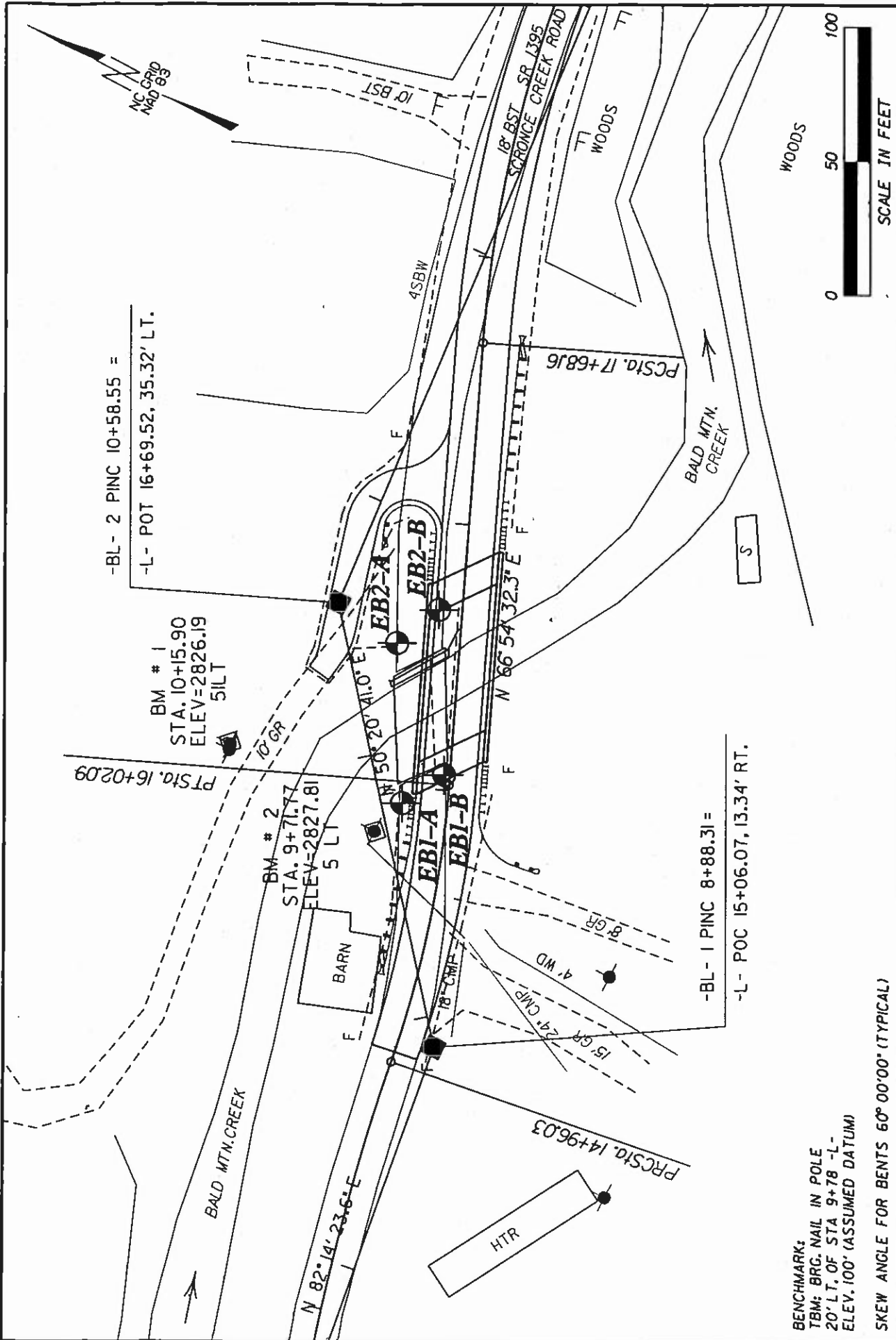


ATTACHMENT B
GEOTECHNICAL

The following Geotechnical Bore Holes Sections are for information only and are not a part of this contract. This information is for investigation only and no accuracy is implied or guaranteed. No claim will be allowed as a result of the use of this information.



