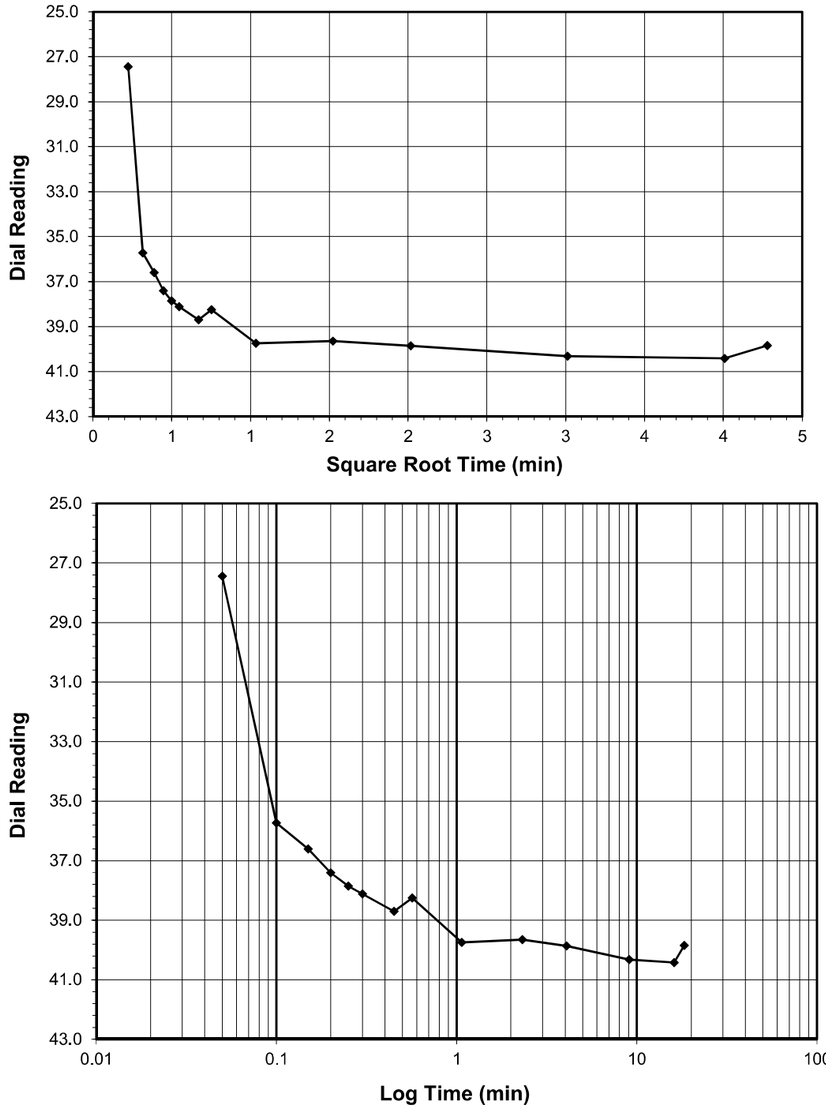
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0.0-0.25**
Final Reading	**(div)**	**39.8**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/5/2019
Start Time		14:23:15

Elapsed Time (min)	Dial Reading (div)
Initial	**0.0**
0.05	27.4
0.10	35.7
0.15	36.6
0.20	37.4
0.25	37.9
0.30	38.1
0.45	38.7
0.57	38.3
1.07	39.7
2.32	39.6
4.07	39.9
9.07	40.3
16.07	40.4
18.32	39.8

Tested By 129-08-0411 *Date* 8/5/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 1

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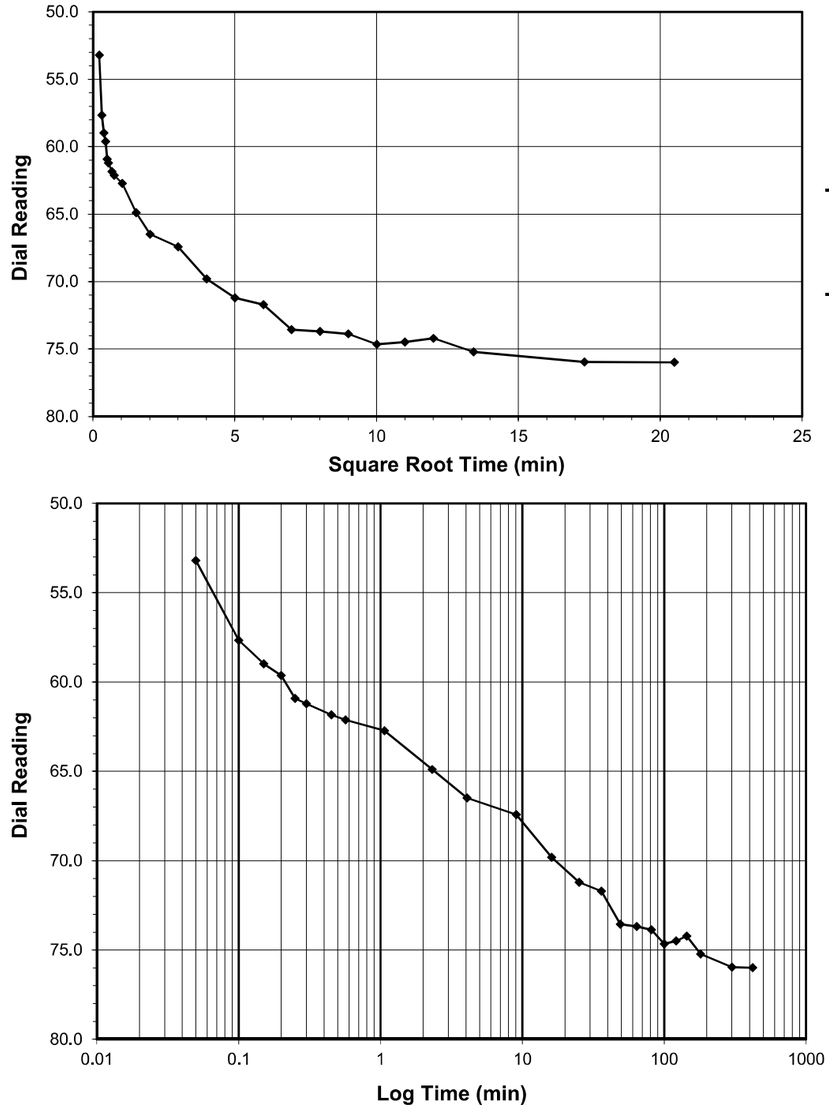
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**76.0**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/5/2019
Start Time		14:41:34

Elapsed Time (min)	Dial Reading (div)
Initial	**39.8**
0.05	53.2
0.10	57.7
0.15	59.0
0.20	59.6
0.25	60.9
0.30	61.2
0.45	61.8
0.57	62.1
1.07	62.7
2.32	64.9
4.07	66.5
9.07	67.4
16.07	69.8
25.07	71.2
36.07	71.7
49.07	73.6
64.07	73.7
81.07	73.9
100.07	74.7
121.07	74.5
144.07	74.2
180.08	75.2
300.08	76.0
420.07	76.0

Tested By 129-08-0411 *Date* 8/5/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 2

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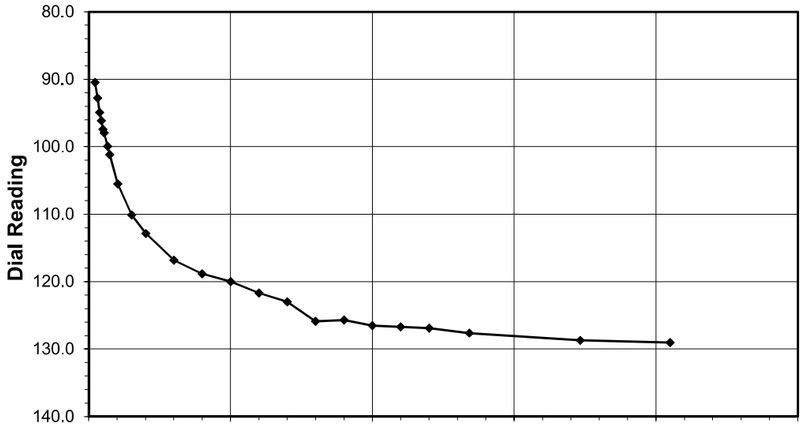
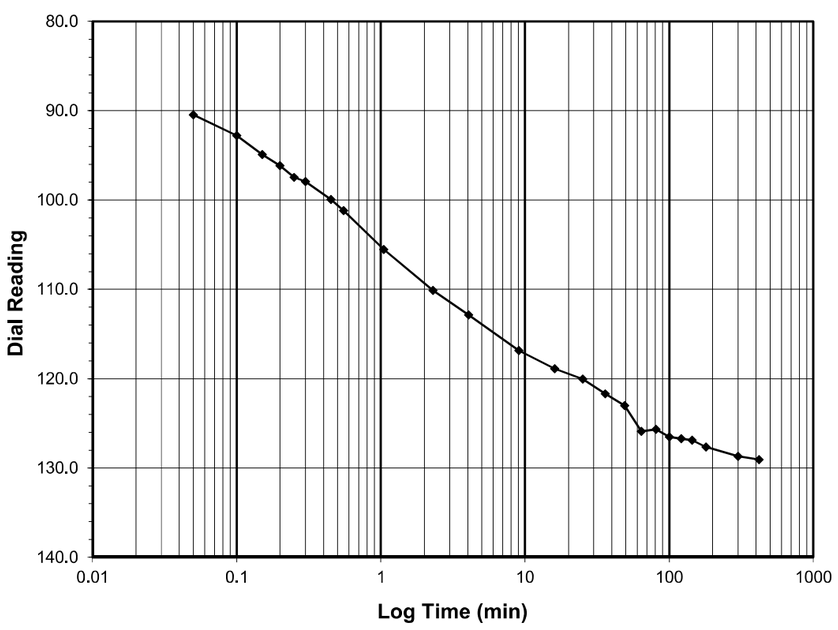
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**129.1**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/5/2019
Start Time		21:41:38

Elapsed Time (min)	Dial Reading (div)
Initial	**76.0**
0.05	90.5
0.10	92.8
0.15	94.9
0.20	96.1
0.25	97.5
0.30	98.0
0.45	99.9
0.55	101.2
1.05	105.5
2.30	110.1
4.05	112.9
9.05	116.8
16.05	118.9
25.05	120.0
36.05	121.7
49.05	123.0
64.05	125.9
81.05	125.7
100.05	126.5
121.05	126.7
144.05	126.9
180.07	127.6
300.07	128.7
420.12	129.1

Tested By 129-08-0411 *Date* 8/5/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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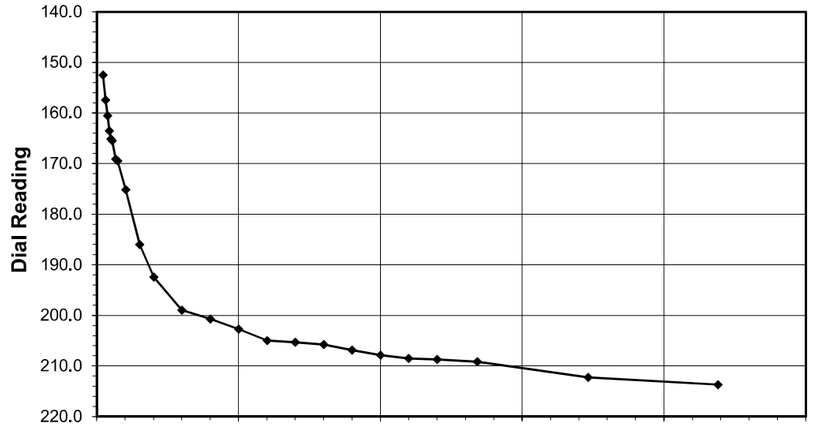
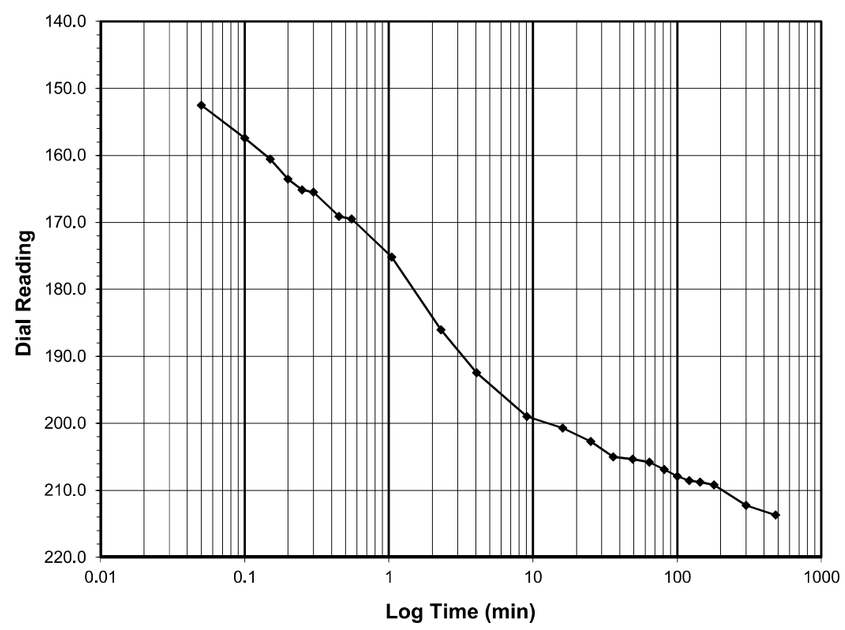
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**213.7**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/6/2019
Start Time		4:41:45

Elapsed Time (min)	Dial Reading (div)
Initial	**129.1**
0.05	152.5
0.10	157.4
0.15	160.5
0.20	163.6
0.25	165.2
0.30	165.5
0.45	169.1
0.55	169.5
1.05	175.2
2.30	186.0
4.05	192.5
9.05	199.0
16.07	200.7
25.07	202.7
36.07	205.0
49.07	205.3
64.07	205.8
81.07	206.9
100.07	207.9
121.07	208.5
144.07	208.7
180.07	209.2
300.07	212.3
480.17	213.7

Tested By 129-08-0411 *Date* 8/6/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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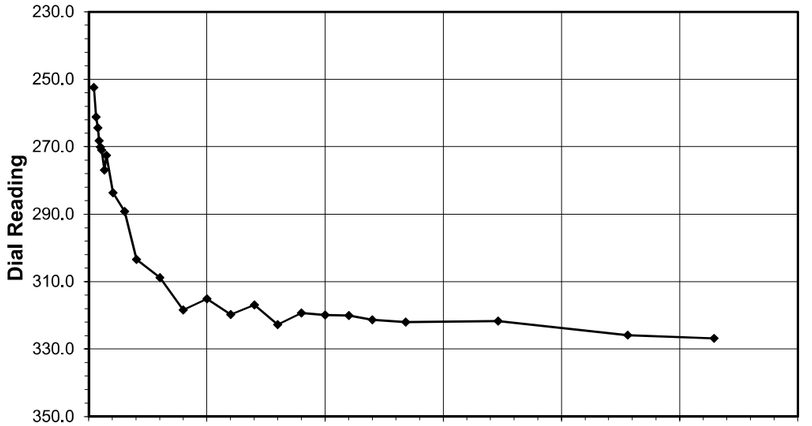
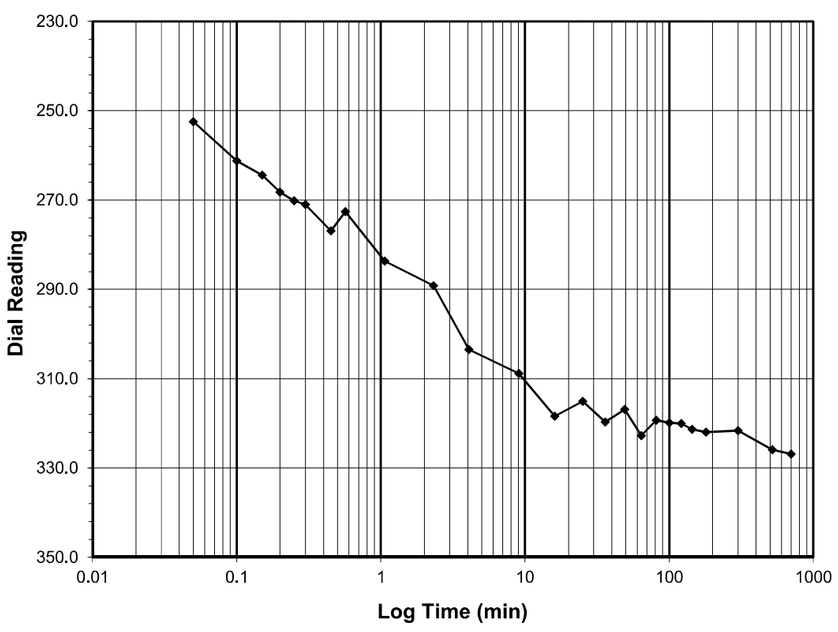
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**326.8**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/6/2019
Start Time		12:41:55

Elapsed Time (min)	Dial Reading (div)
Initial	**213.7**
0.05	252.4
0.10	261.2
0.15	264.4
0.20	268.2
0.25	270.2
0.30	271.0
0.45	276.9
0.57	272.6
1.07	283.7
2.32	289.2
4.07	303.5
9.07	308.8
16.07	318.4
25.07	315.1
36.07	319.7
49.07	316.9
64.07	322.7
81.07	319.3
100.07	319.9
121.07	320.0
144.07	321.3
180.07	322.0
300.07	321.6
520.07	325.9
700.07	326.8

Tested By 129-08-0411 *Date* 8/6/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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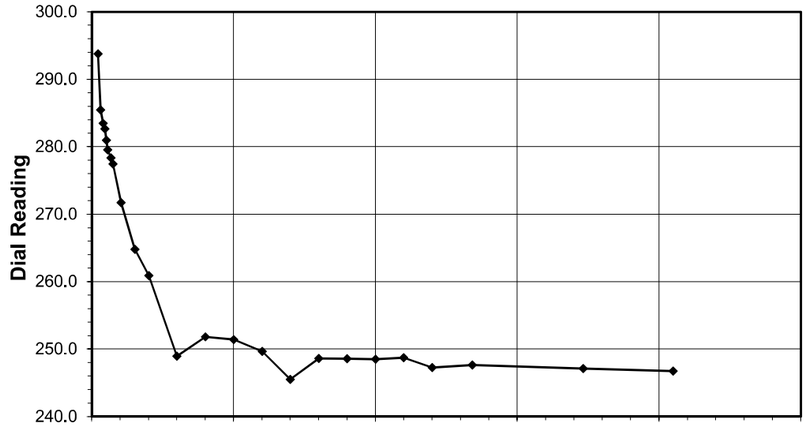
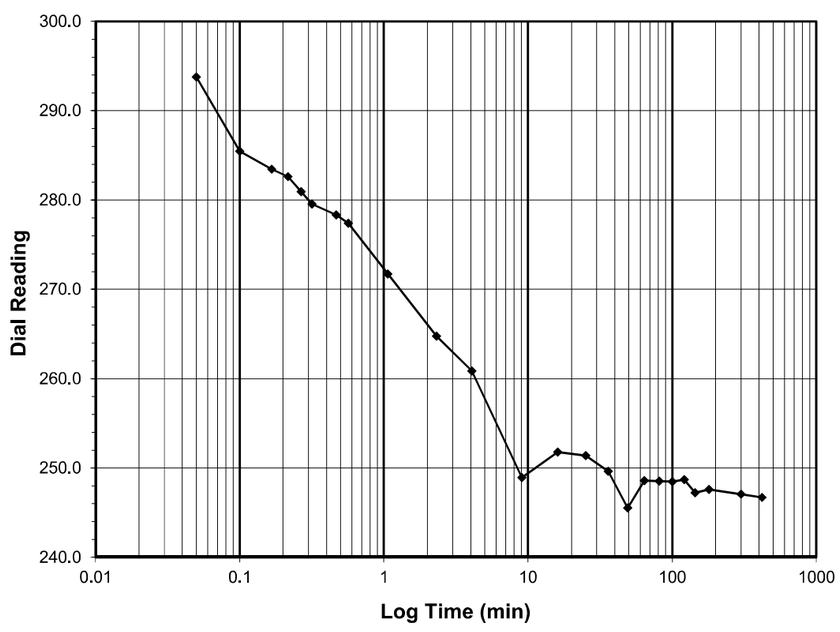
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**246.7**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/7/2019
Start Time		0:42:10

Elapsed Time (min)	Dial Reading (div)
Initial	**326.8**
0.05	293.8
0.10	285.5
0.17	283.5
0.22	282.6
0.27	280.9
0.32	279.5
0.47	278.3
0.57	277.4
1.07	271.7
2.32	264.8
4.07	260.9
9.07	248.9
16.07	251.8
25.07	251.4
36.08	249.6
49.08	245.5
64.08	248.6
81.08	248.5
100.08	248.5
121.08	248.7
144.08	247.3
180.08	247.6
300.08	247.1
420.07	246.7

Tested By 129-08-0411 *Date* 8/7/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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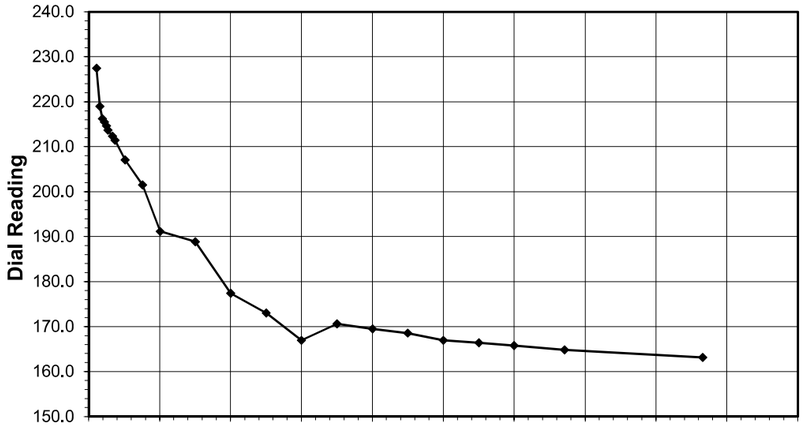
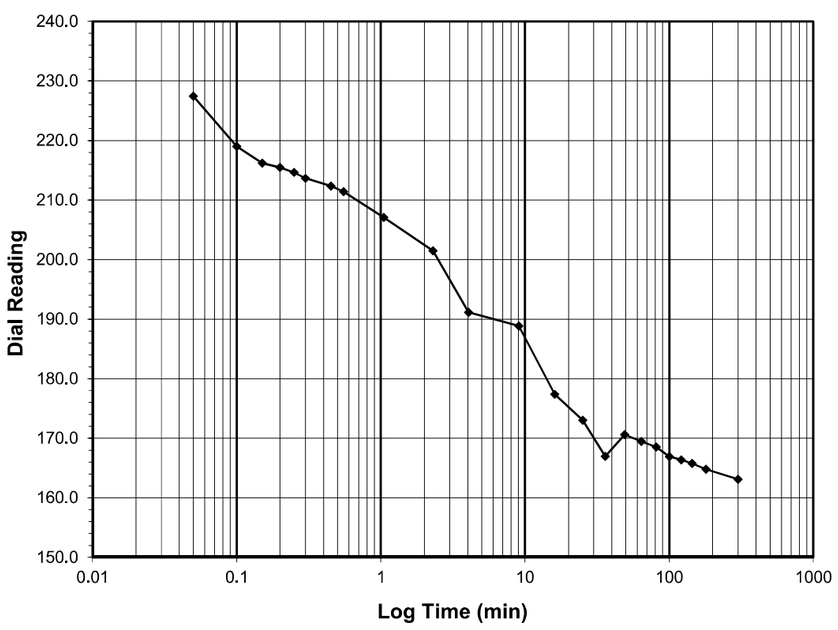
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**163.1**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/7/2019
Start Time		7:42:14

Elapsed Time (min)	Dial Reading (div)
Initial	**246.7**
0.05	227.4
0.10	219.0
0.15	216.2
0.20	215.5
0.25	214.6
0.30	213.6
0.45	212.3
0.55	211.4
1.05	207.1
2.30	201.5
4.05	191.1
9.05	188.9
16.05	177.4
25.05	173.0
36.05	166.9
49.05	170.6
64.07	169.5
81.07	168.5
100.07	166.9
121.07	166.4
144.07	165.8
180.07	164.8
300.07	163.1

Tested By *129-08-0411* *Date* *8/7/2019* *Checked By* *GEM* *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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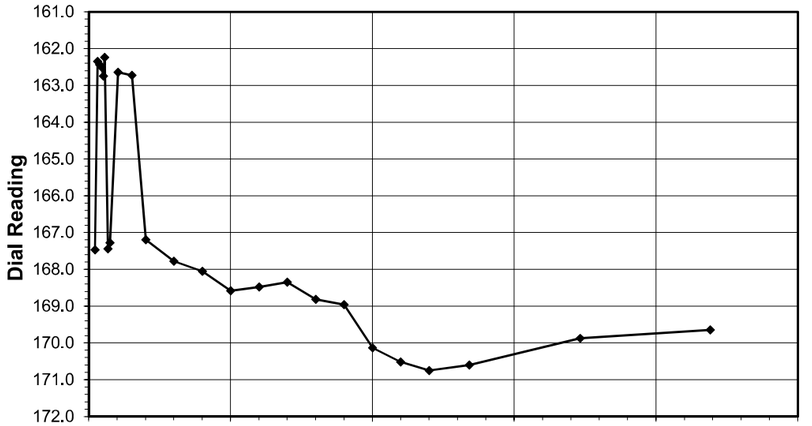
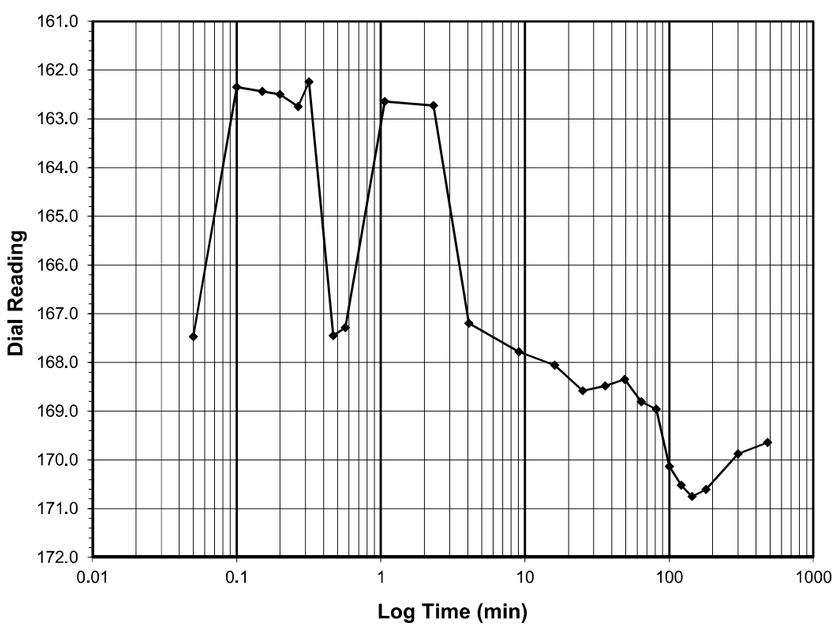
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**169.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/7/2019
Start Time		14:42:44

Elapsed Time (min)	Dial Reading (div)
Initial	**163.1**
0.05	167.5
0.10	162.3
0.15	162.4
0.20	162.5
0.27	162.7
0.32	162.2
0.47	167.4
0.57	167.3
1.07	162.6
2.32	162.7
4.07	167.2
9.07	167.8
16.07	168.1
25.07	168.6
36.07	168.5
49.07	168.3
64.07	168.8
81.07	169.0
100.07	170.1
121.07	170.5
144.07	170.8
180.07	170.6
300.07	169.9
480.28	169.6

Tested By *129-08-0411* *Date* *8/7/2019* *Checked By* *GEM* *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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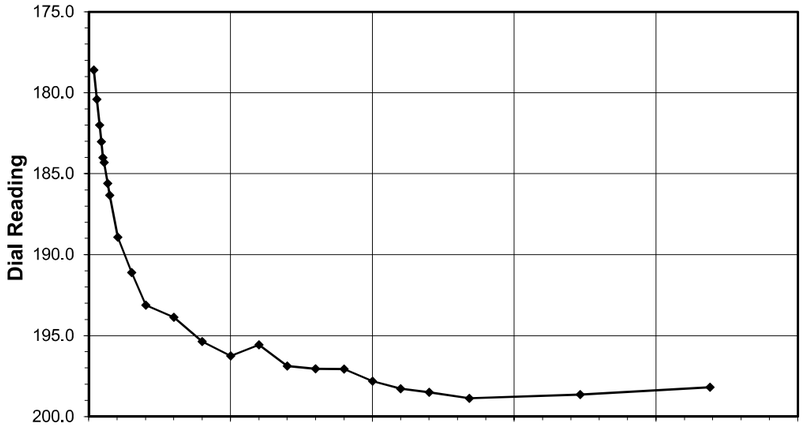
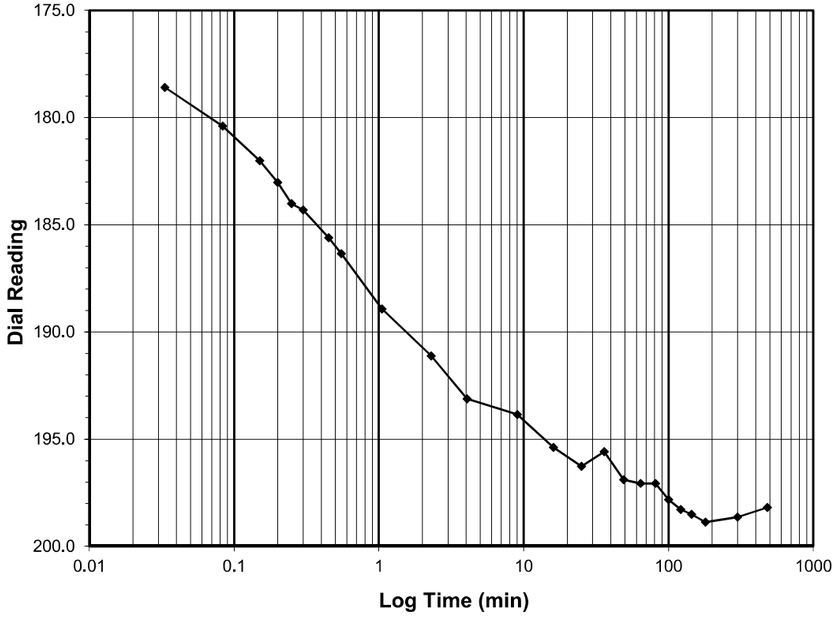
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**198.2**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/7/2019
Start Time		22:43:01

Elapsed Time (min)	Dial Reading (div)
Initial	**169.6**
0.03	178.6
0.08	180.4
0.15	182.0
0.20	183.0
0.25	184.0
0.30	184.3
0.45	185.6
0.55	186.3
1.05	188.9
2.30	191.1
4.05	193.1
9.05	193.9
16.05	195.4
25.05	196.3
36.05	195.6
49.05	196.9
64.05	197.1
81.05	197.1
100.07	197.8
121.07	198.3
144.07	198.5
180.07	198.9
300.07	198.6
480.18	198.2

Tested By 129-08-0411 *Date* 8/7/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 9

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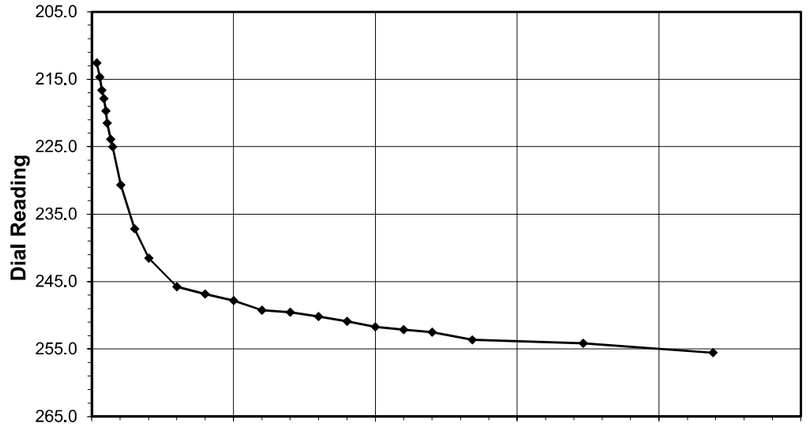
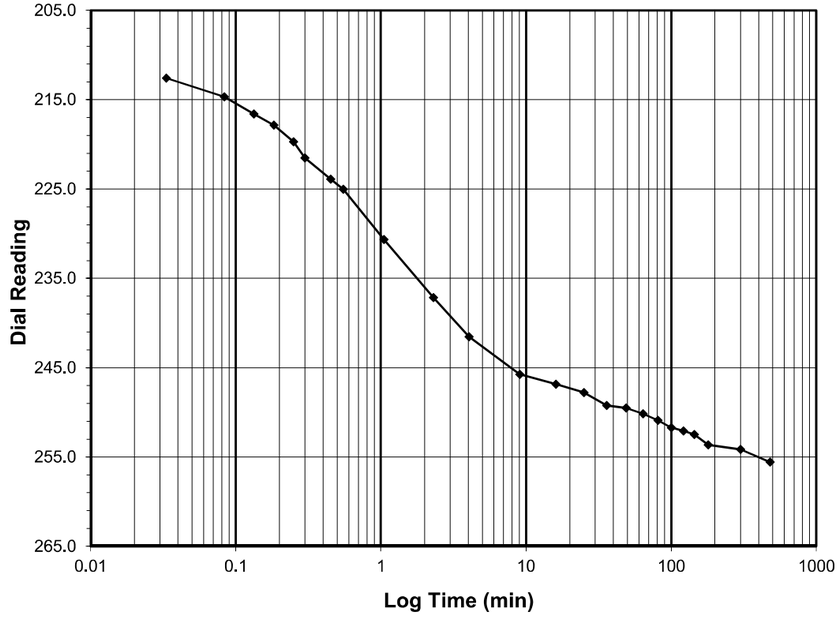
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**255.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/8/2019
Start Time		6:43:13

Elapsed Time (min)	Dial Reading (div)
Initial	**198.2**
0.03	212.6
0.08	214.7
0.13	216.6
0.18	217.8
0.25	219.7
0.30	221.5
0.45	223.9
0.55	225.0
1.05	230.7
2.30	237.2
4.05	241.5
9.05	245.7
16.05	246.9
25.05	247.8
36.05	249.2
49.05	249.5
64.05	250.2
81.05	250.9
100.05	251.7
121.05	252.1
144.05	252.5
180.05	253.6
300.05	254.1
480.13	255.6

Tested By 129-08-0411 *Date* 8/8/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 10

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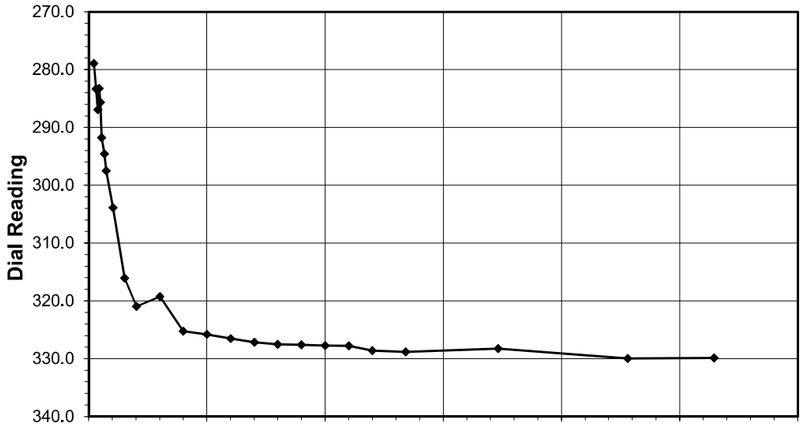
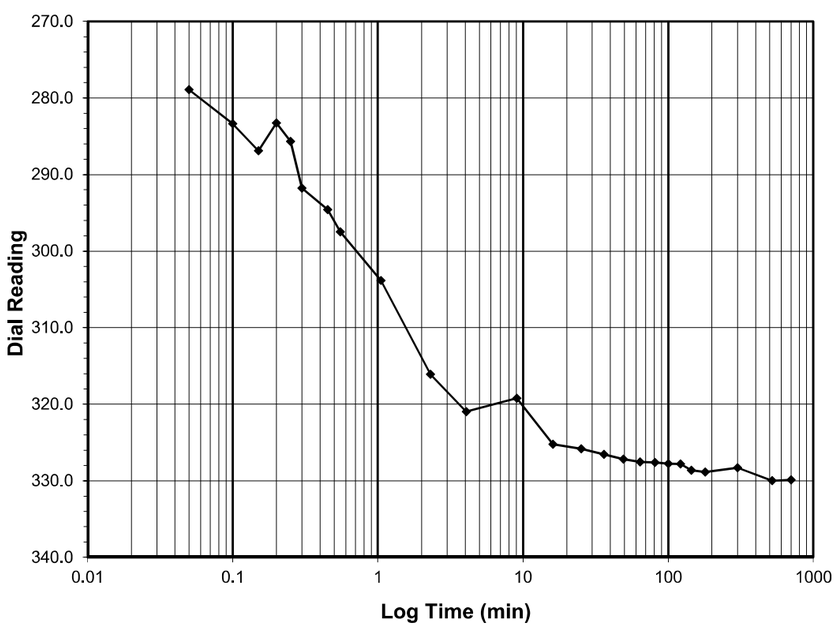
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**329.9**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/8/2019
Start Time		14:43:22

Elapsed Time (min)	Dial Reading (div)
Initial	**255.6**
0.05	278.9
0.10	283.4
0.15	286.9
0.20	283.3
0.25	285.7
0.30	291.8
0.45	294.6
0.55	297.5
1.05	303.8
2.30	316.1
4.07	321.0
9.07	319.2
16.07	325.2
25.07	325.8
36.07	326.5
49.07	327.2
64.07	327.5
81.07	327.6
100.07	327.8
121.07	327.8
144.07	328.6
180.07	328.8
300.07	328.3
520.07	330.0
700.07	329.9

Tested By *129-08-0411* *Date* *8/8/2019* *Checked By* *GEM* *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 11

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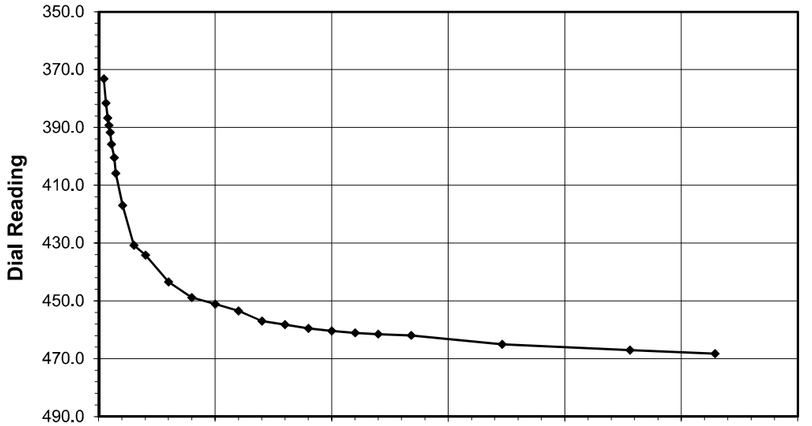
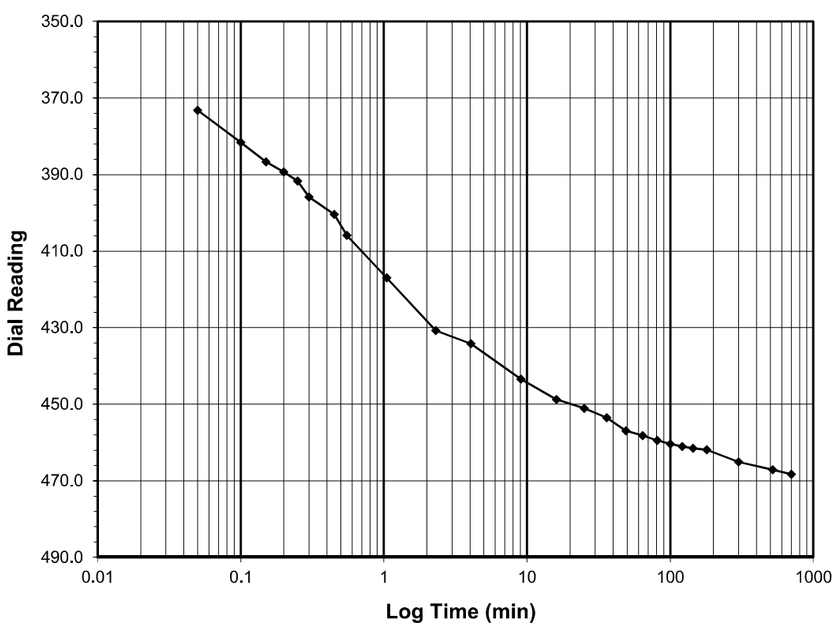
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-8.0**
Final Reading	**(div)**	**468.3**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/9/2019
Start Time		2:43:34

Elapsed Time (min)	Dial Reading (div)
Initial	**329.9**
0.05	373.2
0.10	381.6
0.15	386.7
0.20	389.3
0.25	391.8
0.30	395.9
0.45	400.4
0.55	405.9
1.05	416.9
2.30	430.8
4.05	434.2
9.05	443.4
16.05	448.8
25.05	451.1
36.05	453.5
49.07	457.0
64.07	458.2
81.07	459.5
100.07	460.4
121.07	461.0
144.07	461.5
180.07	461.9
300.07	465.1
520.07	467.1
700.07	468.3

Tested By *129-08-0411* *Date* *8/9/2019* *Checked By* *GEM* *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 12

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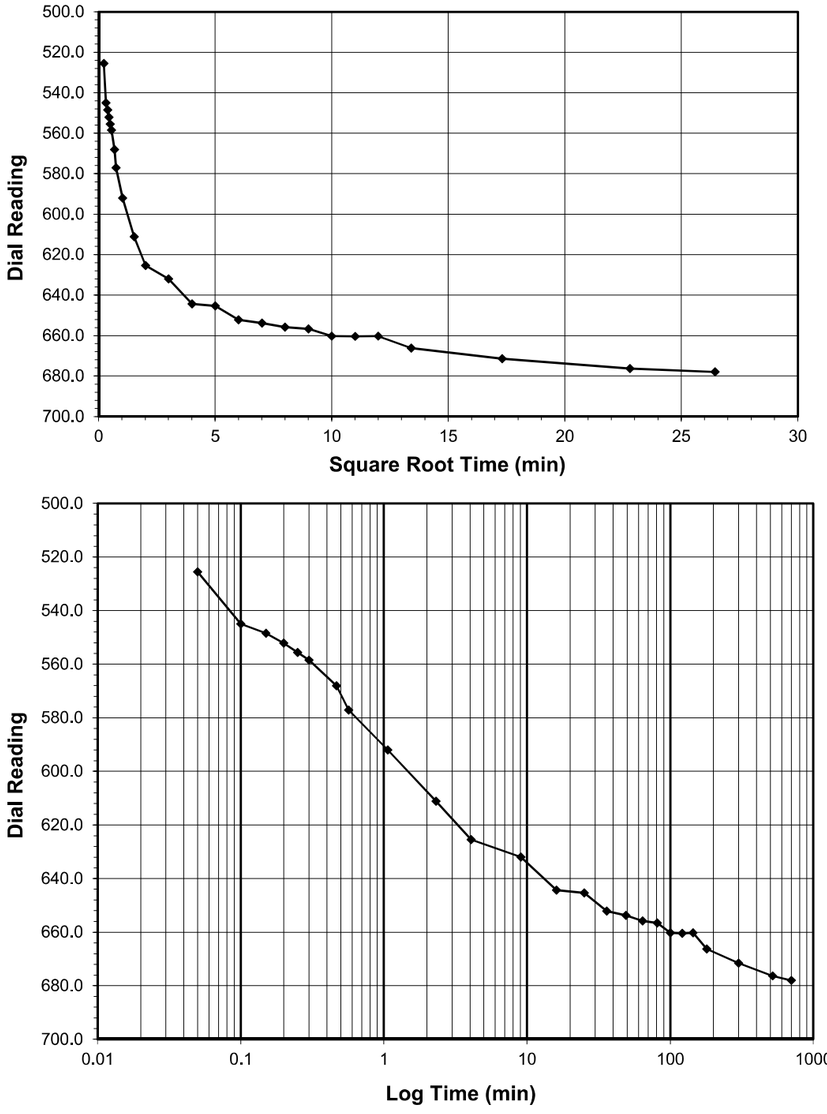
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**8.0-16.0**
Final Reading	**(div)**	**678.0**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/9/2019
Start Time		14:43:55

