REFERENCE: U-4758

PROJECT: 40251

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	19+00 - 28+00	4-9
-L-	114+50 - 122+00	10-15
-L-	134+50 - 136+00	16-17
-L-	137+50 - 141+00	18-20
-L-	144+00 - 148+00	21-23
-L-	184+00 - 191+00	24-27
-L-	195+50 - 202+00	28-31
-L-	220+00 - 225+00	32-35
-L-	234+00 - 237+50	36-38
-L-	242+50 - 244+50	39-40
-Y5-	14+50 - 17+50	41-42
-Y8-	10+50 - 12+50	43-44
-Y12-	13+00 - 15+50	45-46
-Y13-	10+50 - 16+00	47-49
-Y15-	12+00 - 14+50	50-51
-Y17-	10+00 - 15+00	52-55
-Y29-	26+50 - 29+00	56-57

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *GUILFORD*

PROJECT DESCRIPTION *IMPROVE SR 1818 (JOHNSON STREET) /SR 1850 (SANDY RIDGE ROAD) FROM SR 1820 (SKEET CLUB ROAD) TO I-40*

RECOMMENDATIONS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4758	1	57

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

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J. MARLOW

R. NORWOOD

INVESTIGATED BY *S&ME, INC.*

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SUBMITTED BY *S. LANEY*

DATE *OCTOBER 2021*

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NORTH CAROLINA PROFESSIONAL SEAL 030944 ENGINEER MATT MOLER

DocuSigned by:
Matt Moler 6/27/2022
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SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-4758	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:
- [ ] CME-45C
- [ ] CME-55
- [X] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] CME-750
- [ ] _____

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

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

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

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 NOTE

ELEVATION: FEET

NOTES:

• Elevations derived from geopak and the .tin file u4758_ls_tin.tin dated 10/16/18

DATE: 8-15-14

TIP PROJECT: U–4758

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

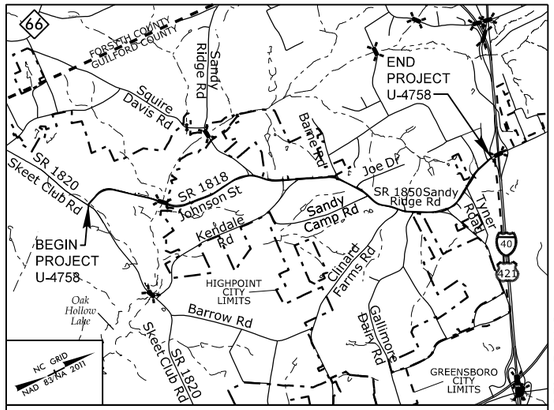
GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U–4758	3	57

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

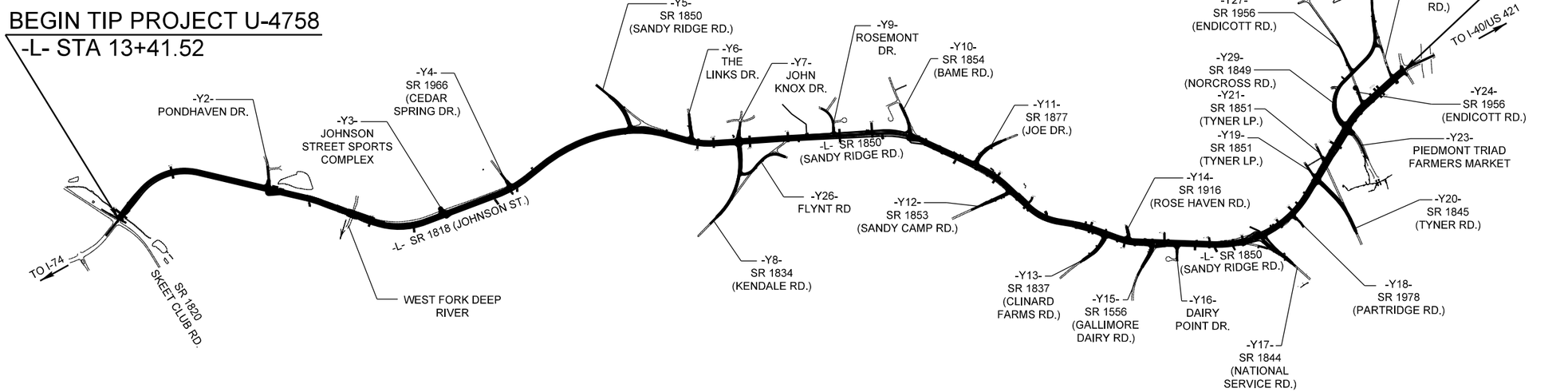
LOCATION: *SR 1818 (JOHNSON STREET) /SR 1850 (SANDY RIDGE ROAD) FROM SR 1820 (SKEET CLUB ROAD) TO I–40*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, WIDENING, RESURFACING, SIGNALS, AND STRUCTURE*



VICINITY MAP

25% PLANS

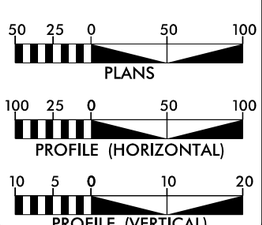


THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF HIGH POINT.

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

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 21,780
ADT 2040 = 36,400
K = 11 %
D = 60%
T = 9%*
V = 50 MPH
*TTST =4% DUAL=5%
FUNC CLASS = URBAN ARTERIAL REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U–4758 = 4.394 MILES
LENGTH STRUCTURES TIP PROJECT U–4758 = 0.025 MILES
TOTAL LENGTH TIP PROJECT U–4758 = 4.419 MILES

NCDOT CONTACT: LAURA SUTTON, P.E

Prepared In the Office of:

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 27, 2019

LETTING DATE: SEPTEMBER 21, 2021

CLINTON J. MORGAN, P.E
PROJECT ENGINEER

BRYAN S. LAMBETH, P.E
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	4

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

890
880
870
860

RESIDUAL
RED BROWN SOFT TO MEDIUM STIFF SILT AND SANDY SILT MOIST

PAVEMENT

RESIDUAL
RED BROWN BLACK MEDIUM STIFF
CLAY WITH TRACE ROCK FRAGMENTS MOIST

BROWN LOOSE SILTY FINE SAND MOIST

20+50.00

RESIDUAL RED BROWN SOFT TO MEDIUM STIFF SILT AND SANDY SILT MOIST

PAVEMENT

RESIDUAL
RED BROWN BLACK MEDIUM STIFF HIGHLY PLASTIC
CLAY WITH TRACE ROCK FRAGMENTS MOIST

BROWN LOOSE SILTY FINE SAND MOIST

20+00.00

RESIDUAL RED BROWN SOFT TO MEDIUM STIFF SILT AND SANDY SILT MOIST

PAVEMENT

RESIDUAL
RED BROWN BLACK MEDIUM STIFF HIGHLY PLASTIC
CLAY WITH TRACE ROCK FRAGMENTS MOIST

BROWN LOOSE SILTY FINE SAND MOIST

19+50.00

BEGIN UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 19+25

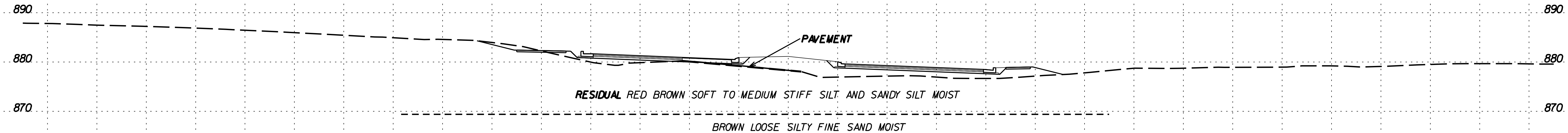
PAVEMENT

RESIDUAL
GRAY BROWN LOOSE SILTY FINE TO COARSE SAND MOIST

19+00.00

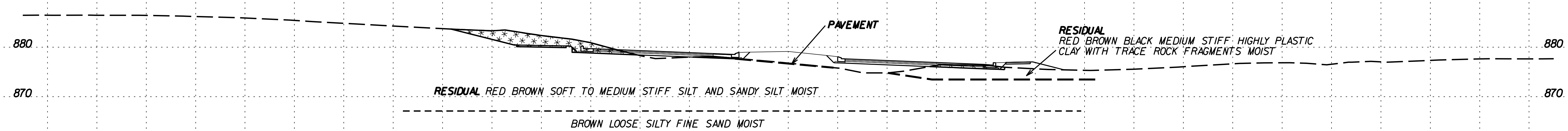
$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
U-4758	5



22+00.00

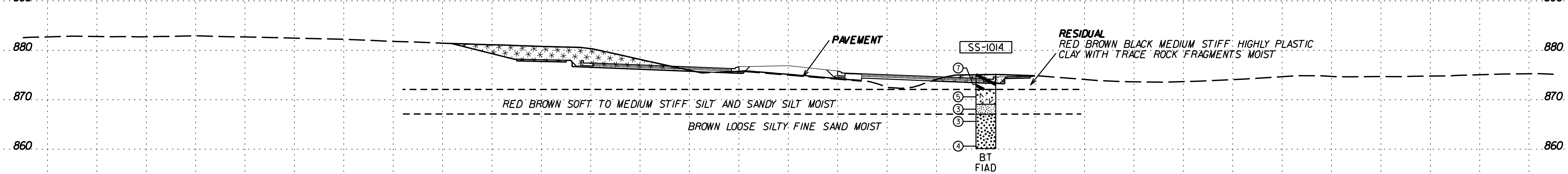
END UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 21+75



21+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS- 10.14	25' RT	21+00	1.0-2.5	A-7-6(25)	57	31	11	14	21	55	99	93	76.5	28.7	ND



21+00.00

-L-

6/23/16

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

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	6

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

910
900
890
880
870

Ⓐ **RESIDUAL**
RED BROWN MEDIUM STIFF TO VERY STIFF HIGHLY PLASTIC CLAY MOIST

PAVEMENT

BEGIN UNDERCUT FOR SUBGRADE STABILITY STA. 23+75

RED, BROWN MEDIUM STIFF TO STIFF SANDY SILT MOIST

RED, BROWN LOOSE SILTY FINE TO COARSE SAND MOIST

23+50.00

ROADWAY EMBANKMENT

Ⓐ **RESIDUAL**
RED BROWN MEDIUM STIFF TO VERY STIFF HIGHLY PLASTIC CLAY MOIST

RESIDUAL RED, BROWN MEDIUM STIFF TO STIFF SANDY SILT MOIST

RED, BROWN LOOSE SILTY FINE TO COARSE SAND MOIST

23+00.00

BEGIN UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 22+75

PAVEMENT

RESIDUAL RED BROWN SOFT TO MEDIUM STIFF SILT AND SANDY SILT MOIST

BROWN LOOSE SILTY FINE SAND MOIST

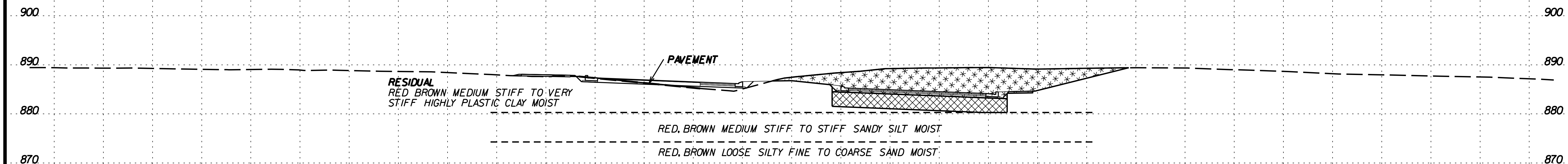
22+50.00

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

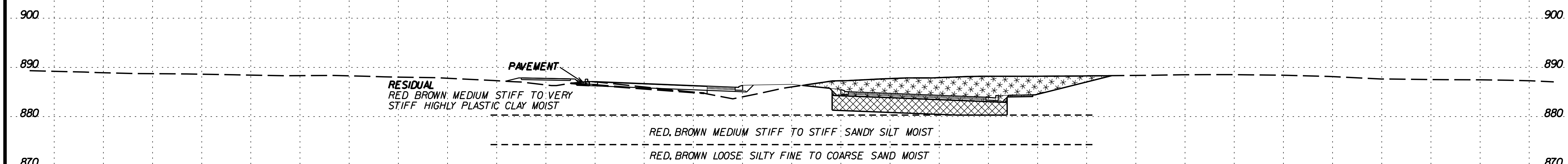
—L—

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-4758	7



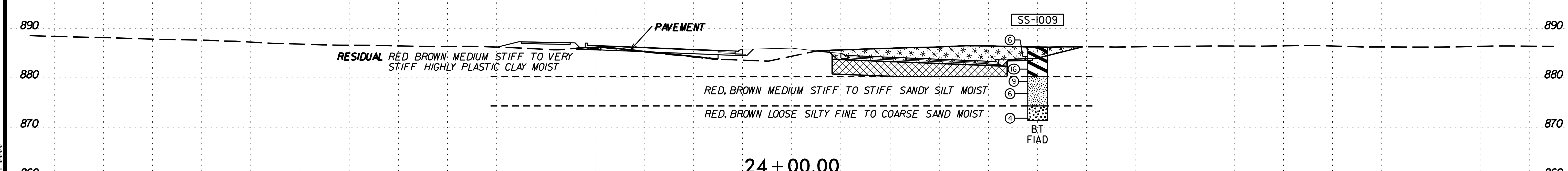
25+00.00



24+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-1009	50' RT	24+00	1.0-2.5	A-7-6(23)	56	35	15	15	18	52	96	88	68.8	30.7	ND