BENCHMARK:
 TBM; BRG. NAIL IN POLE
 20' LT. OF STA 9+78 -L-
 ELEV. 100' (ASSUMED DATUM)

SKREW ANGLE FOR BENTS 60° 00' 00" (TYPICAL)

SCALE:	1" = 50'
CHECKED BY:	AFR
DRAWN BY:	TRP
DATE:	FEBRUARY 2004
JOB NO.:	1051-03-235

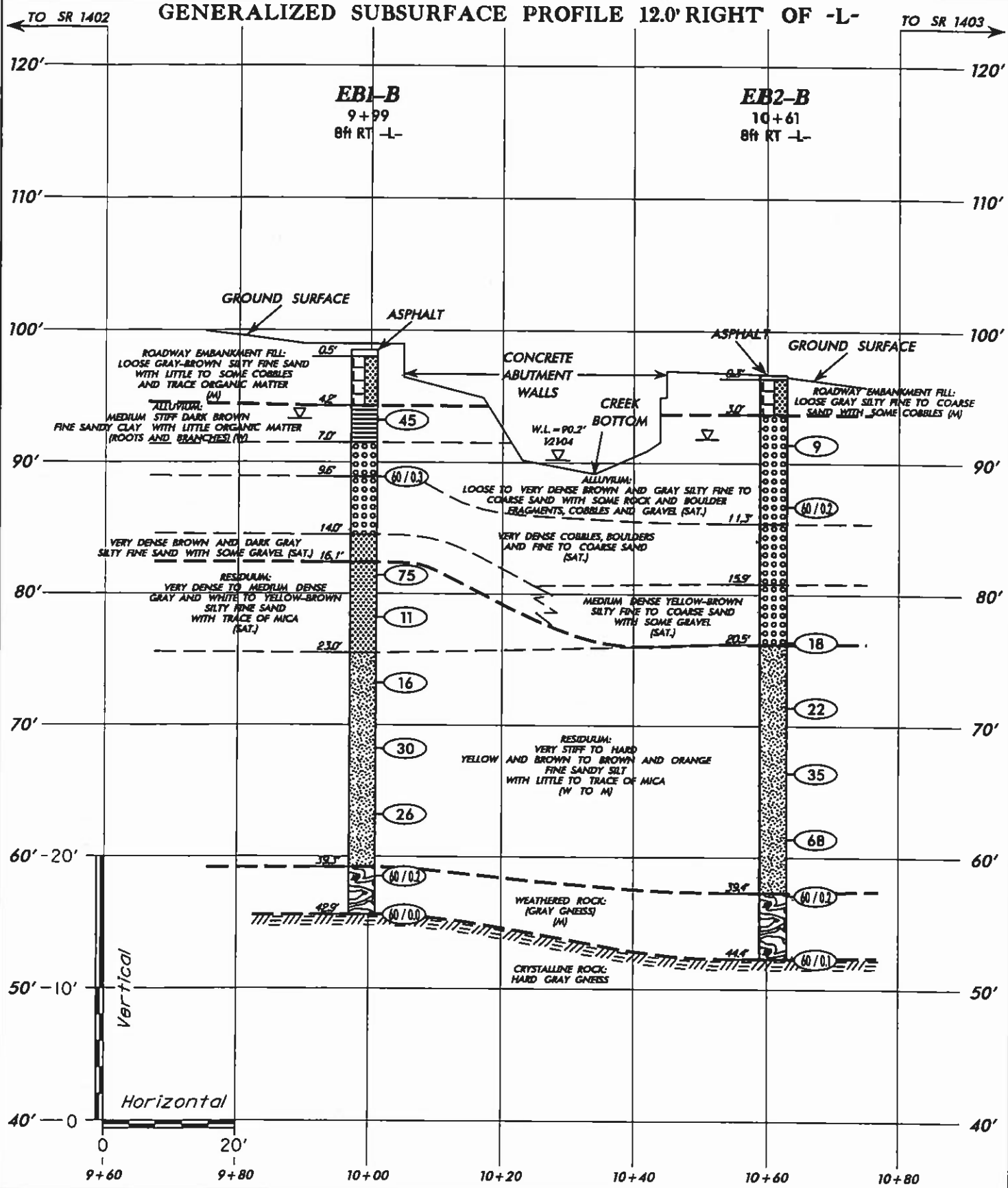


BORING LOCATION PLAN
 REPLACEMENT OF BRIDGE No. 119
 OVER BALD MOUNTAIN CREEK ON SR 1395
 WBS No. 37580 NCM A ID. NA 130078
 FEDERAL ID No. N/A
 YANCEY COUNTY, NORTH CAROLINA