Elapsed Time (min)	Dial Reading (div)
Initial	**468.3**
0.05	525.6
0.10	544.9
0.15	548.5
0.20	552.1
0.25	555.6
0.30	558.5
0.47	568.1
0.57	577.1
1.07	592.0
2.32	611.2
4.07	625.4
9.07	632.0
16.07	644.3
25.07	645.4
36.07	652.2
49.07	653.7
64.07	655.8
81.07	656.6
100.07	660.2
121.07	660.4
144.07	660.2
180.07	666.3
300.07	671.5
520.07	676.3
700.07	678.0

Tested By 129-08-0411 *Date* 8/9/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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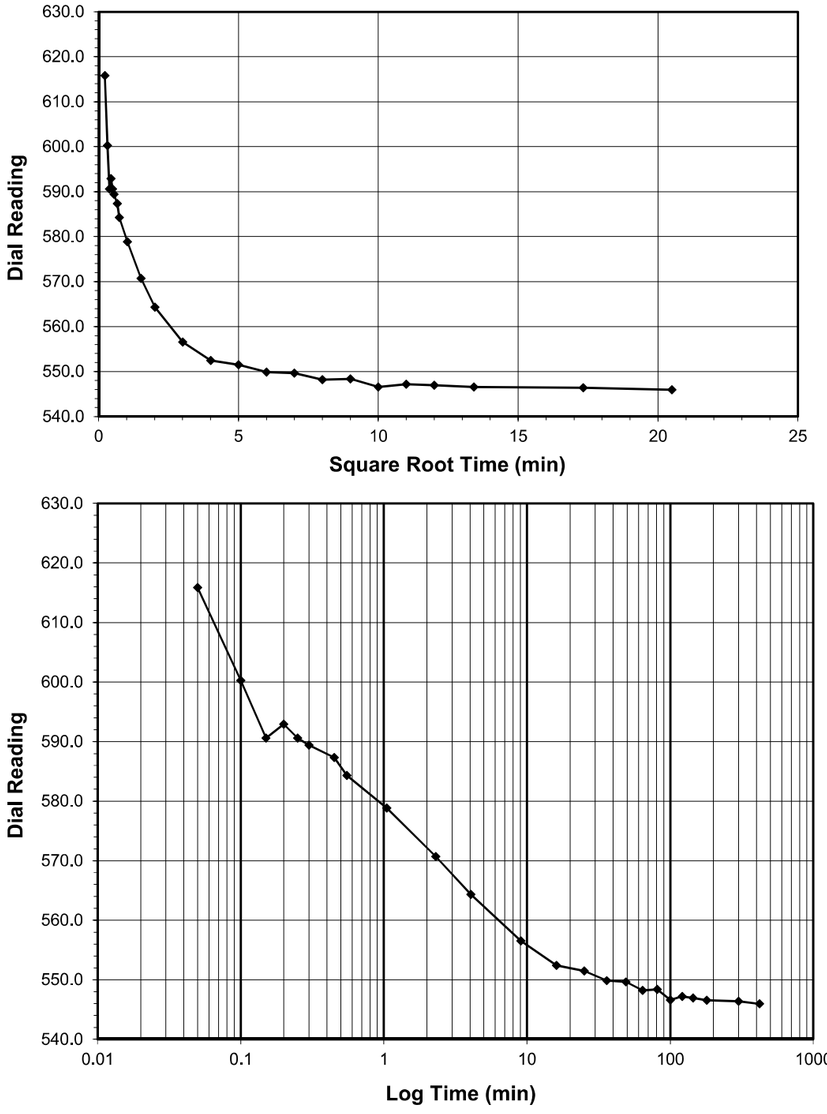
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**16.0-4.0**
Final Reading	**(div)**	**545.9**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/10/2019
Start Time		2:44:17

Elapsed Time (min)	Dial Reading (div)
Initial	**678.0**
0.05	615.8
0.10	600.3
0.15	590.6
0.20	592.9
0.25	590.6
0.30	589.4
0.45	587.3
0.55	584.3
1.05	578.9
2.30	570.7
4.05	564.3
9.05	556.5
16.05	552.4
25.05	551.5
36.05	549.9
49.05	549.7
64.07	548.2
81.07	548.4
100.07	546.6
121.07	547.2
144.07	547.0
180.07	546.6
300.07	546.4
420.08	545.9

Tested By 129-08-0411 *Date* 8/10/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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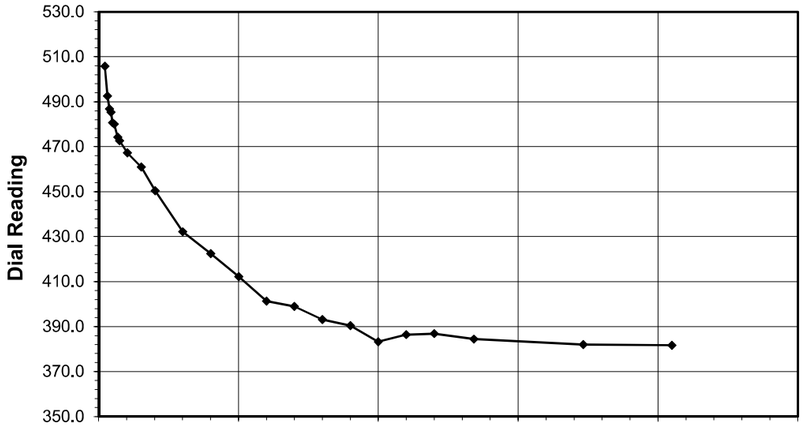
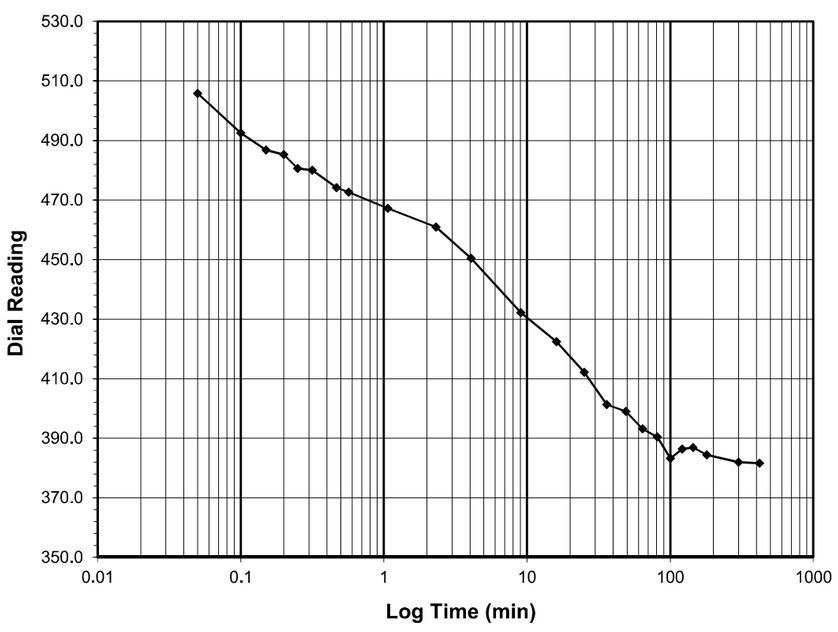
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**381.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/10/2019
Start Time		9:44:22

Elapsed Time (min)	Dial Reading (div)
Initial	**545.9**
0.05	505.8
0.10	492.5
0.15	486.8
0.20	485.3
0.25	480.7
0.32	480.1
0.47	474.1
0.57	472.6
1.07	467.2
2.32	461.0
4.07	450.4
9.07	432.2
16.07	422.4
25.07	412.2
36.07	401.3
49.07	399.0
64.07	393.2
81.07	390.4
100.07	383.2
121.07	386.4
144.07	386.9
180.07	384.5
300.07	382.0
420.07	381.6

Tested By 129-08-0411 *Date* 8/10/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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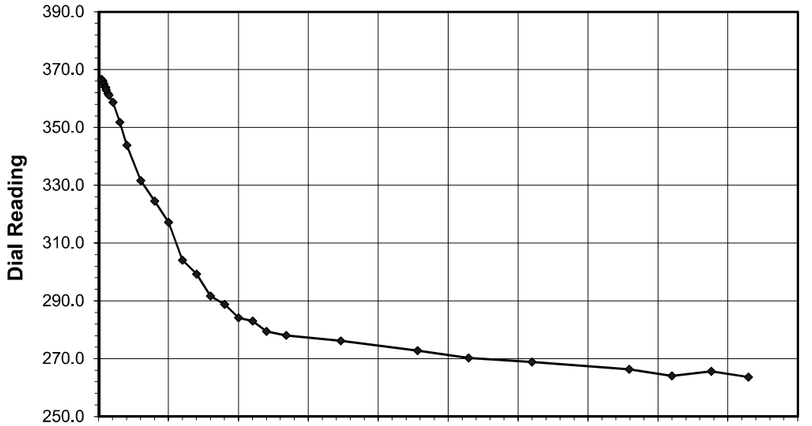
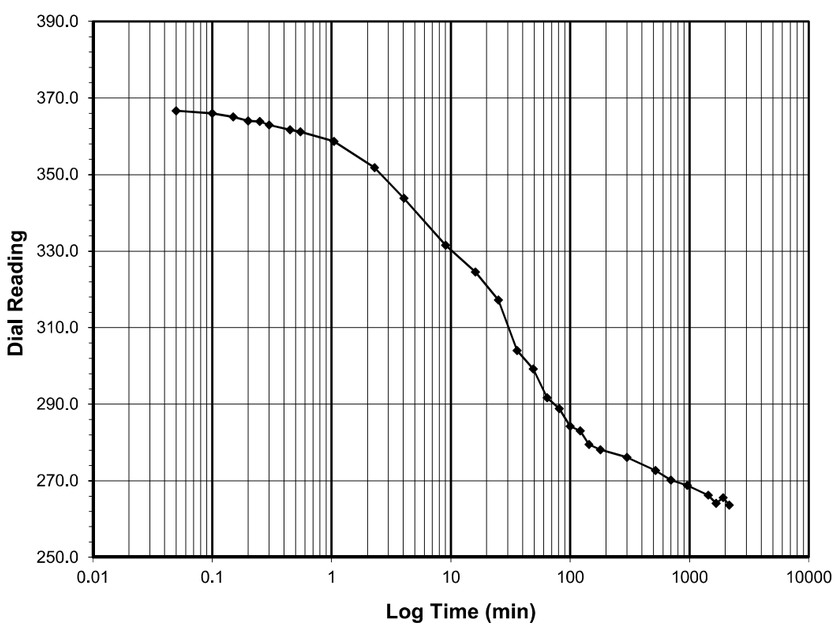
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Project	R-02561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Visual Description	Gray Clay		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**263.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/10/2019
Start Time		16:44:26

Elapsed Time (min)	Dial Reading (div)
Initial	**381.6**
0.05	366.7
0.10	366.0
0.15	365.1
0.20	364.0
0.25	363.8
0.30	362.9
0.45	361.7
0.55	361.2
1.05	358.7
2.30	351.8
4.05	343.8
9.05	331.6
16.05	324.6
25.05	317.2
36.05	304.0
49.05	299.2
64.05	291.7
81.05	288.8
100.07	284.2
121.07	283.0
144.07	279.5
180.07	278.1
300.07	276.1
520.07	272.7
700.07	270.2
960.07	268.8
1440.07	266.3
1680.07	264.1
1920.07	265.6
2160.07	263.6

Tested By 129-08-0411 *Date* 8/10/2019 *Checked By* GEM *Date* 8/15/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 16

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ATTERBERG LIMITS

AASHTO T-89, T-90 *(DOT Modified)*

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Reference	R-2561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Soil Description	**GRAY LEAN CLAY**		

Note: The* USCS *symbol used with this test refers only to the minus No. 40 (Minus No. 40 sieve material, Airdried)
sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

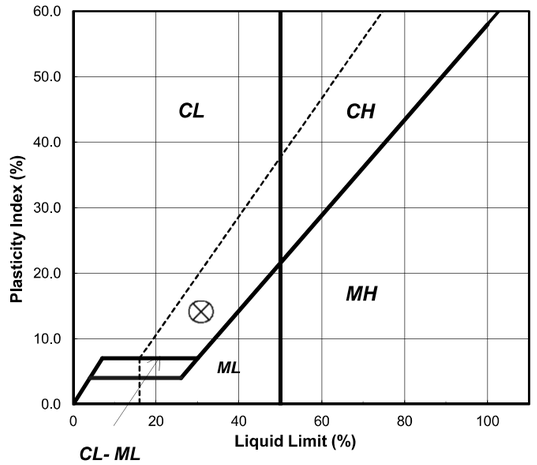
Liquid Limit Test	**1**
Tare Number	B3
Wt. of Tare & WS (gm)	26.72
Wt. of Tare & DS (gm)	24.14
Wt. of Tare (gm)	15.77
Wt. of Water (gm)	2.6
Wt. of DS (gm)	8.4
Moisture Content (%)	**30.8**
Number of Blows	**25**

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	1M	V	
Wt. of Tare & WS (gm)	23.16	21.30	
Wt. of Tare & DS (gm)	22.10	20.41	
Wt. of Tare (gm)	15.80	15.19	
Wt. of Water (gm)	1.1	0.9	
Wt. of DS (gm)	6.3	5.2	
Moisture Content (%)	**16.8**	**17.0**	**-0.2**

Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**31**
Plastic Limit (%)	**17**
Plasticity Index (%)	**14**
USCS Symbol	**CL**

Plasticity Chart



CL- ML

Tested By *129-05-0411* *Date* *8/13/19* *Checked By* *GEM* *Date* 8/14/19

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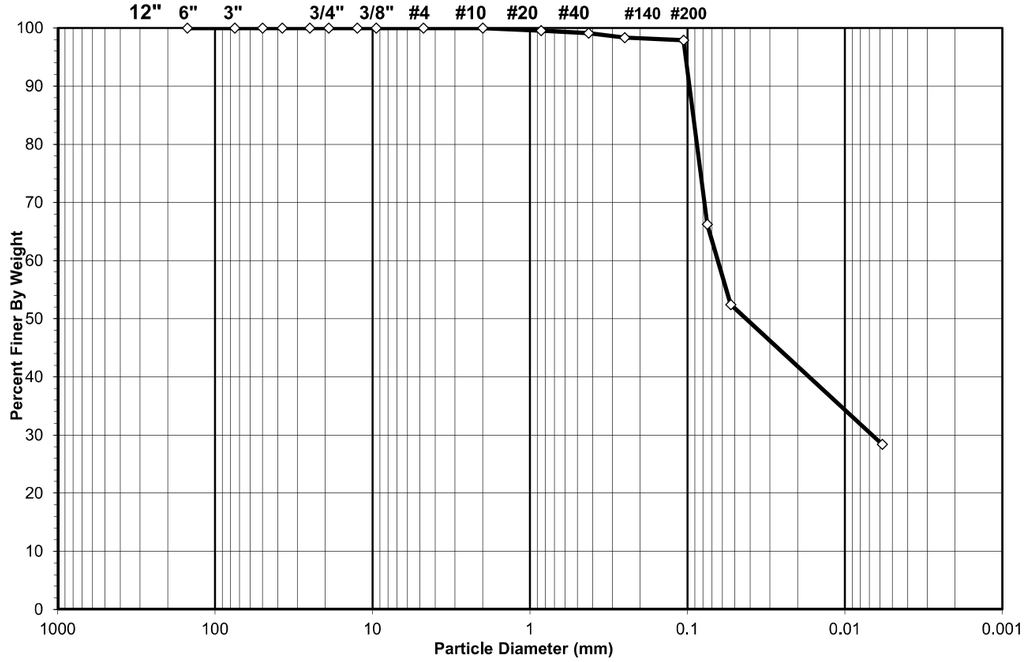
SIEVE AND HYDROMETER ANALYSIS

NCDOT MOD. AASHTO T-88,

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Reference	R-2561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Soil Color	**Gray**		

	SIEVE ANALYSIS			*HYDROMETER*
USCS	cobbles	gravel	sand	silt and clay fraction
AASHTO	cobbles	gravel	sand	silt and clay fraction



Sieve Size (mm)	Percent Finer	USCS	%	AASHTO	%	NCDOT SOIL MORTAR	%
100	100.00	*Gravel*	0.00	*Gravel*	0.00	*Coarse Sand Ret. #60*	1.64
2	100.00	*Sand*	33.77	*Coarse Sand*	0.87	*Fine Sand Ret. #270*	45.94
0.075	66.23	*Silt&Clay*	66.23	*Fine Sand*	32.90	*Silt 0.05-0.005mm*	24.02
				Silt & Clay	66.23	Clay <0.005mm	28.40

AASHTO (GI) ***A-6*** **(7)**

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WASH SIEVE ANALYSIS

NCDOT MOD. AASHTO T-88,

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Reference	R-2561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Soil Color	**Gray**		

Minus #10 for Hygroscopic (10-15gm)		Hydrometer Specimen 50 or 100gms	
Tare No.	W-S	Air Dried Hydrometer Material (gm)	74.46
Wgt.Tare + Wet Specimen (gm)	34.74	Corrected Dry Wt. of Hydro Mtrl. (gm)	67.61
Wgt.Tare + Dry Specimen (gm)	33.00		
Weight of Tare (gm)	15.83	Weight of -#270 Material	35.44
Weight of Water (gm)	1.74	Weight of -#10; +#270 Material	32.17
Weight of Dry Soil (gm)	17.17		
Moisture Content (%)	**10.1**		

Tare No.	AF-03		
Wgt. Tare + Air Dry Soil (gm)	614.40	Dry Weight of Material Ret. #10 (gm)	0.00
Weight of Tare (gm)	229.49	Corrected Dry Sample Wt - #10 (gm)	349.49
Air Dried Wgt.Total Sample (gm)	384.91		
Total Dry Weight Sample (gm)	349.5	**J - Factor (Percent Finer than #10)**	**1.0000**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.5	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.00	0.00	0.00	100.00	**100.00**
#20	0.85	0.30	0.44	0.44	99.56	**99.56**
#40	0.425	0.29	0.43	0.87	99.13	**99.13**
#60	0.25	0.52	0.77	1.64	98.36	**98.36**
#140	0.106	0.29	0.43	2.07	97.93	**97.93**
#200	0.075	21.43	31.70	33.77	66.23	**66.23**
#270	0.053	9.34	13.81	47.58	52.42	**52.42**
Pan	-	35.44	52.42	100.00	-	**-**

Tested By 129-05-0411 Date 8/12/19 Checked By GEM Date 8/13/19

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HYDROMETER ANALYSIS

NCDOT MOD. AASHTO T-88,

Client	Kleinfelder	Boring No.	Y_3150	Station:	31+50
Client Reference	R-2561CA	Depth (ft)	20.0-22.0	Offset:	30' LT
Project No.	R-2019-209-002	Sample No.	ST-1		
Lab ID	R-2019-209-002-001	Soil Color	**Gray**		

Elapsed Time (min)		**R Measured**	**Temp. (°C)**	**Composite Correction**	**R Corrected**	**N (%)**	**K Factor**	**Diameter (mm)**	**N' (%)**
11:41:00	0	NA	NA	NA	NA	NA	NA	NA	NA
11:41:32	0.53	42.0	24.5	-2.55	38.6	56.1	0.01264	0.0531	**56.1**
12:41:00	60.00	23.0	24.3	-2.51	19.5	28.4	0.01267	0.0058	**28.4**

Corrections		
a - Factor	0.984	
Percent Finer than # 10	100.00	
Specific Gravity	2.73	Measured

Note: *Hydrometer test is performed on - #10 sieve material.*

LL = 31

PL = 17

PI = 14

Tested By 129-05-0411 Date 8/7/19 Checked By GEM Date 8/13/19

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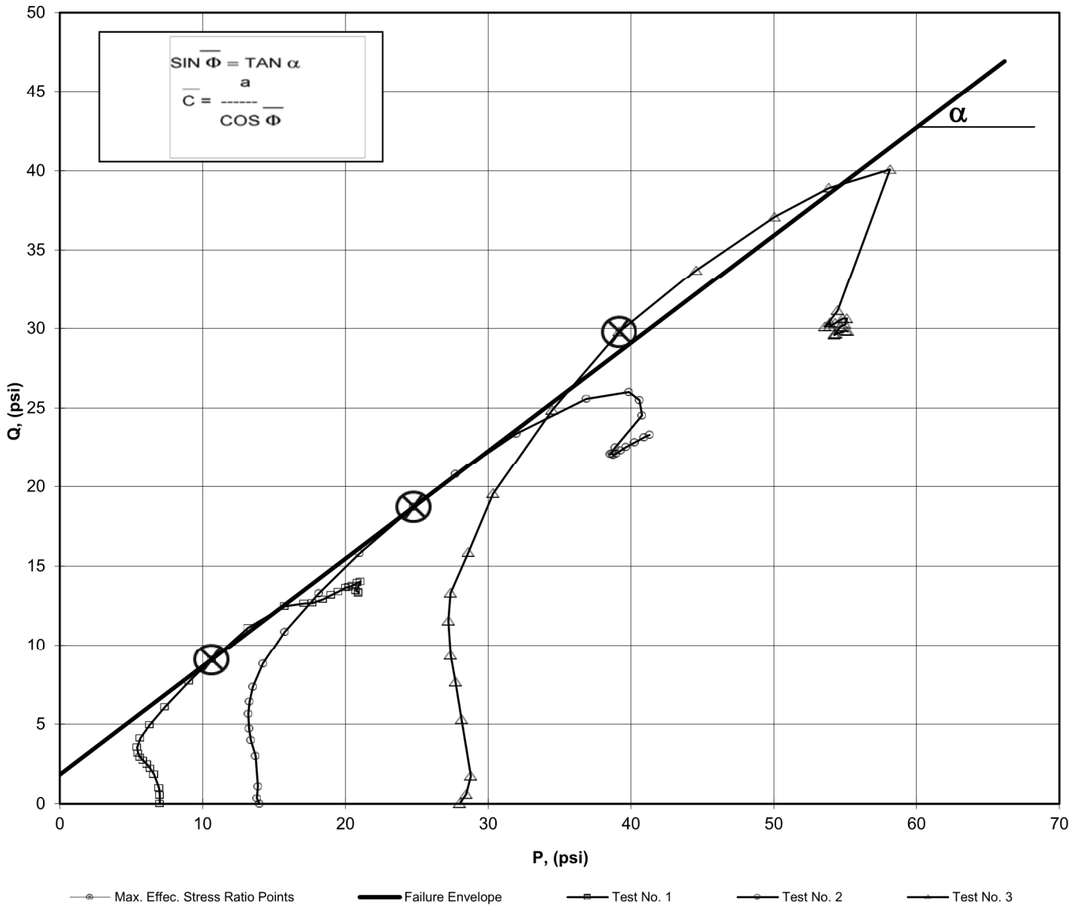
CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	Y_3150	Station:	31+50
Client Reference:	R-2561CA	Depth (ft):	20.0-22.0	Offset:	30' LT
Project No.:	R-2019-209-002	Sample No.:	ST-1		
Lab ID:	R-2019-209-002-001				

Consolidated Undrained Triaxial Test with Pore Pressure



a =	1.83	$\overline{C}$ =	2.50
α =	34.3	$\overline{\Phi}$ =	42.98

Tested By: 129-07-0411 Date: 8/19/19 Approved By: MPS Date: 8/23/19

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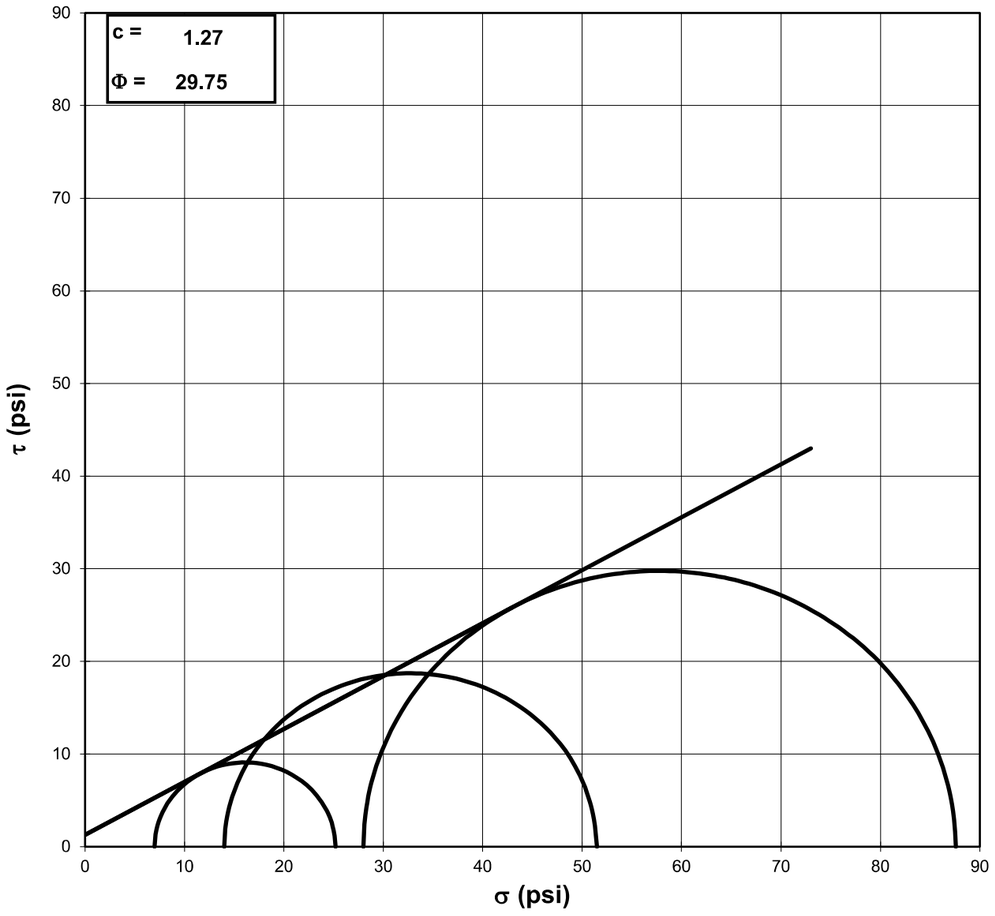
MOHR TOTAL STRENGTH ENVELOPE

AASHTO T-297

Client:	Kleinfelder	Boring No.:	Y_3150	Station:	31+50
Client Reference:	R-2561CA	Depth (ft):	20.0-22.0	Offset:	30' LT
Project No.:	R-2019-209-002	Sample No.:	ST-1		
Lab ID:	R-2019-209-002-001				
Visual Description:	Dark Gray Clay (UNDISTURBED)				



Failure Based on Maximum Effective Principal Stress Ratio

NOTE: GRAPH NOT TO SCALE

Tested By: 129-07-0411 *Date:* 8/19/19 *Approved By:* MPS *Date:* 8/23/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	Y_3150	Station:	31+50
Client Reference:	R-2561CA	Depth (ft):	20.0-22.0	Offset:	30' LT
Project No.:	R-2019-209-002	Sample No.:	ST-1		
Lab ID:	R-2019-209-002-001				

Visual Description: Dark Gray Clay (UNDISTURBED)

Stage No.	0
Test No.	1

PRESSURES (psi)

Cell Pressure (psi)	57.0
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	7.0
Pore Pressure Response (%)	98

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	10.65
Q	=	9.09

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	6.518	Diameter 1:	2.762
Length 2:	6.552	Diameter 2:	2.796
Length 3:	6.558	Diameter 3:	2.828
Length 4:	6.573	Diameter 4:	2.863
Avg. Length:	6.550	*Avg. Diam.:*	2.812

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	9.6
Final Change (ml)	14.4
Initial Dial Reading (mil)	157
Dial Reading After Saturation (mil)	322
Dial Reading After Consolidation (mil)	420

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
12.3	0.000	50.0
18.4	0.001	50.5
23.8	0.003	51.0
33.9	0.009	52.2
38.3	0.015	52.9
41.4	0.022	53.4
44.4	0.031	53.9
46.5	0.042	54.3
49.7	0.054	54.7
54.2	0.078	55.1
61.4	0.110	55.5
71.6	0.149	55.7
85.3	0.188	55.7
105.7	0.232	55.6
123.2	0.266	55.4
148.9	0.311	54.9
167.2	0.373	53.7
171.1	0.437	52.5
173.0	0.486	52.0
177.7	0.551	51.5
182.6	0.600	51.2
187.0	0.649	50.9
191.7	0.698	50.6
193.2	0.730	50.4
195.4	0.763	50.3
199.1	0.796	50.1
201.1	0.828	50.0
194.9	0.877	49.7
195.9	0.926	49.5
195.6	0.958	49.4
196.6	0.991	49.3

Tested By: 129-07-0411 Date: 8/19/19 Input Checked By: GEM Date: 8/23/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	Y_3150	Station:	31+50
Client Reference:	R-2561CA	Depth (ft):	20.0-22.0	Offset:	30' LT
Project No.:	R-2019-209-002	Sample No.:	ST-1		
Lab ID:	R-2019-209-002-001				

Visual Description: Dark Gray Clay (UNDISTURBED)

Effective Confining Pressure (psi)	7.0	*Stage No.*	0
		Test No	1

INITIAL DIMENSIONS

Initial Sample Length (in)	6.55
Initial Sample Diameter (in)	2.81
Initial Sample Area (in^2)	6.21
Initial Sample Volume (in^3)	40.69

VOLUME CHANGE

Volume After Consolidation (in^3)	36.73
Length After Consolidation (in)	6.29
Area After Consolidation (in^2)	5.843

Strain (%)	Deviator Stress PSI	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principal Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	1.04	0.51	7.53	6.5	1.160	0.50	7.01	0.52
0.04	1.97	1.04	7.93	6.0	1.330	0.54	6.95	0.98
0.15	3.69	2.24	8.45	4.8	1.774	0.62	6.60	1.84
0.24	4.44	2.89	8.55	4.1	2.079	0.66	6.33	2.22
0.34	4.96	3.37	8.59	3.6	2.368	0.69	6.11	2.48
0.50	5.46	3.90	8.56	3.1	2.762	0.73	5.83	2.73
0.66	5.82	4.29	8.53	2.7	3.148	0.75	5.62	2.91
0.86	6.34	4.68	8.66	2.3	3.731	0.75	5.49	3.17
1.23	7.08	5.12	8.96	1.9	4.774	0.74	5.42	3.54
1.76	8.26	5.48	9.78	1.5	6.429	0.68	5.65	4.13
2.36	9.91	5.66	11.25	1.3	8.386	0.58	6.30	4.95
2.99	12.13	5.71	13.42	1.3	10.390	0.48	7.36	6.07
3.70	15.40	5.63	16.77	1.4	12.230	0.37	9.07	7.70
4.22	18.18	5.44	19.74	1.6	12.640	0.31	10.65	9.09
4.94	22.23	4.94	24.29	2.1	11.767	0.23	13.18	11.11
5.93	24.95	3.73	28.22	3.3	8.627	0.15	15.74	12.47
6.96	25.29	2.53	29.77	4.5	6.654	0.10	17.12	12.65
7.73	25.37	1.98	30.40	5.0	6.054	0.08	17.71	12.69
8.77	25.82	1.49	31.33	5.5	5.685	0.06	18.42	12.91
9.55	26.36	1.18	32.19	5.8	5.529	0.05	19.00	13.18
10.32	26.81	0.89	32.92	6.1	5.390	0.03	19.51	13.40
11.10	27.30	0.62	33.68	6.4	5.278	0.02	20.03	13.65
11.61	27.37	0.44	33.94	6.6	5.171	0.02	20.25	13.69
12.14	27.54	0.29	34.26	6.7	5.102	0.01	20.49	13.77
12.65	27.92	0.11	34.81	6.9	5.053	0.00	20.85	13.96
13.17	28.06	-0.03	35.10	7.0	4.989	0.00	21.07	14.03
13.95	26.89	-0.30	34.19	7.3	4.684	-0.01	20.74	13.44
14.72	26.80	-0.51	34.31	7.5	4.566	-0.02	20.91	13.40
15.24	26.60	-0.63	34.23	7.6	4.486	-0.02	20.93	13.30
15.76	26.58	-0.74	34.32	7.7	4.432	-0.03	21.03	13.29

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder	Boring No.:	Y_3150	Station:	31+50
Client Reference:	R-2561CA	Depth (ft):	20.0-22.0	Offset:	30' LT
Project No.:	R-2019-209-002	Sample No.:	ST-1		
Lab ID:	R-2019-209-002-001				

Visual Description: Dark Gray Clay (UNDISTURBED)

Stage No.	0
Test No.	2

PRESSURES (psi)

Cell Pressure (psi)	64.0
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	14.0
Pore Pressure Response (%)	98

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	24.77
Q	=	18.72

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	6.138	Diameter 1:	2.856
Length 2:	6.129	Diameter 2:	2.850
Length 3:	6.128	Diameter 3:	2.847
Length 4:	6.127	Diameter 4:	2.845
Avg. Length	6.131	*Avg. Diam.:*	2.850

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	3.8
Final Change (ml)	20.2
Initial Dial Reading (mil)	496
Dial Reading After Saturation (mil)	510
Dial Reading After Consolidation (mil)	623

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
11.1	0.000	50.1
15.3	0.002	50.5
24.8	0.003	51.2
48.9	0.008	53.3
61.3	0.014	54.6
70.6	0.020	55.5
82.2	0.030	56.4
91.8	0.038	57.1
103.8	0.051	57.8
122.9	0.073	58.6
149.4	0.103	59.1
181.5	0.140	59.1
215.0	0.176	58.8
254.3	0.217	57.9
282.6	0.248	57.1
318.9	0.291	55.4
351.0	0.349	52.7
360.6	0.410	50.2
356.4	0.455	48.9
347.3	0.516	47.8
322.3	0.562	47.6
319.1	0.608	47.6
322.0	0.654	47.4
322.8	0.685	47.3
325.6	0.715	47.2
330.3	0.745	47.0
335.3	0.776	46.9
342.4	0.822	46.6
349.9	0.867	46.2
354.3	0.898	46.0
359.2	0.929	45.8

Tested By: 129-07-0411 Date: 8/19/19 Input Checked By: GEM Date: 8/23/19

DCN: CT-S28 DATE: 4/12/13 REVISION: 3

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder	Boring No.:	Y_3150	Station:	31+50
Client Reference:	R-2561CA	Depth (ft):	20.0-22.0	Offset:	30' LT
Project No.:	R-2019-209-002	Sample No.:	ST-1		
Lab ID:	R-2019-209-002-001				

Visual Description: Dark Gray Clay (UNDISTURBED)

Effective Confining Pressure (psi)	14.0	*Stage No.*	0
		Test No	2

INITIAL DIMENSIONS

Initial Sample Length (in)	6.13
Initial Sample Diameter (in)	2.85
Initial Sample Area (in^2)	6.38
Initial Sample Volume (in^3)	39.10

VOLUME CHANGE

Volume After Consolidation (in^3)	37.59
Length After Consolidation (in)	6.00
Area After Consolidation (in^2)	6.262

Strain (%)	Deviator Stress PSI	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principal Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.03	0.67	0.54	14.13	13.5	1.050	0.82	13.80	0.34
0.05	2.20	1.22	14.98	12.8	1.172	0.57	13.88	1.10
0.14	6.04	3.31	16.73	10.7	1.565	0.56	13.71	3.02
0.23	8.01	4.63	17.38	9.4	1.854	0.59	13.38	4.00
0.34	9.47	5.48	17.99	8.5	2.111	0.59	13.25	4.73
0.50	11.30	6.45	18.85	7.6	2.496	0.58	13.20	5.65
0.64	12.80	7.12	19.68	6.9	2.860	0.57	13.28	6.40
0.85	14.68	7.82	20.87	6.2	3.374	0.54	13.53	7.34
1.21	17.65	8.59	23.05	5.4	4.264	0.50	14.23	8.82
1.72	21.71	9.12	26.60	4.9	5.447	0.43	15.74	10.86
2.33	26.58	9.14	31.43	4.9	6.471	0.35	18.15	13.29
2.93	31.61	8.80	36.81	5.2	7.077	0.28	21.01	15.81
3.62	37.43	7.94	43.49	6.1	7.180	0.22	24.77	18.72
4.13	41.58	7.06	48.52	6.9	6.990	0.17	27.73	20.79
4.84	46.77	5.41	55.36	8.6	6.442	0.12	31.98	23.39
5.81	51.13	2.70	62.43	11.3	5.524	0.05	36.87	25.56
6.82	52.01	0.16	65.85	13.8	4.757	0.00	39.85	26.01
7.58	50.97	-1.12	66.09	15.1	4.372	-0.02	40.60	25.49
8.60	49.07	-2.24	65.32	16.2	4.021	-0.05	40.78	24.54
9.37	45.05	-2.37	61.42	16.4	3.751	-0.05	38.90	22.52
10.13	44.21	-2.43	60.64	16.4	3.691	-0.06	38.53	22.10
10.89	44.24	-2.55	60.79	16.6	3.673	-0.06	38.67	22.12
11.40	44.10	-2.70	60.80	16.7	3.640	-0.06	38.75	22.05
11.91	44.25	-2.83	61.08	16.8	3.630	-0.07	38.95	22.13
12.41	44.65	-2.95	61.60	17.0	3.634	-0.07	39.28	22.33
12.93	45.07	-3.12	62.20	17.1	3.632	-0.07	39.66	22.54
13.69	45.66	-3.43	63.09	17.4	3.620	-0.08	40.26	22.83
14.44	46.30	-3.76	64.06	17.8	3.607	-0.08	40.91	23.15
14.95	46.61	-3.99	64.60	18.0	3.591	-0.09	41.30	23.30
15.47	46.99	-4.25	65.24	18.2	3.575	-0.09	41.74	23.50

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	Y_3150	Station:	31+50
Client Reference:	R-2561CA	Depth (ft):	20.0-22.0	Offset:	30' LT
Project No.:	R-2019-209-002	Sample No.:	ST-1		
Lab ID:	R-2019-209-002-001				

Visual Description: Dark Gray Clay (UNDISTURBED)

Stage No.	0
Test No.	3

PRESSURES (psi)

Cell Pressure (psi)	78.0
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	28.0
Pore Pressure Response (%)	98

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	39.16
Q	=	29.77

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	6.125	Diameter 1:	2.808
Length 2:	6.135	Diameter 2:	2.848
Length 3:	6.110	Diameter 3:	2.888
Length 4:	6.115	Diameter 4:	2.855
Avg. Length:	6.121	*Avg. Diam.:*	2.850

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	5.9
Final Change (ml)	18.1
Initial Dial Reading (mil)	226
Dial Reading After Saturation (mil)	221
Dial Reading After Consolidation (mil)	278

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
8.9	0.000	50.0
16.3	0.001	50.1
30.6	0.003	50.9
75.3	0.008	55.2
104.9	0.014	57.9
126.4	0.020	60.0
154.5	0.029	62.3
176.6	0.038	63.9
209.3	0.049	65.3
256.8	0.071	67.2
325.7	0.101	68.4
390.7	0.137	68.6
443.6	0.173	67.2
490.9	0.216	65.0
517.2	0.245	63.1
536.4	0.288	60.0
422.7	0.347	54.6
413.4	0.409	54.5
420.3	0.455	54.4
421.4	0.515	54.2
427.8	0.561	54.0
435.5	0.607	53.8
439.0	0.654	53.5
436.4	0.684	53.2
436.7	0.714	53.4
432.3	0.745	53.4
434.0	0.775	53.3
439.2	0.823	53.3
445.7	0.869	52.8
447.6	0.900	52.6
452.1	0.930	53.0

Tested By: 129-07-0411 Date: 8/19/19 Input Checked By: GEM Date: 8/23/19

DCN: CT-S28 DATE: 4/12/13 REVISION: 3

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client: Kleinfelder | Boring No.: Y_3150 | Station: 31+50
Client Reference: R-2561CA | Depth (ft): 20.0-22.0 | Offset: 30' LT
Project No.: R-2019-209-002 | Sample No.: ST-1
Lab ID: R-2019-209-002-001

Visual Description: Dark Gray Clay (UNDISTURBED)

Effective Confining Pressure (psi)	28.0	*Stage No.*	0
		Test No	3

INITIAL DIMENSIONS

Initial Sample Length (in)	6.12
Initial Sample Diameter (in)	2.85
Initial Sample Area (in^2)	6.38
Initial Sample Volume (in^3)	39.04

VOLUME CHANGE

Volume After Consolidation (in^3)	38.03
Length After Consolidation (in)	6.07
Area After Consolidation (in^2)	6.267

Strain (%)	Deviator Stress PSI	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principal Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	1.18	0.14	29.03	27.9	1.042	0.13	28.44	0.59
0.04	3.46	0.95	30.52	27.1	1.128	0.28	28.78	1.73
0.13	10.58	5.15	33.43	22.8	1.463	0.50	28.14	5.29
0.23	15.28	7.93	35.35	20.1	1.761	0.53	27.71	7.64
0.33	18.67	9.96	36.71	18.0	2.035	0.54	27.37	9.34
0.48	23.12	12.35	38.77	15.7	2.477	0.55	27.21	11.56
0.62	26.59	13.94	40.65	14.1	2.891	0.53	27.36	13.29
0.81	31.72	15.25	44.47	12.7	3.488	0.49	28.61	15.86
1.16	39.09	17.20	49.89	10.8	4.621	0.45	30.34	19.54
1.66	49.71	18.38	59.33	9.6	6.168	0.38	34.48	24.86
2.25	59.54	18.61	68.93	9.4	7.342	0.32	39.16	29.77
2.85	67.39	17.15	78.24	10.8	7.212	0.26	44.54	33.69
3.55	74.17	15.03	87.14	13.0	6.721	0.21	50.05	37.09
4.04	77.82	13.06	92.76	14.9	6.210	0.17	53.85	38.91
4.75	80.17	9.95	98.22	18.0	5.442	0.13	58.13	40.09
5.72	62.25	4.65	85.60	23.4	3.665	0.08	54.48	31.12
6.73	60.19	4.50	83.69	23.5	3.562	0.08	53.59	30.10
7.49	60.72	4.44	84.29	23.6	3.577	0.07	53.92	30.36
8.48	60.25	4.20	84.05	23.8	3.531	0.07	53.93	30.12
9.24	60.66	4.02	84.64	24.0	3.530	0.07	54.31	30.33
10.01	61.25	3.81	85.44	24.2	3.532	0.06	54.81	30.63
10.77	61.23	3.49	85.75	24.5	3.498	0.06	55.13	30.62
11.27	60.52	3.24	85.28	24.8	3.444	0.05	55.02	30.26
11.77	60.23	3.45	84.78	24.6	3.453	0.06	54.67	30.11
12.28	59.26	3.37	83.89	24.6	3.405	0.06	54.26	29.63
12.78	59.16	3.34	83.83	24.7	3.399	0.06	54.24	29.58
13.57	59.34	3.30	84.05	24.7	3.402	0.06	54.38	29.67
14.32	59.72	2.80	84.92	25.2	3.370	0.05	55.06	29.86
14.83	59.62	2.64	84.98	25.4	3.351	0.05	55.17	29.81
15.33	59.88	2.97	84.90	25.0	3.393	0.05	54.96	29.94

