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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5873	1	54

REFERENCE: I-5873

PROJECT: 53074

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN
-YIRPD-	13+00 TO 23+00	5
-YIRPB-	17+25 TO 26+75	6

CROSS SECTIONS

LINE	STATION	SHEETS
-YIRPD-	13+00 TO 23+00	7-35
-YIRPB-	17+25 TO 26+75	36-54

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *WAKE*

PROJECT DESCRIPTION *INTERCHANGE MODIFICATION AT I-40 AND NC 54*

INVENTORY

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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

N.O. MOORE

D.G. PINTER

R.E. CLARKE

INVESTIGATED BY *N.O. MOORE*

DRAWN BY *N.O. MOORE*

CHECKED BY *J.L. LOVE*

SUBMITTED BY *N.T. ROBERSON*

DATE *JUNE 2018*

NORTH CAROLINA LICENSED SEAL 1912 GEOLOGIST NEIL T. ROBERSON

DocuSigned by:
Neil Roberson 6/15/2018
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SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
I–5873	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		—	—	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
- [X] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

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
- [ ] TRICONE _____" 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:

ELEVATION: FEET

NOTES:

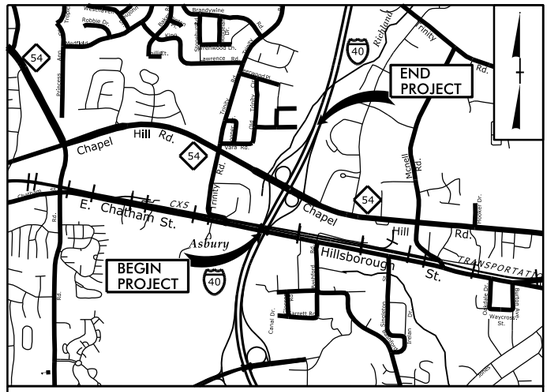
DATE: 8-15-14

09/08/99

TIP PROJECT: I-5873

CONTRACT:

See Sheet 1A For Index of Sheets (Not Included)
See Sheet 1-B For Symbology Sheet



VICINITY MAP

15% APPROVED PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

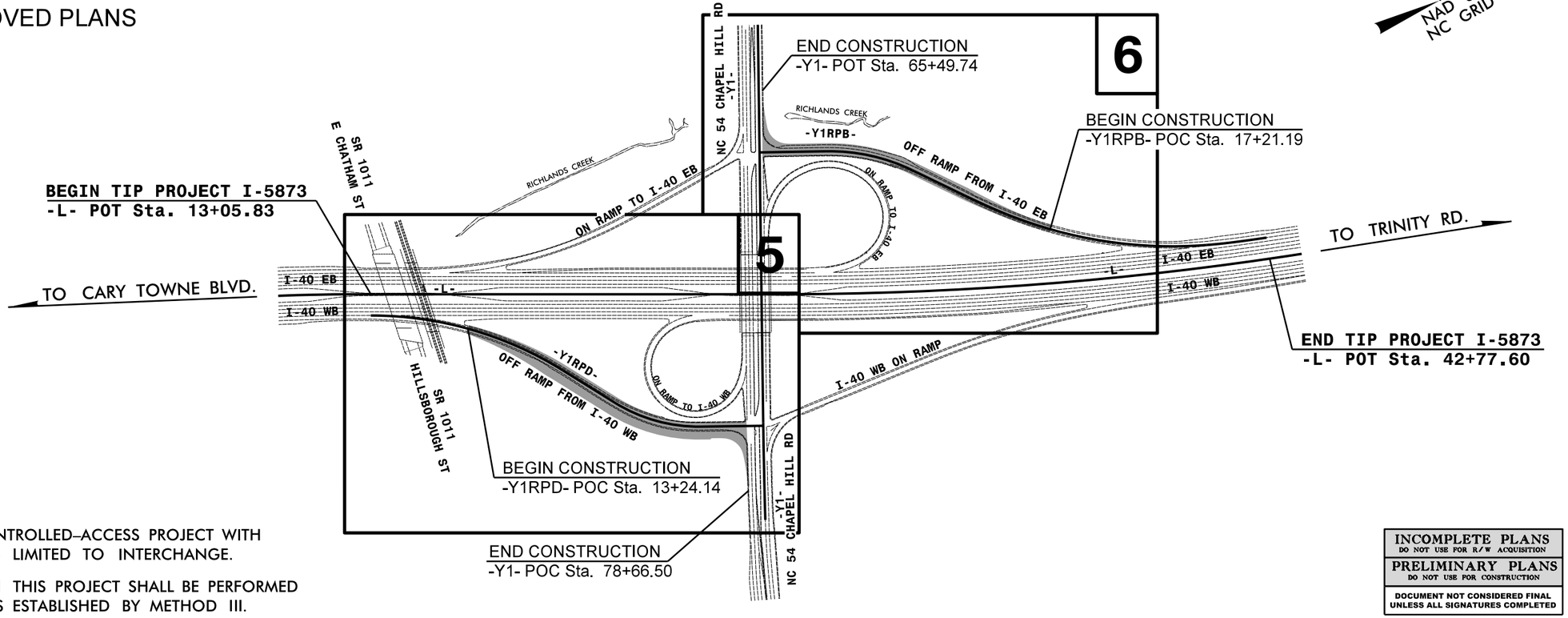
WAKE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	53074.1.1	3	54

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
53074.1.1	N/A	PE

LOCATION: INTERCHANGE MODIFICATION AT I–40 AND NC 54

TYPE OF WORK: GRADING, DRAINAGE AND PAVING



NOTE:

1. THIS IS A CONTROLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGE.
2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

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

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2019 = 12,344
ADT 2040 = 17,300
K = 8 %
D = 55 %
T = 7 % *
V = 50 MPH
* (TTST 3%+ DUALS 4%)
FUNC CLASS = RAMP

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5873 = 0.563 MI
TOTAL LENGTH TIP PROJECT I-5873 = 0.563 MI

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

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 05, 2018

LETTING DATE:
JANUARY 8, 2019

RONYELL THIGPEN, PE
PROJECT ENGINEER

ERIC MISAK
PROJECT DESIGN ENGINEER

NCDOT CONTACT: JOHN BRAXTON
SENIOR PROJECT ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

May 21, 2018

STATE PROJECT: 53074.1.1 (I-5873)
FEDERAL PROJECT:
COUNTY: WAKE

DESCRIPTION: Interchange modification at I-40 and NC 54

SUBJECT: Geotechnical Report – Inventory

The Geotechnical Engineering Unit has completed a subsurface investigation for this project and presents the following inventory.

Project Description

This project consists of widening existing I-40 eastbound and westbound off ramps to NC 54.

A geotechnical investigation was conducted during March of 2018. Eight hand auger and eight hollow-stem auger SPT borings were performed by the Geotechnical Engineering Unit. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by the Materials and Tests Unit.

The following alignments, totaling 0.37 miles, were investigated. Subsurface plans and cross sections of these alignments are included in this report.

Line	Stations
-Y1RPD-	13+00 to 23+00
-Y1RPB-	17+25 to 26+75

Physiography and Geology

The project is located within the city limits of the town of Cary, and within the Piedmont physiographic province of North Carolina. Cambrian-aged residual clays and silts of the Raleigh Belt overlay weathered and crystalline rock. The topography is gently rolling with a low-lying area along Richlands Creek to the north of -Y1RPB-. The widening project is mostly wooded with Richlands Creek to the north of -Y1RPB-.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

Telephone: 919-707-6850
Fax: 919-250-4237
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC

Soils Properties

Soils encountered during this investigation are roadway embankment and residual.

Roadway Embankment soils are present along both exit ramps (-Y1RPB- and -Y1RPD-). These soils primarily consist of red, brown, and gray, moist, soft to medium stiff, silty clay (A-7) and sandy clay (A-6) along -Y1RPB- and gray and brown, moist, medium stiff, sandy silt (A-4) along -Y1RPD-. The plastic index for these soils is 14.

Residual soils of the Raleigh Belt are also present along both exit ramps (-Y1RPB- and -Y1RPD-). These soils are characterized by orange, gray, and brown, moist, soft to very stiff, silty clay (A-7), sandy silt (A-4), and silty sand (A-2-4). Plastic indices for these soils range from 2 to 25.

Groundwater

Groundwater measurements were taken in March 2018 during average rainfall conditions. Groundwater was absent is most borings; however, groundwater was present in 2 borings and ranged from 2.7 to 35.8 feet from the ground surface.

