

REFERENCE: U-2579AB

PROJECT: 34839

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY FORSYTH
PROJECT DESCRIPTION WINSTON SALEM-NORTHERN
BELTWAY (EASTERN SECTION OF FUTURE I-74)
FROM I-40 BUS /US 421 TO I-40
SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD-
(STA. 47 + 63.62) INTERCHANGE CONNECTING
WINSTON-SALEM NORTHERN BELTWAY AND
I-40 BYPASS

CONTENTS

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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	1	26

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 CONTRACTOR 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

HPC
GOODNIGHT, D.J.
WEIS, J. M.

INVESTIGATED BY GOODNIGHT, D.J.
DRAWN BY CROCKETT, S.C.
CHECKED BY HAMM, J.R.
SUBMITTED BY FALCON ENG.
DATE NOVEMBER 2019



DocuSigned by:
Stephen C. Crockett
C5CA5FED48E043512/2/2019
SIGNATURE DATE

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 208, 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

Table with columns for General Class, Granular Materials, Silty-Clay Materials, Organic Materials, Group Class, Symbol, % Passing, Material Passing #40, #100, #200, LL, PI, Group Index, Usual Types of Major Materials, Gen. Rating as Subgrade.

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

CONSISTENCY OR DENSENESS

Table mapping Primary Soil Type to Compactness or Consistency, Range of Standard Penetration Resistance, and Range of Unconfined Compressive Strength.

TEXTURE OR GRAIN SIZE

Table showing U.S. Std. Sieve Size (mm) and corresponding grain size ranges for Boulder, Cobble, Gravel, Coarse Sand, Fine Sand, Silt, and Clay.

SOIL MOISTURE - CORRELATION OF TERMS

Table correlating Soil Moisture Scale (Atterberg Limits), Field Moisture Description, and Guide for Field Moisture Description (Liquid, Plastic, Optimum Moisture, Shrinkage Limit).

PLASTICITY

Table showing Plasticity Index (PI) ranges and corresponding Dry Strength levels (Very Low, Slight, Medium, High).

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). 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

Table showing percentages for Organic Material, Granular Soils, Silty-Clay Soils, and Other Material.

GROUND WATER

Water level symbols: Water level in bore hole immediately after drilling, Static water level after 24 hours, Perched water, saturated zone, or water bearing strata, Spring or seep.

MISCELLANEOUS SYMBOLS

Diagrammatic symbols for Roadway Embankment, Soil Symbol, Artificial Fill, Inferred Soil Boundary, Inferred Rock Line, Alluvial Soil Boundary, Dip and Dip Direction, Test Boring, Auger Boring, Core Boring, Monitoring Well, Piezometer Installation, Sounding Rod, Test Boring with Core, SPT N-Value.

RECOMMENDATION SYMBOLS

Symbols for Undercut Excavation, 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, 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, UNIT WEIGHT, DRY UNIT WEIGHT, SAMPLE ABBREVIATIONS: S - BULK, SS - SPLIT SPOON, ST - SHELBY TUBE, RS - ROCK, RT - RECOMPACTED TRIAXIAL, CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

- Drill Units: CME-45C, CME-55, CME-550X, Vane Shear Test, Portable Hoist, DIEDRICH D-50
Advancing Tools: Clay Bits, 6" Continuous Flight Auger, 8" Hollow Augers, Hard Faced Finger Bits, Tung-Carbide Inserts, Casing w/ Advancer, Tricone *Steel Teeth, Tricone *Tung-Carb., Core Bit
Hammer Type: Automatic, Manual
Core Size: -B, -H, -N Q2
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 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:

Diagrams and descriptions for Weathered Rock (WR), Crystalline Rock (CR), Non-Crystalline Rock (NCR), and Coastal Plain Sedimentary Rock (CP).

WEATHERING

Descriptions for Fresh, Very Slight (IV SLI), Slight (SLI), Moderate (MOD), Moderately Severe (MOD. SEV.), Severe (SEV.), Very Severe (IV SEV.), and Complete weathering conditions.

ROCK HARDNESS

Descriptions for Very Hard, Hard, Moderately Hard, Medium Hard, Soft, and Very Soft rock conditions.

FRACTURE SPACING

Table mapping Fracture Spacing (Term) to Spacing (More than 10 feet, 3 to 10 feet, 1 to 3 feet, 0.16 to 1 foot, less than 0.16 feet) and Bedding (Term) to Thickness (4 feet, 1.5 - 4 feet, 0.16 - 1.5 feet, 0.03 - 0.16 feet, 0.008 - 0.03 feet, less than 0.008 feet).

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. Descriptions for Friable, Moderately Indurated, Indurated, and Extremely Indurated.

TERMS AND DEFINITIONS

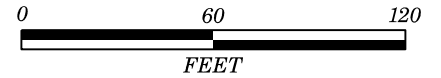
- ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
AQUIFER - A WATER BEARING FORMATION OR STRATA.
ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION 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 DISLOGGED 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 (ROD) - 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 (SROD) - 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: BL-50, -L- STA. 795+82, CL. N: 847291 E: 1663706

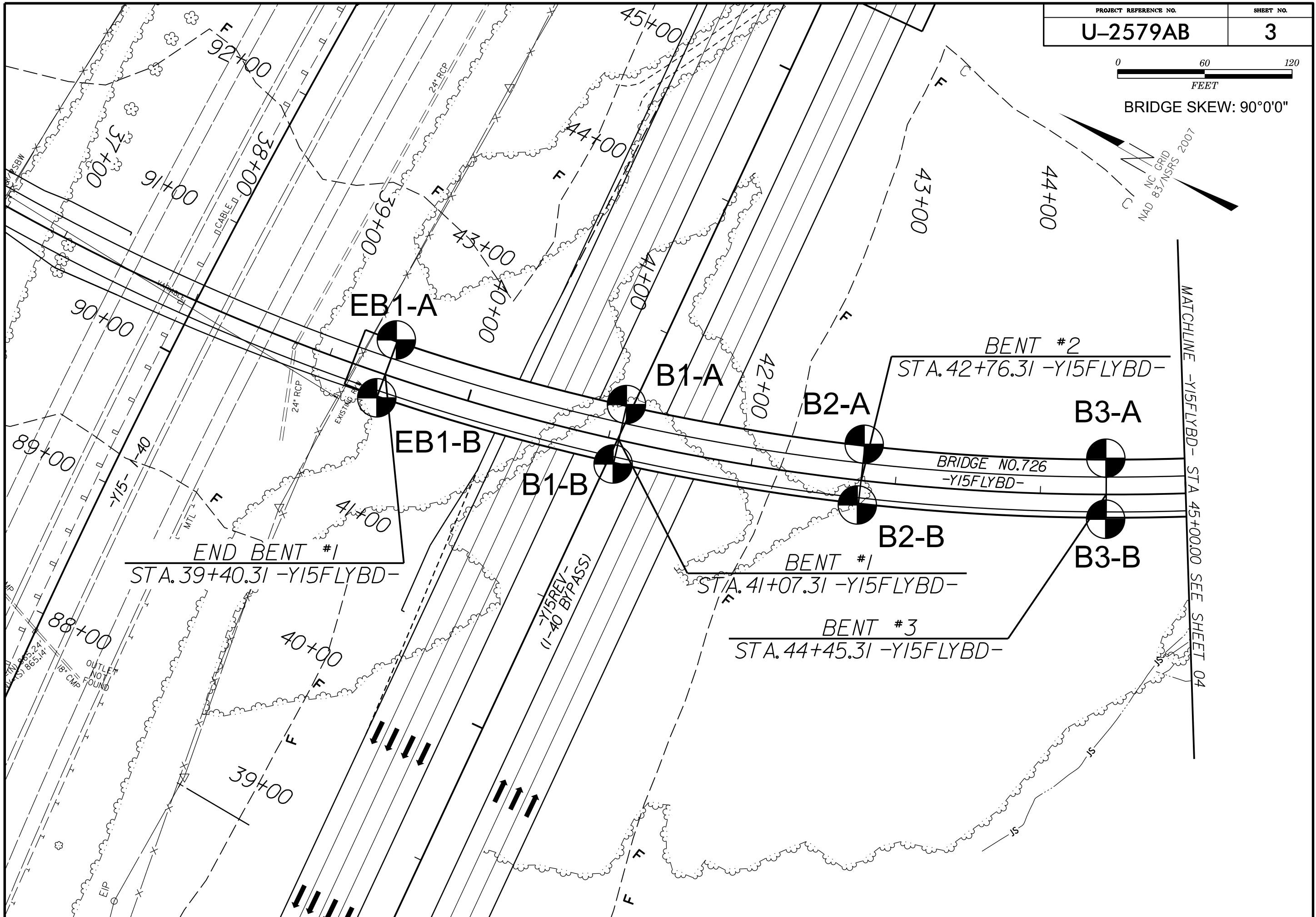
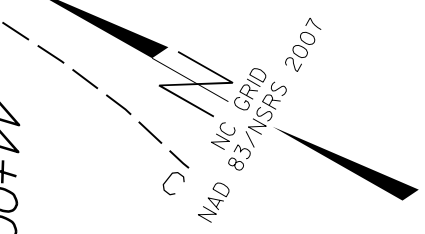
ELEVATION: 874.92 FEET