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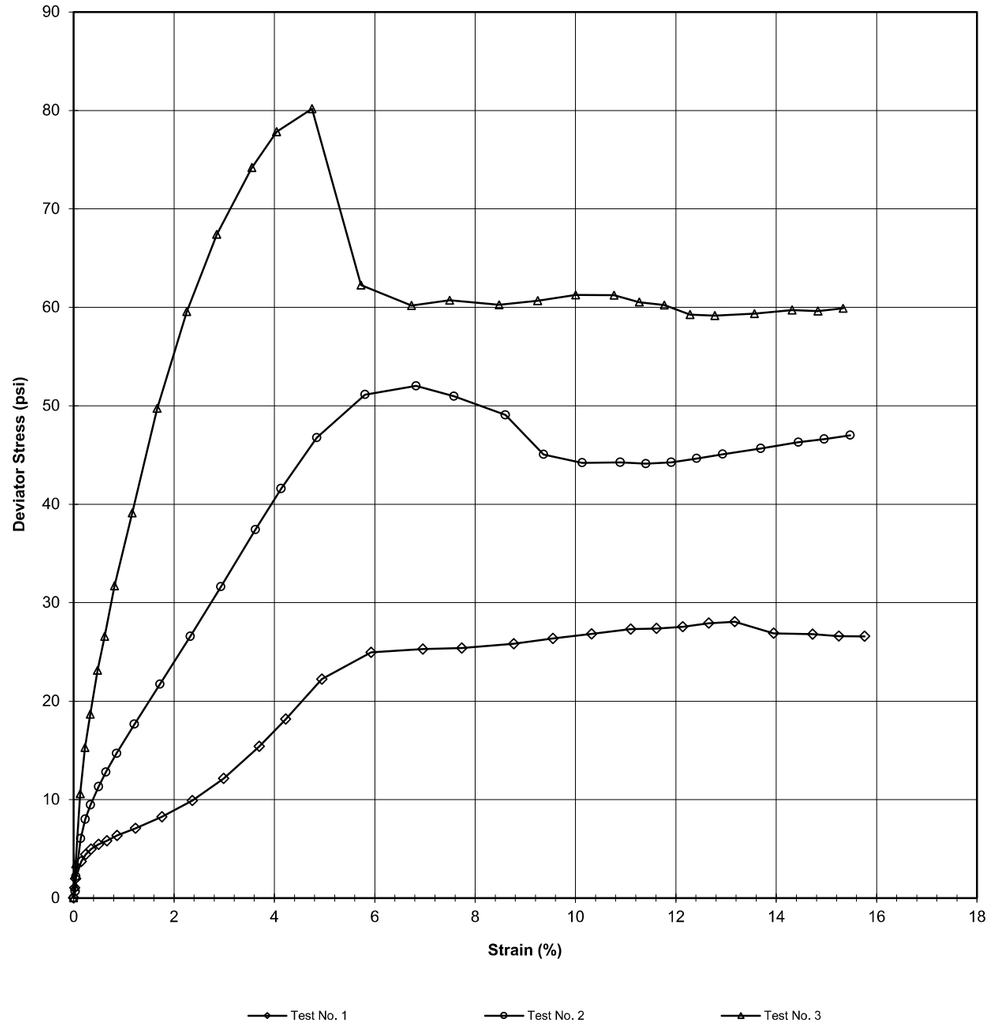
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder	Boring No.:	Y_3150	Station:	31+50
Client Reference:	R-2561CA	Depth (ft):	20.0-22.0	Offset:	30' LT
Project No.:	R-2019-209-002	Sample No.:	ST-1		
Lab ID:	R-2019-209-002-001				
Visual Description:	Dark Gray Clay (UNDISTURBED)				



Tested By: 129-07-0411 Date: 8/19/19 Approved By: MPS Date: 8/23/19

page 9 of 10

CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-11

Client:	Kleinfelder		
Client Reference:	R-2561CA		
Project No.:	R-2019-209-002		
Lab ID:	R-2019-209-002-001	Specific Gravity (assumed)	2.68
Visual Description:	Dark Gray Clay (UNDISTURBED)		

SAMPLE CONDITION SUMMARY

Boring No.:	Y_3150	Y_3150	Y_3150
Depth (ft):	20.0-22.0	20.0-22.0	20.0-22.0
Sample No.:	ST-1	ST-1	ST-1
Test No.	T1	T2	T3
Deformation Rate (in/min)	0.0013	0.0013	0.0013
Back Pressure (psi)	50.0	50.0	50.0
Consolidation Time (days)	1	1	1
Moisture Content (%) (INITIAL)	29.6	27.6	26.4
Total Unit Weight (pcf)	114.6	119.4	121.8
Dry Unit Weight (pcf)	88.4	93.6	96.4
Moisture Content (%) (FINAL)	29.1	26.5	27.5
Initial State Void Ratio,e	0.892	0.787	0.736
Void Ratio at Shear, e	0.708	0.719	0.691

Tested By: 129-07-041 Date: 8/19/19 Input Checked By: GEM Date: 8/23/19

 DCN: CT-S28 DATE: 4/12/13 REVISION: 3

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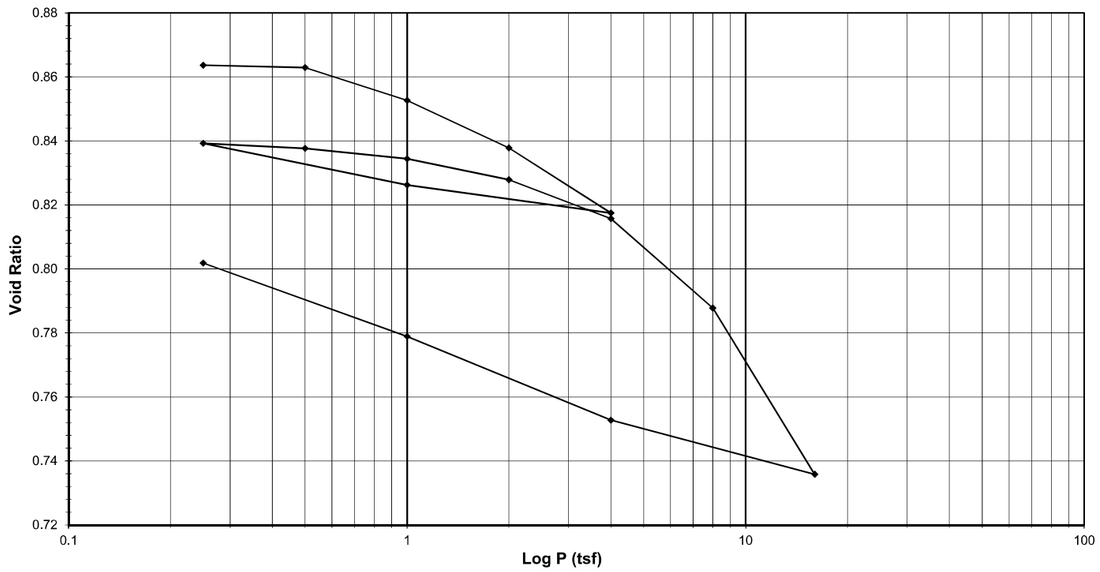
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Reference	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By 129-0411 *Date* 7/19/2019 *Approved By* MPS *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 6

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Reference	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Consolidometer No. R470

1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	TB-04	X-15
Wt. Tare & WS (g)	330.14	293.80
Wt. Tare & DS (g)	289.26	261.85
Wt. Water (g)	40.88	31.95
Wt. Tare (g)	135.09	142.28
Wt. DS (g)	154.17	119.57
Water Content (%)	26.52	26.72
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.9656
Sample Volume (cc)	80.44	77.67
Wt. Wet Sample + Ring (g)	365.80	366.04
Wt. of Ring (g)	214.73	214.73
Wt. of Wet Sample (g)	151.07	151.31
Wet Density (pcf)	117.19	121.56
Wet Density (g/cc)	1.88	1.95
Water Content (%)	26.52	26.72
Wt. of Dry Sample (g)	119.41	119.41
Dry Density (pcf)	92.63	95.93
Dry Density (g/cc)	1.48	1.54
Void Ratio	0.8660	0.8018
Saturation (%)	84.81	92.31
Specific Gravity	2.77	*Measured*

Test Data Summary

Applied Pressure (tsf)	**Final Dial Reading** (div)	**Machine Deflection** (div)	**Corrected Reading** (div)	**Height of Sample** (mm)	**Volume** (cc)	**Dry Density** (g/cc)	**Void Ratio**
Seating	0	0	0	25.400	80.440	1.48443	**0.86603**
0.25	35.5	22.8	12.7	25.368	80.338	1.48632	**0.86366**
0.5	60.9	44.2	16.7	25.358	80.305	1.48692	**0.86291**
1	132.4	60.5	71.9	25.217	79.861	1.49519	**0.85261**
2	244.9	93.6	151.3	25.016	79.223	1.50723	**0.83780**
4	390.8	130.5	260.3	24.739	78.346	1.52411	**0.81746**
1	296.4	83.0	213.4	24.858	78.724	1.51680	**0.82622**
0.25	196.3	52.7	143.6	25.035	79.285	1.50606	**0.83923**
0.5	210.1	58.3	151.8	25.014	79.219	1.50732	**0.83770**
1	244.4	74.9	169.5	24.969	79.076	1.51003	**0.83440**
2	304.6	100.0	204.6	24.880	78.794	1.51544	**0.82786**
4	402.9	133.4	269.5	24.715	78.272	1.52555	**0.81574**
8	589.3	169.9	419.4	24.335	77.066	1.54942	**0.78777**
16	923.9	226.1	697.8	23.628	74.827	1.59579	**0.73582**
4	768.7	161.7	607.1	23.858	75.557	1.58037	**0.75275**
1	578.7	111.7	466.9	24.214	76.684	1.55715	**0.77890**
0.25	417.0	73.0	344.0	24.526	77.673	1.53732	**0.80184**

Tested By 129-0411 *Date* 7/19/2019 *Input Checked By* GEM *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 6

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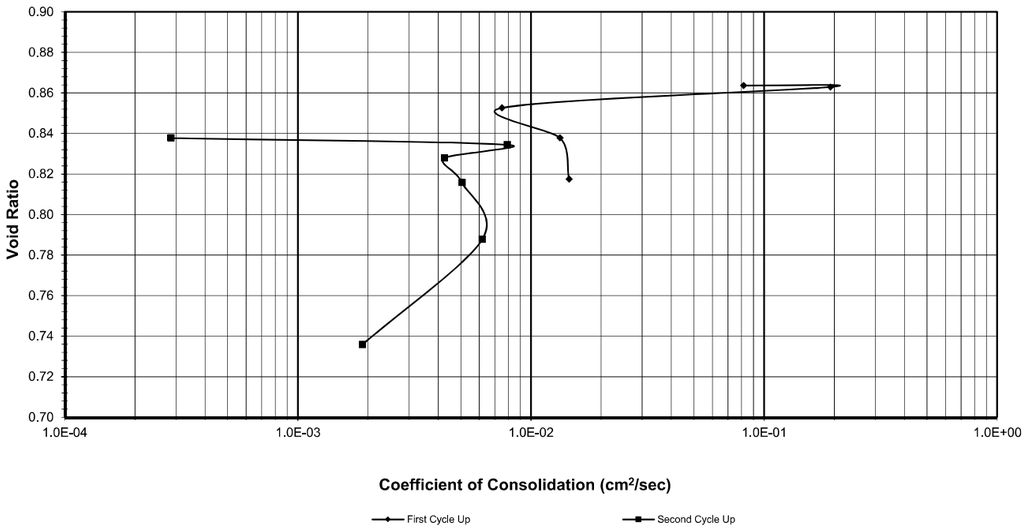
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Reference	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By *129-0411* *Date* *7/19/2019* *Input Checked By* *GEM* *Date* *7/29/2019*

DCN: CT-24E Date: 5/3/12 Revision: 6 *Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT*

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Reference	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R470
1 Division = 0.0001 (in.)

Sample Properties	Initial	Final
Water Content		
Tare Number	TB-04	X-15
Wt. Tare & WS (g)	330.14	293.80
Wt. Tare & DS (g)	289.26	261.85
Wt. Water (g)	40.88	31.95
Wt. Tare (g)	135.09	142.28
Wt. DS (g)	154.17	119.57
Water Content (%)	26.52	26.72
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.966
Sample Volume (cc)	80.44	77.67
Wt. Wet Sample + Ring (g)	365.80	366.04
Wt. of Ring (g)	214.73	214.73
Wt. of Wet Sample (g)	151.07	151.31
Wet Density (pcf)	117.19	121.56
Wet Density (g/cc)	1.88	1.95
Water Content (%)	26.52	26.72
Wt. of Dry Sample (g)	119.41	119.41
Dry Density (pcf)	92.63	95.93
Dry Density (g/cc)	1.48	1.54
Void Ratio	0.8660	0.8018
Saturation (%)	84.81	92.31
Specific Gravity	2.77	*Measured*

C_v Test Data Summary

Load Increment (tsf)	Dial Reading @ t_{50} (div)	Machine Deflection (div)	Corrected Dial Reading @ t_{50} (div)	Sample Height @ t_{50} (cm)	Time t_{50} (min.)	C_v (cm²/sec)
0 - 0.25	16.5	22.8	-6.3	2.542	**0.07**	**0.08158**
0.25 - 0.5	45.8	44.2	1.6	2.540	**0.03**	**0.19251**
0.5 - 1.0	100.7	60.5	40.2	2.530	**0.70**	**0.00750**
1.0 - 2.0	192.7	93.6	99.1	2.515	**0.39**	**0.01331**
2.0 - 4.0	317.3	130.5	186.8	2.493	**0.35**	**0.01457**
4.0 - 1.0	NA	83.0	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	52.7	NA	NA	**NA**	**NA**
0.25 - 0.5	205.1	58.3	146.8	2.503	**18.00**	**0.00029**
0.5 - 1.0	226.1	74.9	151.2	2.502	**0.65**	**0.00790**
1.0 - 2.0	279.3	100.0	179.2	2.494	**1.20**	**0.00426**
2.0 - 4.0	359.1	133.4	225.7	2.483	**1.00**	**0.00506**
4.0 - 8.0	506.3	169.9	336.4	2.455	**0.80**	**0.00618**
8.0 - 16.0	776.7	226.1	550.6	2.400	**2.50**	**0.00189**
16.0 - 4.0	NA	161.7	NA	NA	**NA**	**NA**
4.0 - 1.0	NA	111.7	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	73.0	NA	NA	**NA**	**NA**

Tested By *129-0411* *Date* *7/19/2019* *Input Checked By* *GEM* *Date* *7/29/2019*

DCN: CT-24E Date: 5/3/12 Revision: 6 *Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT*

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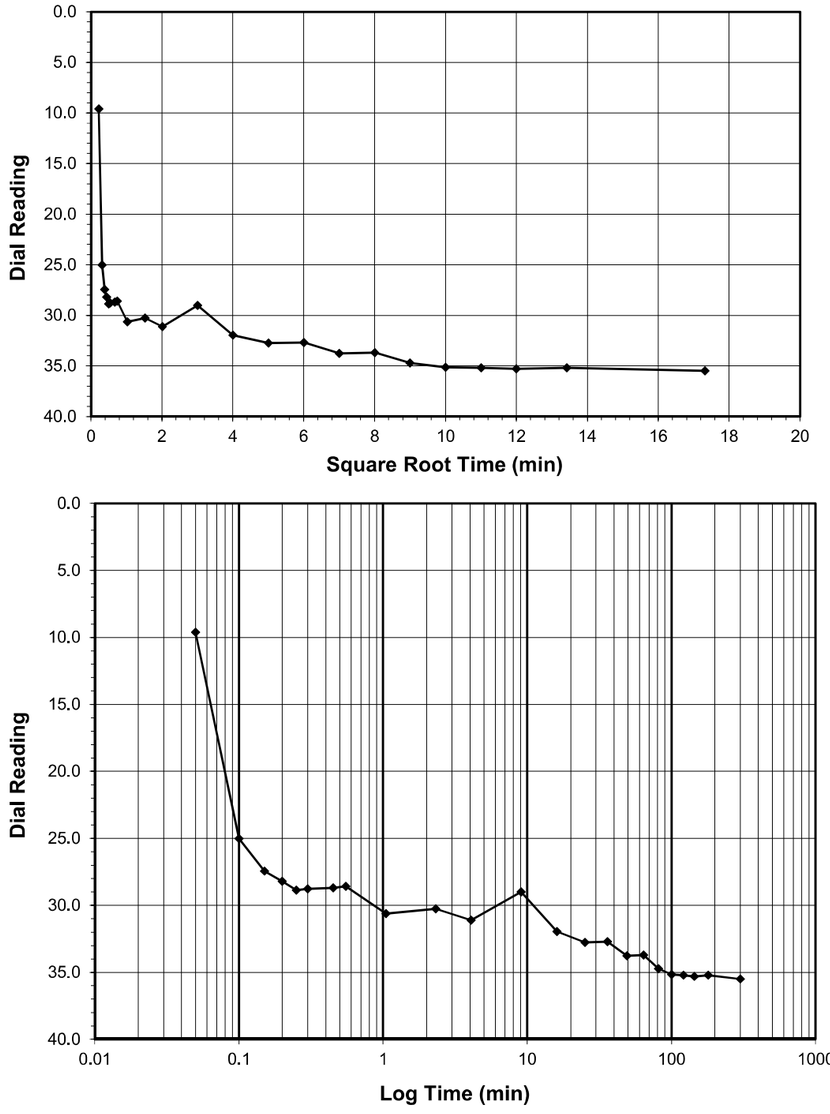
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0.0-0.25**
Final Reading	**(div)**	**35.5**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/19/2019
Start Time		10:46:49

Elapsed Time (min)	Dial Reading (div)
Initial	**0.0**
0.05	9.6
0.10	25.0
0.15	27.4
0.20	28.2
0.25	28.9
0.30	28.8
0.45	28.7
0.55	28.6
1.05	30.6
2.32	30.3
4.07	31.1
9.07	29.0
16.07	32.0
25.07	32.8
36.07	32.7
49.07	33.8
64.07	33.7
81.07	34.7
100.07	35.1
121.07	35.2
144.07	35.3
180.07	35.2
300.07	35.5

Tested By *129-0411* *Date* *7/19/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 1

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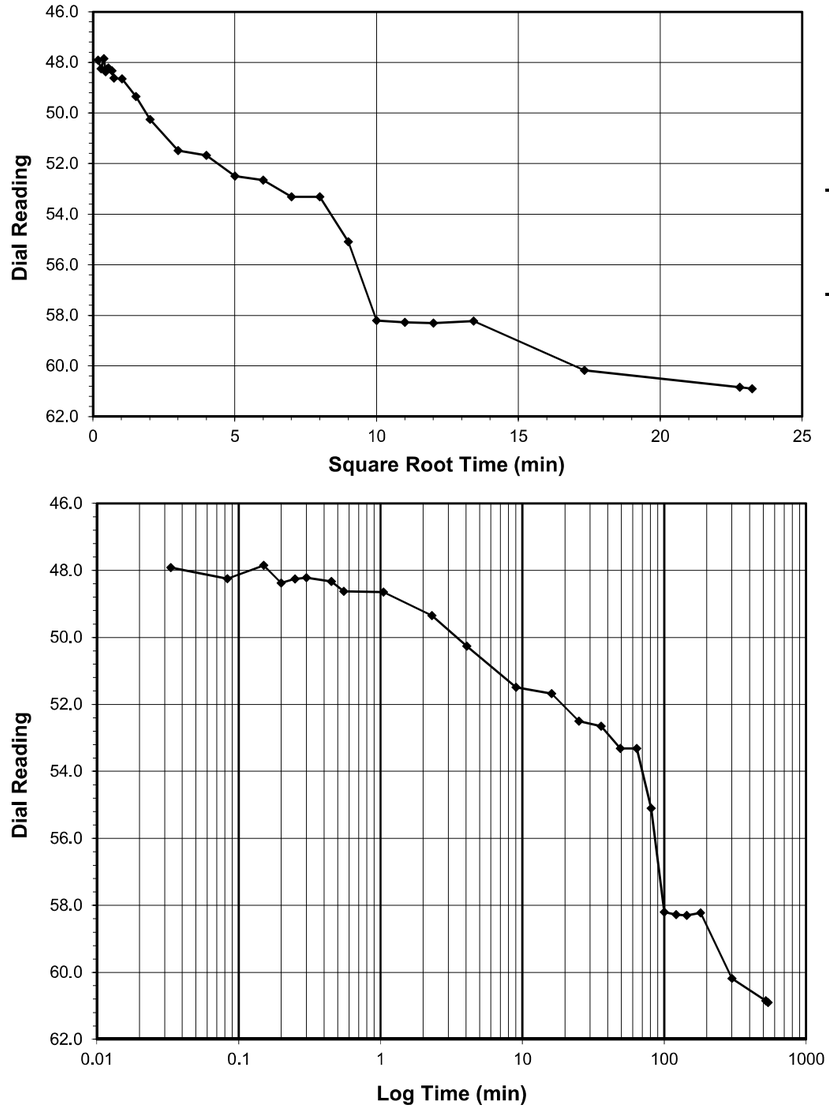
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**60.9**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/19/2019
Start Time		19:47:08

Elapsed Time (min)	Dial Reading (div)
Initial	**35.5**
0.03	47.9
0.08	48.3
0.15	47.9
0.20	48.4
0.25	48.3
0.30	48.2
0.45	48.3
0.55	48.6
1.05	48.7
2.30	49.3
4.05	50.3
9.05	51.5
16.05	51.7
25.05	52.5
36.05	52.7
49.05	53.3
64.05	53.3
81.05	55.1
100.05	58.2
121.05	58.3
144.05	58.3
180.05	58.2
300.05	60.2
520.05	60.8
540.28	60.9

Tested By *129-0411* *Date* *7/19/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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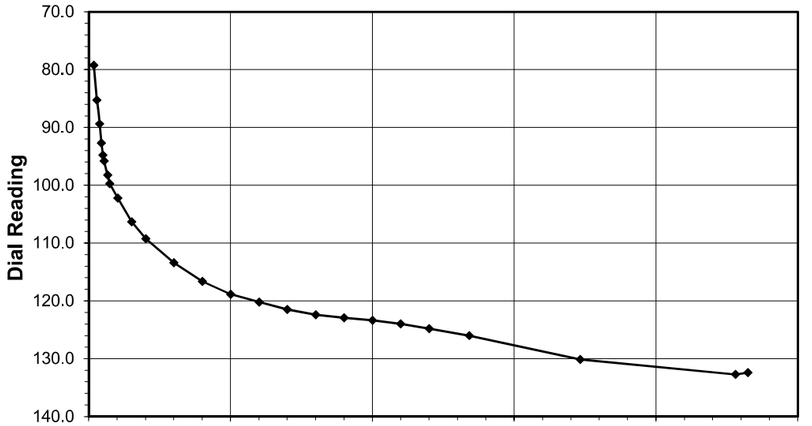
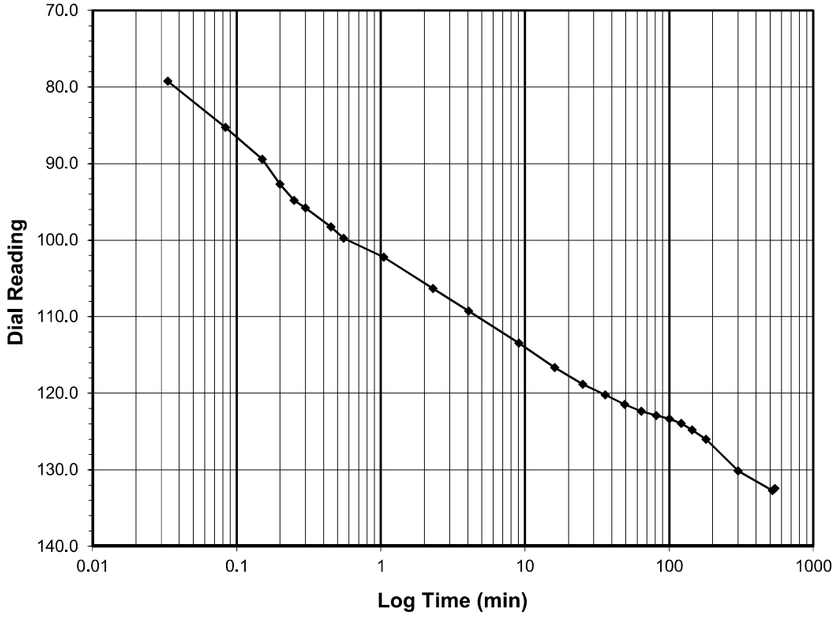
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**132.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/20/2019
Start Time		4:47:26

Elapsed Time (min)	Dial Reading (div)
Initial	**60.9**
0.03	79.3
0.08	85.3
0.15	89.4
0.20	92.7
0.25	94.8
0.30	95.8
0.45	98.3
0.55	99.7
1.05	102.2
2.30	106.3
4.05	109.3
9.07	113.4
16.07	116.7
25.07	118.8
36.07	120.2
49.07	121.5
64.07	122.4
81.07	122.9
100.07	123.4
121.07	123.9
144.07	124.8
180.07	126.0
300.07	130.1
520.07	132.7
540.38	132.4

Tested By *129-0411* *Date* *7/20/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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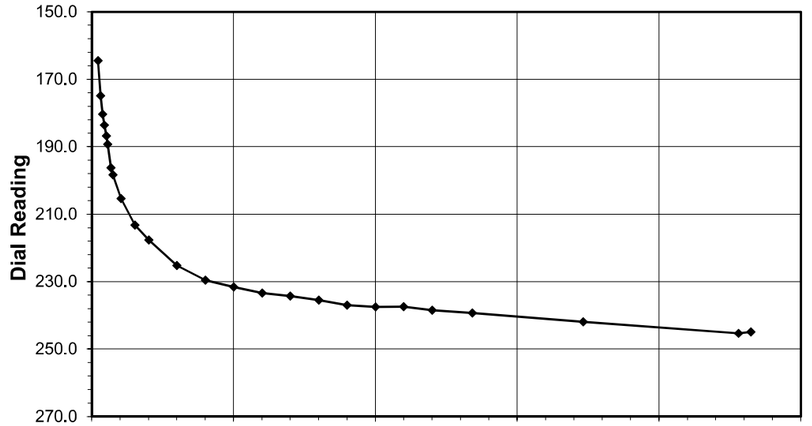
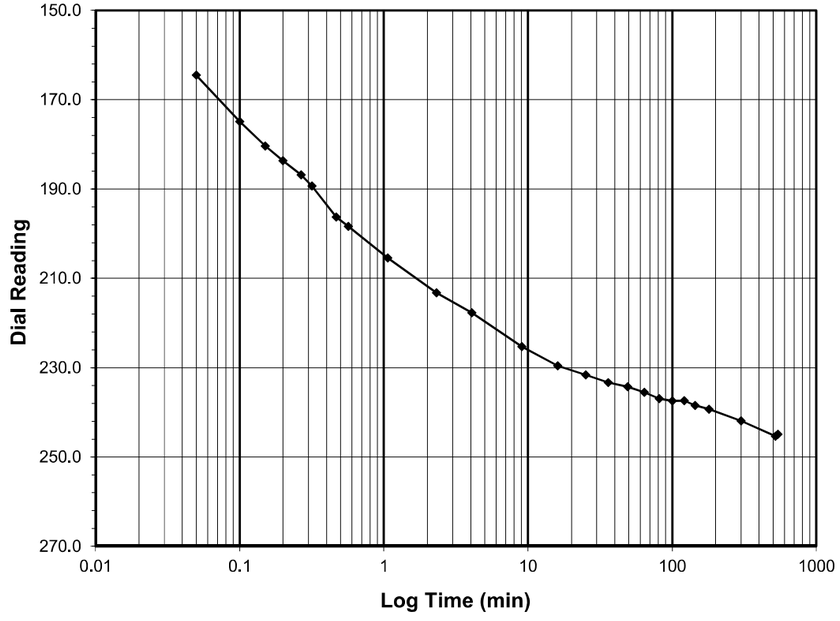
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**244.9**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/20/2019
Start Time		13:47:50

Elapsed Time (min)	Dial Reading (div)
Initial	**132.4**
0.05	164.5
0.10	174.9
0.15	180.3
0.20	183.6
0.27	186.8
0.32	189.3
0.47	196.3
0.57	198.4
1.07	205.4
2.32	213.2
4.07	217.7
9.07	225.3
16.07	229.6
25.07	231.6
36.07	233.3
49.07	234.3
64.07	235.5
81.07	237.0
100.07	237.5
121.07	237.4
144.08	238.5
180.08	239.3
300.08	241.9
520.08	245.3
540.33	244.9

Tested By *129-0411* *Date* *7/20/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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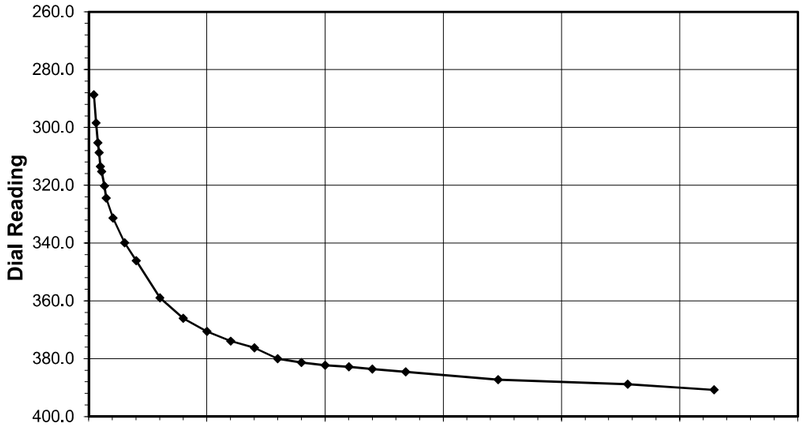
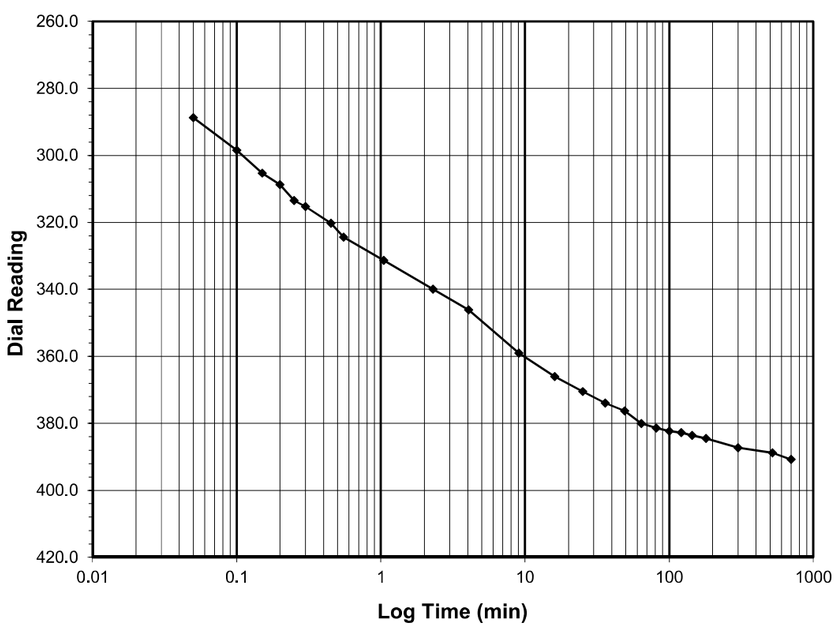
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**390.8**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/20/2019
Start Time		22:48:10

Elapsed Time (min)	Dial Reading (div)
Initial	**244.9**
0.05	288.7
0.10	298.5
0.15	305.3
0.20	308.8
0.25	313.5
0.30	315.3
0.45	320.3
0.55	324.4
1.05	331.3
2.30	340.0
4.05	346.1
9.05	359.0
16.07	366.0
25.07	370.5
36.07	374.0
49.07	376.3
64.07	380.1
81.07	381.4
100.07	382.3
121.07	382.8
144.07	383.6
180.07	384.5
300.07	387.3
520.07	388.8
700.07	390.8

Tested By *129-0411* *Date* *7/20/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 5

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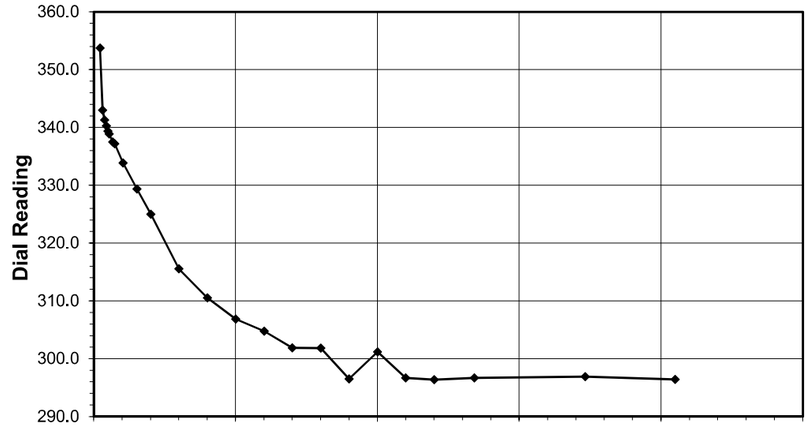
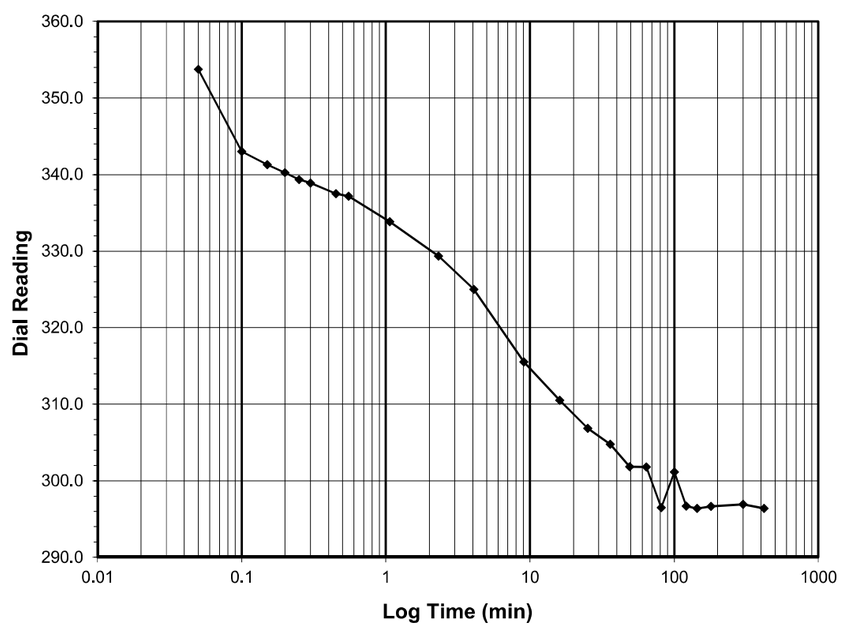
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**296.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/21/2019
Start Time		10:48:27

Elapsed Time (min)	Dial Reading (div)
Initial	**390.8**
0.05	353.7
0.10	343.0
0.15	341.3
0.20	340.3
0.25	339.3
0.30	338.9
0.45	337.5
0.55	337.2
1.07	333.8
2.32	329.3
4.07	325.0
9.07	315.6
16.07	310.5
25.07	306.9
36.07	304.8
49.07	301.9
64.08	301.8
81.08	296.5
100.08	301.2
121.08	296.7
144.08	296.4
180.08	296.7
300.08	296.9
420.12	296.4

Tested By *129-0411* *Date* *7/21/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 6

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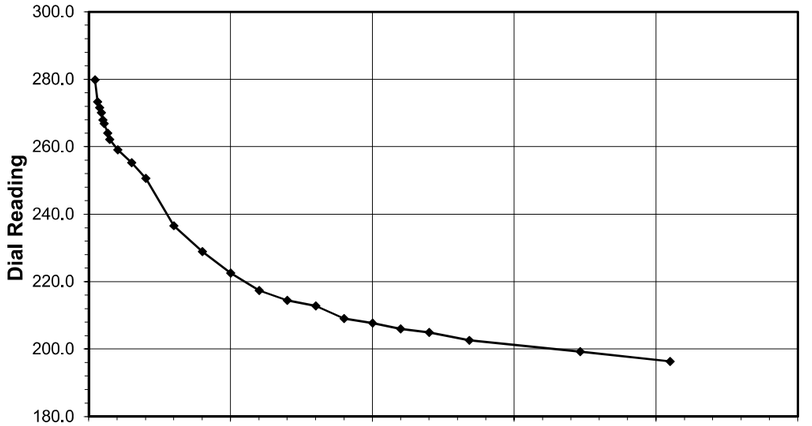
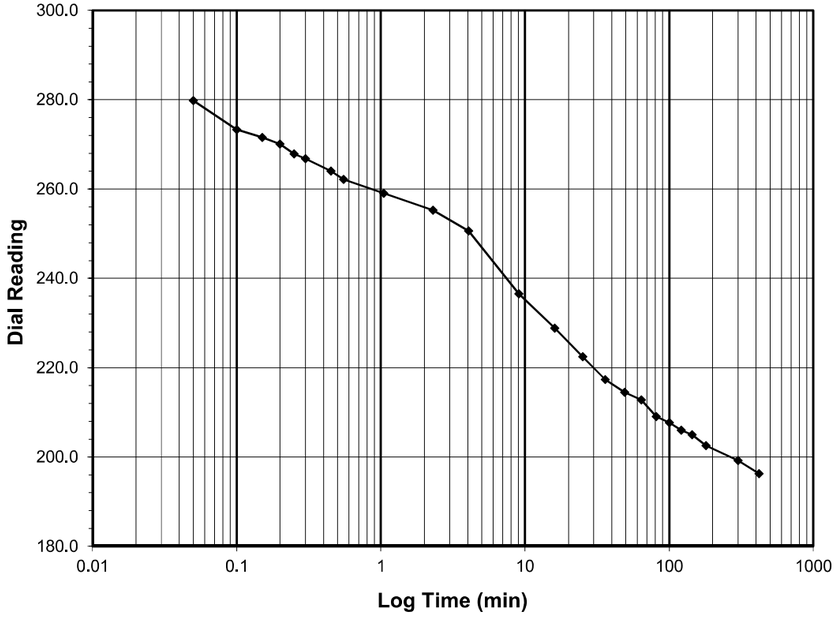
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**196.3**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/21/2019
Start Time		17:48:34

Elapsed Time (min)	Dial Reading (div)
Initial	**296.4**
0.05	279.8
0.10	273.3
0.15	271.6
0.20	270.1
0.25	267.9
0.30	266.8
0.45	264.0
0.55	262.1
1.05	259.0
2.30	255.3
4.05	250.6
9.07	236.5
16.07	228.9
25.07	222.5
36.07	217.4
49.07	214.5
64.07	212.8
81.07	209.1
100.07	207.7
121.07	206.0
144.07	205.0
180.07	202.6
300.07	199.2
420.10	196.3

Tested By *129-0411* *Date* *7/21/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 7

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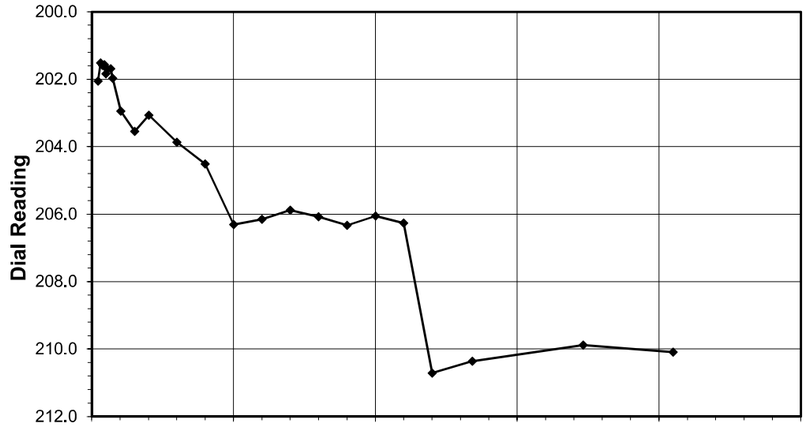
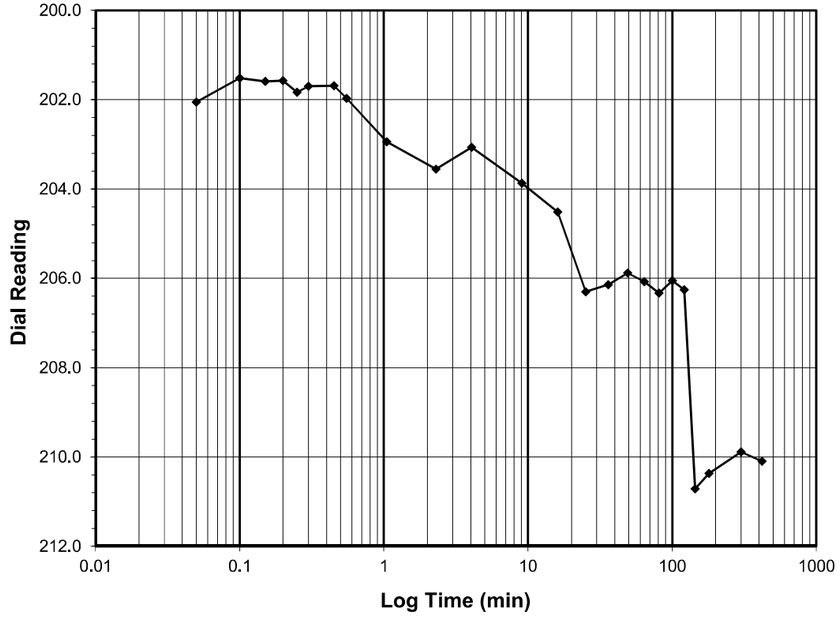
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**210.1**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/22/2019
Start Time		0:48:40

Elapsed Time (min)	Dial Reading (div)
Initial	**196.3**
0.05	202.1
0.10	201.5
0.15	201.6
0.20	201.6
0.25	201.8
0.30	201.7
0.45	201.7
0.55	202.0
1.05	202.9
2.30	203.6
4.05	203.1
9.05	203.9
16.05	204.5
25.05	206.3
36.05	206.1
49.05	205.9
64.05	206.1
81.05	206.3
100.07	206.1
121.07	206.3
144.07	210.7
180.07	210.4
300.07	209.9
420.08	210.1

Tested By *129-0411* *Date* *7/22/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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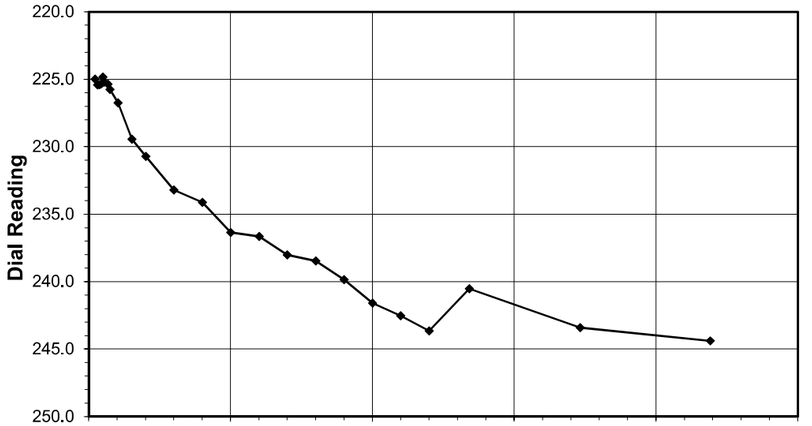
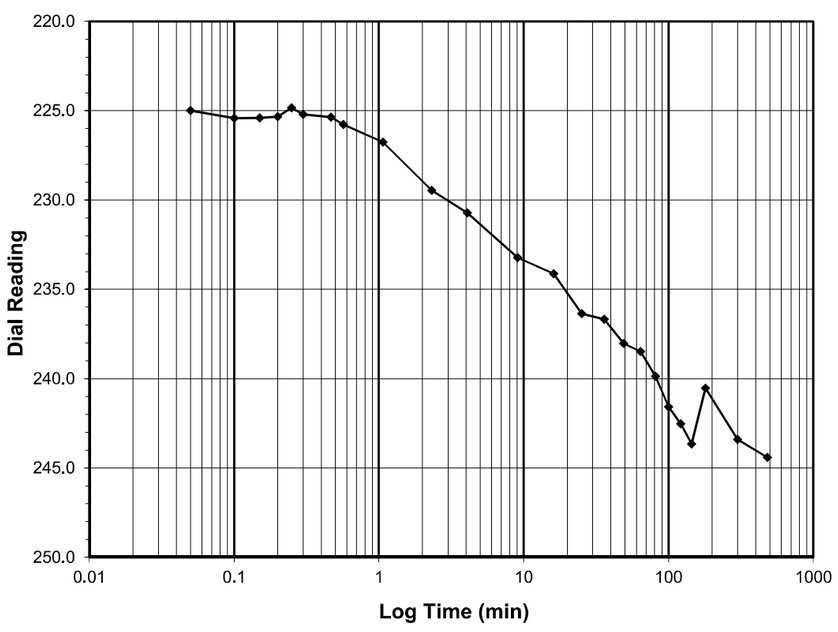
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**244.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/22/2019
Start Time		7:48:45