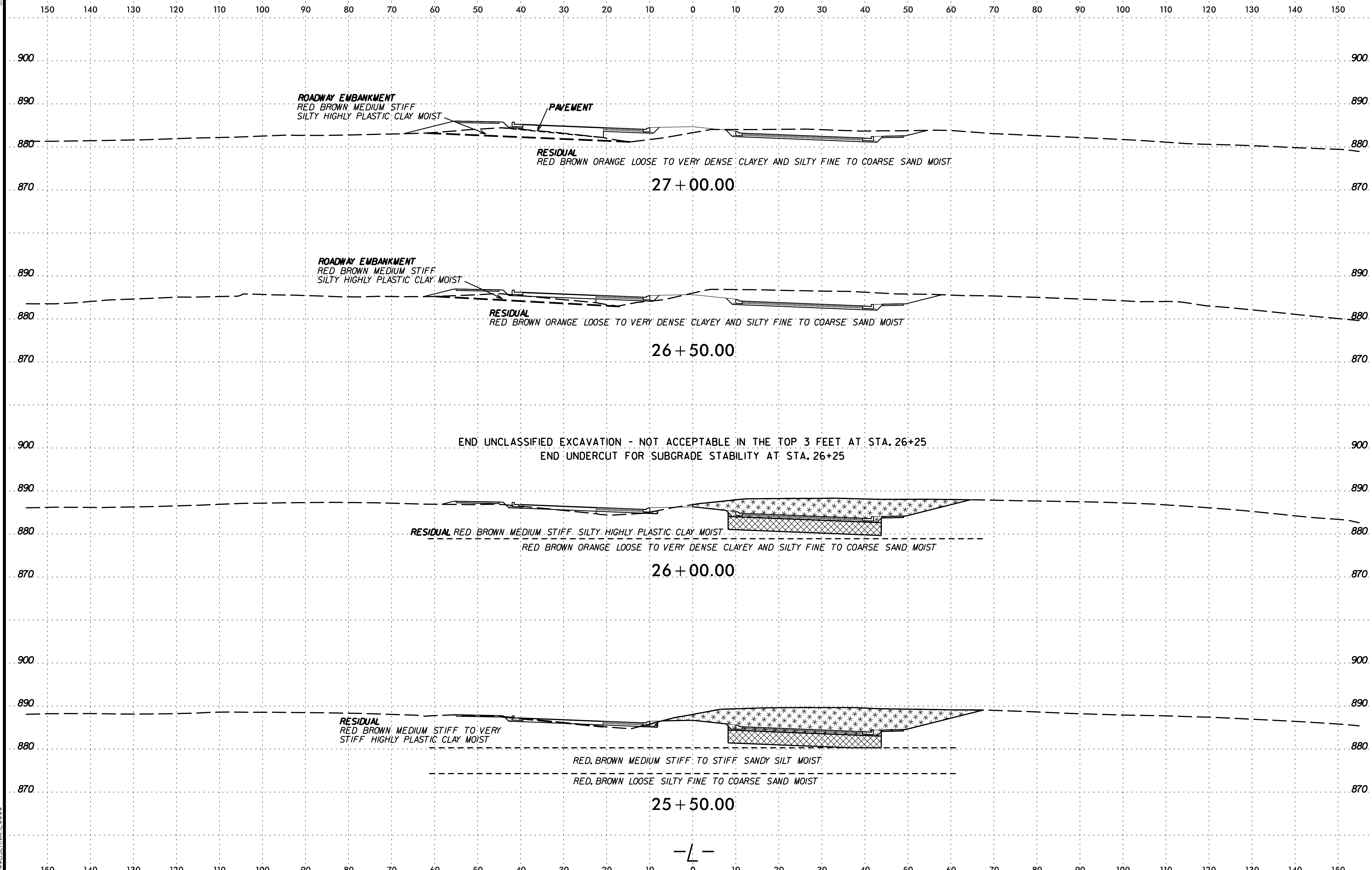


24+00.00

-L-

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

PROJ. REFERENCE NO.	SHEET NO.
U-4758	8

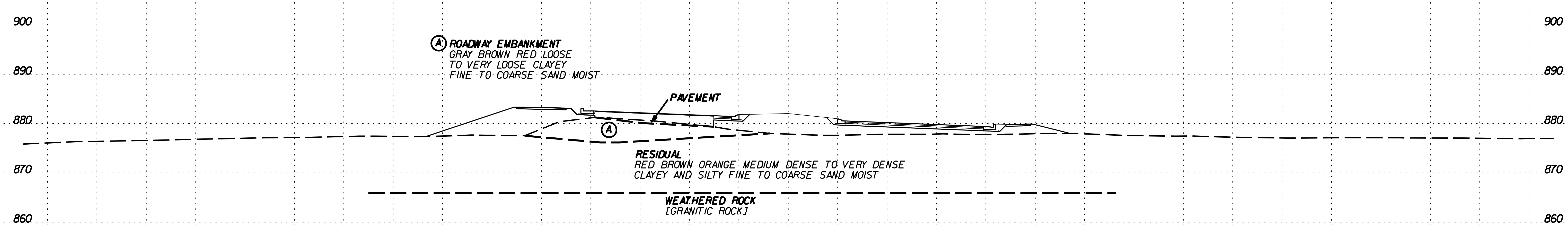


6/23/16

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

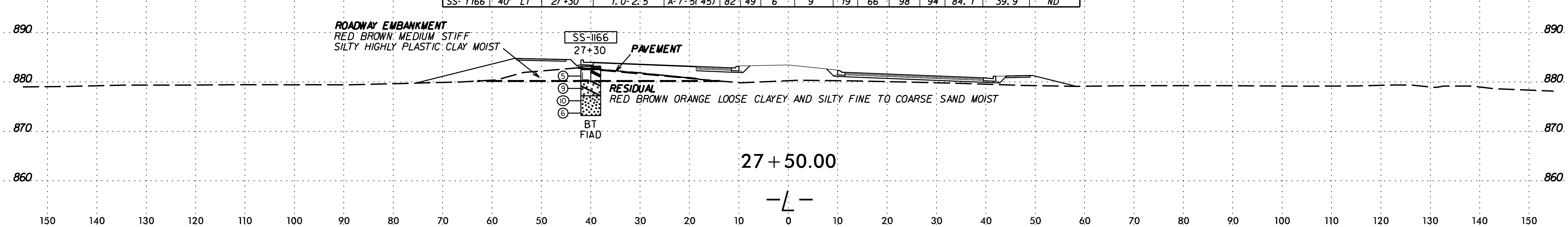
PROJ. REFERENCE NO.	SHEET NO.
U-4758	9

0 5 10



28+00.00

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS- 1166	40' LT	27+30	1.0-2.5	A-7-5(45)	82	49	6	9	19	66	98	94	84.1	39.9	ND



27+50.00

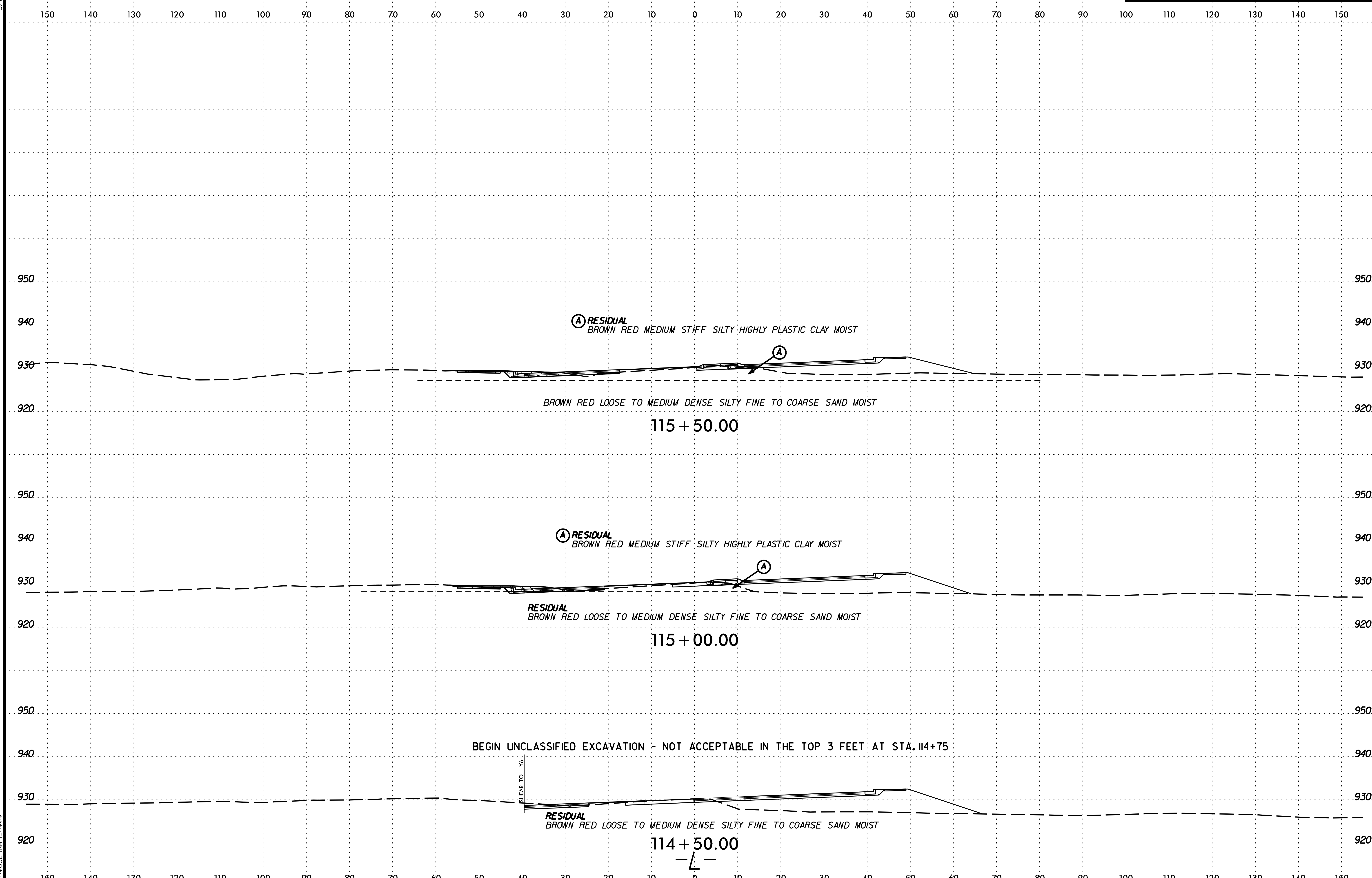
-L-

6/23/16

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

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-4758	10

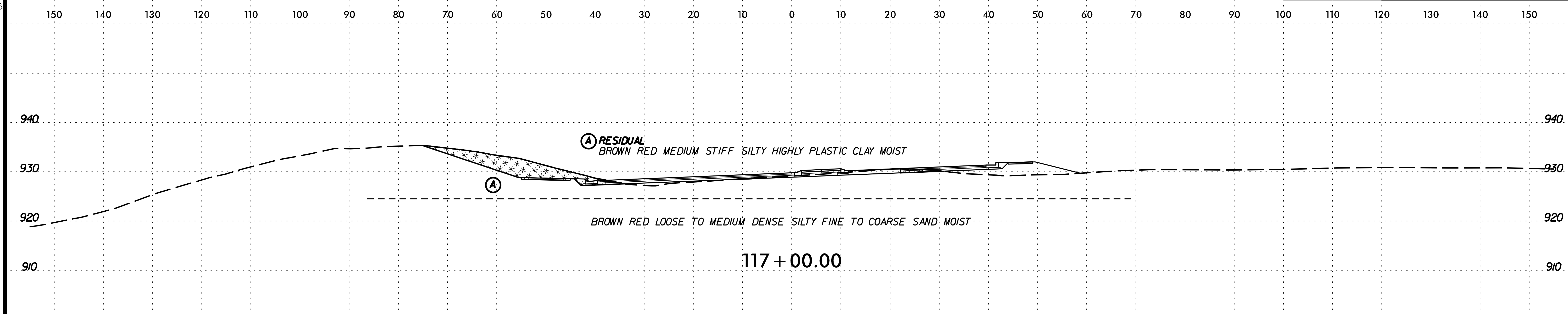


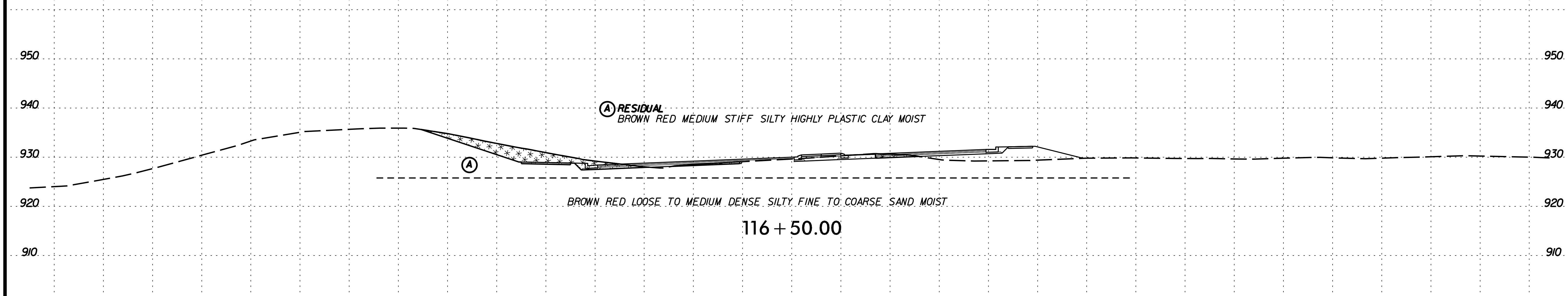
$$$$$SYSTIME$$$$
$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$USERNAME$$$$

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-4758	11

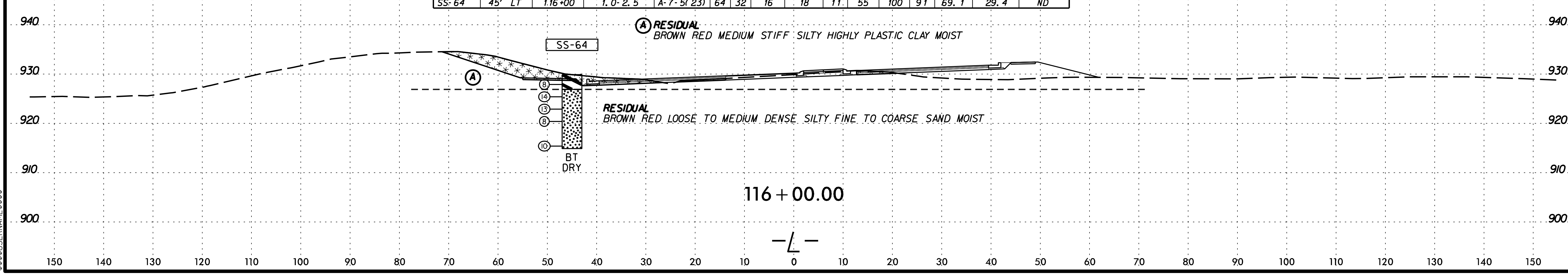
Scale: 0 5 10





SOIL TEST RESULTS

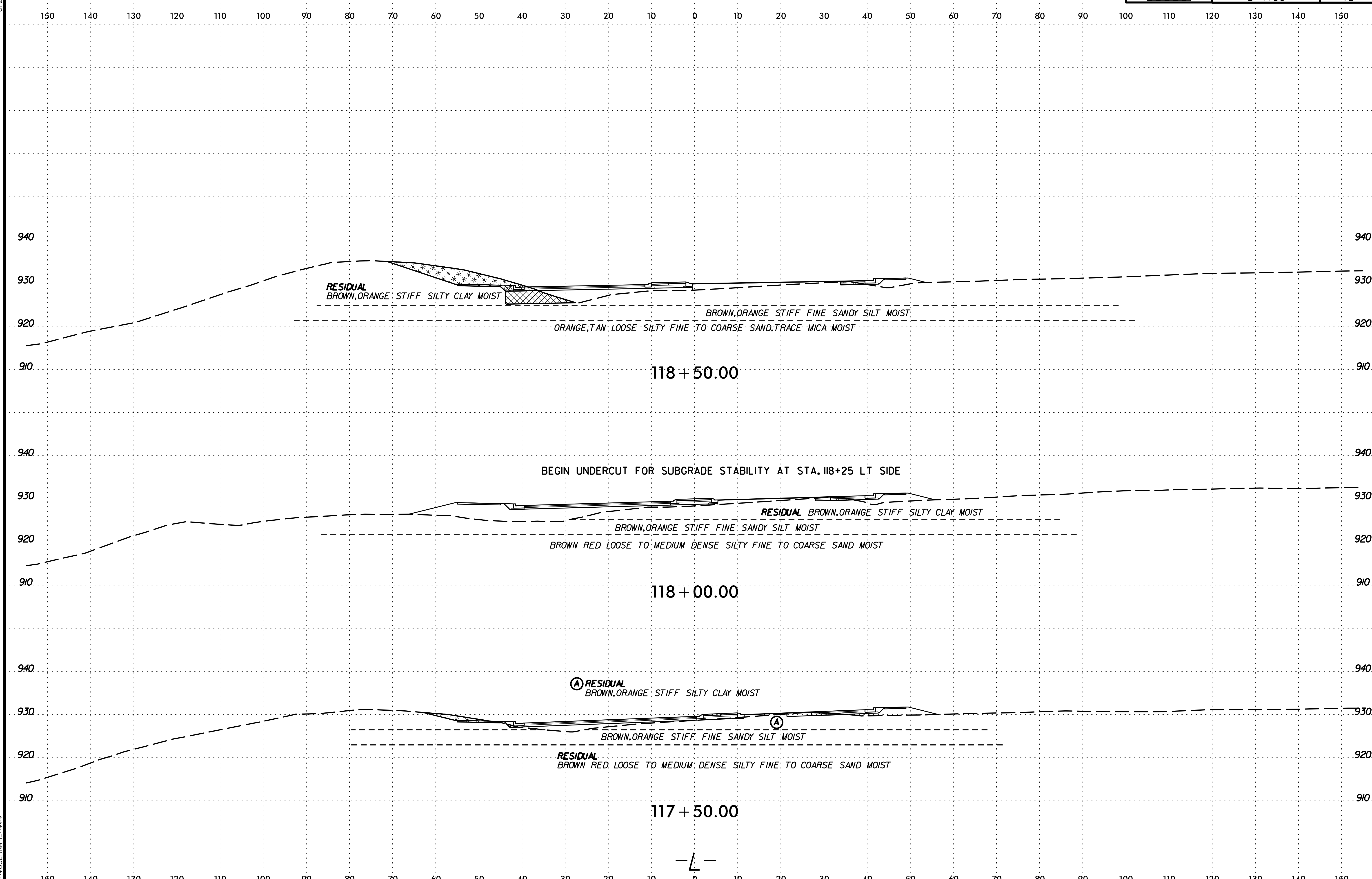
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-64	45' LT	116+00	1.0-2.5	A-7-5(23)	64	32	16	18	11	55	100	91	69.1	29.4	ND