NOTES:

- FIAD - FILLED IMMEDIATELY AFTER DRILLING
CV - CAVED



BRIDGE SKEW: 90°0'0"



END BENT #1
STA. 39+40.31 -Y15FLYBD-

BENT #1
STA. 41+07.31 -Y15FLYBD-

BENT #3
STA. 44+45.31 -Y15FLYBD-

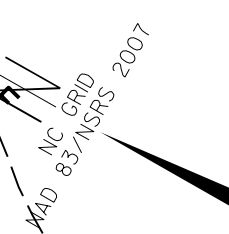
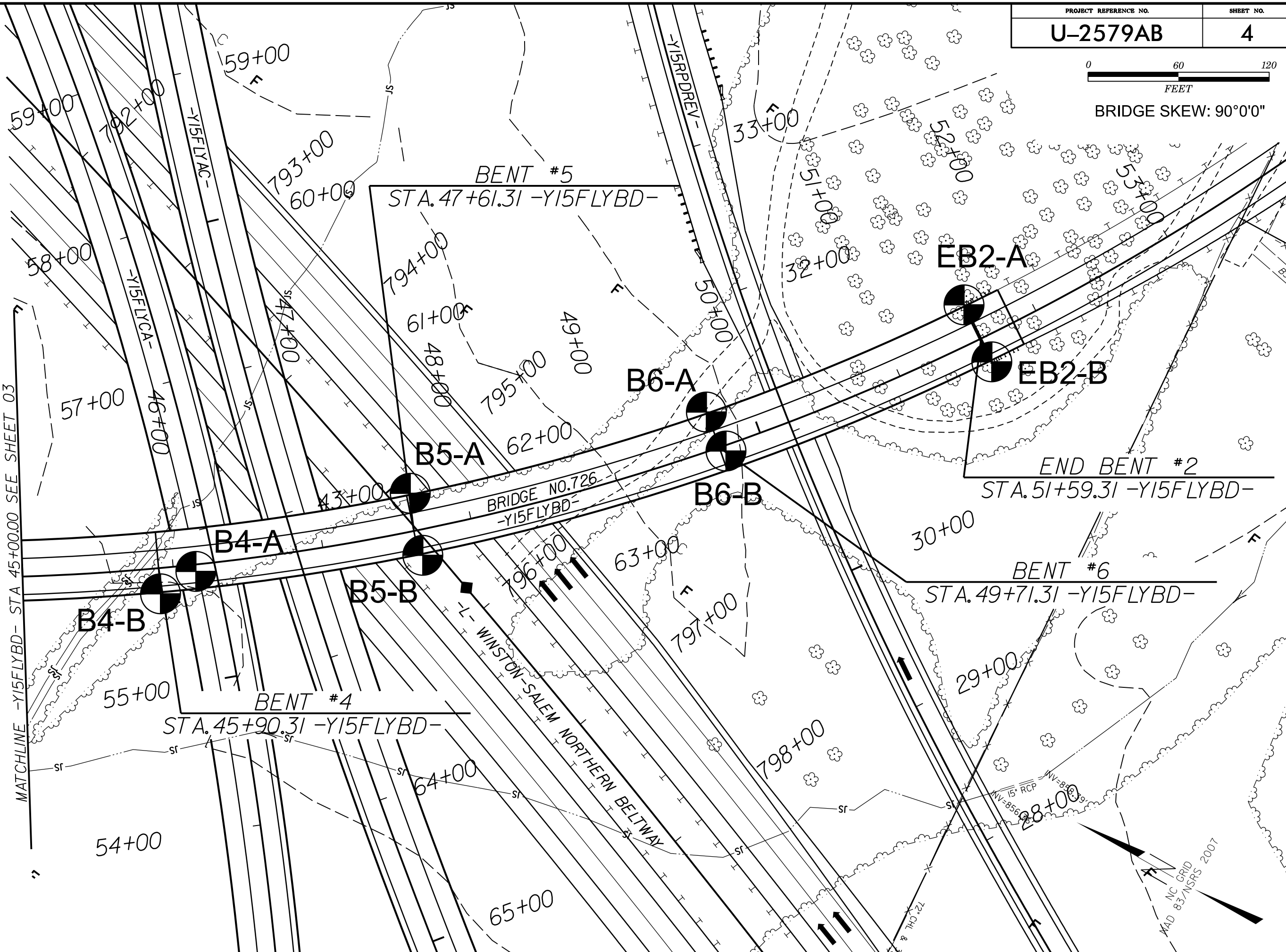
BENT #2
STA. 42+76.31 -Y15FLYBD-

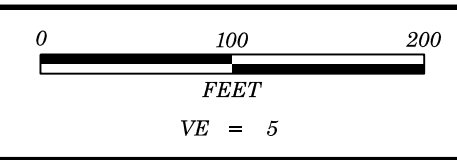
BRIDGE NO. 726
-Y15FLYBD-

MATCHLINE -Y15FLYBD- STA 45+00.00 SEE SHEET 04



BRIDGE SKEW: 90°0'0"

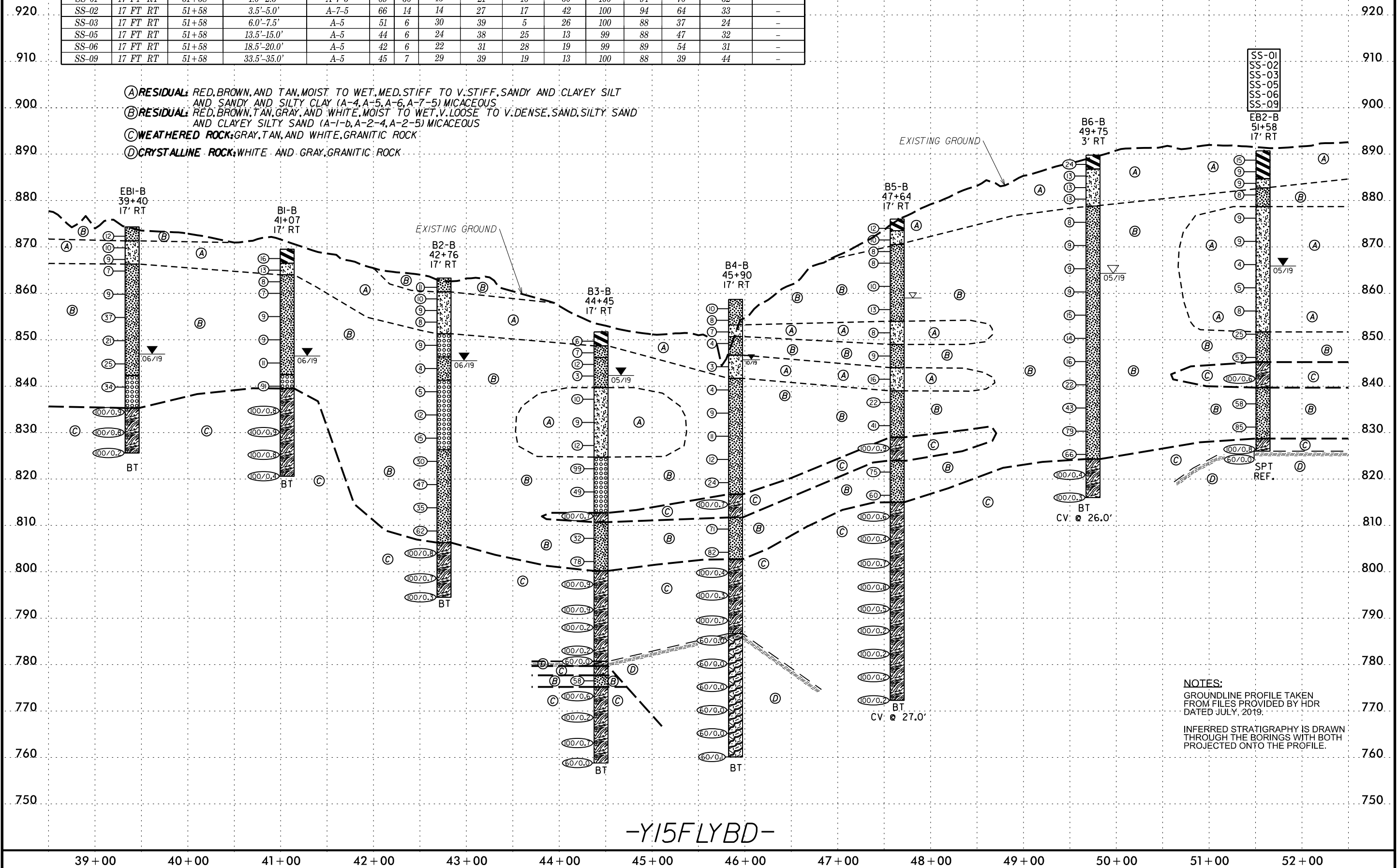




SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-01	17 FT RT	51+58	1.0'-2.5'	A-7-5	69	30	13	21	16	50	100	94	70	32	-
SS-02	17 FT RT	51+58	3.5'-5.0'	A-7-5	66	14	14	27	17	42	100	94	64	33	-
SS-03	17 FT RT	51+58	6.0'-7.5'	A-5	51	6	30	39	5	26	100	88	37	24	-
SS-05	17 FT RT	51+58	13.5'-15.0'	A-5	44	6	24	38	25	13	99	88	47	32	-
SS-06	17 FT RT	51+58	18.5'-20.0'	A-5	42	6	22	31	28	19	99	89	54	31	-
SS-09	17 FT RT	51+58	33.5'-35.0'	A-5	45	7	29	39	19	13	100	88	39	44	-