Elapsed Time (min)	Dial Reading (div)
Initial	**210.1**
0.05	225.0
0.10	225.4
0.15	225.4
0.20	225.3
0.25	224.8
0.30	225.2
0.47	225.4
0.57	225.8
1.07	226.8
2.32	229.5
4.07	230.7
9.07	233.2
16.07	234.1
25.07	236.4
36.07	236.7
49.07	238.0
64.07	238.5
81.07	239.9
100.07	241.6
121.07	242.5
144.07	243.6
180.07	240.5
300.07	243.4
480.23	244.4

Tested By *129-0411* *Date* *7/22/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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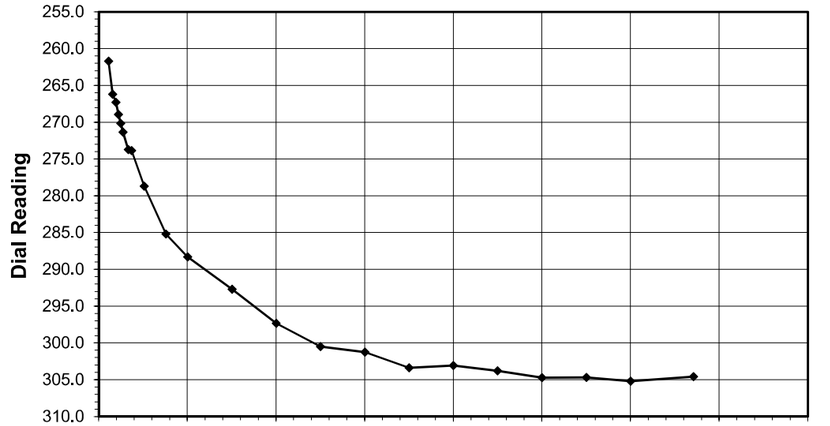
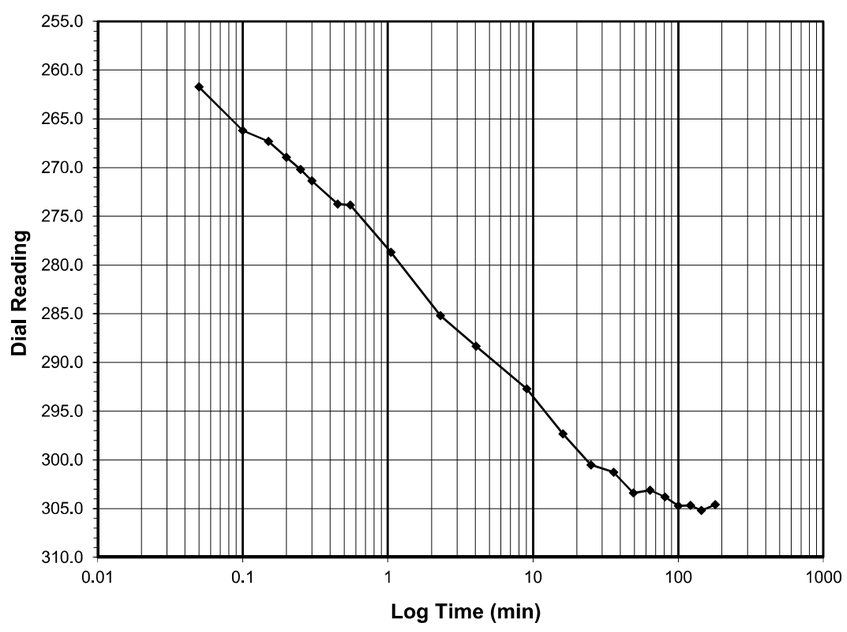
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**304.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/22/2019
Start Time		15:48:59

Elapsed Time (min)	Dial Reading (div)
Initial	**244.4**
0.05	261.7
0.10	266.2
0.15	267.3
0.20	268.9
0.25	270.2
0.30	271.4
0.45	273.7
0.55	273.9
1.05	278.7
2.30	285.2
4.05	288.3
9.05	292.7
16.05	297.3
25.05	300.5
36.05	301.3
49.07	303.4
64.07	303.1
81.07	303.8
100.07	304.7
121.07	304.7
144.07	305.2
180.07	304.6

Tested By *129-0411* *Date* *7/22/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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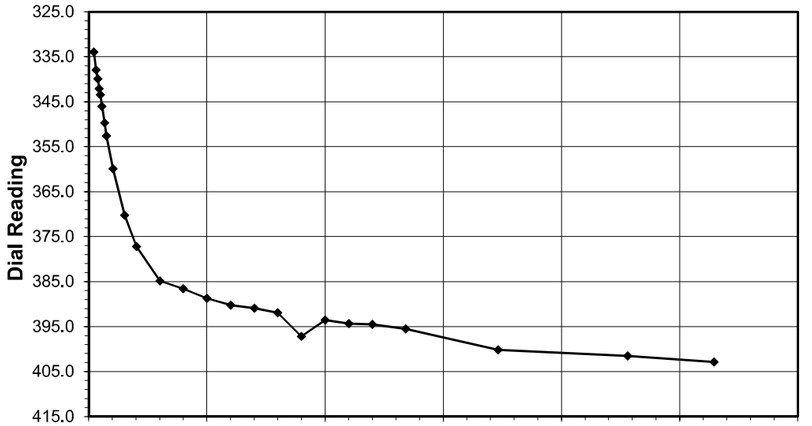
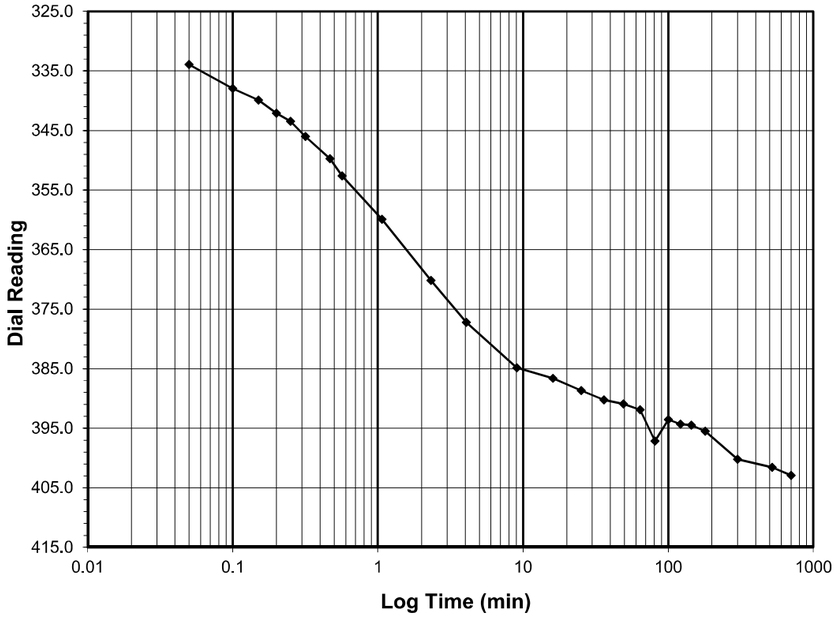
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**402.9**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/23/2019
Start Time		0:49:21

Elapsed Time (min)	Dial Reading (div)
Initial	**304.6**
0.05	333.9
0.10	337.9
0.15	339.9
0.20	342.1
0.25	343.4
0.32	346.0
0.47	349.7
0.57	352.6
1.07	359.9
2.32	370.2
4.07	377.2
9.07	384.8
16.07	386.6
25.07	388.7
36.07	390.2
49.07	390.9
64.07	391.9
81.07	397.2
100.07	393.6
121.07	394.3
144.07	394.5
180.07	395.5
300.07	400.2
520.07	401.6
700.08	402.9

Tested By *129-0411* *Date* *7/23/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 11

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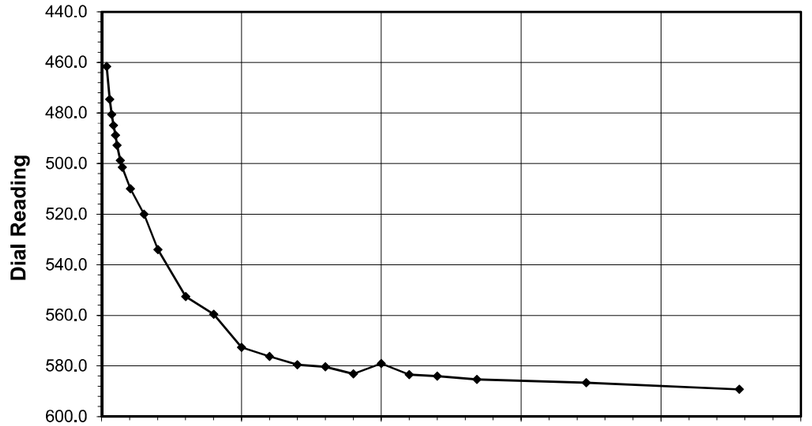
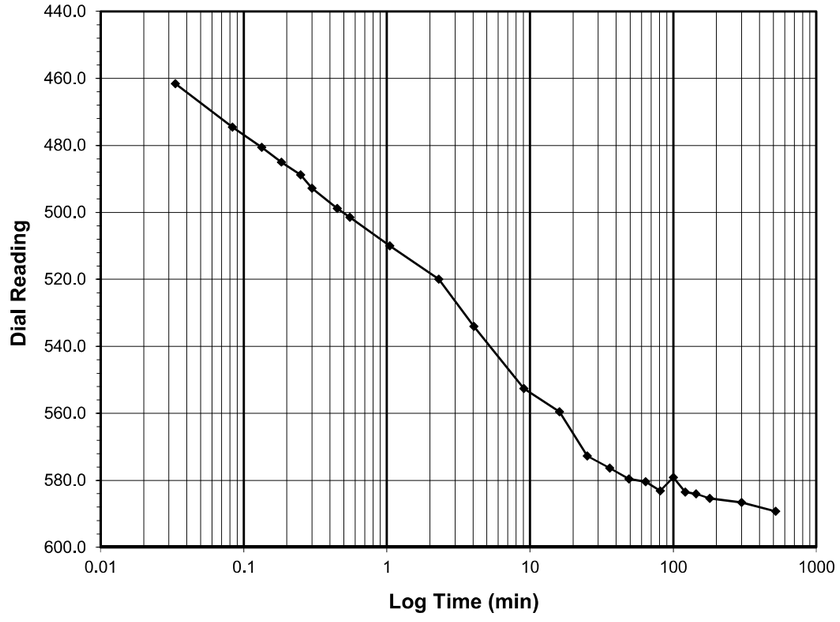
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-8.0**
Final Reading	**(div)**	**589.3**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/23/2019
Start Time		12:49:41

Elapsed Time (min)	Dial Reading (div)
Initial	**402.9**
0.03	461.6
0.08	474.6
0.13	480.6
0.18	485.0
0.25	488.9
0.30	492.8
0.45	498.8
0.55	501.4
1.05	509.9
2.30	520.0
4.05	534.0
9.05	552.6
16.05	559.5
25.05	572.7
36.05	576.3
49.05	579.5
64.05	580.4
81.05	583.1
100.07	579.1
121.07	583.5
144.07	584.1
180.07	585.4
300.07	586.6
520.07	589.3

Tested By *129-0411* *Date* *7/23/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 12

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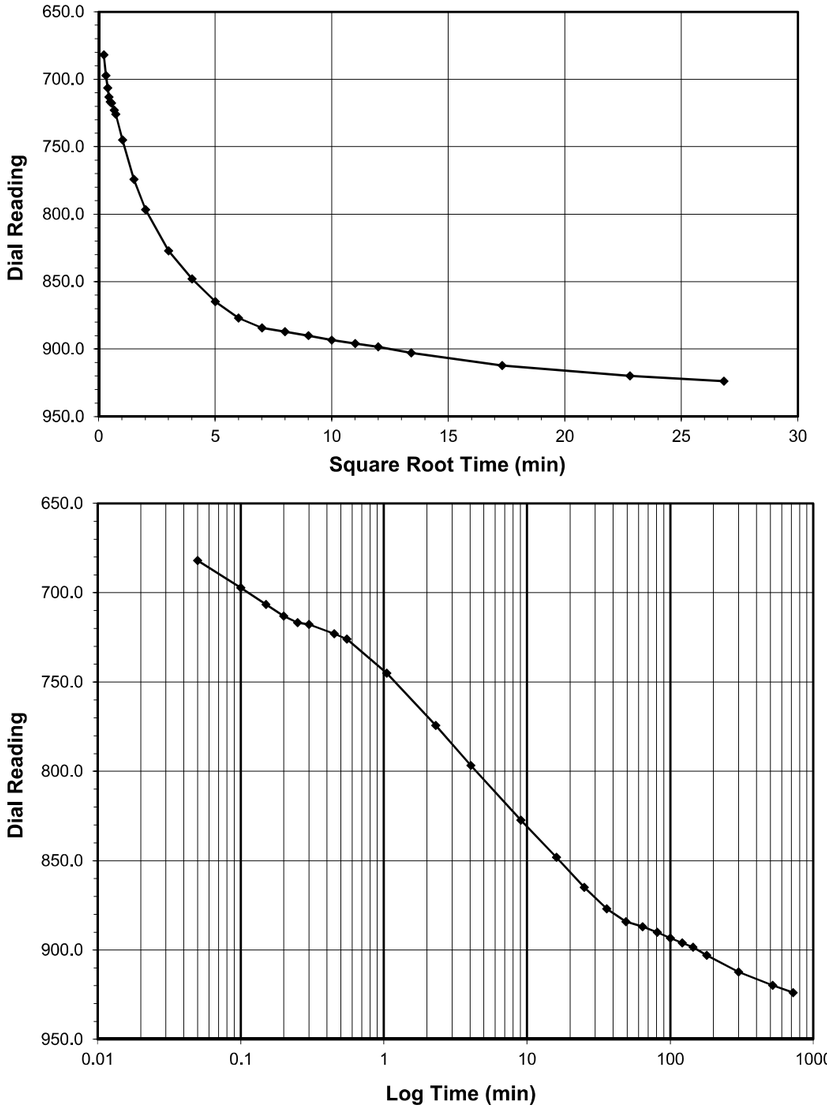
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**8.0-16.0**
Final Reading	**(div)**	**923.9**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/24/2019
Start Time		0:49:57

Elapsed Time (min)	Dial Reading (div)
Initial	**589.3**
0.05	682.0
0.10	697.3
0.15	706.5
0.20	713.1
0.25	716.7
0.30	717.7
0.45	722.9
0.55	725.9
1.05	745.1
2.30	774.3
4.05	796.6
9.05	827.3
16.07	848.1
25.07	864.9
36.07	876.9
49.07	884.2
64.07	887.0
81.07	890.0
100.07	893.4
121.07	896.0
144.07	898.4
180.07	902.9
300.07	912.2
520.07	919.8
720.20	923.9

Tested By *129-0411* *Date* *7/24/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 13

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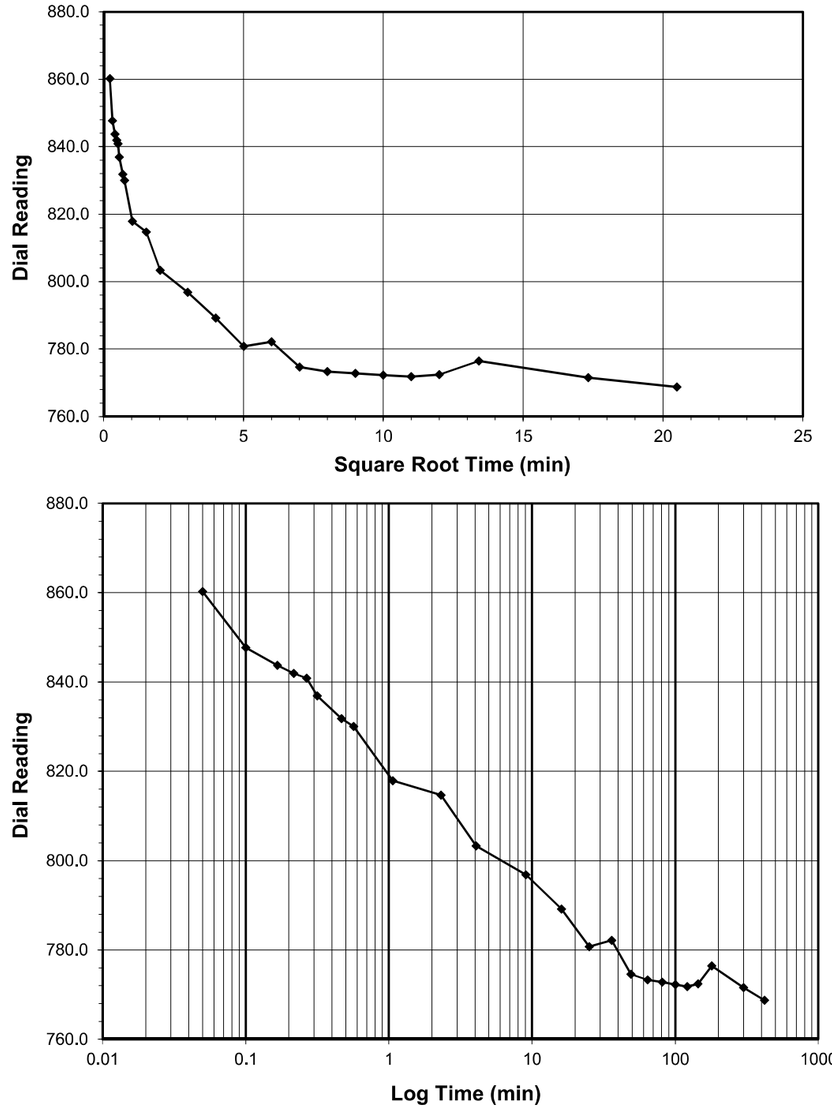
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**16.0-4.0**
Final Reading	**(div)**	**768.7**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/24/2019
Start Time		12:50:09

Elapsed Time (min)	Dial Reading (div)
Initial	**923.9**
0.05	860.2
0.10	847.7
0.17	843.7
0.22	841.9
0.27	840.8
0.32	836.9
0.47	831.8
0.57	830.0
1.07	817.9
2.32	814.7
4.07	803.3
9.07	796.8
16.07	789.2
25.07	780.8
36.07	782.1
49.08	774.6
64.08	773.3
81.08	772.8
100.08	772.2
121.08	771.8
144.08	772.4
180.08	776.5
300.08	771.5
420.03	768.7

Tested By *129-0411* *Date* *7/24/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 14

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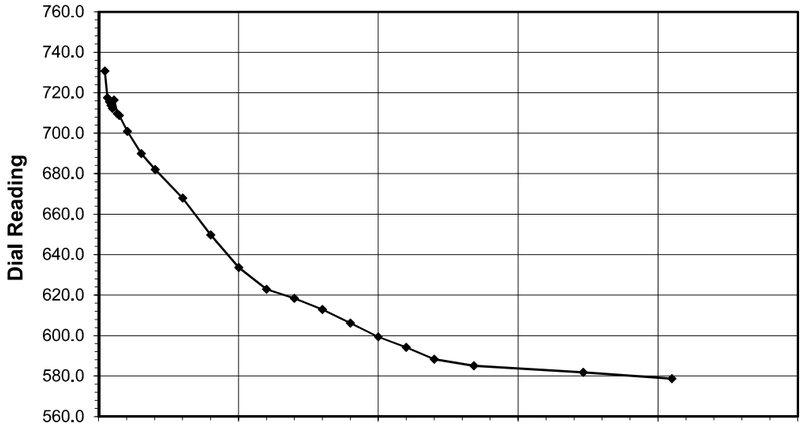
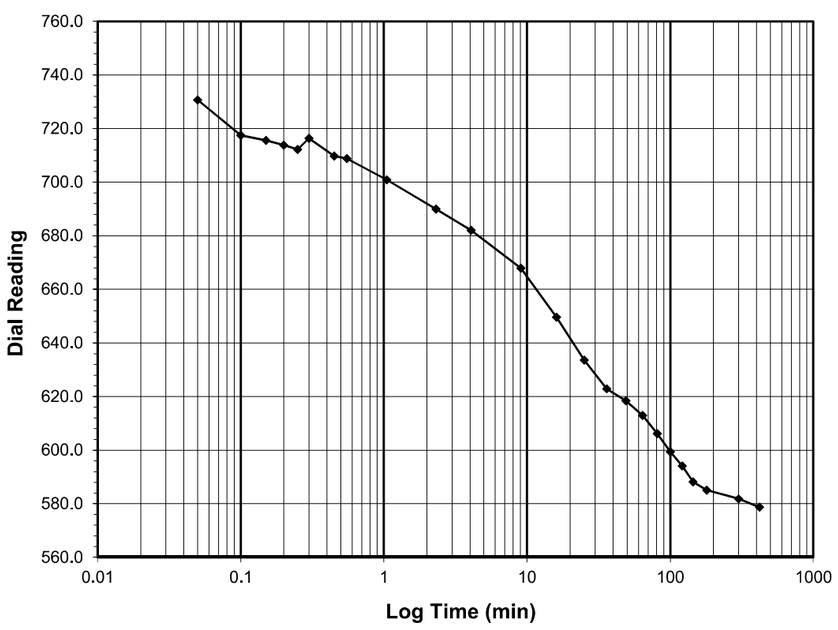
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**578.7**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/24/2019
Start Time		19:50:11

Elapsed Time (min)	Dial Reading (div)
Initial	**768.7**
0.05	730.7
0.10	717.5
0.15	715.6
0.20	713.8
0.25	712.3
0.30	716.4
0.45	709.7
0.55	708.9
1.05	700.9
2.32	689.9
4.07	682.0
9.07	667.9
16.07	649.6
25.07	633.6
36.07	622.9
49.07	618.4
64.07	612.9
81.07	606.2
100.07	599.4
121.07	594.1
144.07	588.2
180.07	585.1
300.07	581.8
420.05	578.7

Tested By *129-0411* *Date* *7/24/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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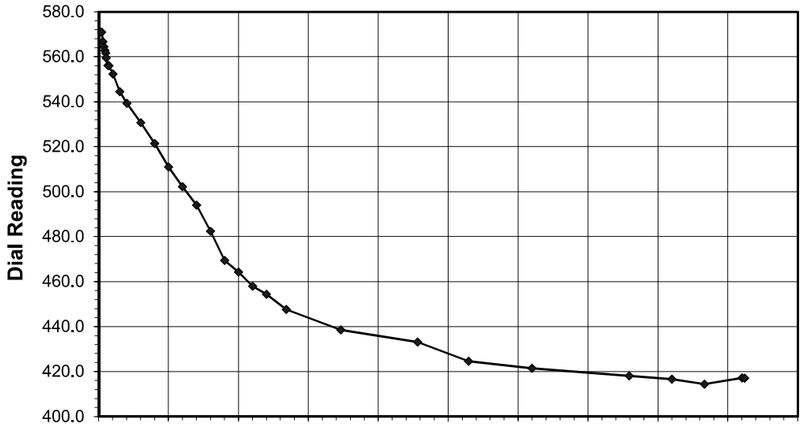
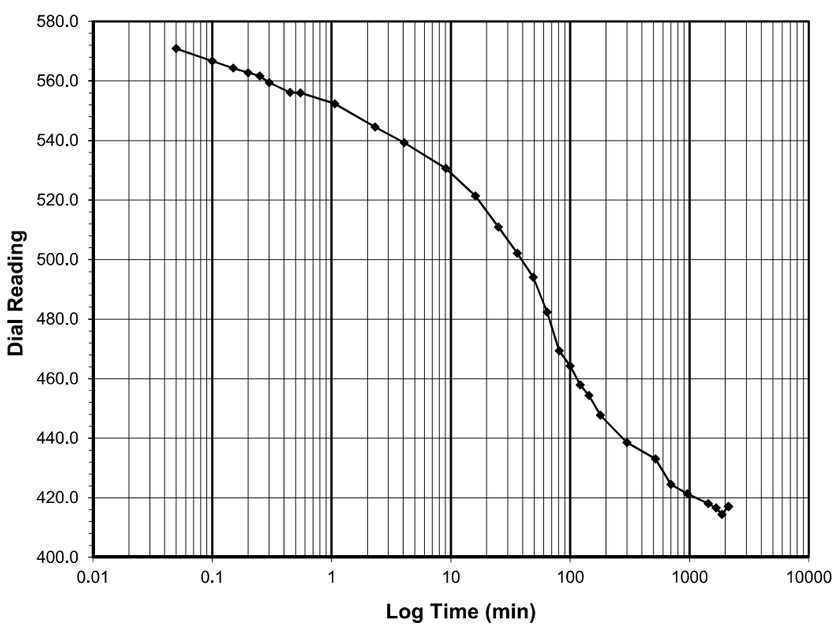
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT_LN_EB1-A	Station:	70+31
Client Project	R-2561CA	Depth (ft)	29.5-31.5	Offset:	30' RT
Project No.	R-2019-209-001	Sample No.	ST-2		
Lab ID	R-2019-209-001-010	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**417.0**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		7/25/2019
Start Time		2:50:14

Elapsed Time (min)	Dial Reading (div)
Initial	**578.7**
0.05	570.9
0.10	566.7
0.15	564.4
0.20	562.8
0.25	561.6
0.30	559.4
0.45	556.1
0.55	556.0
1.07	552.3
2.32	544.5
4.07	539.3
9.07	530.7
16.07	521.3
25.07	510.9
36.07	502.2
49.07	494.1
64.07	482.3
81.07	469.4
100.07	464.3
121.07	457.9
144.07	454.3
180.07	447.7
300.07	438.6
520.08	433.1
700.08	424.5
960.08	421.4
1440.08	418.0
1680.08	416.6
1877.92	414.4
2117.92	417.1
2134.02	417.0

Tested By *129-0411* *Date* *7/25/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-010 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 16

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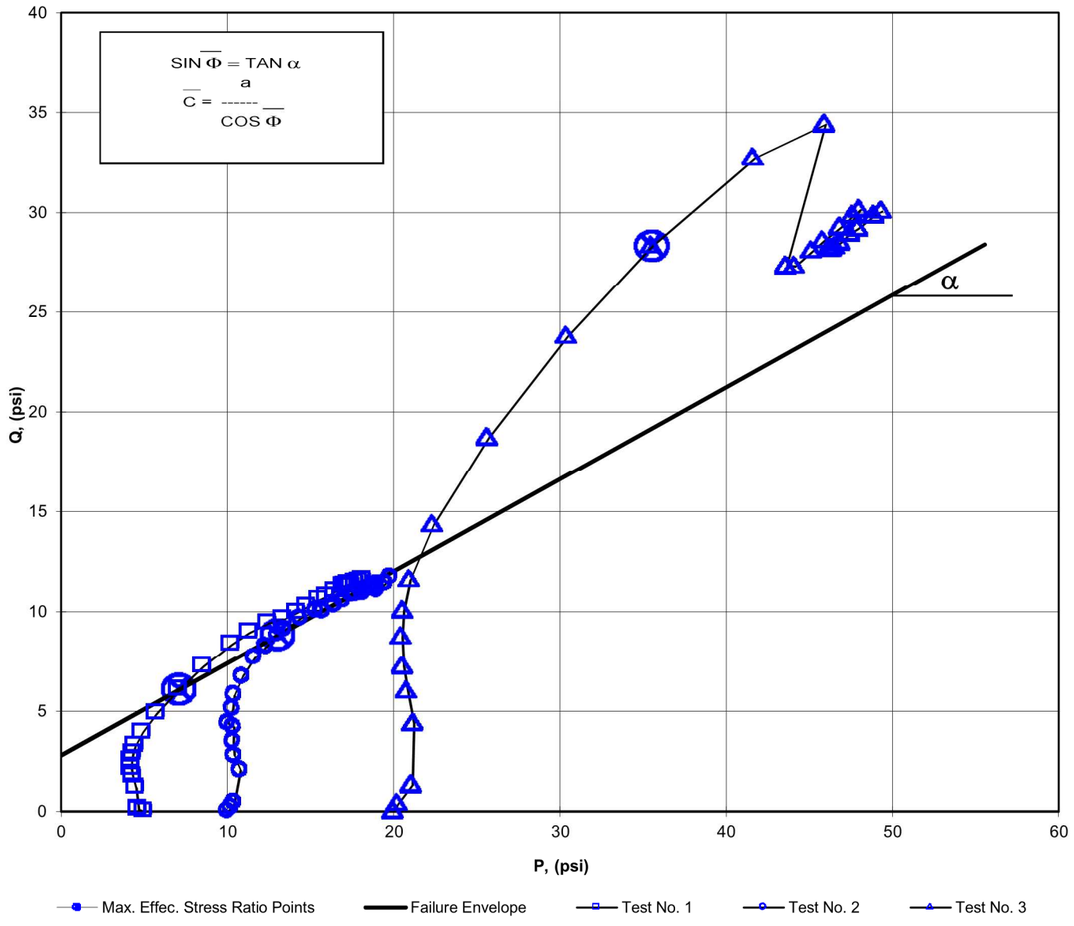
CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S2_RT_LN_EB1-A
Client Reference:	R-2561CA	Depth (ft):	29.5-31.5
Project No.:	R-2019-209-001	Sample No.:	ST-2
Lab ID:	R-2019-209-001-010	Station:	70+31
		Offset:	30' RT

Consolidated Undrained Triaxial Test with Pore Pressure



a	=	**2.79**	$\bar{C}$	=	**3.15**
α	=	**24.7**	$\bar{\Phi}$	=	**27.44**

Tested By: 129-07-0411 Date: 8/2/19 Approved By: MPS Date: 8/12/19

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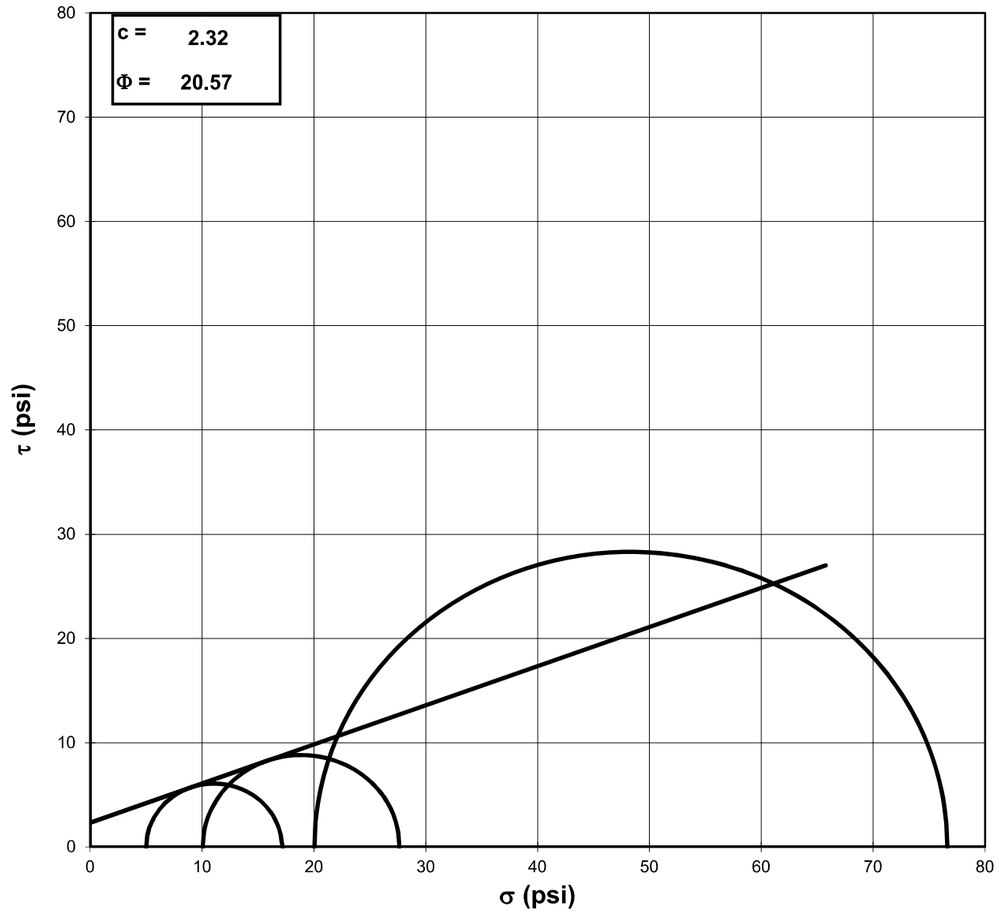
MOHR TOTAL STRENGTH ENVELOPE

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S2_RT_LN_EB1-A
Client Reference:	R-2561CA	Depth (ft):	29.5-31.5
Project No.:	R-2019-209-001	Sample No.:	ST-2
Lab ID:	R-2019-209-001-010	Station:	70+31
Visual Description:	Gray Clay (UNDISTURBED)	Offset:	30' RT



Failure Based on Maximum Effective Principal Stress Ratio

NOTE: GRAPH NOT TO SCALE

Tested By: 129-07-0411 *Date:* 8/2/19 *Approved By:* MPS *Date:* 8/12/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S2_RT_LN_EB1-A
Client Reference:	R-2561CA	Depth (ft):	29.5-31.5
Project No.:	R-2019-209-001	Sample No.:	ST-2
Lab ID:	R-2019-209-001-010	Station:	70+31
		Offset:	30' RT
Visual Description:	Gray Clay (UNDISTURBED)		

Stage No.	2
Test No.	1

PRESSURES (psi)

Cell Pressure (psi)	55.0
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	5.0
Pore Pressure Response (%)	100

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	7.09
Q	=	6.06

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	6.379	Diameter 1:	2.859
Length 2:	6.458	Diameter 2:	2.875
Length 3:	6.444	Diameter 3:	2.862
Length 4:	6.395	Diameter 4:	2.858
Avg. Length:	6.419	*Avg. Diam.:*	2.864

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	13.5
Final Change (ml)	10.5
Initial Dial Reading (mil)	388
Dial Reading After Saturation (mil)	501
Dial Reading After Consolidation (mil)	531

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
9.5	0.000	50.0
10.5	0.001	50.4
11.1	0.003	50.4
24.2	0.009	51.7
30.9	0.015	52.4
35.5	0.021	52.8
40.6	0.031	53.3
44.9	0.040	53.5
49.9	0.053	53.8
58.2	0.076	54.0
70.2	0.108	54.1
85.7	0.146	54.0
100.8	0.185	53.7
115.6	0.229	53.1
123.9	0.261	52.6
130.6	0.306	51.9
134.6	0.367	51.2
140.2	0.431	50.7
145.2	0.479	50.4
151.6	0.543	50.0
155.3	0.591	49.8
160.1	0.639	49.5
164.7	0.687	49.2
165.9	0.719	49.2
168.0	0.751	49.0
166.9	0.783	49.0
169.3	0.815	48.9
172.1	0.863	48.7
174.6	0.911	48.5
177.2	0.959	48.4
179.1	1.008	48.2

Tested By: 129-07-0411 Date: 8/2/19 Input Checked By: GEM Date: 8/12/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S2_RT_LN_EB1-A
Client Reference:	R-2561CA	Depth (ft):	29.5-31.5
Project No.:	R-2019-209-001	Sample No.:	ST-2
Lab ID:	R-2019-209-001-010	Station:	70+31
		Offset:	30' RT
Visual Description:	Gray Clay (UNDISTURBED)		

Effective Confining Pressure (psi)	5.0	*Stage No.*	2
		Test No	1

INITIAL DIMENSIONS

Initial Sample Length (in)	6.42
Initial Sample Diameter (in)	2.86
Initial Sample Area (in^2)	6.44
Initial Sample Volume (in^3)	41.34

VOLUME CHANGE

Volume After Consolidation (in^3)	38.51
Length After Consolidation (in)	6.28
Area After Consolidation (in^2)	6.137

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	0.17	0.40	4.77	4.6	1.036	2.39	4.69	0.08
0.04	0.26	0.44	4.82	4.6	1.056	1.72	4.69	0.13
0.14	2.39	1.66	5.73	3.3	1.716	0.69	4.54	1.20
0.23	3.48	2.39	6.09	2.6	2.335	0.69	4.35	1.74
0.34	4.22	2.84	6.38	2.2	2.956	0.67	4.27	2.11
0.49	5.05	3.26	6.79	1.7	3.906	0.65	4.26	2.52
0.64	5.74	3.53	7.21	1.5	4.909	0.62	4.34	2.87
0.85	6.53	3.77	7.77	1.2	6.299	0.58	4.50	3.27
1.21	7.84	3.98	8.86	1.0	8.702	0.51	4.94	3.92
1.71	9.72	4.08	10.64	0.9	11.561	0.42	5.78	4.86
2.33	12.12	3.97	13.15	1.0	12.771	0.33	7.09	6.06
2.94	14.43	3.67	15.76	1.3	11.859	0.25	8.55	7.22
3.65	16.66	3.07	18.59	1.9	9.639	0.18	10.26	8.33
4.16	17.86	2.60	20.27	2.4	8.429	0.15	11.34	8.93
4.88	18.78	1.93	21.85	3.1	7.114	0.10	12.46	9.39
5.85	19.19	1.21	22.98	3.8	6.061	0.06	13.39	9.59
6.86	19.84	0.73	24.11	4.3	5.649	0.04	14.19	9.92
7.64	20.43	0.42	25.01	4.6	5.460	0.02	14.80	10.21
8.65	21.15	0.03	26.12	5.0	5.258	0.00	15.54	10.58
9.42	21.53	-0.23	26.75	5.2	5.120	-0.01	15.99	10.76
10.18	22.04	-0.52	27.56	5.5	4.993	-0.02	16.54	11.02
10.94	22.53	-0.76	28.28	5.8	4.914	-0.03	17.02	11.26
11.46	22.57	-0.83	28.40	5.8	4.870	-0.04	17.12	11.29
11.97	22.75	-0.95	28.70	6.0	4.822	-0.04	17.32	11.37
12.48	22.45	-1.03	28.48	6.0	4.721	-0.05	17.26	11.23
12.99	22.66	-1.14	28.80	6.1	4.688	-0.05	17.47	11.33
13.74	22.86	-1.29	29.15	6.3	4.636	-0.06	17.72	11.43
14.52	23.00	-1.46	29.45	6.5	4.560	-0.06	17.96	11.50
15.29	23.15	-1.61	29.76	6.6	4.502	-0.07	18.19	11.58
16.05	23.21	-1.75	29.96	6.8	4.436	-0.08	18.36	11.60

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S2_RT_LN_EB1-A
Client Reference:	R-2561CA	Depth (ft):	29.5-31.5
Project No.:	R-2019-209-001	Sample No.:	ST-2
Lab ID:	R-2019-209-001-010	Station:	70+31
		Offset:	30' RT
Visual Description:	Gray Clay (UNDISTURBED)		

Stage No.	3
Test No.	2

PRESSURES (psi)

Cell Pressure (psi)	60.0
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	10.1
Pore Pressure Response (%)	98

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	13.03
Q	=	8.80

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	6.253	Diameter 1:	2.867
Length 2:	6.224	Diameter 2:	2.868
Length 3:	6.243	Diameter 3:	2.863
Length 4:	6.293	Diameter 4:	2.864
Avg. Length:	6.253	*Avg. Diam.:*	2.866

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	7.3
Final Change (ml)	16.7
Initial Dial Reading (mil)	512
Dial Reading After Saturation (mil)	572
Dial Reading After Consolidation (mil)	645

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
11.7	0.000	50.0
14.0	0.001	49.9
17.0	0.004	50.0
37.2	0.009	51.3
46.4	0.016	52.3
55.0	0.022	53.1
64.4	0.031	53.8
66.4	0.041	54.3
75.7	0.053	54.8
84.7	0.076	55.4
96.9	0.107	55.8
109.3	0.145	56.0
117.4	0.182	55.9
125.6	0.225	55.8
129.6	0.257	55.6
138.2	0.301	55.3
144.8	0.361	54.7
145.5	0.423	54.2
150.7	0.470	53.8
155.4	0.534	53.5
161.2	0.582	53.3
162.2	0.629	53.1
164.3	0.675	52.7
167.9	0.707	52.7
169.5	0.739	52.5
173.2	0.770	52.3
172.8	0.802	52.2
171.9	0.849	52.1
178.1	0.897	51.9
183.5	0.928	51.9
181.7	0.959	51.7

Tested By: 129-07-0411 Date: 8/2/19 Input Checked By: GEM Date: 8/12/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client: Kleinfelder | Boring No.: S2_RT_LN_EB1-A
Client Reference: R-2561CA | Depth (ft): 29.5-31.5
Project No.: R-2019-209-001 | Sample No.: ST-2
Lab ID: R-2019-209-001-010 | Station: 70+31 | Offset: 30' RT
Visual Description: Gray Clay (UNDISTURBED)

Effective Confining Pressure (psi)	10.1	*Stage No.*	3
		Test No	2

INITIAL DIMENSIONS

Initial Sample Length (in)	6.25
Initial Sample Diameter (in)	2.87
Initial Sample Area (in^2)	6.45
Initial Sample Volume (in^3)	40.33

VOLUME CHANGE

Volume After Consolidation (in^3)	38.15
Length After Consolidation (in)	6.12
Area After Consolidation (in^2)	6.233

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	0.36	-0.03	10.45	10.1	1.036	-0.08	10.27	0.18
0.06	0.85	0.03	10.88	10.0	1.084	0.03	10.45	0.42
0.15	4.09	1.31	12.84	8.7	1.468	0.33	10.80	2.05
0.25	5.55	2.39	13.21	7.7	1.724	0.44	10.44	2.77
0.35	6.92	3.15	13.83	6.9	2.001	0.46	10.37	3.46
0.51	8.41	3.84	14.62	6.2	2.352	0.47	10.42	4.20
0.67	8.72	4.34	14.44	5.7	2.526	0.51	10.08	4.36
0.87	10.18	4.80	15.43	5.3	2.936	0.48	10.34	5.09
1.23	11.57	5.40	16.23	4.7	3.482	0.48	10.44	5.78
1.75	13.43	5.83	17.66	4.2	4.179	0.44	10.94	6.72
2.36	15.29	6.06	19.29	4.0	4.826	0.40	11.64	7.65
2.97	16.46	5.93	20.59	4.1	4.986	0.37	12.36	8.23
3.68	17.60	5.82	21.83	4.2	5.156	0.34	13.03	8.80
4.20	18.11	5.66	22.51	4.4	5.124	0.32	13.45	9.06
4.92	19.29	5.30	24.05	4.8	5.055	0.28	14.40	9.64
5.91	20.09	4.76	25.39	5.3	4.795	0.24	15.34	10.05
6.92	19.99	4.27	25.78	5.8	4.451	0.22	15.78	9.99
7.69	20.59	3.85	26.80	6.2	4.315	0.19	16.51	10.29
8.73	21.05	3.57	27.53	6.5	4.244	0.17	17.01	10.52
9.50	21.70	3.39	28.37	6.7	4.254	0.16	17.52	10.85
10.27	21.66	3.11	28.61	6.9	4.120	0.15	17.78	10.83
11.03	21.78	2.77	29.07	7.3	3.987	0.13	18.18	10.89
11.55	22.16	2.77	29.45	7.3	4.039	0.13	18.37	11.08
12.07	22.26	2.57	29.75	7.5	3.975	0.12	18.61	11.13
12.58	22.65	2.36	30.35	7.7	3.945	0.11	19.02	11.33
13.11	22.46	2.27	30.25	7.8	3.883	0.10	19.02	11.23
13.88	22.13	2.10	30.09	8.0	3.780	0.10	19.03	11.07
14.65	22.78	1.90	30.94	8.2	3.793	0.09	19.55	11.39
15.17	23.38	1.92	31.52	8.1	3.875	0.08	19.83	11.69
15.68	23.00	1.80	31.26	8.3	3.783	0.08	19.76	11.50

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S2_RT_LN_EB1-A
Client Reference:	R-2561CA	Depth (ft):	29.5-31.5
Project No.:	R-2019-209-001	Sample No.:	ST-2
Lab ID:	R-2019-209-001-010	Station:	70+31
		Offset:	30' RT
Visual Description:	Gray Clay (UNDISTURBED)		

Stage No.	1
Test No.	3

PRESSURES (psi)

Cell Pressure (psi)	70.0
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	20.0
Pore Pressure Response (%)	98