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

6/23/16

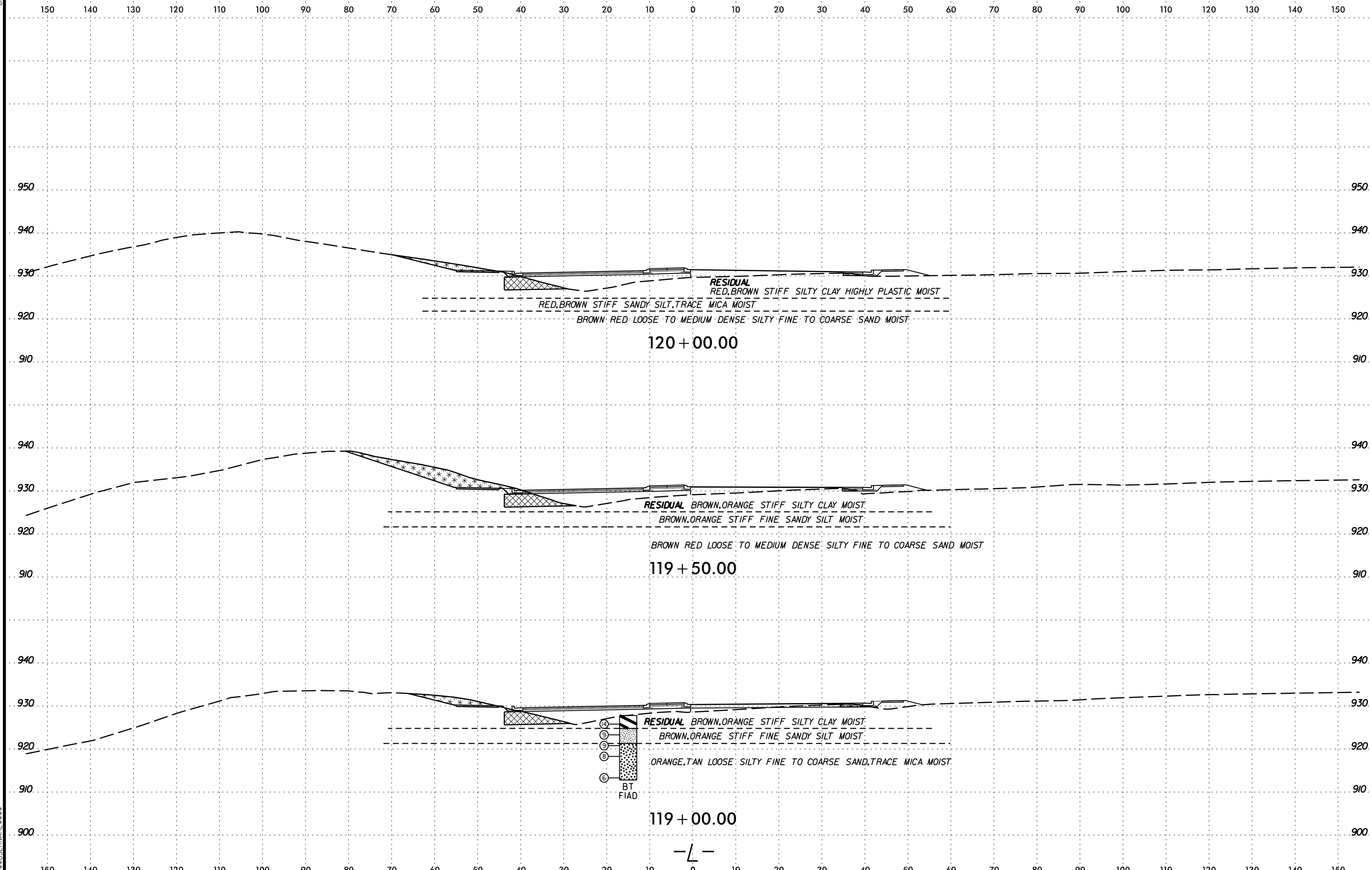
PROJ. REFERENCE NO.	SHEET NO.
U-4758	12



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

PROJ. REFERENCE NO.	SHEET NO.
U-4758	13

Scale: 0 5 10



6/23/16

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

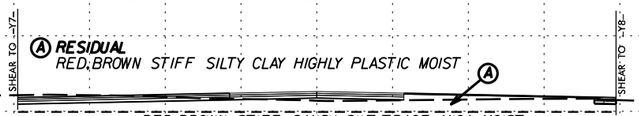
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	14

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

950 940 930 920 960

END UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 121+75



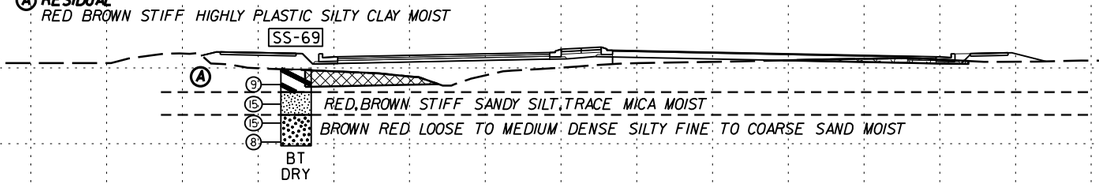
121+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-69	45' LT	121+00	1.0-2.5	A-7-5(25)	72	34	13	19	8	60	100	94	69.2	32.2	ND

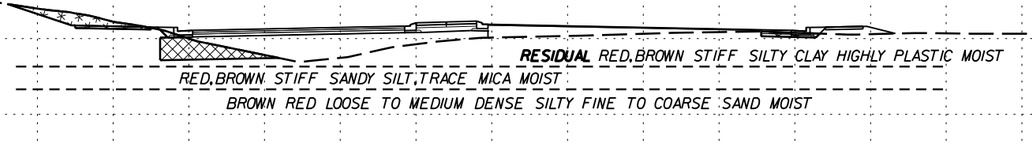
950 940 930 920 910

END UNDERCUT FOR SUBGRADE STABILITY AT STA. 121+25 LT SIDE



121+00.00

940 930 920 910



120+50.00

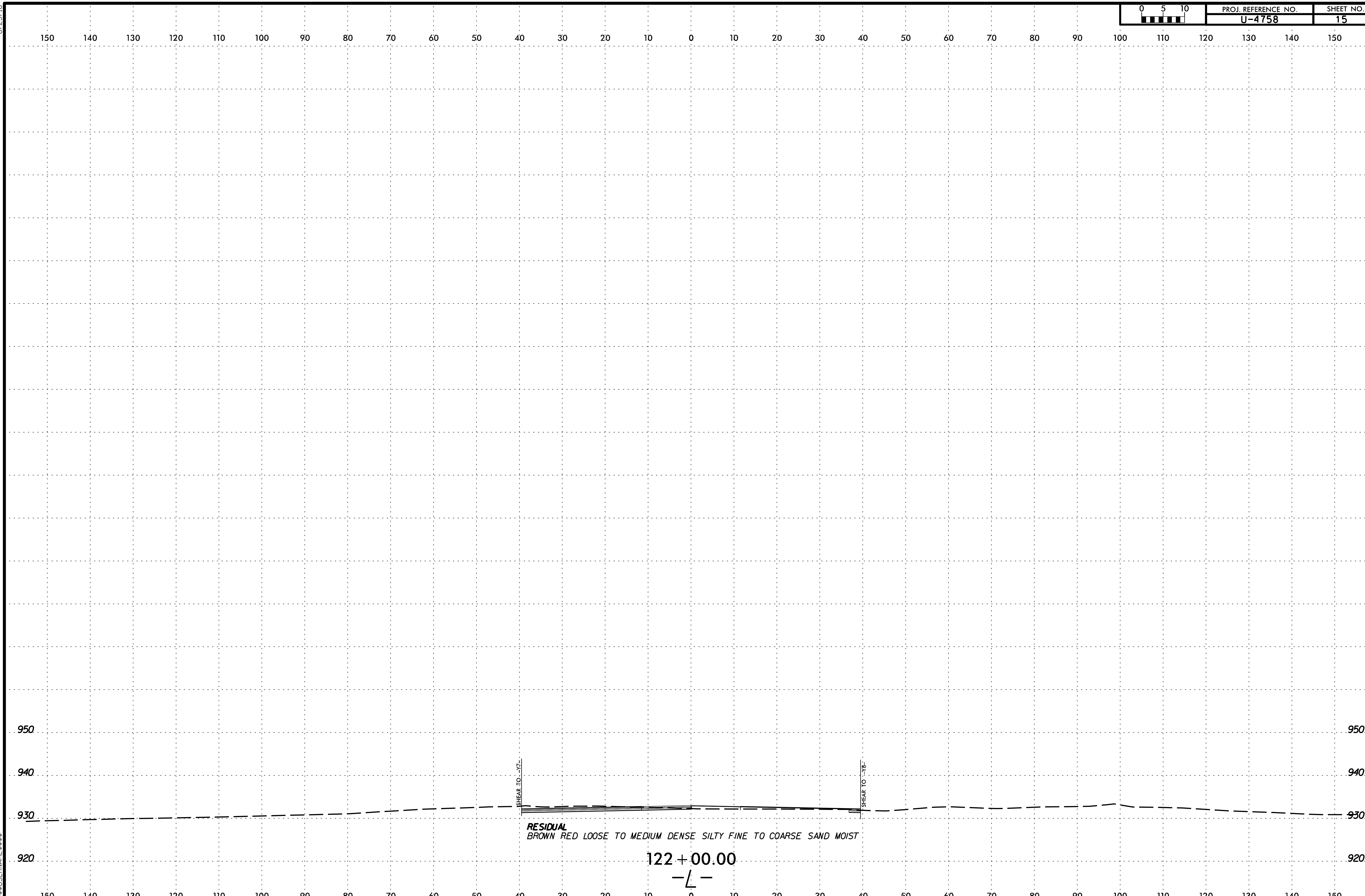
—L—

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

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

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-4758	15



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

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	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

960 950 940 930 920

(A) **RESIDUAL** BROWN RED STIFF SILTY HIGHLY PLASTIC CLAY MOIST

(B) **RESIDUAL** BROWN RED STIFF SANDY SILT MOIST

END UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE AT STA. 135+75

RESIDUAL BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

135+50.00

960 950 940 930 920

(A) **RESIDUAL** BROWN RED STIFF SILTY HIGHLY PLASTIC CLAY MOIST

(B) **RESIDUAL** BROWN RED STIFF SANDY SILT MOIST

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-126	50' LT	135+25	1.0-2.5	A-7-5(34)	74	38	12	12	7	69	100	93	78.1	34.5	ND

SS-126

9 12 10 7 7

BT FIAD

RESIDUAL BROWN RED LOOSE SILTY FINE TO COARSE SAND MOIST

135+00.00

960 950 940 930 920 910

BEGIN UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE AT STA. 134+75

RESIDUAL BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

134+50.00

-L-

960 950 940 930 920

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

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

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	17

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

950
940
930
920
910

(9) (12) (9) (6) (10)

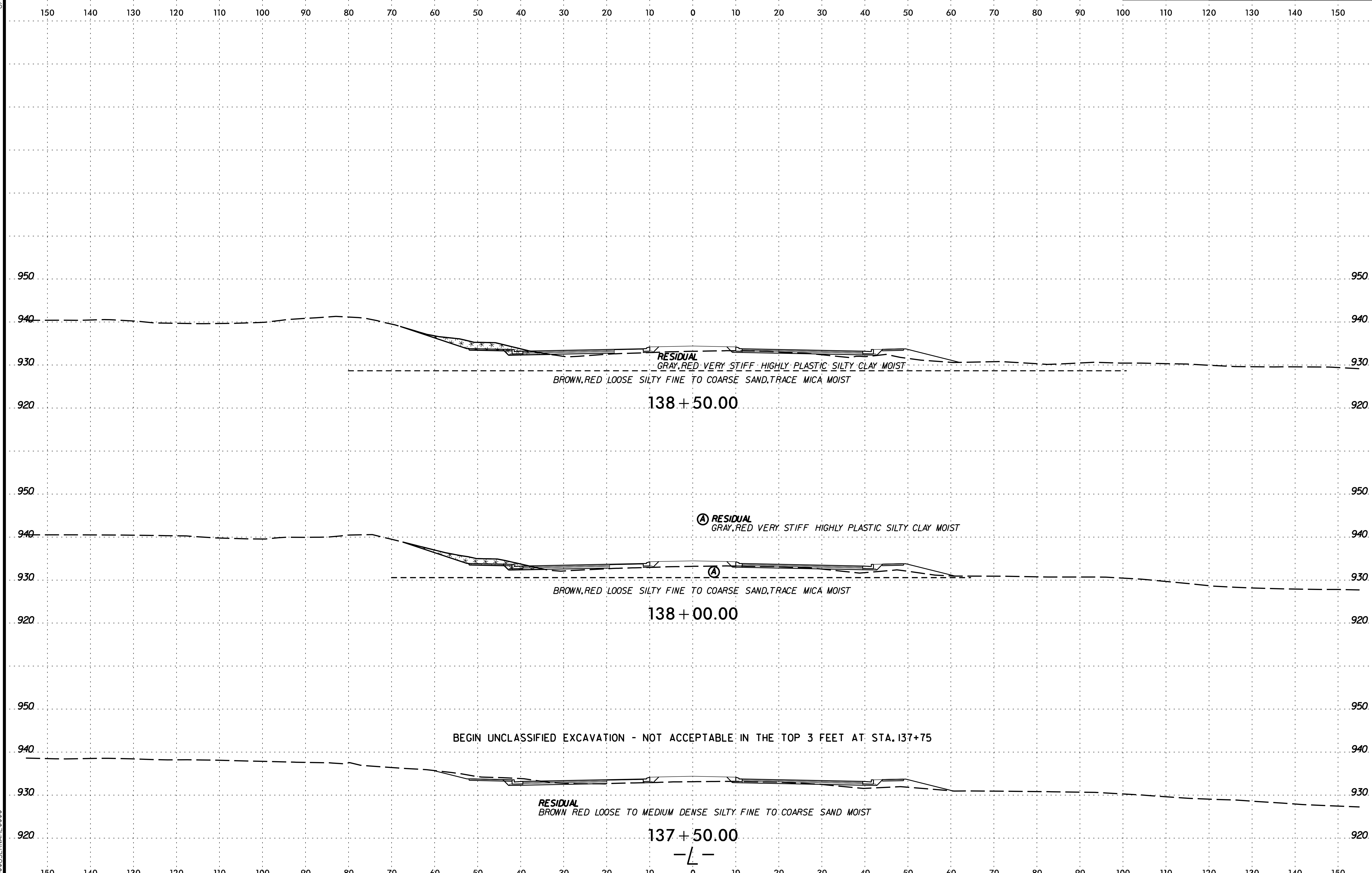
BT
DRY

RESIDUAL *BROWN RED LOOSE TO LOOSE CLAYEY FINE TO COARSE SAND AND SILTY FINE TO COARSE SAND MOIST*

136+00.00
-L-

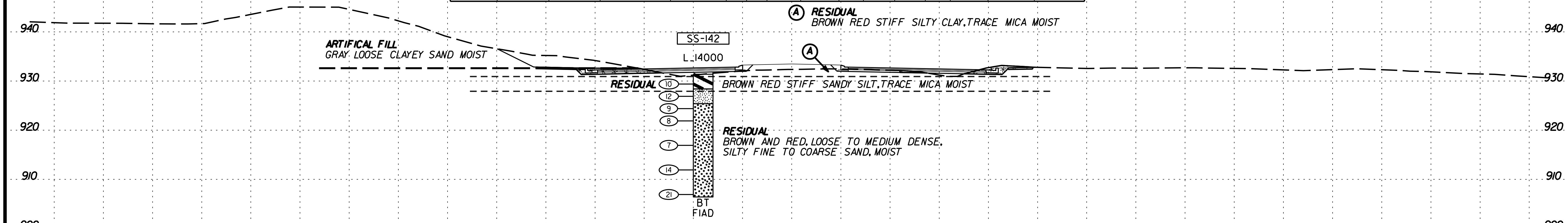
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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

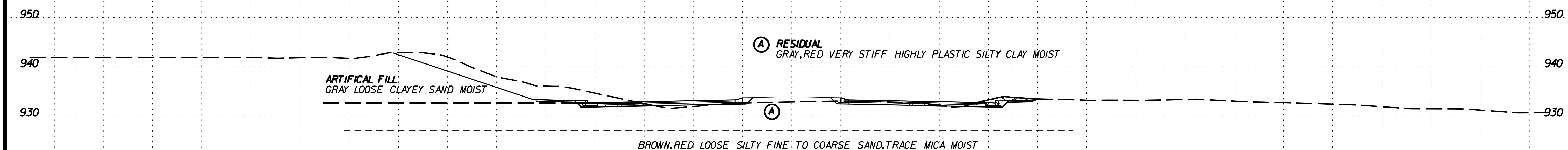

RESIDUAL
GRAY,RED VERY STIFF HIGHLY PLASTIC SILTY CLAY MOIST
BROWN,RED LOOSE SILTY FINE TO COARSE SAND,TRACE MICA MOIST
138+50.00
Ⓐ RESIDUAL
GRAY,RED VERY STIFF HIGHLY PLASTIC SILTY CLAY MOIST
Ⓐ
BROWN,RED LOOSE SILTY FINE TO COARSE SAND,TRACE MICA MOIST
138+00.00
BEGIN UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 137+75
RESIDUAL
BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST
137+50.00
-L-
950
940
930
920
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
6/23/16

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS- 142	18' LT	140+00	1.0-2.5	A-7-5(26)	68	29	13	11	10	66	100	94	77.1	34.7	ND