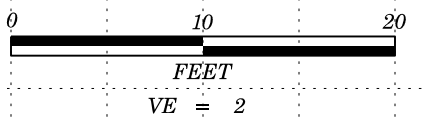
- (A) RESIDUAL: RED, BROWN, AND TAN, MOIST TO WET, MED. STIFF TO V. STIFF, SANDY AND CLAYEY SILT AND SANDY AND SILTY CLAY (A-4, A-5, A-6, A-7-5) MICACEOUS
- (B) RESIDUAL: RED, BROWN, TAN, GRAY, AND WHITE, MOIST TO WET, V. LOOSE TO V. DENSE, SAND, SILTY SAND AND CLAYEY SILTY SAND (A-1-b, A-2-4, A-2-5) MICACEOUS
- (C) WEATHERED ROCK: GRAY, TAN, AND WHITE, GRANITIC ROCK
- (D) CRYSTALLINE ROCK: WHITE AND GRAY, GRANITIC ROCK



NOTES:
 GROUNDLINE PROFILE TAKEN FROM FILES PROVIDED BY HDR DATED JULY, 2019.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

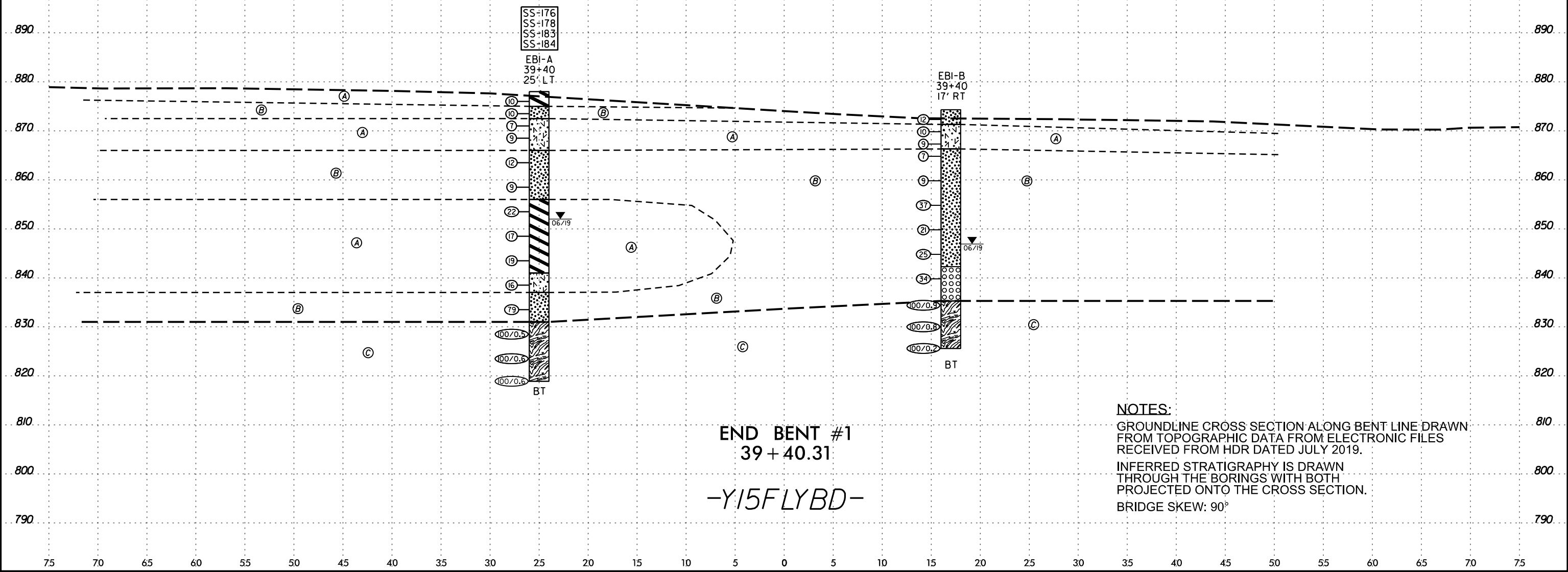
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SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-176	25 FT LT	39+40	1.0'-2.5'	A-7-5	60	25	18	17	17	48	100	89	68	27	-
SS-178	25 FT LT	39+40	6.0'-7.5'	A-5	52	7	20	38	22	20	100	94	49	29	-
SS-183	25 FT LT	39+40	28.5'-30.0'	A-7-5	50	13	32	22	19	27	99	74	50	46	-
SS-184	25 FT LT	39+40	33.5'-35.0'	A-7-5	54	18	32	21	22	25	100	76	52	46	-

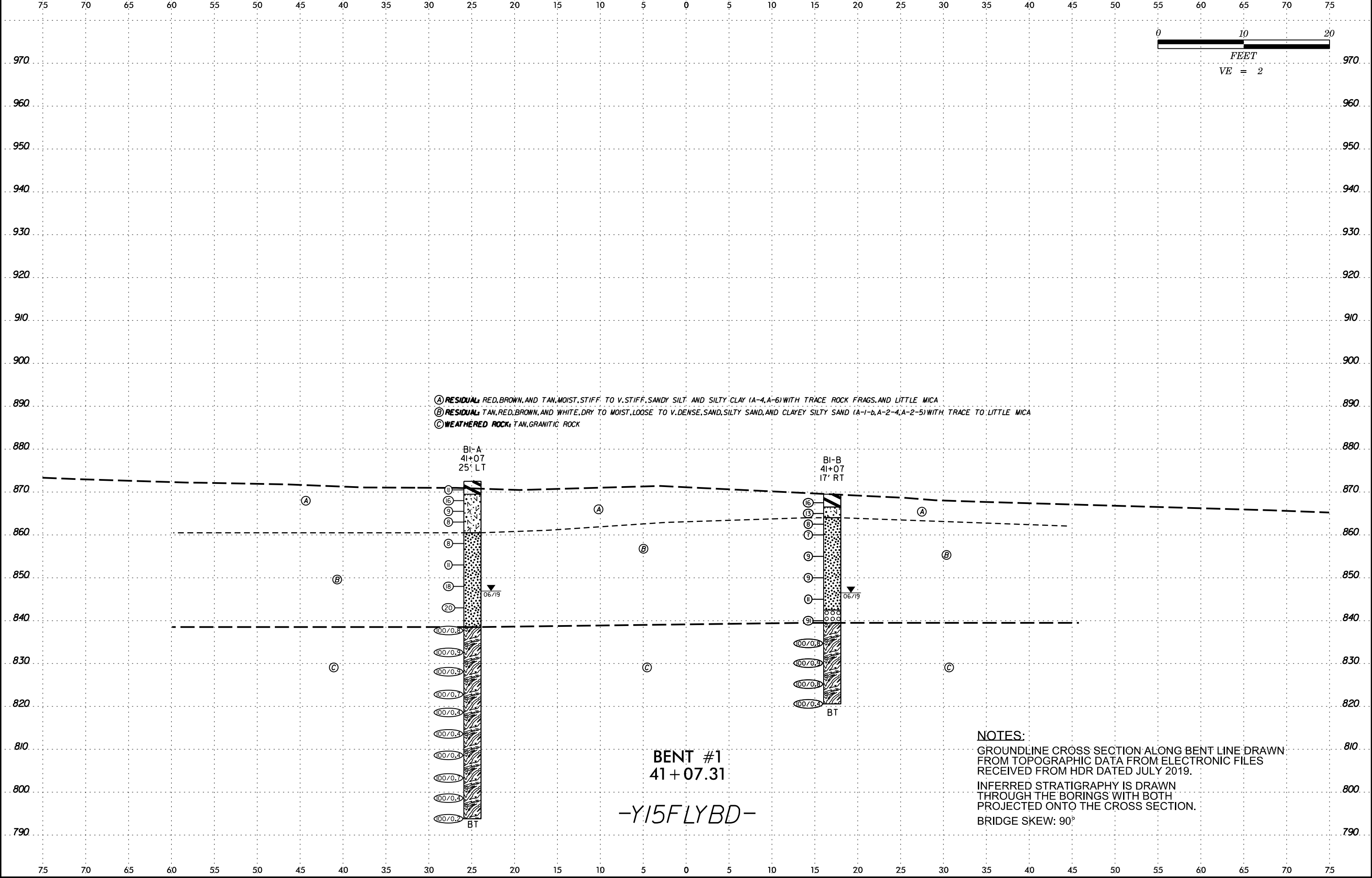
- (A) RESIDUAL BROWN AND TAN, MOIST TO WET, STIFF TO V. STIFF, CLAYEY SILT AND SILTY CLAY (A-5, A-7-5) WITH TRACE ROOTS AND LITTLE MICA
- (B) RESIDUAL TAN, BROWN, AND RED, MOIST TO WET, LOOSE TO V. DENSE, SAND AND SILTY SAND (A-1-b, A-2-4) WITH LITTLE MICA
- (C) WEATHERED ROCK, TAN AND WHITE, GRANITIC ROCK



NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA FROM ELECTRONIC FILES RECEIVED FROM HDR DATED JULY 2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 90°

8/23/99

8/23/99



(A) RESIDUAL, RED, BROWN, AND TAN, MOIST, STIFF TO V. STIFF, SANDY SILT AND SILTY CLAY (A-4, A-6) WITH TRACE ROCK FRAGS. AND LITTLE MICA
 (B) RESIDUAL, TAN, RED, BROWN, AND WHITE, DRY TO MOIST, LOOSE TO V. DENSE, SAND, SILTY SAND, AND CLAYEY SILTY SAND (A-1-b, A-2-4, A-2-5) WITH TRACE TO LITTLE MICA
 (C) WEATHERED ROCK, TAN, GRANITIC ROCK

BI-A
41+07
25' LT

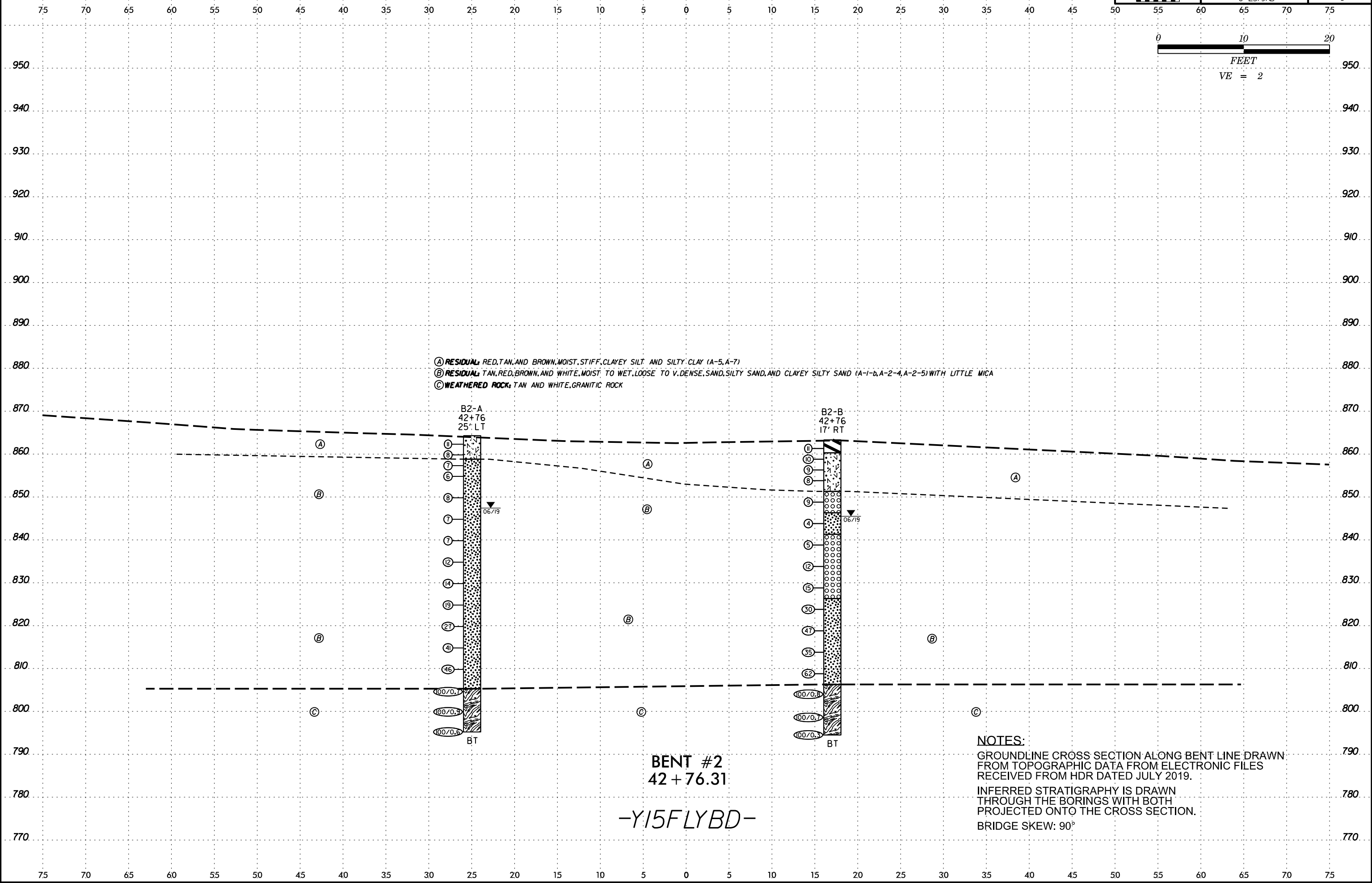
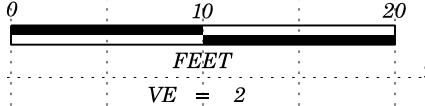
BI-B
41+07
17' RT

BENT #1
41 + 07.31
-Y15FLYBD-

NOTES:
 GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA FROM ELECTRONIC FILES RECEIVED FROM HDR DATED JULY 2019.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
 BRIDGE SKEW: 90°

SCALE\$

8/23/99



- (A) RESIDUAL, RED, TAN, AND BROWN, MOIST, STIFF, CLAYEY SILT AND SILTY CLAY (A-5, A-7)
- (B) RESIDUAL, TAN, RED, BROWN, AND WHITE, MOIST TO WET, LOOSE TO V. DENSE, SAND, SILTY SAND, AND CLAYEY SILTY SAND (A-1-b, A-2-4, A-2-5) WITH LITTLE MICA
- (C) WEATHERED ROCK, TAN AND WHITE, GRANITIC ROCK

B2-A
42+76
25' LT

- 11
- 8
- 7
- 6
- 8
- 7
- 7
- 12
- 14
- 19
- 27
- 41
- 46
- 100/0.7
- 100/0.9
- 100/0.6

BT

06/19

B2-B
42+76
17' RT

- 11
- 10
- 9
- 9
- 9
- 4
- 5
- 12
- 15
- 30
- 47
- 35
- 62
- 100/0.8
- 100/0.7
- 100/0.3

BT

06/19

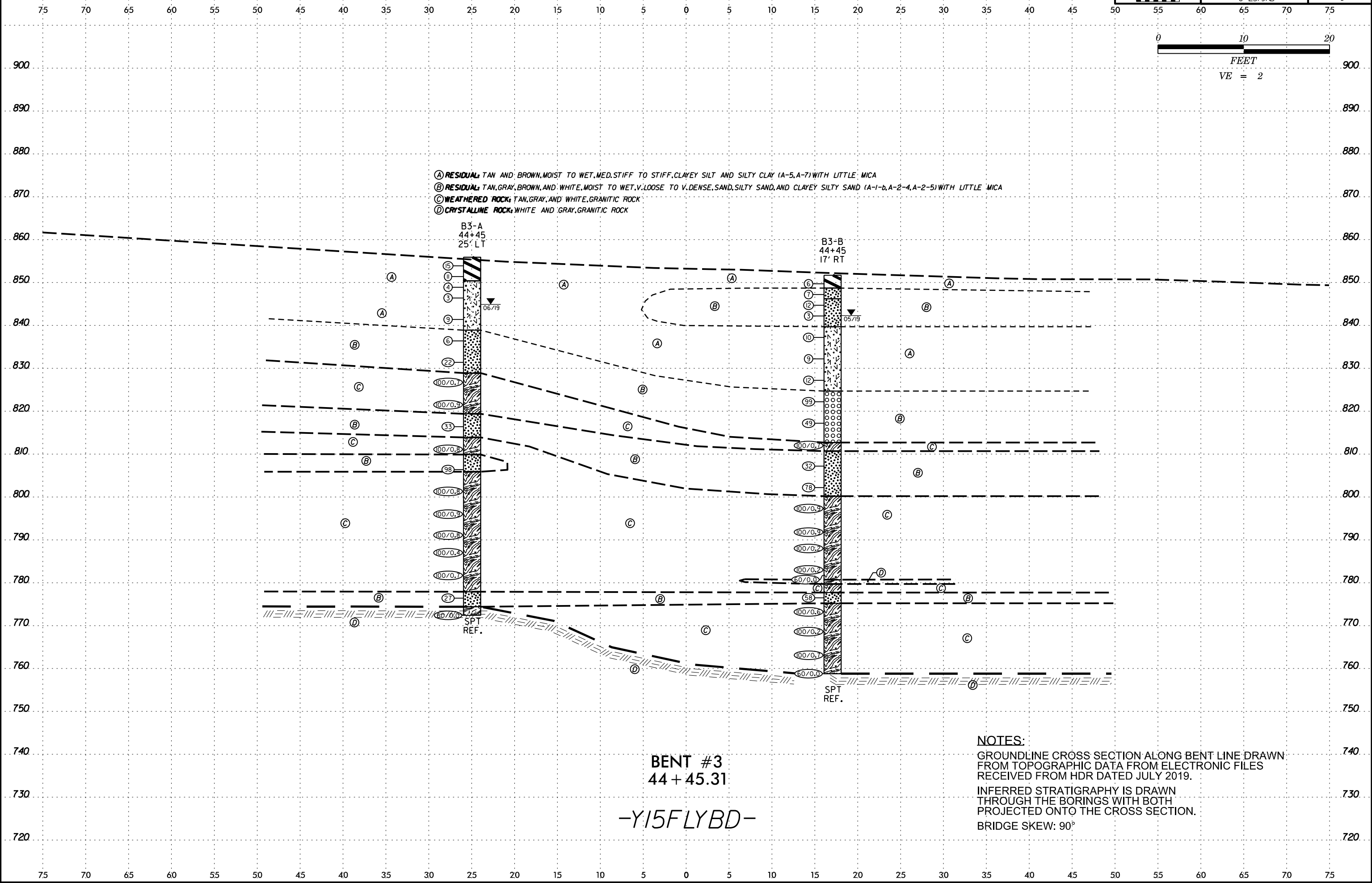
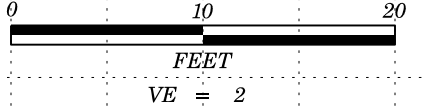
BENT #2
42 + 76.31