Areas of Special Geotechnical Interest

1) High Groundwater: The following areas exhibit groundwater within 6.0 feet of proposed grade:

Line	Stations	Offsets
-Y1RPD-	18+00	35’ RT

2) Crystalline Rock: The following areas exhibit crystalline rock above or within 6.0 of proposed grade:

Line	Stations	Offsets
-Y1RPD-	13+50 to 17+75	45’ LT to 65’ RT

PROJECT REFERENCE NO.	SHEET NO.
I-5873	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1800
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

MATCH LINE SEE SHEET 6 -L- STA. 25+00.00

REVISIONS

8/17/99

NAD 83/2011

BEGIN TIP PROJECT I-5873
-L- POT Sta. 13+05.83

I-40 EB

I-40 WB

ON RAMP TO I-40 EB

ON RAMP TO I-40 WB

OFF RAMP FROM I-40 WB

ROADWAY EMBANKMENT

RESIDUAL

-Y1RPD-

Y1RPD 1400

Y1RPD 1500

Y1RPD 1600

Y1RPD 1700

Y1RPD 1800

Y1RPD 2000

Y1RPD 2200

BL-102

BL-103

SR 1011 E CHATHAM ST

SR 1011 HILLSBOROUGH ST

NC 54 CHAPEL HILL RD.

-Y1-

-L-

CABLE GUIDE GUARDRAIL

WOODS

CONC DITCH

NCDOT F.O.

Duke Energy Progress

AT&T Corp. PVC DUCT BANK

City of Raleigh 30" DIP

Sprint Communications F.O.

BM2 ELEVATION = 450.61'
N:743,005 E:2,076,015
-BYI- STA 20+43.05' RIGHT 146.10'
BM TIE IN BASE OF 12" PINE

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PROJECT REFERENCE NO.	SHEET NO.
I-5873	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

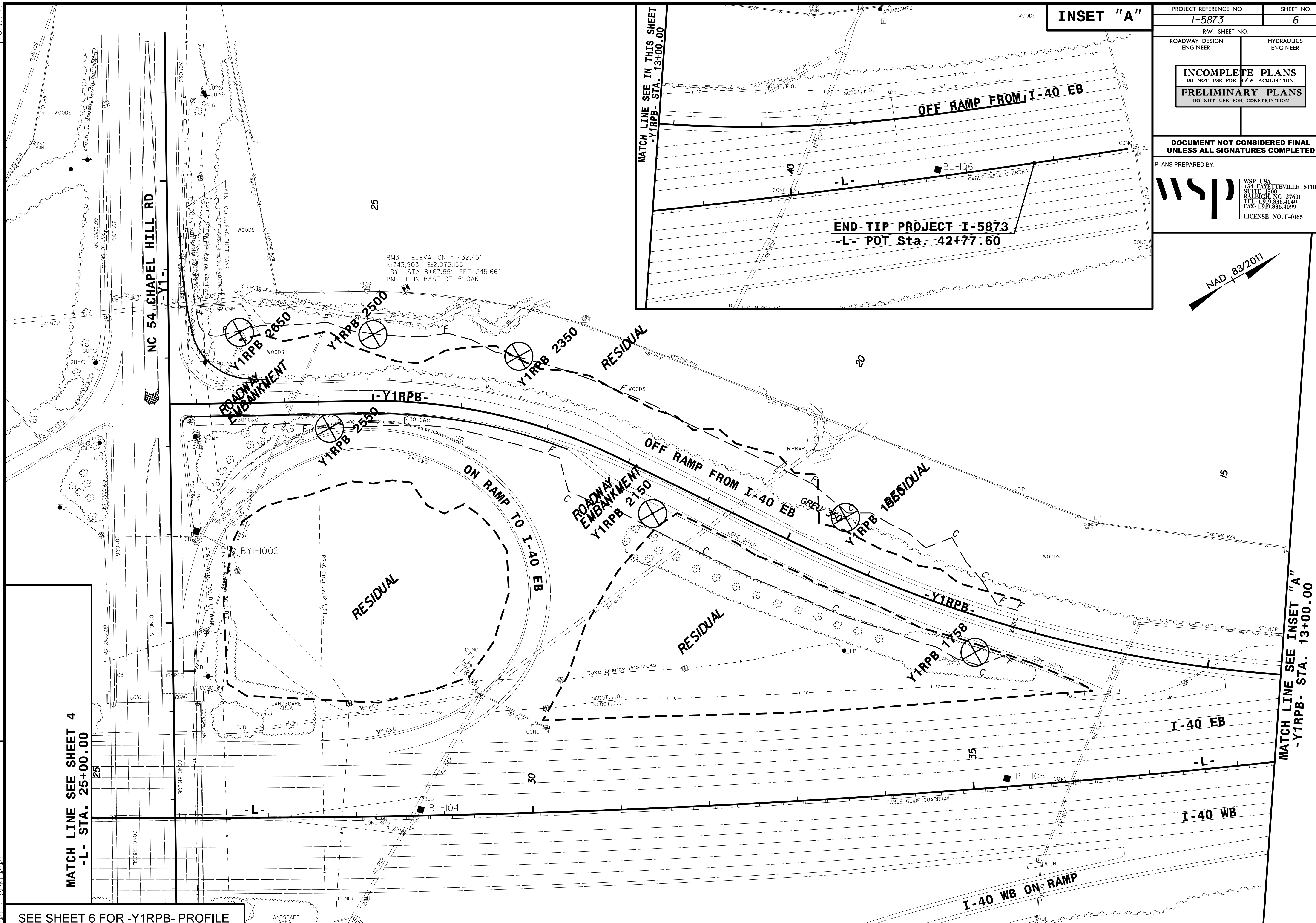
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

REVISIONS

8/17/99



SEE SHEET 6 FOR -Y1RPB- PROFILE

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	7

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

13+00.00

-YIRPD-

480 475 470 465 460 455 450 445 440

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

29-MAY-2018 lidl
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	8

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

13+25.00

-YIRPD-

480 475 470 465 460 455 450 445 440 435

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	9

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

6:1

2:1

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

13+50.00

-YIRPD-

480 475 470 465 460 455 450 445 440 435

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	10

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

2:1

6:1

4:1

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

13+75.00

-YIRPD-

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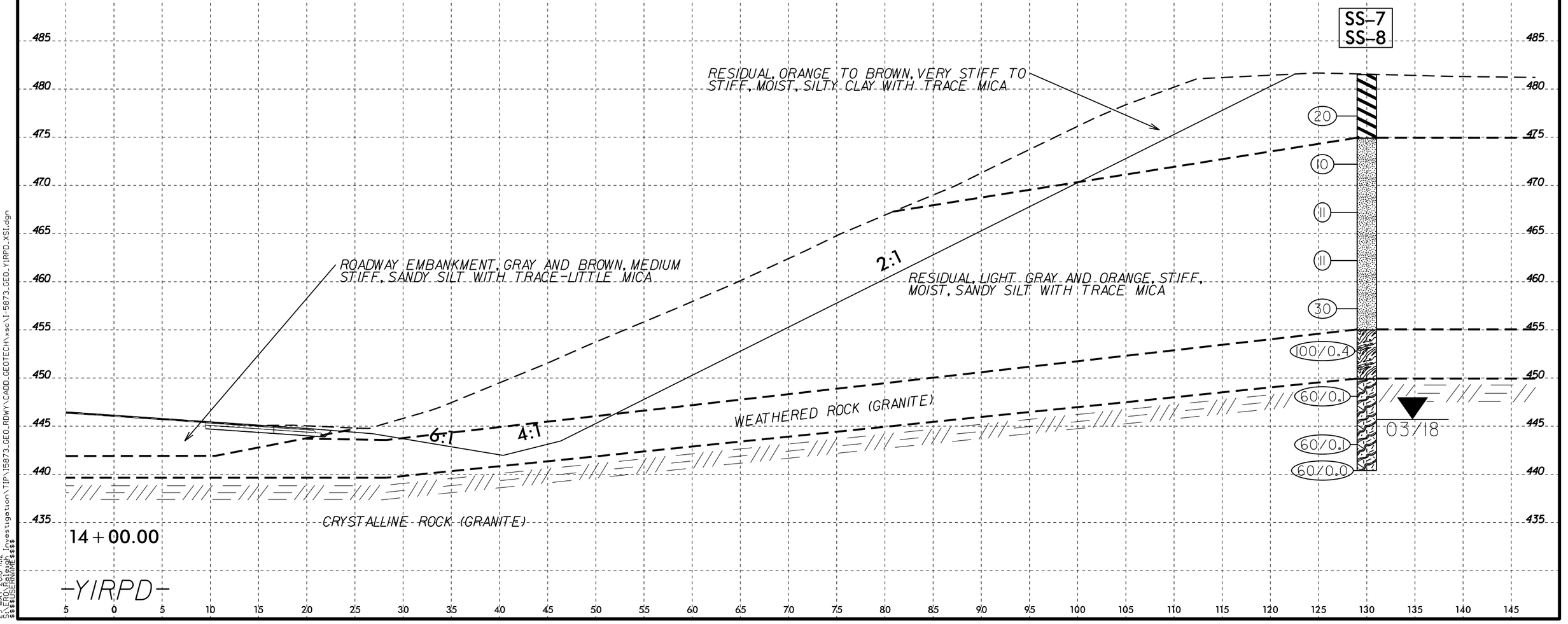
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-7	130' RT	14+00	3.3-4.8	A-7-6(8)	49	22	26.6	22.9	12.3	38.2	95	83	51	-	-
SS-8	130' RT	14+00	23.3-24.8	A-4(0)			9.9	64.6	21.5	4.0	100	98	38	-	-