SHEET NO. 4

GENERALIZED SUBSURFACE PROFILE 12.0' RIGHT OF -L-



S:\GTECH\2003\03BRIDGES\BRIDGE 119 BALD MTN. CREEK\CADD\Brq 119 PROFILE.XSEC

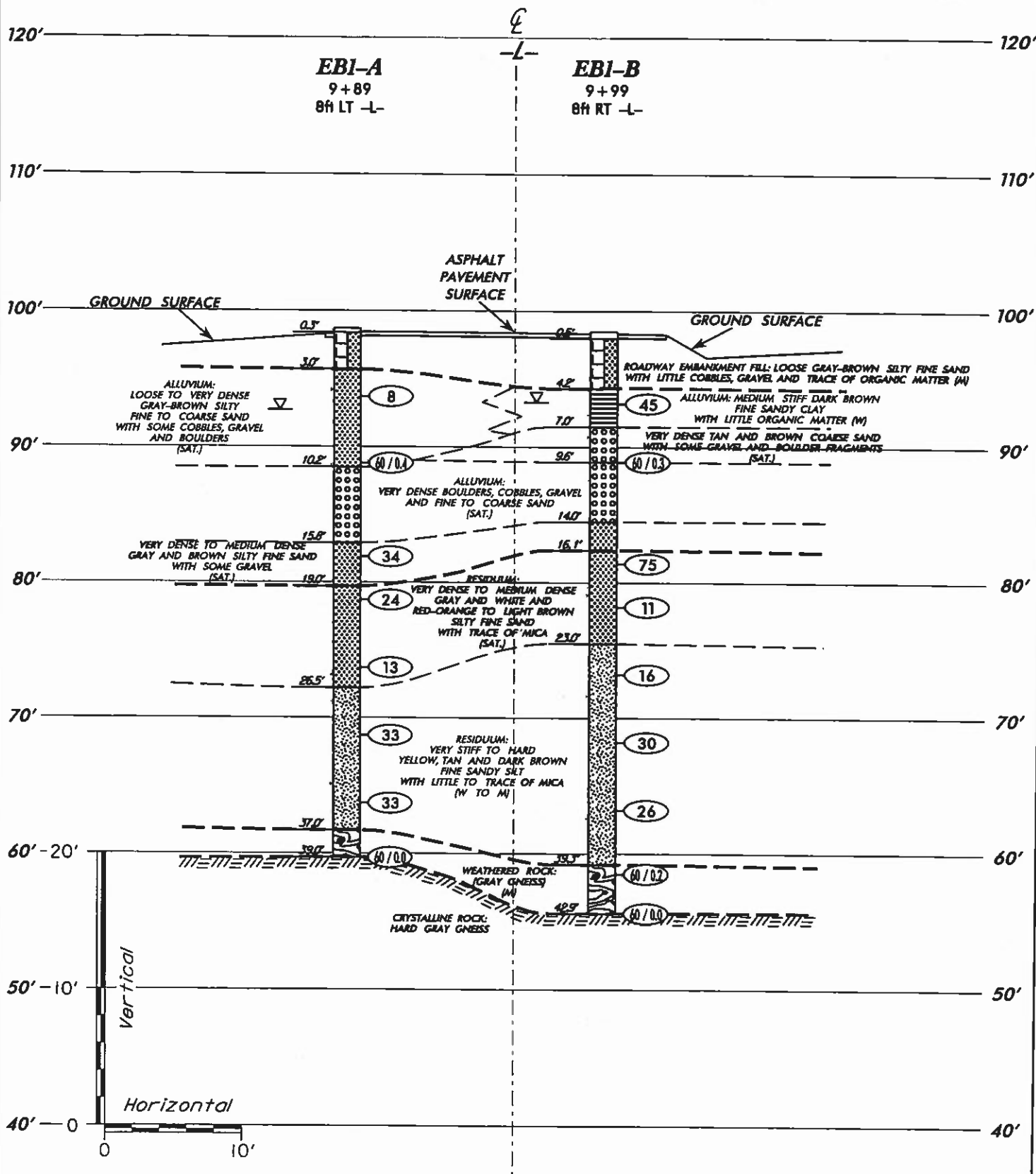
SCALE:	(V) 1" = 10' (H) 1" = 20'
CHECKED BY:	AFR
DRAWN BY:	TRP
DATE:	FEBRUARY 2004
JOB NO.	1051-03-235



GENERALIZED SUBSURFACE PROFILE 12.0' RIGHT OF -L-
FROM STA. 9+75 TO STA. 10+75
REPLACEMENT OF BRIDGE No. 119
OVER BALD MOUNTAIN CREEK ON SR 1395
WBS No. 37580 NCMA ID. MA13007B
FEDERAL ID No. N/A
YANCEY COUNTY, NORTH CAROLINA