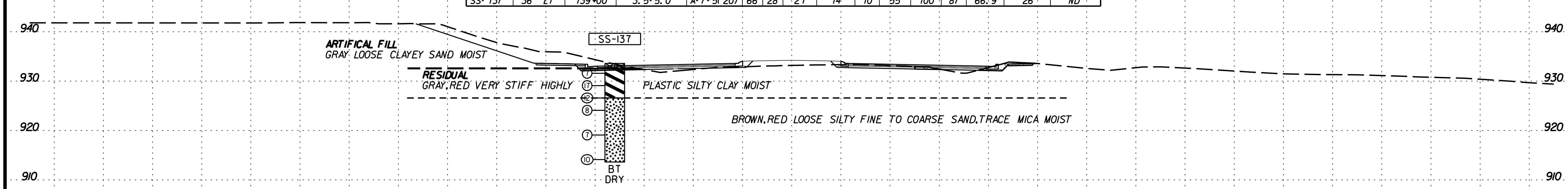
140+00.00



139+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS- 137	36' LT	139+00	3.5-5.0	A-7-5(20)	66	28	21	14	10	55	100	87	66.9	26	ND

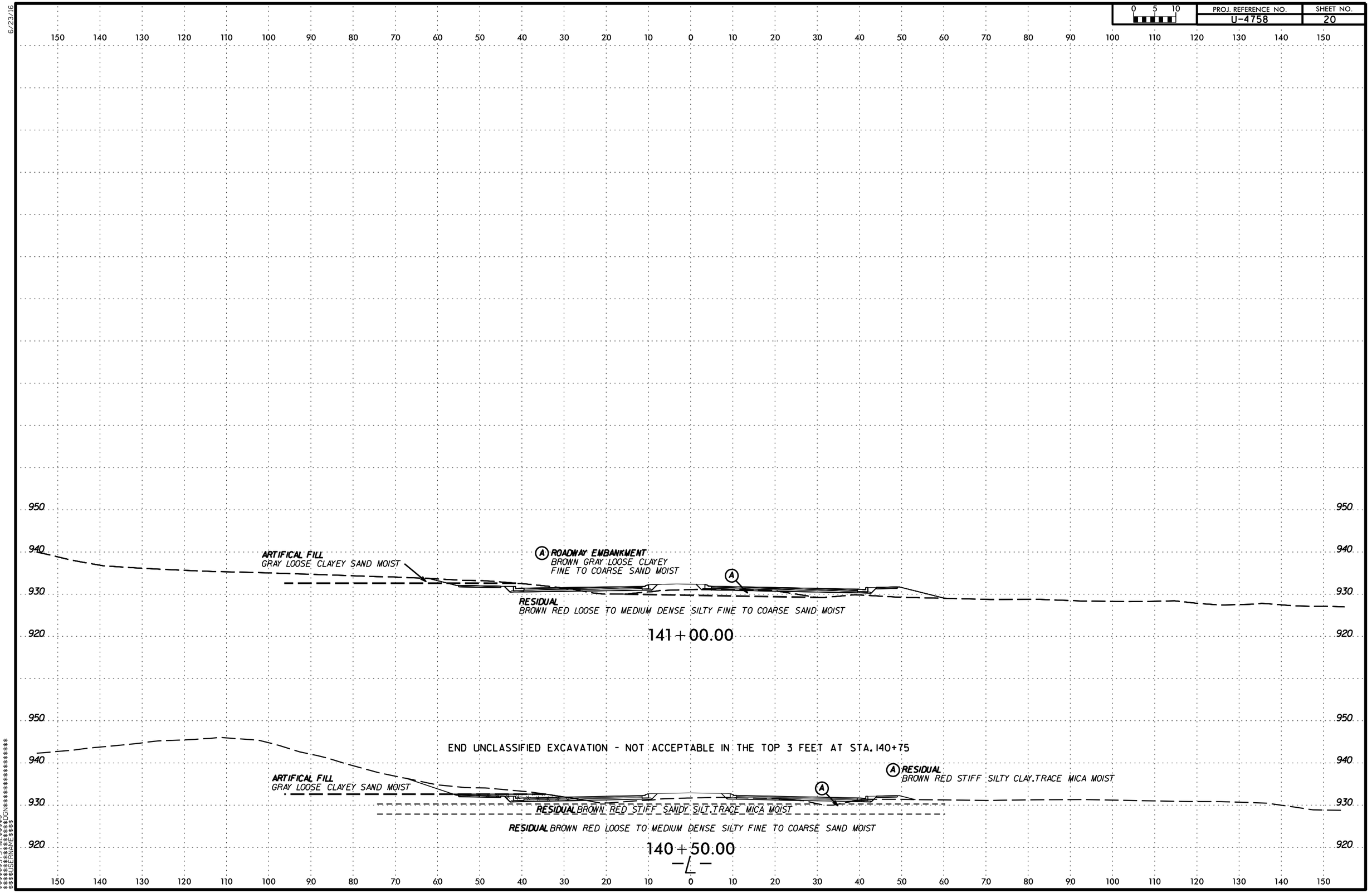


139+00.00

-L-

6/23/16

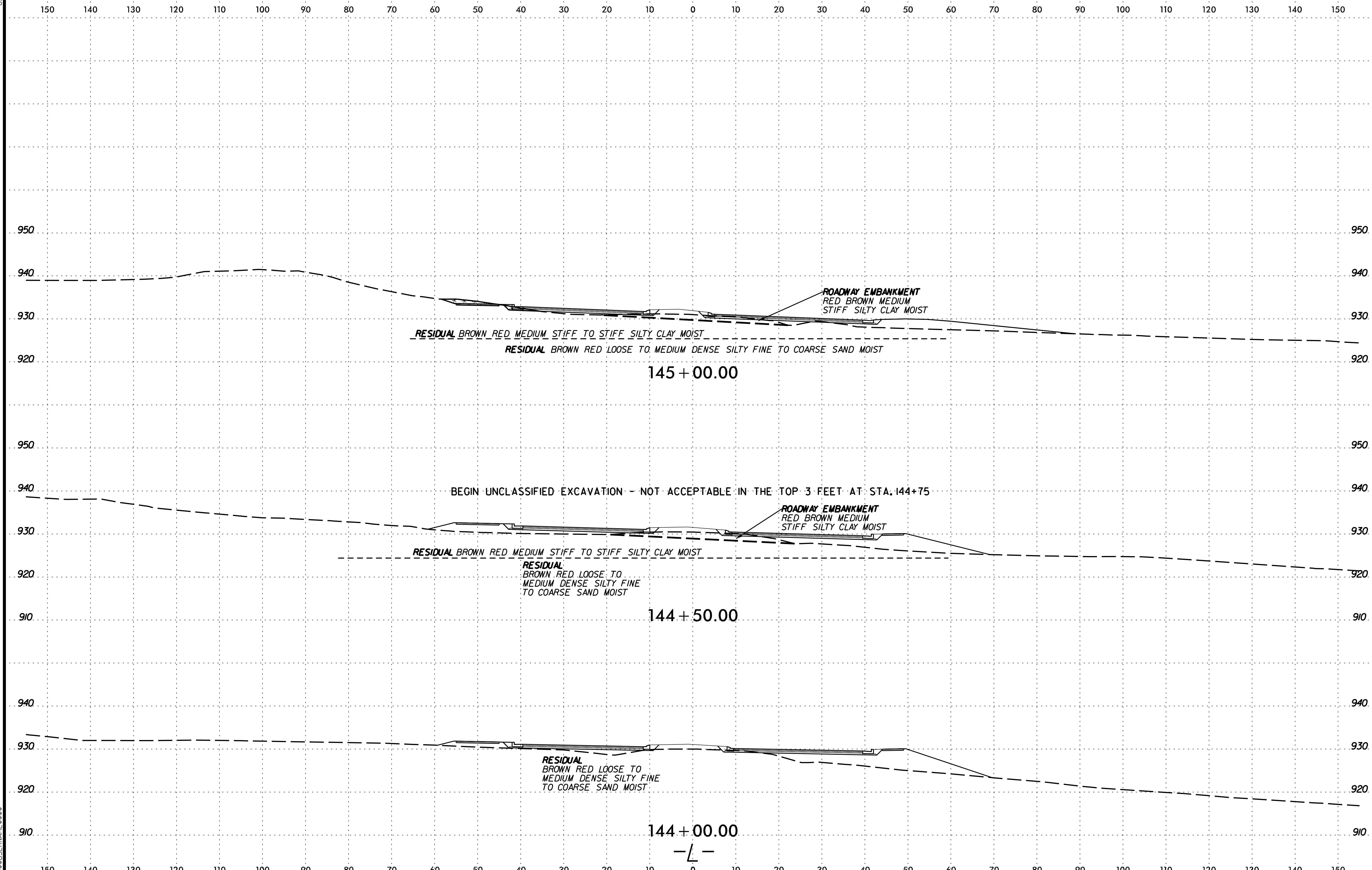
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	20



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

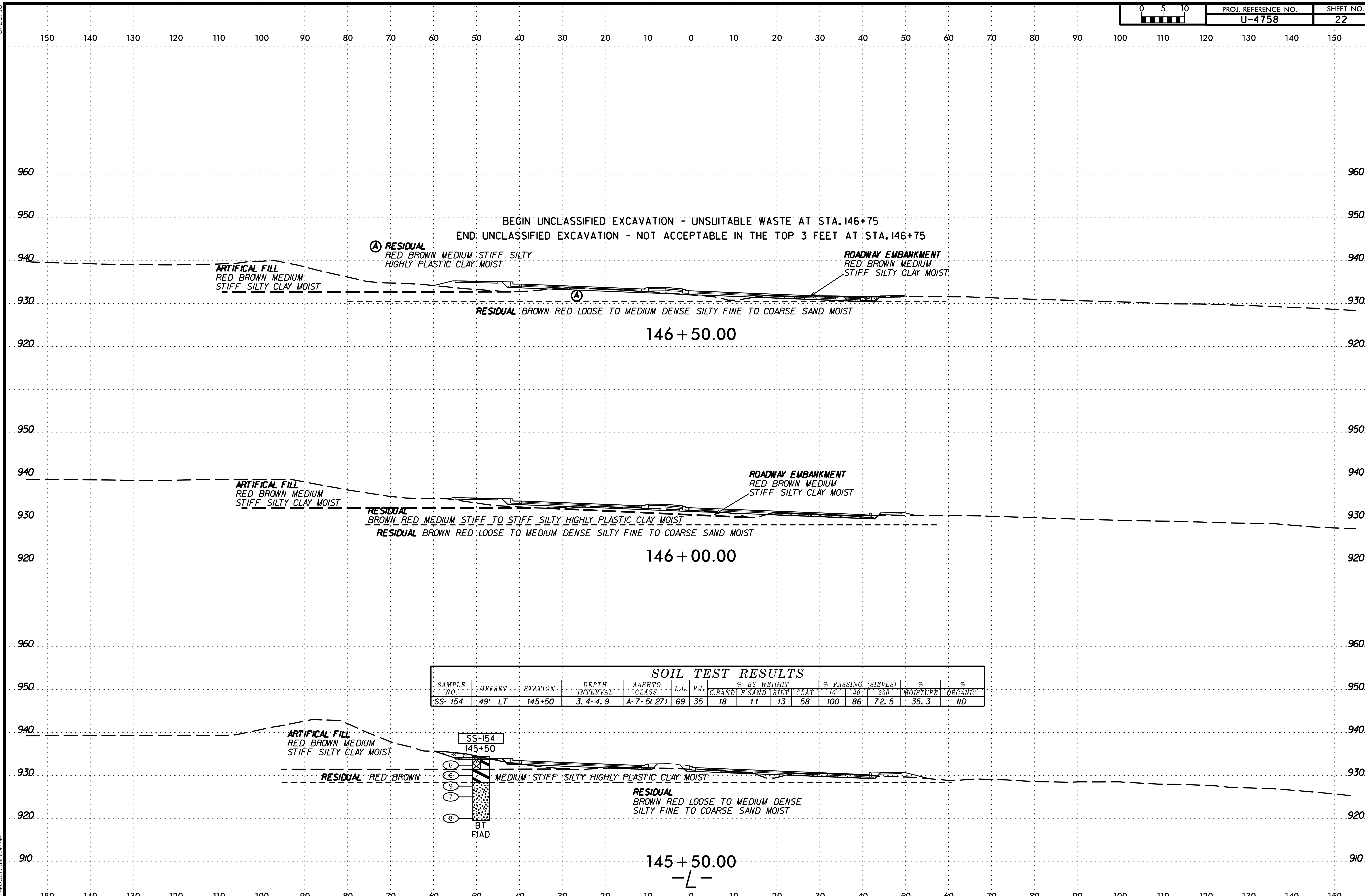
6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-4758	21



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

PROJ. REFERENCE NO.	SHEET NO.
U-4758	22



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS- 154	49' LT	145+50	3. 4- 4. 9	A- 7- 5(27)	69	35	18	11	13	58	100	86	72. 5	35. 3	ND

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	23

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

950 940 930 920

ARTIFICAL FILL
RED BROWN MEDIUM STIFF
SILTY CLAY MOIST

RESIDUAL
RED BROWN MEDIUM STIFF SILTY
HIGHLY PLASTIC CLAY MOIST

ROADWAY EMBANKMENT
RED BROWN MEDIUM
STIFF SILTY CLAY MOIST

RESIDUAL BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

148+00.00

960 950 940 930 920

END UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE AT STA. 147+75

ARTIFICAL FILL
RED BROWN MEDIUM STIFF
SILTY CLAY MOIST

Ⓐ **RESIDUAL**
RED BROWN MEDIUM STIFF
SILTY HIGHLY PLASTIC CLAY MOIST

ROADWAY EMBANKMENT
RED BROWN MEDIUM
STIFF SILTY CLAY MOIST

RESIDUAL BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

147+50.00

970 960 950 940 930 920 910

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-158	54' LT	147+00	1.0-2.5	A-7-5(35)	79	40	11	13	7	68	100	94	76.3	33	ND

Ⓐ **RESIDUAL**
RED BROWN MEDIUM STIFF
SILTY HIGHLY PLASTIC CLAY MOIST

SS-158

ARTIFICAL FILL
RED BROWN MEDIUM STIFF SILTY CLAY MOIST

7
15
8
7
BT
FIAD

RESIDUAL BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

147+00.00

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

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

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	24

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

980 970 960 950 940

Ⓐ **RESIDUAL**
RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY MOIST

SHEAR TO -Y13-

Ⓐ

BROWN RED LOOSE TO MEDIUM DENSE CLAYEY FINE TO COARSE SAND AND SILTY FINE TO COARSE SAND MOIST

185+50.00

970 960 950

RESIDUAL
RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY AND CLAY MOIST

SHEAR TO -Y13-

BROWN RED LOOSE TO MEDIUM DENSE CLAYEY FINE TO COARSE SAND AND SILTY FINE TO COARSE SAND MOIST

185+00.00

940

970 960 950

Ⓐ **RESIDUAL**
RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY AND CLAY MOIST

Ⓐ

BROWN RED LOOSE TO MEDIUM DENSE CLAYEY FINE TO COARSE SAND AND SILTY FINE TO COARSE SAND MOIST

184+50.00

980 970 960 950

BEGIN UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 184+25

RESIDUAL
BROWN RED LOOSE TO MEDIUM DENSE CLAYEY FINE TO COARSE SAND AND SILTY FINE TO COARSE SAND MOIST

184+00.00

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

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

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	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

970
960
950
940

Ⓐ **RESIDUAL**
RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY MOIST

Ⓐ

BROWN RED LOOSE TO MEDIUM DENSE CLAYEY FINE TO COARSE SAND AND SILTY FINE TO COARSE SAND MOIST

187+00.00

970
960
950
940

Ⓐ **RESIDUAL**
RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY MOIST

Ⓐ

BROWN RED LOOSE TO MEDIUM DENSE CLAYEY FINE TO COARSE SAND AND SILTY FINE TO COARSE SAND MOIST

186+50.00

990
980
970
960
950
940
930

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-239	45' LT	186+00	1.0-2.5	A-7-5(20)	61	31	19	18	10	54	100	89	65.5	26.9	ND

