STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2566BA	1	59

REFERENCE: R-2566BA

PROJECT: 37512

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN
-L-	148+88.75 - 178+79.16	4-6
-Y4-	10+00 - 14+27.76	5
-Y5-	16+11.40 - 21+95.89	5

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	151+99.34 - 174+64.36	7-49
-Y4-	10+60 - 12+82.76	50-53
-Y5-	18+00 - 21+32.08	54-59

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY WATAUGA

PROJECT DESCRIPTION NC 105 - CONSTRUCT NEW BRIDGE OVER WATAUGA RIVER AND LEFT-TURN AT SR 1112 (BROADSTONE RD) WITHIN THE LIMITS OF R-2566B

INVENTORY

CAUTION NOTICE

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

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

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO 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

DC CHEEK

CJ COFFEY

CD JOHNSON

DC ELLIOTT

INVESTIGATED BY DC ELLIOTT

DRAWN BY DC ELLIOTT

CHECKED BY JC KUHNE

SUBMITTED BY JC KUHNE

DATE 6/22/2018

NORTH CAROLINA LICENSED SEAL 2376 GEOLOGIST D CLAYTON ELLIOTT

DocuSigned by:
D. Clayton Elliott
FD421F60CB0E40E...
SIGNATURE

7/30/2018
DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

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

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

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

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

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

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

RECOMMENDATION SYMBOLS

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

ABBREVIATIONS

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

SAMPLE ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [X] CME-45C
- [ ] 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
- [ ] 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: N/A

ELEVATION: N/A FEET

NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING
TOP OF BORING & SOUNDING ELEVATIONS OBTAINED FROM CROSS SECTIONS

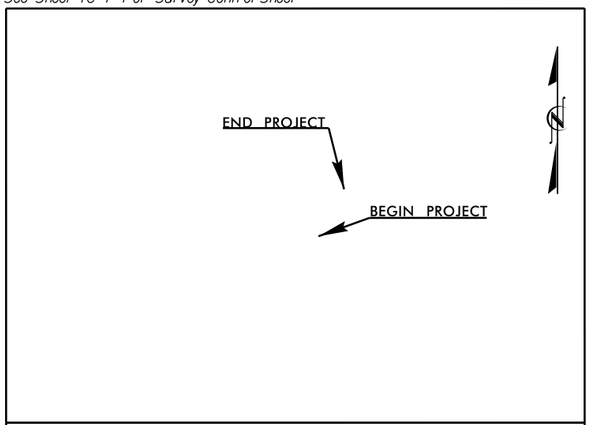
DATE: 8-15-14

TIP PROJECT: R-2566BA

CONTRACT: _

22-JUN-2018 14:52
C:\PROJECT\ROADWAYS\R2566BA_GEO_WATAUGA\CADD GEOTECH\PLANPROF\R-2566BA_GEO_tsh_01.dgn
$$$$USERNAME$$$$

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Plan Sheet Symbols
See Sheet 1C-1 For Survey Control Sheet



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2566BA	3	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
37512.1.4	NHP-0105(005)	PE	

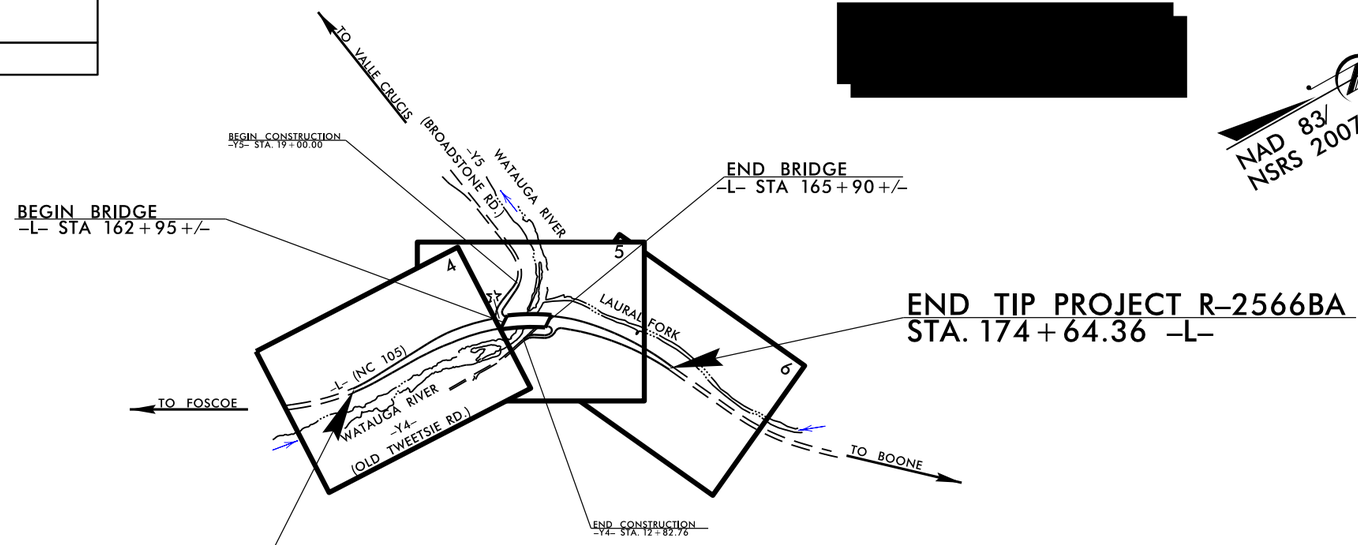
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LOCATION: NC 105 – CONSTRUCT NEW BRIDGE OVER WATAUGA RIVER AND LEFT-TURN LANE AT SR 1112 (BROADSTONE RD.) WITHIN THE LIMITS OF R-2566B

TYPE OF WORK: DRAINAGE, GRADING, PAVING, SIGNAL & STRUCTURE

[redacted]

NAD 83/
NSRS 2007



END TIP PROJECT R-2566BA
STA. 174+64.36 -L-

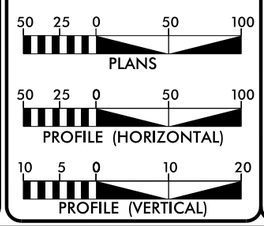
BEGIN TIP PROJECT R-2566BA
STA. 151+99.34 -L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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

☆ EXISTING TRAFFIC SIGNAL TO BE RETROFITTED

GRAPHIC SCALES



DESIGN DATA

ADT 2019 = 15,000
ADT 2040 = 18,000
K = 10 %
D = 60 %
T = 6 % *
V = 60 MPH
* TTST=2% DUAL=4%
FUNC CLASS=ARTERIAL

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2566BA = 0.373 MILES
LENGTH STRUCTURE TIP PROJECT R-2566BA = 0.056 MILES
TOTAL LENGTH OF TIP PROJECT R-2566BA = 0.429 MILES

Prepared for the North Carolina Department of Transportation in the Office of:

WETHERILL ENGINEERING
1223 JONES FRANKLIN ROAD
Raleigh, N.C. 27606
License No. C-0377
Phone: 919-851-8077
Fax: 919-851-8107

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 21, 2018

LETTING DATE:
SEPTEMBER 17, 2019

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: NATHAN N. ADIMA, PE
ROADWAY DESIGN: PROJECT ENGINEER

HYDRAULICS ENGINEER

_____ P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

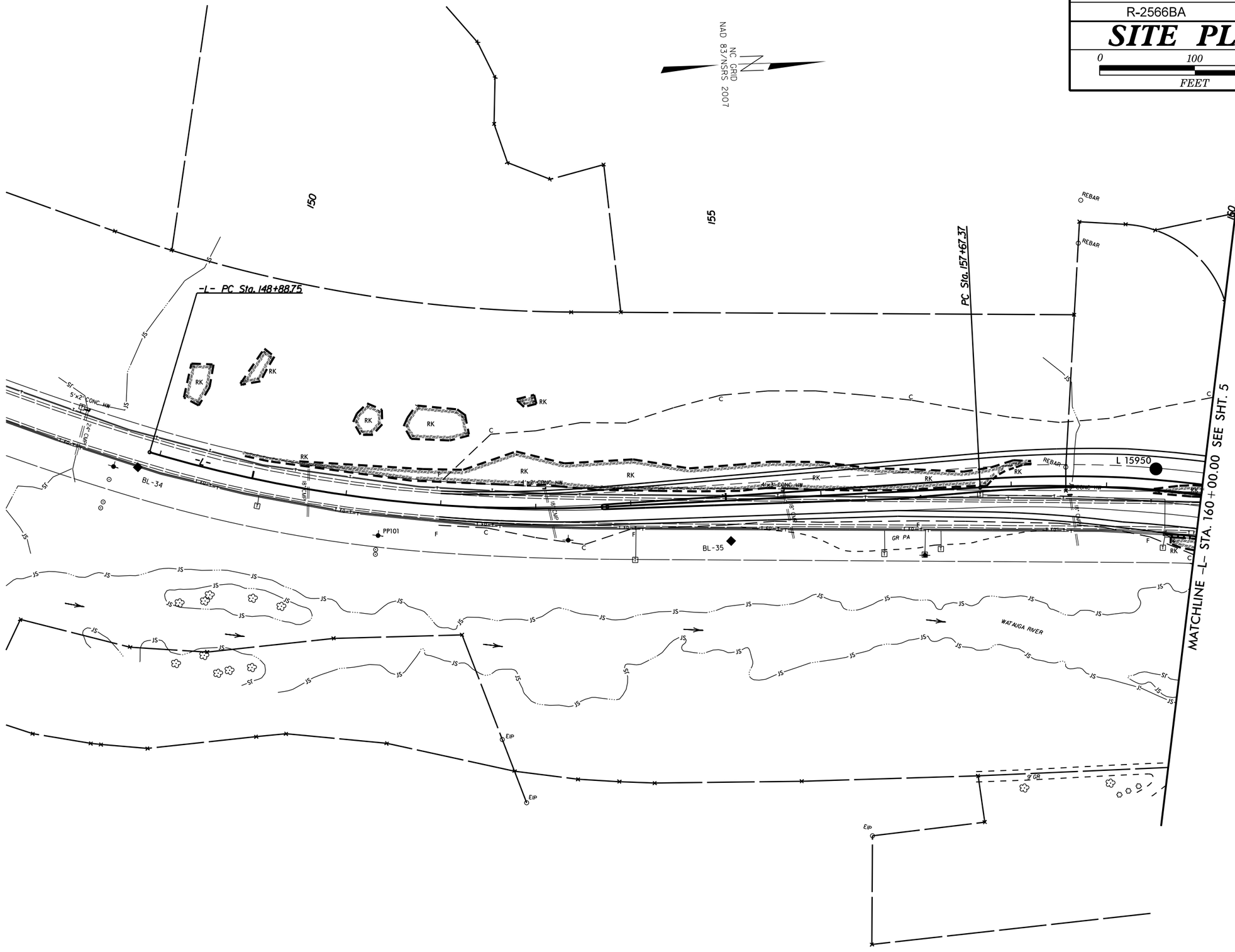
_____ P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	4