SHEET NO.
5

GENERALIZED SUBSURFACE CROSS SECTION THROUGH END BENT No. 1



S:\GEOTECH\2003\03BRIDGES\BRIDGE 119 BALD MTN. CREEK\CADD\Br-9 119 PROFILE-XSEC

SCALE:	(V) 1" = 10' (H) 1" = 10'
CHECKED BY:	AFR
DRAWN BY:	TRP
DATE:	FEBRUARY 2004
JOB NO.	105 1-03-235

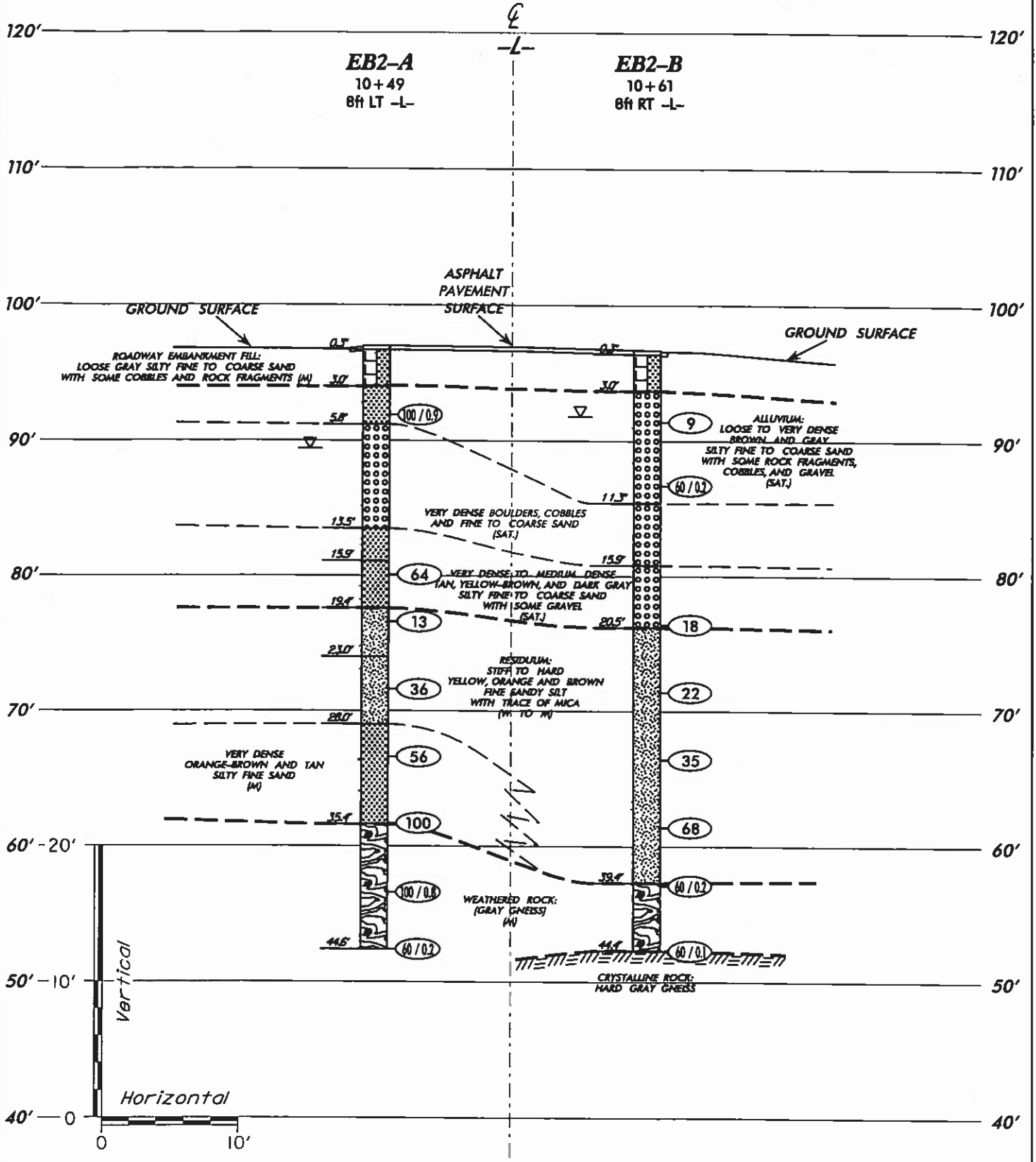


GENERALIZED SUBSURFACE CROSS SECTION
THROUGH END BENT No. 1
REPLACEMENT OF BRIDGE No. 119
OVER BALD MOUNTAIN CREEK ON SR 1395
WBS No. 37580 NCMA ID, MA 13007B
FEDERAL ID No. N/A
YANCEY COUNTY, NORTH CAROLINA

SHEET NO.