-Y15FLYBD-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA FROM ELECTRONIC FILES RECEIVED FROM HDR DATED JULY 2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 90°

SCALE\$

8/23/99



- (A) RESIDUAL: TAN AND BROWN, MOIST TO WET, MED. STIFF TO STIFF, CLAYEY SILT AND SILTY CLAY (A-5, A-7) WITH LITTLE MICA
- (B) RESIDUAL: TAN, GRAY, BROWN, AND WHITE, MOIST TO WET, V. LOOSE TO V. DENSE, SAND, SILTY SAND, AND CLAYEY SILTY SAND (A-1-b, A-2-4, A-2-5) WITH LITTLE MICA
- (C) WEATHERED ROCK: TAN, GRAY, AND WHITE, GRANITIC ROCK
- (D) CRYSTALLINE ROCK: WHITE AND GRAY, GRANITIC ROCK

B3-A
44+45
25' LT

B3-B
44+45
17' RT

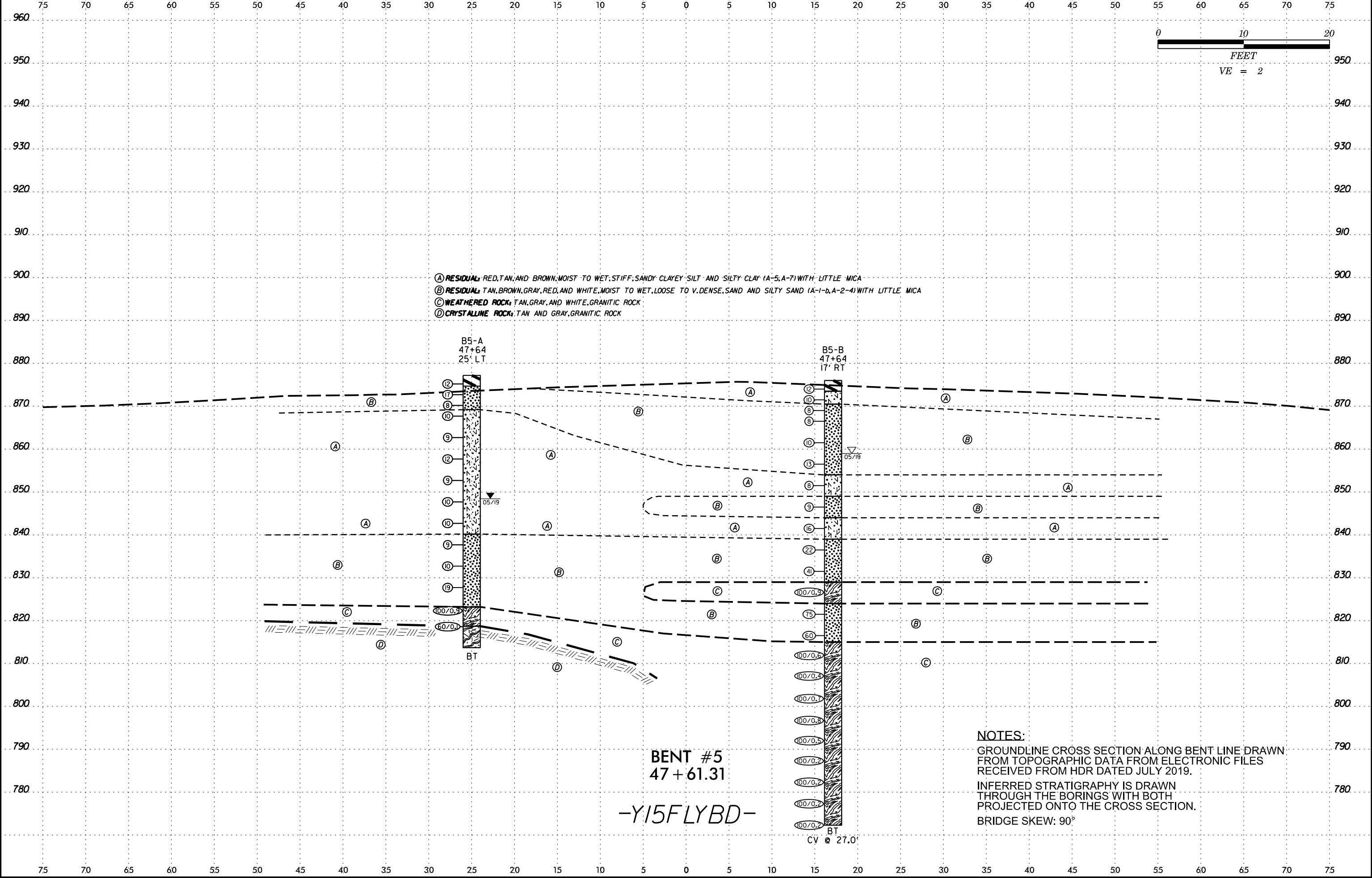
BENT #3
44 + 45.31

-Y15FLYBD-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA FROM ELECTRONIC FILES RECEIVED FROM HDR DATED JULY 2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 90°

SCALE\$

8/23/99



- (A) RESIDUAL: RED, TAN, AND BROWN, MOIST TO WET, STIFF, SANDY CLAYEY SILT AND SILTY CLAY (A-5, A-7) WITH LITTLE MICA
- (B) RESIDUAL: TAN, BROWN, GRAY, RED, AND WHITE, MOIST TO WET, LOOSE TO V. DENSE, SAND AND SILTY SAND (A-1-b, A-2-4) WITH LITTLE MICA
- (C) WEATHERED ROCK: TAN, GRAY, AND WHITE, GRANITIC ROCK
- (D) CRYSTALLINE ROCK: TAN AND GRAY, GRANITIC ROCK

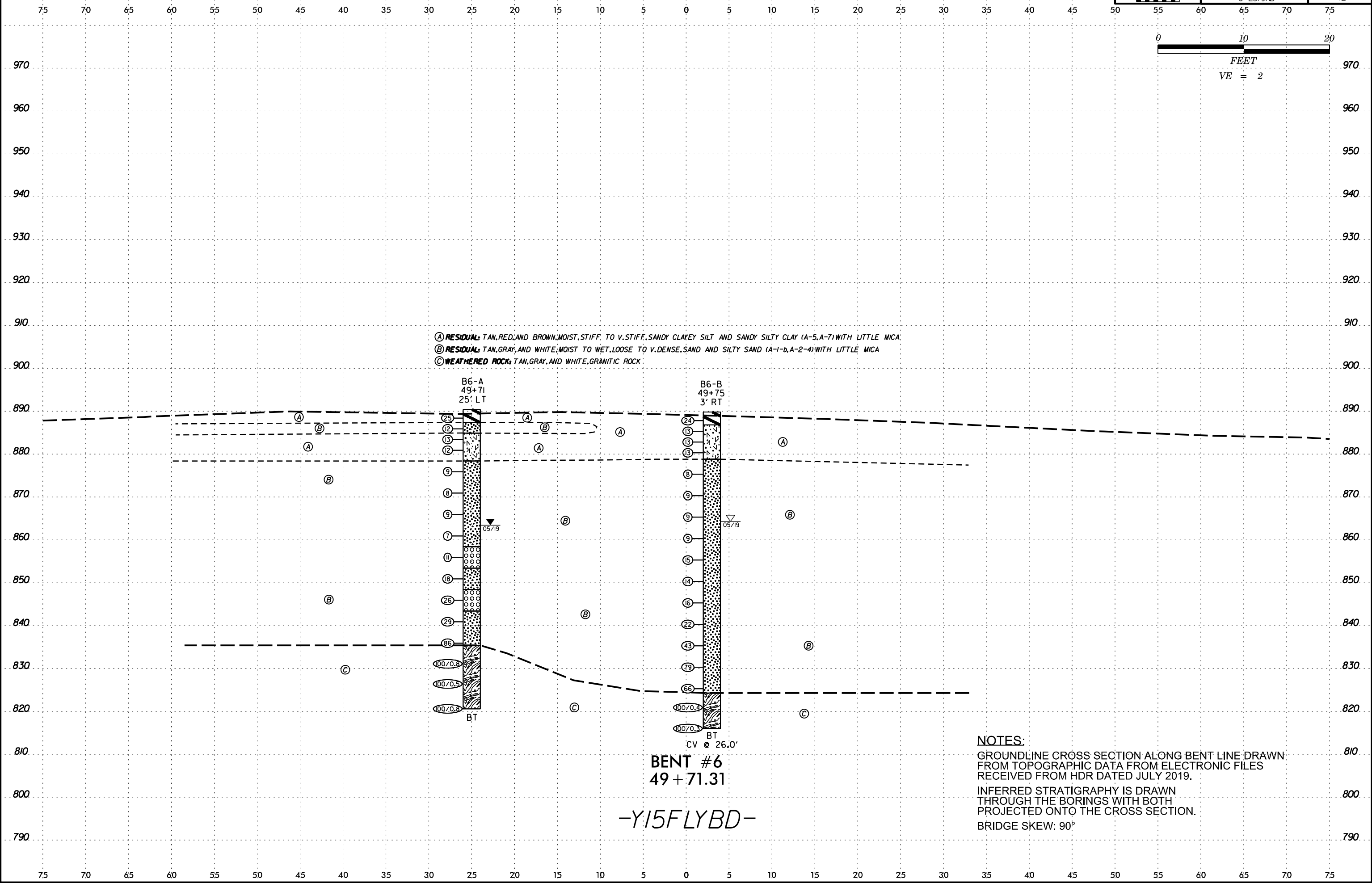
BENT #5
47 + 61.31
-Y15FLYBD-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA FROM ELECTRONIC FILES RECEIVED FROM HDR DATED JULY 2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 90°