SITE PLAN

0 100 200
FEET



PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	5

SITE PLAN

0 100 200

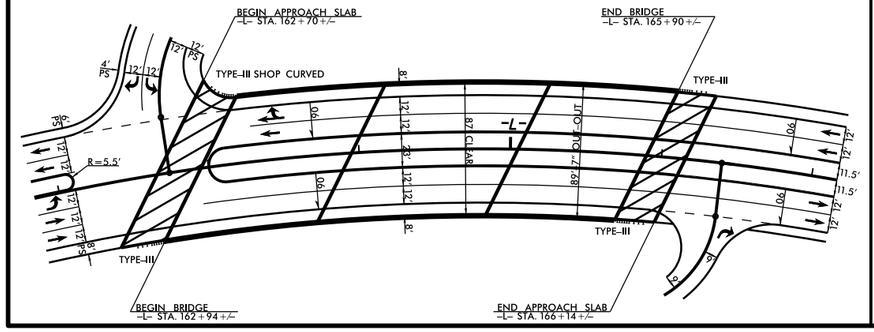
FEET

NAD 83/NSRS 2007 NC GRID

MATCHLINE –L– STA. 160+00.00 SEE SHEET 4

MATCHLINE –L– STA. 170+00.00 SEE SHEET 6

SKETCH SHOWING PAVEMENT/STRUCTURE RELATIONSHIP



PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	6

SITE PLAN

0 100 200
FEET

SEE SHT. 8 FOR -L- PROFILE

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	7

2950
2940
2930
2920
2910
2900
2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

4:1
4:1

152+00.00

22-JUN-2018 10:06
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$$$$USERNAME$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	8

2950
2940
2930
2920
2910
2900
2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

1:1

1:1

2.5:1

2782.12

152+50.00
-L-

22-JUN-2018 10:04
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	9

2940
2930
2920
2910
2900
2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

0.75:1

4:1

25:1

2780.27

153+00.00

—L—

22-JUN-2018 10:03
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	10

2940
2930
2920
2910
2900
2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

0.7:1

1:1

2778.41

25:1

153+50.00

—L—

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	11

2940
2930
2920
2910
2900
2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750

SAPROLITE: SANDY-SILT w/ WEATHERED ROCK SEAMS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

0.75:1

4:1

4:1

2776.67

154+00.00

—L—

22-JUN-2018 09:37
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	12

2930
2920
2910
2900
2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740

COLLUVIUM: SANDY SILT
COBBLES & BOULDERS

SAPROLITE: SANDY SILT to WEATHERED ROCK SEAMS

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

0.75:1

4:1

4:1

2775.07

154+50.00

-L-

22-JUN-2018 09:36
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	13

2930
2920
2910
2900
2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740

ARTIFICIAL FILL: PIONEER RD.

COLLUVIUM: SANDY-SILT
COBBLES & BOULDERS

SAPROLITE: SANDY-SILT W/ WEATHERED ROCK

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

0.75:1

4:1

4:1

2773.60

155+00.00

-L-

22-JUN-2018 09:35
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	14

2930
2920
2910
2900
2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740

ARTIFICIAL FILL: PIONEER RD.

SAPROLITE: SANDY SILT
WEATHERED ROCK SEAMS

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

0.75:1

4:1

4:1

2772.05

155+50.00
-L-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	15

2910
2900
2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740

ARTIFICIAL FILL: PIONEER RD.

SAPROLITE: SANDY SILT w/ WEATHERED ROCK SEAMS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

0.75:1

4:1

4:1

2770.62

156+00.00

-L-

6/23/16

22-JUN-2018 10:08
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	16

2890 2880 2870 2860 2850 2840 2830 2820 2810 2800 2790 2780 2770 2760 2750 2740 2730

SAPROLITE, SANDY-SILT w/ WEATHERED ROCK SEAMS

CRYSTALLINE ROCK- MICA SCHIST & GNEISS

0.75:1

4:1

4:1

2769.38

156+50.00

—L—

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	17

2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

SAPROLITE, SANDY SILT w/ WEATHERED ROCK SEAMS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

0.75:1

A-1

2768.43

A-1

157+00.00

—L—

22-JUN-2018 09:30
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	18

2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

SAPROLITE: SANDY SILT w/ WEATHERED ROCK SEAMS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

0.75:1

4:1

2768.00

4:1

157+50.00

—L—

22-JUN-2018 09:29
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	19

2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

COLLUVIUM: SANDY-SILT
COBBLES & BOULDERS

SAPROLITE: SANDY SILT w/ WEATHERED ROCK

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

0.75:1

4:1

4:1

2767.80

158+00.00

22-JUN-2018 09:26
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	20

2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

COLLUVIUM: SANDY SILT
COBBLES & BOULDERS

SAPROLITE: SANDY SILT

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

WEATHERED ROCK

0.75:1

4:1

2767.67

4:1

158+50.00

-L-

22-JUN-2018 09:26
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	21

2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

COLLUVIUM: SANDY-SILT COBBLES & BOULDERS

SAPROLITE: SANDY-SILT w/ WEATHERED ROCK

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

0.25:1

A-A'

2767.10

4:1

159+00.00

—L—

22-JUN-2018 09:24
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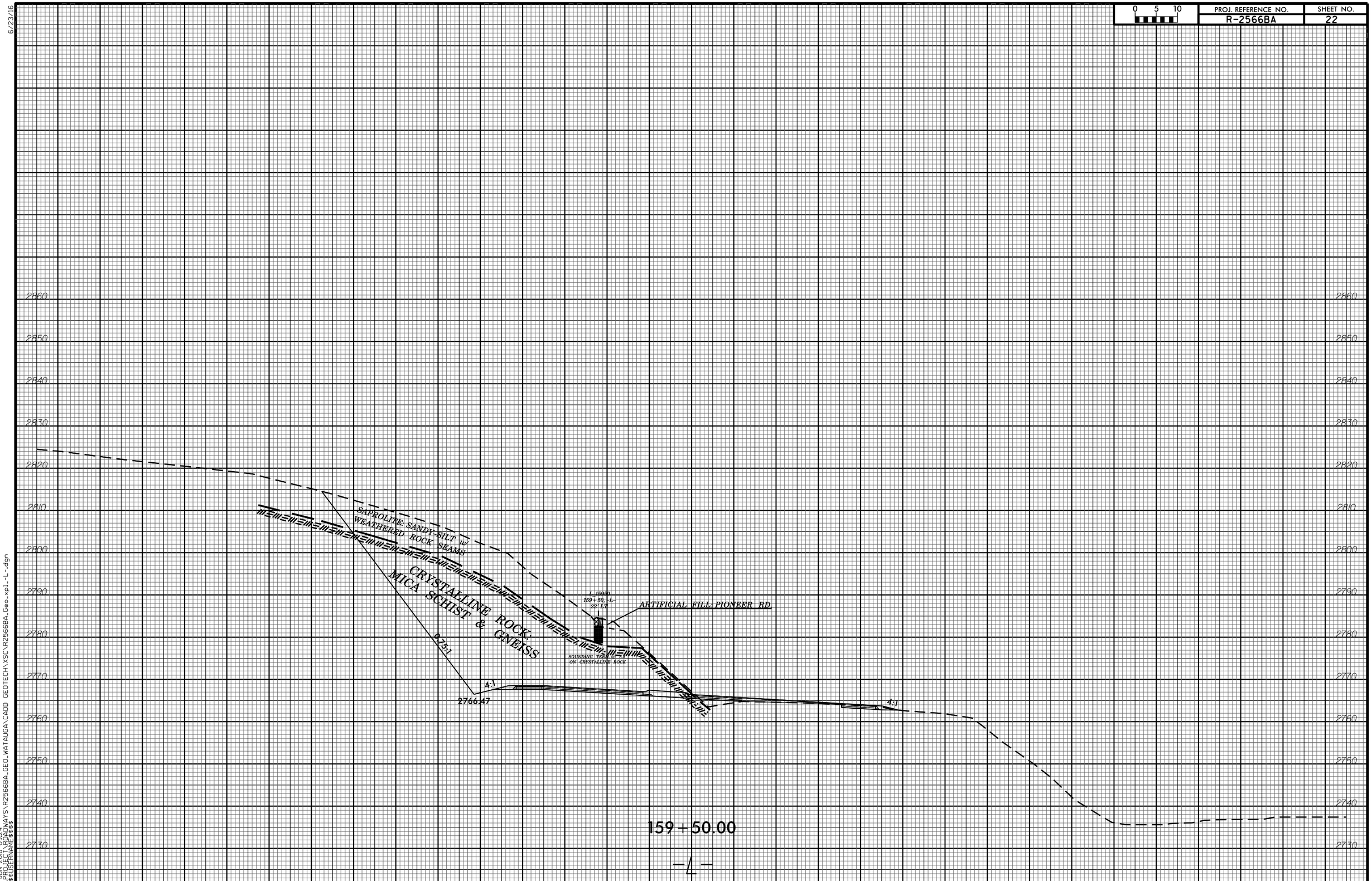

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	23

2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

SAPROLITE: SANDY-SILT w/ WEATHERED ROCK SEAMS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

0.75:1

ARTIFICIAL FILL: PIONEER RD.