6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	12

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

6:1

4:1

2:1

14+25.00

-YIRPD-

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	13

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

6:1

4:1

2:1

14+50.00

-YIRPD-

480 475 470 465 460 455 450 445 440 435

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	14

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

2:1

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

6:1

4:1

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

14+75.00

-YIRPD-

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	15

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

2:1

6:1

4:1

60/0.1

100/0.6

15+00.00

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	16

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

2:1

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

6:1

4:1

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

15+25.00

-YIRPD-

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	17

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

6:1

4:1

2:1

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

15+50.00

-YIRPD-

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	18

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

6:1

4:1

2:1

15+75.00

-YIRPD-

29-MAY-2018 11:12
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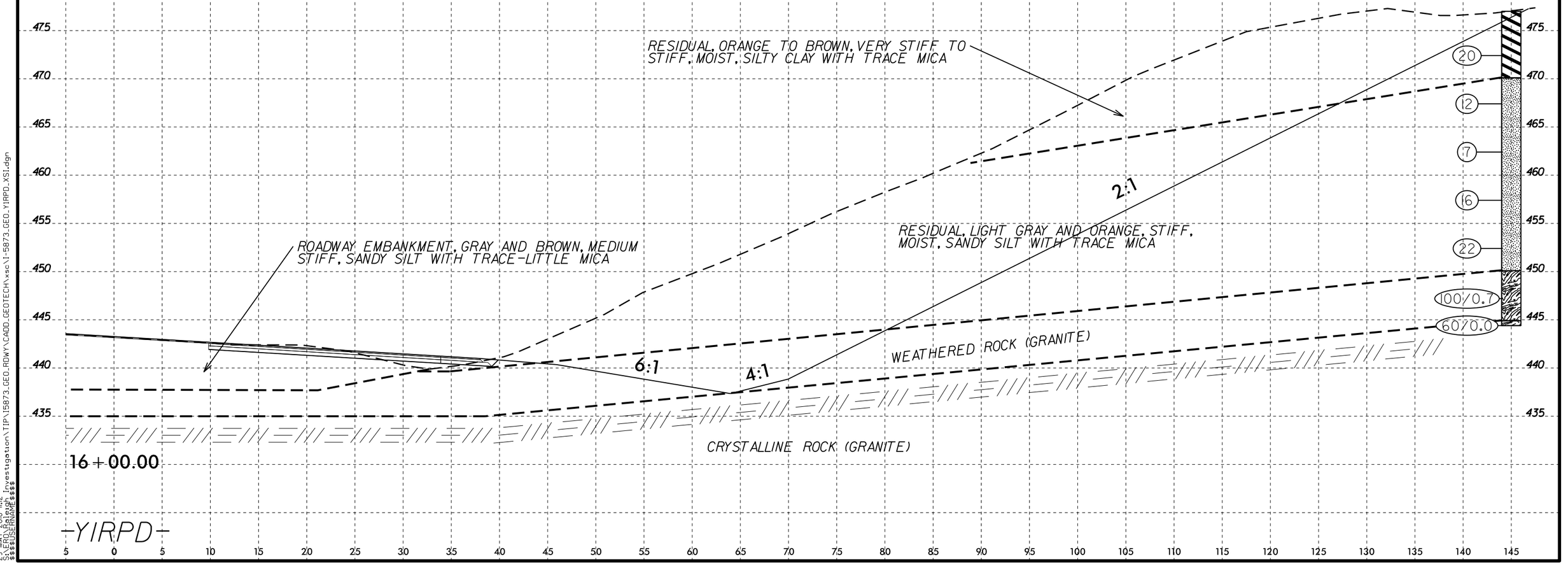
$$$$USERNAME$$$$

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-9	145' RT	16+00	3.6-5.1	A-7-6(13)	51	25	21.1	24.3	18.3	36.2	100	89	60	-	-
SS-10	145' RT	16+00	18.6-20.1	A-4(0)			26.0	45.9	20.1	8.0	98	83	38	-	-
SS-11	145' RT	16+00	23.6-25.1	A-4(0)			15.1	49.3	29.6	6.0	100	96	45	-	-



6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	20

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

2:1

6:1

4:1

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

16+25.00

-YIRPD-

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	21

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

6:1

4:1

2:1

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

16+50.00

-YIRPD-

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	22

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

2:1

6:1

4:1

16+75.00

-YIRPD-

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	23

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

RESIDUAL, LIGHT GRAY AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

6:1

4:1

2:1

60/0.1

100/0.2

17+00.00

-YIRPD-

29-MAY-2018 lui3
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$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	24

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, GRAY, ORANGE, AND BROWN, STIFF, MOIST, SANDY SILT, AND VERY DENSE, SILTY SAND WITH TRACE MICA

6:1

4:1

2:1

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

17+25.00

-YIRPD-

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, GRAY, ORANGE, AND BROWN, STIFF, MOIST, SANDY SILT, AND VERY DENSE, SILTY SAND WITH TRACE MICA

6:1

4:1

2:1

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	25

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, GRAY, ORANGE, AND BROWN, STIFF, MOIST, SANDY SILT, AND VERY DENSE, SILTY SAND WITH TRACE MICA

6:1

4:1

2:1

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

17+75.00

-YIRPD-

29-MAY-2018 lal3
S:\ERO\Raleigh Investigation\TIP\I5873_GEO_RDWY\CADD_GEOTECH\xsc\I-5873_GEO_YIRPD_XSI.dgn
$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	26

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

2:1

6:1

4:1

RESIDUAL, GRAY, ORANGE, AND BROWN, STIFF, MOIST, SANDY SILT, AND VERY DENSE, SILTY SAND WITH TRACE MICA

100/0.7

60/0.1

03/18

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

12

14

17

99

77

39

100/0.9

100/0.6

18+00.00

-YIRPD-

29-MAY-2018 lal3
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$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	27

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

465 460 455 450 445 440 435 430

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

6:1

4:1

2:1

RESIDUAL, OLIVE GREEN TO GRAY, AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

WEATHERED ROCK (GRANITE)

18+50.00

470 465 460 455 450 445 440 435 430

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

6:1

4:1

2:1

RESIDUAL, GRAY, ORANGE, AND BROWN, STIFF, MOIST, SANDY SILT, AND VERY DENSE, SILTY SAND WITH TRACE MICA

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

18+25.00

-YIRPD-

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	28

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

2:1

6:1

4:1

RESIDUAL, OLIVE GREEN TO GRAY, AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

23

24

100/0.7

WEATHERED ROCK (GRANITE)

19+00.00

RESIDUAL, ORANGE TO BROWN, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

2:1

6:1

4:1

RESIDUAL, OLIVE GREEN TO GRAY, AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

WEATHERED ROCK (GRANITE)

18+75.00

-YIRPD-

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	29

RESIDUAL, ORANGE, RED, AND GRAY, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

2:1

6:1

4:1

RESIDUAL, OLIVE GREEN TO GRAY, AND ORANGE, STIFF, MOIST, SANDY SILT WITH TRACE MICA

WEATHERED ROCK (GRANITE)

19+25.00

-YIRPD-

29-MAY-2018 lal3
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$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	30

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

RESIDUAL, ORANGE, RED, AND GRAY, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

RESIDUAL, LIGHT GRAY, ORANGE, AND BROWN, STIFF, MOIST, SANDY SILT WITH TRACE MICA

6:1

4:1

2:1

19+75.00

RESIDUAL, ORANGE, RED, AND GRAY, VERY STIFF TO STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, GRAY AND BROWN, MEDIUM STIFF, SANDY SILT WITH TRACE-LITTLE MICA

6:1

4:1

2:1

RESIDUAL, LIGHT GRAY, ORANGE, AND BROWN, STIFF, MOIST, SANDY SILT WITH TRACE MICA

WEATHERED ROCK (GRANITE)