Ⓐ **RESIDUAL**
RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY MOIST

SHEAR TO ~Y13~

SS-239

10
7
5
17

BT
FIAD

Ⓐ

BROWN RED LOOSE TO MEDIUM DENSE CLAYEY FINE TO COARSE SAND AND SILTY FINE TO COARSE SAND MOIST

186+00.00

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

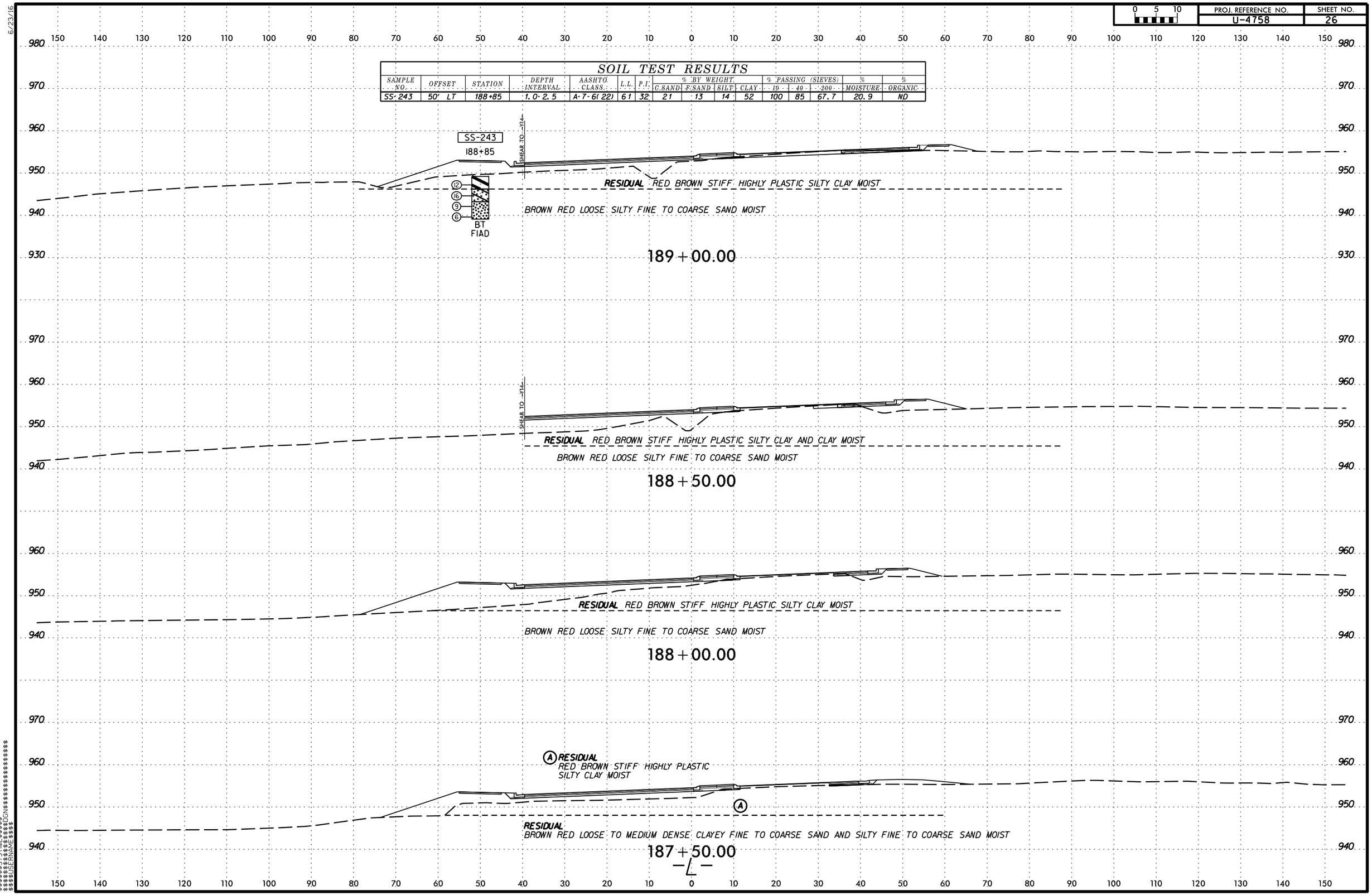
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	26

SOIL TEST RESULTS

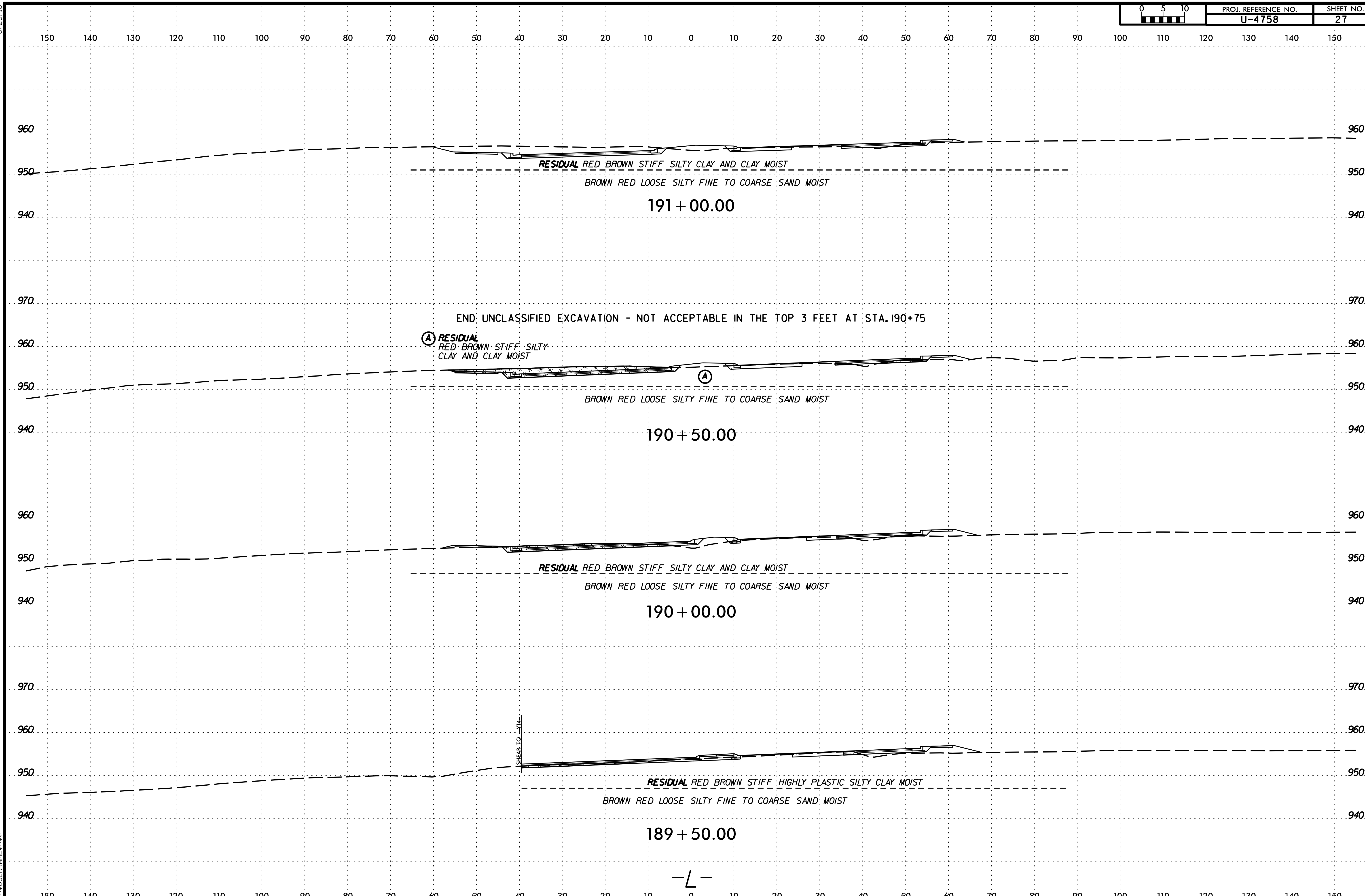
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) #10	% PASSING (SIEVES) #40	% PASSING (SIEVES) #200	% MOISTURE	% ORGANIC
SS-243	50' LT	188+85	1.0-2.5	A-7-6(22)	61	32	21	13	14	52	100	85	67.7	20.9	ND



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

PROJ. REFERENCE NO. U-4758 | SHEET NO. 27

6/23/16



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

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	28

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-1068	40' LT	197+00	1.0-2.5	A-7-5(28)	77	35	15	13	11	61	98	88	71.8	36.1	ND

SS-1068

(A) RESIDUAL
RED BROWN STIFF SILTY HIGHLY PLASTIC CLAY MOIST

SHEAR TO -Y16-

(9) (14) (12) (7)

BT
DRY

BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

197+00.00

(A) RESIDUAL
RED BROWN STIFF HIGHLY PLASTIC
SILTY CLAY MOIST

SHEAR TO -Y16-

BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

196+50.00

(A) RESIDUAL
RED BROWN STIFF HIGHLY PLASTIC
SILTY CLAY MOIST

BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

196+00.00

BEGIN UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 195+75

(A) RESIDUAL
RED BROWN STIFF
SILTY CLAY MOIST

BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

195+50.00

-L-

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

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	29

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

970
960
950
940

Ⓐ **RESIDUAL**
RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY MOIST

Ⓐ

BROWN RED LOOSE SILTY FINE TO COARSE SAND MOIST

199+00.00

970
960
950
940

Ⓐ **RESIDUAL**
RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY MOIST

Ⓐ

BROWN RED LOOSE SILTY FINE TO COARSE SAND MOIST

198+50.00

970
960
950
940

Ⓐ **RESIDUAL**
RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY MOIST

Ⓐ

BROWN RED LOOSE SILTY FINE TO COARSE SAND MOIST

198+00.00

980
970
960
950

RESIDUAL
RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY MOIST

SHEAR TO -Y16-

BROWN RED LOOSE SILTY FINE TO COARSE SAND MOIST

197+50.00

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

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

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	30

970 960 950 940

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

Ⓐ **RESIDUAL**
RED BROWN STIFF HIGHLY PLASTIC
SILTY CLAY MOIST

RESIDUAL
BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

201+00.00

Ⓐ **RESIDUAL**
RED BROWN STIFF HIGHLY PLASTIC
SILTY CLAY MOIST

RESIDUAL
BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

200+50.00

980 970 960 950 940

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) #10	% PASSING (SIEVES) #40	% PASSING (SIEVES) #200	% MOISTURE	% ORGANIC
SS-1072	45' LT	200+00	1.0-2.5	A-7-5(20)	63	26	18	14	17	52	100	88	71.1	30	ND

SS-1072

Ⓐ **RESIDUAL**
RED BROWN STIFF
SILTY HIGHLY PLASTIC CLAY MOIST

12 16 8 7
BT
DRY

RESIDUAL
BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

200+00.00

970 960 950 940

Ⓐ **RESIDUAL**
RED BROWN STIFF SILTY
CLAY AND CLAY MOIST

BROWN RED LOOSE SILTY FINE TO COARSE SAND MOIST

199+50.00

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

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

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	31

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

960
950
940

RESIDUAL
BROWN RED LOOSE SILTY FINE TO COARSE SAND MOIST

202+00.00

980
970
960
950
940

END UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 201+75

Ⓐ **RESIDUAL**
RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY MOIST

Ⓐ

RESIDUAL
BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

201+50.00

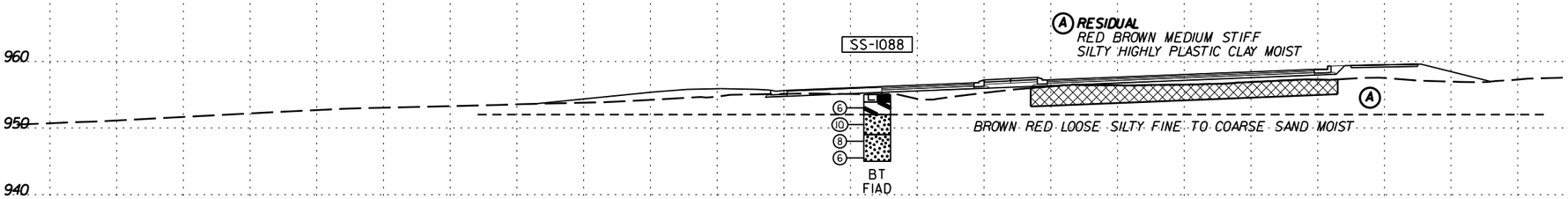
$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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

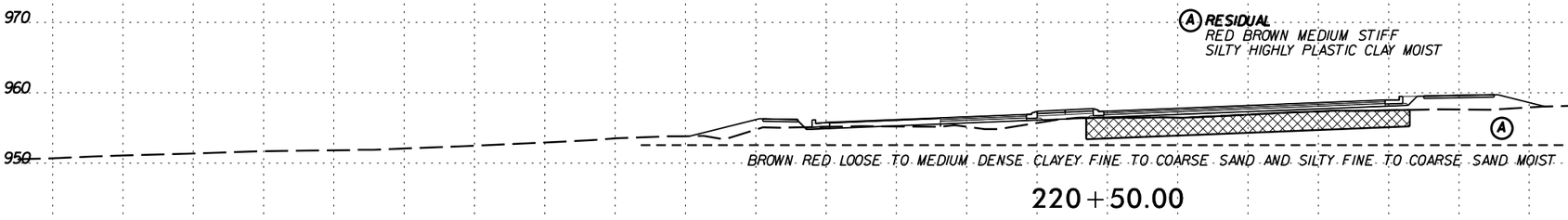
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	32

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-1088	26' LT	221+00	1.0-2.5	A-7-5(37)	86	41	15	10	12	64	99	87	76.5	31.9	ND

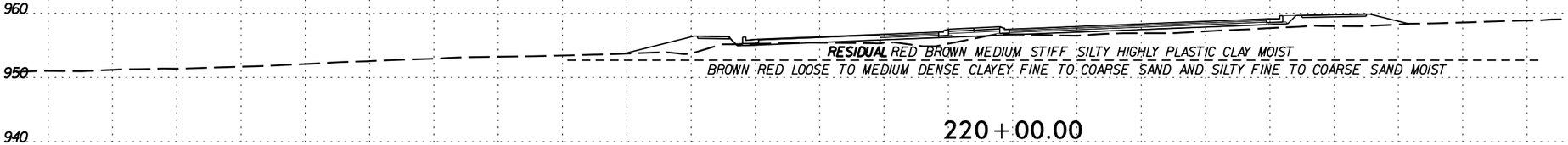


221+00.00



220+50.00

BEGIN UNDERCUT FOR SUBGRADE STABILITY AT STA. 220+25



220+00.00

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

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	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

970
960
950
940

(A) **RESIDUAL** RED BROWN STIFF HIGHLY PLASTIC SILTY CLAY MOIST

(A)

BROWN RED LOOSE SILTY FINE TO COARSE SAND MOIST

222+50.00

970
960
950
940

BEGIN UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 222+25

(A) **RESIDUAL**
RED BROWN MEDIUM STIFF
SILTY HIGHLY PLASTIC CLAY MOIST

(A)

BROWN RED LOOSE SILTY FINE TO COARSE SAND MOIST

222+00.00

990
980
970
960
950
940

(A) **RESIDUAL**
RED BROWN MEDIUM STIFF
SILTY HIGHLY PLASTIC CLAY MOIST

(A)

BROWN RED LOOSE SILTY FINE TO COARSE SAND MOIST

221+50.00

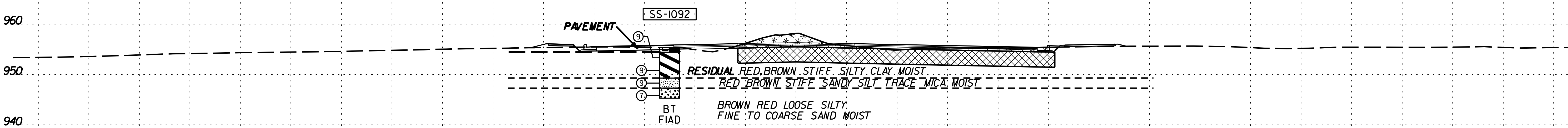
$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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

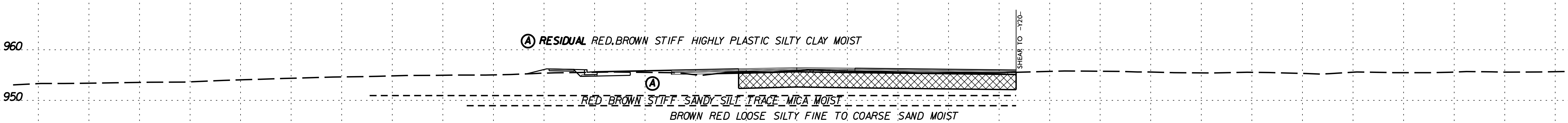
PROJ. REFERENCE NO.	SHEET NO.
U-4758	34

SOIL TEST RESULTS

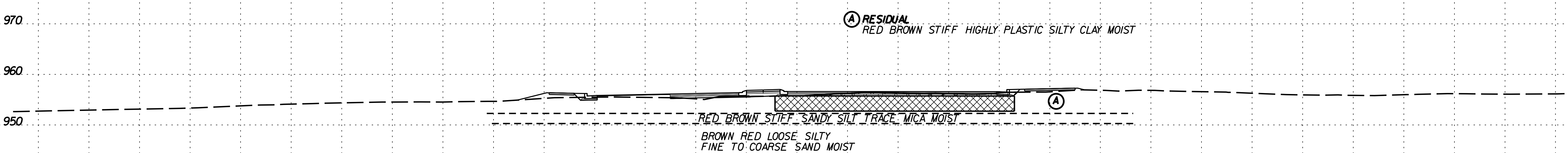
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS- 1092	25' LT	224+00	1.0- 2.5	A- 7- 5(34)	72	31	5	8	18	69	99	95	87.2	36.6	ND