SAPROLITE

4:1

2765.79

16.67'

CRYSTALLINE ROCK

160+00.00

—L—

22-JUN-2018 09:23
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$$$$USERNAME$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	24

2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

ROADWAY EMBANKMENT:
ABC w/SILTY-SAND

SAPROLITE, SANDY-SILT to WEATHERED ROCK SEAMS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

L-1850
160+40, -L-
40'LT

ARTIFICIAL FILL: PIONEER RD.

SOUNDING TERM. @ 5.5' ON CRYSTALLINE ROCK

0.75:1

4:1

2765.12

160+50.00

-L-

22-JUN-2018 09:22
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6/23/16

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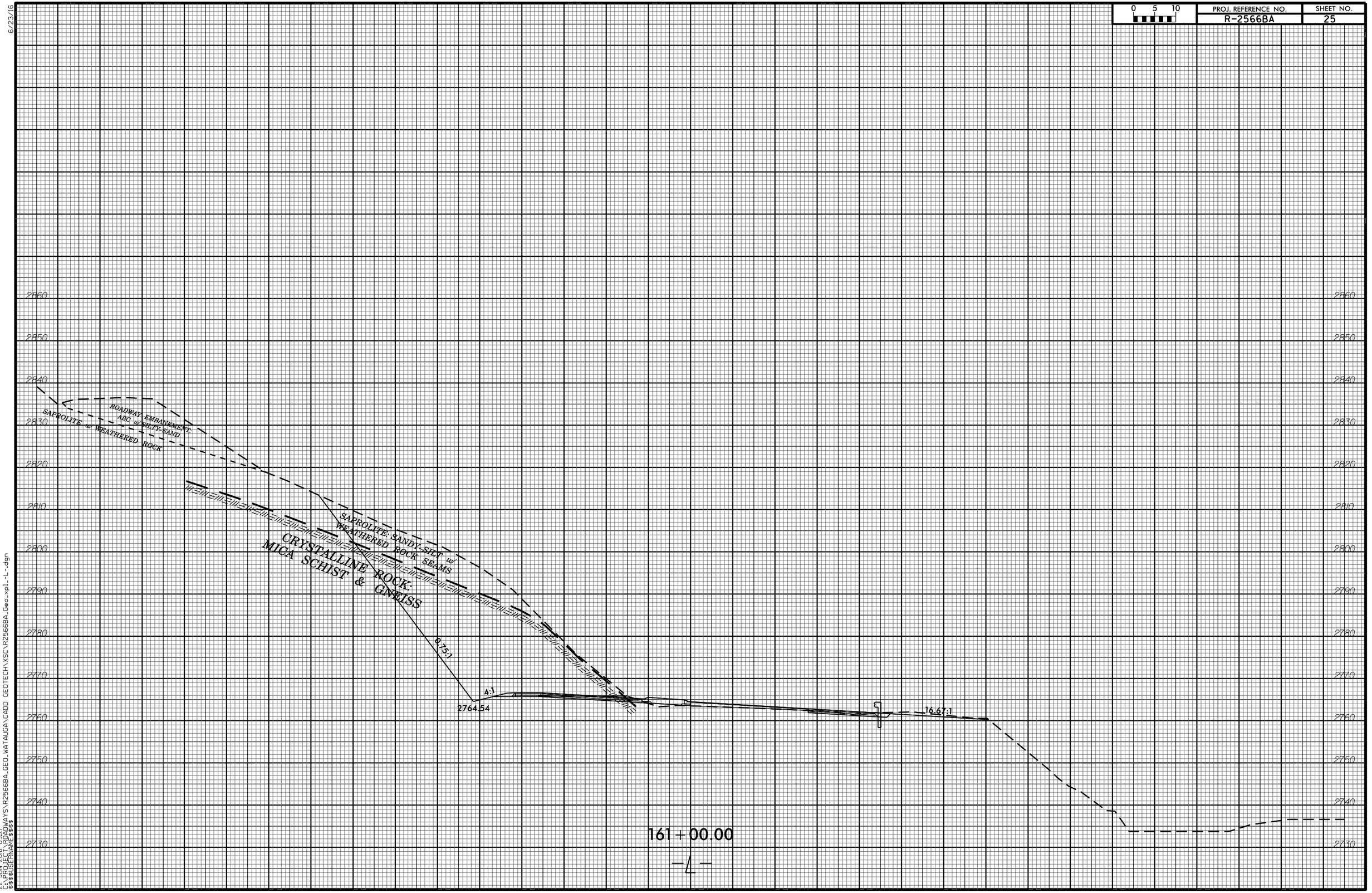
	R-2566BA	25



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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	26

2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

ROADWAY EMBANKMENT:
ABC w/SILTY-SAND

SAPROLITE SANDY SILT w/
WEATHERED ROCK SEAMS

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

0.75:1

2764.09

1:1

16.67:1

161+50.00

-L-

22-JUN-2018 09:20
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	27

2830

2820

ROADWAY EMBANKMENT:
ABC w/SILTY SAND

2810

2800

2790

2780

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

Y5 2150
21+50, Y5-
65' RT

SOUNDING TERM. IN
ON CRYSTALLINE ROCK

2763.76

2770

2760

4:1

2750

2740

2730

162+00.00

—L—

2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

22-JUN-2018 09:19
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6/23/16

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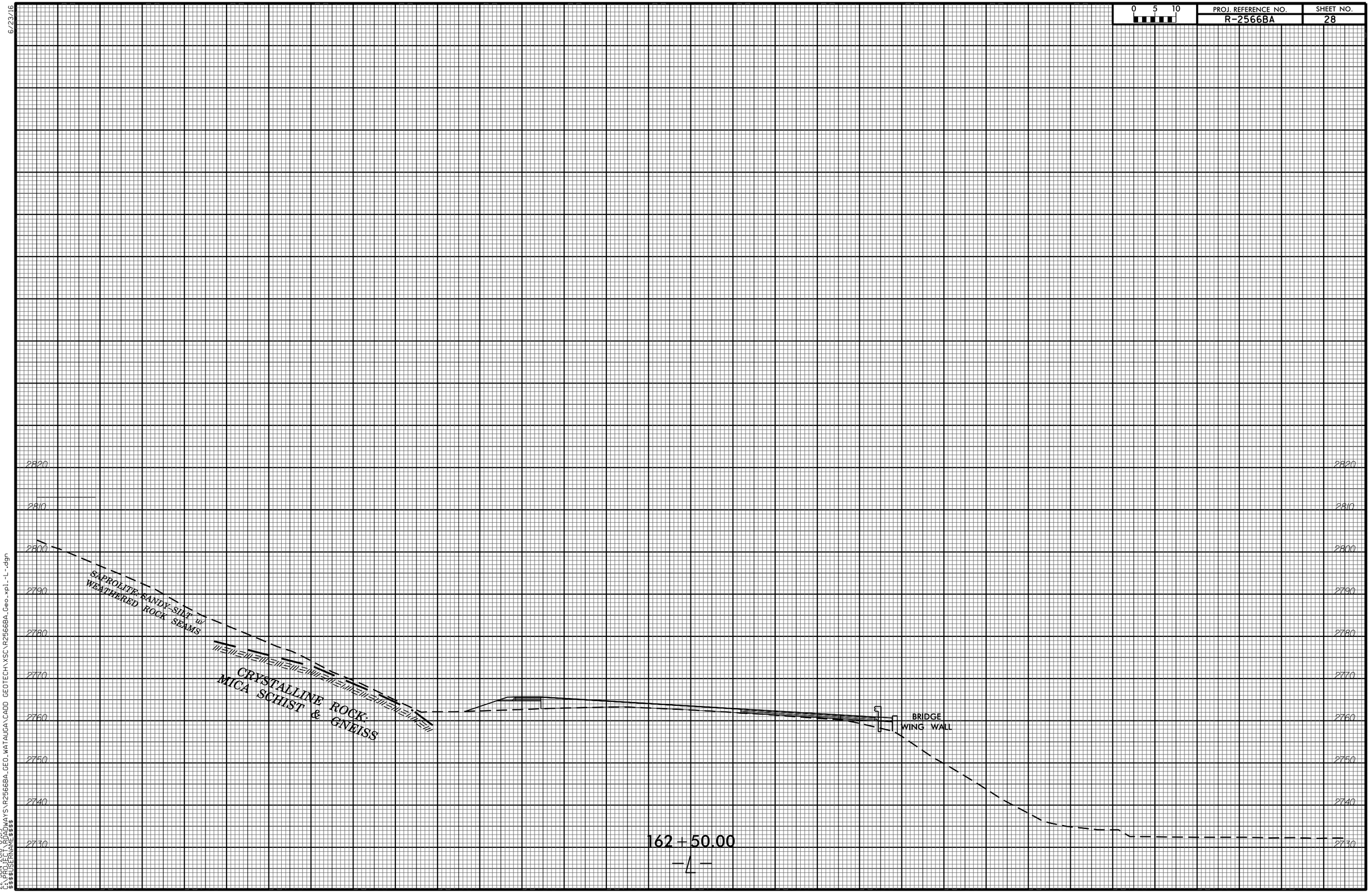
	R-2566BA	28



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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	29

2820 2820
2810 2810
2800 2800
2790 2790
2780 2780
2770 2770
2760 2760
2750 2750
2740 2740
2730 2730
2720 2720

163+00.00

22-JUN-2018 09:18
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	30

2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730
2720

163+50.00

-L-

22-JUN-2018 09:17
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	31

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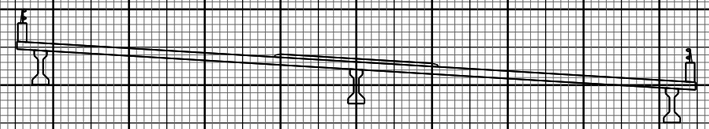
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730
2720



