This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

PROJECT: 45684 REFERENCE: B-5728

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	14+00 TO 30+00	4, 5	6
-LDET-	14+94.62 TO 29+24.93	4, 5	

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	13+00 TO 20+00	7-11
-L-	13+00 TO 24+00	12
-L-	26+00 TO 29+50	13, 14
-LDET-	15+00 TO 20+04.05	8-11
-LDET-	23+04.05 TO 24+04.05	12
-LDET-	26+10.44 TO 29+08.22	13, 14

APPENDICES

APPENDIX	TITLE	SHEETS
A	LABORATORY RESULTS	16

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY ALAMANCE

PROJECT DESCRIPTION BRIDGE #112 ON NC87 OVER REEDY FORK CREEK

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5728	1	

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

J. McCRAY

N. MOORE

D. PINTER

INVESTIGATED BY J McCRAY

DRAWN BY J. McCRAY

CHECKED BY M. WHALEN

SUBMITTED BY C. YOUNGBLOOD

DATE DECEMBER 2020

NORTH CAROLINA LICENSED SEAL 2690 GEOLOGIST JOHN R MCCRAY

DocuSigned by:
John R. McCray
E844E1737C024E5...
12/22/2020
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
B-5728	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	< 4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	> 50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	< 2	< 0.25
	SOFT	2 TO 4	0.25 TO 0.5
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	> 30	> 4

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

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

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

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

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

RECOMMENDATION SYMBOLS

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

ABBREVIATIONS

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

SAMPLE ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] 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
- [ ] 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 IN 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: TBM "2: SPIKE IN 28" POPLAR STA -L- 19+71.35, 149.60' RT

ELEVATION: 591.08 FEET

NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING

ROADWAY BORING ELEVATIONS WERE OBTAINED USING THE PROJECT .tin FILE, b5728_ls_tin.tin UPLOADED TO SHAREPOINT ON APRIL 11, 2019 .

DATE: 8-15-14

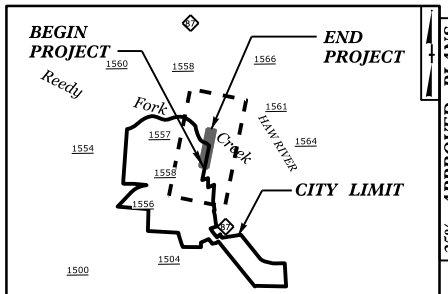
09/08/99

TIP PROJECT: B-5728

CONTRACT:

15-DEC-2020 10:39
S:\Contracts\Investigations\TIP\B5728.GEO.RDWY\CADD.GEOTECH\PlanProf\B5728.GEO_rdy_tsh.dgn
$$$$USERNAME$$$$

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



VICINITY MAP

25% APPROVED PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALAMANCE COUNTY

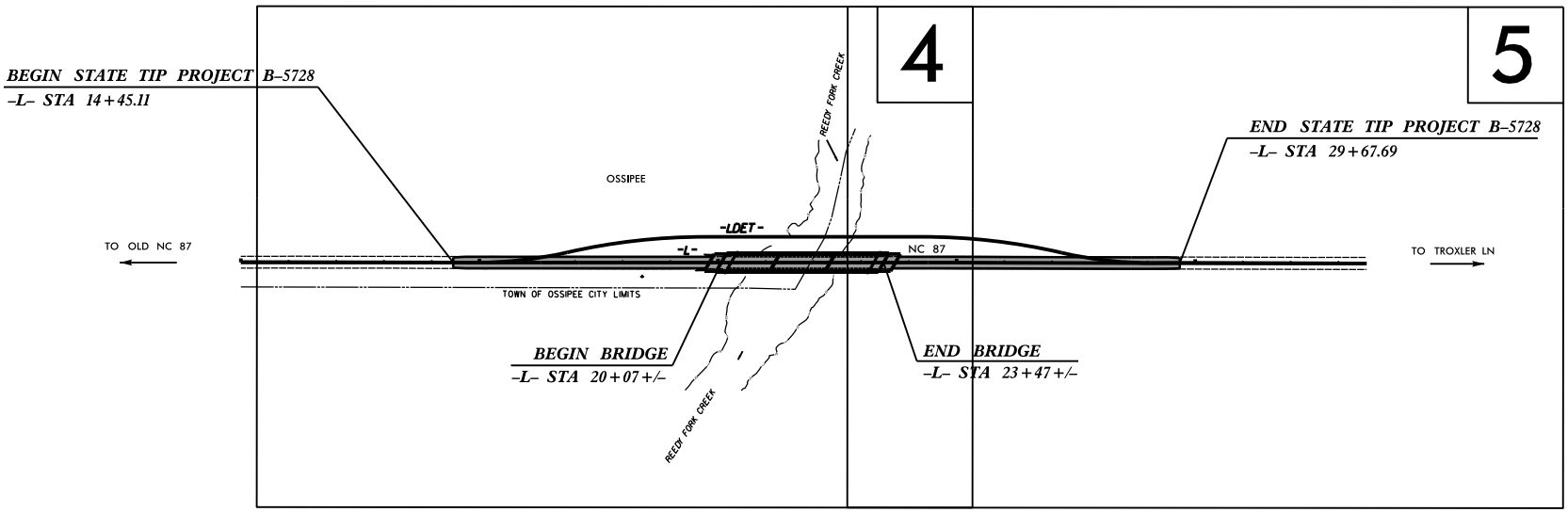
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5728	3	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
45684.1.1	NA	PE

LOCATION: *REPLACEMENT OF BRIDGE NO. 000112 OVER REEDY FORK CREEK ON NC 87*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, AND STRUCTURE*

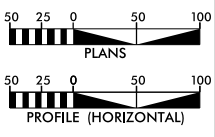
NAD 83 NA 2011



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF OSSIPEE
CLEARING ON THIS PROJECT SHALL BE ACCOMPLISHED BY _____

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

GRAPHIC SCALES



DESIGN DATA

ADT 2020 = 6,300
ADT 2040 = 7,000
K = 10 %
D = 65 %
T = 10 % *
V = 55 MPH
* TTST = 3% DUAL 7%
FUNC CLASS = MINOR ARTERIAL – REGIONAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5728	=	0.224 mi
LENGTH OF STRUCTURES TIP PROJECT B-5728	=	0.064 mi
LENGTH OF STATE PROJECT B-5728	=	0.288 mi

Prepared in the Office of:
moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 12, 2020

LETTING DATE: MARCH 3, 2021

TIM R. REID P.E.
PROJECT ENGINEER

TRENT E. HUFFMAN P.E.
PROJECT DESIGN ENGINEER

DAVID STUTTS, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ *P.E.*

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

ERIC J. BOYETTE
SECRETARY

December 16, 2020

STATE PROJECT: 45684.1.1 (B-5728)
FEDERAL PROJECT: N/A
COUNTY: Alamance

DESCRIPTION: Project Description
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 a slight widening and vertical grade change of existing NC 87 (-L-) from 600 ft south of Alamance County Bridge No 112 to 653 feet north of Alamance County Bridge No. 112. The types of work included grading, drainage, and paving.

A geotechnical investigation was conducted during May and June of 2020 consisting of thirteen SPT borings 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 alignment, totaling 0.224 mile, was investigated. Subsurface plans and cross sections of the following alignments are included in this report.