19+50.00

-YIRPD-

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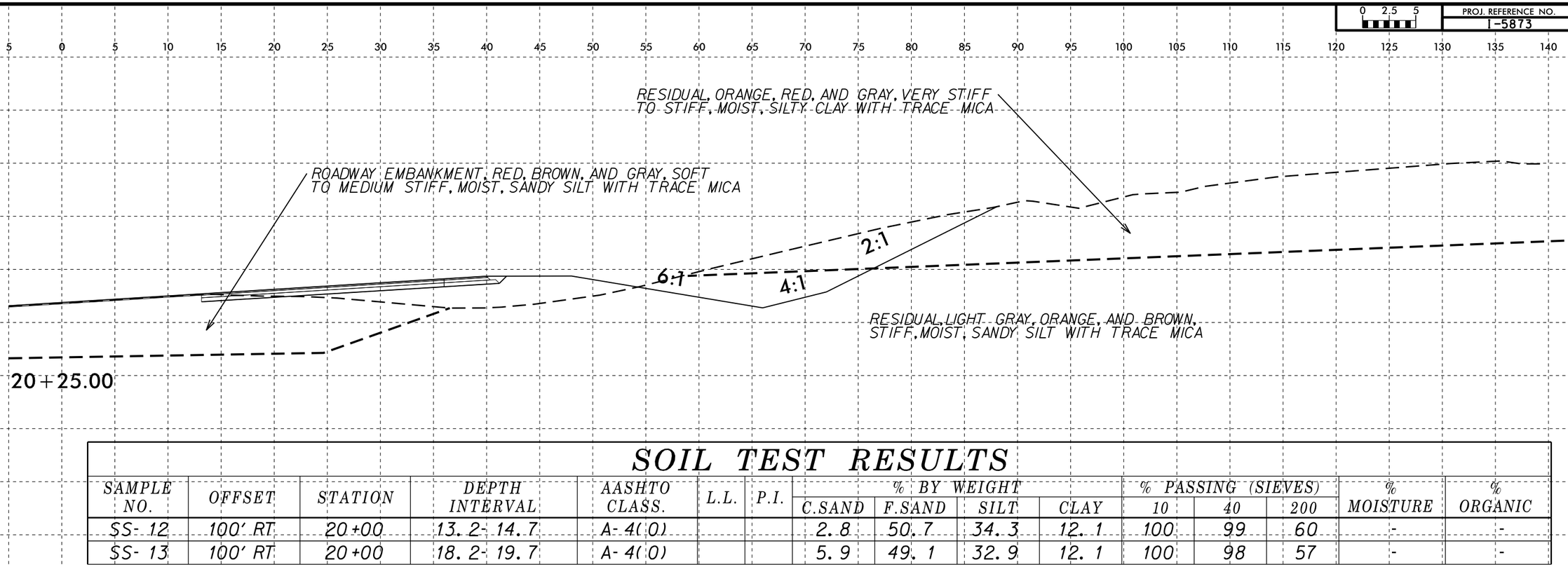
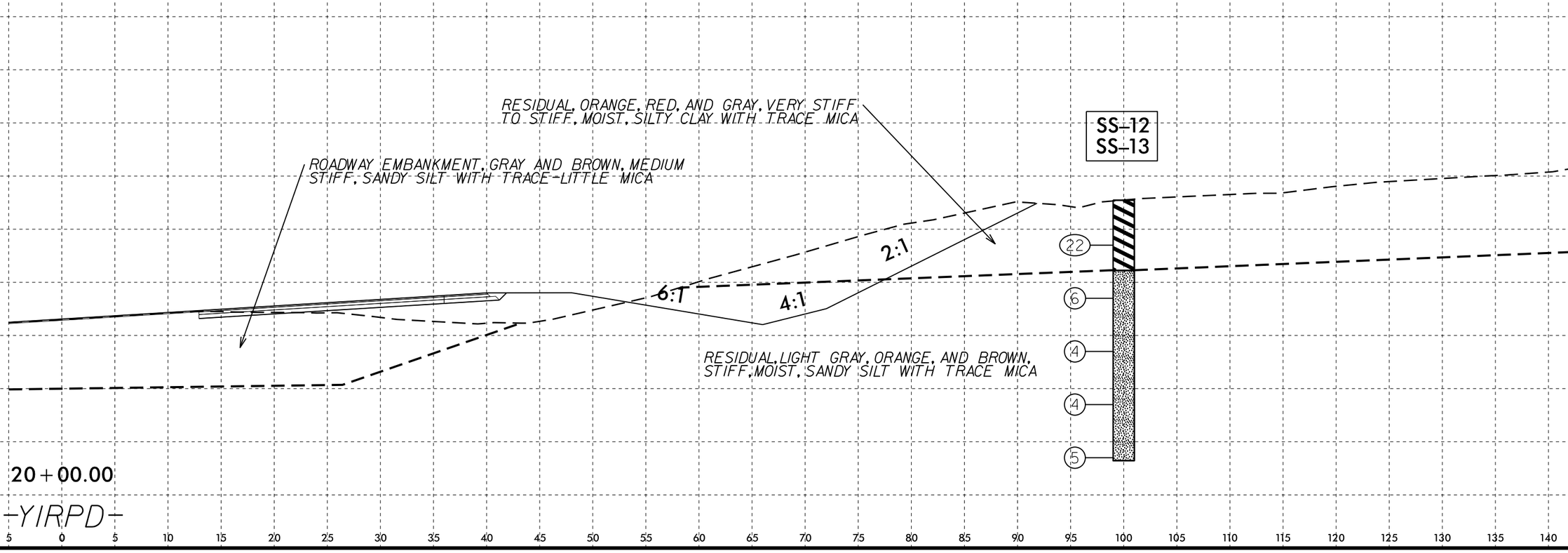
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	31



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-12	100' RT	20+00	13.2-14.7	A-4(0)			2.8	50.7	34.3	12.1	100	99	60	-	-
SS-13	100' RT	20+00	18.2-19.7	A-4(0)			5.9	49.1	32.9	12.1	100	98	57	-	-



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$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	32