224+00.00



223+50.00

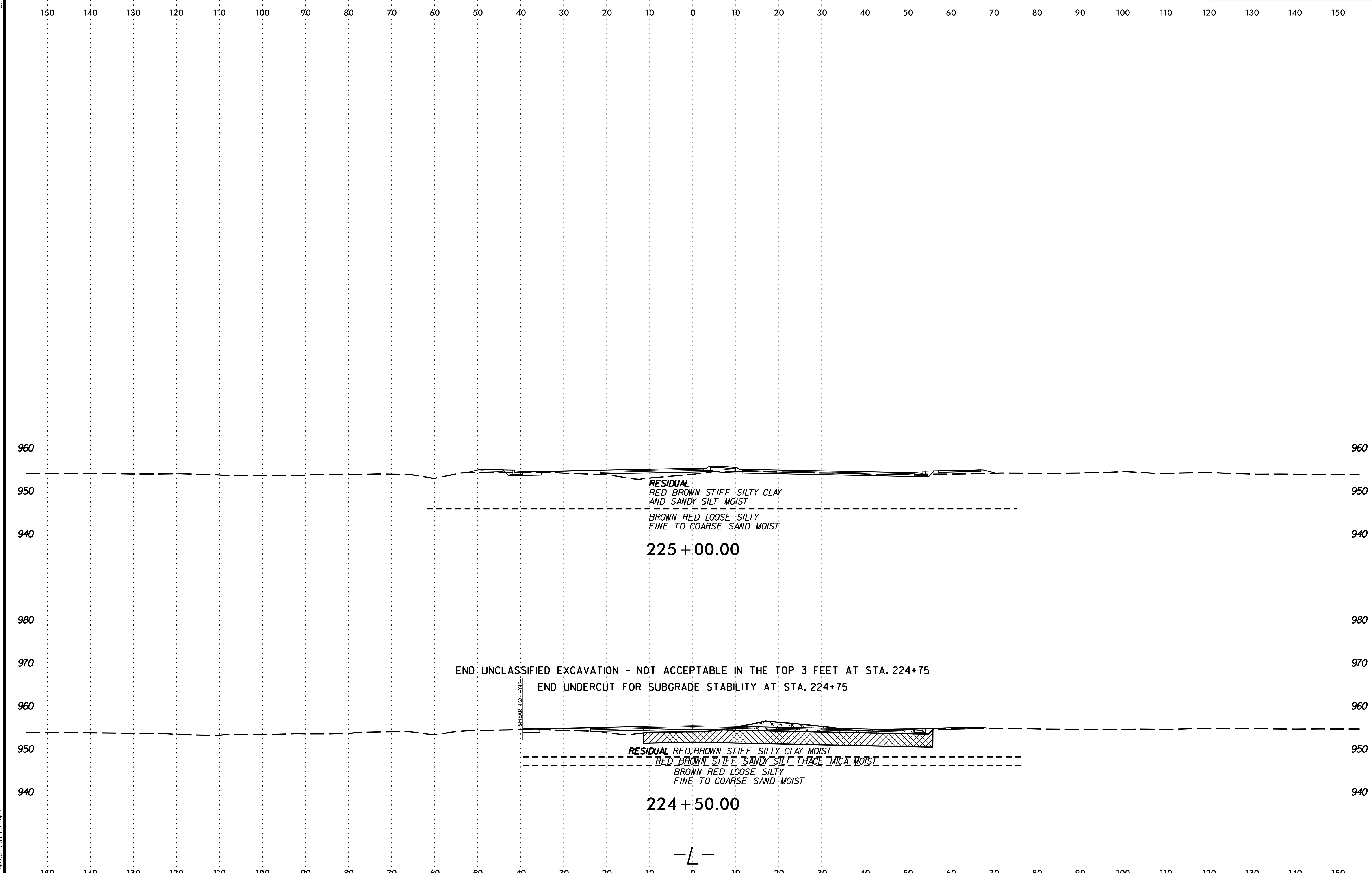


223+00.00

-L-

6/23/16

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


960
950
940
RESIDUAL
RED BROWN STIFF SILTY CLAY
AND SANDY SILT MOIST
BROWN RED LOOSE SILTY
FINE TO COARSE SAND MOIST
225+00.00
980
970
960
950
940
END UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 224+75
SHEAR TO -Y19-
END UNDERCUT FOR SUBGRADE STABILITY AT STA. 224+75
RESIDUAL RED.BROWN STIFF SILTY CLAY MOIST
RED BROWN STIFF SANDY SILT TRACE MICA MOIST
BROWN RED LOOSE SILTY
FINE TO COARSE SAND MOIST
224+50.00
-L-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	36

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

970
960
950
940

Ⓐ **RESIDUAL**
RED ORANGE STIFF TO VERY STIFF
SILTY HIGHLY PLASTIC CLAY MOIST

Ⓐ

RED BROWN MEDIUM DENSE
SILTY FINE TO COARSE SAND MOIST

235+00.00

970
960
950
940

Ⓐ **RESIDUAL**
RED ORANGE STIFF TO VERY STIFF
SILTY HIGHLY PLASTIC CLAY MOIST

Ⓐ

RED BROWN MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

234+50.00

970
960
950
940

BEGIN UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE AT STA. 234+25

RESIDUAL RED BROWN STIFF TO VERY STIFF SANDY SILT MOIST

234+00.00

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

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

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	37

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

980 970 960 950

Ⓐ **RESIDUAL**
RED ORANGE STIFF TO VERY STIFF
SILTY HIGHLY PLASTIC CLAY MOIST

RED BROWN MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

236+50.00

970 960 950 940

RESIDUAL
RED ORANGE STIFF TO VERY STIFF SILTY HIGHLY PLASTIC CLAY MOIST

RED BROWN MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

236+00.00

990 980 970 960 950 940 930

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-539	55' RT	235+50	1.0-2.5	A-7-5(36)	72	36	9	8	1.1	72	100	94	84.3	33.6	ND

SS-539

12 19 17 12 14

BT
DRY

RESIDUAL RED BROWN STIFF TO VERY STIFF SILTY HIGHLY PLASTIC CLAY MOIST

RED BROWN MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

235+50.00

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

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

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	38

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

970
960
950

RESIDUAL
RED BROWN MEDIUM STIFF TO VERY STIFF SANDY SILT MOIST

237+50.00

980
970
960
950
940

END UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE AT STA. 237+25

Ⓐ **RESIDUAL**
RED ORANGE STIFF TO VERY STIFF SILTY HIGHLY PLASTIC CLAY MOIST

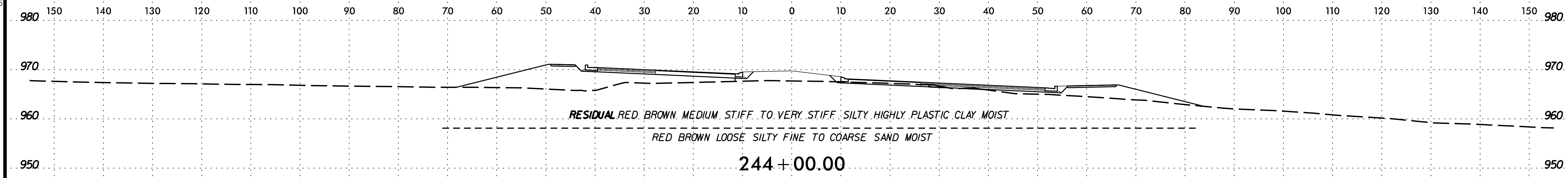
Ⓐ

RED BROWN MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

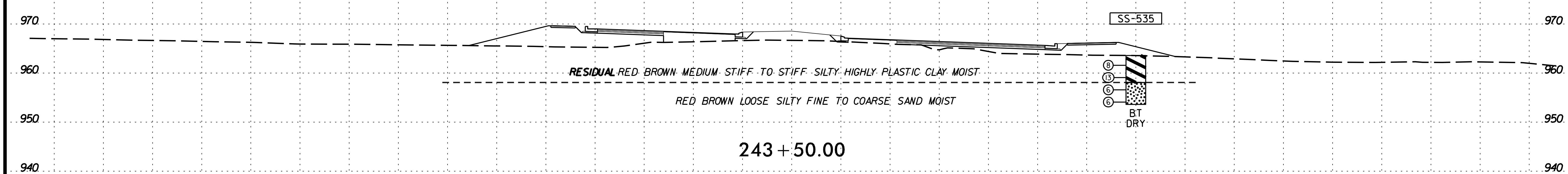
RED BROWN MEDIUM STIFF TO STIFF SANDY SILT MOIST

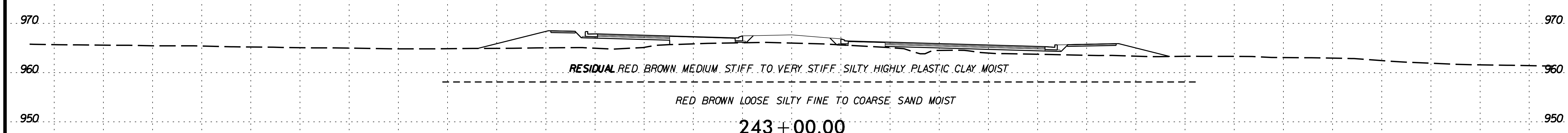
237+00.00

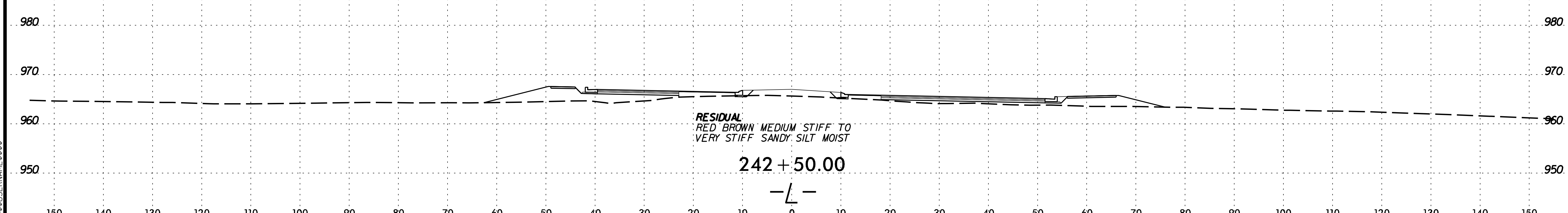
$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$



SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-535	70' RT	243+50	1.0-2.5	A-7-5(37)	76	37	8	10	11	71	99	94	83.1	40.6	ND







6/23/16
$$$$$SYSTIME$$$$$
$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$USERNAME$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	40

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

980
970
960
950

RESIDUAL
RED BROWN MEDIUM STIFF TO VERY STIFF SANDY SILT MOIST

244+50.00

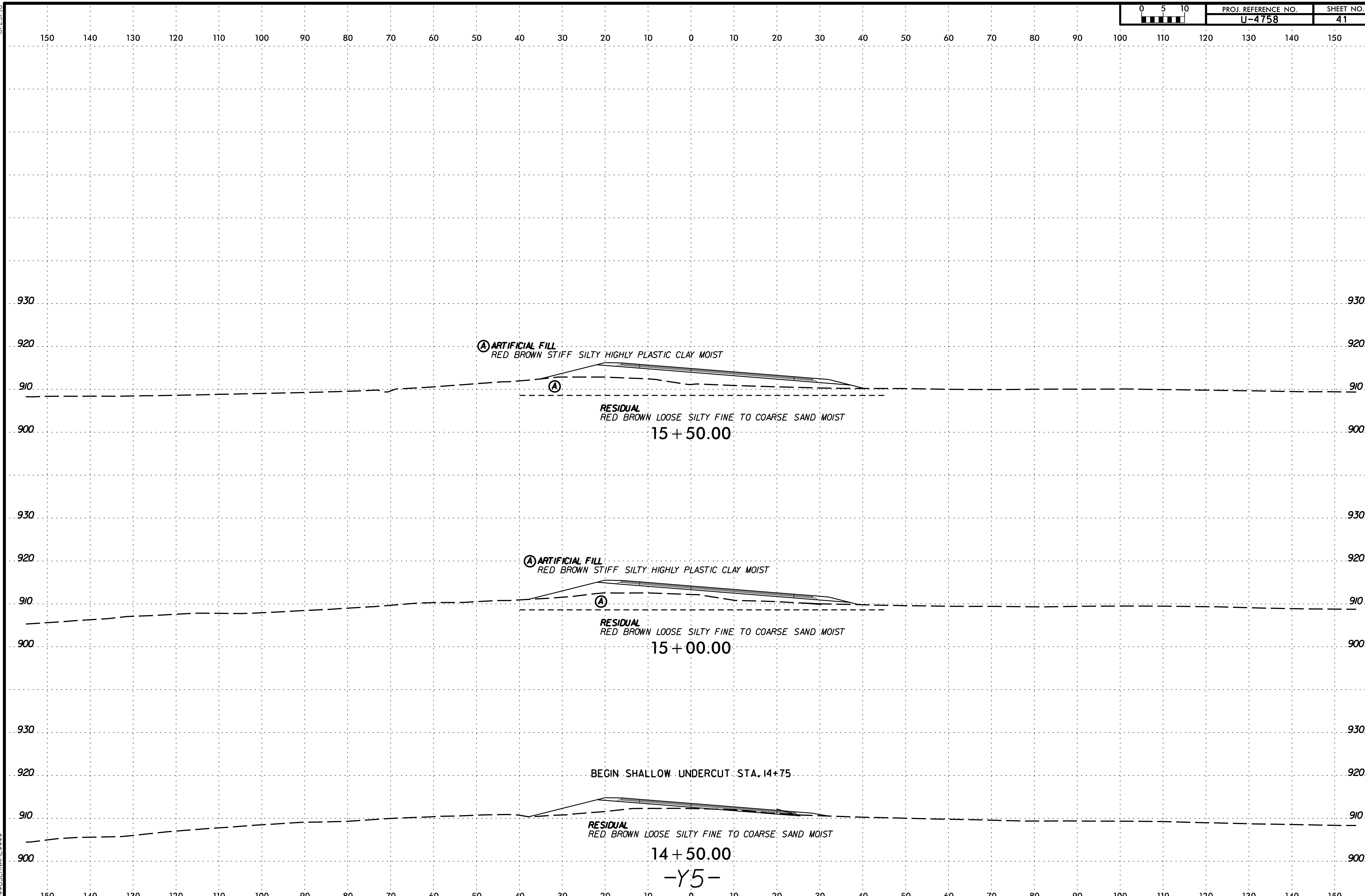
$-\mathit{L}-$

980
970
960
950
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

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

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-4758	41



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

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	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

910
900

RESIDUAL
RED BROWN LOOSE SILTY FINE TO COARSE SAND MOIST

17+50.00

930
920
910
900

END UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 17+25
END UNDERCUT FOR SUBGRADE STABILITY @ STA. 17+25

ARTIFICIAL FILL
RED BROWN STIFF SILTY HIGHLY PLASTIC CLAY MOIST

RESIDUAL
RED BROWN LOOSE SILTY
FINE TO COARSE SAND MOIST

17+00.00

930
920
910
900

END SHALLOW UNDERCUT STA. 16+75
BEGIN UNDERCUT FOR SUBGRADE STABILITY @ STA. 16+75
BEGIN UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 16+75

920
910
900

ARTIFICIAL FILL *RED BROWN STIFF SILTY HIGHLY PLASTIC CLAY MOIST*

RESIDUAL
RED BROWN LOOSE SILTY
FINE TO COARSE SAND MOIST

16+50.00

940
930
920
910
900
890

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-43	35' RT	16+00	1.0-2.5	A-7-5(25)	64	30	11	16	10	63	100	93	75.7	36.4	ND

Ⓐ **ARTIFICIAL FILL**
RED BROWN STIFF SILTY
HIGHLY PLASTIC CLAY MOIST

SS-43

10
10
8
8

BT
DRY

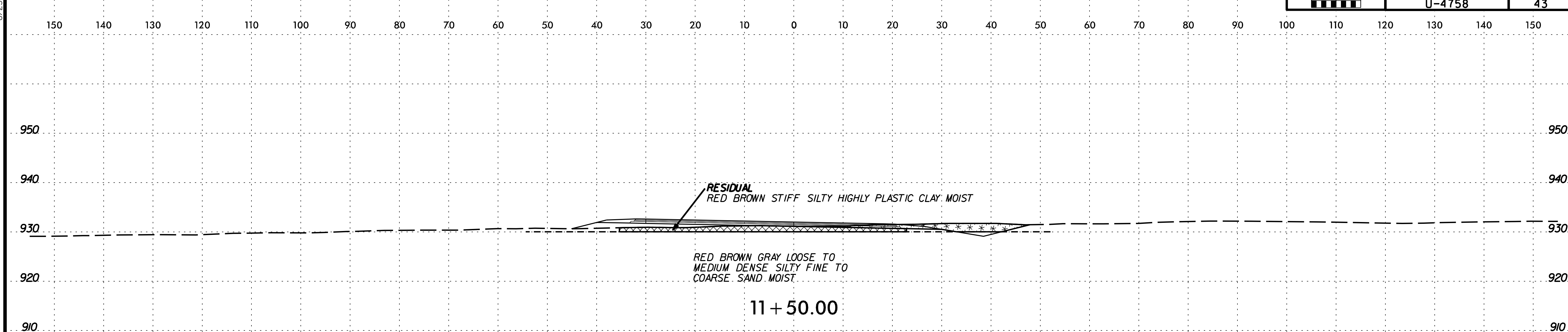
RESIDUAL
RED BROWN LOOSE SILTY FINE TO COARSE SAND MOIST