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	35.56
Q	=	28.29

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	6.004	Diameter 1:	2.850
Length 2:	5.980	Diameter 2:	2.871
Length 3:	6.009	Diameter 3:	2.887
Length 4:	6.017	Diameter 4:	2.862
Avg. Length:	6.003	*Avg. Diam.:*	2.868

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	6.2
Final Change (ml)	17.8
Initial Dial Reading (mil)	172
Dial Reading After Saturation (mil)	211
Dial Reading After Consolidation (mil)	278

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
11.5	0.000	50.0
16.2	0.001	50.1
27.9	0.003	50.2
66.6	0.008	53.2
86.7	0.014	55.1
102.2	0.020	56.6
121.1	0.029	58.2
137.7	0.037	59.4
157.8	0.049	60.6
193.0	0.070	61.9
249.5	0.099	63.0
315.9	0.135	63.3
376.4	0.171	62.8
436.0	0.211	61.0
460.4	0.241	58.4
370.9	0.284	53.7
374.3	0.341	53.1
388.3	0.400	52.9
398.4	0.445	52.7
411.9	0.506	52.3
423.8	0.551	52.2
430.9	0.596	52.0
407.0	0.641	51.9
409.6	0.670	51.8
412.8	0.701	51.6
418.6	0.731	51.6
427.4	0.761	51.5
434.7	0.806	51.2
448.2	0.850	50.9
453.8	0.881	50.7
455.6	0.910	50.4

Tested By: 129-07-0411 Date: 8/2/2019 Input Checked By: GEM Date: 8/12/2019

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S2_RT_LN_EB1-A
Client Reference:	R-2561CA	Depth (ft):	29.5-31.5
Project No.:	R-2019-209-001	Sample No.:	ST-2
Lab ID:	R-2019-209-001-010	Station:	70+31
		Offset:	30' RT
Visual Description:	Gray Clay (UNDISTURBED)		

Effective Confining Pressure (psi)	20.0	*Stage No.*	1
		Test No	3

INITIAL DIMENSIONS

Initial Sample Length (in)	6.00
Initial Sample Diameter (in)	2.87
Initial Sample Area (in^2)	6.46
Initial Sample Volume (in^3)	38.76

VOLUME CHANGE

Volume After Consolidation (in^3)	36.92
Length After Consolidation (in)	5.90
Area After Consolidation (in^2)	6.262

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	0.76	0.13	20.68	19.9	1.038	0.17	20.30	0.38
0.04	2.62	0.22	22.45	19.8	1.132	0.08	21.14	1.31
0.13	8.80	3.21	25.64	16.8	1.522	0.37	21.24	4.40
0.24	11.98	5.17	26.86	14.9	1.806	0.44	20.86	5.99
0.33	14.44	6.64	27.85	13.4	2.077	0.47	20.63	7.22
0.49	17.42	8.22	29.24	11.8	2.473	0.48	20.53	8.71
0.63	20.03	9.42	30.65	10.6	2.885	0.48	20.64	10.01
0.83	23.17	10.60	32.62	9.4	3.452	0.47	21.04	11.59
1.18	28.65	11.97	36.73	8.1	4.546	0.43	22.40	14.32
1.69	37.38	13.01	44.42	7.0	6.310	0.36	25.73	18.69
2.29	47.51	13.31	54.24	6.7	8.054	0.29	30.49	23.75
2.89	56.59	12.78	63.86	7.3	8.786	0.23	35.56	28.29
3.59	65.38	11.02	74.41	9.0	8.239	0.17	41.72	32.69
4.09	68.77	8.42	80.39	11.6	6.917	0.13	46.01	34.39
4.81	54.64	3.71	70.98	16.3	4.344	0.07	43.66	27.32
5.78	54.59	3.15	71.49	16.9	4.231	0.06	44.19	27.30
6.79	56.10	2.88	73.26	17.2	4.269	0.05	45.21	28.05
7.55	57.13	2.73	74.45	17.3	4.299	0.05	45.88	28.56
8.58	58.46	2.37	76.14	17.7	4.308	0.04	46.91	29.23
9.34	59.69	2.21	77.53	17.8	4.347	0.04	47.69	29.85
10.10	60.22	2.06	78.20	18.0	4.348	0.03	48.09	30.11
10.87	56.30	1.91	74.43	18.1	4.105	0.03	46.28	28.15
11.37	56.36	1.79	74.62	18.3	4.087	0.03	46.44	28.18
11.88	56.48	1.67	74.86	18.4	4.073	0.03	46.62	28.24
12.39	56.96	1.60	75.40	18.4	4.089	0.03	46.92	28.48
12.91	57.85	1.49	76.41	18.6	4.117	0.03	47.49	28.93
13.66	58.36	1.24	77.16	18.8	4.103	0.02	47.98	29.18
14.42	59.69	0.95	78.78	19.1	4.126	0.02	48.94	29.84
14.94	60.09	0.70	79.43	19.3	4.106	0.01	49.39	30.04
15.44	59.98	0.39	79.63	19.7	4.052	0.01	49.64	29.99

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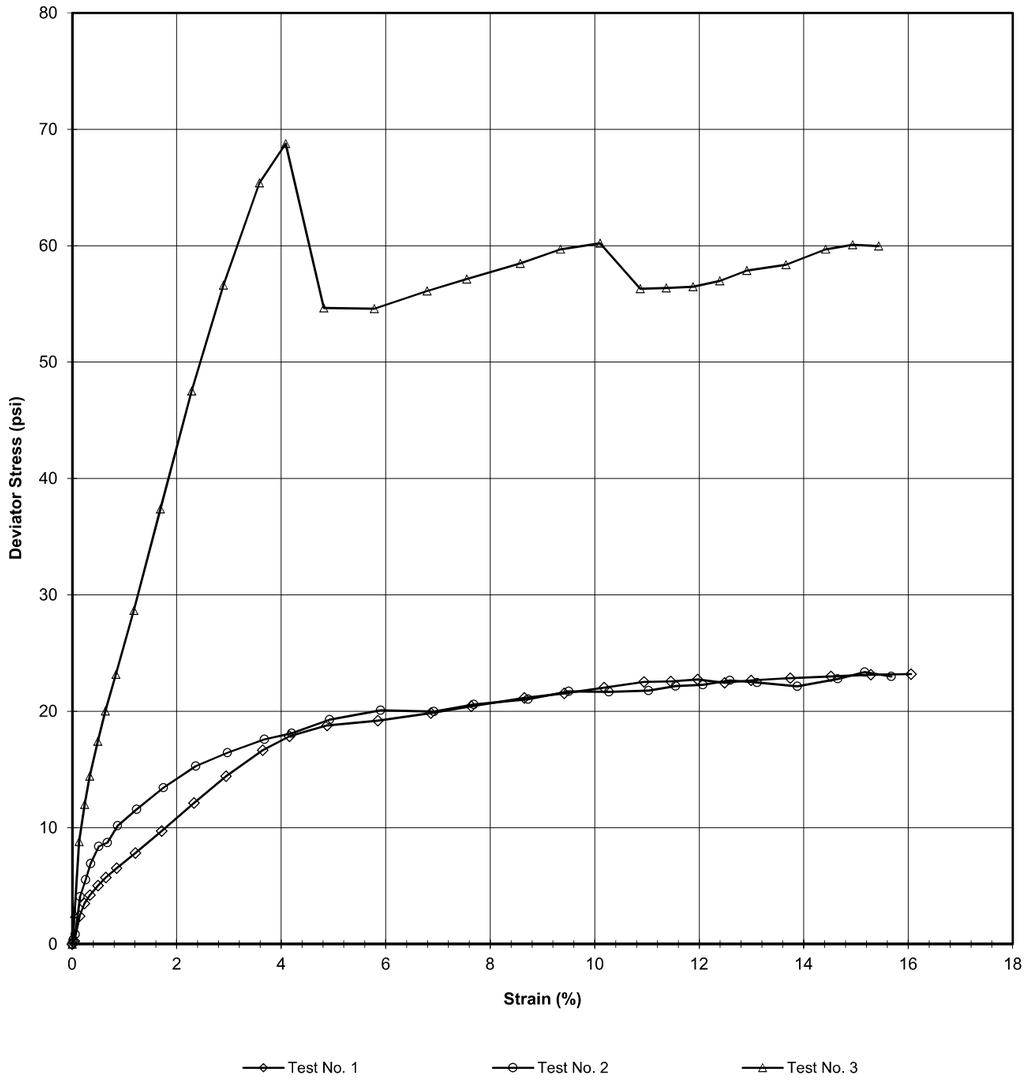
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder	Boring No.:	S2_RT_LN_EB1-A
Client Reference:	R-2561CA	Depth (ft):	29.5-31.5
Project No.:	R-2019-209-001	Sample No.:	ST-2
Lab ID:	R-2019-209-001-010	Station:	70+31
Visual Description:	Gray Clay (UNDISTURBED)	Offset:	30' RT



Tested By: 129-07-0411 Date: 8/2/2019 Approved By: MPS Date: 8/12/2019

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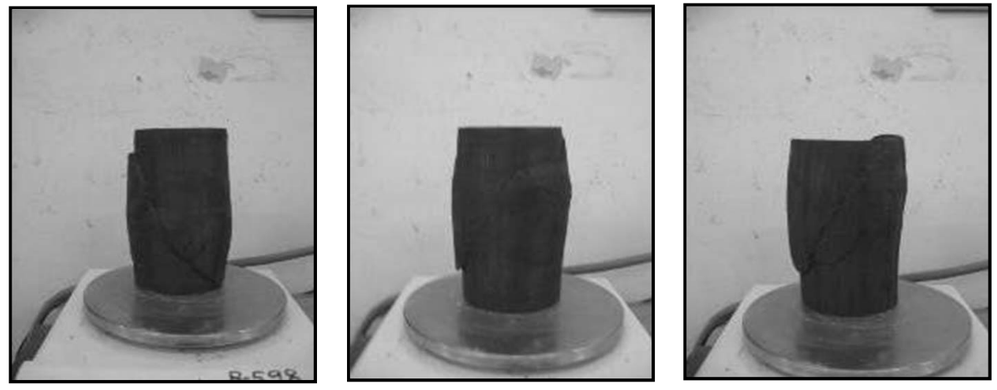
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder		
Client Reference:	R-2561CA		
Project No.:	R-2019-209-001		
Lab ID:	R-2019-209-001-010	Specific Gravity (Measured)	2.68
Visual Description:	Gray Clay (UNDISTURBED)		

SAMPLE CONDITION SUMMARY

Boring No.:	S2_RT_LN_EB1-A	S2_RT_LN_EB1-A	S2_RT_LN_EB1-A
Depth (ft):	29.5-31.5	29.5-31.5	29.5-31.5
Sample No.:	ST-2	ST-2	ST-2
Test No.	T1	T2	T3
Deformation Rate (in/min)	0.0011	0.0011	0.0011
Back Pressure (psi)	50.0	50.0	50.0
Consolidation Time (days)	1	1	1
Moisture Content (%) (INITIAL)	37.4	31.9	27.4
Total Unit Weight (pcf)	114.1	114.8	120.5
Dry Unit Weight (pcf)	83.0	87.1	94.6
Moisture Content (%) (FINAL)	32.3	33.5	27.9
Initial State Void Ratio,e	1.015	0.921	0.769
Void Ratio at Shear, e	0.877	0.817	0.685



Tested By: 129-07-0411 Date: 8/2/19 Input Checked By: GEM Date: 8/12/19

DCN: CT-S28 DATE: 4/12/13 REVISION: 3

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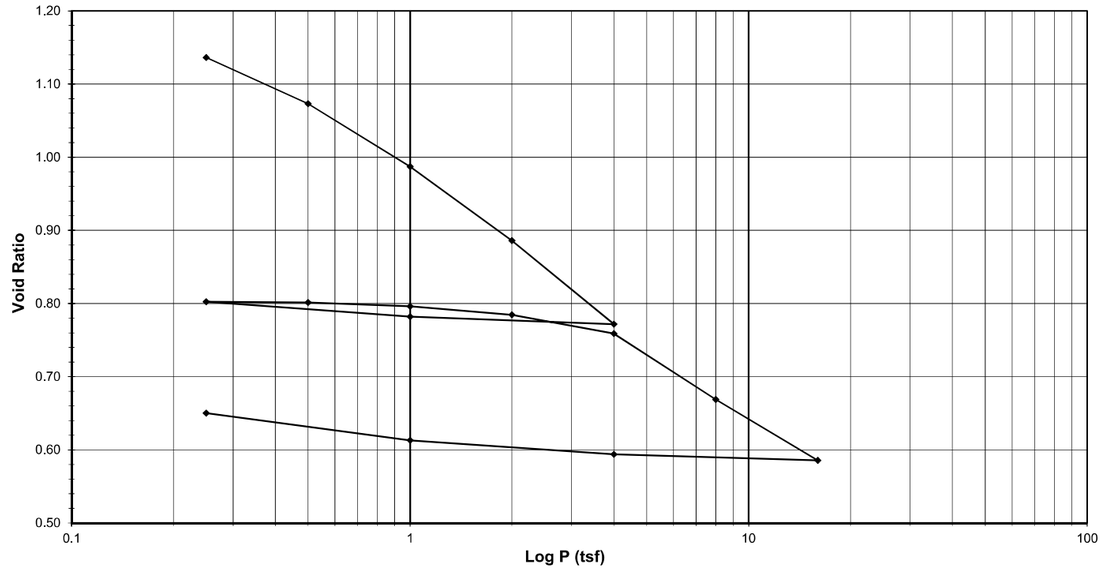
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Reference	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By 129-08-0411 *Date* 8/5/2019 *Approved By* MPS *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 6

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Reference	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Consolidometer No. R409

1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	TB-09	812
Wt. Tare & WS (g)	324.50	218.25
Wt. Tare & DS (g)	273.74	196.15
Wt. Water (g)	50.76	22.10
Wt. Tare (g)	134.08	104.60
Wt. DS (g)	139.66	91.55
Water Content (%)	36.35	24.14
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.7431
Sample Volume (cc)	80.44	59.78
Wt. Wet Sample + Ring (g)	346.56	334.71
Wt. of Ring (g)	214.20	214.20
Wt. of Wet Sample (g)	132.36	120.51
Wet Density (pcf)	102.68	125.80
Wet Density (g/cc)	1.65	2.02
Water Content (%)	36.35	24.14
Wt. of Dry Sample (g)	97.08	97.08
Dry Density (pcf)	75.31	101.34
Dry Density (g/cc)	1.21	1.62
Void Ratio	1.2207	0.6503
Saturation (%)	79.80	99.49
Specific Gravity	2.68	*Measured*

Test Data Summary

Applied Pressure (tsf)	**Final Dial Reading** (div)	**Machine Deflection** (div)	**Corrected Reading** (div)	**Height of Sample** (mm)	**Volume (cc)**	**Dry Density** (g/cc)	**Void Ratio**
Seating	0	0	0	25.400	80.440	1.20683	**1.22070**
0.25	391.0	10.7	380.3	24.434	77.380	1.25454	**1.13624**
0.5	694.5	30.0	664.5	23.712	75.095	1.29273	**1.07313**
1	1099.3	47.1	1052.2	22.727	71.976	1.34875	**0.98703**
2	1580.9	74.4	1506.5	21.573	68.321	1.42089	**0.88614**
4	2122.3	101.3	2021.0	20.267	64.183	1.51250	**0.77190**
1	2045.5	69.8	1975.7	20.382	64.547	1.50397	**0.78195**
0.25	1917.5	34.5	1883.0	20.617	65.293	1.48678	**0.80255**
0.5	1928.6	40.8	1887.8	20.605	65.254	1.48767	**0.80148**
1	1967.2	55.4	1911.8	20.544	65.061	1.49209	**0.79614**
2	2041.4	77.3	1964.1	20.411	64.640	1.50180	**0.78452**
4	2181.9	102.2	2079.7	20.118	63.711	1.52371	**0.75887**
8	2632.0	146.5	2485.5	19.087	60.447	1.60600	**0.66874**
16	3060.2	199.9	2860.3	18.135	57.431	1.69031	**0.58551**
4	2961.2	138.4	2822.8	18.230	57.734	1.68146	**0.59385**
1	2823.6	86.8	2736.8	18.449	58.425	1.66156	**0.61294**
0.25	2614.4	45.6	2568.8	18.875	59.777	1.62400	**0.65025**

Tested By 129-08-0411 *Date* 8/5/2019 *Input Checked By* GEM *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 6

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-003 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Reference	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Tested By 129-08-0411 *Date* 8/5/2019 *Input Checked By* GEM *Date* 8/19/2019

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Reference	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Consolidometer No. R409

1 Division = 0.0001 (in.)

Sample Properties	Initial	Final
Water Content		
Tare Number	TB-09	812
Wt. Tare & WS (g)	324.50	218.25
Wt. Tare & DS (g)	273.74	196.15
Wt. Water (g)	50.76	22.10
Wt. Tare (g)	134.08	104.60
Wt. DS (g)	139.66	91.55
Water Content (%)	36.35	24.14
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.743
Sample Volume (cc)	80.44	59.78
Wt. Wet Sample + Ring (g)	346.56	334.71
Wt. of Ring (g)	214.20	214.20
Wt. of Wet Sample (g)	132.36	120.51
Wet Density (pcf)	102.68	125.80
Wet Density (g/cc)	1.65	2.02
Water Content (%)	36.35	24.14
Wt. of Dry Sample (g)	97.08	97.08
Dry Density (pcf)	75.31	101.34
Dry Density (g/cc)	1.21	1.62
Void Ratio	1.2207	0.6503
Saturation (%)	79.80	99.49
Specific Gravity	*2.68*	*Measured*

C_v Test Data Summary

Load Increment (tsf)	Dial Reading @ t_{50} (div)	Machine Deflection (div)	Corrected Dial Reading @ t_{50} (div)	Sample Height @ t_{50} (cm)	Time t_{50} (min.)	C_v (cm²/sec)
0 - 0.25	202.4	10.7	191.7	2.491	**2.80**	**0.00182**
0.25 - 0.5	546.6	30.0	516.6	2.409	**9.20**	**0.00052**
0.5 - 1.0	911.6	47.1	864.5	2.320	**13.00**	**0.00034**
1.0 - 2.0	1345.4	74.4	1271.0	2.217	**12.00**	**0.00034**
2.0 - 4.0	1856.2	101.3	1754.9	2.094	**9.10**	**0.00040**
4.0 - 1.0	NA	69.8	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	34.5	NA	NA	**NA**	**NA**
0.25 - 0.5	1923.6	40.8	1882.8	2.062	**10.00**	**0.00035**
0.5 - 1.0	1949.2	55.4	1893.8	2.059	**1.60**	**0.00217**
1.0 - 2.0	2008.9	77.3	1931.6	2.049	**1.90**	**0.00181**
2.0 - 4.0	2114.5	102.2	2012.3	2.029	**3.90**	**0.00087**
4.0 - 8.0	2426.9	146.5	2280.4	1.961	**9.00**	**0.00035**
8.0 - 16.0	2869.1	199.9	2669.2	1.862	**12.50**	**0.00023**
16.0 - 4.0	NA	138.4	NA	NA	**NA**	**NA**
4.0 - 1.0	NA	86.8	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	45.6	NA	NA	**NA**	**NA**

Tested By 129-08-0411 *Date* 8/5/2019 *Input Checked By* GEM *Date* 8/19/2019

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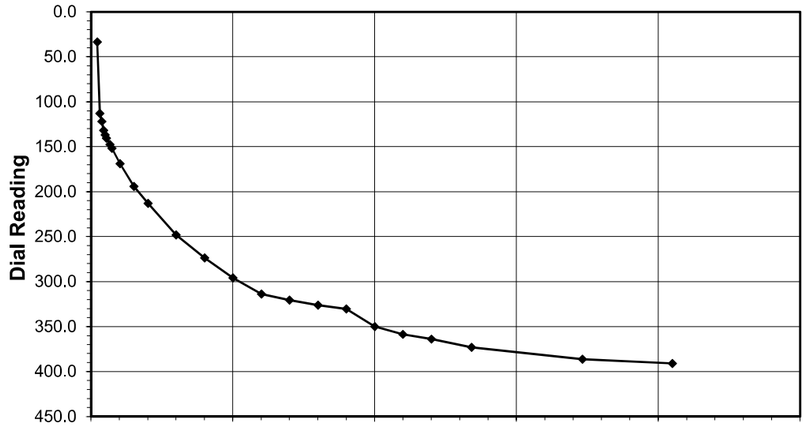
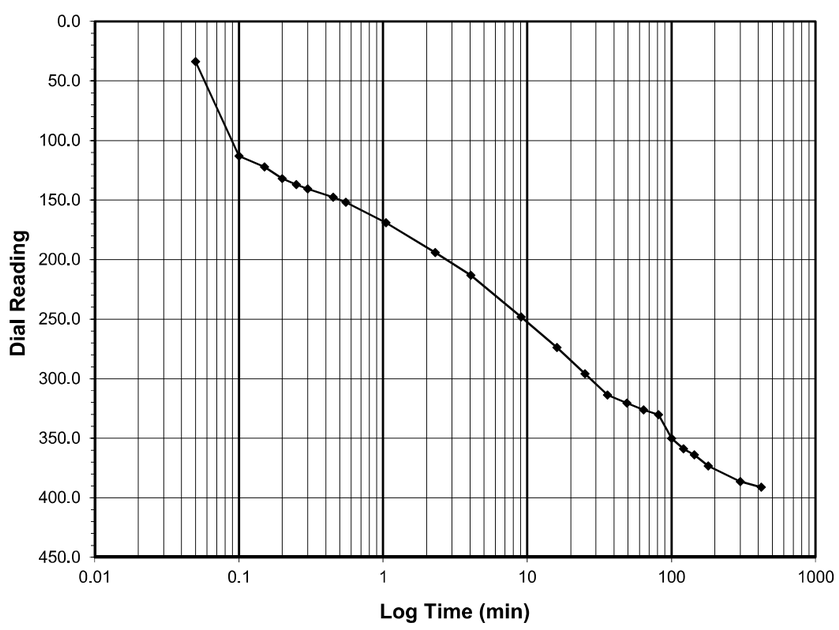
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.0-0.25**
Final Reading	**(div)**	**391.0**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/5/2019
Start Time		13:57:53

Elapsed Time (min)	Dial Reading (div)
Initial	**0.0**
0.05	33.7
0.10	113.0
0.15	122.0
0.20	132.1
0.25	137.1
0.30	140.8
0.45	147.8
0.55	152.0
1.05	169.0
2.30	194.1
4.05	213.1
9.05	248.2
16.07	273.9
25.07	295.8
36.07	313.9
49.07	320.6
64.07	326.2
81.07	330.4
100.07	350.1
121.07	358.8
144.07	363.8
180.07	373.3
300.07	386.4
420.12	391.0

Tested By 129-08-0411 *Date* 8/5/2019 *Checked By* GEM *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-003 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 1

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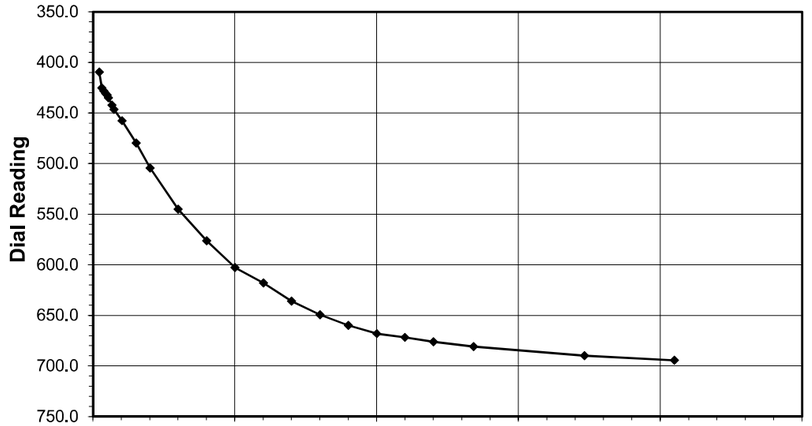
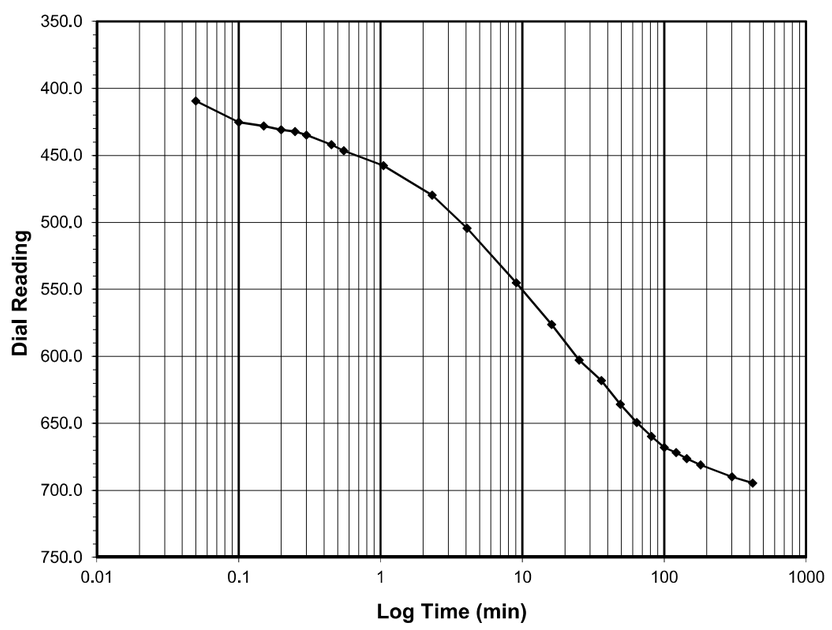
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**694.5**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/5/2019
Start Time		20:58:00

Elapsed Time (min)	Dial Reading (div)
Initial	**391.0**
0.05	409.5
0.10	425.3
0.15	428.1
0.20	430.8
0.25	432.2
0.30	434.8
0.45	442.1
0.55	446.5
1.05	457.5
2.32	479.8
4.07	504.4
9.07	545.0
16.07	576.3
25.07	602.8
36.07	618.0
49.07	635.8
64.07	649.4
81.07	659.8
100.07	668.0
121.07	671.9
144.07	676.3
180.07	681.0
300.08	689.9
420.17	694.5

Tested By 129-08-0411 *Date* 8/5/2019 *Checked By* GEM *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-003 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 2

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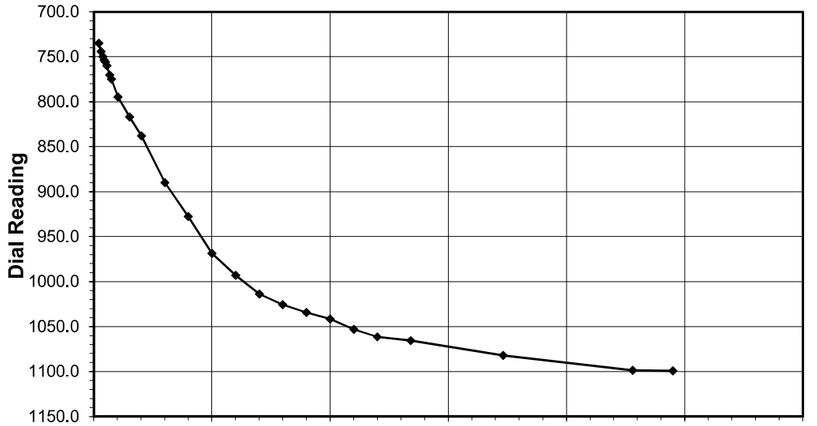
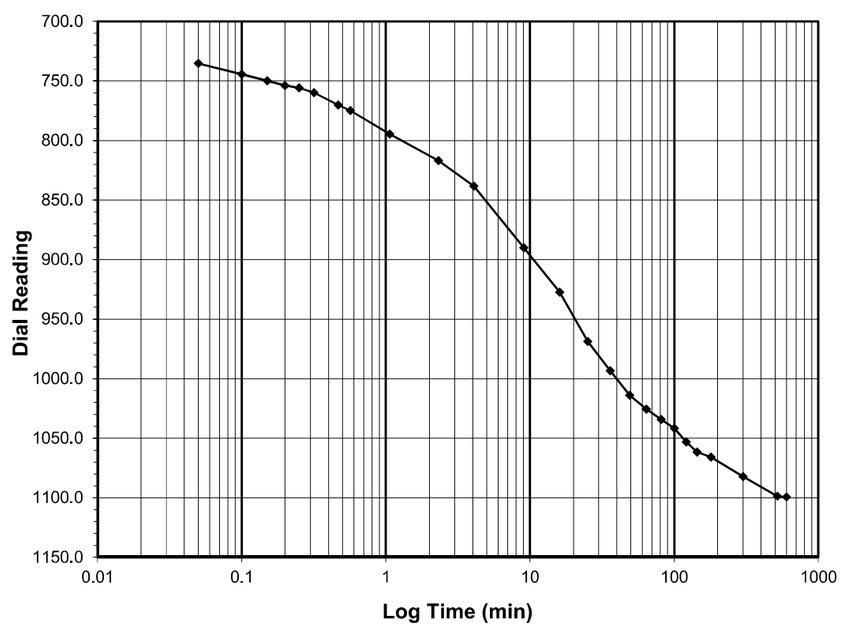
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**1099.3**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/6/2019
Start Time		3:58:10

Elapsed Time (min)	Dial Reading (div)
Initial	**694.5**
0.05	735.2
0.10	744.4
0.15	749.9
0.20	753.9
0.25	755.8
0.32	759.9
0.47	770.2
0.57	774.9
1.07	794.6
2.32	816.7
4.07	838.3
9.07	889.9
16.07	927.5
25.07	968.8
36.07	993.2
49.07	1013.9
64.07	1025.6
81.07	1034.4
100.07	1041.6
121.07	1053.1
144.07	1061.6
180.08	1065.8
300.08	1082.2
520.08	1098.7
600.08	1099.3

Tested By *129-08-0411* *Date* *8/6/2019* *Checked By* *GEM* *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-003 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 3

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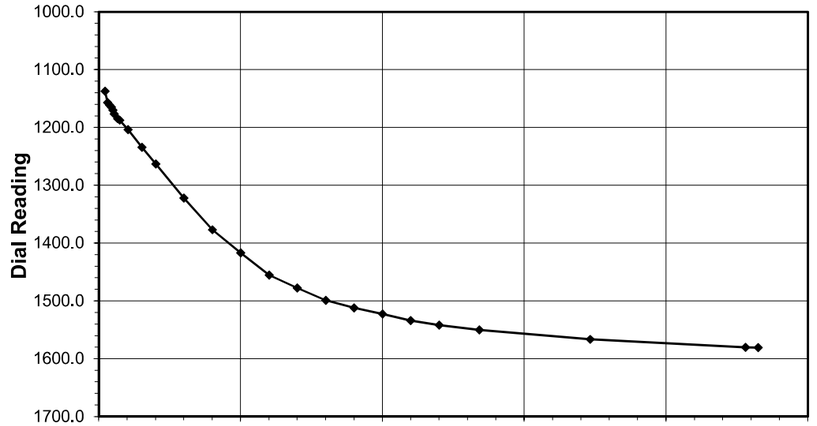
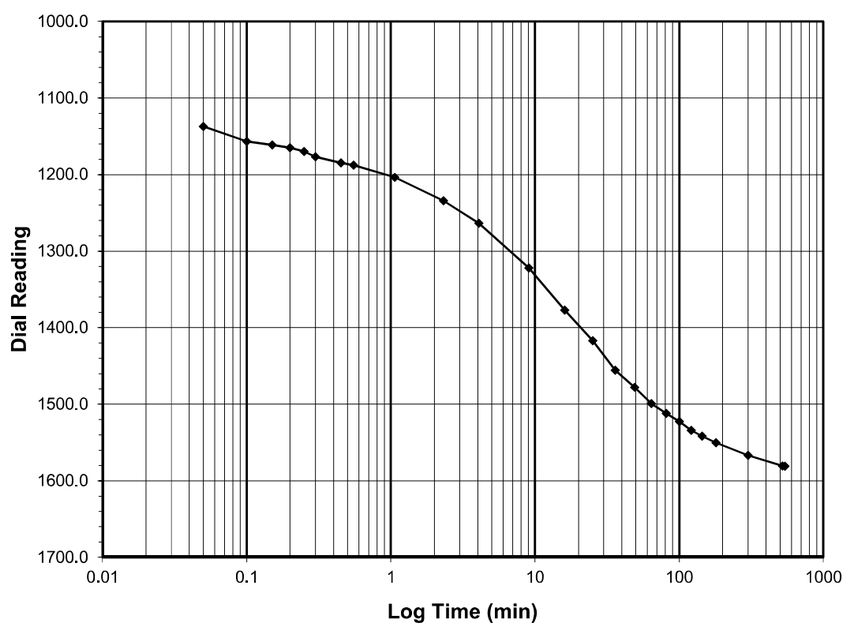
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**1580.9**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/6/2019
Start Time		12:58:33

Elapsed Time (min)	Dial Reading (div)
Initial	**1099.3**
0.05	1137.1
0.10	1156.8
0.15	1161.2
0.20	1164.9
0.25	1169.9
0.30	1176.6
0.45	1184.7
0.55	1187.5
1.07	1203.8
2.32	1234.3
4.07	1263.5
9.07	1322.0
16.07	1377.2
25.07	1417.0
36.07	1455.5
49.07	1477.8
64.07	1499.1
81.07	1512.2
100.07	1522.7
121.07	1534.1
144.07	1541.9
180.07	1550.2
300.07	1566.7
520.07	1580.7
540.43	1580.9

Tested By *129-08-0411* *Date* *8/6/2019* *Checked By* *GEM* *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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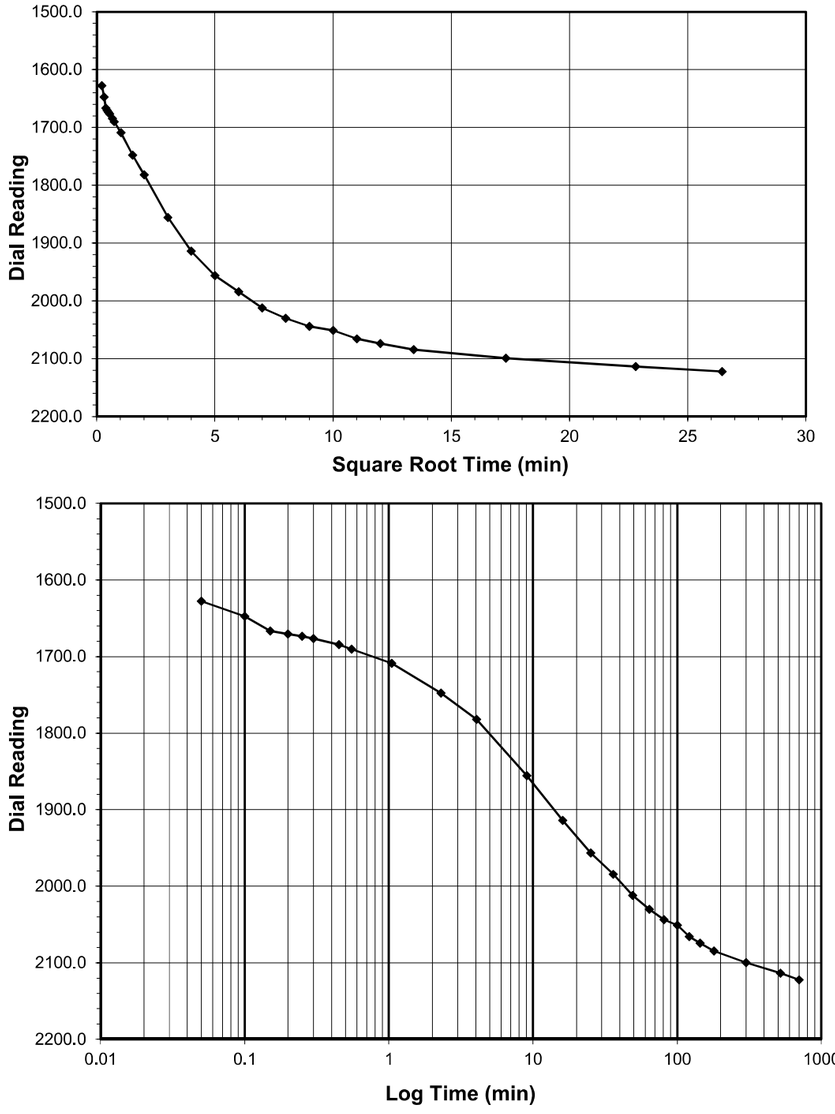
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load (tsf)		**2.0-4.0**
Final Reading (div)		**2122.3**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/6/2019
Start Time		21:58:59

Elapsed Time (min)	Dial Reading (div)
Initial	**1580.9**
0.05	1627.7
0.10	1647.5
0.15	1666.4
0.20	1670.5
0.25	1673.4
0.30	1676.4
0.45	1684.3
0.55	1690.1
1.05	1709.1
2.30	1747.8
4.05	1782.0
9.05	1855.8
16.05	1914.0
25.05	1956.5
36.05	1984.4
49.05	2012.1
64.05	2030.1
81.05	2043.7
100.05	2051.1
121.05	2065.7
144.05	2074.2
180.05	2084.5
300.05	2099.5
520.05	2113.6
700.07	2122.3

Tested By 129-08-0411 *Date* 8/6/2019 *Checked By* GEM *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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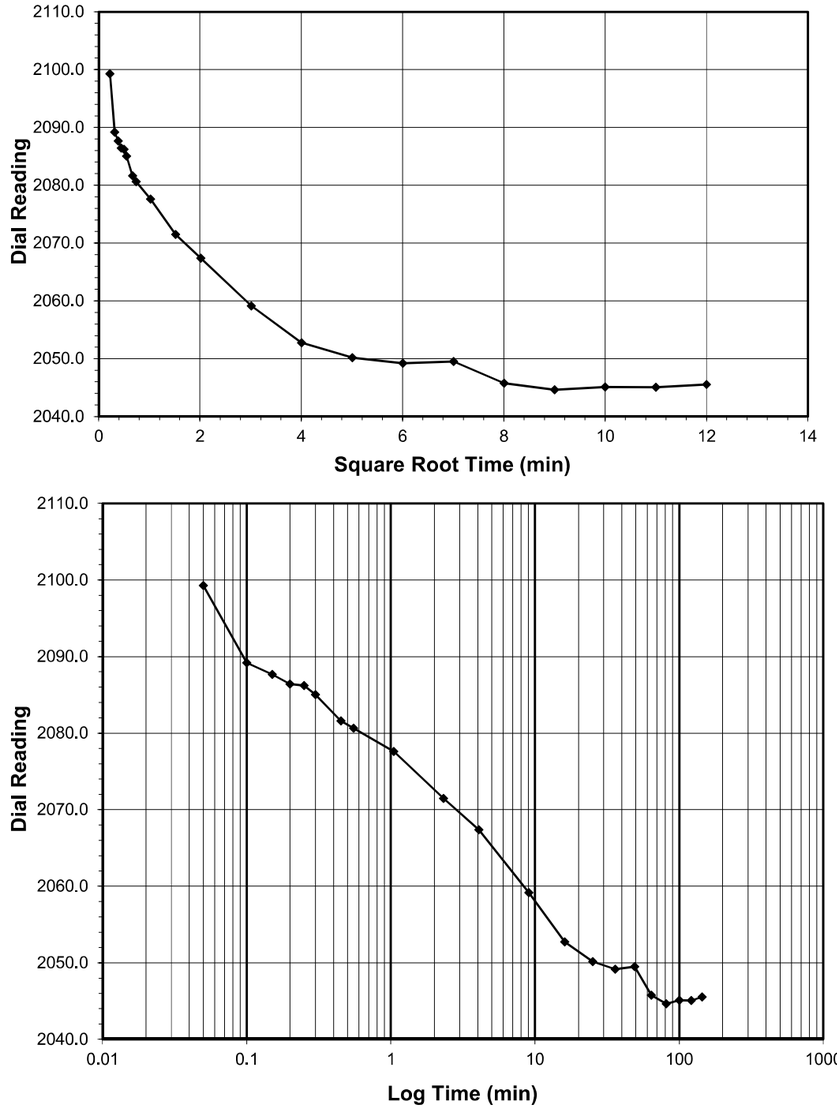
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load (tsf)		**4.0-1.0**
Final Reading (div)		**2045.5**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/7/2019
Start Time		9:59:21

Elapsed Time (min)	Dial Reading (div)
Initial	**2122.3**
0.05	2099.3
0.10	2089.2
0.15	2087.6
0.20	2086.4
0.25	2086.2
0.30	2085.0
0.45	2081.6
0.55	2080.6
1.05	2077.6
2.32	2071.5
4.07	2067.4
9.07	2059.1
16.07	2052.7
25.07	2050.2
36.07	2049.2
49.07	2049.5
64.07	2045.8
81.07	2044.6
100.07	2045.1
121.07	2045.1
144.07	2045.5

Tested By 129-08-0411 *Date* 8/7/2019 *Checked By* GEM *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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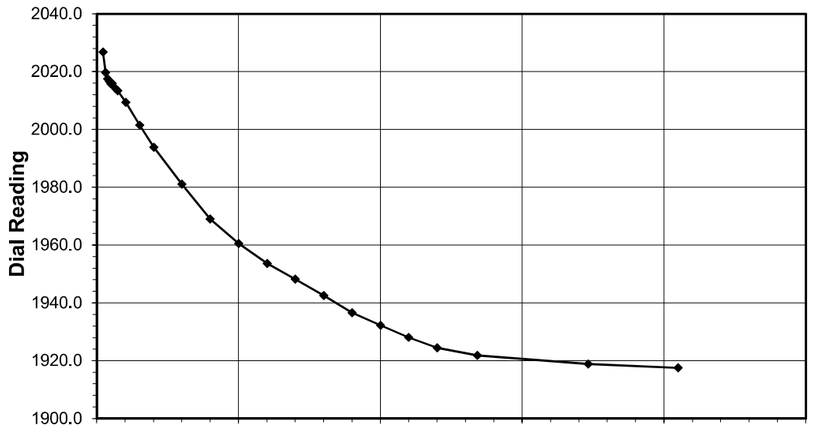
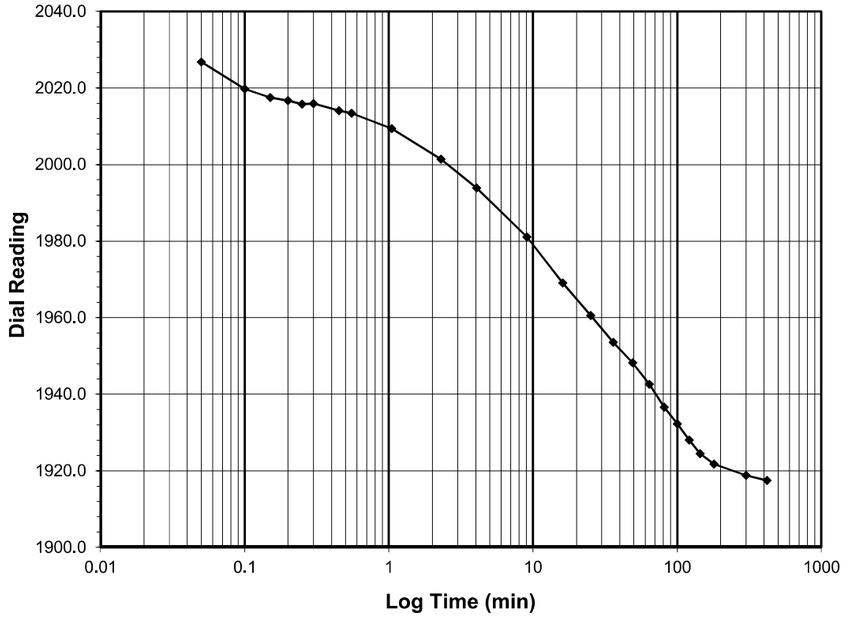
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**1917.5**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/7/2019
Start Time		12:53:25

Elapsed Time (min)	Dial Reading (div)
Initial	**2045.5**
0.05	2026.8
0.10	2019.7
0.15	2017.5
0.20	2016.7
0.25	2015.8
0.30	2015.9
0.45	2014.1
0.55	2013.4
1.05	2009.4
2.30	2001.4
4.05	1993.8
9.05	1981.1
16.05	1969.0
25.07	1960.5
36.07	1953.6
49.07	1948.2
64.07	1942.6
81.07	1936.6
100.07	1932.2
121.07	1928.0
144.07	1924.4
180.07	1921.8
300.07	1918.8
420.10	1917.5