SCALE\$

8/23/99

0 10 20
FEET
VE = 2



(A) RESIDUAL, TAN, RED, AND BROWN, MOIST, STIFF TO V. STIFF, SANDY CLAYEY SILT AND SANDY SILTY CLAY (A-5, A-7) WITH LITTLE MICA.
 (B) RESIDUAL, TAN, GRAY, AND WHITE, MOIST TO WET, LOOSE TO V. DENSE, SAND AND SILTY SAND (A-1-b, A-2-4) WITH LITTLE MICA.
 (C) WEATHERED ROCK, TAN, GRAY, AND WHITE, GRANITIC ROCK.

B6-A
49+71
25' LT

B6-B
49+75
3' RT

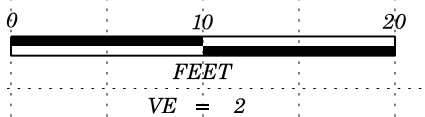
BENT #6
49 + 71.31

-Y15FLYBD-

NOTES:
 GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA FROM ELECTRONIC FILES RECEIVED FROM HDR DATED JULY 2019.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
 BRIDGE SKEW: 90°

SCALE\$

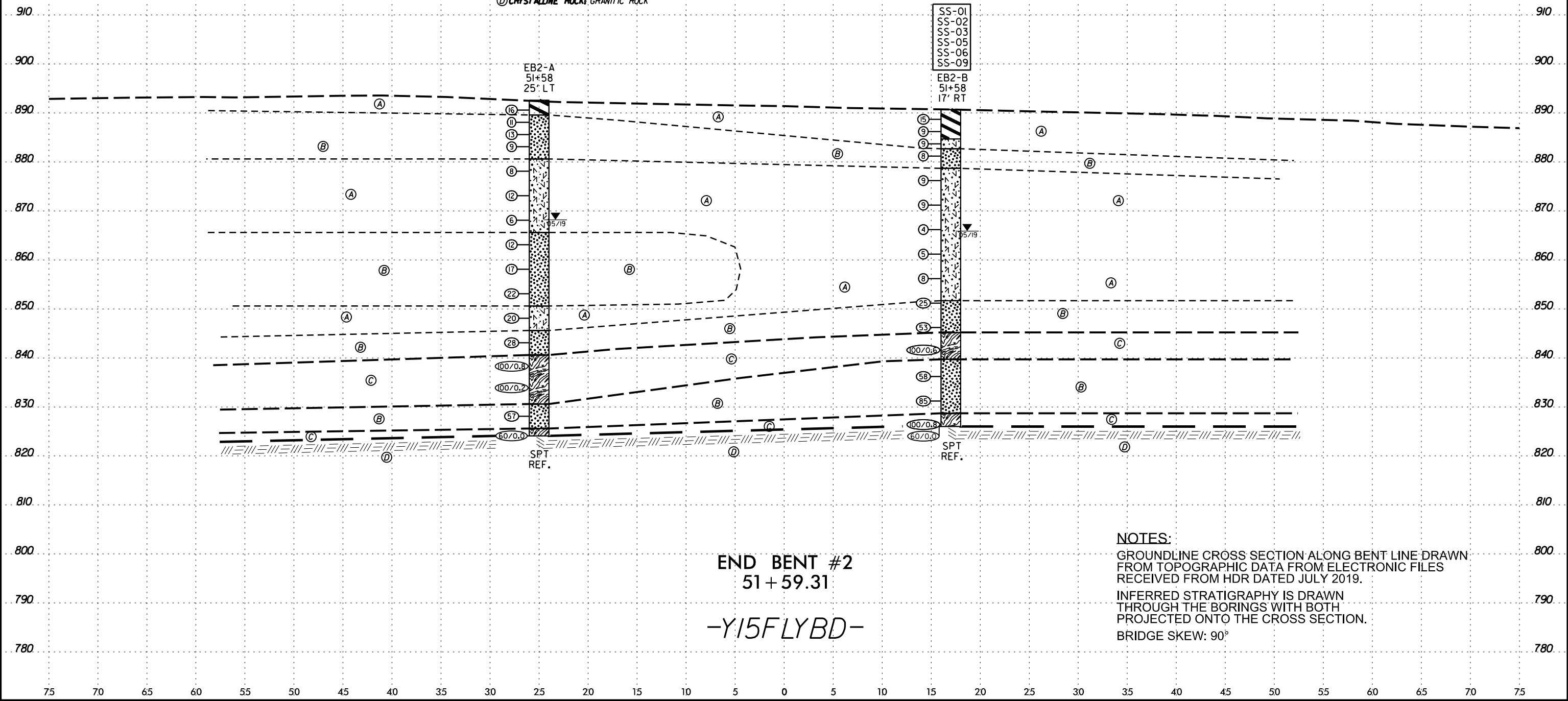
8/23/99



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-01	17 FT RT	51+58	1.0'-2.5'	A-7-5	69	30	13	21	16	50	100	94	70	32	-
SS-02	17 FT RT	51+58	3.5'-5.0'	A-7-5	66	14	14	27	17	42	100	94	64	33	-
SS-03	17 FT RT	51+58	6.0'-7.5'	A-5	51	6	30	39	5	26	100	88	37	24	-
SS-05	17 FT RT	51+58	13.5'-15.0'	A-5	44	6	24	38	25	13	99	88	47	32	-
SS-06	17 FT RT	51+58	18.5'-20.0'	A-5	42	6	22	31	28	19	99	89	54	31	-
SS-09	17 FT RT	51+58	33.5'-35.0'	A-5	45	7	29	39	19	13	100	88	39	44	-

- (A) RESIDUAL: RED, TAN, AND BROWN, MOIST TO WET, MED. STIFF TO V. STIFF, SANDY CLAYEY SILT AND SILTY CLAY (A-5, A-7) WITH TRACE TO LITTLE MICA
- (B) RESIDUAL: TAN, RED, GRAY, AND WHITE, MOIST TO WET, LOOSE TO V. DENSE, SILTY SAND (A-2-4) MICACEOUS
- (C) WEATHERED ROCK: TAN AND WHITE, GRANITIC ROCK
- (D) CRYSTALLINE ROCK: GRANITIC ROCK



END BENT #2
51+59.31
-Y15FLYBD-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA FROM ELECTRONIC FILES RECEIVED FROM HDR DATED JULY 2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 90°