164+00.00

—L—

22-JUN-2018 09:17
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	32

2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730
2720
2710

164 + 50.00

—L—

22-JUN-2018 09:15
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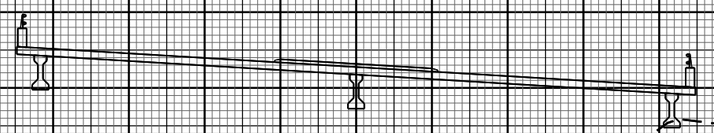
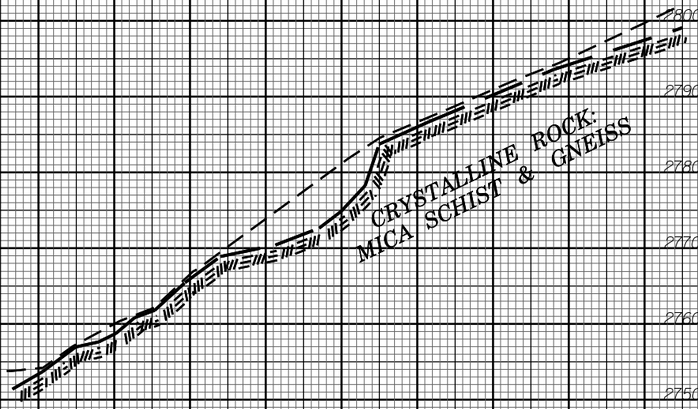
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	33

2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730
2720





165+00.00

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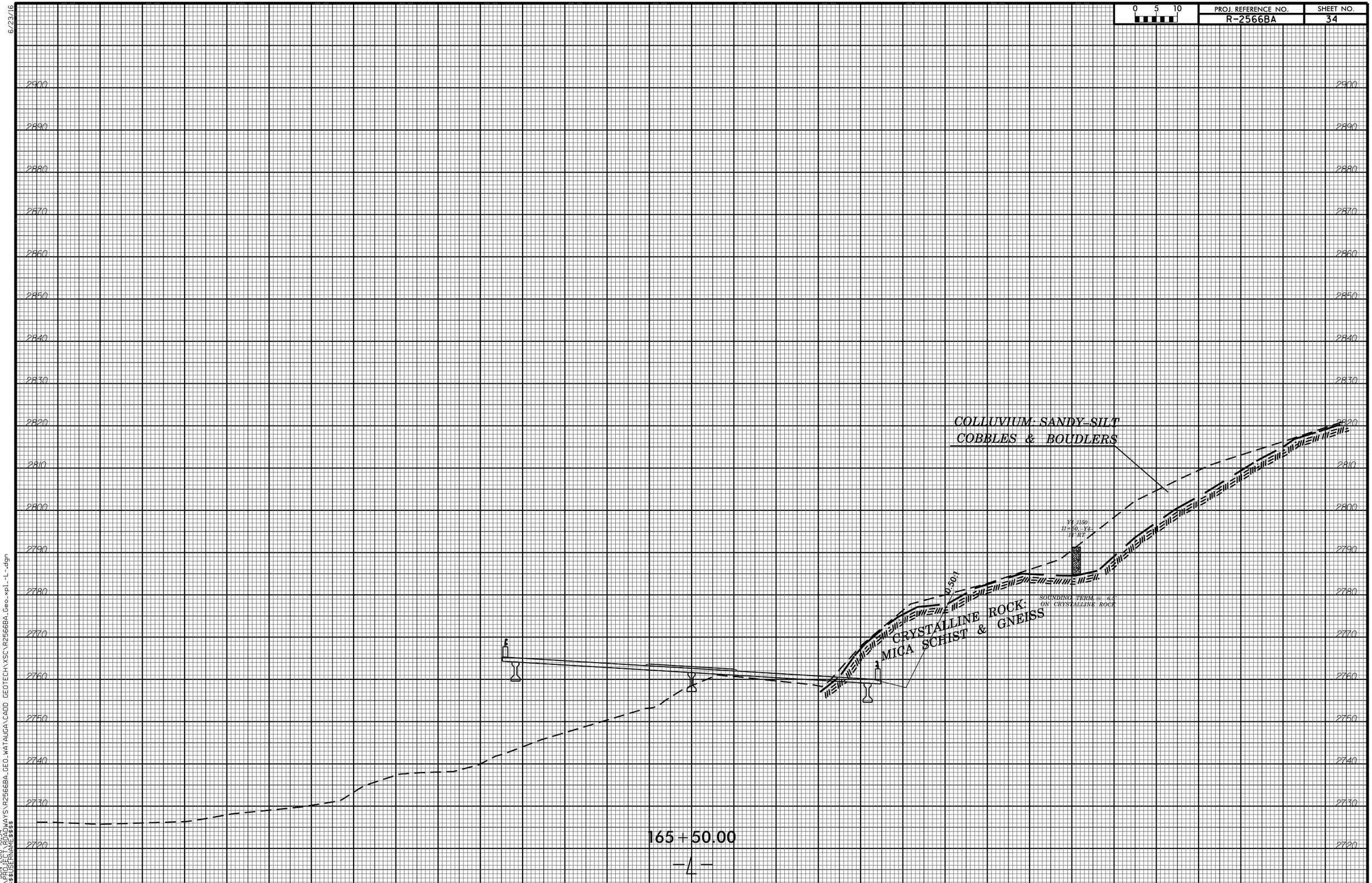

6/23/16

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	35

2910
2900
2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730
2720

COLLUVIUM: SANDY–SILT
COBBLES & BOULDERS

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

FAILING RESIDUAL SOILS

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

0.50:1

4:1

2757.84

166+00.00

—L—

22-JUN-2018 08:59
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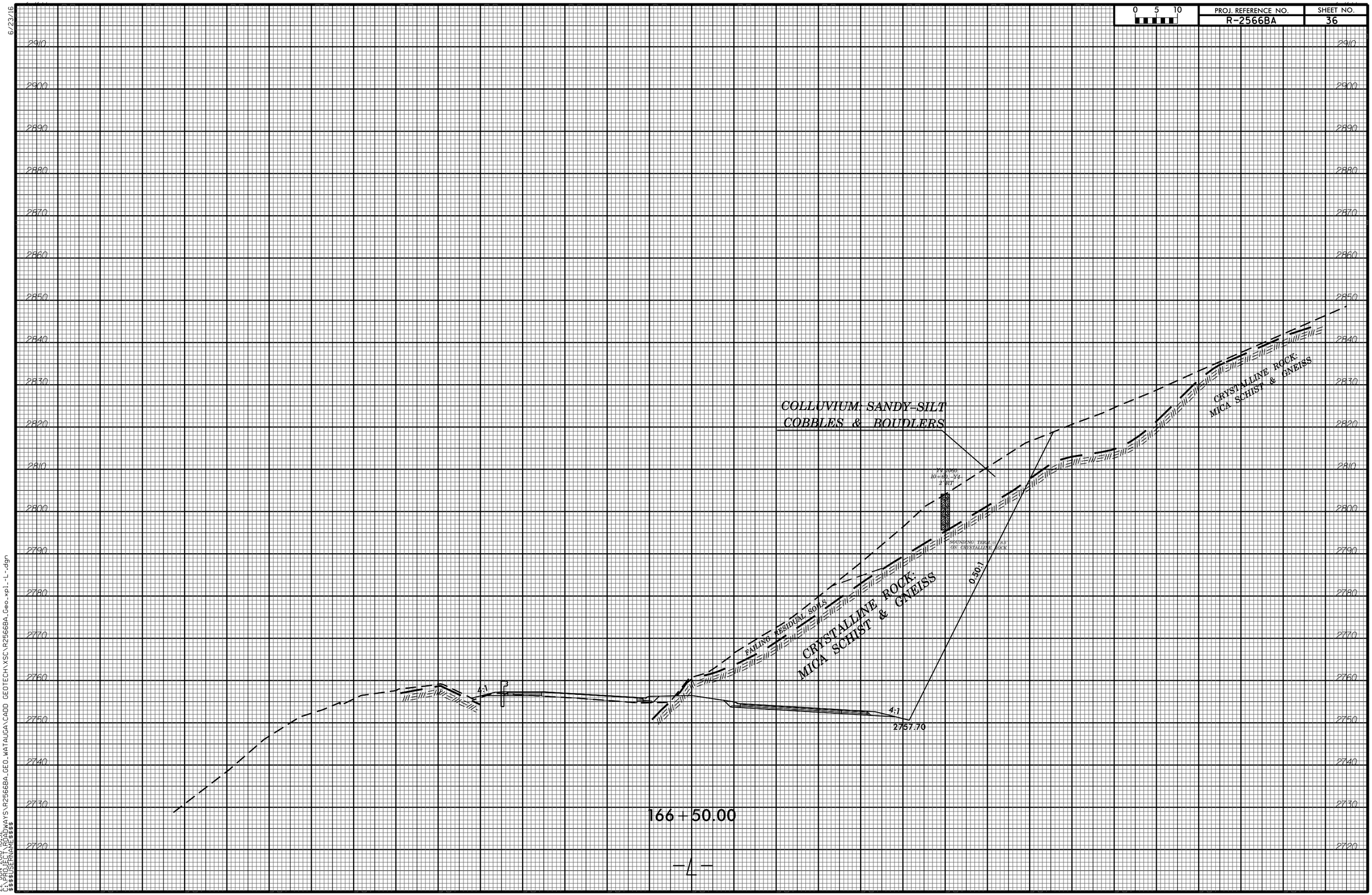

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	37

2920 2910 2900 2890 2880 2870 2860 2850 2840 2830 2820 2810 2800 2790 2780 2770 2760 2750 2740 2730

COLLUVIUM: SANDY-SILT COBBLES & BOULDERS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

25:1

0.50:1

4:1

2757.72

167+00.00

-L-

22-JUN-2018 08:57
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	38

2920 2910 2900 2890 2880 2870 2860 2850 2840 2830 2820 2810 2800 2790 2780 2770 2760 2750 2740 2730