Tested By *129-08-0411* *Date* *8/7/2019* *Checked By* *GEM* *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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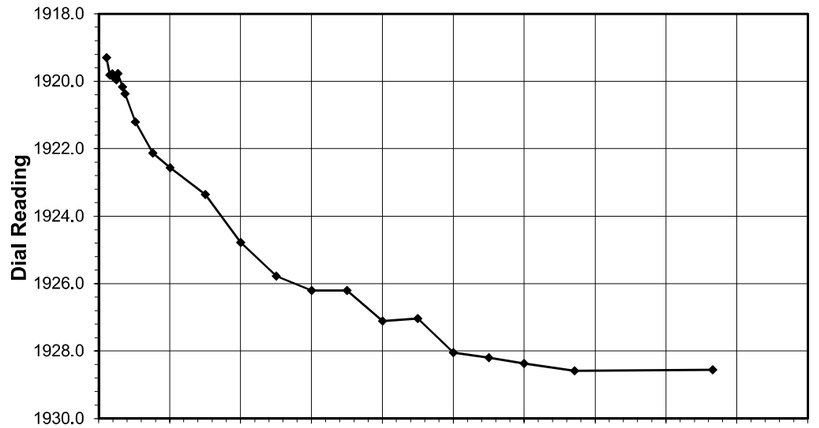
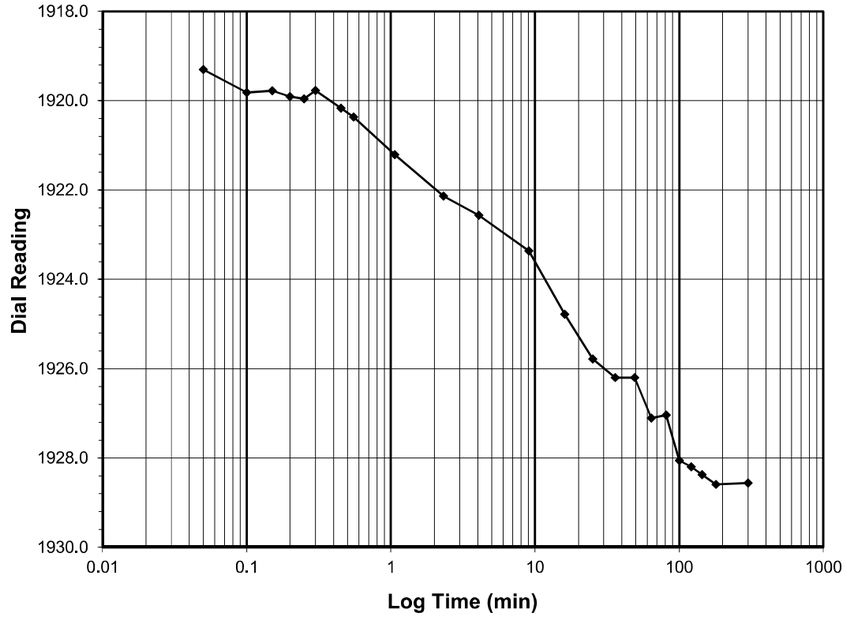
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**1928.6**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/7/2019
Start Time		19:53:31

Elapsed Time (min)	Dial Reading (div)
Initial	**1917.5**
0.05	1919.3
0.10	1919.8
0.15	1919.8
0.20	1919.9
0.25	1920.0
0.30	1919.8
0.45	1920.2
0.55	1920.4
1.07	1921.2
2.32	1922.1
4.07	1922.6
9.07	1923.4
16.07	1924.8
25.07	1925.8
36.07	1926.2
49.07	1926.2
64.07	1927.1
81.07	1927.0
100.07	1928.1
121.07	1928.2
144.07	1928.4
180.07	1928.6
300.07	1928.6

Tested By *129-08-0411* *Date* *8/7/2019* *Checked By* *GEM* *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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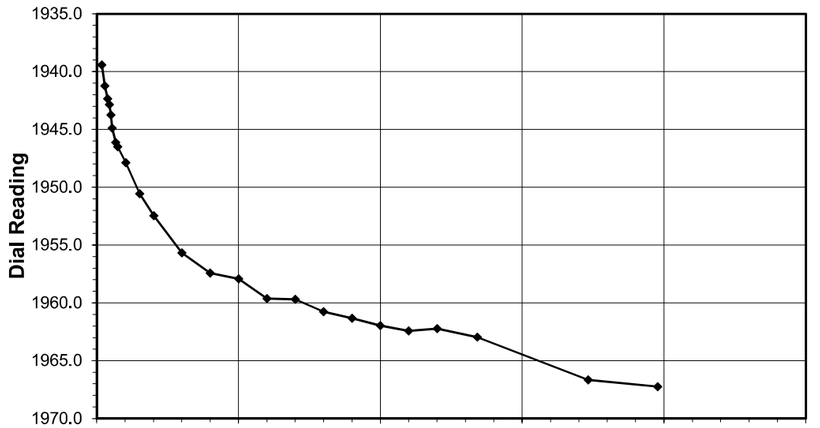
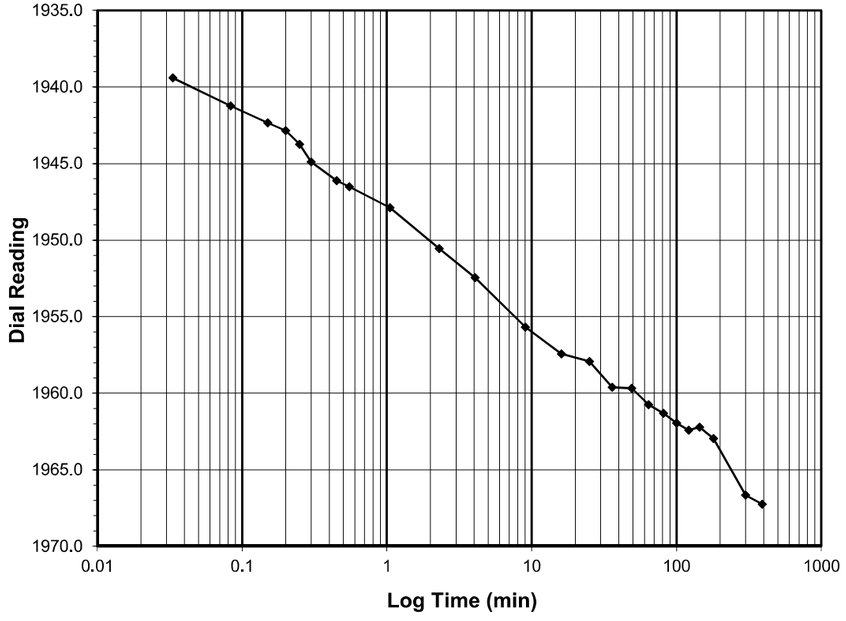
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**1967.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/8/2019
Start Time		3:53:42

Elapsed Time (min)	Dial Reading (div)
Initial	**1928.6**
0.03	1939.4
0.08	1941.2
0.15	1942.3
0.20	1942.9
0.25	1943.7
0.30	1944.9
0.45	1946.1
0.55	1946.5
1.05	1947.9
2.30	1950.6
4.05	1952.5
9.05	1955.7
16.05	1957.4
25.05	1957.9
36.05	1959.6
49.05	1959.7
64.05	1960.8
81.05	1961.3
100.05	1962.0
121.05	1962.4
144.05	1962.2
180.07	1963.0
300.07	1966.7
391.07	1967.2

Tested By *129-08-0411* *Date* *8/8/2019* *Checked By* *GEM* *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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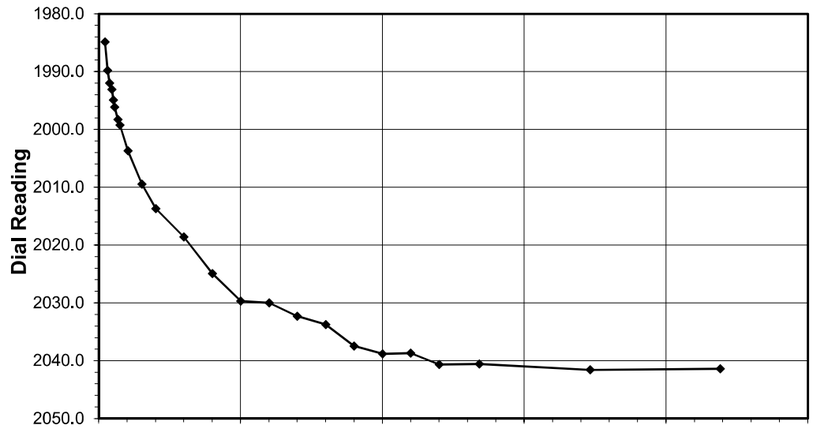
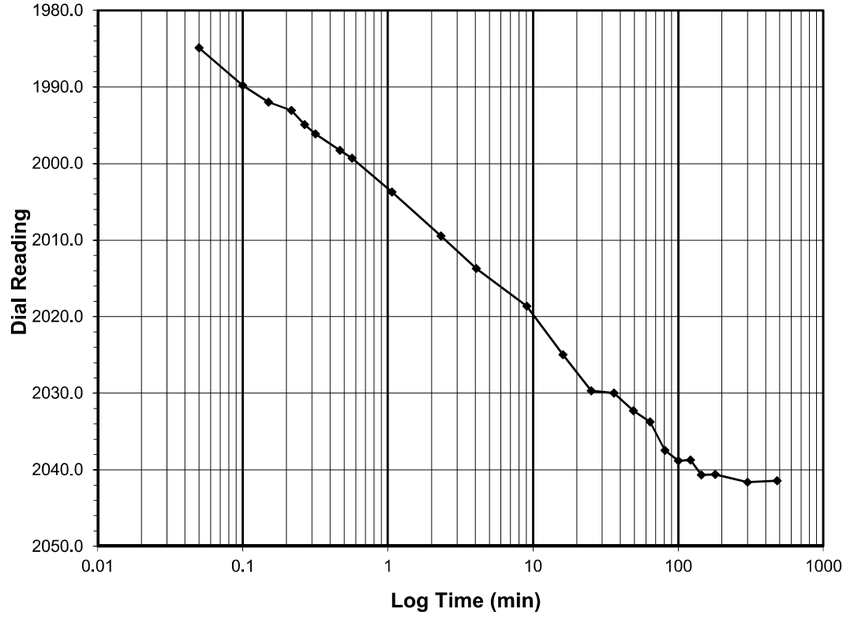
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**2041.4**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/8/2019
Start Time		10:24:47

Elapsed Time (min)	Dial Reading (div)
Initial	**1967.2**
0.05	1984.9
0.10	1989.8
0.15	1992.0
0.22	1993.1
0.27	1994.9
0.32	1996.1
0.47	1998.3
0.57	1999.3
1.07	2003.7
2.32	2009.4
4.07	2013.7
9.07	2018.6
16.07	2024.9
25.07	2029.7
36.07	2030.0
49.07	2032.3
64.07	2033.7
81.07	2037.5
100.08	2038.8
121.08	2038.7
144.08	2040.7
180.08	2040.6
300.08	2041.6
480.30	2041.4

Tested By *129-08-0411* *Date* *8/8/2019* *Checked By* *GEM* *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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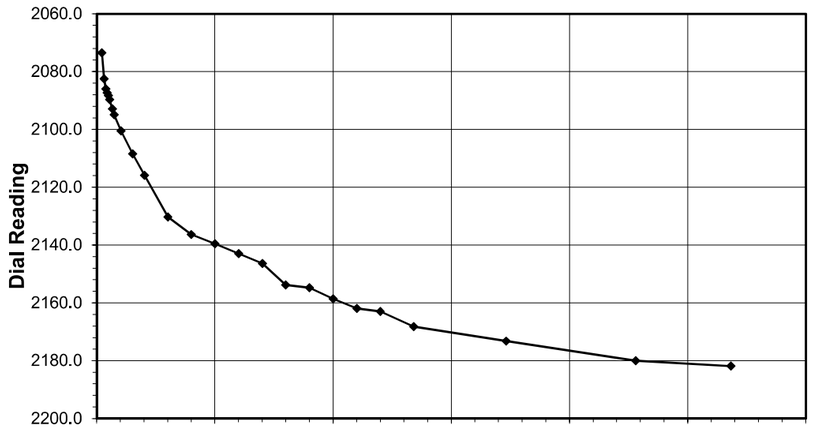
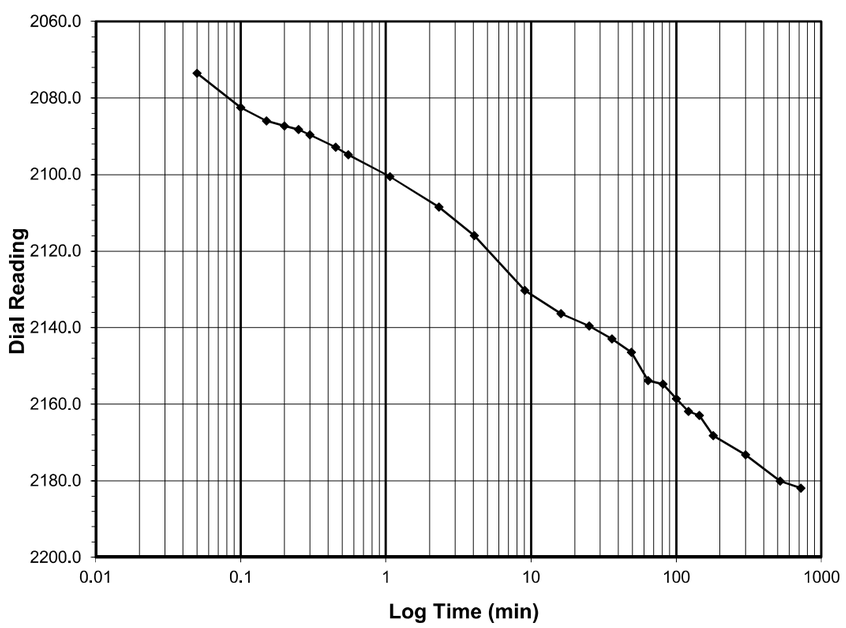
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load (tsf)		**2.0-4.0**
Final Reading (div)		**2181.9**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/8/2019
Start Time		18:25:05

Elapsed Time (min)	Dial Reading (div)
Initial	**2041.4**
0.05	2073.6
0.10	2082.5
0.15	2086.0
0.20	2087.3
0.25	2088.3
0.30	2089.6
0.45	2092.9
0.55	2094.8
1.07	2100.6
2.32	2108.5
4.07	2115.9
9.07	2130.3
16.07	2136.4
25.07	2139.6
36.07	2142.9
49.07	2146.4
64.07	2153.8
81.07	2154.7
100.07	2158.6
121.07	2161.9
144.07	2163.0
180.07	2168.2
300.07	2173.2
520.07	2180.1
720.33	2181.9

Tested By 129-08-0411 *Date* 8/8/2019 *Checked By* GEM *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-002-003 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 11

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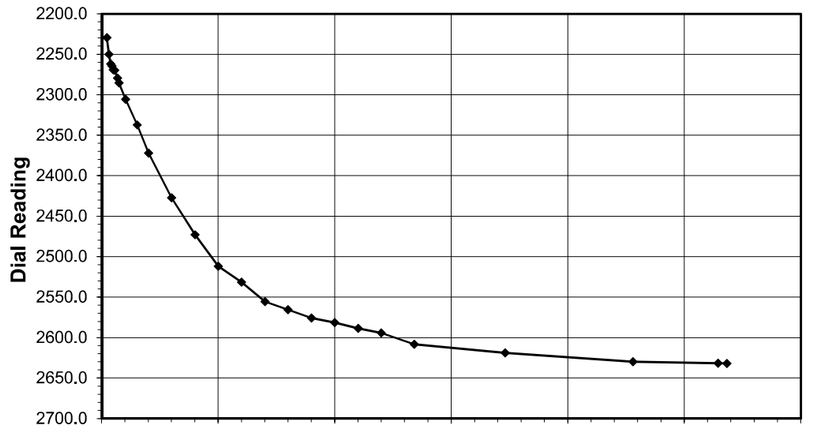
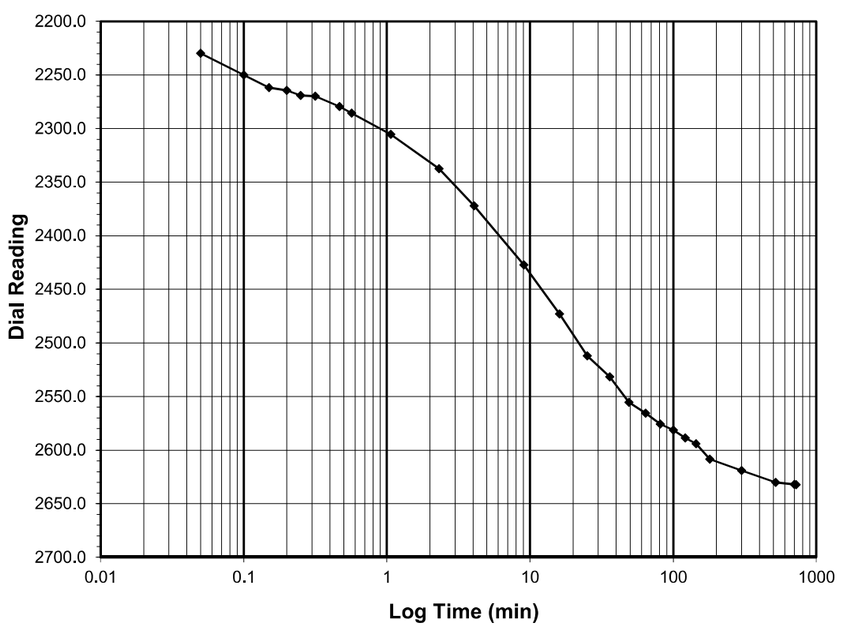
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load (tsf)		**4.0-8.0**
Final Reading (div)		**2632.0**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/9/2019
Start Time		6:25:25

Elapsed Time (min)	Dial Reading (div)
Initial	**2181.9**
0.05	2229.6
0.10	2250.1
0.15	2261.9
0.20	2264.5
0.25	2269.2
0.32	2269.9
0.47	2279.5
0.57	2285.5
1.07	2305.4
2.32	2337.3
4.07	2372.1
9.07	2427.2
16.07	2473.0
25.07	2511.9
36.07	2531.5
49.07	2555.5
64.07	2565.6
81.07	2575.7
100.07	2581.4
121.08	2588.7
144.08	2594.1
180.08	2608.4
300.08	2618.9
520.08	2630.0
700.08	2631.9
720.32	2632.0

Tested By 129-08-0411 *Date* 8/9/2019 *Checked By* GEM *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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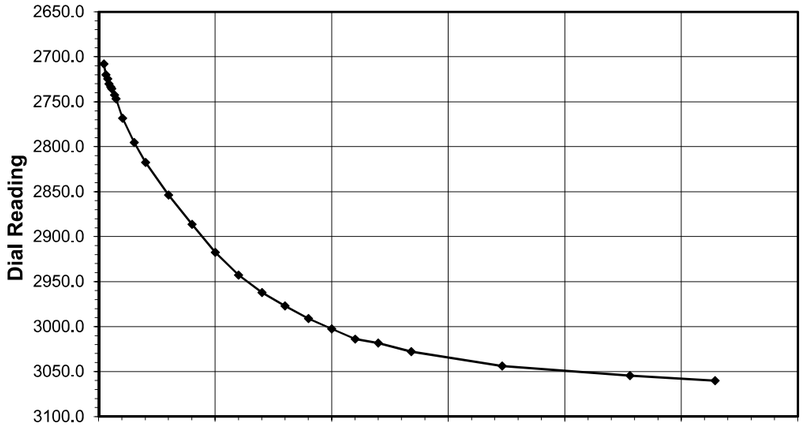
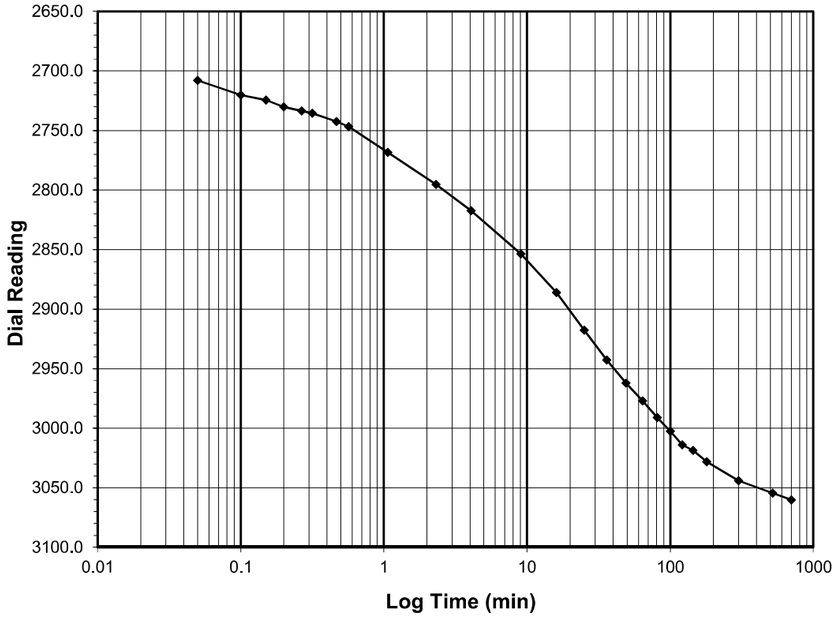
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**8.0-16.0**
Final Reading	**(div)**	**3060.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/9/2019
Start Time		18:25:44

Elapsed Time (min)	Dial Reading (div)
Initial	**2632.0**
0.05	2708.0
0.10	2720.2
0.15	2724.6
0.20	2730.3
0.27	2733.6
0.32	2735.6
0.47	2742.5
0.57	2746.8
1.07	2768.3
2.32	2795.4
4.07	2817.4
9.07	2853.6
16.07	2886.2
25.07	2917.7
36.07	2942.7
49.07	2962.1
64.07	2977.0
81.07	2991.0
100.07	3002.5
121.07	3013.9
144.07	3018.5
180.08	3028.0
300.08	3044.0
520.08	3054.5
700.08	3060.2

Tested By *129-08-0411* *Date* *8/9/2019* *Checked By* *GEM* *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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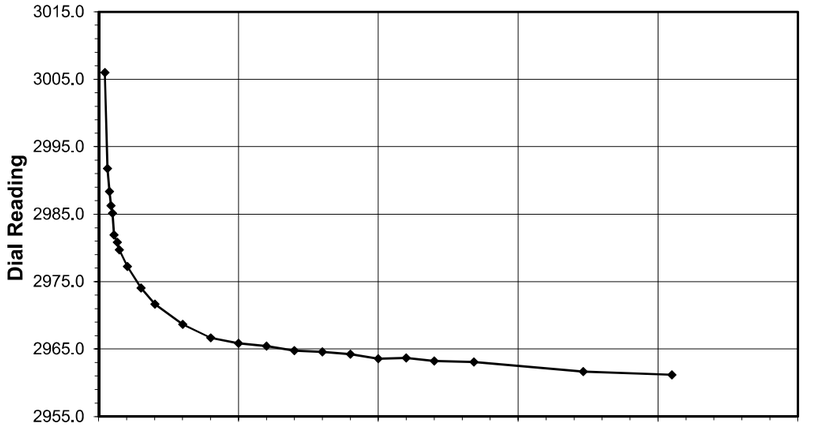
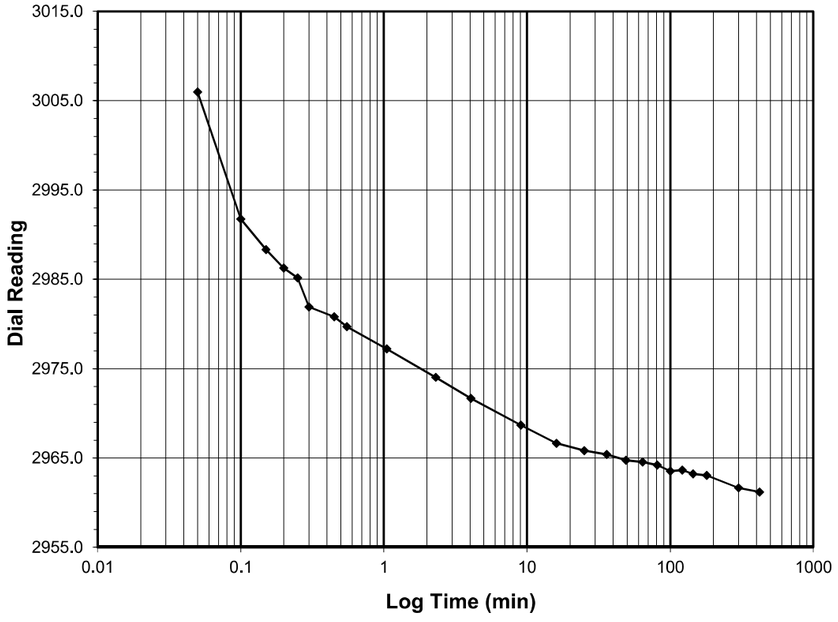
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**16.0-4.0**
Final Reading	**(div)**	**2961.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/10/2019
Start Time		6:26:10

Elapsed Time (min)	Dial Reading (div)
Initial	**3060.2**
0.05	3006.0
0.10	2991.7
0.15	2988.3
0.20	2986.3
0.25	2985.1
0.30	2981.9
0.45	2980.8
0.55	2979.7
1.05	2977.2
2.30	2974.0
4.05	2971.7
9.05	2968.7
16.05	2966.6
25.05	2965.8
36.05	2965.4
49.05	2964.8
64.05	2964.6
81.07	2964.2
100.07	2963.6
121.07	2963.7
144.07	2963.2
180.07	2963.1
300.07	2961.7
420.18	2961.2

Tested By *129-08-0411* *Date* *8/10/2019* *Checked By* *GEM* *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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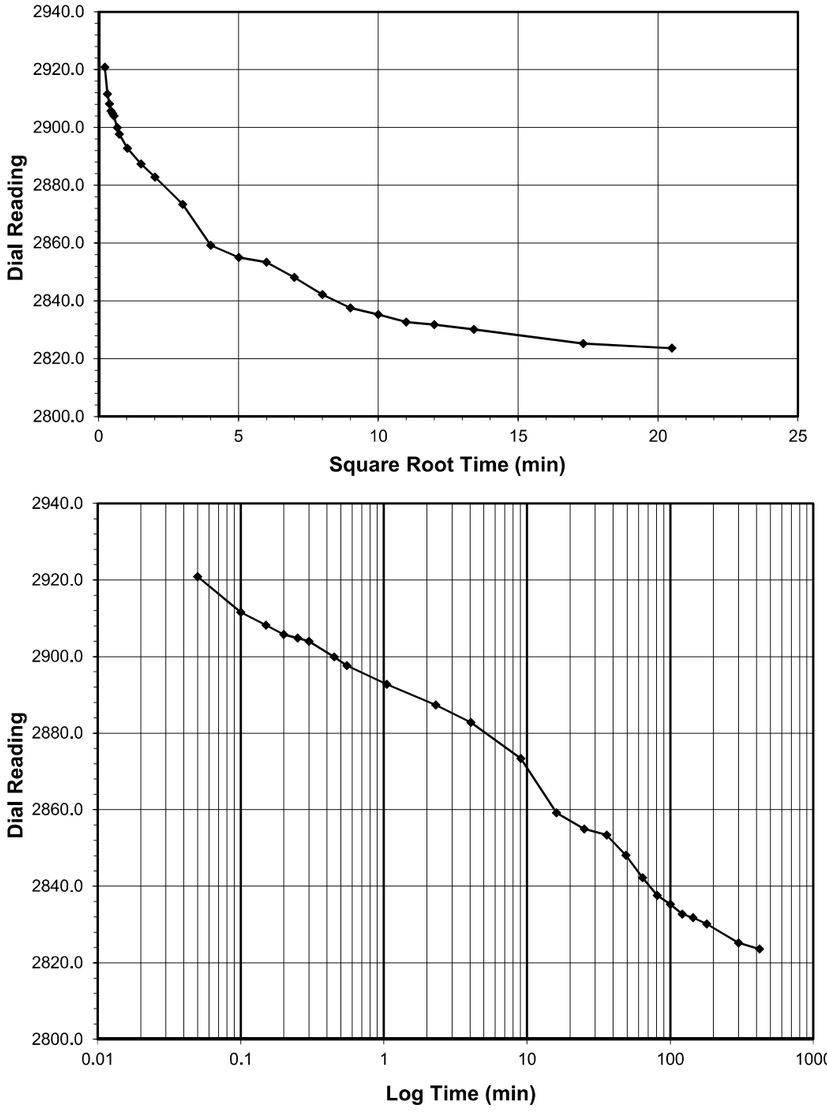
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**2823.6**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/10/2019
Start Time		13:26:21

Elapsed Time (min)	Dial Reading (div)
Initial	**2961.2**
0.05	2920.9
0.10	2911.6
0.15	2908.2
0.20	2905.7
0.25	2904.8
0.30	2904.0
0.45	2899.9
0.55	2897.6
1.05	2892.7
2.30	2887.3
4.05	2882.8
9.07	2873.4
16.07	2859.2
25.07	2855.0
36.07	2853.4
49.07	2848.1
64.07	2842.2
81.07	2837.6
100.07	2835.3
121.07	2832.7
144.07	2831.8
180.07	2830.2
300.07	2825.2
420.02	2823.6

Tested By 129-08-0411 *Date* 8/10/2019 *Checked By* GEM *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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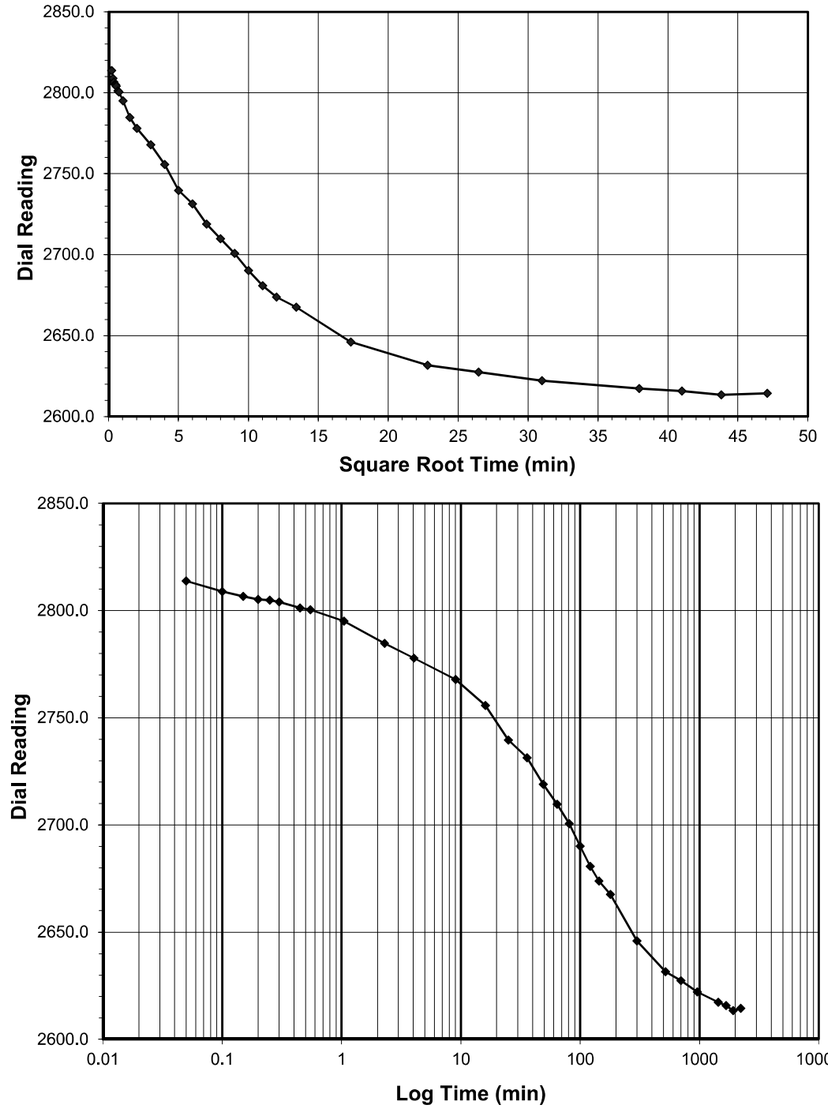
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S2_RT.LN_EB2-A	Station:	71+80
Client Project	R-2561CA	Depth (ft)	19.9-21.9	Offset:	28' RT
Project No.	R-2019-209-002	Sample No.	ST-3		
Lab ID	R-2019-209-002-003	Visual Description	Gray Clay with Organics		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**2614.4**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/10/2019
Start Time		20:26:22

Elapsed Time (min)	Dial Reading (div)
Initial	**2823.6**
0.05	2813.8
0.10	2808.9
0.15	2806.6
0.20	2805.2
0.25	2804.9
0.30	2804.0
0.45	2801.2
0.55	2800.4
1.05	2795.0
2.30	2784.7
4.05	2777.9
9.05	2767.9
16.05	2755.7
25.05	2739.6
36.05	2731.4
49.05	2719.0
64.05	2709.7
81.05	2700.7
100.05	2690.1
121.07	2680.8
144.07	2673.8
180.07	2667.6
300.07	2646.0
520.07	2631.6
700.07	2627.4
960.07	2622.1
1440.07	2617.2
1680.07	2615.7
1920.07	2613.4
2218.40	2614.4

Tested By 129-08-0411 *Date* 8/10/2019 *Checked By* GEM *Date* 8/19/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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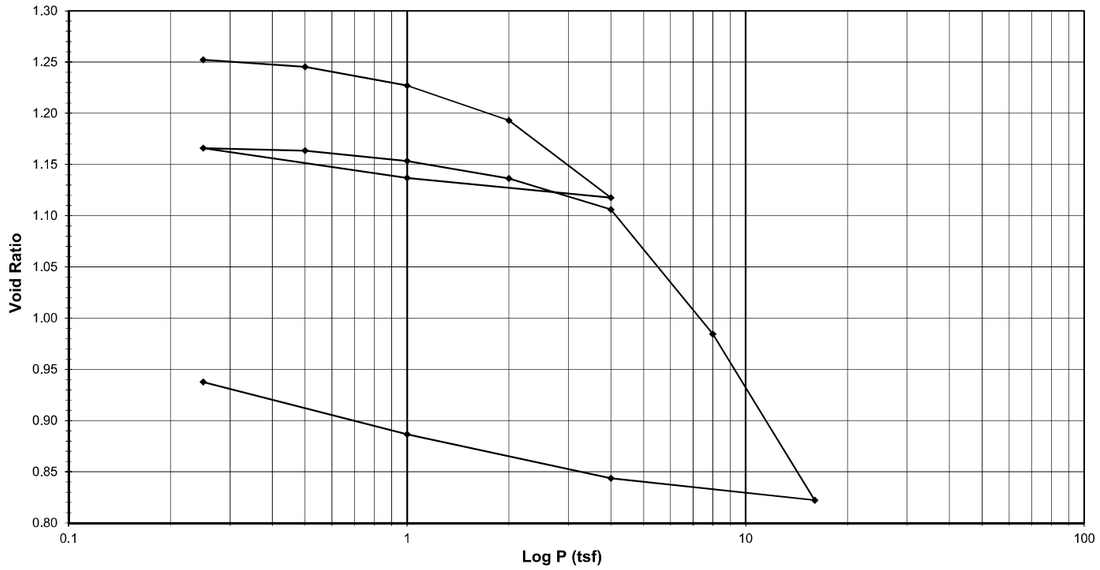
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Reference	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By 129-0411 *Date* 7/19/2019 *Approved By* MPS *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 6

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Reference	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Consolidometer No. R409

1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	TB-05	SS-3
Wt. Tare & WS (g)	370.62	231.69
Wt. Tare & DS (g)	301.70	199.43
Wt. Water (g)	68.92	32.26
Wt. Tare (g)	135.63	100.71
Wt. DS (g)	166.07	98.72
Water Content (%)	41.50	32.68
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.8544
Sample Volume (cc)	80.44	68.72
Wt. Wet Sample + Ring (g)	355.21	346.42
Wt. of Ring (g)	214.19	214.19
Wt. of Wet Sample (g)	141.02	132.23
Wet Density (pcf)	109.39	120.06
Wet Density (g/cc)	1.75	1.92
Water Content (%)	41.50	32.68
Wt. of Dry Sample (g)	99.66	99.66
Dry Density (pcf)	77.31	90.49
Dry Density (g/cc)	1.24	1.45
Void Ratio	1.2681	0.9377
Saturation (%)	91.96	97.92
Specific Gravity	2.81	*Measured*

Test Data Summary

Applied Pressure (tsf)	**Final Dial Reading** (div)	**Machine Deflection** (div)	**Corrected Reading** (div)	**Height of Sample** (mm)	**Volume** (cc)	**Dry Density** (g/cc)	**Void Ratio**
Seating	0	0	0	25.400	80.440	1.23894	**1.26806**
0.25	80.8	10.7	70.1	25.222	79.876	1.24769	**1.25216**
0.5	130.4	30.0	100.4	25.145	79.633	1.25150	**1.24530**
1	228.1	47.1	181.1	24.940	78.983	1.26179	**1.22699**
2	405.1	74.4	330.7	24.560	77.780	1.28131	**1.19306**
4	765.1	101.3	663.8	23.714	75.100	1.32703	**1.11751**
1	647.9	69.8	578.1	23.932	75.789	1.31497	**1.13693**
0.25	484.2	34.5	449.7	24.258	76.822	1.29728	**1.16607**
0.5	501.2	40.8	460.4	24.231	76.736	1.29874	**1.16364**
1	560.2	55.4	504.8	24.118	76.379	1.30481	**1.15357**
2	658.1	77.3	580.8	23.925	75.768	1.31534	**1.13633**
4	816.7	102.2	714.5	23.585	74.692	1.33428	**1.10601**
8	1397.1	146.5	1250.6	22.223	70.380	1.41603	**0.98442**
16	2165.6	199.9	1965.8	20.407	64.627	1.54208	**0.82221**
4	2010.0	138.4	1871.6	20.646	65.385	1.52421	**0.84358**
1	1769.0	86.8	1682.1	21.127	66.909	1.48950	**0.88654**
0.25	1502.1	45.6	1456.5	21.701	68.724	1.45016	**0.93772**

Tested By 129-0411 *Date* 7/19/2019 *Input Checked By* GEM *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 6

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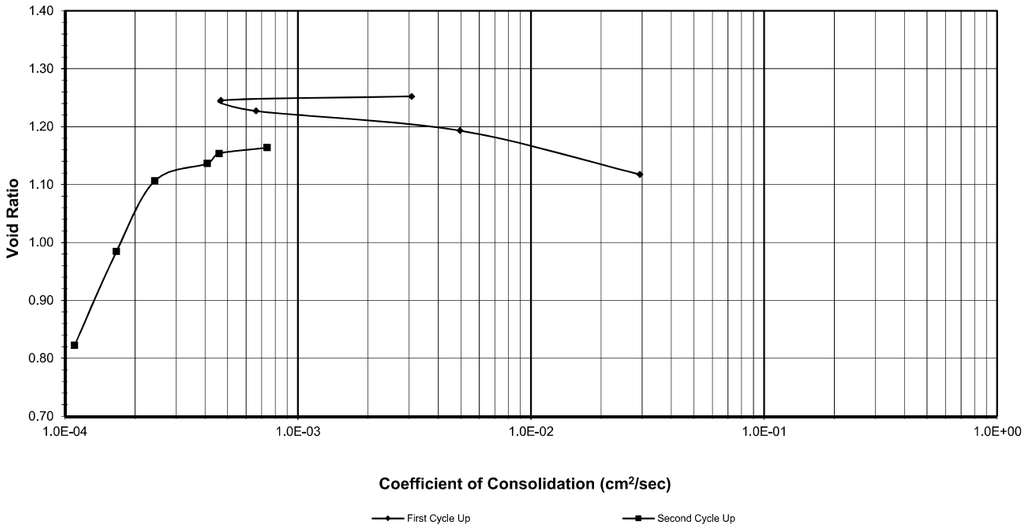
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Reference	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By *129-0411* *Date* *7/19/2019* *Input Checked By* *GEM* *Date* *7/29/2019*

DCN: CT-24E Date: 5/3/12 Revision: 6 *Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-012 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT*

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Reference	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Consolidometer No. R409

1 Division = 0.0001 (in.)

Sample Properties	Initial	Final
Water Content		
Tare Number	TB-05	SS-3
Wt. Tare & WS (g)	370.62	231.69
Wt. Tare & DS (g)	301.70	199.43
Wt. Water (g)	68.92	32.26
Wt. Tare (g)	135.63	100.71
Wt. DS (g)	166.07	98.72
Water Content (%)	41.50	32.68
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.854
Sample Volume (cc)	80.44	68.72
Wt. Wet Sample + Ring (g)	355.21	346.42
Wt. of Ring (g)	214.19	214.19
Wt. of Wet Sample (g)	141.02	132.23
Wet Density (pcf)	109.39	120.06
Wet Density (g/cc)	1.75	1.92
Water Content (%)	41.50	32.68
Wt. of Dry Sample (g)	99.66	99.66
Dry Density (pcf)	77.31	90.49
Dry Density (g/cc)	1.24	1.45
Void Ratio	1.2681	0.9377
Saturation (%)	91.96	97.92
Specific Gravity	*2.81*	*Measured*

C_v Test Data Summary

Load Increment (tsf)	Dial Reading @ t_{50} (div)	Machine Deflection (div)	Corrected Dial Reading @ t_{50} (div)	Sample Height @ t_{50} (cm)	Time t_{50} (min.)	C_v (cm²/sec)
0 - 0.25	68.7	10.7	58.0	2.525	**1.70**	**0.00308**
0.25 - 0.5	175.6	30.0	145.6	2.503	**11.00**	**0.00047**
0.5 - 1.0	369.8	47.1	322.7	2.458	**7.50**	**0.00066**
1.0 - 2.0	400.0	74.4	325.6	2.457	**1.00**	**0.00496**
2.0 - 4.0	404.9	101.3	303.6	2.463	**0.17**	**0.02929**
4.0 - 1.0	NA	69.8	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	34.5	NA	NA	**NA**	**NA**
0.25 - 0.5	1126.2	40.8	1085.4	2.264	**5.70**	**0.00074**
0.5 - 1.0	1725.0	55.4	1669.6	2.116	**8.00**	**0.00046**
1.0 - 2.0	2373.6	77.3	2296.3	1.957	**7.70**	**0.00041**
2.0 - 4.0	3000.0	102.2	2897.8	1.804	**11.00**	**0.00024**
4.0 - 8.0	4000.0	146.5	3853.5	1.561	**12.00**	**0.00017**
8.0 - 16.0	5000.0	199.9	4800.1	1.321	**13.00**	**0.00011**
16.0 - 4.0	NA	138.4	NA	NA	**NA**	**NA**
4.0 - 1.0	NA	86.8	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	45.6	NA	NA	**NA**	**NA**

Tested By *129-0411* *Date* *7/19/2019* *Input Checked By* *GEM* *Date* *7/29/2019*

DCN: CT-24E Date: 5/3/12 Revision: 6 *Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-012 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT*