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

465 460 455 450 445 440

RESIDUAL, ORANGE, RED, AND GRAY, VERY STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SANDY CLAY WITH TRACE MICA

6:1 4:1 2:1

RESIDUAL, LIGHT GRAY, ORANGE, AND BROWN, STIFF, MOIST, SANDY SILT WITH TRACE MICA

21+00.00

RESIDUAL, ORANGE, RED, AND GRAY, VERY STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT WITH TRACE MICA

6:1 4:1 2:1

RESIDUAL, LIGHT GRAY, ORANGE, AND BROWN, STIFF, MOIST, SANDY SILT WITH TRACE MICA

20+75.00

RESIDUAL, ORANGE, RED, AND GRAY, VERY STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT WITH TRACE MICA

6:1 4:1 2:1

RESIDUAL, LIGHT GRAY, ORANGE, AND BROWN, STIFF, MOIST, SANDY SILT WITH TRACE MICA

20+50.00

-YIRPD-

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	33

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

465 460 455 450 445 440

RESIDUAL, ORANGE, RED, AND GRAY, VERY STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SANDY CLAY WITH TRACE MICA

6:1

6:1

RESIDUAL, BROWN, LOOSE, MEDIUM DENSE TO DENSE, SILTY SAND WITH TRACE MICA

21+75.00

RESIDUAL, ORANGE, RED, AND GRAY, VERY STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SANDY CLAY WITH TRACE MICA

6:1

6:1

RESIDUAL, BROWN, LOOSE, MEDIUM DENSE TO DENSE, SILTY SAND WITH TRACE MICA

21+50.00

RESIDUAL, ORANGE, RED, AND GRAY, VERY STIFF, MOIST, SILTY CLAY WITH TRACE MICA

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SANDY CLAY WITH TRACE MICA

6:1

4:1

2:1

RESIDUAL, BROWN, LOOSE, MEDIUM DENSE TO DENSE, SILTY SAND WITH TRACE MICA

21+25.00

-YIRPD-

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
I-5873	34

0 2.5 5

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

465 460 455 450 445

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SANDY CLAY WITH TRACE MICA

4:1

RESIDUAL, BROWN, LOOSE, MEDIUM DENSE TO DENSE, SILTY SAND WITH TRACE MICA

22+50.00

460 455 450 445

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SANDY CLAY WITH TRACE MICA

4:1

RESIDUAL, BROWN, LOOSE, MEDIUM DENSE TO DENSE, SILTY SAND WITH TRACE MICA

22+25.00

460 455 450 445 440

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SANDY CLAY WITH TRACE MICA

3:1

RESIDUAL, BROWN, LOOSE, MEDIUM DENSE TO DENSE, SILTY SAND WITH TRACE MICA

22+00.00

-YIRPD-

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	35

5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145

465
460
455
450

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SANDY CLAY WITH TRACE MICA

4:1

RESIDUAL, BROWN, LOOSE, MEDIUM DENSE TO DENSE, SILTY SAND WITH TRACE MICA

23+00.00

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SANDY CLAY WITH TRACE MICA

4:1

RESIDUAL, BROWN, LOOSE, MEDIUM DENSE TO DENSE, SILTY SAND WITH TRACE MICA

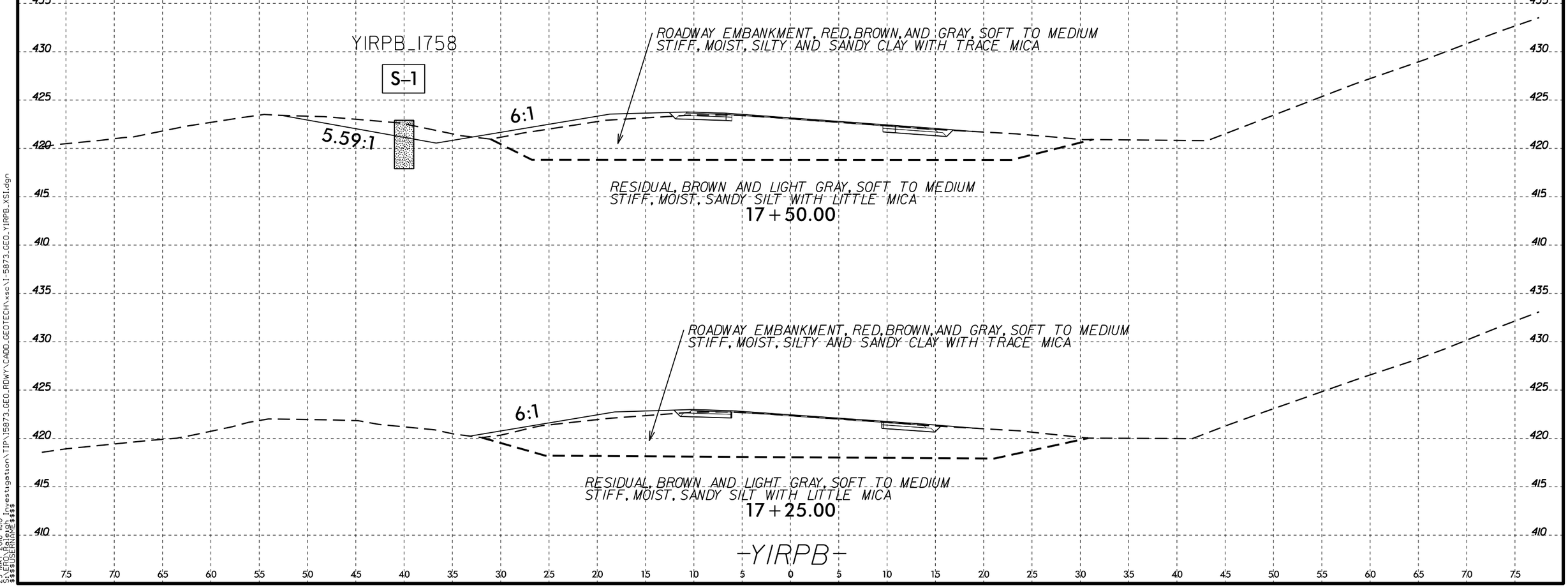
22+75.00

-YIRPD-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	36

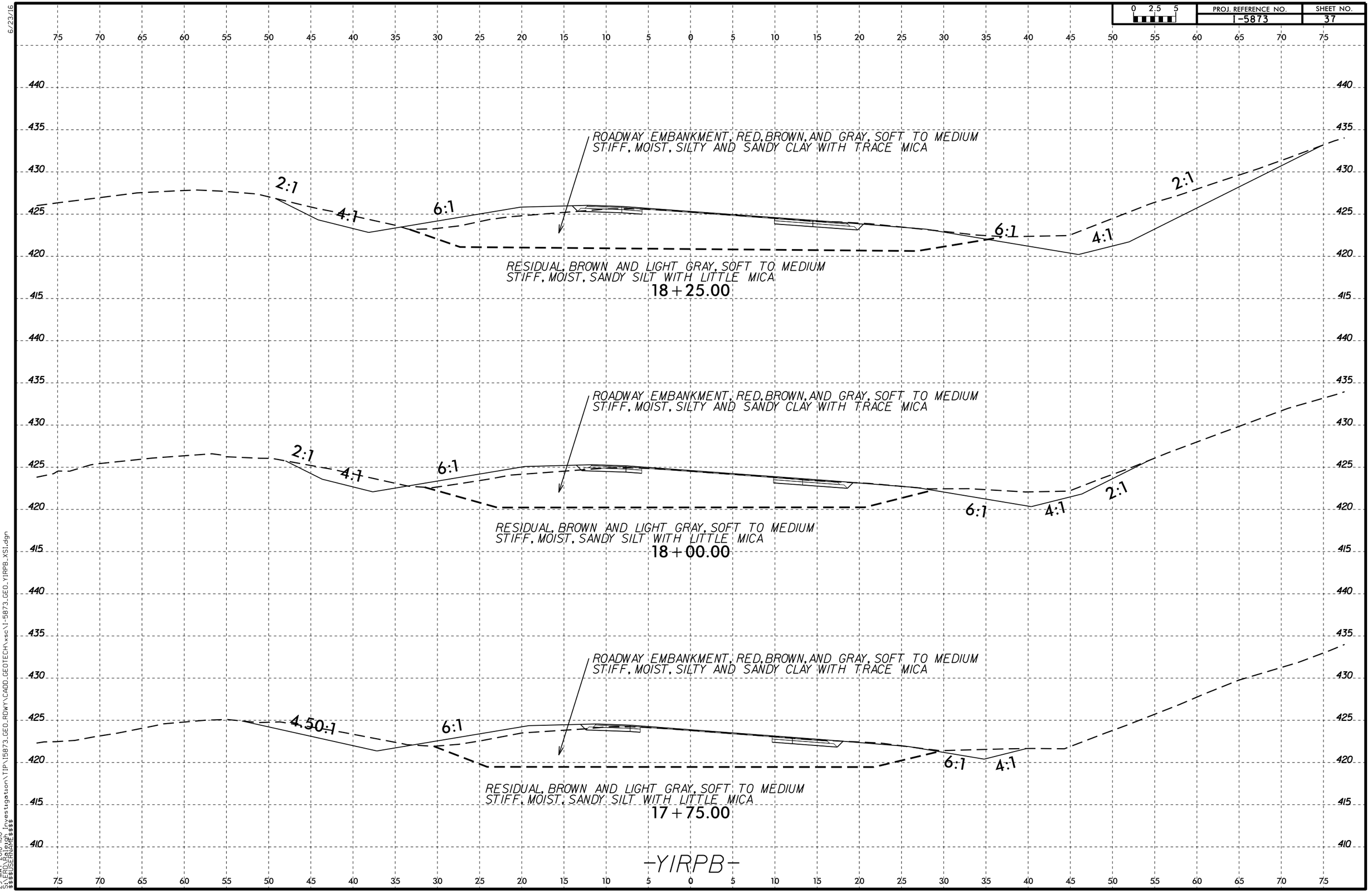
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-1	40' LT	17+50	1.0-2.0	A-4(0)			3.7	33.4	46.9	6.0	99	98	74	-	-