COLLUVIUM: SANDY-SILT COBBLES & BOULDERS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

100:1

4:1

0.50:1

2757.92

167+50.00

—L—

22-JUN-2018 08:56
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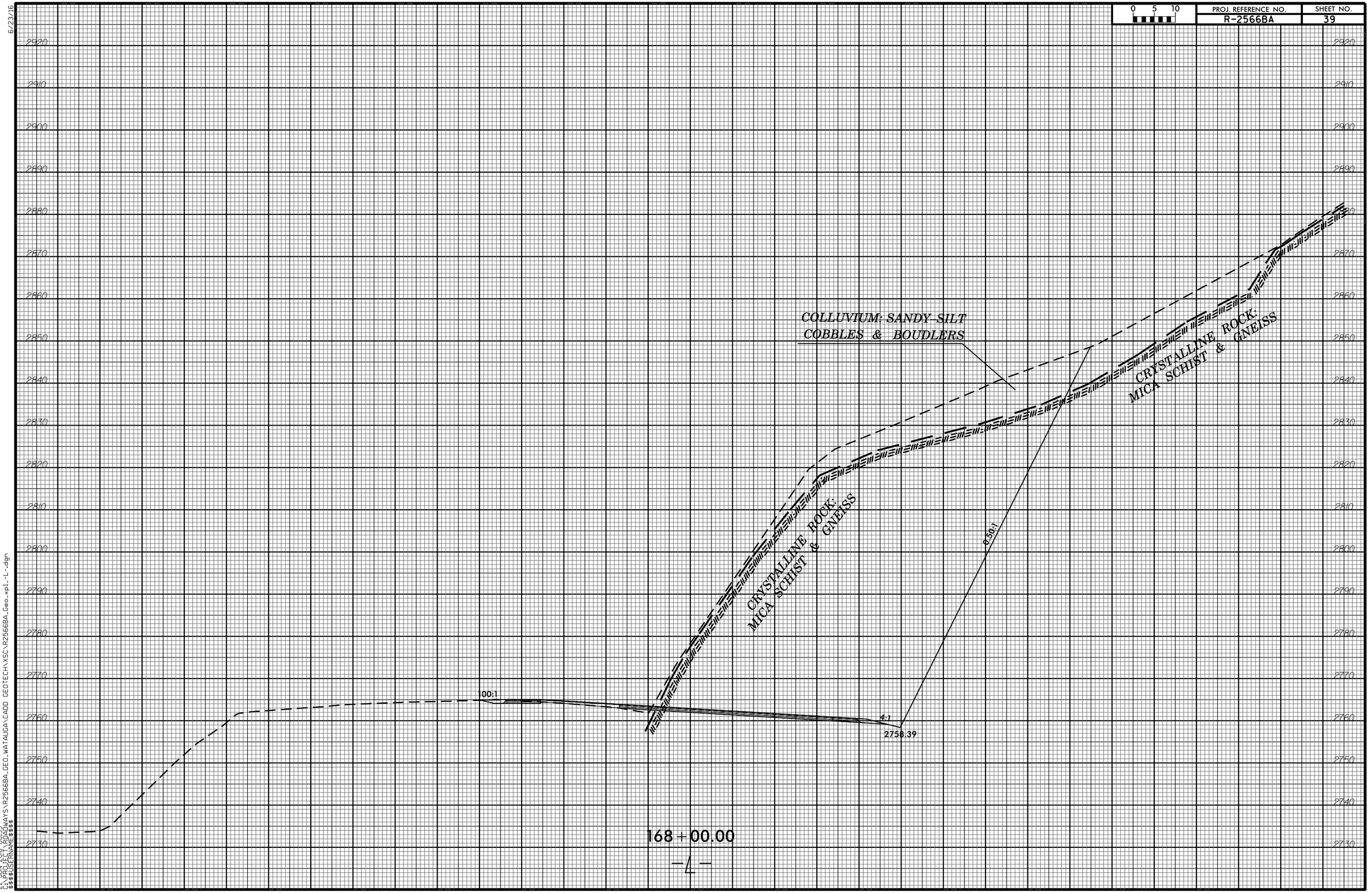
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	39



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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	40

2910
2900
2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

COLLUVIUM: SANDY-SILT COBBLES & BOULDERS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

0.5:1

25:1

4:1

2759.05

168+50.00

—L—

22-JUN-2018 08:54
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	41

2890
2880
2870
2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

COLLUVIUM: SANDY-SILT COBBLES & BOULDERS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

0.5:1

25:1

4:1

2759.88

169+00.00

-L-

22-JUN-2018 08:53
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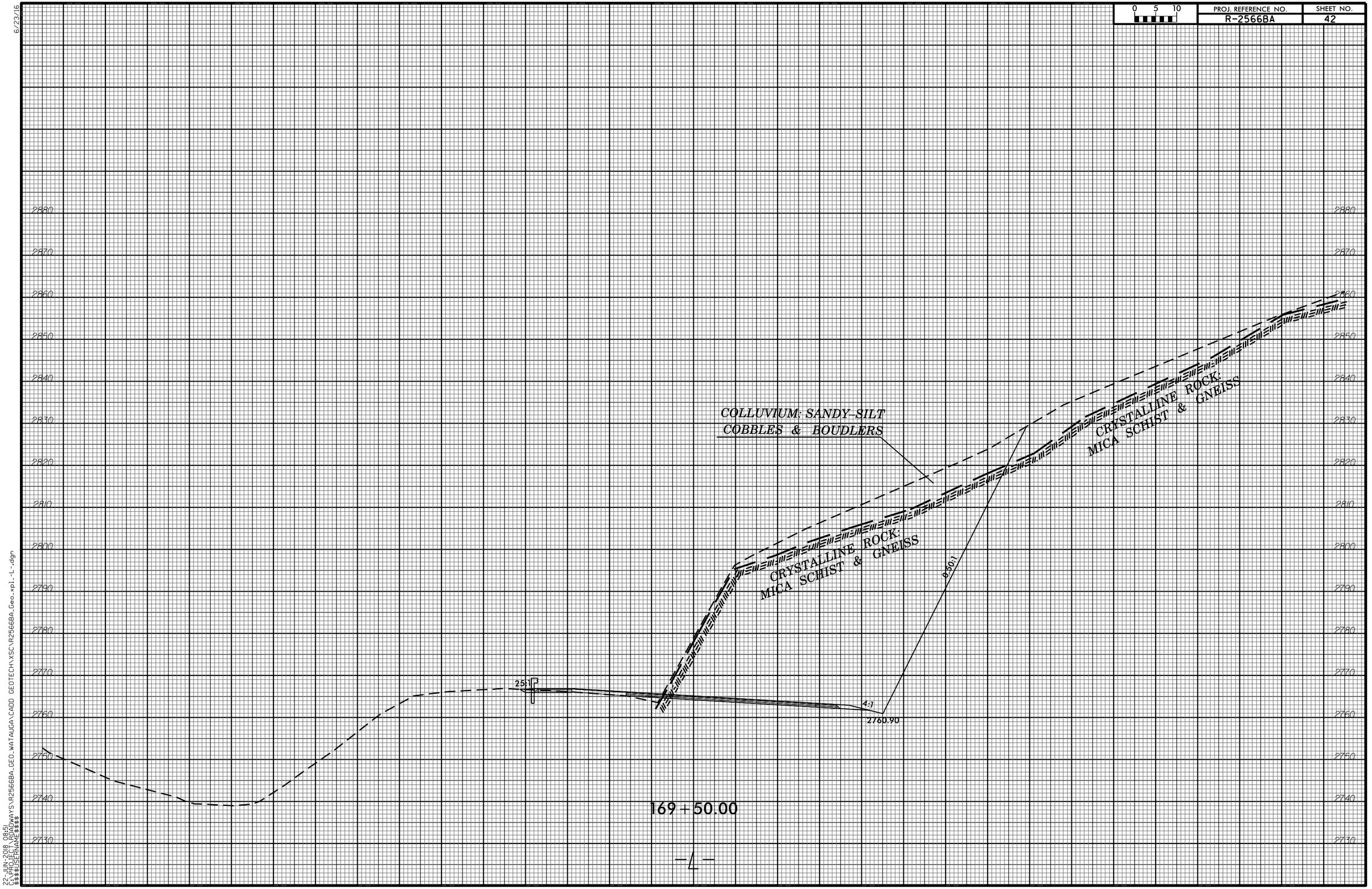