Line	Stations
-L-	14+00 to 30+00
-LDET-	14+94.62 to 29+24.93

Physiography and Geology

The project is located in the northwest corner of Alamance County, within the Outer Piedmont Physiographic Province and is underlain by soils and rocks of the Carolina Slate Belt. The soils consist of alluvial sediment transported to the site by Reedy Fork Creek and residual derived from underlying meta-granodiorite and diorite. The topography of the project area is gently to moderately rolling and is dominated by dendritic drainage patterns. Land use adjacent to the project is a mix of commercial, agricultural, and residential, with a substantial amount of undeveloped land.

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 varied in origin and consist of roadway embankment, artificial fill, alluvial and residual soils.

Roadway embankment within the project limits is present adjacent to bridge no. 112 underlying the existing road bed. These soils consist of soft to medium stiff gray and brown to red-brown and orange-tan, moist to wet silty clay (A-7-6) with trace to little gravel and thin layers of silty sand (A-2-4). The plasticity index was measured to be 25. Because of the limited extent of roadway embankment, only one representative sample was taken but it is representative of roadway embankment encountered on the project.

Artificial Fill soils encountered on the project were surficially mapped but not bored as they were either inaccessible or occurred outside the limits of the project. These soils are anticipated to consist of mixed local soil and ABC aggregate for driveways and adjacent lots and comprises just a thin veneer in areas where it occurs within the limits of the project. Areas of artificial fill include: -L- stations 16+40 to 17+60, RT; and 18+60 to 19+85, LT.

Alluvial soils underlie the project in the vicinity of Reedy Fork Creek and range in thickness from 12± feet on the south side of Reedy Fork Creek to 8± feet on the north side of Reedy Fork Creek. These soils consist of loose to medium dense gray and brown silty sand (A-2-4) and coarse sand with gravel, and medium stiff brown and gray sandy and silty clay (A-6 and A-7-6). The plasticity index of the sampled clay is 19 and is characteristic of the alluvial clays. The alluvial sands and clays are interlayered, with the coarse sand and gravel making up the basal unit of the alluvial soils.

Residual soils were encountered throughout the entire project area, are derived from weathered meta-granodiorite and meta-basalt, and are cohesive in nature. These soils are moist and consist of soft to hard sandy silty clay (A-7), sandy silt (A-4) and silt (A-5) with colors ranging from a gray and light tan to a brownish red, and plasticity indices that range from a non-plastic sandy silt (A-4) to a silty clay with a plasticity index of 30. Soil structure is limited throughout the limits of the project, however, the soils do exhibit saprolitic structure at depth and does have intermittent weakness planes with manganese-oxide infilling. North of Reedy Fork Creek, boulders occur in situ within the residual soils and scattered along the surface.

Groundwater

Measurements for the occurrence of groundwater in the borings were taken in May and June of 2020 during normal weather conditions. Across the project, water was encountered in only one boring away from the Reedy Fork Creek floodplain, 27+54 52’ RT, and this can be attributed to rainfall occurring during the period after the boring was drilled and before the water was measured. Borings for the end bents of the proposed structure encountered water within alluvial sediments at the approximate elevation of 581 ft above sea level, but these borings were filled in after drilling due to their location within the roadway.

Areas of Special Geotechnical Interest

1) Highly Plastic Clays: Highly plastic clays (PI>25) were encountered on the project at the following locations:

Line	Stations	Offsets
-L-	14+00 to 17+75	LT to RT
-L-	25+50 to 26+10	LT to RT

A discussion of these highly plastic clay soils is located in the section titled “Soil Properties”.

2) Artificial Fill: Areas of artificial fill are present along the following alignments:

Line	Stations	Offsets
-L-	16+40 to 17+60	RT
-L-	18+60 to 19+85	LT

3) Hard Rock: Crystalline hard rock is present within six feet of grade in the following areas:

Line	Stations	Offsets
-L-	14+45 to 15+40±	RT

Prepared by:

DocuSigned by:
John R. McCray
E844E1737C024E5...

John R. McCray, LG
Project Coordination Engineer

PROJECT REFERENCE NO.	SHEET NO.
B-5728	4

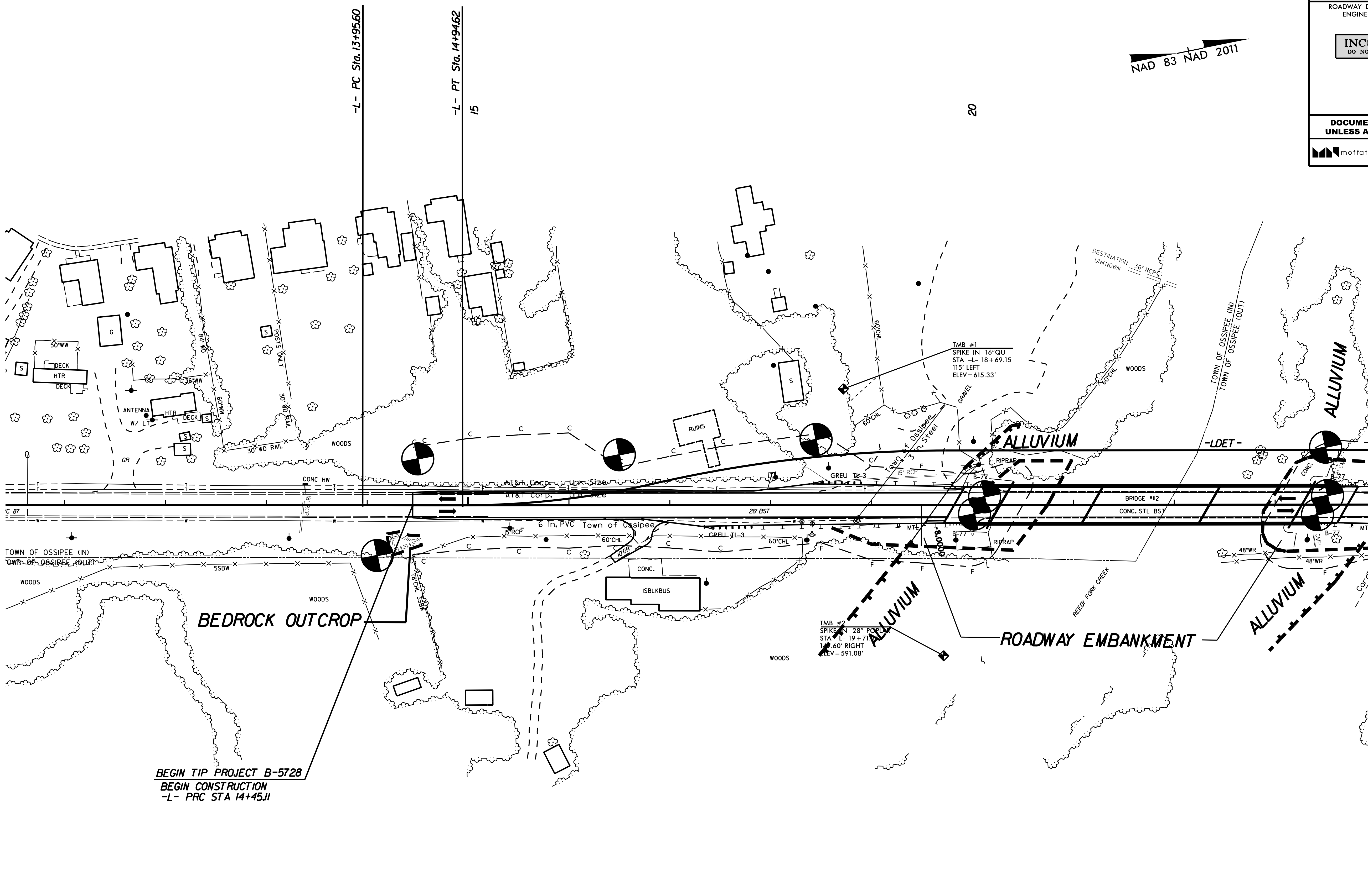
R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105