6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	37



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

440 435 430 425 420 415

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

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

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

19+00.00

440 435 430 425 420 415

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

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

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

18+75.00

435 430 425 420 415

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

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

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

18+50.00

-YIRPB-

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

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	39

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

440 435 430 425 420 415 410

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

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

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

19+50.00

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

2:1 4:1 6:1 6:1 4.41:1

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

19+25.00

-YIRPB-

440 435 430 425 420 415 410

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

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	40

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

440 435 430 425 420 415 410 405

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

2:1 4:1 6:1 3.59:1

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

20+00.00

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

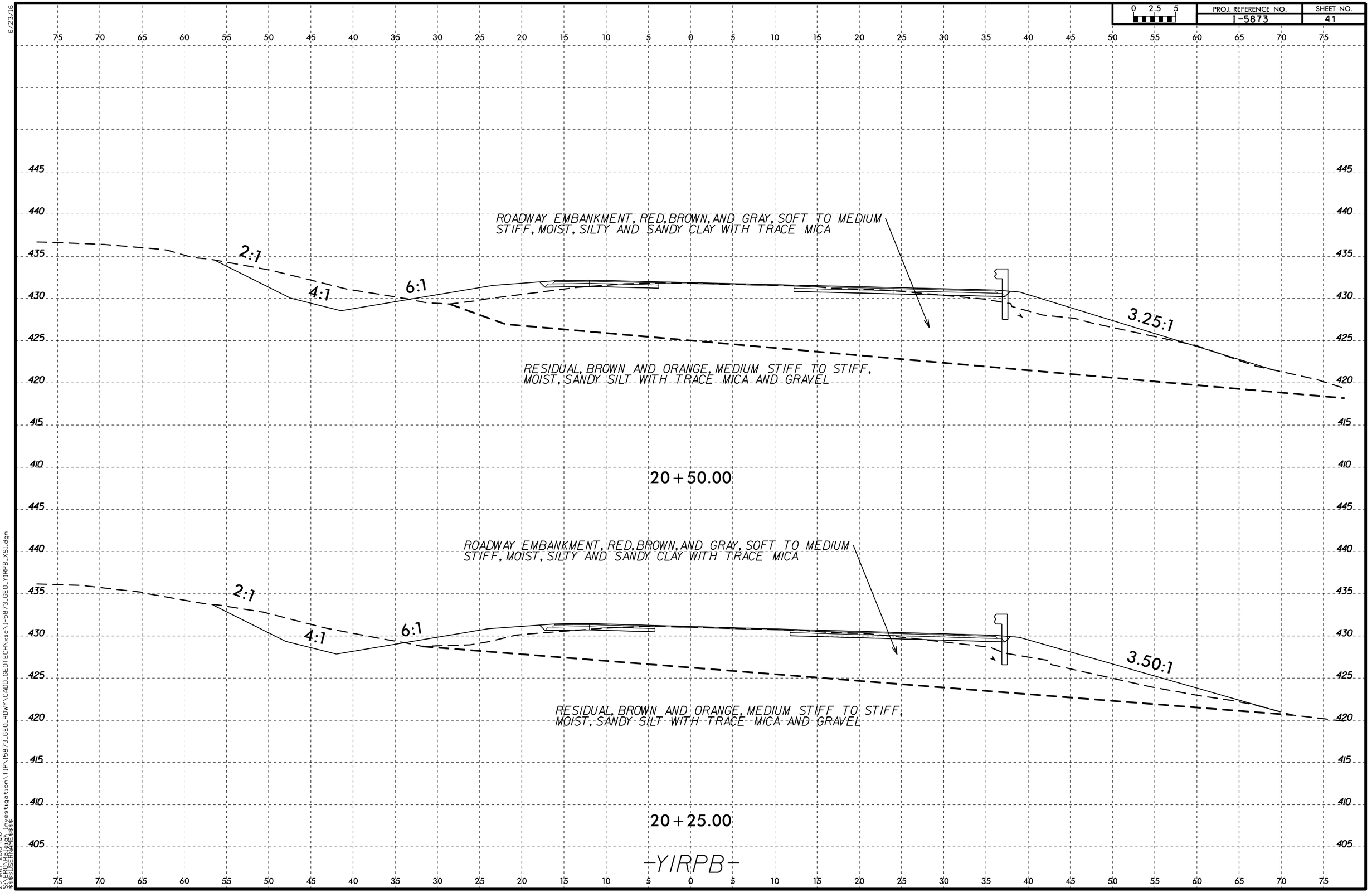
2:1 4:1 6:1 5.09:1

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

19+75.00

-YIRPB-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	41



6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	42

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

445 440 435 430 425 420 415 410

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

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

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

21+00.00

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

2:1 4:1 6:1 2.32:1

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

20+75.00

-YIRPB-

29-MAY-2018 lhill
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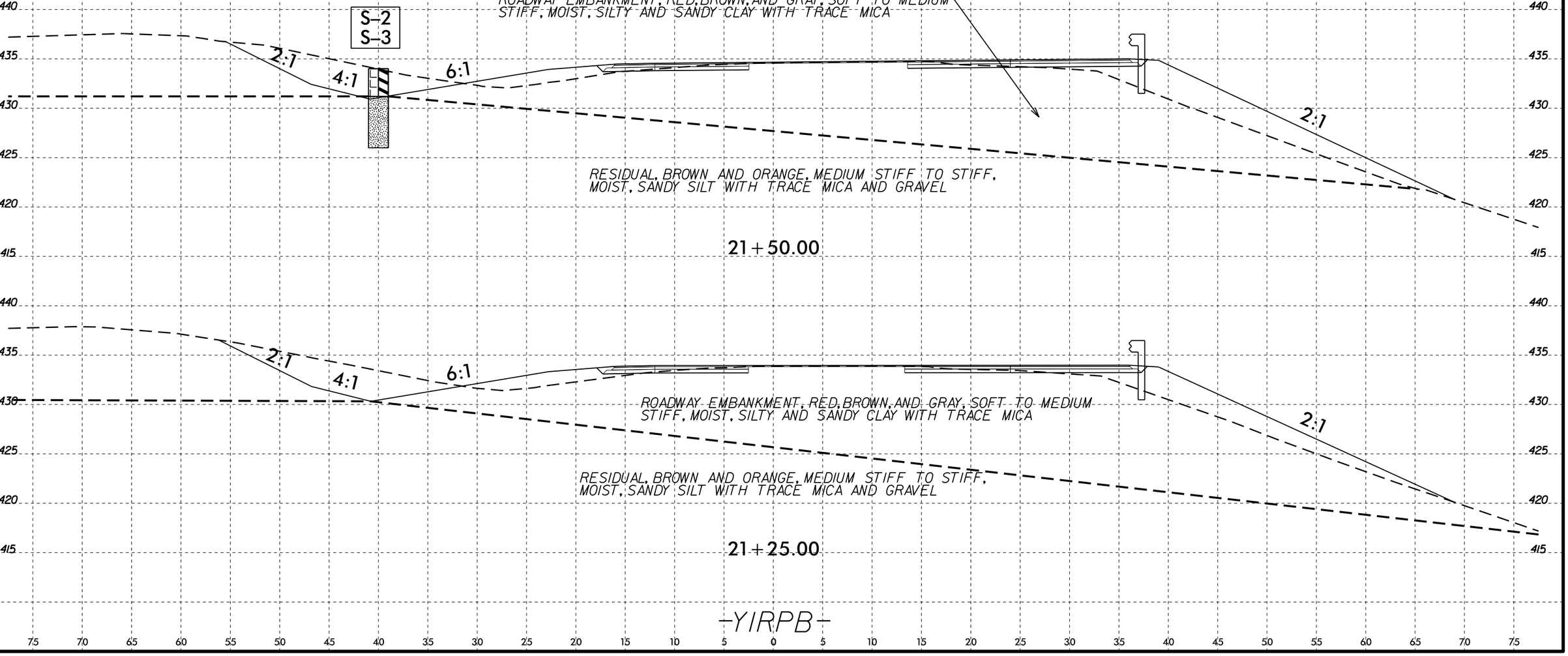
$$$$USERNAME$$$$

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	43

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-2	40' LT	21+50	0.0-1.0	A-7-5(7)	44	14	15.5	32.4	23.9	28.2	96	88	57	-	-
S-3	40' LT	21+50	2.8-3.8	A-4(0)			11.9	43.3	28.8	16.1	95	91	52	-	-



6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	44

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

445 440 435 430 425 420 415

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

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

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

22+00.00

445 440 435 430 425 420 415

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

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

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

21+75.00

-YIRPB-

445 440 435 430 425 420 415

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

29-MAY-2018 lhill
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	45

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

445 440 435 430 425 420 415

4:1

2.21:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

22+75.00

4.54:1

6:1

2:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

22+50.00

4.12:1

6:1

2:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

RESIDUAL, BROWN AND ORANGE, MEDIUM STIFF TO STIFF, MOIST, SANDY SILT WITH TRACE MICA AND GRAVEL

22+25.00

-YIRPB-

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$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	46

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

450 445 440 435 430 425 420

4:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

2.56:1

RESIDUAL, BROWN, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT, AND LOOSE TO MEDIUM DENSE, SILTY SAND WITH LITTLE MICA AND GRAVEL