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	43

2860
2850
2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740
2730

COLLUVIUM: SANDY-SILT
COBBLES & BOULDERS

CRYSTALLINE ROCK
MICA SCHIST & GNEISS

25:1

4:1

0.50:1

2762.11

170+00.00

-L-

22-JUN-2018 08:50
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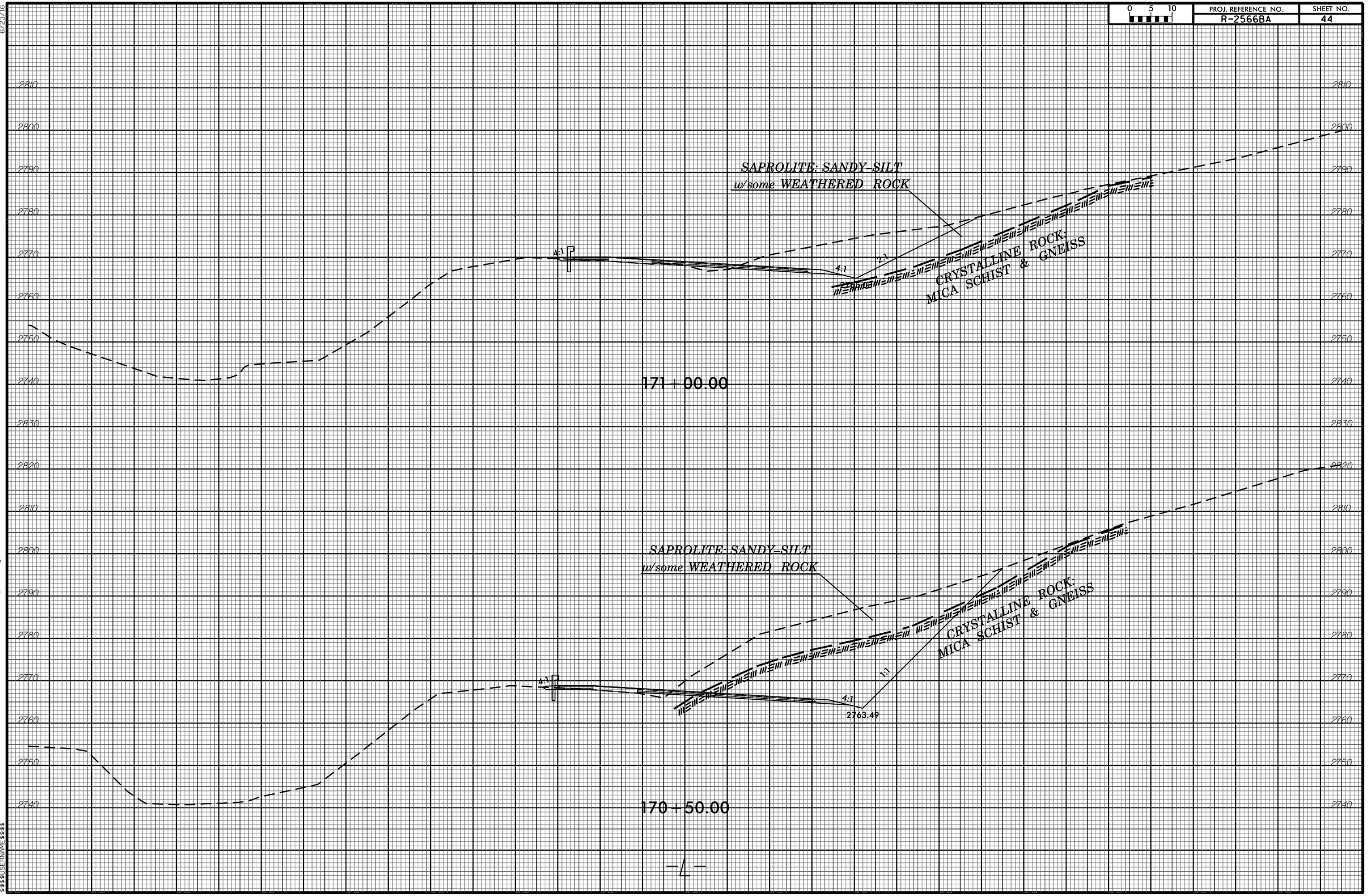
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	44



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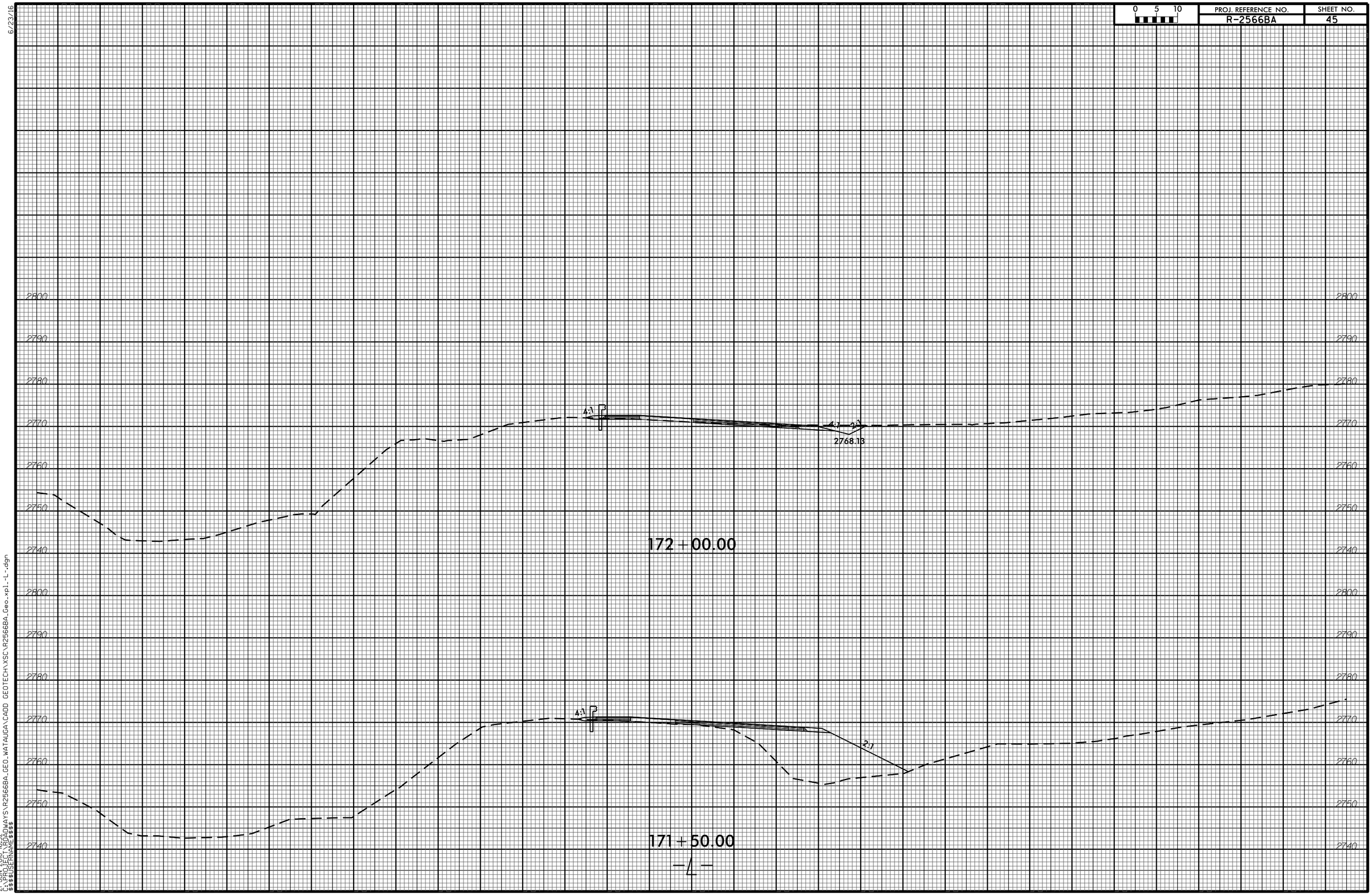

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21-JUN-2018 16:52
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$$$$USERNAME$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	46

2800
2790
2780
2770
2760
2750
2740

2:1
4:1
3:1
2771.34

173+00.00

4:1
4:1

172+50.00

—L—

21-JUN-2018 16:52
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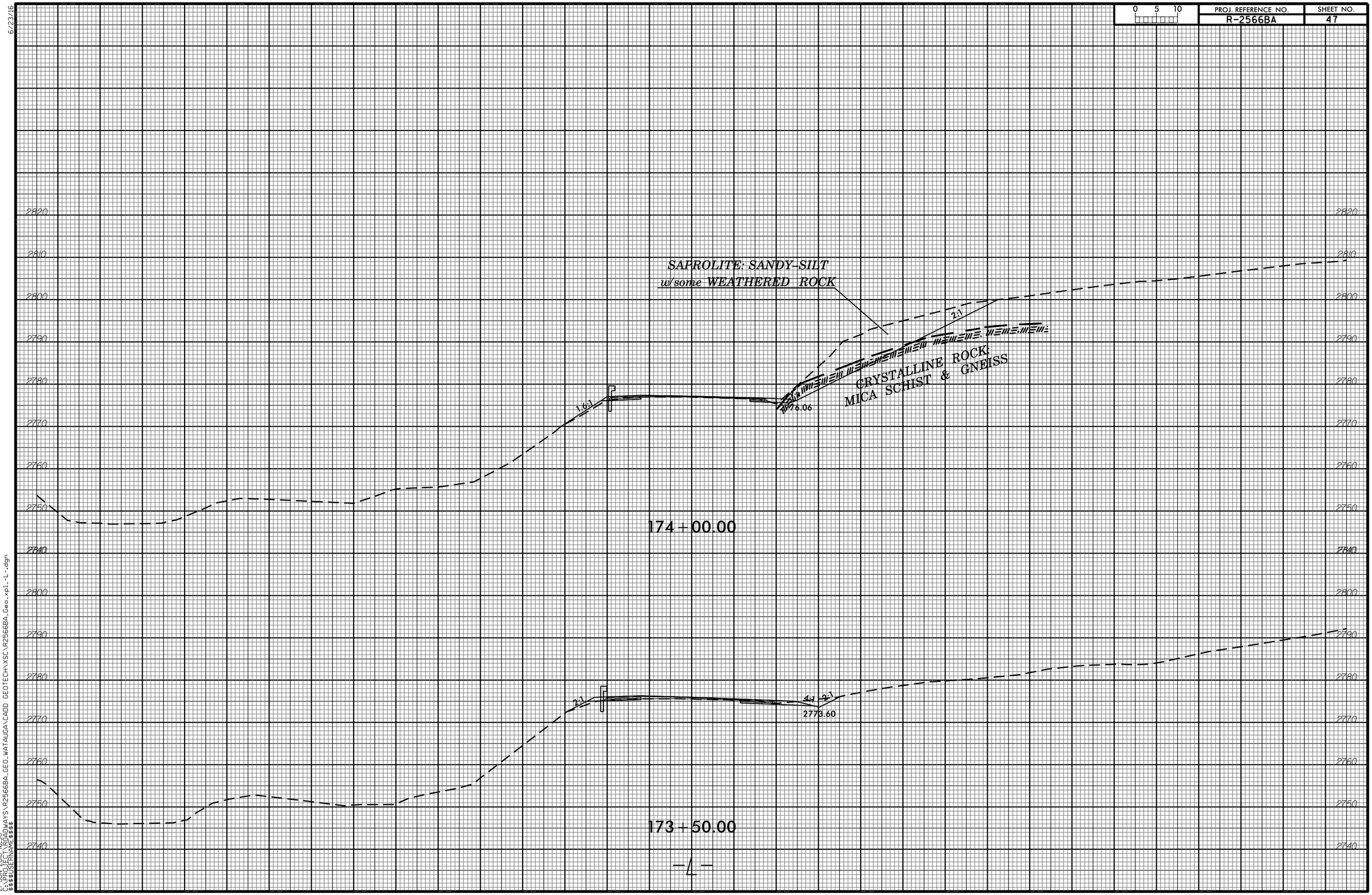