FOR DETOUR SEE SHEET NO. 2B-1
FOR -L- PROFILE SEE SHEET NO. 6

8/17/99

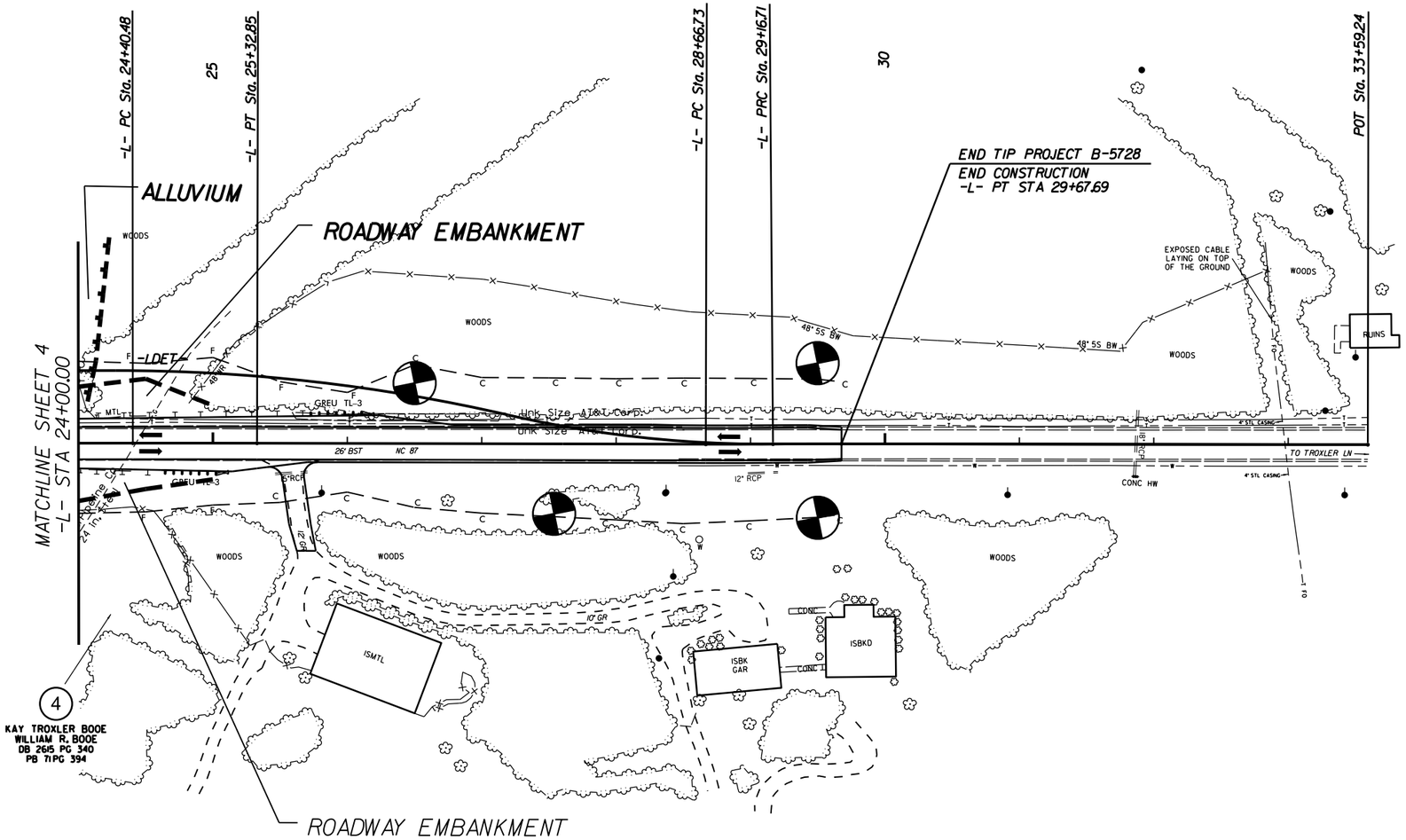
PROJECT REFERENCE NO.	SHEET NO.
B-5728	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

NAD 83 NAD 2011



FOR -L- PROFILE SEE SHEET 6

PROJECT REFERENCE NO.	SHEET NO.
B-5728	1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

A **RESIDUAL** SOFT TO STIFF, MOIST, ORANGE-TAN TO RED-BROWN SILTY CLAY (A-7-6), HIGHLY PLASTIC
B **ROADWAY EMBANKMENT** SOFT TO MEDIUM STIFF, MOIST, BROWN TO ORANGE SANDY SILTY CLAY (A-7-6) WITH SANDY LAYERS
C **ALLUVIAL** LOOSE TAN AND ORANGE-TAN MOTTLED SILTY SAND (A-2-4), WET TO SATURATED
D **ALLUVIAL** SOFT TO MEDIUM STIFF, WET BROWN AND GRAY MOTTLED AND ORANGE TAN SANDY AND SILTY CLAY (A-6, A-7-6), MOIST
E **ALLUVIAL** MEDIUM DENSE, SATURATED, GRAY SILTY COARSE SAND (A-2-4) AND GRAVEL
F **WEATHERED ROCK** (META-GRANODIORITE)
G **RESIDUAL** HARD, GRAY-BROWN SANDY SILTY CLAY (A-7-6) WITH GRANODIORITE SEAM

SS-4
SS-5
14+50
46' LT
BT
DRY (05/20)

16+50
50' LT
BT
DRY (05/20)

SS-3
18+45
65' LT
SAG POINT
STA. 18+75.18 EL=610.08
BT
DRY (05/20)

SS-1
SS-2
EBI-A
20+11.6
8' LT
BT
FIAD (06/20)

SS-9
EB2-A
23+52
9' LT
BT
FIAD (06/20)

RESIDUAL MEDIUM STIFF TO VERY STIFF. MOIST GRAY TO RED-TAN SANDY SILTY AND SILTY CLAY (A-7-5) SLIGHTLY TO MODERATELY PLASTIC. AND NON-PLASTIC SANDY SILT (A-4) WITH OCCASIONAL VEINS OF MnO

CRYSTALLINE ROCK (META-GRANODIORITE)