23+25.00

4:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

2.41:1

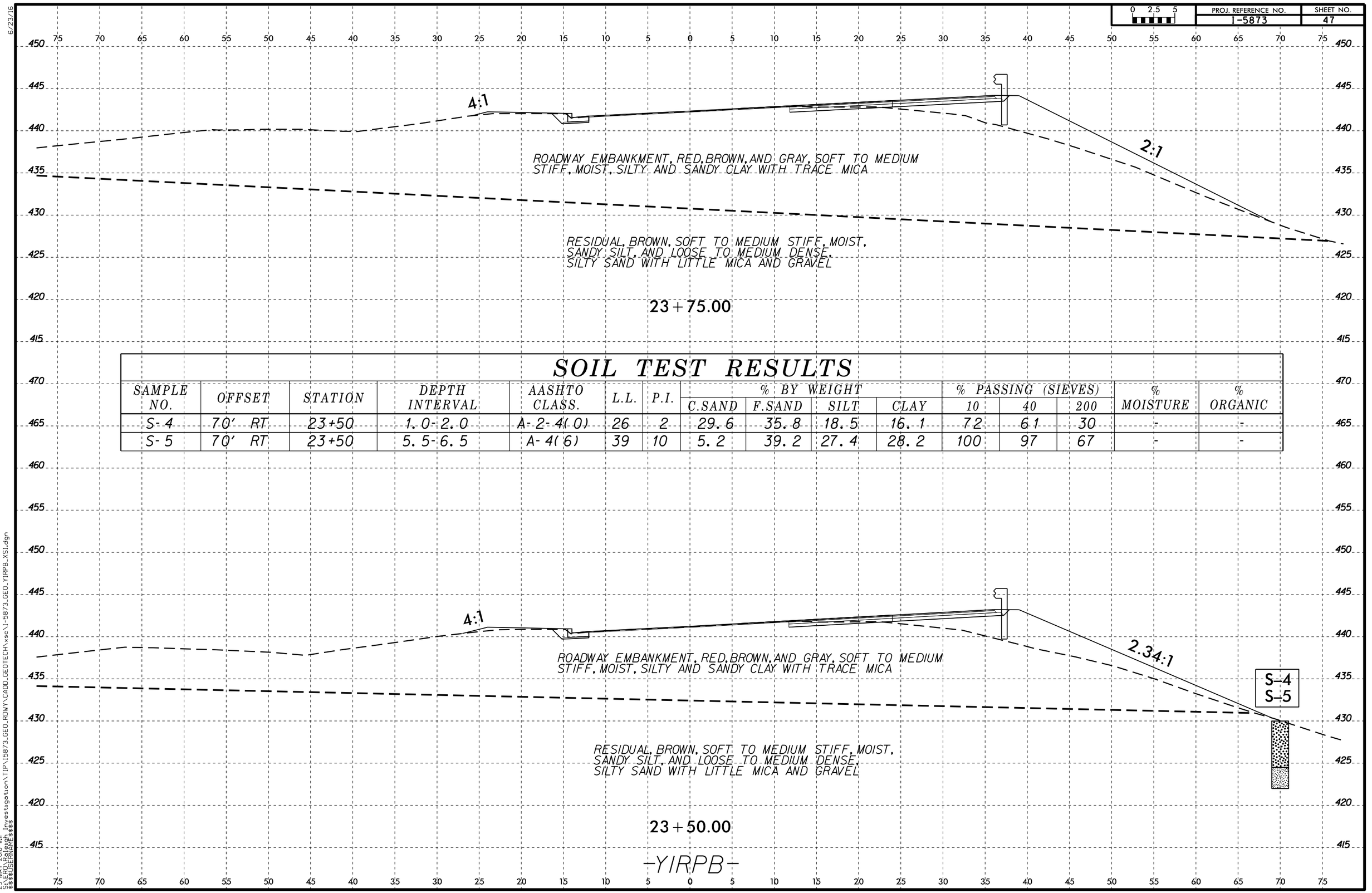
RESIDUAL, BROWN, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT, AND LOOSE TO MEDIUM DENSE, SILTY SAND WITH LITTLE MICA AND GRAVEL

23+00.00

-YIRPB-

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	47



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-4	70' RT	23+50	1.0-2.0	A-2-4(0)	26	2	29.6	35.8	18.5	16.1	72	61	30	-	-
S-5	70' RT	23+50	5.5-6.5	A-4(6)	39	10	5.2	39.2	27.4	28.2	100	97	67	-	-

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	48

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

455 450 445 440 435 430 425 420

4:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

2:1

RESIDUAL, BROWN, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT, AND LOOSE TO MEDIUM DENSE, SILTY SAND WITH LITTLE MICA AND GRAVEL

24+25.00

455 450 445 440 435 430 425 420

4:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

2:1

RESIDUAL, BROWN, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT, AND LOOSE TO MEDIUM DENSE, SILTY SAND WITH LITTLE MICA AND GRAVEL

24+00.00

-YIRPB-

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

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	49

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

455 450 445 440 435 430 425 420

4:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

RESIDUAL, BROWN, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT, AND LOOSE TO MEDIUM DENSE, SILTY SAND WITH LITTLE MICA AND GRAVEL

1.75:1

24+75.00

4:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

RESIDUAL, BROWN, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT, AND LOOSE TO MEDIUM DENSE, SILTY SAND WITH LITTLE MICA AND GRAVEL

1.75:1

24+50.00

-YIRPB-

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

6/23/16

29-MAY-2018 lbll
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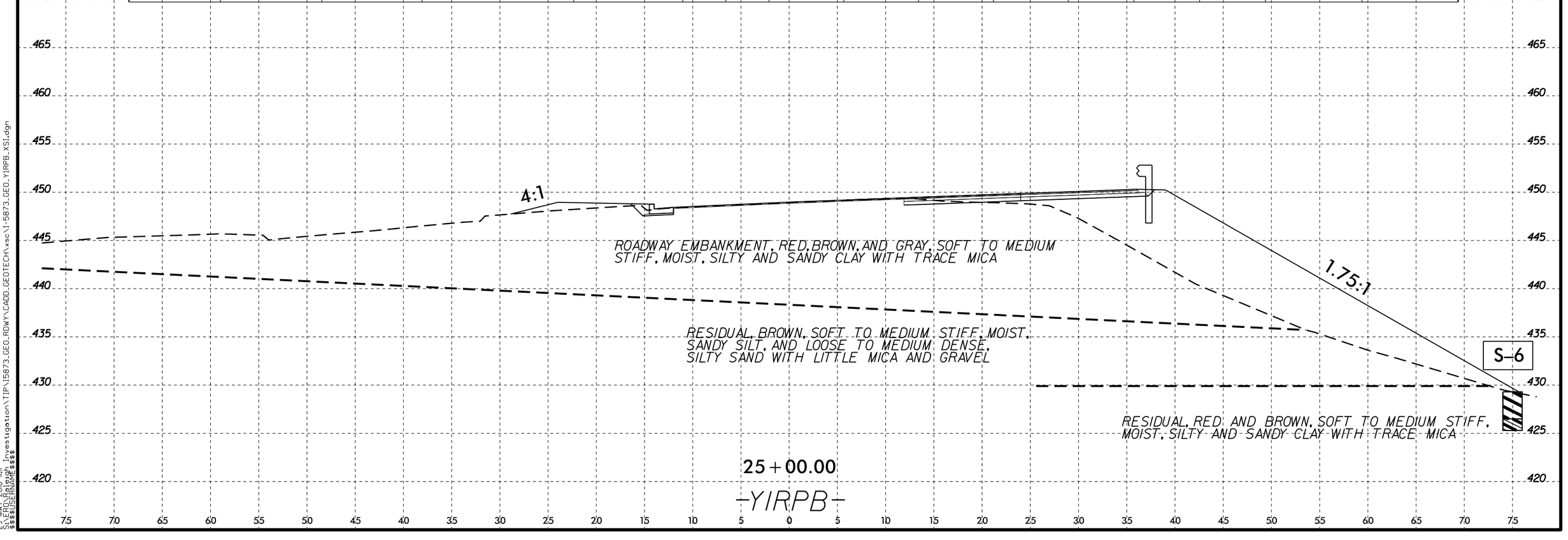
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	50

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-6	75' RT	25+00	0.0-1.0	A-7-5(16)	57	21	7.4	28.2	26.2	38.2	96	93	69	-	-



25+00.00

-YIRPB-

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	51

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

460 455 450 445 440 435 430 425

4:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

2:1

RESIDUAL, BROWN, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT, AND LOOSE TO MEDIUM DENSE, SILTY SAND WITH LITTLE MICA AND GRAVEL

RESIDUAL, RED AND BROWN, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

25+50.00

420 425 430 435 440 445 450 455 460

4:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

1.75:1

RESIDUAL, BROWN, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT, AND LOOSE TO MEDIUM DENSE, SILTY SAND WITH LITTLE MICA AND GRAVEL