6A

GENERALIZED SUBSURFACE CROSS SECTION THROUGH END BENT No. 2



S:\GEO\119\119 BRIDGE\119 BALD MTN. CREEK\CADD\Brg 119 PROFILE -XSEC

SCALE:	(V) 1" = 10' (H) 1" = 10'
CHECKED BY:	AFR
DRAWN BY:	TRP
DATE:	FEBRUARY 2004
JOB NO.	1051-03-235



GENERALIZED SUBSURFACE CROSS SECTION
THROUGH END BENT No. 2
REPLACEMENT OF BRIDGE No. 119
OVER BALD MOUNTAIN CREEK ON SR 1395
WBS No. 37580 NCMA ID, MA 13007B
FEDERAL ID No. N/A
YANCEY COUNTY, NORTH CAROLINA

SHEET NO.
6B



PROJECT NO. 37580		ID. MA13007B		COUNTY Yancey		GEOLOGIST J. Jacobson										
SITE DESCRIPTION Replacement of Bridge No. 119 over Bald Mountain Creek on S.R. 1395							GROUND WATER (ft)									
BORING NO. EB1-A		BORING LOCATION 9+89		OFFSET 8.0 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 98.7 ft		NORTHING		EASTING		0 HR. 6.0 24 HR. N/M										
TOTAL DEPTH 39.0 ft		DRILL MACHINE Mobile B-57		DRILL METHOD Rotary Wash w/NW Casing Advancer & NQ-2 Core Barrel		HAMMER TYPE MANUAL										
DATE STARTED 1/29/04		COMPLETED 1/29/04		SURFACE WATER DEPTH N/A												
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION				
		0.5ft	0.5ft	0.5ft	0	20	40	60	80				100			
98.7					ASPHALT PAVEMENT SURFACE							98.7 98.4	0.0 0.4	ASPHALT		
94.7	4.0	9	4	4								95.7	3.0	ROADWAY EMBANKMENT FILL: LOOSE GRAY SILTY FINE SAND (A-2-4) WITH LITTLE COBBLES AND GRAVEL		
89.7	9.0	10	60/0.4													
82.9	15.8	15	20	14									82.9	15.8	ALLUVIUM: VERY DENSE GRAY BOULDERS, COBBLES, GRAVEL AND FINE TO COARSE SAND (A-1-8)	
79.7	18.0	5	12	12									79.7	19.0	DENSE GRAY AND BROWN SILTY FINE SAND (A-2-4) WITH SOME GRAVEL	
74.7	24.0	4	8	7											RESIDUUM: MEDIUM DENSE RED-ORANGE TO LIGHT BROWN SILTY FINE SAND (A-2-4) WITH TRACE OF MICA	
69.7	28.0	7	14	19											HARD TAN AND DARK BROWN FINE SANDY SILT (A-4) WITH LITTLE MICA	
64.7	34.0	11	15	18												
59.7	38.0	60/0.0														
					BORING TERMINATED WITH STANDARD PENETRATION TEST REFUSAL AT ELEV. 59.7 FEET ON CRYSTALLINE ROCK: HARD GRAY GNEISS											
																1) ADVANCED NW CASING ADVANCER TO 39.0 FEET. 2) ADVANCED NQ-2 CORE BARREL FROM 10.2 TO 15.8 FEET. 3) CREEK WATER USED AS DRILLING FLUID. 4) DRILLING FLUID DENSITY APPROXIMATELY 82.4 PCF. 5) LOSS OF DRILLING FLUID AT 2.5 FEET.

NCDOT BORE SINGLE 51-235 GPJ NCDOT.GDT 2/18/04



PROJECT NO. 37580			ID. MA13007B			COUNTY Yancey			GEOLOGIST J. Jacobson		
SITE DESCRIPTION Replacement of Bridge No. 119 over Bald Mountain Creek on S.R. 1395									GROUND WATER (ft)		
BORING NO. EB1-A			BORING LOCATION 9+89			OFFSET 8.0 ft LT		ALIGNMENT -L-		0 HR. 6.0	
COLLAR ELEV. 98.7 ft			NORTHING			EASTING			24 HR. N/M		
TOTAL DEPTH 39.0 ft			DRILL MACHINE Mobile B-57			DRILL METHOD Rotary Wash w/NW Casing Advancer & NQ-2 Core Barrel			HAMMER TYPE MANUAL		
DATE STARTED 1/29/04			COMPLETED 1/29/04			SURFACE WATER DEPTH N/A					
CORE SIZE NQ			TOTAL RUN 5.6 ft			DRILLER T. Oaks					
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		L O G	DESCRIPTION AND REMARKS	
				REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %			
										88.5	
										10.2	
88.5	10.2	5.6		(2.3) 41%	(N/A)		(2.3) 41%	(N/A)	○○○○ ○○○○ ○○○○ ○○○○ ○○○○ ○○○○ ○○○○ ○○○○ ○○○○ ○○○○	Begin Coring @ 10.2 ft ALLUVIUM: VERY DENSE GRAY BOULDERS, COBBLES, GRAVEL AND FINE TO COARSE SAND	
82.9	15.8								○○○○ ○○○○ ○○○○ ○○○○ ○○○○ ○○○○ ○○○○ ○○○○ ○○○○ ○○○○	82.9	
										15.8	
										End Coring @ 15.8 ft	