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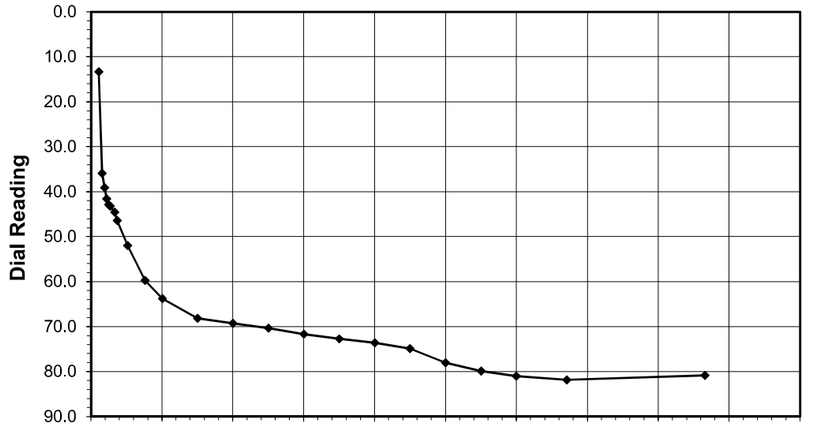
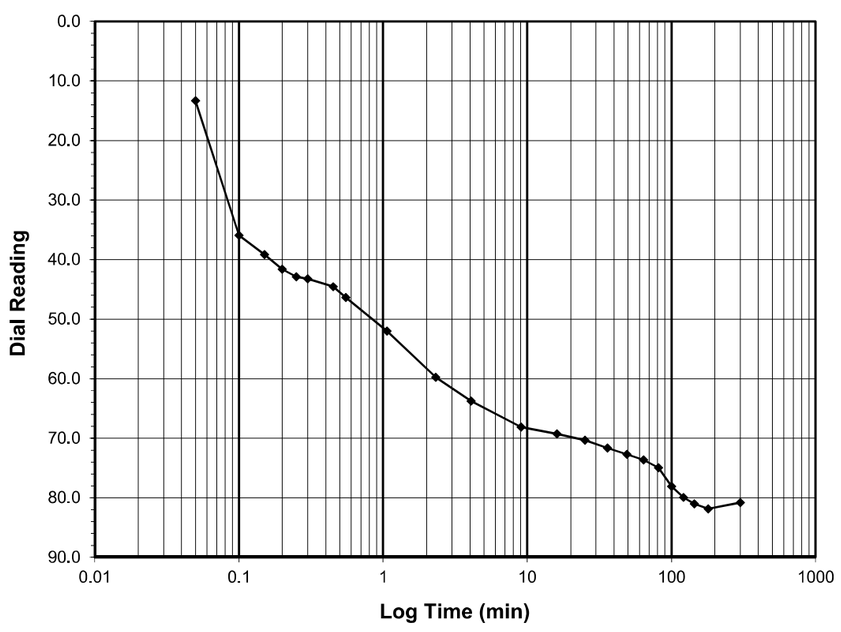
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.0-0.25**
Final Reading	**(div)**	**80.8**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/19/2019
Start Time		11:07:25

Elapsed Time (min)	Dial Reading (div)
Initial	**0.0**
0.05	13.3
0.10	35.9
0.15	39.1
0.20	41.6
0.25	42.9
0.30	43.2
0.45	44.6
0.55	46.4
1.07	52.0
2.32	59.7
4.07	63.8
9.07	68.1
16.07	69.3
25.07	70.3
36.07	71.7
49.07	72.7
64.07	73.6
81.07	74.9
100.07	78.1
121.07	79.9
144.07	81.0
180.07	81.9
300.08	80.8

Tested By *129-0411* *Date* *7/19/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-012 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 1

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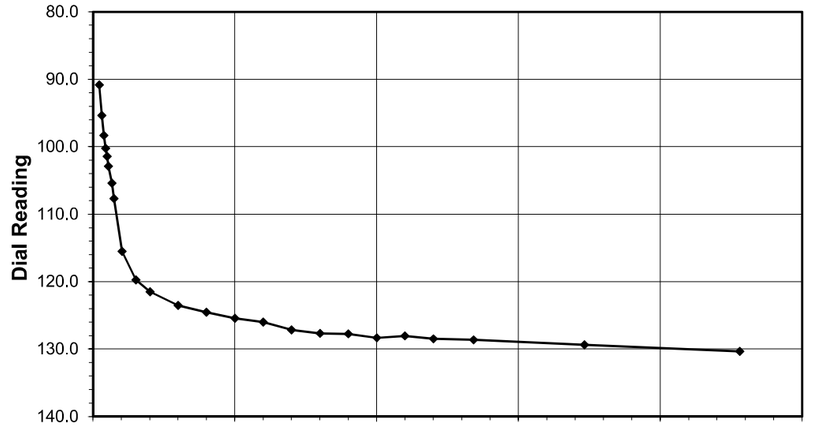
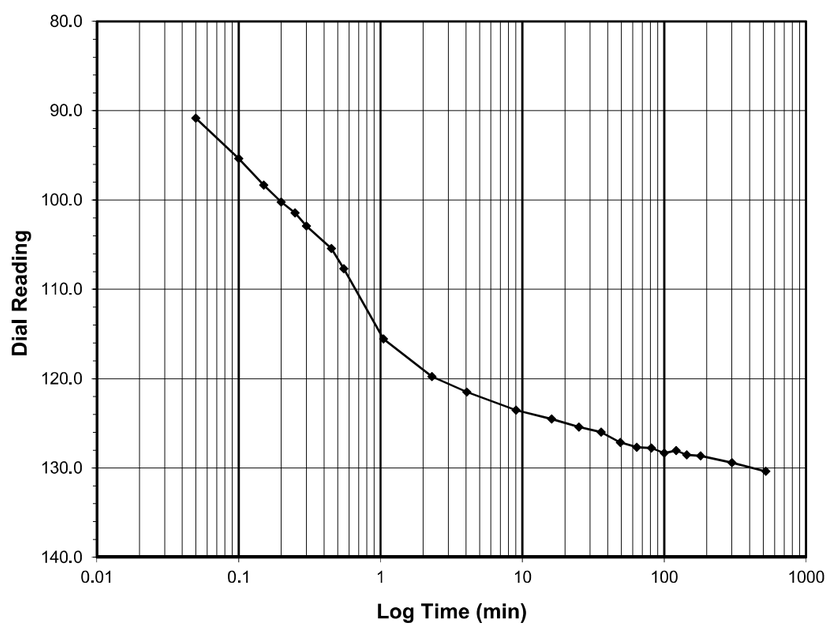
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**130.4**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/19/2019
Start Time		20:07:44

Elapsed Time (min)	Dial Reading (div)
Initial	**80.8**
0.05	90.8
0.10	95.4
0.15	98.3
0.20	100.2
0.25	101.5
0.30	102.9
0.45	105.4
0.55	107.7
1.05	115.5
2.30	119.7
4.05	121.5
9.05	123.5
16.05	124.5
25.05	125.4
36.05	126.0
49.07	127.1
64.07	127.7
81.07	127.8
100.07	128.3
121.07	128.0
144.07	128.5
180.07	128.6
300.07	129.4
520.07	130.4

Tested By *129-0411* *Date* *7/19/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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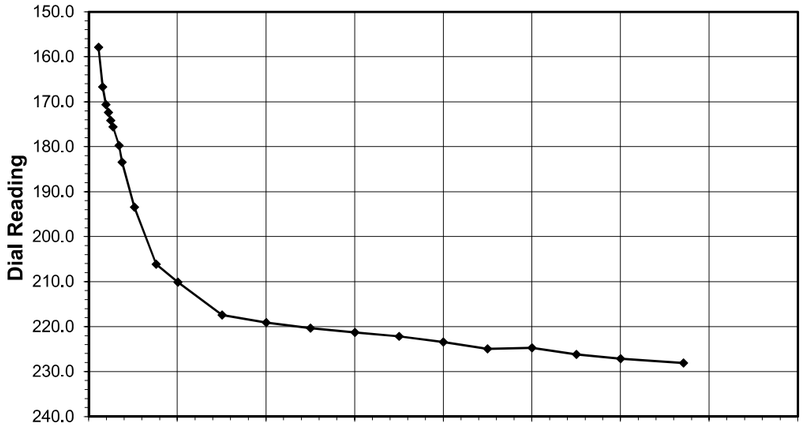
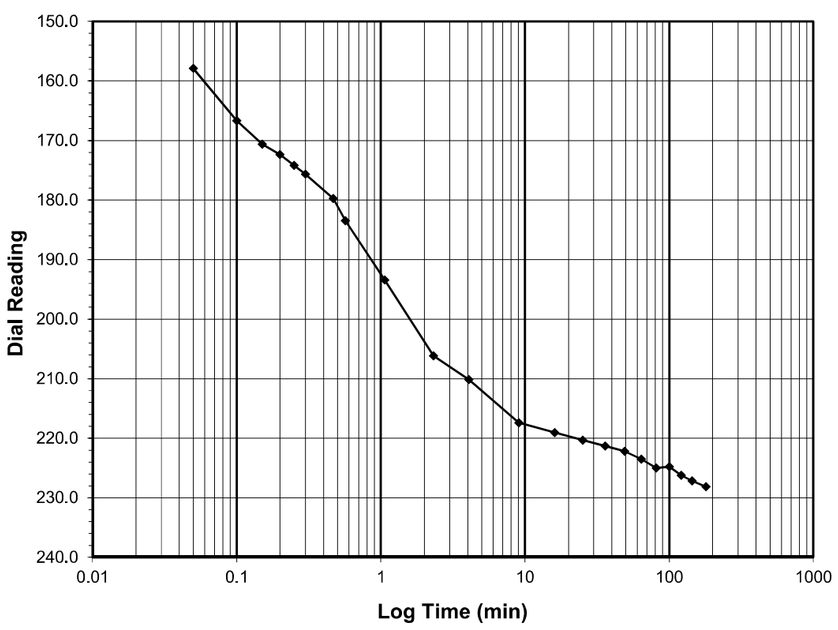
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**228.1**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/20/2019
Start Time		5:08:07

Elapsed Time (min)	Dial Reading (div)
Initial	**130.4**
0.05	157.9
0.10	166.7
0.15	170.6
0.20	172.3
0.25	174.1
0.30	175.6
0.47	179.8
0.57	183.5
1.07	193.4
2.32	206.1
4.07	210.1
9.07	217.4
16.07	219.1
25.07	220.3
36.07	221.3
49.07	222.2
64.07	223.5
81.07	225.0
100.07	224.8
121.07	226.2
144.07	227.2
180.07	228.1

Tested By *129-0411* *Date* *7/20/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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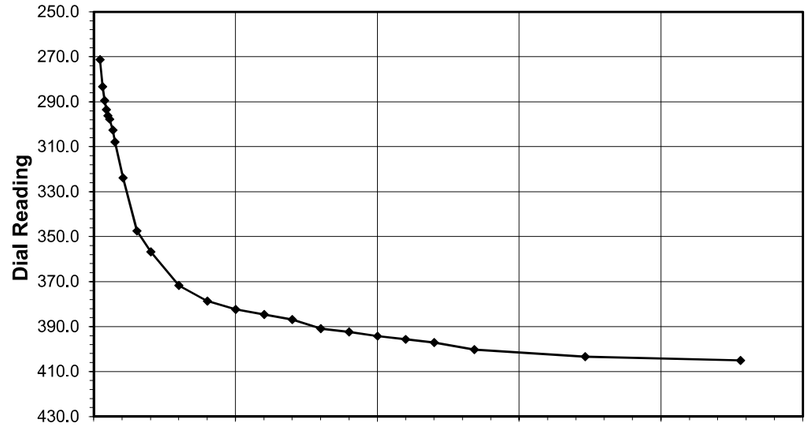
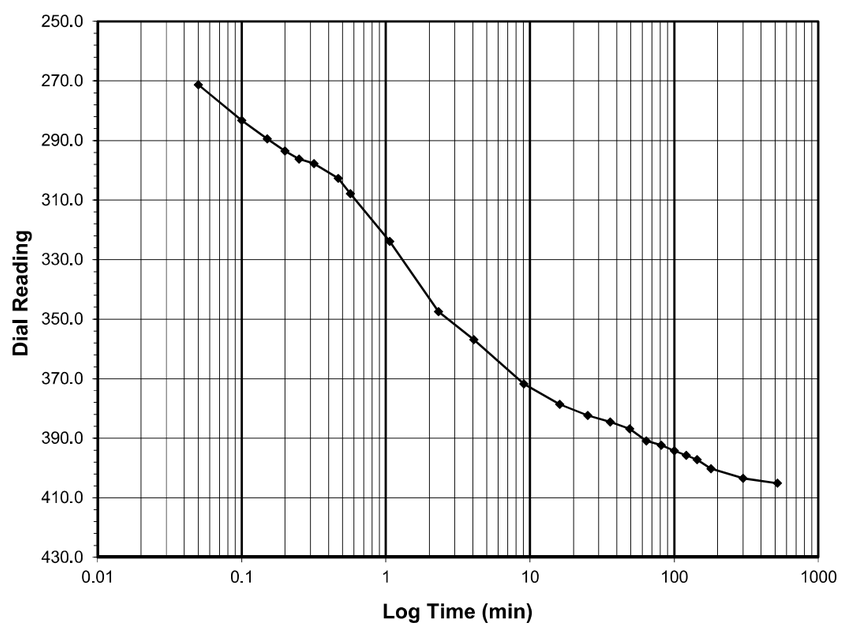
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**405.1**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/20/2019
Start Time		14:08:26

Elapsed Time (min)	Dial Reading (div)
Initial	**228.1**
0.05	271.3
0.10	283.2
0.15	289.4
0.20	293.5
0.25	296.2
0.32	297.8
0.47	302.7
0.57	307.9
1.07	323.9
2.32	347.5
4.07	356.9
9.07	371.7
16.07	378.7
25.07	382.4
36.08	384.6
49.08	386.9
64.08	390.9
81.08	392.4
100.08	394.2
121.08	395.7
144.08	397.1
180.08	400.2
300.08	403.4
520.08	405.1

Tested By *129-0411* *Date* *7/20/2019* *Checked By* *GEM* *Date* 7/29/2019

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DCN: CT-24E Date: 5/3/12 Revision: 3

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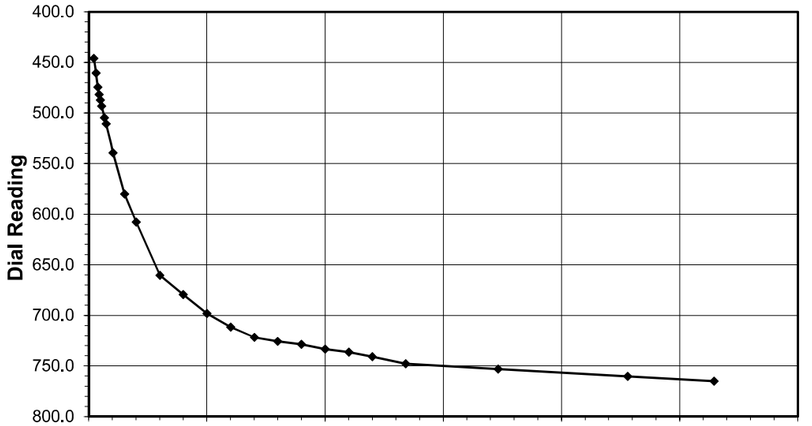
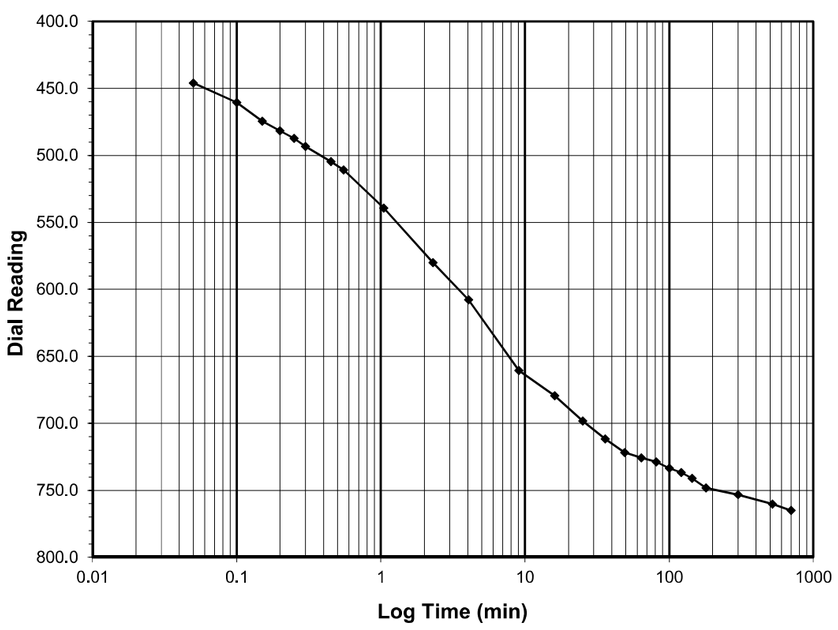
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**765.1**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/20/2019
Start Time		23:08:48

Elapsed Time (min)	Dial Reading (div)
Initial	**405.1**
0.05	446.1
0.10	460.5
0.15	474.5
0.20	481.7
0.25	487.3
0.30	493.3
0.45	504.6
0.55	510.9
1.05	539.4
2.30	580.0
4.05	607.8
9.05	660.5
16.07	679.5
25.07	698.2
36.07	711.6
49.07	721.8
64.07	725.8
81.07	728.7
100.07	733.4
121.07	736.6
144.07	741.1
180.07	748.0
300.07	753.1
520.07	760.4
700.07	765.1

Tested By *129-0411* *Date* *7/20/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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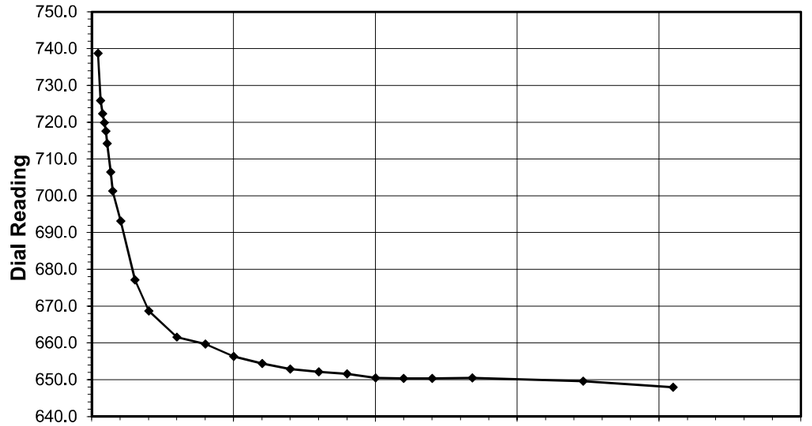
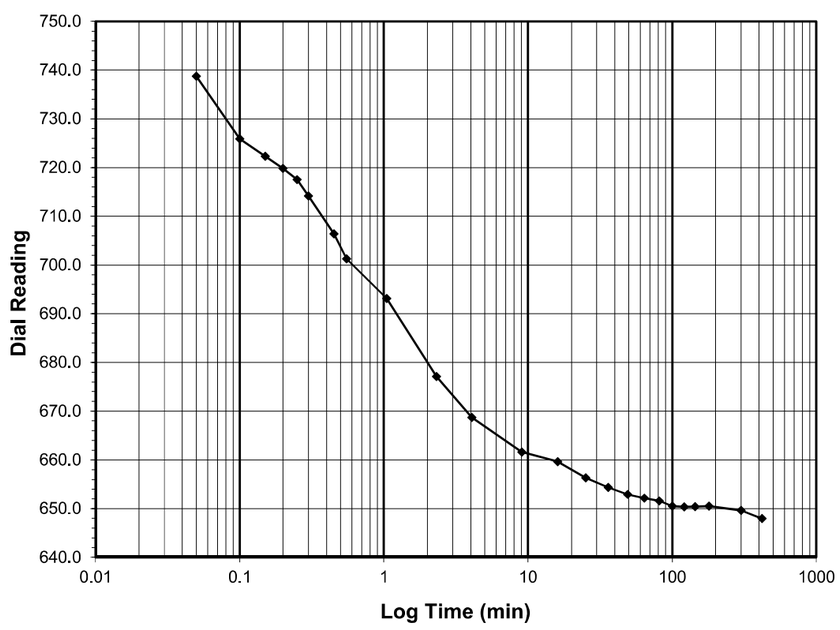
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**647.9**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/21/2019
Start Time		11:08:57

Elapsed Time (min)	Dial Reading (div)
Initial	**765.1**
0.05	738.7
0.10	725.9
0.15	722.3
0.20	719.9
0.25	717.5
0.30	714.1
0.45	706.4
0.55	701.3
1.05	693.1
2.32	677.1
4.07	668.7
9.07	661.6
16.07	659.6
25.07	656.3
36.07	654.4
49.07	652.9
64.07	652.2
81.07	651.6
100.07	650.5
121.07	650.4
144.08	650.4
180.08	650.5
300.08	649.6
420.08	647.9

Tested By *129-0411* *Date* *7/21/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-012 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 6

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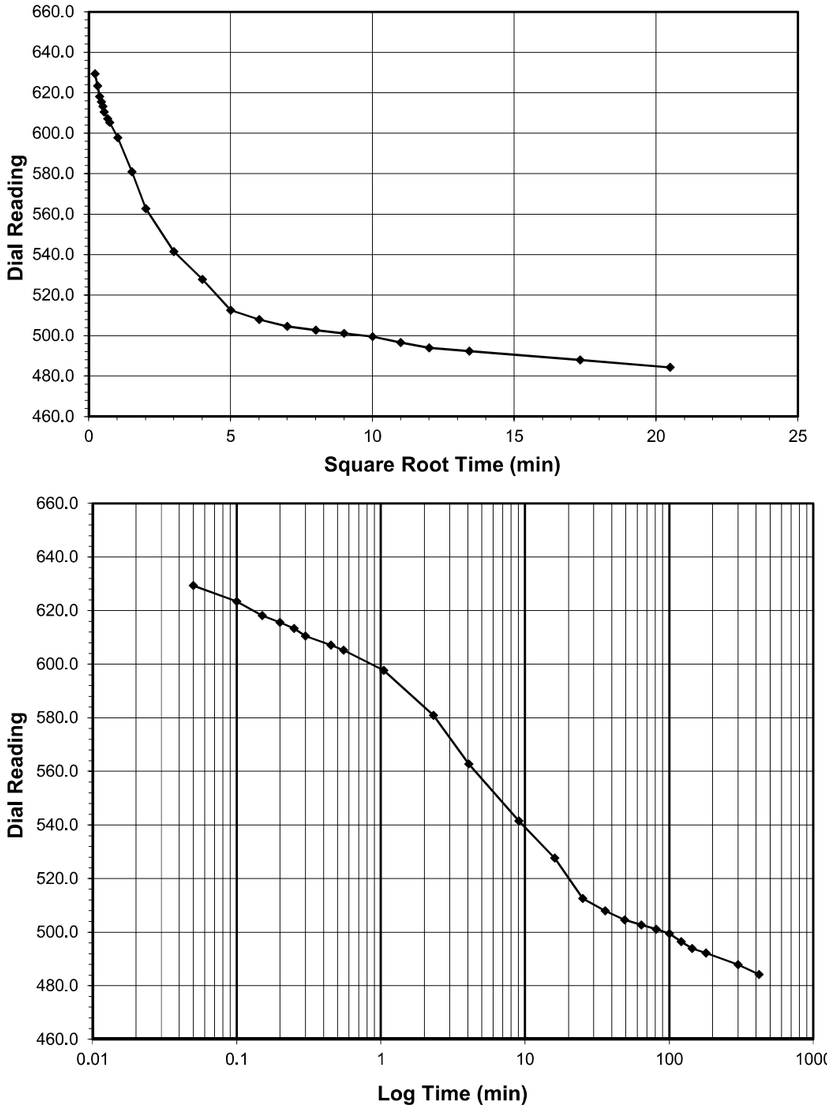
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**484.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/21/2019
Start Time		18:09:02

Elapsed Time (min)	Dial Reading (div)
Initial	**647.9**
0.05	629.3
0.10	623.4
0.15	618.1
0.20	615.6
0.25	613.3
0.30	610.6
0.45	607.1
0.55	605.3
1.05	597.7
2.32	580.9
4.07	562.8
9.07	541.5
16.07	527.7
25.07	512.6
36.07	507.9
49.07	504.6
64.07	502.7
81.07	501.1
100.07	499.5
121.07	496.5
144.07	493.9
180.07	492.2
300.07	487.9
420.00	484.2

Tested By *129-0411* *Date* *7/21/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-012 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 7

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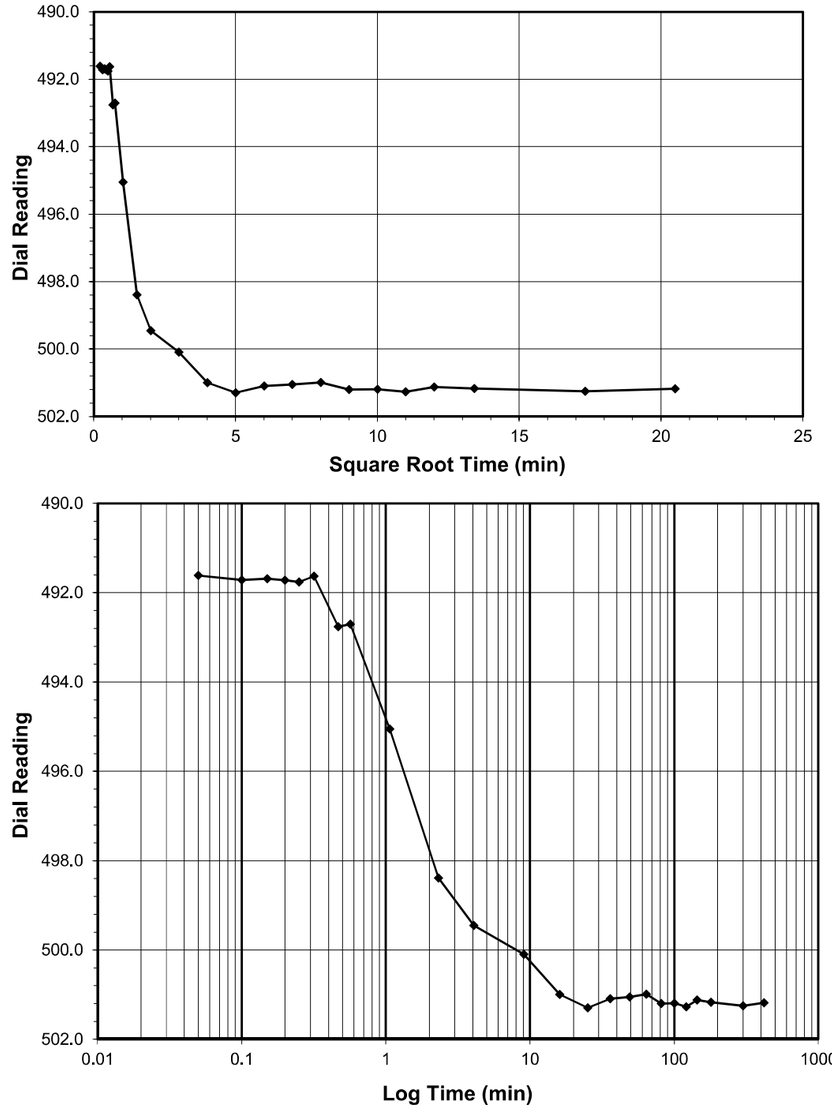
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**501.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/22/2019
Start Time		1:09:02

Elapsed Time (min)	Dial Reading (div)
Initial	**484.2**
0.05	491.6
0.10	491.7
0.15	491.7
0.20	491.7
0.25	491.8
0.32	491.6
0.47	492.8
0.57	492.7
1.07	495.0
2.32	498.4
4.07	499.5
9.07	500.1
16.07	501.0
25.07	501.3
36.07	501.1
49.07	501.1
64.07	501.0
81.07	501.2
100.07	501.2
121.07	501.3
144.07	501.1
180.07	501.2
300.07	501.3
420.07	501.2

Tested By *129-0411* *Date* *7/22/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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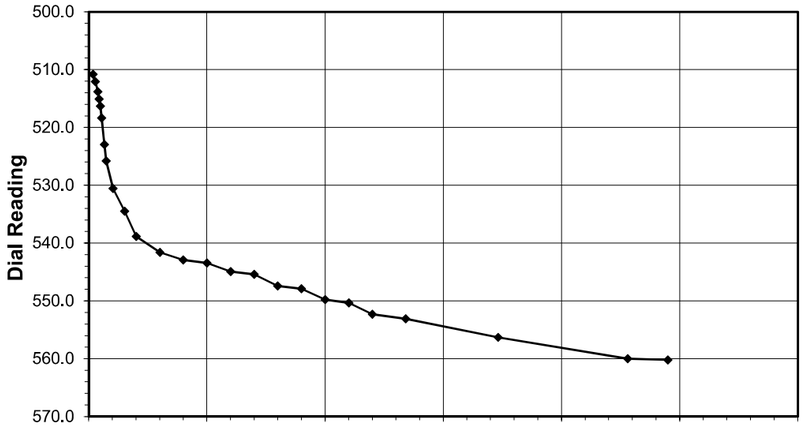
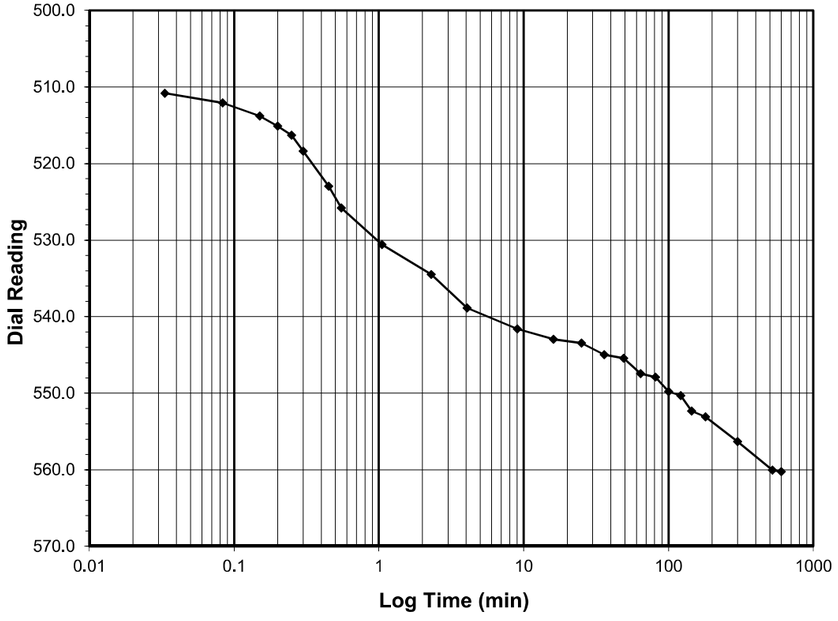
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**560.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/22/2019
Start Time		8:09:06

Elapsed Time (min)	Dial Reading (div)
Initial	**501.2**
0.03	510.8
0.08	512.1
0.15	513.8
0.20	515.1
0.25	516.3
0.30	518.4
0.45	523.0
0.55	525.8
1.05	530.6
2.30	534.5
4.05	538.9
9.05	541.6
16.05	542.9
25.05	543.4
36.05	544.9
49.05	545.4
64.05	547.4
81.05	547.9
100.05	549.8
121.05	550.3
144.05	552.3
180.05	553.1
300.07	556.3
520.07	560.0
600.07	560.2

Tested By *129-0411* *Date* *7/22/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-012 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 9

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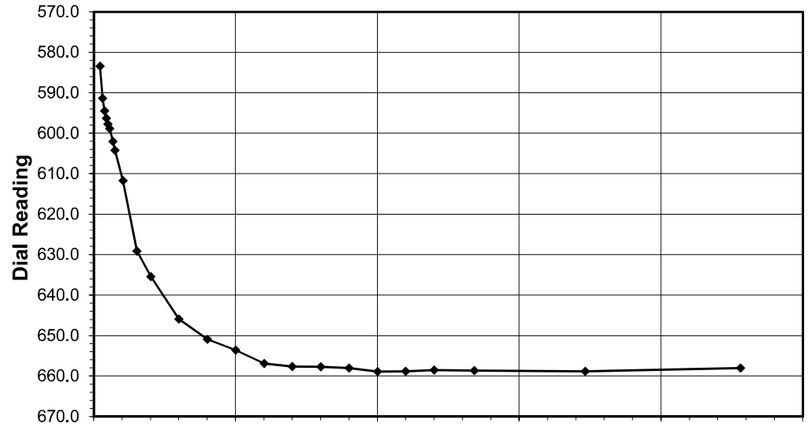
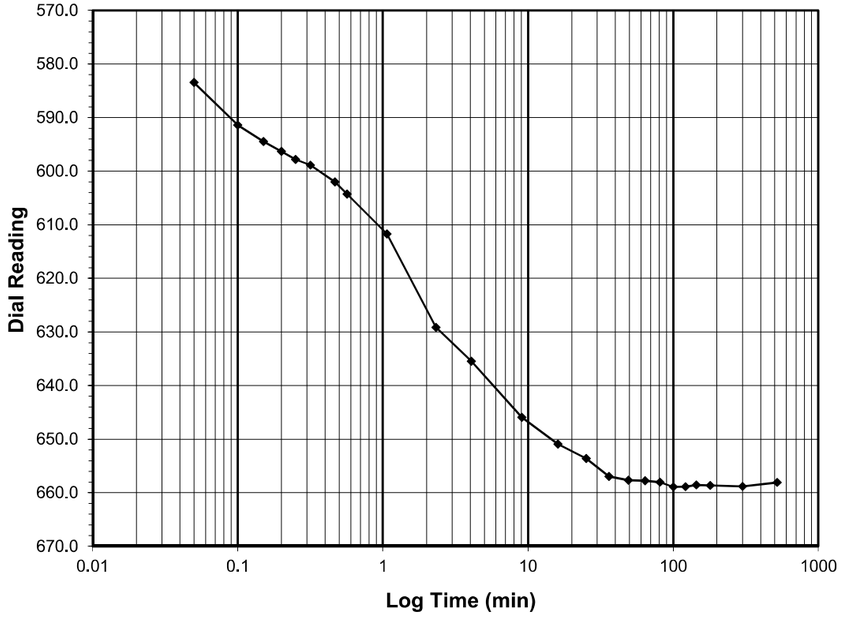
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**658.1**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/22/2019
Start Time		18:09:11

Elapsed Time (min)	Dial Reading (div)
Initial	**560.2**
0.05	583.5
0.10	591.4
0.15	594.5
0.20	596.3
0.25	597.8
0.32	598.9
0.47	602.0
0.57	604.3
1.07	611.7
2.32	629.2
4.07	635.4
9.07	645.9
16.07	650.9
25.07	653.6
36.07	656.9
49.07	657.7
64.08	657.8
81.08	658.0
100.08	658.9
121.08	658.9
144.08	658.5
180.08	658.6
300.08	658.8
520.08	658.1

Tested By *129-0411* *Date* *7/22/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-012 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 10

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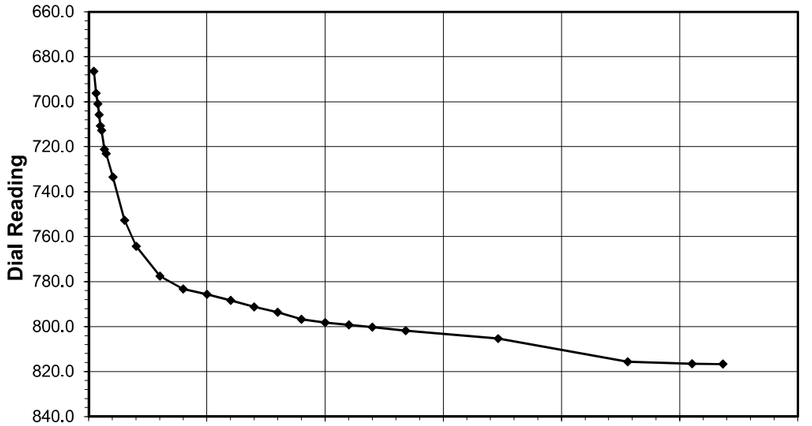
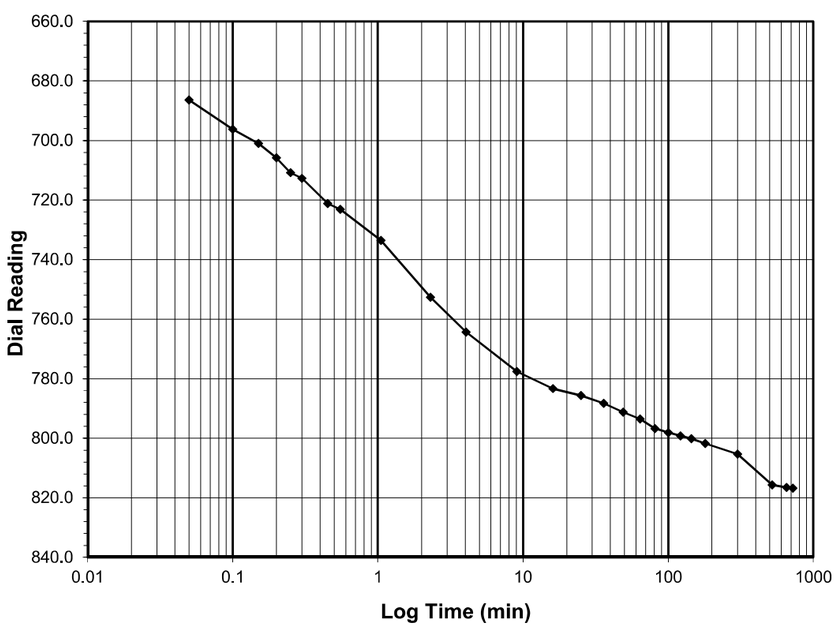
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**816.7**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/23/2019
Start Time		4:09:12

Elapsed Time (min)	Dial Reading (div)
Initial	**658.1**
0.05	686.4
0.10	696.2
0.15	700.9
0.20	705.8
0.25	710.8
0.30	712.8
0.45	721.1
0.55	723.1
1.05	733.6
2.30	752.7
4.05	764.4
9.05	777.5
16.05	783.3
25.05	785.7
36.05	788.3
49.05	791.2
64.05	793.6
81.07	796.7
100.07	798.2
121.07	799.2
144.07	800.2
180.07	801.8
300.07	805.3
520.07	815.7
651.70	816.5
720.05	816.7

Tested By *129-0411* *Date* *7/23/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-209 - KLEINFELDER - R-2561CA\[2019-209-001-012 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 11

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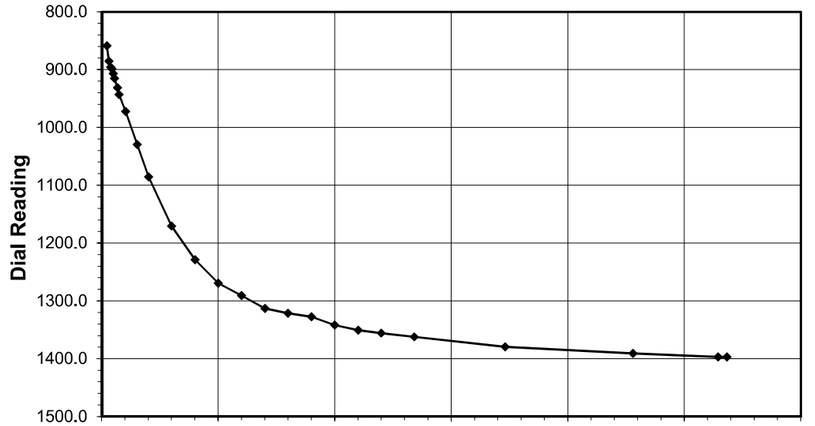
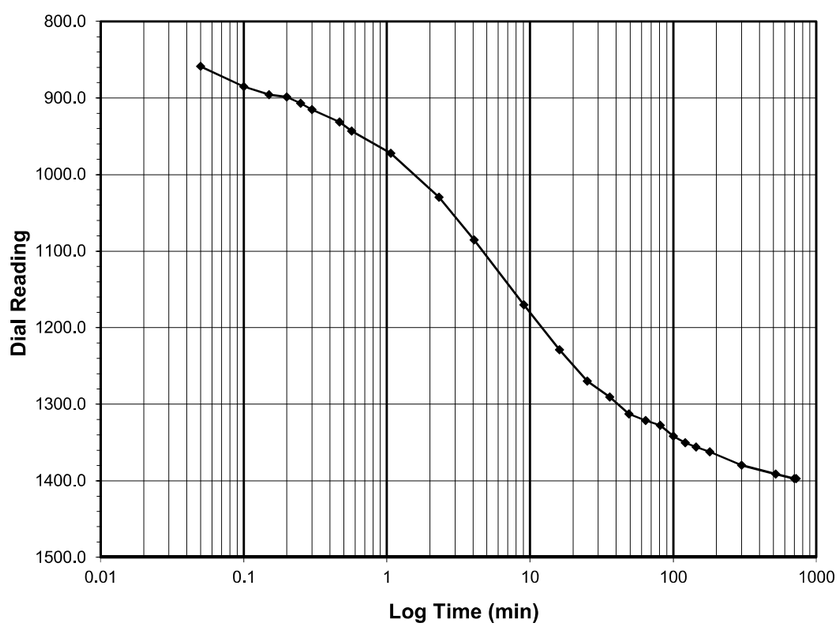
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-8.0**
Final Reading	**(div)**	**1397.1**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/23/2019
Start Time		16:09:15

Elapsed Time (min)	Dial Reading (div)
Initial	**816.7**
0.05	858.7
0.10	885.3
0.15	895.9
0.20	898.6
0.25	906.9
0.30	915.2
0.47	931.3
0.57	943.1
1.07	972.1
2.32	1029.7
4.07	1085.5
9.07	1170.4
16.07	1228.8
25.07	1269.6
36.07	1290.6
49.07	1312.8
64.07	1321.3
81.07	1327.5
100.07	1341.7
121.07	1350.3
144.07	1355.9
180.08	1362.1
300.08	1379.6
520.08	1391.2
700.08	1396.9
720.20	1397.1

Tested By *129-0411* *Date* *7/23/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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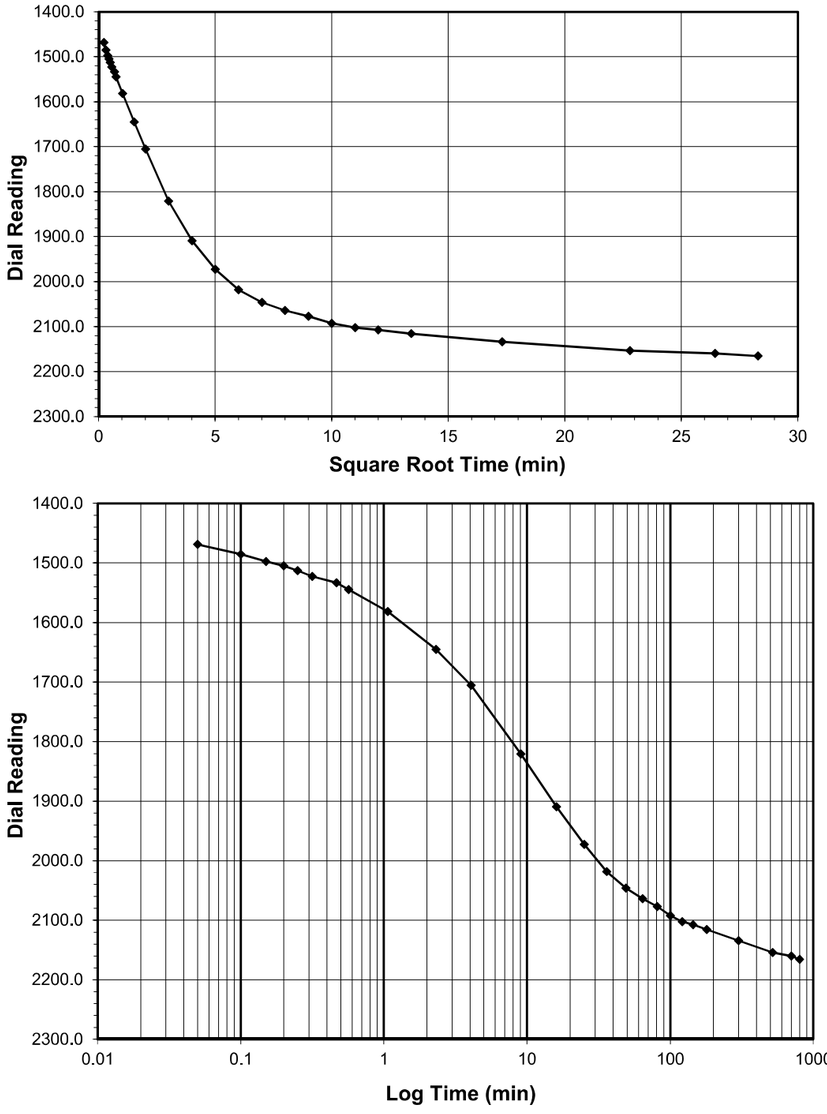
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**8.0-16.0**
Final Reading	**(div)**	**2165.6**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/24/2019
Start Time		4:09:27