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

–L–
NC 87
BRIDGE 112

SS-10
26+50
45' LT
BT

SS-6
SS-7
SS-8
27+54
52' RT
PROPOSED GRADE
BT

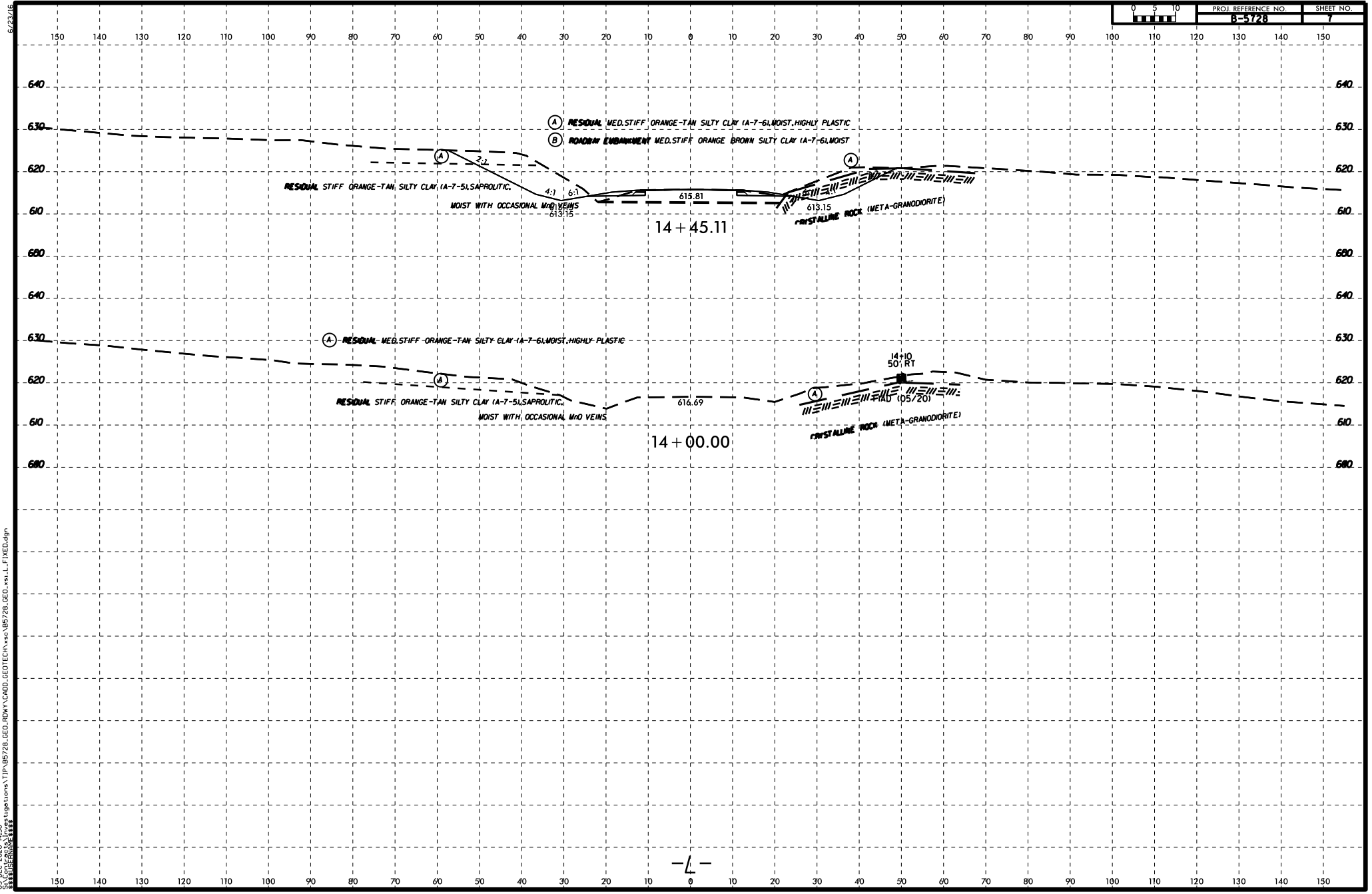
29+50
60' LT
BT (META-GRANODIORITE)
FIAD (06/20)

RESIDUAL MED. STIFF TO VERY STIFF RED-TAN TO YELLOW-TAN. AND SILT (A-5) WITH IN SITU BOULDERS
MOIST SANDY SILTY CLAY (A-7-6)
WEATHERED ROCK
EXISTING GROUND
CRYSTALLINE ROCK (META-GRANODIORITE)

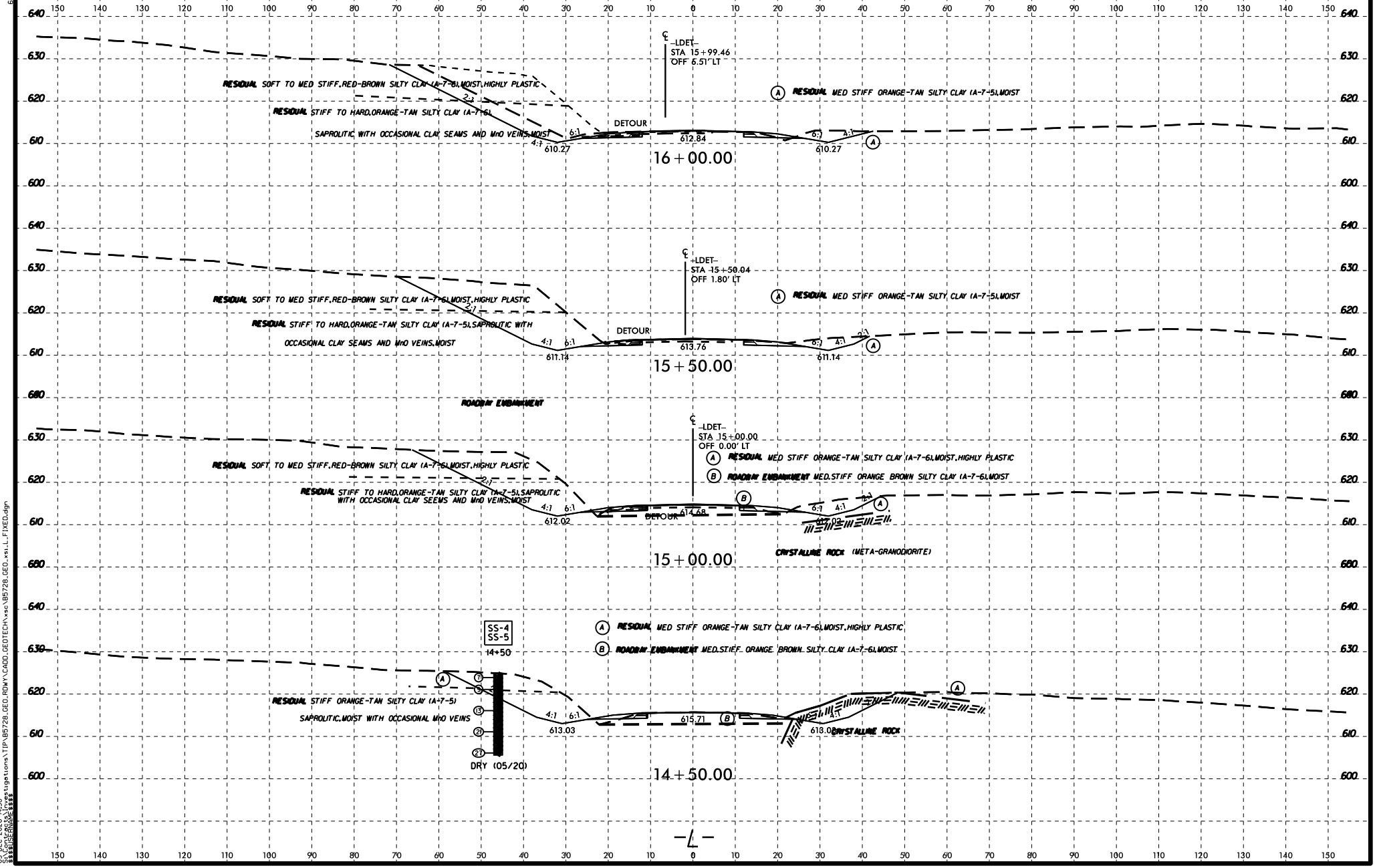
A **RESIDUAL** SOFT TO STIFF, MOIST, ORANGE-TAN TO RED-BROWN SILTY CLAY (A-7-5), HIGHLY PLASTIC, WITH IN SITU BOULDERS
B **ROADWAY EMBANKMENT** SOFT TO MEDIUM STIFF, MOIST, BROWN TO ORANGE SANDY SILTY CLAY (A-7-6) WITH SANDY LAYERS
C **RESIDUAL** MEDIUM STIFF TO VERY STIFF RED-TAN TO YELLOW-TAN SANDY SILTY CLAY (A-7-6) AND SILT (A-5), MOIST WITH IN SITU BOULDERS
D **ALLUVIAL** SOFT TO MEDIUM STIFF, WET BROWN AND GRAY MOTTLED AND ORANGE TAN