NCDOT CORE SINGLE 51-235.GPJ NCDOT.GDT 2/18/04



PROJECT NO. 37580		ID. MA13007B		COUNTY Yancey		GEOLOGIST J. Jacobson							
SITE DESCRIPTION Replacement of Bridge No. 119 over Bald Mountain Creek on S.R. 1395							GROUND WATER (ft)						
BORING NO. EB1-B		BORING LOCATION 9+99		OFFSET 8.0 R RT		ALIGNMENT -L-							
COLLAR ELEV. 98.5 ft		NORTHING		EASTING		0 HR. 5.2							
TOTAL DEPTH 42.9 ft		DRILL MACHINE Mobile B-57		DRILL METHOD Rotary Wash w/NW Casing Advancer & NQ-2 Core Barrel		HAMMER TYPE MANUAL							
DATE STARTED 1/29/04		COMPLETED 1/29/04		SURFACE WATER DEPTH N/A									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80				100
98.5													ASPHALT PAVEMENT SURFACE
94.2	4.3	4	4	41								M	ASPHALT ROADWAY EMBANKMENT FILL: LOOSE GRAY-BROWN SILTY FINE SAND (A-2-4) WITH LITTLE COBBLES AND TRACE OF ORGANIC MATTER FROM 3.0 TO 4.2 FEET.
89.2	9.3	60/0.3										W	ALLUVIUM: MEDIUM STIFF DARK BROWN FINE SANDY CLAY (A-6) WITH LITTLE ORGANIC MATTER (ROOTS AND BRANCHES)
82.4	16.1	19	49	26								Sat	VERY DENSE TAN AND BROWN COARSE SAND (A-1-a) WITH SOME GRAVEL AND BOULDER FRAGMENTS
79.2	19.3	4	5	6								Sat	ALLUVIUM: VERY DENSE BOULDERS, COBBLES AND FINE TO COARSE SAND
74.2	24.3	5	7	9								W	VERY DENSE BROWN AND DARK GRAY SILTY FINE SAND (A-2-4) WITH SOME GRAVEL
69.2	29.3	7	11	19								W	RESIDUUM: VERY DENSE TO MEDIUM DENSE GRAY AND WHITE TO YELLOW-BROWN SILTY FINE SAND (A-2-4) WITH TRACE OF MICA
64.2	34.3	8	10	16								M	VERY STIFF YELLOW AND TAN TO DARK BROWN AND ORANGE FINE SANDY SILT (A-4)
59.2	39.3	39	60/0.2									M	WITH LITTLE TO TRACE OF MICA WEATHERED ROCK: (GRAY GNEISS)
55.6	42.9	60/0.0											BORING TERMINATED WITH STANDARD PENETRATION TEST REFUSAL AT ELEV. 55.6 FEET ON CRYSTALLINE ROCK: HARD GRAY GNEISS
													1) ADVANCED NW CASING ADVANCER TO 42.9 FEET. 2) ADVANCED NQ-2 CORE BARREL FROM 9.6 TO 16.1 FEET. 3) CREEK WATER USED AS DRILLING FLUID. 4) DRILLING FLUID DENSITY APPROXIMATELY 62.4 PCF. 5) LOSS OF DRILLING FLUID AT 2.5 FEET.

NCDOT BORE SINGLE 51-235.GPJ NCDOT.GDT 2/18/04



PROJECT NO. 37580			ID. MA13007B			COUNTY Yancey			GEOLOGIST J. Jacobson		
SITE DESCRIPTION Replacement of Bridge No. 119 over Bald Mountain Creek on S.R. 1395									GROUND WATER (ft)		
BORING NO. EB1-B			BORING LOCATION 9+99			OFFSET 8.0 ft RT		ALIGNMENT -L-		0 HR. 5.2	
COLLAR ELEV. 98.5 ft			NORTHING			EASTING			24 HR. N/M		
TOTAL DEPTH 42.9 ft			DRILL MACHINE Mobile B-57			DRILL METHOD Rotary Wash w/NW Casing Advancer & NQ-2 Core Barrel			HAMMER TYPE MANUAL		
DATE STARTED 1/29/04			COMPLETED 1/29/04			SURFACE WATER DEPTH N/A					
CORE SIZE NQ			TOTAL RUN 6.5 ft			DRILLER T. Oaks					
ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	
				REC. (%)	RQD (%)		REC. (%)	RQD (%)			
										88.9 Begin Coring @ 9.6 ft 9.6	
88.9	9.6	1.5	1.5	(0.8)	(N/A)		(2.4)	(N/A)		ALLUVIUM: VERY DENSE BOULDERS, COBBLES AND FINE TO COARSE SAND	
87.4	11.1	5.0	2.0	53%	(N/A)		55%	84.5			
			2.0	(1.8)	(N/A)						
			2.0	32%							
82.4	16.1		0.2				(0.0)	(N/A)	82.4	16.1	
			0.2				0%			ALLUVIUM: BROWN AND DARK GRAY SILTY FINE SAND (A-2-4) WITH SOME GRAVEL End Coring @ 16.1 ft	