Elapsed Time (min)	Dial Reading (div)
Initial	**1397.1**
0.05	1468.7
0.10	1485.4
0.15	1497.7
0.20	1504.9
0.25	1512.9
0.32	1522.8
0.47	1533.4
0.57	1544.6
1.07	1581.6
2.32	1644.8
4.07	1705.7
9.07	1820.7
16.07	1909.3
25.07	1972.6
36.07	2018.4
49.07	2046.1
64.07	2063.8
81.07	2076.9
100.07	2092.4
121.07	2102.3
144.07	2107.4
180.07	2115.6
300.07	2134.2
520.08	2154.0
700.08	2160.1
800.23	2165.6

Tested By *129-0411* *Date* *7/24/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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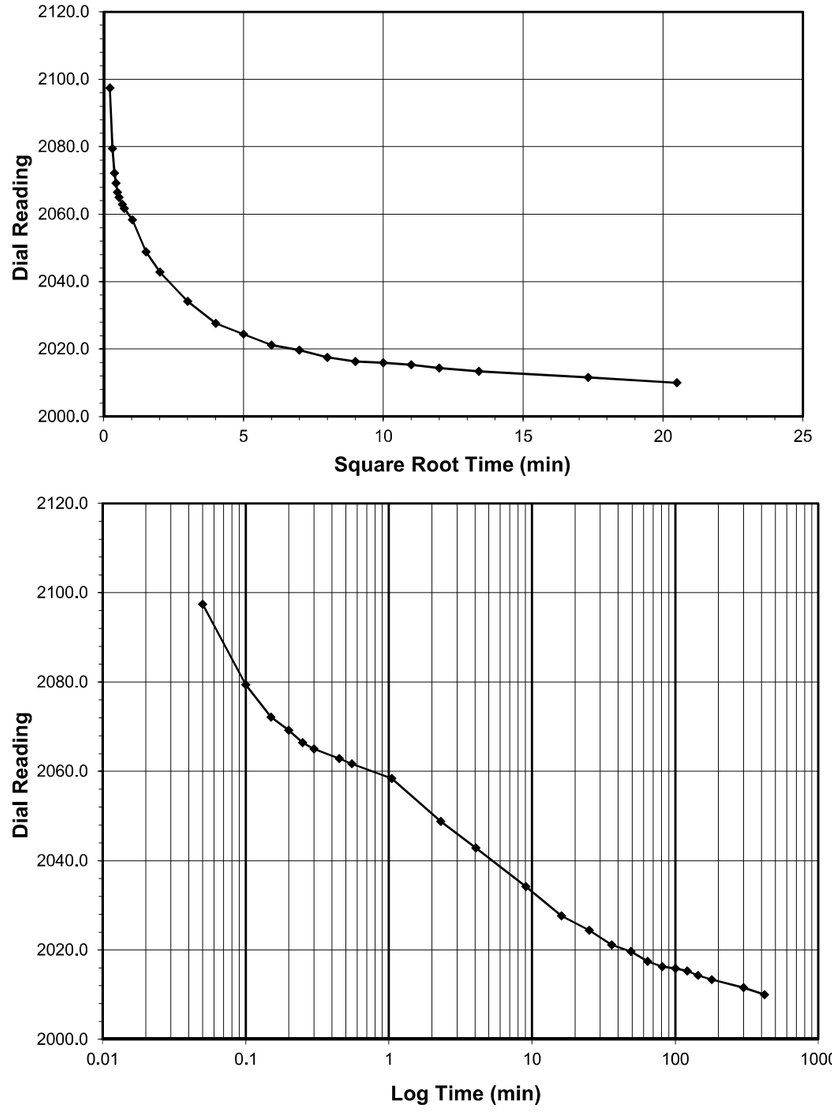
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**16.0-4.0**
Final Reading	**(div)**	**2010.0**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/24/2019
Start Time		17:29:41

Elapsed Time (min)	Dial Reading (div)
Initial	**2165.6**
0.05	2097.4
0.10	2079.4
0.15	2072.2
0.20	2069.2
0.25	2066.5
0.30	2065.0
0.45	2062.9
0.55	2061.7
1.05	2058.4
2.30	2048.8
4.05	2042.9
9.05	2034.2
16.05	2027.7
25.05	2024.4
36.07	2021.1
49.07	2019.7
64.07	2017.5
81.07	2016.3
100.07	2015.9
121.07	2015.3
144.07	2014.3
180.07	2013.4
300.07	2011.6
420.12	2010.0

Tested By *129-0411* *Date* *7/24/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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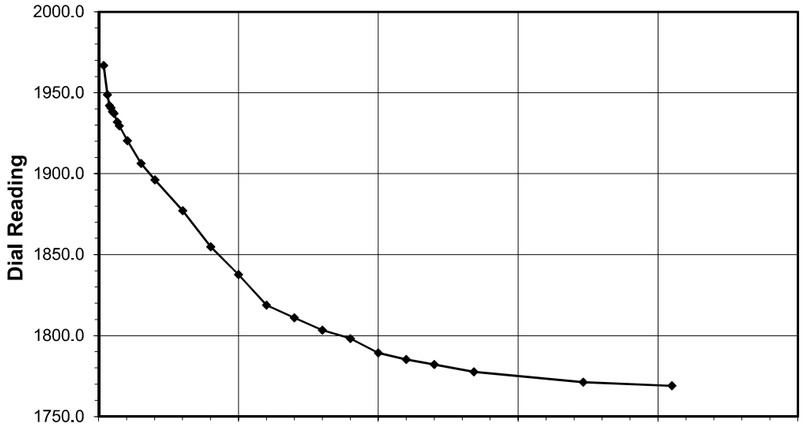
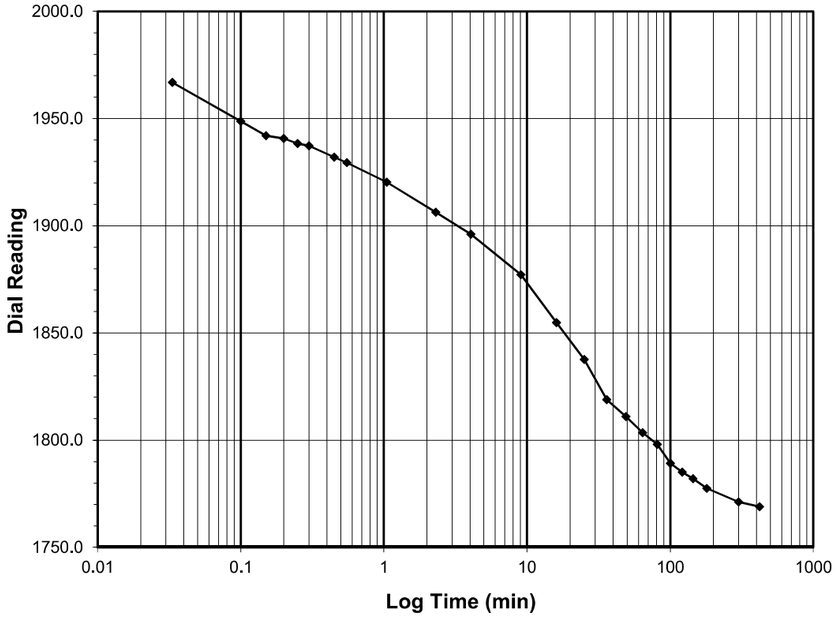
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**1769.0**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/25/2019
Start Time		0:29:48

Elapsed Time (min)	Dial Reading (div)
Initial	**2010.0**
0.03	1966.8
0.10	1948.7
0.15	1942.0
0.20	1940.7
0.25	1938.4
0.30	1937.3
0.45	1932.0
0.55	1929.5
1.05	1920.3
2.30	1906.3
4.05	1896.1
9.05	1877.2
16.05	1854.8
25.05	1837.7
36.05	1818.8
49.05	1811.0
64.05	1803.4
81.05	1798.0
100.05	1789.3
121.05	1785.1
144.05	1782.1
180.05	1777.5
300.07	1771.1
420.05	1769.0

Tested By *129-0411* *Date* *7/25/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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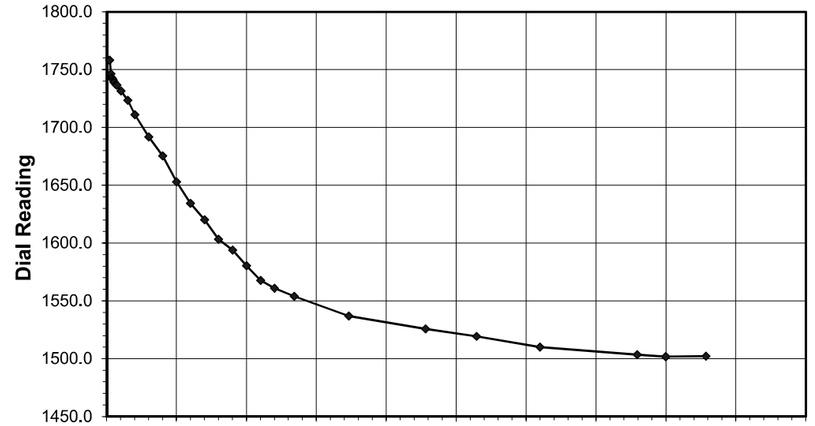
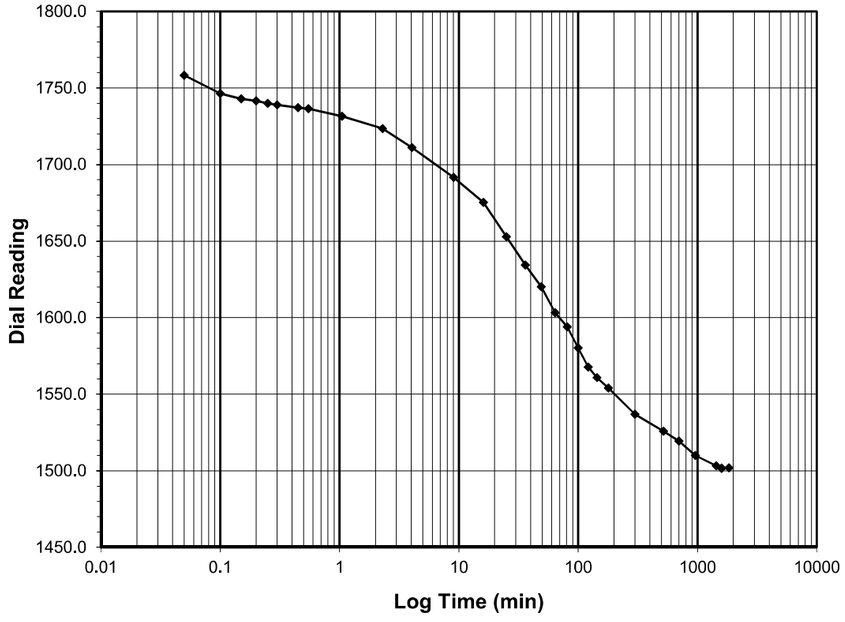
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	S4_EB2-A	Station:	34+99
Client Project	R-2561CA	Depth (ft)	19.7-21.7	Offset:	12' LT
Project No.	R-2019-209-001	Sample No.	ST-4		
Lab ID	R-2019-209-001-012	Visual Description	GRAY LEAN CLAY		

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**1502.1**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		7/25/2019
Start Time		7:29:52

Elapsed Time (min)	Dial Reading (div)
Initial	**1769.0**
0.05	1758.2
0.10	1746.3
0.15	1742.9
0.20	1741.6
0.25	1740.0
0.30	1739.0
0.45	1737.1
0.55	1736.5
1.05	1731.6
2.30	1723.4
4.05	1711.1
9.05	1691.6
16.05	1675.3
25.05	1652.8
36.07	1634.4
49.07	1620.2
64.07	1603.2
81.07	1593.9
100.07	1580.3
121.07	1567.8
144.07	1561.0
180.07	1554.0
300.07	1536.9
520.07	1525.8
700.07	1519.4
960.07	1510.0
1440.07	1503.3
1598.22	1501.7
1598.23	1501.7
1838.23	1502.1

Tested By *129-0411* *Date* *7/25/2019* *Checked By* *GEM* *Date* 7/29/2019

DCN: CT-24E Date: 5/3/12 Revision: 3

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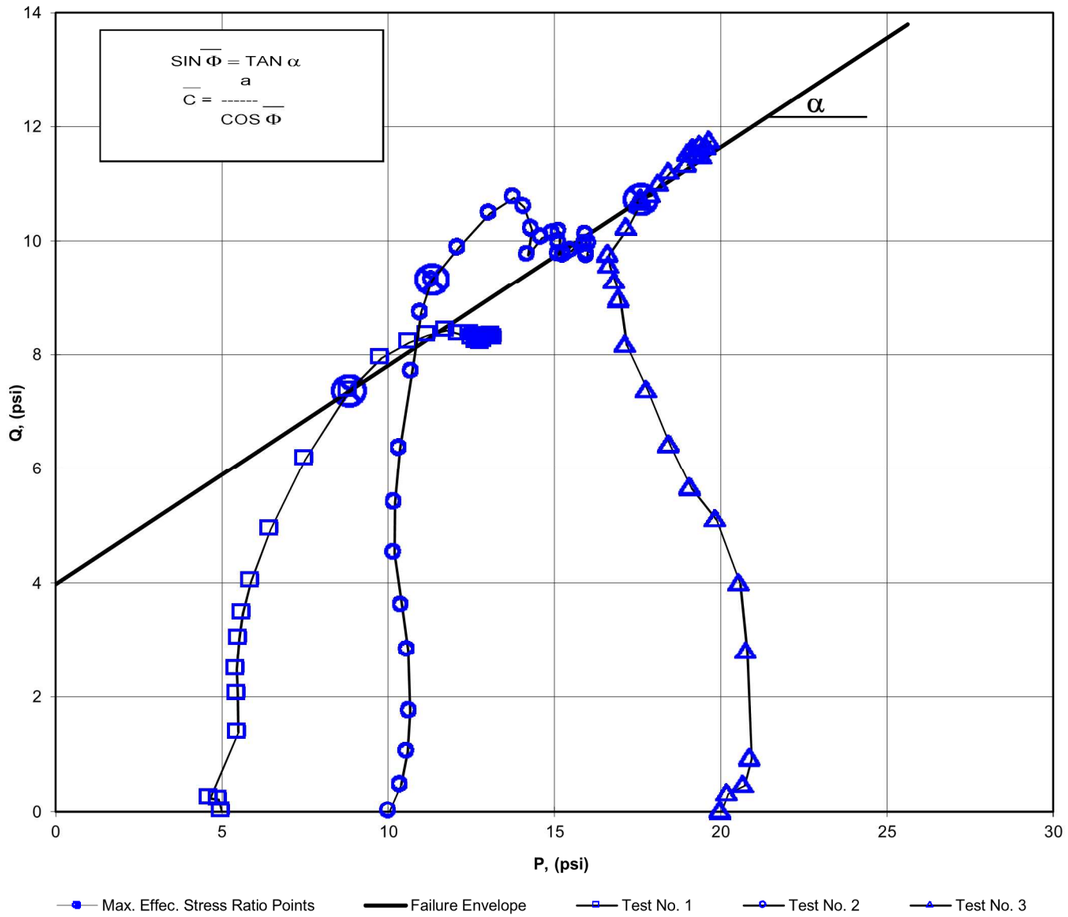
CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S4_EB2-A
Client Reference:	R-2561CA	Depth (ft):	19.7-21.7
Project No.:	R-2019-209-001	Sample No.:	ST-4
Lab ID:	R-2019-209-001-012	Station:	34+99
		Offset:	12' LT

Consolidated Undrained Triaxial Test with Pore Pressure



a =	**3.98**	$\overline{C}$ =	**4.31**
α =	**21.0**	$\overline{\Phi}$ =	**22.54**

Tested By: 129-07-0411 Date: 8/7/19 Approved By: MPS Date: 8/13/19

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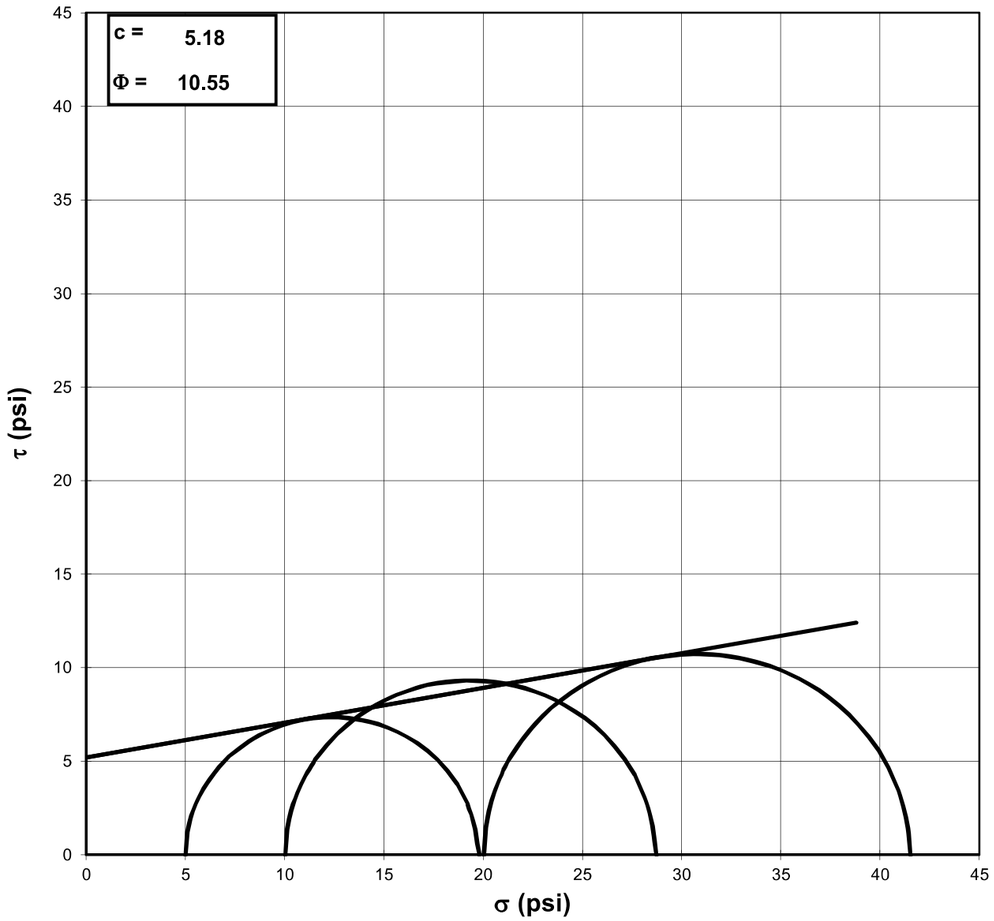
MOHR TOTAL STRENGTH ENVELOPE

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S4_EB2-A
Client Reference:	R-2561CA	Depth (ft):	19.7-21.7
Project No.:	R-2019-209-001	Sample No.:	ST-4
Lab ID:	R-2019-209-001-012	Station:	34+99
Visual Description:	Gray Clay (UNDISTURBED)	Offset:	12' LT



Failure Based on Maximum Effective Principal Stress Ratio

NOTE: GRAPH NOT TO SCALE

Tested By: 129-07-0411 *Date:* 8/7/19 *Approved By:* MPS *Date:* 8/13/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S4_EB2-A
Client Reference:	R-2561CA	Depth (ft):	19.7-21.7
Project No.:	R-2019-209-001	Sample No.:	ST-4
Lab ID:	R-2019-209-001-012	Station:	34+99
		Offset:	12' LT
Visual Description:	Gray Clay (UNDISTURBED)		

Stage No.	3
Test No.	1

PRESSURES (psi)

Cell Pressure (psi)	55.0
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	5.0
Pore Pressure Response (%)	100

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	8.83
Q	=	7.36

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	6.252	Diameter 1:	2.871
Length 2:	6.237	Diameter 2:	2.857
Length 3:	6.277	Diameter 3:	2.843
Length 4:	6.253	Diameter 4:	2.835
Avg. Length:	6.255	*Avg. Diam.:*	2.852

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	15.4
Final Change (ml)	8.6
Initial Dial Reading (mil)	092
Dial Reading After Saturation (mil)	092
Dial Reading After Consolidation (mil)	119

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
8.1	0.000	50.0
10.7	0.001	50.3
11.0	0.003	50.6
25.5	0.008	50.9
34.1	0.015	51.6
39.6	0.021	52.0
46.6	0.030	52.5
52.3	0.039	52.9
59.6	0.052	53.2
71.3	0.073	53.5
87.6	0.104	53.7
103.5	0.141	53.5
111.5	0.179	53.1
115.9	0.222	52.6
118.1	0.253	52.2
120.0	0.297	51.7
120.2	0.355	51.2
121.4	0.418	50.9
121.4	0.464	50.8
123.1	0.526	50.7
122.7	0.573	50.6
124.0	0.619	50.6
124.7	0.665	50.5
125.3	0.696	50.5
125.7	0.727	50.4
126.8	0.759	50.4
128.1	0.790	50.3
129.5	0.836	50.3
130.9	0.883	50.2
131.4	0.929	50.1
132.1	0.976	50.0

Tested By: 129-07-0411 Date: 8/7/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S4_EB2-A
Client Reference:	R-2561CA	Depth (ft):	19.7-21.7
Project No.:	R-2019-209-001	Sample No.:	ST-4
Lab ID:	R-2019-209-001-012	Station:	34+99
		Offset:	12' LT
Visual Description:	Gray Clay (UNDISTURBED)		

Effective Confining Pressure (psi)	5.0	*Stage No.*	3
		Test No	1

INITIAL DIMENSIONS

Initial Sample Length (in)	6.25
Initial Sample Diameter (in)	2.85
Initial Sample Area (in^2)	6.39
Initial Sample Volume (in^3)	39.94

VOLUME CHANGE

Volume After Consolidation (in^3)	39.42
Length After Consolidation (in)	6.23
Area After Consolidation (in^2)	6.330

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	0.40	0.29	5.12	4.7	1.085	0.73	4.92	0.20
0.06	0.46	0.59	4.88	4.4	1.105	1.29	4.65	0.23
0.13	2.74	0.89	6.86	4.1	1.666	0.32	5.49	1.37
0.24	4.09	1.58	7.52	3.4	2.192	0.39	5.47	2.04
0.33	4.95	2.03	7.92	3.0	2.664	0.41	5.45	2.48
0.48	6.05	2.52	8.55	2.5	3.430	0.42	5.52	3.03
0.63	6.93	2.85	9.09	2.2	4.213	0.41	5.62	3.47
0.83	8.06	3.15	9.92	1.9	5.346	0.39	5.89	4.03
1.17	9.87	3.48	11.39	1.5	7.469	0.35	6.46	4.93
1.67	12.34	3.67	13.68	1.3	10.241	0.30	7.51	6.17
2.27	14.72	3.54	16.20	1.5	11.006	0.24	8.83	7.36
2.87	15.87	3.14	17.74	1.9	9.496	0.20	9.80	7.94
3.57	16.42	2.57	18.86	2.4	7.727	0.16	10.65	8.21
4.07	16.67	2.16	19.52	2.9	6.841	0.13	11.19	8.33
4.77	16.83	1.67	20.17	3.3	6.034	0.10	11.76	8.41
5.70	16.70	1.22	20.48	3.8	5.412	0.07	12.13	8.35
6.71	16.70	0.89	20.82	4.1	5.050	0.05	12.47	8.35
7.45	16.56	0.75	20.82	4.3	4.888	0.05	12.54	8.28
8.45	16.63	0.64	21.00	4.4	4.811	0.04	12.68	8.32
9.20	16.44	0.57	20.88	4.4	4.699	0.03	12.66	8.22
9.94	16.48	0.56	20.93	4.4	4.706	0.03	12.69	8.24
10.68	16.45	0.50	20.95	4.5	4.648	0.03	12.73	8.22
11.18	16.45	0.46	21.00	4.6	4.614	0.03	12.77	8.22
11.68	16.40	0.42	20.99	4.6	4.571	0.03	12.79	8.20
12.18	16.47	0.37	21.11	4.6	4.549	0.02	12.87	8.23
12.68	16.55	0.33	21.23	4.7	4.538	0.02	12.96	8.28
13.43	16.61	0.26	21.36	4.8	4.493	0.02	13.06	8.30
14.18	16.64	0.21	21.44	4.8	4.468	0.01	13.12	8.32
14.92	16.57	0.12	21.46	4.9	4.386	0.01	13.18	8.28
15.67	16.52	0.04	21.48	5.0	4.326	0.00	13.23	8.26

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S4_EB2-A
Client Reference:	R-2561CA	Depth (ft):	19.7-21.7
Project No.:	R-2019-209-001	Sample No.:	ST-4
Lab ID:	R-2019-209-001-012	Station:	34+99
		Offset:	12' LT
Visual Description:	Gray Clay (UNDISTURBED)		

Stage No.	2
Test No.	2

PRESSURES (psi)

Cell Pressure (psi)	60.0
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	10.0
Pore Pressure Response (%)	100

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	11.32
Q	=	9.31

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	5.936	Diameter 1:	2.866
Length 2:	5.995	Diameter 2:	2.853
Length 3:	5.964	Diameter 3:	2.843
Length 4:	6.001	Diameter 4:	2.820
Avg. Length:	5.974	*Avg. Diam.:*	2.846

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	7.9
Final Change (ml)	16.1
Initial Dial Reading (mil)	189
Dial Reading After Saturation (mil)	211
Dial Reading After Consolidation (mil)	266

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
10.2	0.000	50.0
16.0	0.002	50.1
23.1	0.006	50.5
31.9	0.009	51.1
45.4	0.015	52.3
55.0	0.021	53.2
66.6	0.029	54.4
77.7	0.038	55.2
89.8	0.049	56.0
106.9	0.071	57.0
120.5	0.101	57.8
128.5	0.137	58.0
136.5	0.173	57.8
145.1	0.215	57.5
149.4	0.245	57.0
148.3	0.287	56.5
144.6	0.344	55.9
140.0	0.404	55.6
145.2	0.449	55.5
147.8	0.509	55.2
149.2	0.554	55.0
147.9	0.599	54.9
146.2	0.644	54.7
146.9	0.674	54.5
148.6	0.704	54.3
153.4	0.734	54.2
151.9	0.764	54.1
153.2	0.809	53.9
152.1	0.854	53.8
152.1	0.884	53.8
154.5	0.914	53.7

Tested By: 129-07-0411 Date: 8/7/19 Input Checked By: GEM Date: 8/13/19

DCN: CT-S28 DATE: 4/12/13 REVISION: 3

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S4_EB2-A
Client Reference:	R-2561CA	Depth (ft):	19.7-21.7
Project No.:	R-2019-209-001	Sample No.:	ST-4
Lab ID:	R-2019-209-001-012	Station:	34+99
		Offset:	12' LT
Visual Description:	Gray Clay (UNDISTURBED)		

Effective Confining Pressure (psi)	10.0	*Stage No.*	2
		Test No	2

INITIAL DIMENSIONS

Initial Sample Length (in)	5.97
Initial Sample Diameter (in)	2.85
Initial Sample Area (in^2)	6.36
Initial Sample Volume (in^3)	37.99

VOLUME CHANGE

Volume After Consolidation (in^3)	36.59
Length After Consolidation (in)	5.90
Area After Consolidation (in^2)	6.205

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.03	0.93	0.12	10.85	9.9	1.094	0.13	10.39	0.46
0.11	2.07	0.48	11.63	9.6	1.217	0.23	10.59	1.04
0.15	3.49	1.13	12.41	8.9	1.392	0.32	10.66	1.75
0.25	5.66	2.26	13.44	7.8	1.727	0.40	10.61	2.83
0.35	7.19	3.22	14.01	6.8	2.054	0.45	10.42	3.59
0.50	9.04	4.36	14.71	5.7	2.592	0.48	10.20	4.52
0.65	10.81	5.23	15.62	4.8	3.246	0.48	10.21	5.40
0.84	12.72	6.04	16.72	4.0	4.181	0.48	10.36	6.36
1.20	15.40	7.02	18.42	3.0	6.091	0.46	10.72	7.70
1.71	17.47	7.78	19.73	2.3	8.724	0.45	10.99	8.73
2.32	18.63	8.03	20.64	2.0	10.268	0.43	11.32	9.31
2.93	19.76	7.80	22.00	2.2	9.825	0.39	12.12	9.88
3.64	20.96	7.46	23.54	2.6	9.117	0.36	13.06	10.48
4.16	21.51	7.01	24.54	3.0	8.095	0.33	13.78	10.75
4.86	21.18	6.53	24.69	3.5	7.038	0.31	14.10	10.59
5.83	20.40	5.90	24.54	4.1	5.927	0.29	14.34	10.20
6.86	19.49	5.57	23.96	4.5	5.364	0.29	14.21	9.75
7.61	20.10	5.45	24.69	4.6	5.383	0.27	14.64	10.05
8.63	20.26	5.21	25.09	4.8	5.192	0.26	14.96	10.13
9.39	20.30	5.03	25.31	5.0	5.049	0.25	15.16	10.15
10.15	19.94	4.85	25.13	5.2	4.844	0.24	15.16	9.97
10.92	19.53	4.65	24.92	5.4	4.624	0.24	15.15	9.76
11.43	19.51	4.49	25.06	5.5	4.515	0.23	15.30	9.75
11.93	19.64	4.35	25.34	5.7	4.450	0.22	15.52	9.82
12.44	20.20	4.18	26.07	5.9	4.446	0.21	15.96	10.10
12.95	19.89	4.05	25.87	6.0	4.321	0.20	15.93	9.94
13.73	19.89	3.91	26.01	6.1	4.246	0.20	16.07	9.94
14.48	19.56	3.83	25.77	6.2	4.147	0.20	15.99	9.78
14.98	19.44	3.77	25.71	6.3	4.101	0.19	15.99	9.72
15.50	19.65	3.74	25.95	6.3	4.119	0.19	16.12	9.82

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S4_EB2-A
Client Reference:	R-2561CA	Depth (ft):	19.7-21.7
Project No.:	R-2019-209-001	Sample No.:	ST-4
Lab ID:	R-2019-209-001-012	Station:	34+99
		Offset:	12' LT
Visual Description:	Gray Clay (UNDISTURBED)		

Stage No.	1
Test No.	3

PRESSURES (psi)

Cell Pressure (psi)	70.0
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	20.0
Pore Pressure Response (%)	100

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	17.62
Q	=	10.73

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	6.253	Diameter 1:	2.812
Length 2:	6.291	Diameter 2:	2.843
Length 3:	6.243	Diameter 3:	2.858
Length 4:	6.251	Diameter 4:	2.866
Avg. Length:	6.260	*Avg. Diam.:*	2.845

VOLUME CHANGE

Initial Burette Reading (ml)	96.0
Final Burette Reading (ml)	6.9
Final Change (ml)	89.1
Initial Dial Reading (mil)	225
Dial Reading After Saturation (mil)	320
Dial Reading After Consolidation (mil)	522

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
10.6	0.000	50.0
13.9	0.002	50.1
15.5	0.003	49.7
20.6	0.009	50.0
41.0	0.016	52.0
54.2	0.021	53.4
66.5	0.030	55.2
72.7	0.040	56.5
81.3	0.052	57.9
91.9	0.074	59.6
101.1	0.105	61.0
110.8	0.142	62.0
114.8	0.179	62.4
118.8	0.222	62.9
121.8	0.253	63.1
128.0	0.297	63.0
134.5	0.356	63.1
136.5	0.418	63.1
138.2	0.464	62.9
142.0	0.525	62.8
145.8	0.572	62.7
150.8	0.619	62.5
153.2	0.665	62.4
150.6	0.696	62.3
153.5	0.727	62.3
154.3	0.757	62.2
157.4	0.789	62.3
159.6	0.836	62.0
157.4	0.883	62.0
160.5	0.915	62.0
159.4	0.946	61.9

Tested By: 129-07-0411 Date: 8/7/2019 Input

DCN: CT-S28 DATE: 4/12/13 REVISION: 3

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	S4_EB2-A
Client Reference:	R-2561CA	Depth (ft):	19.7-21.7
Project No.:	R-2019-209-001	Sample No.:	ST-4
Lab ID:	R-2019-209-001-012	Station:	34+99
		Offset:	12' LT
Visual Description:	Gray Clay (UNDISTURBED)		

Effective Confining Pressure (psi)	20.0	*Stage No.*	1
		Test No	3

INITIAL DIMENSIONS

Initial Sample Length (in)	6.26
Initial Sample Diameter (in)	2.84
Initial Sample Area (in^2)	6.36
Initial Sample Volume (in^3)	39.78

VOLUME CHANGE

Volume After Consolidation (in^3)	32.54
Length After Consolidation (in)	5.96
Area After Consolidation (in^2)	5.457

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.03	0.61	0.11	20.54	19.9	1.031	0.18	20.23	0.31
0.05	0.91	-0.24	21.18	20.3	1.045	-0.26	20.73	0.45
0.15	1.83	0.02	21.85	20.0	1.092	0.01	20.93	0.92
0.26	5.57	2.02	23.59	18.0	1.309	0.36	20.80	2.79
0.36	7.97	3.42	24.58	16.6	1.480	0.43	20.60	3.98
0.51	10.20	5.25	24.98	14.8	1.690	0.52	19.88	5.10
0.67	11.32	6.57	24.78	13.5	1.841	0.58	19.12	5.66
0.88	12.84	7.97	24.90	12.1	2.064	0.62	18.48	6.42
1.24	14.73	9.59	25.18	10.4	2.410	0.65	17.81	7.36
1.76	16.30	11.01	25.33	9.0	2.806	0.68	17.18	8.15
2.38	17.93	12.01	25.95	8.0	3.234	0.67	16.99	8.96
3.00	18.53	12.45	26.11	7.6	3.444	0.67	16.85	9.27
3.72	19.10	12.90	26.23	7.1	3.679	0.68	16.68	9.55
4.24	19.52	13.15	26.40	6.9	3.834	0.67	16.65	9.76
4.97	20.45	13.06	27.43	7.0	3.930	0.64	17.21	10.23
5.96	21.35	13.09	28.30	6.9	4.077	0.61	17.62	10.68
7.01	21.46	13.14	28.35	6.9	4.114	0.61	17.62	10.73
7.77	21.58	12.91	28.71	7.1	4.027	0.60	17.92	10.79
8.81	21.96	12.85	29.15	7.2	4.055	0.59	18.17	10.98
9.60	22.40	12.75	29.68	7.3	4.075	0.57	18.48	11.20
10.37	23.03	12.50	30.57	7.5	4.054	0.54	19.05	11.51
11.16	23.22	12.45	30.81	7.6	4.059	0.54	19.20	11.61
11.68	22.66	12.37	30.32	7.7	3.956	0.55	18.99	11.33
12.19	23.00	12.30	30.74	7.7	3.971	0.53	19.24	11.50
12.70	23.00	12.21	30.83	7.8	3.937	0.53	19.33	11.50
13.24	23.35	12.30	31.09	7.7	4.019	0.53	19.41	11.68
14.02	23.48	12.09	31.43	8.0	3.954	0.51	19.69	11.74
14.82	22.92	12.02	30.93	8.0	3.861	0.52	19.47	11.46
15.35	23.25	12.07	31.22	8.0	3.920	0.52	19.59	11.63
15.86	22.95	11.95	31.03	8.1	3.838	0.52	19.56	11.47

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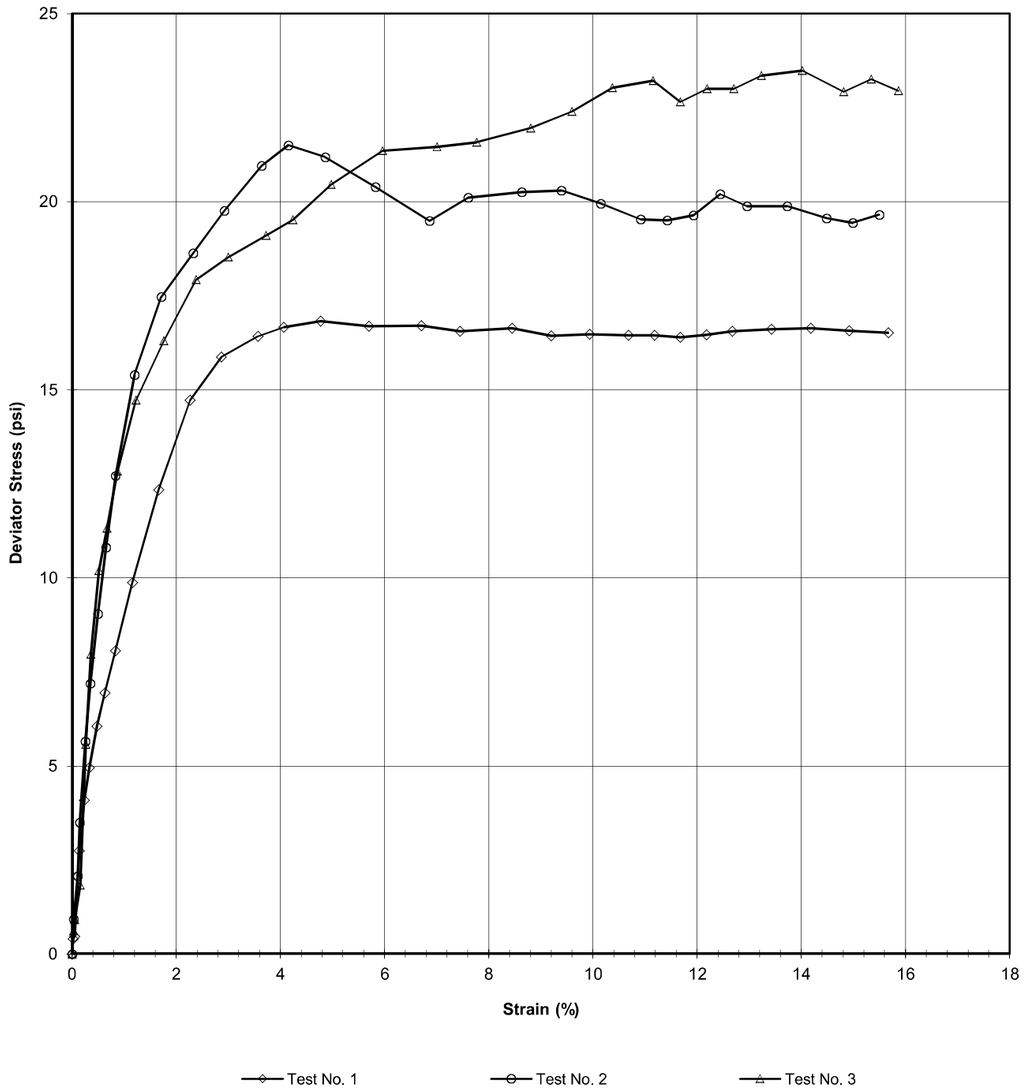
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder	Boring No.:	S4_EB2-A
Client Reference:	R-2561CA	Depth (ft):	19.7-21.7
Project No.:	R-2019-209-001	Sample No.:	ST-4
Lab ID:	R-2019-209-001-012	Station:	34+99
Visual Description:	Gray Clay (UNDISTURBED)	Offset:	12' LT



Tested By: 129-07-0411 Date: 8/7/2019 Approved By: MPS Date: 8/13/19

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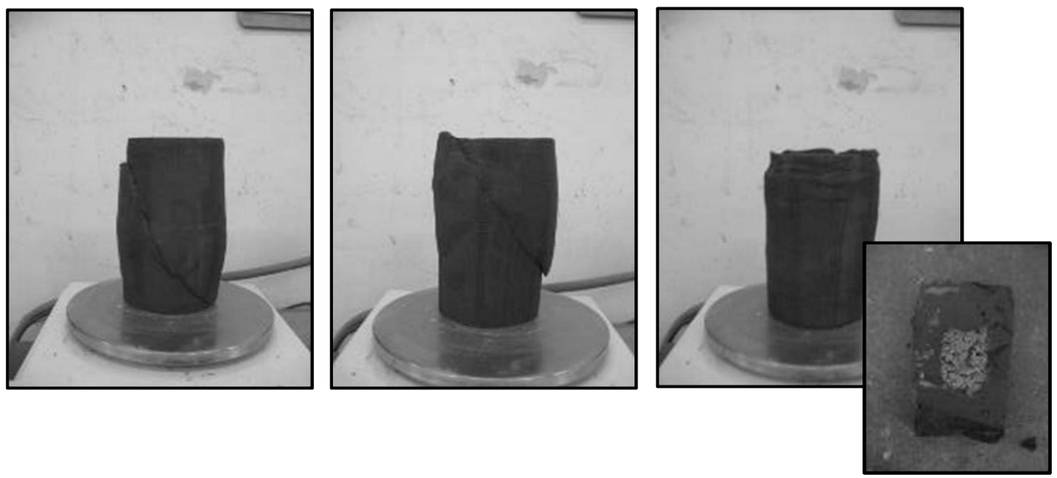
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder		
Client Reference:	R-2561CA		
Project No.:	R-2019-209-001		
Lab ID:	R-2019-209-001-012	Specific Gravity (Measured)	2.68
Visual Description:	Gray Clay (UNDISTURBED)		

SAMPLE CONDITION SUMMARY

Boring No.:	S4_EB2-A	S4_EB2-A	S4_EB2-A
Depth (ft):	19.7-21.7	19.7-21.7	19.7-21.7
Sample No.:	ST-4	ST-4	ST-4
Test No.	T1	T2	T3
Deformation Rate (in/min)	0.0005	0.0005	0.0005
Back Pressure (psi)	50.0	50.0	50.0
Consolidation Time (days)	1	1	1
Moisture Content (%) (INITIAL)	41.5	44.1	46.5
Total Unit Weight (pcf)	112.0	112.5	113.5
Dry Unit Weight (pcf)	79.2	78.1	77.5
Moisture Content (%) (FINAL)	42.5	41.3	32.5
Initial State Void Ratio,e	1.113	1.142	1.158
Void Ratio at Shear, e	1.086	1.063	0.765



Tested By: 129-07-0411 Date: 8/7/19 Input Checked By: GEM

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

MOISTURE CONTENT

	T1	T2	T3
Tare Number	TB-05	SS-7	860
Weight of Tare & Wet Sample (g)	370.62	383.61	396.60
Weight of Tare & Dry Sample (g)	301.70	307.68	313.65
Weight of Tare (g)	135.63	135.41	135.19
Moisture Content (%) (INITIAL)	41.50	44.08	46.48
Tare Number	TB-05	TB-02	TB-01
Weight of Tare & Wet Sample (g)	369.95	422.04	511.81
Weight of Tare & Dry Sample (g)	300.07	338.01	419.6
Weight of Tare (g)	135.64	134.54	135.55
Moisture Content (%) (FINAL)	42.50	41.30	32.46

UNIT WEIGHT

Weight of Tube & Wet Sample (g)	1174.49	1122.28	1185.77
Weight of Tube (g)	0	0	0
Weight of Wet Sample (g)	1174.49	1122.28	1185.77
Length 1 (in)	6.252	5.936	6.253
Length 2 (in)	6.237	5.995	6.291
Length 3 (in)	6.277	5.964	6.243
Length 4 (in)	6.253	6.001	6.251
Diameter 1 (in)	2.871	2.866	2.812
Diameter 2 (in)	2.857	2.853	2.843
Diameter 3 (in)	2.843	2.843	2.858
Diameter 4 (in)	2.835	2.82	2.866
Average Length (in)	6.255	5.974	6.260
Average Area (in)	6.386	6.359	6.356
Sample Volume (cm^3)	654.56	622.55	651.96
Unit Wet Weight (g/cm^3)	1.79	1.80	1.82
Unit Wet Weight (pcf)	112.02	112.54	113.55
Unit Dry Weight (pcf)	79.17	78.11	77.52
Unit Dry Weight (g/cm^3)	1.27	1.25	1.24
Initial Burette Reading	**24**	**24**	**96**
Final Burette Reading	**15.4**	**7.9**	**6.9**
Initial Dial Reading	**092**	**189**	**225**
Dial Reading After Saturation	**092**	**211**	**320**
Dial Reading After Consolidation	**119**	**266**	**522**
Volume Change during Consolidation	8.6	16.1	89.1
Volume Change during Saturation	0.00	6.88	29.68
Volume at Shear (cm^3) *These	645.96	599.57	533.17
Volume of Solids (cm^3) measurements	309.71	290.64	302.05
Volume of Voids (cm^3) are all	336.25	308.93	231.12
Volume of Water (cm^3) at	352.75	321.68	262.79
Void Ratio, e shear	1.086	1.063	0.765

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