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00

650 640 630 620 610 600 590 580 570 560

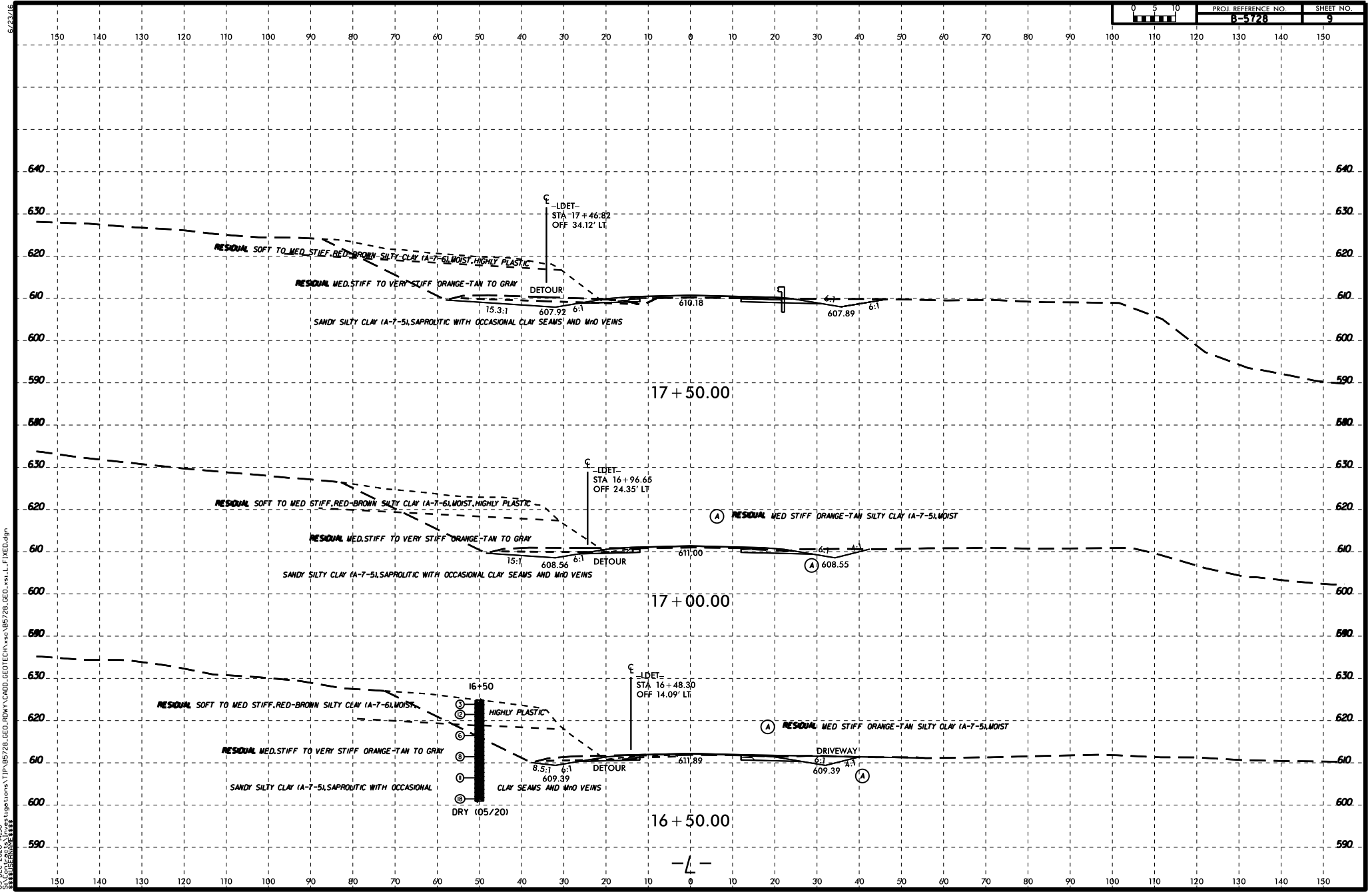


-L-



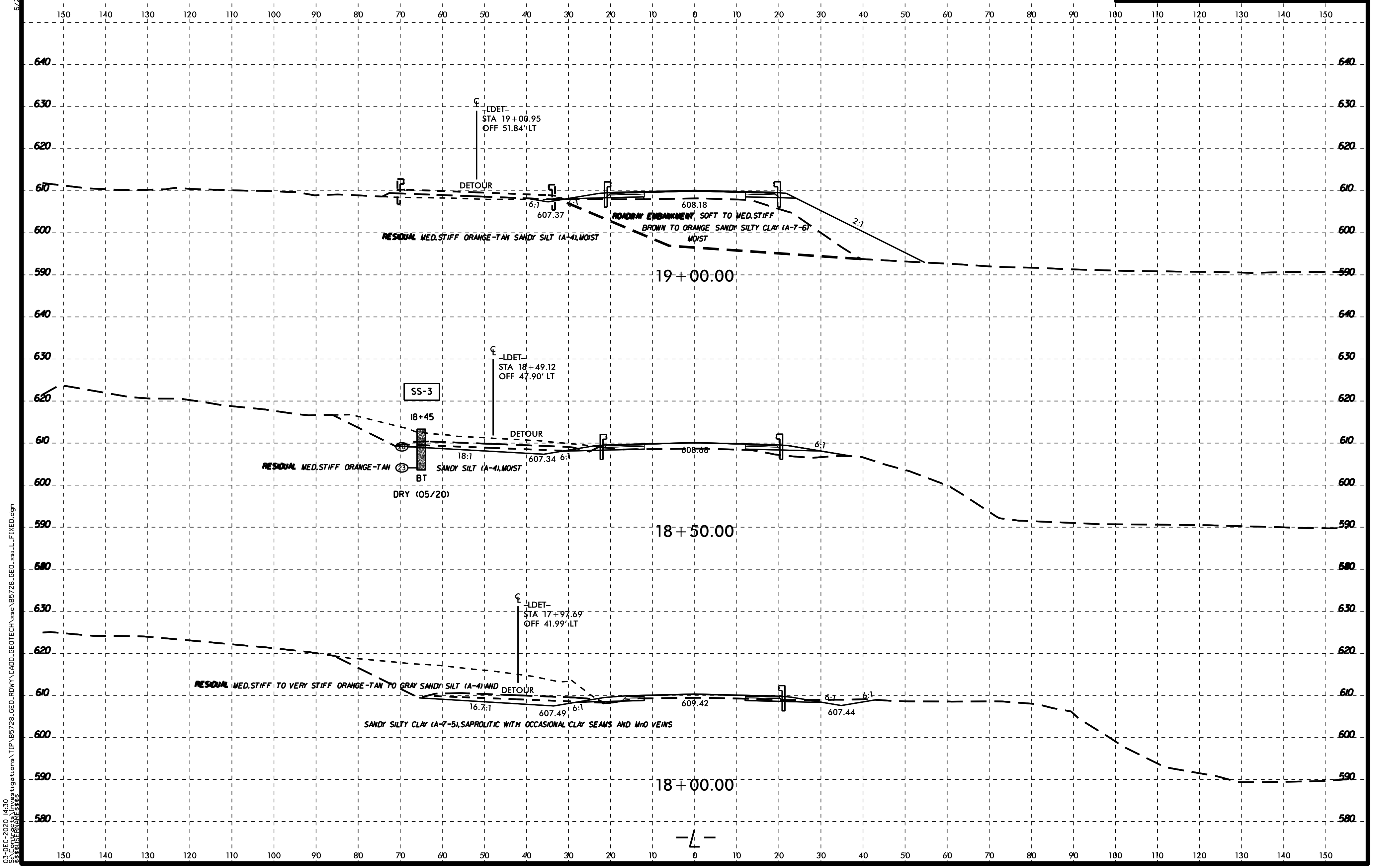
6/23/16

03-DEC-2020 14:20
$$$$USERNAME$$$$

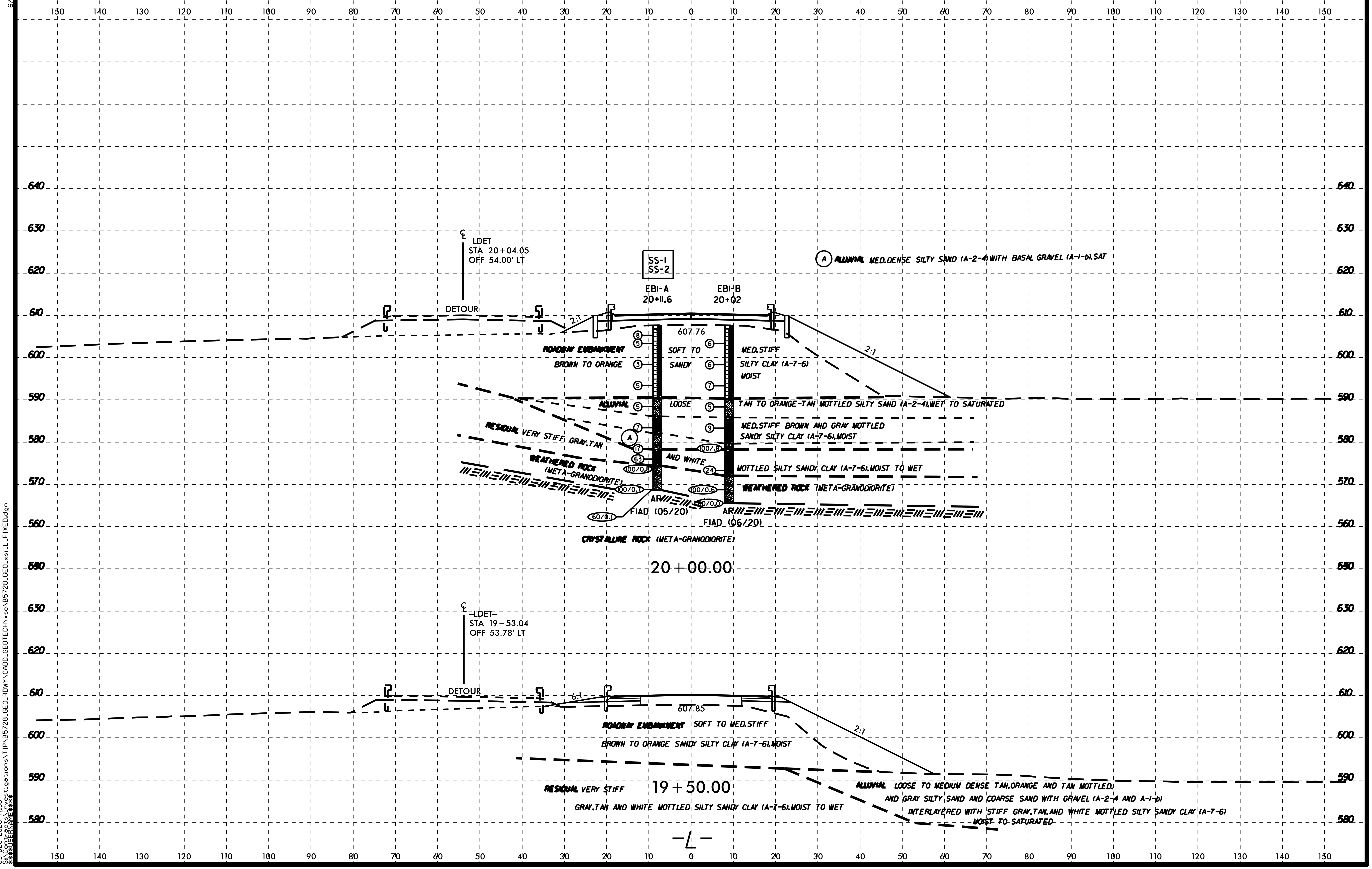


6/23/16

03-DEC-2020 14:20
$$$$USERNAME$$$$


0 5 10
6/23/16
-L DET- STA 19+00.95 OFF 51.84' LT
DETOUR
6:1
607.37
608.18
2:1
ROADWAY EMBANKMENT SOFT TO MED.STIFF BROWN TO ORANGE SANDY SILTY CLAY (A-7-6) MOIST
RESIDUAL MED.STIFF ORANGE-TAN SANDY SILT (A-4),MOIST
19+00.00
-L DET- STA 18+49.12 OFF 47.90' LT
SS-3
18+45
DETOUR
18:1
607.34
6:1
608.68
6:1
RESIDUAL MED.STIFF ORANGE-TAN SANDY SILT (A-4),MOIST
23
BT
DRY (05/20)
18+50.00
-L DET- STA 17+97.69 OFF 41.99' LT
RESIDUAL MED.STIFF TO VERY STIFF ORANGE-TAN TO GRAY SANDY SILT (A-4) AND SANDY SILTY CLAY (A-7-5),SAPROLITIC WITH OCCASIONAL CLAY SEAMS AND MnO VEINS
DETOUR
16.7:1
607.49
6:1
609.42
6:1
6:1
607.44
18+00.00
-L-
03-DEC-2020 14:30
S:\Contracts\Investigations\TIP\B5728_GEO_RDWY\CADD_GEOTECH\xsc\B5728_GEO_xsL_L_FIXED.dgn
$$$$USERNAME$$$$