16+00.00

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

-Y5-

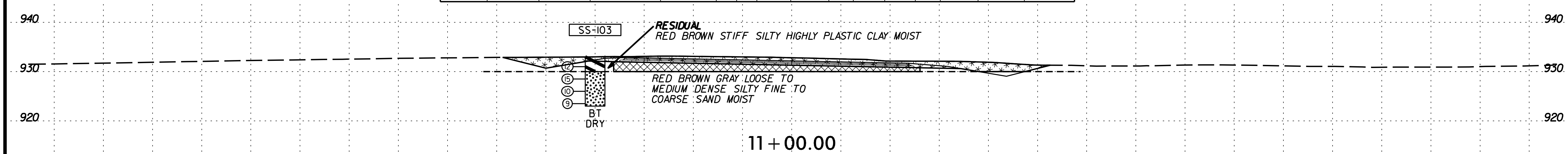
$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$



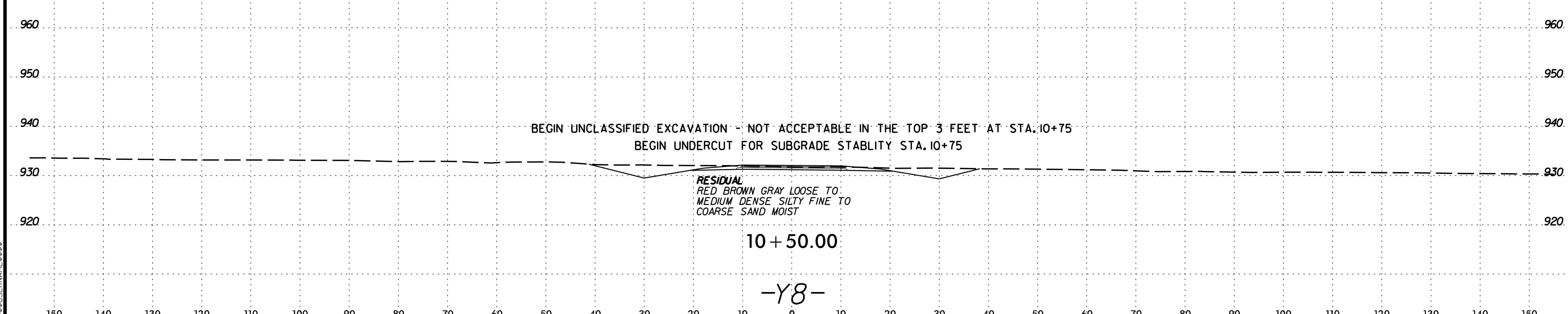
11+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-103	40' LT	11+00	1.0-2.5	A-7-5(20)	68	26	15	16	8	61	100	93	69.5	30.2	ND



11+00.00



10+50.00

-Y8-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	44

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

940
930
920
910

RESIDUAL
RED BROWN GRAY LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

12+50.00

960
950
940
930
920
910

END UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 12+25
END UNDERCUT FOR SUBGRADE STABILITY @ STA. 12+25

RESIDUAL
RED BROWN STIFF SILTY HIGHLY PLASTIC CLAY MOIST

RED BROWN GRAY LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

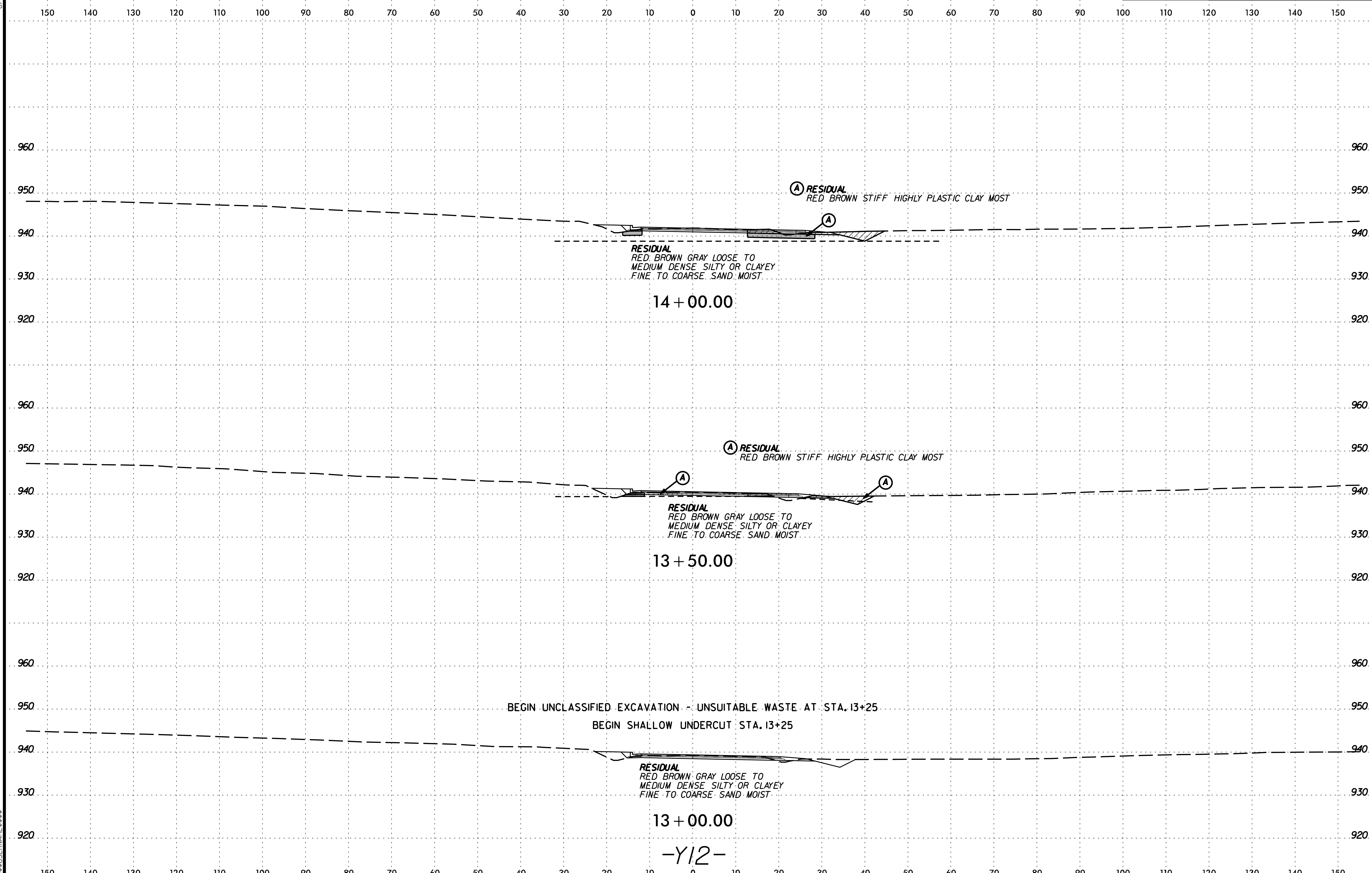
12+00.00

-Y8-

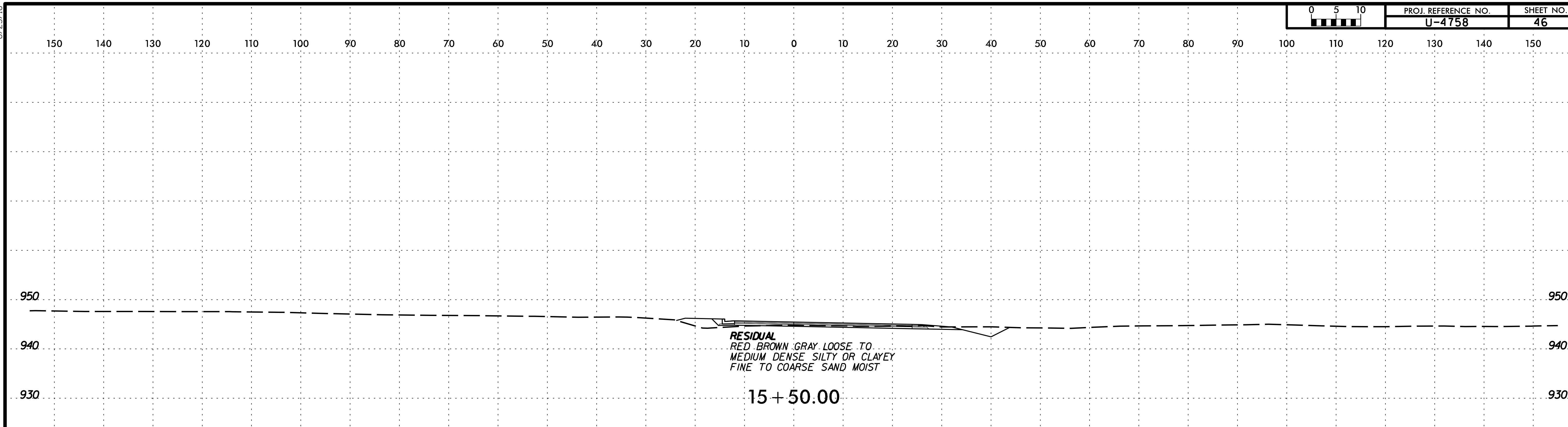
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

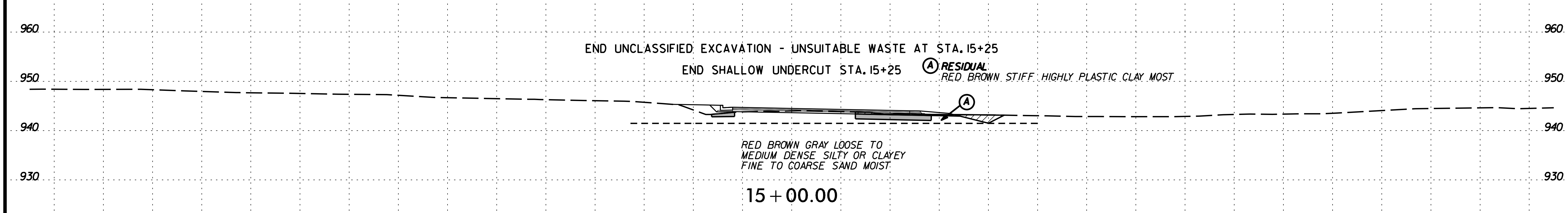
$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
U-4758	45



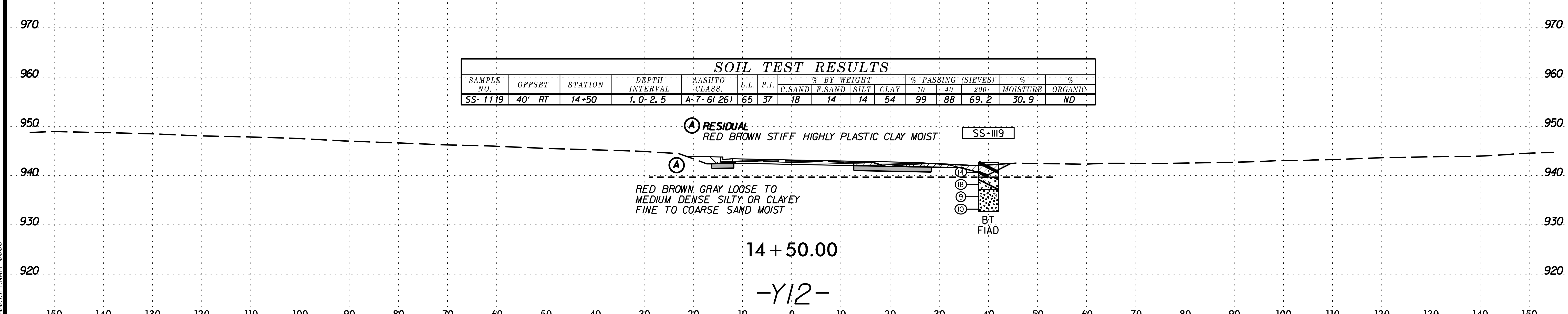
6/23/16





SOIL TEST RESULTS

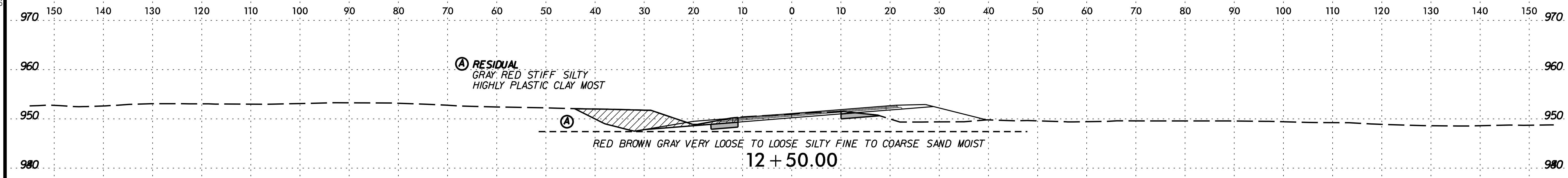
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS- 1119	40' RT	14+50	1.0-2.5	A-7-6(26)	65	37	18	14	14	54	99	88	69.2	30.9	ND



-Y12-

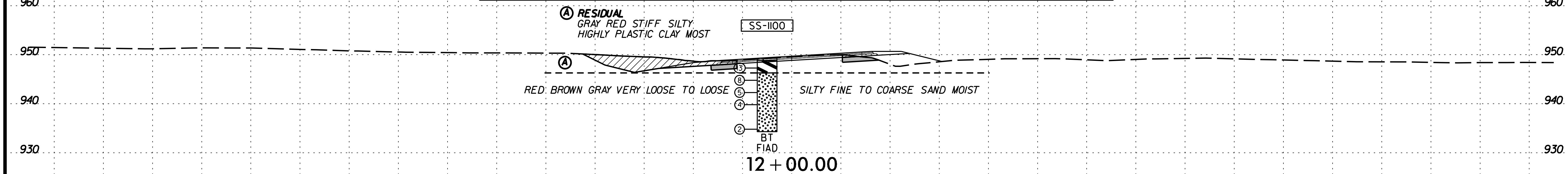
$$$$SYSTIME$$$$ $$$$$$$$DGN$$$$$$$$$$$$$$$$$$ $$$$USERNAME$$$$

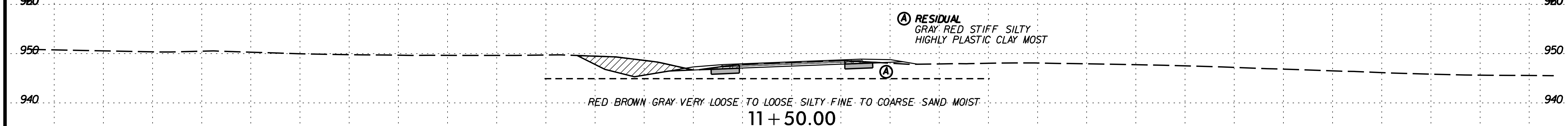
PROJ. REFERENCE NO.	SHEET NO.
U-4758	47

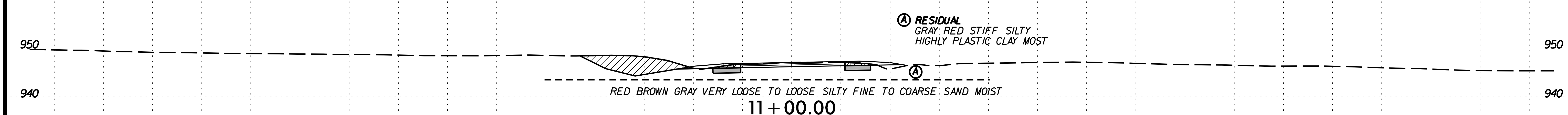


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-1100	5' LT	12+00	1.0-2.5	A-7-5(28)	76	38	19	14	16	52	100	88	69.3	24.7	ND