PROJECT NO. 37580	ID. MA13007B	COUNTY Yancey	GEOLOGIST J. Jacobson
SITE DESCRIPTION Replacement of Bridge No. 119 over Bald Mountain Creek on S.R. 1395			GROUND WATER (ft)
BORING NO. EB2-A	BORING LOCATION 10+49	OFFSET 8.0 ft LT	ALIGNMENT -L-
0 HR.	7.6		
COLLAR ELEV. 97.0 ft	NORTHING 10.0	EASTING 50.0	24 HR. N/M
TOTAL DEPTH 44.6 ft	DRILL MACHINE Mobile B-57	DRILL METHOD Rotary Wash w/NW Casing Advancer & NQ-2 Core Barrel	HAMMER TYPE MANUAL
DATE STARTED 1/23/04	COMPLETED 1/23/04	SURFACE WATER DEPTH N/A	

ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT						SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100				
97.0		ASPHALT PAVEMENT SURFACE												
92.6	4.4	8	92/0.4									M	ASPHALT	0.0
										100/0.9		Sat	ROADWAY EMBANKMENT FILL: LOOSE GRAY SILTY FINE SAND (A-2-4) WITH SOME COBBLES AND ROCK FRAGMENTS	3.0
												∇	ALLUVIUM: VERY DENSE BROWN AND GRAY SILTY FINE TO COARSE SAND (A-2-4) WITH SOME COBBLES AND ROCK FRAGMENTS	5.8
81.1	15.9	16	33	31						64		SaL	VERY DENSE BOULDERS, COBBLES AND FINE TO COARSE SAND	13.5
77.6	19.4	4	6	7						13		SaL	VERY DENSE TAN, BROWN AND DARK GRAY SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL	15.9
72.6	24.4	7	17	19						36		W	VERY DENSE TAN, BROWN AND DARK GRAY SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL	19.4
67.6	29.4	18	24	32						56		M	RESIDUUM: STIFF LIGHT BROWN FINE SANDY SILT (A-4) WITH TRACE OF MICA	23.0
62.6	34.4	40	48	52								M	HARD ORANGE-BROWN AND TAN FINE SANDY SILT (A-4) VERY DENSE ORANGE-BROWN AND TAN SILTY FINE SAND (A-2-4)	28.0
57.6	38.4	10	18	82/0.3								M	WEATHERED ROCK: (GRAY GNEISS)	35.4
52.6	44.4											M		44.6

BORING TERMINATED
AT ELEV. 52.4 FEET
IN WEATHERED ROCK:
(GRAY GNEISS)

- 1) ADVANCED NW CASING ADVANCER TO 44.4 FEET.
- 2) ADVANCED NQ-2 CORE BARREL FROM 5.8 TO 15.9 FEET.
- 3) CREEK WATER USED AS DRILLING FLUID.
- 4) DRILLING FLUID DENSITY APPROXIMATELY 62.4 PCF.
- 5) LOSS OF DRILLING FLUID AT 0.5 FEET AND 5.8 FEET.

NCDOT BORE SINGLE 51-235.GPJ NCDOT.GDT 2/18/04



PROJECT NO. 37580		ID. MA13007B		COUNTY Yancey		GEOLOGIST J. Jacobson	
SITE DESCRIPTION Replacement of Bridge No. 119 over Bald Mountain Creek on S.R. 1395							GROUND WATER (ft)
BORING NO. EB2-A		BORING LOCATION 10+49		OFFSET 8.0 ft LT	ALIGNMENT -L-		0 HR. 7.6
COLLAR ELEV. 97.0 ft		NORTHING 10.0		EASTING 50.0		24 HR. N/M	
TOTAL DEPTH 44.6 ft		DRILL MACHINE Mobile B-57		DRILL METHOD Rotary Wash w/NW Casing Advancer & NQ-2 Core Barrel		HAMMER TYPE MANUAL	
DATE STARTED 1/23/04		COMPLETED 1/23/04		SURFACE WATER DEPTH N/A			
CORE SIZE NQ		TOTAL RUN 10.1 ft		DRILLER T. Oaks			