RESIDUAL, RED AND BROWN, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

25+25.00

-YIRPB-

420 425 430 435 440 445 450 455 460

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

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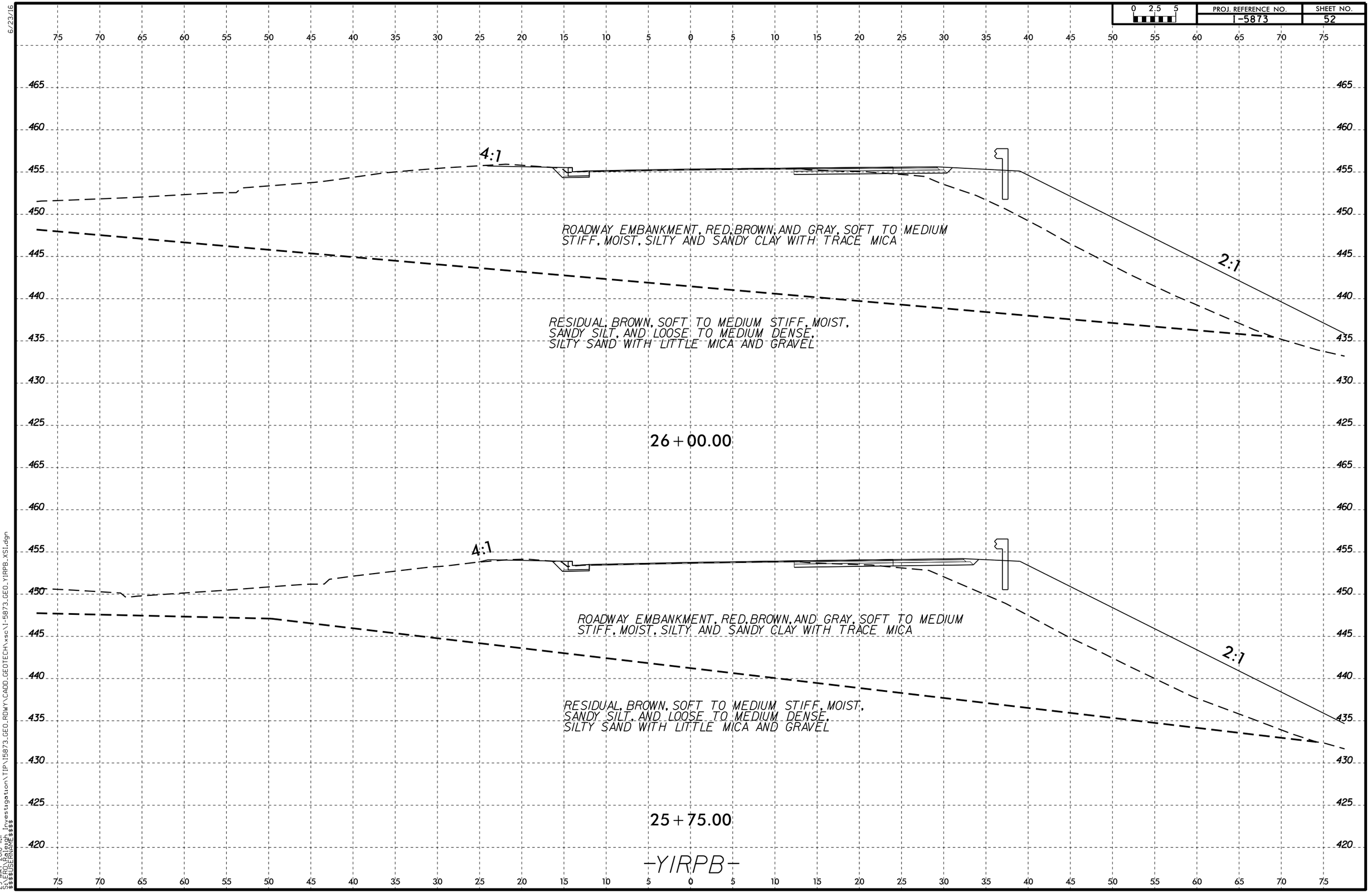
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	52



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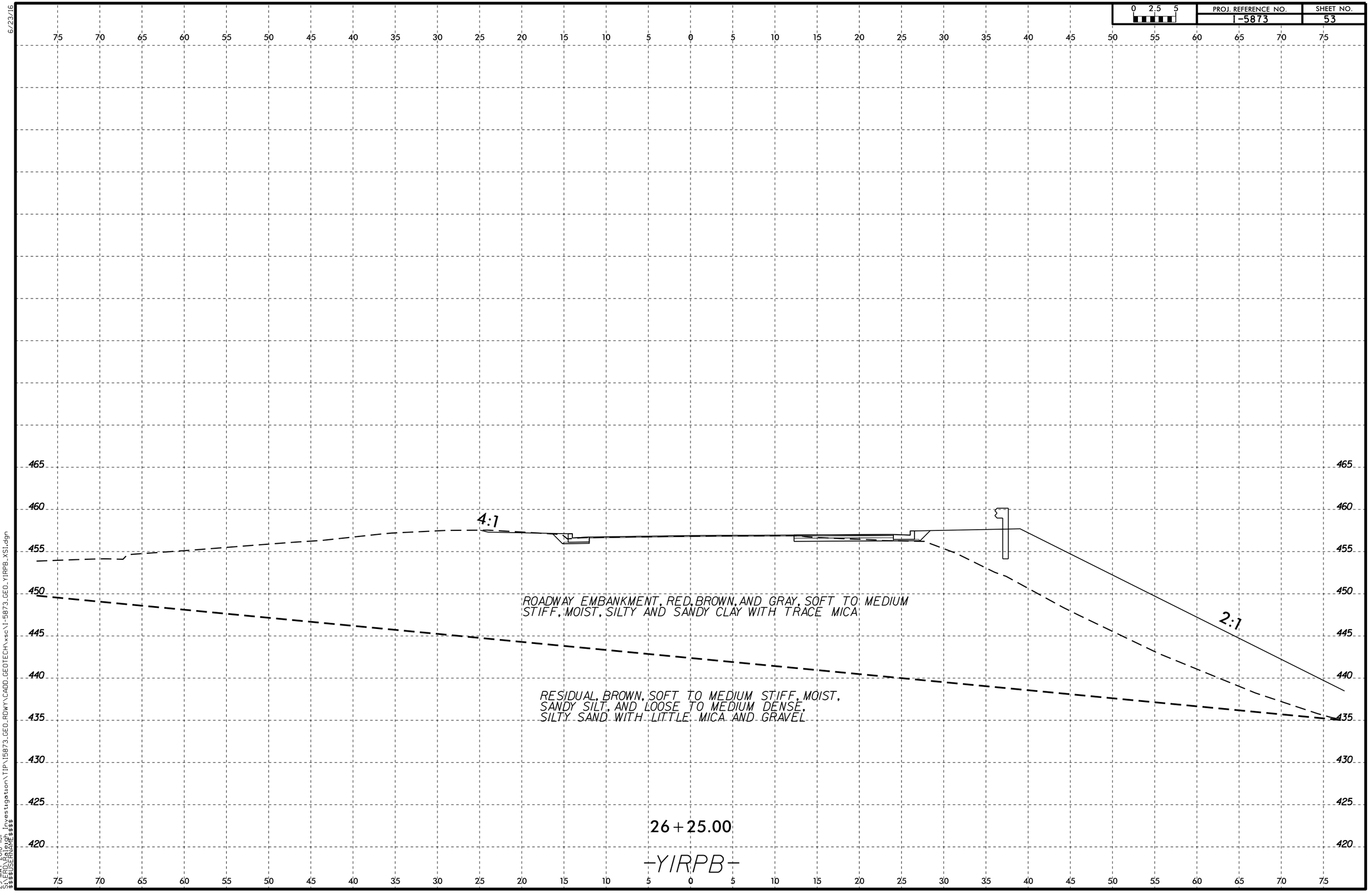
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	53



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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5873	54

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

470 465 460 455 450 445 440 435 430

4:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

RESIDUAL, BROWN, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT, AND LOOSE TO MEDIUM DENSE, SILTY SAND WITH LITTLE MICA AND GRAVEL

2:1

26+75.00

4:1

ROADWAY EMBANKMENT, RED, BROWN, AND GRAY, SOFT TO MEDIUM STIFF, MOIST, SILTY AND SANDY CLAY WITH TRACE MICA

RESIDUAL, BROWN, SOFT TO MEDIUM STIFF, MOIST, SANDY SILT, AND LOOSE TO MEDIUM DENSE, SILTY SAND WITH LITTLE MICA AND GRAVEL

2:1

26+50.00

-YIRPB-

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

29-MAY-2018 lbll
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