8/23/99

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST Goodnight, D.											
SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVER -Y15REV-, -Y15FLYCA-, -Y15FLYAC-, -L-, AND -Y15RPDREV-						GROUND WTR (ft)											
BORING NO. EB1-A		STATION 39+40		OFFSET 25 ft LT		ALIGNMENT -Y15FLYBD-											
COLLAR ELEV. 878.0 ft		TOTAL DEPTH 59.1 ft		NORTHING 848,074		EASTING 1,663,391											
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 84% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER Kiker, Z.		START DATE 06/03/19		COMP. DATE 06/03/19		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
880															878.0	0.0	GROUND SURFACE
	877.0	1.0	5	5	5										875.0	3.0	RESIDUAL BROWN, F. SILTY CLAY (A-7-5) TRACE ROOTS
875	874.5	3.5	4	5	5										872.5	5.5	TAN, SILTY SAND (A-2-4)
	872.0	6.0	3	3	4										872.5	5.5	TAN-BROWN, F. SANDY CLAYEY SILT (A-5) LITTLE MICA
870	869.5	8.5	3	4	5										866.0	12.0	TAN, SILTY F. TO CSE SAND (A-2-4) TRACE MICA
	864.5	13.5	5	6	6										866.0	12.0	TAN, SILTY F. TO CSE SAND (A-2-4) TRACE MICA
865	859.5	18.5	5	5	4										856.0	22.0	TAN-BROWN, SILTY CLAY (A-7-5)
	854.5	23.5	5	11	11										856.0	22.0	TAN-BROWN, SILTY CLAY (A-7-5)
860	849.5	28.5	10	7	10										841.0	37.0	TAN-BROWN, CLAYEY SANDY SILT (A-5) WITH DIABASE ROCK FRAGS.
	844.5	33.5	6	9	10										837.0	41.0	TAN, SILTY CSE. TO F. SAND (A-2-4)
865	839.5	38.5	8	7	9										831.0	47.0	WEATHERED ROCK TAN AND GRAY, GRANITIC ROCK
	834.5	43.5	21	31	48										831.0	47.0	WEATHERED ROCK TAN AND GRAY, GRANITIC ROCK
830	829.5	48.5	100/0.5												818.9	59.1	Boring Terminated at Elevation 818.9 ft IN WR: GRANITIC ROCK
	824.5	53.5	75	25/0.1											818.9	59.1	Boring Terminated at Elevation 818.9 ft IN WR: GRANITIC ROCK
825	819.5	58.5	75	25/0.1											818.9	59.1	Boring Terminated at Elevation 818.9 ft IN WR: GRANITIC ROCK

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST Goodnight, D.											
SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVER -Y15REV-, -Y15FLYCA-, -Y15FLYAC-, -L-, AND -Y15RPDREV-						GROUND WTR (ft)											
BORING NO. EB1-B		STATION 39+40		OFFSET 17 ft RT		ALIGNMENT -Y15FLYBD-											
COLLAR ELEV. 874.3 ft		TOTAL DEPTH 48.7 ft		NORTHING 848,066		EASTING 1,663,349											
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 84% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER Kiker, Z.		START DATE 06/03/19		COMP. DATE 06/03/19		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
															874.3	0.0	GROUND SURFACE
	873.3	1.0	7	7	5										871.3	3.0	RESIDUAL BROWN, SILTY SAND (A-2-4) WITH TRACE ROCK FRAGS.
870	870.8	3.5	4	5	5										871.3	3.0	RESIDUAL BROWN, SILTY SAND (A-2-4) WITH TRACE ROCK FRAGS.
	868.3	6.0	4	5	4										866.3	8.0	RED-BROWN, SANDY CLAYEY SILT (A-5) WITH LITTLE MICA
865	865.8	8.5	4	4	3										866.3	8.0	RED-BROWN, SANDY CLAYEY SILT (A-5) WITH LITTLE MICA
	860.8	13.5	4	5	4										866.3	8.0	BROWN RED AND TAN, SILTY SAND (A-2-4) LITTLE MICA
860	855.8	18.5	26	24	13										866.3	8.0	BROWN RED AND TAN, SILTY SAND (A-2-4) LITTLE MICA
	850.8	23.5	13	12	9										866.3	8.0	BROWN RED AND TAN, SILTY SAND (A-2-4) LITTLE MICA
855	845.8	28.5	17	14	11										842.3	32.0	TAN-WHITE, SILTY F. TO CSE SAND (A-1-b)
	840.8	33.5	11	16	18										842.3	32.0	TAN-WHITE, SILTY F. TO CSE SAND (A-1-b)
850	835.8	38.5	26	35	65/0.4										835.3	39.0	WEATHERED ROCK TAN AND WHITE, GRANITIC ROCK
	830.8	43.5	55	45/0.3											835.3	39.0	WEATHERED ROCK TAN AND WHITE, GRANITIC ROCK
835	825.8	48.5	100/0.2												825.6	48.7	Boring Terminated at Elevation 825.6 ft IN WR: GRANITIC ROCK

NCDOT BORE DOUBLE U2579AB_GEO_BORINGS.GPJ NC_DOT.GDT 11/5/19

GEOTECHNICAL BORING REPORT BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST Goodnight, D.										
SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVER -Y15REV-, -Y15FLYCA-, -Y15FLYAC-, -L-, AND -Y15RPDREV-						GROUND WTR (ft)										
BORING NO. B1-A		STATION 41+07		OFFSET 25 ft LT		ALIGNMENT -Y15FLYBD-										
COLLAR ELEV. 872.5 ft		TOTAL DEPTH 78.7 ft		NORTHING 847,915		EASTING 1,663,430										
DRILL RIG/HAMMER EFF./DATE BRI5184 CME-45C 96% 03/06/2019		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Ester, G.		START DATE 06/04/19		COMP. DATE 10/14/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
875																
870	871.5	1.0	4	5	6										872.5	0.0
	869.0	3.5	5	7	9										869.5	3.0
865	866.5	6.0	6	3	6											
	864.0	8.5	4	4	4											
860	859.0	13.5	4	3	5										860.5	12.0
855	854.0	18.5	6	5	6											
850	849.0	23.5	5	9	9											
845	844.0	28.5	8	10	10											
840	839.0	33.5	27	50	50/0.3										838.5	34.0
835	834.0	38.5	13	30	70/0.4											
830	829.0	43.5	48	52/0.4												
825	824.0	48.5	43	57	43/0.2											
820	819.0	53.5	100/0.4													
815	814.0	58.5	100/0.4													
810	809.0	63.5	100/0.4													
805	804.0	68.5	70	30/0.2												
800	799.0	73.5	100/0.4													
795																

NCDOT BORE DOUBLE U2579AB_GEO_BORINGS.GPJ NC_DOT.GDT 11/5/19

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST Goodnight, D.										
SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVER -Y15REV-, -Y15FLYCA-, -Y15FLYAC-, -L-, AND -Y15RPDREV-						GROUND WTR (ft)										
BORING NO. B1-A		STATION 41+07		OFFSET 25 ft LT		ALIGNMENT -Y15FLYBD-										
COLLAR ELEV. 872.5 ft		TOTAL DEPTH 78.7 ft		NORTHING 847,915		EASTING 1,663,430										
DRILL RIG/HAMMER EFF./DATE BRI5184 CME-45C 96% 03/06/2019		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Ester, G.		START DATE 06/04/19		COMP. DATE 10/14/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
795																
	794.0	78.5	100/0.2												793.8	78.7

Match Line

Boring Terminated at Elevation 793.8 ft IN
WR: GRANITIC ROCK

NOTE: BORING ORIGINALLY DRILLED
TO A DEPTH OF 49.7 FT. ON 6/4/19.

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST Goodnight, D.										
SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVER -Y15REV-, -Y15FLYCA-, -Y15FLYAC-, -L-, AND -Y15RPDREV-						GROUND WTR (ft)										
BORING NO. B3-A		STATION 44+45		OFFSET 25 ft LT		ALIGNMENT -Y15FLYBD-										
COLLAR ELEV. 855.9 ft		TOTAL DEPTH 83.5 ft		NORTHING 847,610		EASTING 1,663,561										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 84% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Kiker, Z.		START DATE 05/31/19		COMP. DATE 05/31/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
780																
	777.4	78.5	9	10	17											
775																
	772.4	83.5	60/0.0													

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST Goodnight, D.										
SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVER -Y15REV-, -Y15FLYCA-, -Y15FLYAC-, -L-, AND -Y15RPDREV-						GROUND WTR (ft)										
BORING NO. B3-B		STATION 44+45		OFFSET 17 ft RT		ALIGNMENT -Y15FLYBD-										
COLLAR ELEV. 851.7 ft		TOTAL DEPTH 92.9 ft		NORTHING 847,589		EASTING 1,663,525										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 84% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Kiker, Z.		START DATE 05/30/19		COMP. DATE 10/10/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
855																
	850.7	1.0	5	3	3											
850																
	848.2	3.5	3	3	4											
845																
	845.7	6.0	4	6	6											
	843.2	8.5	2	1	2											
840																
	838.2	13.5	3	4	6											
835																
	833.2	18.5	2	4	5											
830																
	828.2	23.5	3	5	7											
825																
	823.2	28.5	26	47	52											
820																
	818.2	33.5	35	31	18											
815																
	813.2	38.5	16	79	21/0.2											
810																
	808.2	43.5	8	14	18											
805																
	803.2	48.5	26	29	49											
800																
	798.2	53.5	38	62/0.4												
795																
	793.2	58.5	25	53	47/0.4											
790																
	788.2	63.5	100/0.2													
785																
	783.2	68.5	100/0.2													
	781.7	70.0	100/0.2													
780																
	777.5	74.2	25	29	29											
775																

NCDOT BORE DOUBLE U2579AB_GEO_BORINGS.GPJ NC_DOT.GDT 11/5/19

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST Goodnight, D.										
SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVER -Y15REV-, -Y15FLYCA-, -Y15FLYAC-, -L-, AND -Y15RPDREV-						GROUND WTR (ft)										
BORING NO. B4-B		STATION 45+90		OFFSET 17 ft RT		ALIGNMENT -Y15FLYBD-										
COLLAR ELEV. 858.7 ft		TOTAL DEPTH 98.6 ft		NORTHING 847,465		EASTING 1,663,603										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 84% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Kiker, Z.		START DATE 05/29/19		COMP. DATE 10/10/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
780		60/0.0				Match Line										
775	775.2	83.5													CRYSTALLINE ROCK GRANITE ROCK	
770	770.2	88.5													SOFT LAYER FROM 77' TO 78'	
765	765.2	93.5													SOFT LAYER FROM 82' TO 83'	
															SOFT LAYER FROM 87' TO 87.3'	
															SOFT LAYER FROM 89' TO 92.5' (continued)	
	760.2	98.5													Boring Terminated at Elevation 760.1 ft IN CR: GRANITIC ROCK	98.6
															NOTE: BORING ORIGINALLY DRILLED TO A DEPTH OF 63.8 FT ON 5/19/19.	