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS
				REC. (%)	ROD (%)		REC. (%)	ROD (%)		
										91.2 Begin Coring @ 5.8 ft 5.8
91.2	5.8	4.4	2.0	(2.6)	(N/A)		(4.1)	(N/A)		ALLUVIUM: VERY DENSE BOULDERS, COBBLES AND FINE TO COARSE SAND
			2.0	59%						
88.8	10.2		2.5							
		5.7	2.5	(1.5)	(N/A)					VERY DENSE TAN, BROWN AND BLACK SILTY FINE TO COARSE SAND (A-2-4) WITH SOME GRAVEL End Coring @ 15.9 ft
			2.5	26%						
			3.0							
81.1	15.9		3.0			(0.0)	(N/A)	0%		
			2.5							



PROJECT NO. 37580	ID. MA13007B	COUNTY Yancey	GEOLOGIST J. Jacobson
SITE DESCRIPTION Replacement of Bridge No. 119 over Bald Mountain Creek on S.R. 1395			GROUND WATER (ft)
BORING NO. EB2-B	BORING LOCATION 10+61	OFFSET 8.0 ft RT	ALIGNMENT -L-
COLLAR ELEV. 96.7 ft	NORTHING	EASTING	0 HR. 4.9 24 HR. N/M
TOTAL DEPTH 44.4 ft	DRILL MACHINE Mobile B-57	DRILL METHOD Rotary Wash w/NW Casing Advancer & NQ-2 Core Barrel	HAMMER TYPE MANUAL
DATE STARTED 1/27/04	COMPLETED 1/27/04	SURFACE WATER DEPTH N/A	

ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80			
96.7												ASPHALT PAVEMENT SURFACE
92.4	4.3	10	4	5							M	ASPHALT ROADWAY EMBANKMENT FILL: LOOSE GRAY SILTY FINE TO COARSE SAND (A-2-4) WITH SOME COBBLES
87.4	9.3	18	60/0.2								Sat.	ALLUVIUM: LOOSE TO VERY DENSE BROWN AND GRAY SILTY FINE TO COARSE SAND (A-1-b) WITH SOME ROCK FRAGMENTS, COBBLES AND GRAVEL
77.4	19.3	5	8	10							Sat.	VERY DENSE COBBLES, BOULDERS AND FINE TO COARSE SAND
72.4	24.3	6	9	13							Sat.	MEDIUM DENSE YELLOW-BROWN SILTY FINE TO COARSE SAND (A-1-b) WITH SOME GRAVEL
67.4	29.3	9	14	21							W	RESIDUUM: VERY STIFF TO HARD YELLOW-BROWN AND BROWN FINE SANDY SILT (A-4) WITH TRACE OF MICA
62.4	34.3	20	28	40							M	
57.3	39.4	60/0.2									M	WEATHERED ROCK: (GRAY GNEISS)
52.4	44.3	60/0.1									M	

BORING TERMINATED WITH
STANDARD PENETRATION TEST REFUSAL
AT ELEV. 52.3 FEET
ON CRYSTALLINE ROCK:
HARD GRAY GNEISS

- 1) ADVANCED NW CASING ADVANCER TO 44.3 FEET.
- 2) ADVANCED NQ-2 CORE BARREL FROM 11.3 TO 15.9 FEET.
- 3) CREEK WATER USED AS DRILLING FLUID.
- 4) DRILLING FLUID DENSITY APPROXIMATELY 62.4 PCF.
- 5) LOSS OF DRILLING FLUID AT 3.3 FEET.

NCDOT BORE SINGLE 51-235.GPJ NCDOT.GDT 2/18/04



PROJECT NO. 37580		ID. MA13007B	COUNTY Yancey	GEOLOGIST J. Jacobson	
SITE DESCRIPTION Replacement of Bridge No. 119 over Bald Mountain Creek on S.R. 1395					GROUND WATER (ft)
BORING NO. EB2-B		BORING LOCATION 10+61	OFFSET 8.0 ft RT	ALIGNMENT -L-	0 HR. 4.9
COLLAR ELEV. 96.7 ft		NORTHING 10.0		EASTING 70.0	24 HR. N/M
TOTAL DEPTH 44.4 ft	DRILL MACHINE Mobile B-57		DRILL METHOD Rotary Wash w/NW Casing Advancer & NO. 2 Core Barrel		HAMMER TYPE MANUAL
DATE STARTED 1/27/04		COMPLETED 1/27/04		SURFACE WATER DEPTH N/A	
CORE SIZE NQ		TOTAL RUN 4.6 ft		DRILLER T. Oaks	

ELEV. (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS
				REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %		
										85.4 Begin Coring @ 11.3 ft
85.4	11.3	4.6	0.5 0.1 0.1	(1.2) 26%	(N/A)		(1.2) 26%	(N/A)	o o o o o o o o o o o	11.3 VERY DENSE BOULDERS AND COBBLES
80.8	15.9		1.5 2.0						o o o	80.8 End Coring @ 15.9 ft