6/23/16

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$$$$USERNAME$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	48

2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740

SAPROLITE: SANDY-SILT
w/some WEATHERED ROCK

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

1.75:1

25:1

174+50.00

-L-

21-JUN-2018 16:45
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$$$$USERNAME$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	49

2840
2830
2820
2810
2800
2790
2780
2770
2760
2750
2740

2:1

174+64.36

—L—

21-JUN-2018 16:43
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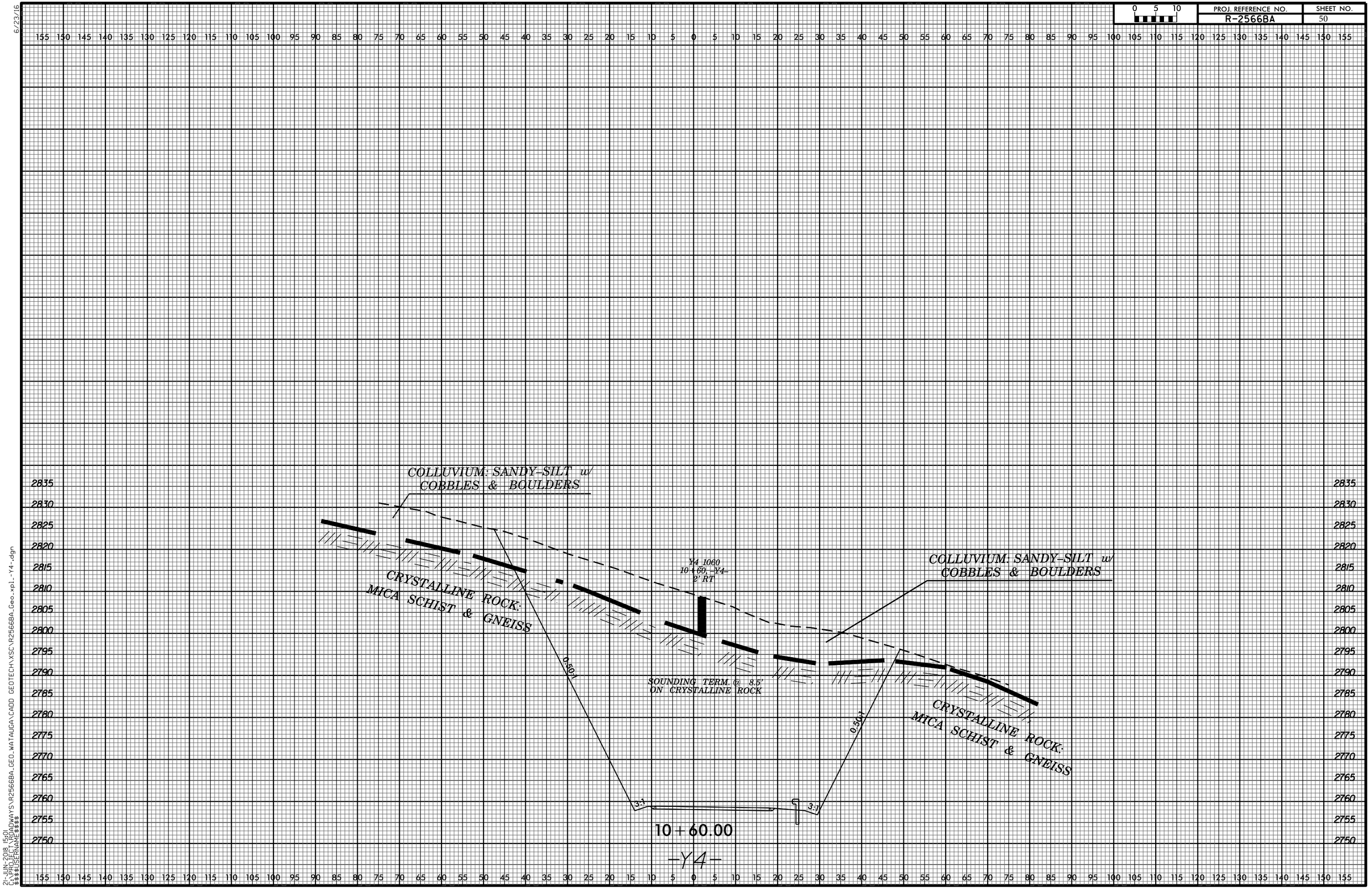
6/23/16

PROJ. REFERENCE NO.	SHEET NO.
R-2566BA	50

0 5 10



10+60.00

-Y4-

21-JUN-2018 15:01
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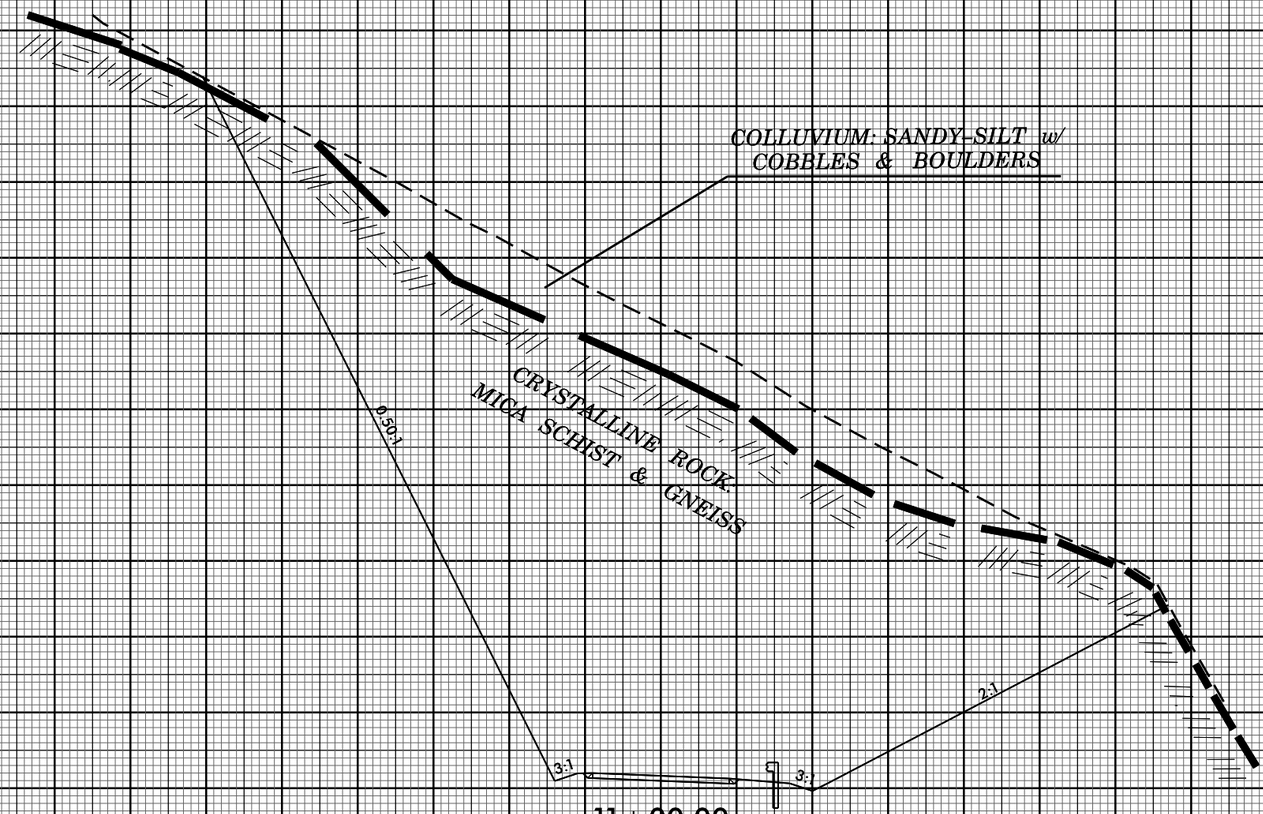
$$$$USERNAME$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	51

155 150 145 140 135 130 125 120 115 110 105 100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155

2860 2855 2850 2845 2840 2835 2830 2825 2820 2815 2810 2805 2800 2795 2790 2785 2780 2775 2770 2765 2760 2755 2750



-Y4-

21-JUN-2018 15:02
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	52

155 150 145 140 135 130 125 120 115 110 105 100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155

2815 2810 2805 2800 2795 2790 2785 2780 2775 2770 2765 2760 2755 2750 2745

2835 2830 2825 2820 2815 2810 2805 2800 2795 2790 2785 2780 2775 2770 2765 2760 2755 2750

COLLUVIUM: SANDY-SILT w/ COBBLES & BOULDERS

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

0.50:1

3:1

3:1

2:1

12+00.00

ROADWAY EMBANKMENT: ABC w/SILTY-SAND

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

COLLUVIUM: SANDY-SILT w/ COBBLES & BOULDERS

Y4 1150 11+50 -Y4- 14" RT

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

0.50:1

SOUNDING TERMIN. @ 6.5' ON CRYSTALLINE ROCK

2:1

3:1

3:1

11+50.00

-Y4-

155 150 145 140 135 130 125 120 115 110 105 100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155