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST Goodnight, D.										
SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVER -Y15REV-, -Y15FLYCA-, -Y15FLYAC-, -L-, AND -Y15RPDREV-						GROUND WTR (ft)										
BORING NO. B5-A		STATION 47+64		OFFSET 25 ft LT		ALIGNMENT -Y15FLYBD-										
COLLAR ELEV. 877.2 ft		TOTAL DEPTH 63.5 ft		NORTHING 847,354		EASTING 1,663,742										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 84% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Kiker, Z.		START DATE 05/28/19		COMP. DATE 05/28/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
880																
875	876.2	1.0	4	5	7										GROUND SURFACE	0.0
	873.7	3.5	7	8	9										RESIDUAL RED-TAN, SANDY SILTY CLAY (A-7)	2.5
	871.2	6.0	5	4	4										RED-TAN, SILTY SAND (A-2-4)	
870	868.7	8.5	4	4	6										TAN AND BROWN, SANDY CLAYEY SILT (A-5) LITTLE MICA	8.0
865	863.7	13.5	4	4	5											
860	858.7	18.5	6	6	6											
855	853.7	23.5	4	4	5											
850	848.7	28.5	4	4	6											
845	843.7	33.5	4	4	6											
840	838.7	38.5	3	3	6										TAN BROWN GRAY AND WHITE, SILTY SAND (A-2-4) LITTLE MICA	37.0
835	833.7	43.5	2	4	6											
830	828.7	48.5	6	9	10											
825	823.7	53.5	16	29	71/0.4											
820	818.7	58.5													WEATHERED ROCK TAN GRAY AND WHITE, GRANITIC ROCK	54.0
															CRYSTALLINE ROCK TAN AND GRAY, GRANITIC ROCK	58.5
815																
															Boring Terminated at Elevation 813.7 ft IN CR: GRANITIC ROCK	63.5
															AUGERS DEFLECTED IN CRYSTALLINE ROCK MATERIAL UNABLE TO GET SPOON TO 63.5' SAMPLE	

NCDOT BORE DOUBLE U2579AB_GEO_BORINGS.GPJ NC_DOT.GDT 11/5/19

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST Goodnight, D.											
SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVER -Y15REV-, -Y15FLYCA-, -Y15FLYAC-, -L-, AND -Y15RPDREV-						GROUND WTR (ft)											
BORING NO. EB2-A		STATION 51+58		OFFSET 25 ft LT		ALIGNMENT -Y15FLYBD-											
COLLAR ELEV. 892.6 ft		TOTAL DEPTH 68.5 ft		NORTHING 847,097		EASTING 1,664,032											
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 84% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER Kiker, Z.		START DATE 05/23/19		COMP. DATE 05/23/19		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
895																	
890	891.6	1.0	5	8	8								M		892.6	0.0	
	889.1	3.5	4	5	6								M		889.6	3.0	
885	886.6	6.0	5	6	7								M				
	884.1	8.5	4	4	5								M				
880	879.1	13.5	3	4	4								M		880.6	12.0	
875	874.1	18.5	6	6	6								W				
870	869.1	23.5	3	2	4								W				
865	864.1	28.5	4	5	7								W		865.6	27.0	
860	859.1	33.5	3	7	10								W				
855	854.1	38.5	14	11	11								W				
850	849.1	43.5	5	7	13								W		850.6	42.0	
845	844.1	48.5	10	12	16								W		845.6	47.0	
840	839.1	53.5	40	60/0.3									W		840.6	52.0	
835	834.1	58.5	100/0.2										W				
830	829.1	63.5	27	22	35								M		830.6	62.0	
825	824.1	68.5	60/0.0										M		825.6	67.0	
															824.1	68.5	

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST Goodnight, D.											
SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVER -Y15REV-, -Y15FLYCA-, -Y15FLYAC-, -L-, AND -Y15RPDREV-						GROUND WTR (ft)											
BORING NO. EB2-B		STATION 51+58		OFFSET 17 ft RT		ALIGNMENT -Y15FLYBD-											
COLLAR ELEV. 890.7 ft		TOTAL DEPTH 64.7 ft		NORTHING 847,062		EASTING 1,664,008											
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 84% 01/10/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER Kiker, Z.		START DATE 05/23/19		COMP. DATE 05/23/19		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
895																	
890	889.7	1.0	6	7	8								M		890.7	0.0	
	887.2	3.5	4	4	5								M				
885	884.7	6.0	5	4	5								M		884.7	6.0	
	882.2	8.5	4	4	4								M		882.7	8.0	
880	877.2	13.5	3	4	5								M		878.7	12.0	
875	872.2	18.5	3	4	5								W				
870	867.2	23.5	2	2	2								W				
865	862.2	28.5	2	2	3								W				
860	857.2	33.5	2	3	5								W				
855	852.2	38.5	7	14	11								W		851.7	39.0	
850	847.2	43.5	13	11	42								W		845.2	45.5	
845	842.2	48.5	79	21/0.1									W				
840	837.2	53.5	28	25	33								M		839.7	51.0	
835	832.2	58.5	40	35	50								M				
830	827.2	63.5	27	73/0.3									M		828.7	62.0	
	826.0	64.7	60/0.0												826.0	64.7	

NCDOT BORE DOUBLE U2579AB_GEO_BORINGS.GPJ NC_DOT.GDT 11/5/19

Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 826.0 ft ON CR: GRANITIC ROCK



LOOKING UPSTATION FROM END BENT 1



BENT 3 CROSS SECTION, LOOKING FROM LEFT TO RIGHT



LOOKING DOWN STATION FROM BENT 4



BENT 4 CROSS SECTION, LOOKING FROM LEFT TO RIGHT



FALCON ENGINEERING, INC.
1210 TRINITY ROAD, SUITE 110
RALEIGH, NC 27607
PHONE: 919.871.0800
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SITE PHOTOGRAPHS

BRIDGE NO. 726 ON -Y15FLYBD- (STA. 47+63.62)
INTERCHANGE CONNECTING WINSTON-SALEM
NORTHERN BELTWAY AND I-40 BYPASS
FORSYTH COUNTY, NC
WBS: 34839 | TIP NO.: U-2579AB



LABORATORY TEST RESULTS
U-2579AB | Bridge No. 726 on Y15FLYBD
Winston Salem, NC

Falcon Engineering Project No: G19025.00

NO.	SAMPLE LOCATION	DEPTH INTERVAL	AASHTO CLASS.	ATTERBERG LIMITS		PERCENT BY WEIGHT				PERCENT PASSING SIEVE			MOISTURE (%)	BULK DENSITY (pcf)	ORGANICS (%)
				LL	PI	C.SAND	F.SAND	SILT	CLAY	#10	#40	#200			
SS-176	EB1-A	1.0-2.5	A-7-5(18)	60	25	18	17	17	48	100	89	68	27	N/A	N/A
SS-178	EB1-A	6.0-7.5	A-5(3)	52	7	20	38	22	20	100	94	49	29	N/A	N/A
SS-183	EB1-A	28.5-30.0	A-7-5(5)	50	13	32	22	19	27	99	74	50	46	N/A	N/A
SS-184	EB1-A	33.5-35.0	A-7-5(7)	54	18	32	21	22	25	100	76	52	46	N/A	N/A
SS-01	EB2-B	1.0-2.5	A-7-5(23)	69	30	13	21	16	50	100	94	70	32	N/A	N/A
SS-02	EB2-B	3.5-5.0	A-7-5(12)	66	14	14	27	17	42	100	94	64	33	N/A	N/A
SS-03	EB2-B	6.0-7.5	A-5(0)	51	6	30	39	5	26	100	88	37	24	N/A	N/A
SS-05	EB2-B	13.5-15.0	A-5(1)	44	6	24	38	25	13	99	88	47	32	N/A	N/A
SS-06	EB2-B	18.5-20.0	A-5(2)	42	6	22	31	28	19	99	89	54	31	N/A	N/A
SS-09	EB2-B	33.5-35.0	A-5(0)	45	7	29	39	19	13	100	88	39	44	N/A	N/A

Reviewed By

Patrick Clark

Certification: 105-01-0803

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