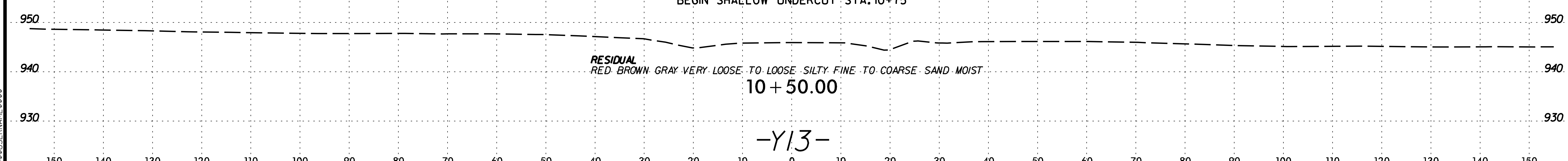




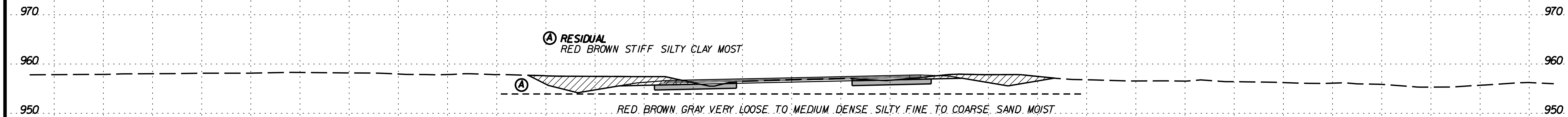


BEGIN UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE AT STA. 10+75

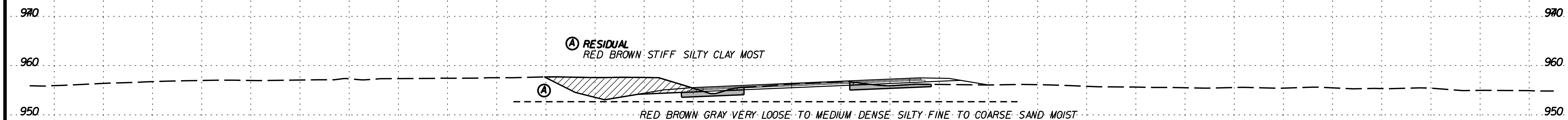
BEGIN SHALLOW UNDERCUT STA. 10+75



-Y13-



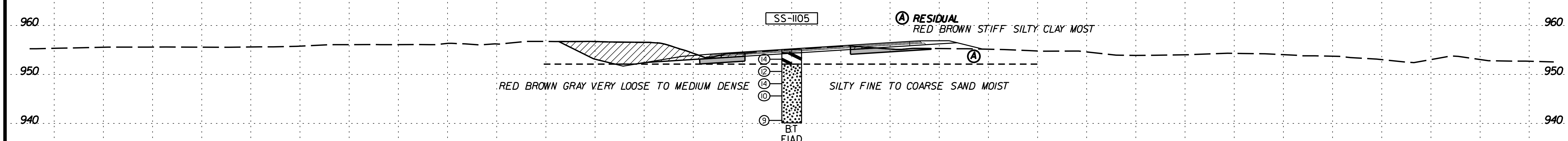
15 + 00.00



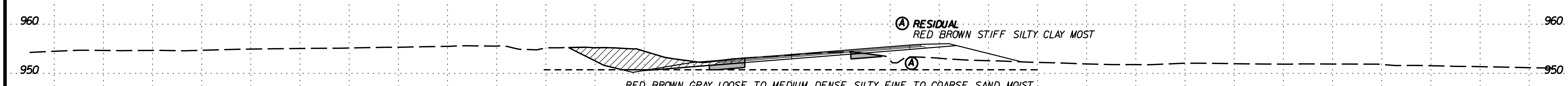
14 + 50.00

SOIL TEST RESULTS

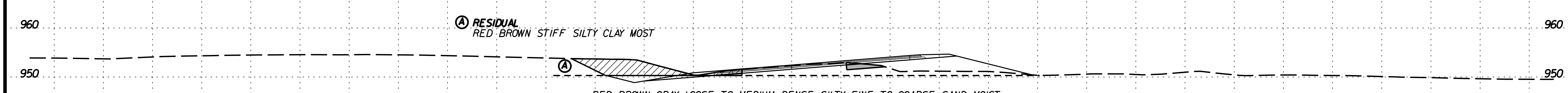
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS- 1105	CL	14+00	1.0-2.5	A-7-5(13)	55	21	22	17	27	35	99	82	63.6	27.8	ND



14 + 00.00



13 + 50.00



13 + 00.00

-Y13-

6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4758	49

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

980
970
960
950

END UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE AT STA. 16+25

END SHALLOW UNDERCUT -L- STA. 16+25

Ⓐ RESIDUAL
RED BROWN STIFF SILTY CLAY MOST

RED BROWN GRAY VERY LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

16+00.00

Ⓐ RESIDUAL
RED BROWN STIFF SILTY CLAY MOST

RED BROWN GRAY VERY LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST

15+50.00

-Y13-

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

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

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	50

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

970
960
950
940

Ⓐ RESIDUAL
GRAY RED STIFF HIGHLY PLASTIC CLAY MOIST

GRAY LOOSE CLAYEY OR SILTY FINE TO COARSE SAND

13+00.00

980
970
960
950

Ⓐ RESIDUAL
GRAY RED STIFF HIGHLY PLASTIC CLAY MOIST

GRAY LOOSE CLAYEY OR SILTY FINE TO COARSE SAND

12+50.00

970
960
950

BEGIN UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 12+25

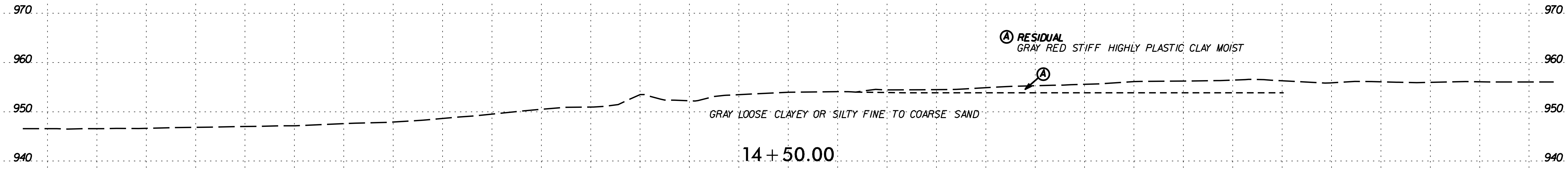
GRAY LOOSE CLAYEY OR SILTY FINE TO COARSE SAND

12+00.00

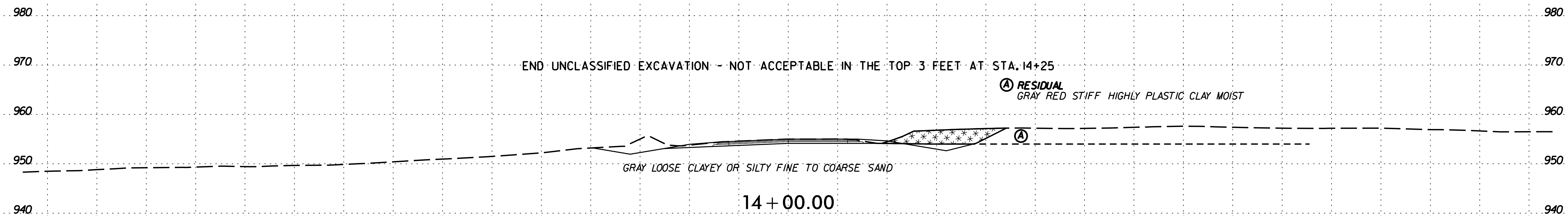
-Y15-

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

PROJ. REFERENCE NO.	SHEET NO.
U-4758	51



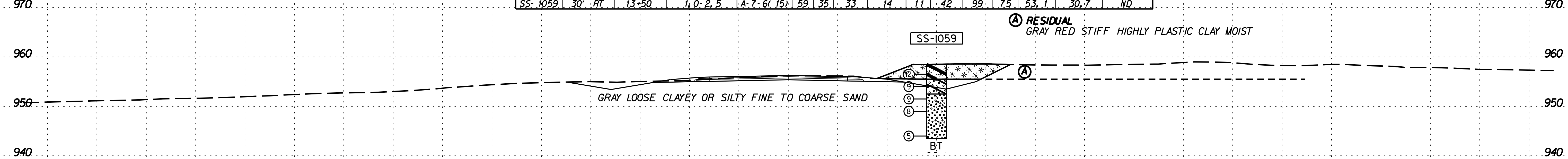
14+50.00



14+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS- 1059	30' RT	13+50	1.0- 2.5	A-7-6(15)	59	35	33	14	11	42	99	75	53.1	30.7	ND



13+50.00

-Y15-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	52

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

990
980
970
960
950

BEGIN UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 11+25

Ⓐ *RESIDUAL*
RED ORANGE STIFF TO VERY STIFF SILTY CLAY MOIST

RED BROWN GRAY LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST TO DRY

11+00.00

980
970
960
950

END UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 10+75

SHEAR TO –L–

Ⓐ *RESIDUAL*
RED ORANGE STIFF TO VERY STIFF SILTY CLAY MOIST

RED BROWN GRAY LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST TO DRY

10+50.00

970
960
950

BEGIN UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 10+25
BEGIN UNDERCUT FOR SUBGRADE STABILITY AT STA. 10+25

10+00.00

–Y17–

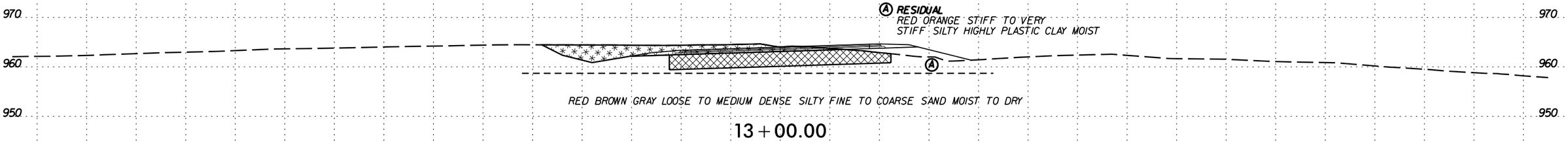
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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

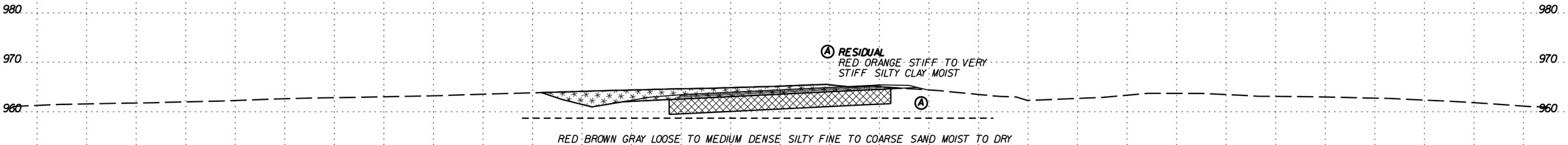
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	53

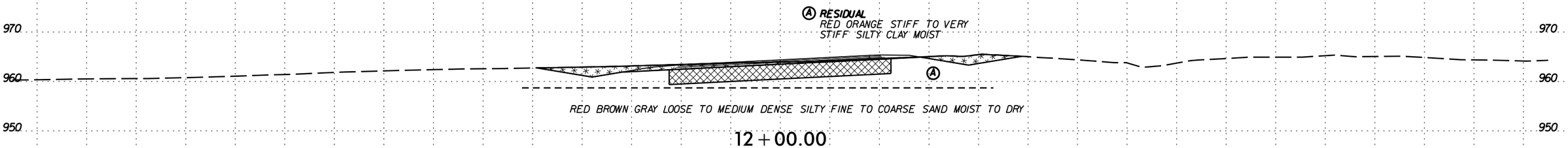
END UNDERCUT FOR SUBGRADE STABILITY AT STA. 13+25
BEGIN SHALLOW UNDERCUT AT STA. 13+25



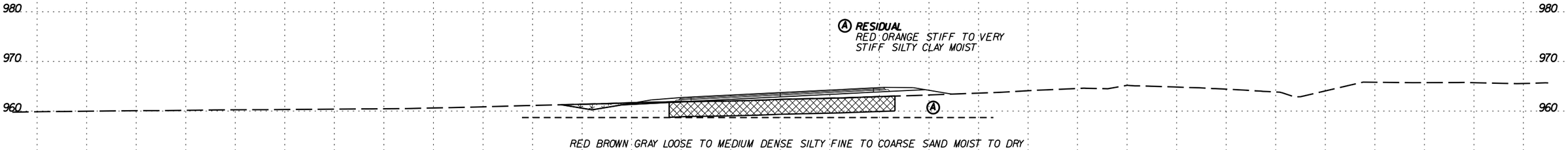
13+00.00



12+50.00



12+00.00



11+50.00

-Y17-

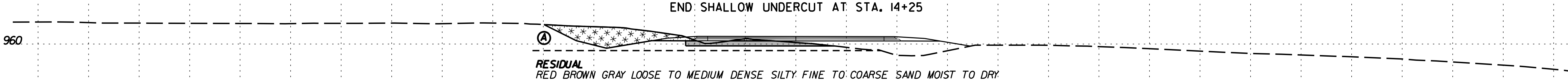
$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

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

Ⓐ **RESIDUAL**
RED ORANGE STIFF TO VERY
STIFF SILTY HIGHLY PLASTIC CLAY MOIST

END SHALLOW UNDERCUT AT STA. 14+25



RESIDUAL
RED BROWN GRAY LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST TO DRY

990 980 970 960 950 940

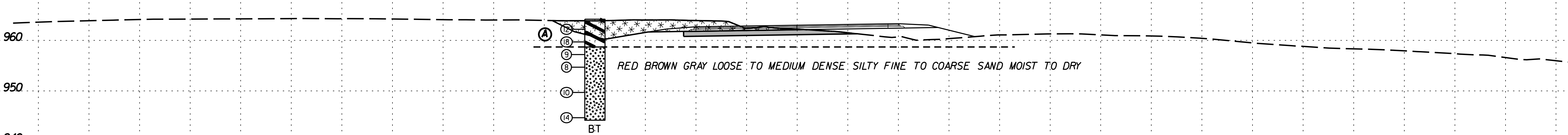
14 + 00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-581	40' LT	13+50	1.0-2.5	A-7-5(30)	66	32	12	8	16	65	100	92	82.2	31.6	ND

Ⓐ **RESIDUAL**
RED ORANGE STIFF TO VERY
STIFF SILTY HIGHLY PLASTIC CLAY MOIST

SS-581



RED BROWN GRAY LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST TO DRY

990 980 970 960 950 940

13 + 50.00

-Y17-

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

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4758	55

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

970 960 950 940 930

RESIDUAL
RED ORANGE MEDIUM STIFF TO STIFF SANDY SILT MOIST

RED BROWN GRAY LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST TO DRY

15+00.00

980 970 960 950 940

Ⓐ **RESIDUAL**
RED ORANGE STIFF TO VERY STIFF SILTY HIGHLY PLASTIC CLAY MOIST

END UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 14+75

RESIDUAL
RED BROWN GRAY LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND MOIST TO DRY

14+50.00

-Y17-

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

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

6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4758	56

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

990 980 970 960 950 940 930

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-519	35' LT	27+41	1.0-2.5	A-7-5(26)	63	29	11	11	14	64	99	92	79.1	39.1	ND

Ⓐ **RESIDUAL** RED STIFF HIGHLY PLASTIC CLAY MOIST

SS-519

27+41

Ⓐ 5 5 11 13 — **RESIDUAL** RED AND ORANGE STIFF SANDY SILT MICA MOIST

9 — BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND TRACE MICA MOIST TO DRY

9 — BT

27+50.00

Ⓐ **RESIDUAL** RED STIFF HIGHLY PLASTIC CLAY MOIST

BEGIN UNDERCUT FOR SUBGRADE STABILITY AT STA. 27+25

Ⓐ

RESIDUAL
RED MEDIUM STIFF TO VERY STIFF SANDY SILT TRACE MICA MOIST

BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND TRACE MICA MOIST TO DRY

27+00.00

BEGIN UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 26+75

RESIDUAL
RED MEDIUM STIFF TO VERY STIFF SANDY SILT TRACE MICA MOIST

BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND TRACE MICA MOIST TO DRY

26+50.00

-Y29-

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

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4758	57

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

970
960
950
940

RESIDUAL
RED TAN STIFF TO VERY STIFF SANDY SILT TRACE MICA MOIST

BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND TRACE MICA MOIST TO DRY

29+00.00

980
970
960
950
940

END UNCLASSIFIED EXCAVATION - NOT ACCEPTABLE IN THE TOP 3 FEET AT STA. 28+75
END UNDERCUT FOR SUBGRADE STABILITY AT STA. 28+75

Ⓐ **RESIDUAL** RED STIFF HIGHLY PLASTIC CLAY MOIST

Ⓐ

RED AND ORANGE STIFF SANDY SILT MICA MOIST

BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND TRACE MICA MOIST TO DRY

28+50.00

970
960
950
940

Ⓐ

RED AND ORANGE STIFF SANDY SILT MICA MOIST

BROWN RED LOOSE TO MEDIUM DENSE SILTY FINE TO COARSE SAND TRACE MICA MOIST TO DRY

28+00.00

-Y29-

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

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