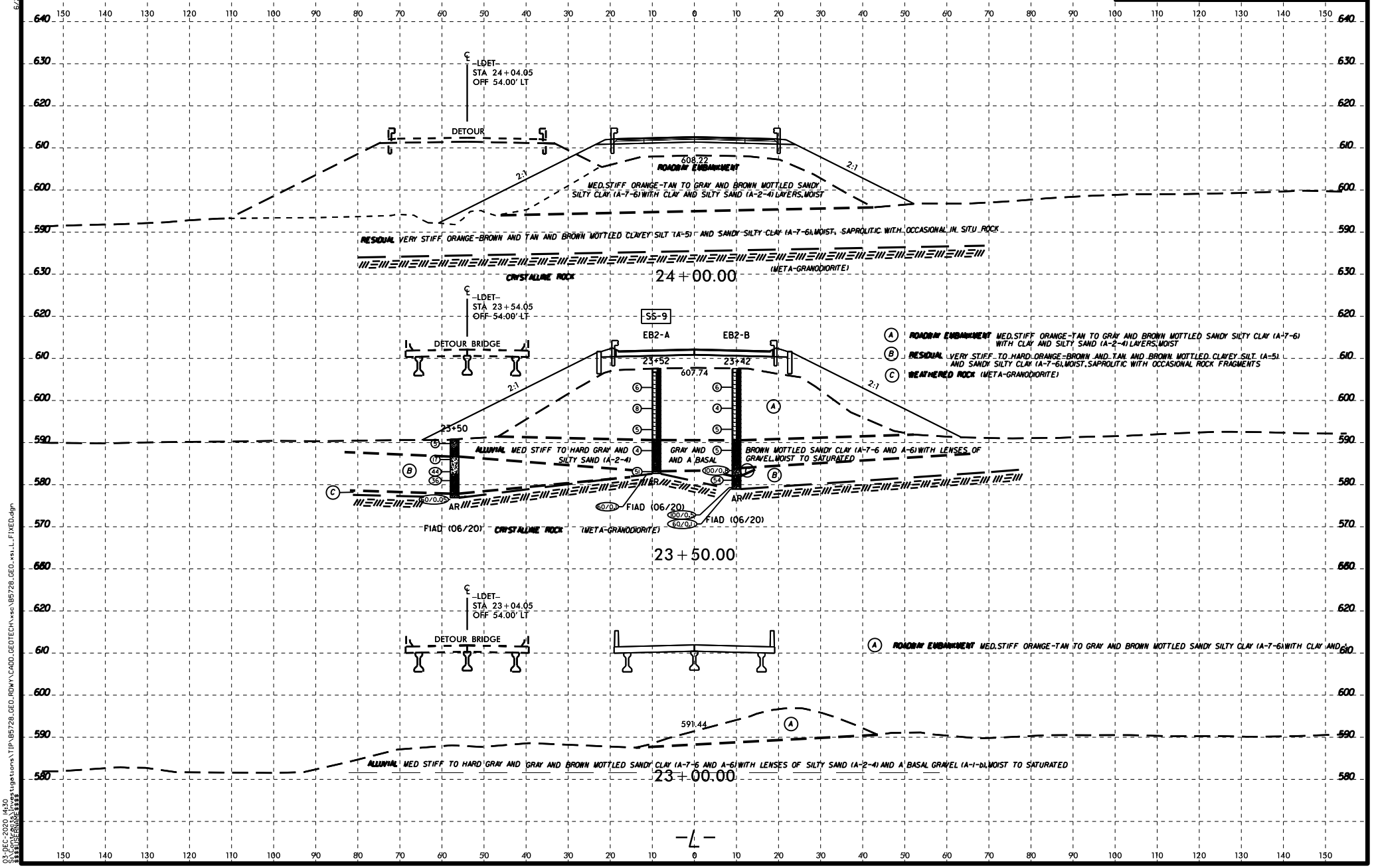
PROJ. REFERENCE NO.	SHEET NO.
B-5728	11



℄ -LDET- STA 20+04.05 OFF 54.00' LT
DETOUR
SS-1
SS-2
EBI-A 20+11.6
EBI-B 20+02
607.76
2:1
(A) ALLUVIAL MED.DENSE SILTY SAND (A-2-4) WITH BASAL GRAVEL (A-1-b),SAT
ROADWAY EMBANKMENT SOFT TO SANDY
BROWN TO ORANGE
MED.STIFF SILTY CLAY (A-7-6) MOIST
ALLUVIAL LOOSE TAN TO ORANGE-TAN MOTTLED SILTY SAND (A-2-4),WET TO SATURATED
MED.STIFF BROWN AND GRAY MOTTLED SANDY SILTY CLAY (A-7-6),MOIST
RESIDUAL VERY STIFF GRAY,TAN AND WHITE MOTTLED SILTY SANDY CLAY (A-7-6),MOIST TO WET
WEATHERED ROCK (META-GRANODIORITE)
AR FIAD (05/20)
AR FIAD (06/20)
CRYSTALLINE ROCK (META-GRANODIORITE)
20+00.00
℄ -LDET- STA 19+53.04 OFF 53.78' LT
DETOUR
6:1
2:1
607.85
ROADWAY EMBANKMENT SOFT TO MED.STIFF
BROWN TO ORANGE SANDY SILTY CLAY (A-7-6),MOIST
RESIDUAL VERY STIFF
GRAY,TAN AND WHITE MOTTLED SILTY SANDY CLAY (A-7-6),MOIST TO WET
ALLUVIAL LOOSE TO MEDIUM DENSE TAN,ORANGE AND TAN MOTTLED, AND GRAY SILTY SAND AND COARSE SAND WITH GRAVEL (A-2-4 AND A-1-b) INTERLAYERED WITH STIFF GRAY,TAN,AND WHITE MOTTLED SILTY SANDY CLAY (A-7-6) MOIST TO SATURATED
19+50.00
-L-