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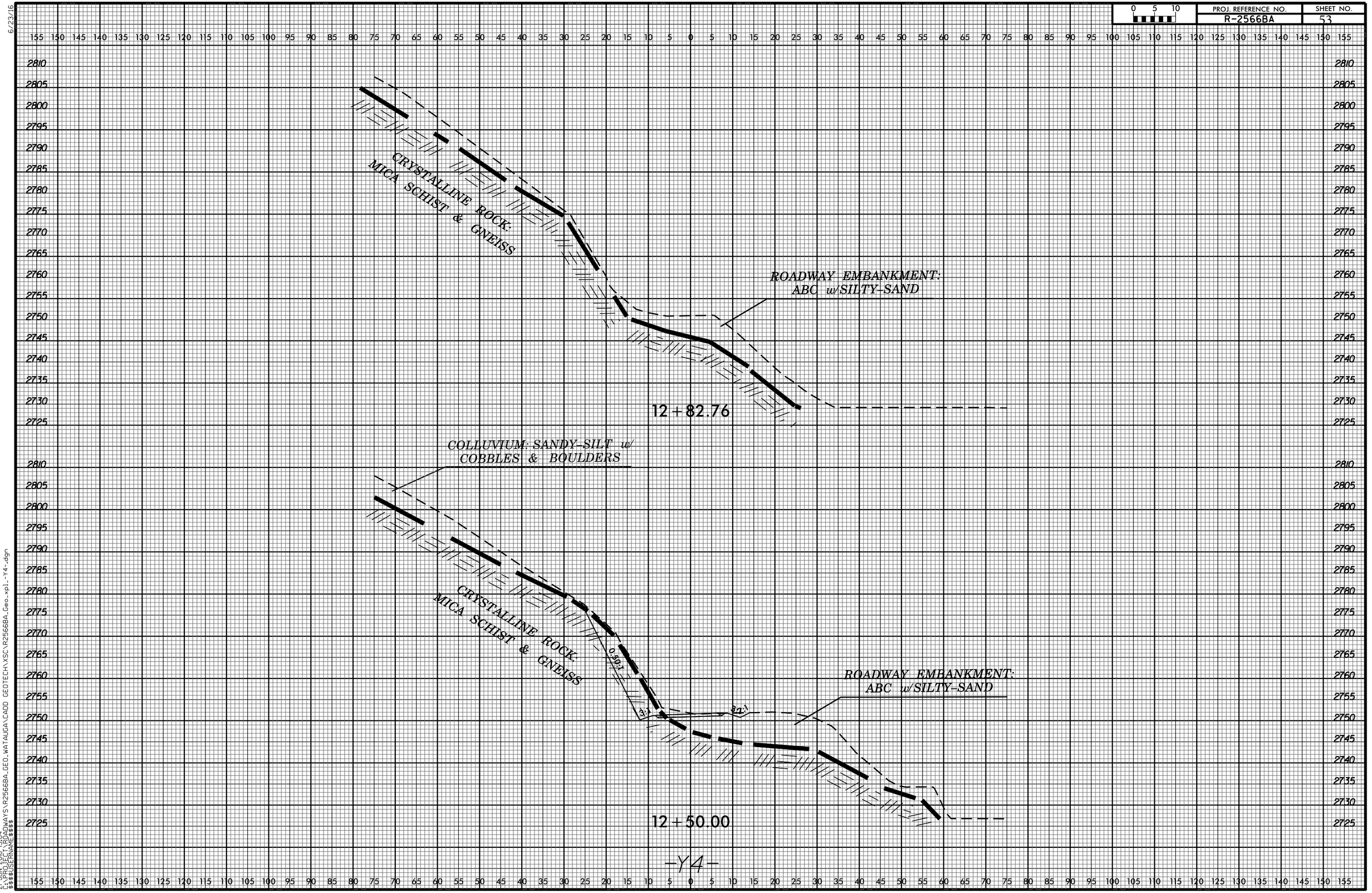
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	53



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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	54

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

2795 2790 2785 2780 2775 2770 2765 2760 2755 2750 2745 2740

SAPROLITE: SANDY-SILT w/WEATHERED ROCK

ROADWAY EMBANKMENT: ABC

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

19+00.00

-Y5-

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

21-JUN-2018 14:57
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0 2,5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	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

2800 2795 2790 2785 2780 2775 2770 2765 2760 2755 2750 2745 2740

ROADWAY EMBANKMENT: ABC w/SILTY-SAND

SAPROLITE: SANDY-SILT w/WEATHERED ROCK INTELAYERD

Y5 1935
19+35 -Y5-
16' RT

ROADWAY EMBANKMENT: ABC
SAPROLITE: SANDY-SILT

ARTIFICAL FILL

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

B.T. @ 4.9'
IN CRYSTALLINE ROCK

19+50.00
-Y5-

22-JUN-2018 15:39
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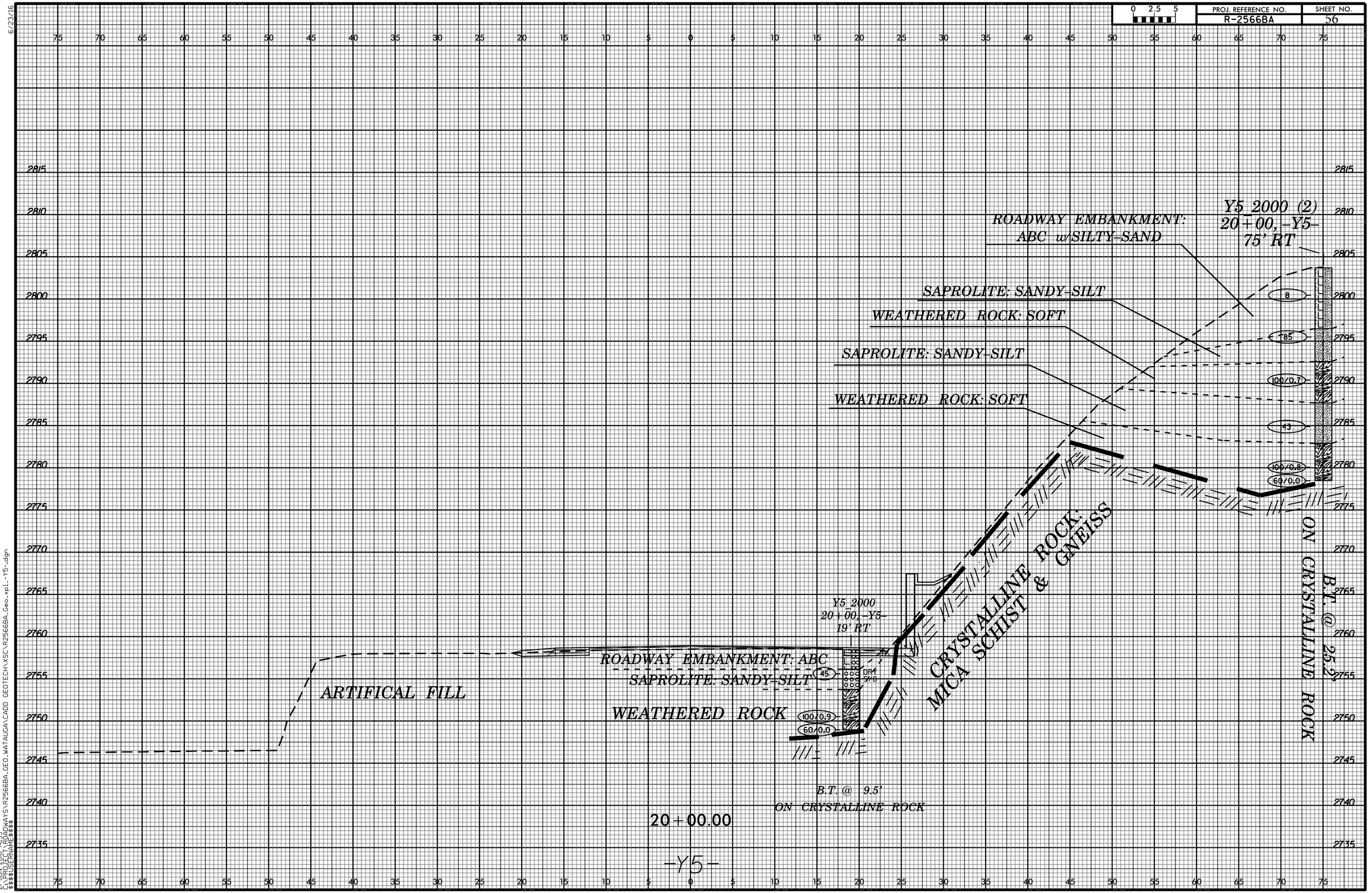
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	56



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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	57

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

2805
2800
2795
2790
2785
2780
2775
2770
2765
2760
2755
2750
2745

SAPROLITE: SANDY–SILT
w/WEATHERED ROCK SEAMS

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

ROADWAY EMBANKMENT: ABC

ARTIFICAL FILL

20+50.00
–Y5–

21-JUN-2018 14:53
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	58

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

2805 2800 2795 2790 2785 2780 2775 2770 2765 2760 2755 2750

SAPROLITE: SANDY–SILT
w/WEATHERED ROCK SEAMS

CRYSTALLINE ROCK:
MICA SCHIST & GNEISS

Y5_2100
21+00, –Y5–
20' RT

ROADWAY EMBANKMENT: ABC

ARTIFICAL FILL

B.T. @ 2.2'
IN CRYSTALLINE ROCK

21+00.00
–Y5–

21-JUN-2018 14:52
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2566BA	59

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

2800 2795 2790 2785 2780 2775 2770 2765 2760 2755 2750 2745 2740

ARTIFICIAL FILL: PIONEER RD

SAPROLITE: SANDY-SILT u/ some WEATHERED ROCK SEAMS

WEATHERED ROCK

Y5 2125 21+25,-Y5- 44' RT

ROADWAY EMBANKMENT: ABC

ARTIFICAL FILL

SAPROLITE: SANDY-SILT

CRYSTALLINE ROCK: MICA SCHIST & GNEISS

SOUNDING TERM.@ 7.0' ON CRYSTALLINE ROCK

21+32.08

-Y5-

21-JUN-2018 14:50
C:\PROJECTS\ROADWAYS\R2566BA_GEO_WATAUGA\CADD GEOTECH\XSC\R2566BA_Geo_xpl_-Y5-.dgn
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