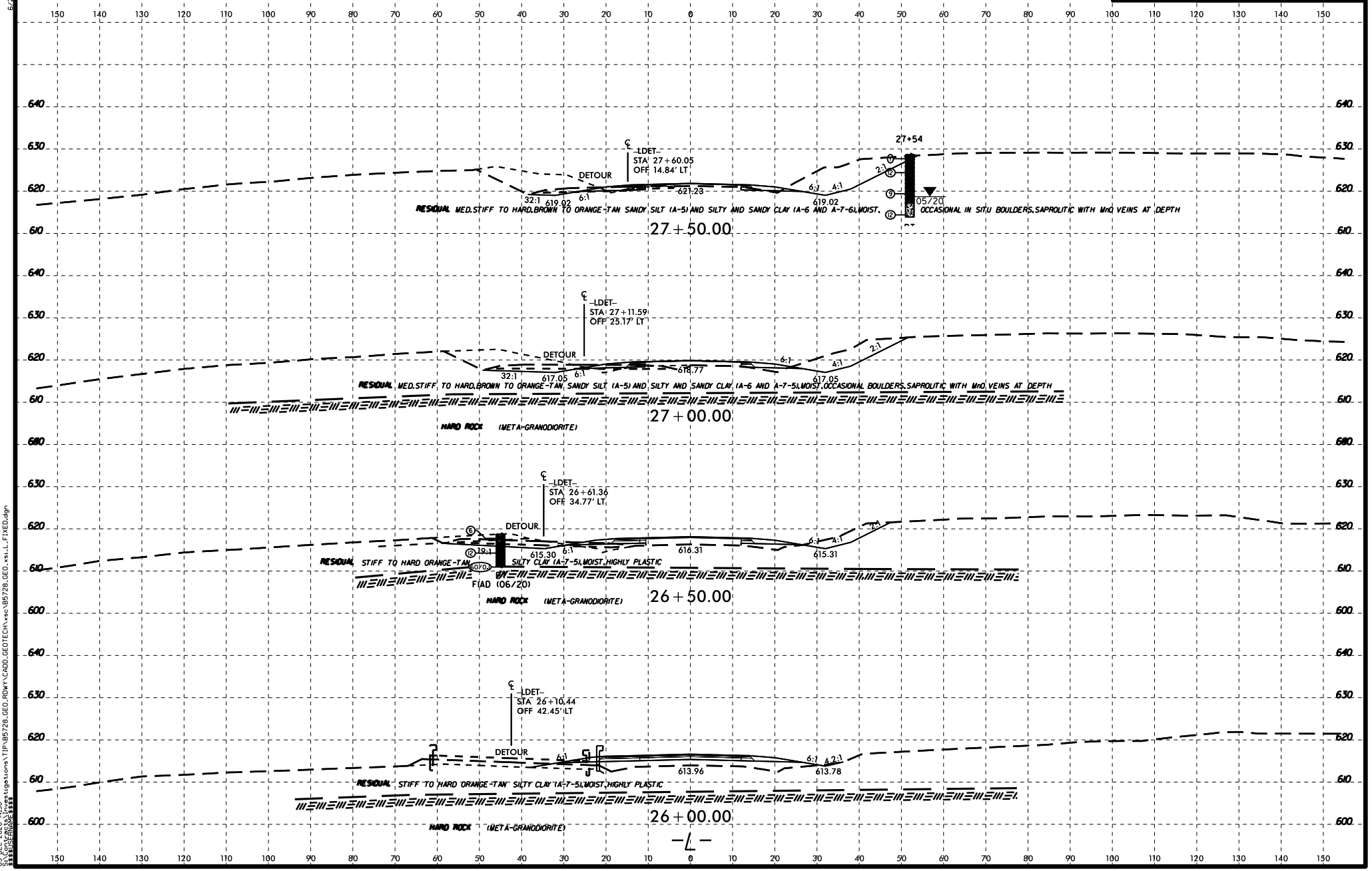
6/23/16

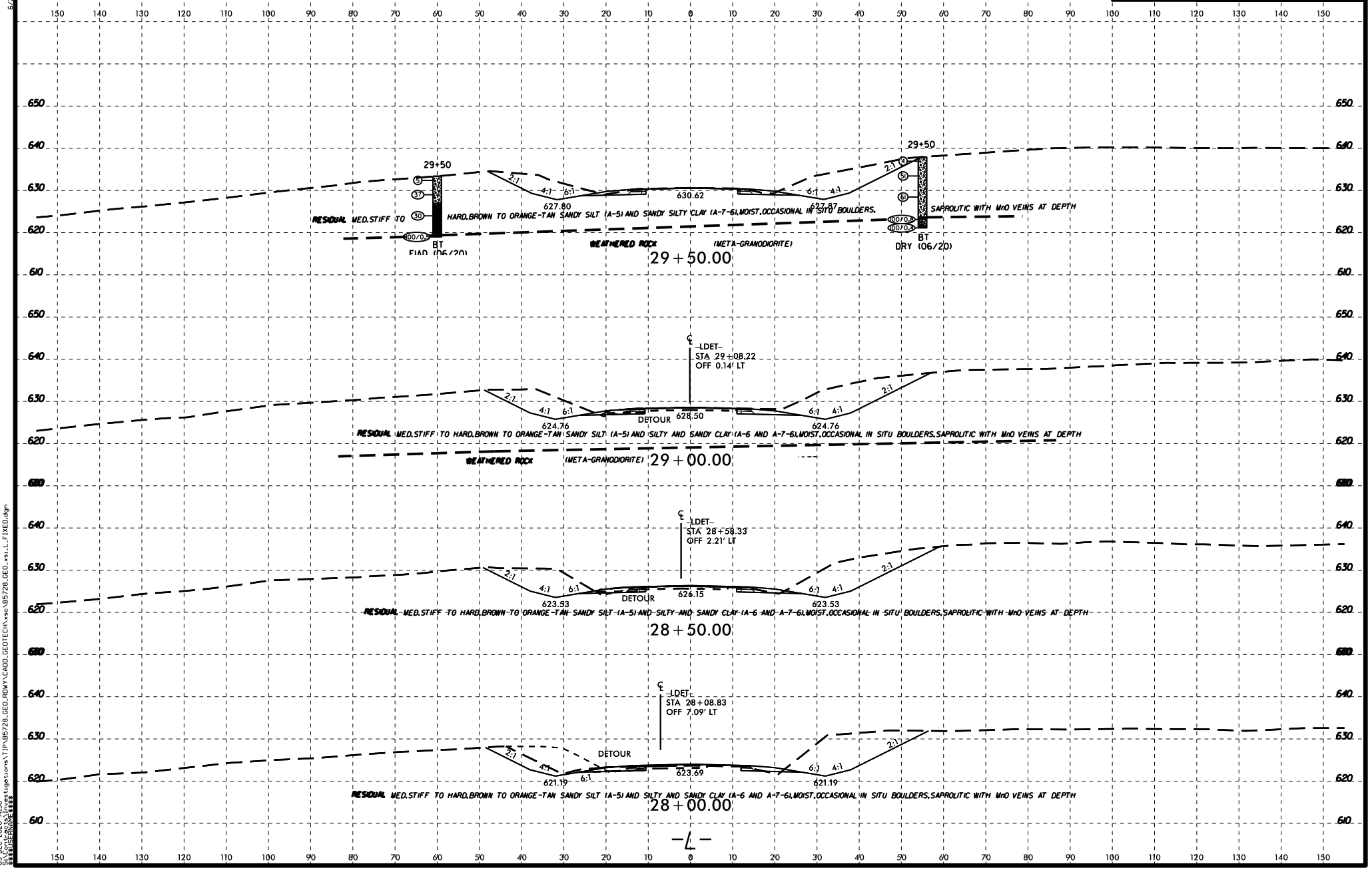
03-DEC-2020 14:30
S:\Contracts\Investigations\TIP\B5728_GEO_RDWY\CADD_GEOTECH\xsc\B5728_GEO_xsL_L_FIXED.dgn
$$$$USERNAME$$$$



6/23/16

03-DEC-2020 14:20
$$$$USERNAME$$$$





PROJECT REFERENCE NO.	SHEET NO.
B–5728	15

PROJECT: 45684 REFERENCE: B–5728

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX A
LABORATORY RESULTS

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-1	**8' LT**	**20+11**	**13.2-10.7**	**A-7-6(17)**	**52**	**25**	**16.5**	**13.5**	**27.9**	**42.2**	**95**	**83**	**70**	**-**	**-**
SS-2	**8' LT**	**20+11**	**23.2-24.7**	**A-7-6(16)**	**42**	**19**	**4.6**	**21.3**	**42.0**	**32.1**	**100**	**97**	**83**	**-**	**-**
SS-3	**65' LT**	**18+45**	**3.2-4.7**	**A-4(0)**		**NP**	**4.6**	**24.1**	**57.2**	**14.1**	**100**	**97**	**82**	**-**	**-**
SS-4	**46' LT**	**14+50**	**0.3-1.5**	**A-7-6(29)**	**58**	**30**	**6.4**	**11.2**	**30.1**	**52.2**	**100**	**96**	**87**	**-**	**-**
SS-5	**46' LT**	**14+50**	**7.8-9.3**	**A-7-5(12)**	**48**	**14**	**3.6**	**29.3**	**43.0**	**24.1**	**100**	**99**	**76**	**-**	**-**
SS-6	**52' RT**	**27+54**	**0.5-1.5**	**A-6(7)**	**40**	**17**	**22.3**	**13.7**	**29.9**	**34.1**	**82**	**67**	**56**	**-**	**-**
SS-7	**52' RT**	**27+54**	**8.6-9.8**	**A-7-6(3)**	**43**	**14**	**26.1**	**28.7**	**23.1**	**22.1**	**85**	**69**	**43**	**-**	**-**
SS-8	**52' RT**	**27+54**	**13.3-14.8**	**A-5(9)**	**44**	**8**	**4.4**	**25.7**	**51.8**	**18.1**	**100**	**97**	**80**	**-**	**-**
SS-9	**9' LT**	**23+52**	**23.5-24.4**	**A-6(12)**	**36**	**15**	**2.8**	**23.9**	**39.2**	**34.1**	**100**	**98**	**82**	**-**	**-**
SS-10	**45' LT**	**26+50**	**3.5-5.0**	**A-7-5(26)**	**57**	**26**	**5.0**	**16.1**	**34.7**	**44.2**	**100**	**97**	**86**	**-**	**-**