

SOIL LEGEND AND CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (<= 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)							ORGANIC MATERIALS		
	A-1	A-1-b	A-3	A-2-4	A-2	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-4, A-5	A-6, A-7	A-1, A-2	A-4, A-5	A-6, A-7
SYMBOL	[Patterns]							[Patterns]							[Patterns]		
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX 35 I	35 MX 35 I	36 MX 36 MN	36 MN 36 MN	36 MN 36 MN	36 MN 36 MN	36 MN 36 MN	36 MN 36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT			
(PASSING #40) LL PI	6 MX	N.P.	40 MX 10 MX	41 I 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	41 MN 11 MN	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	20 MX									
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL & SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND		SILTY SOILS		CLAYEY SOILS									

* PI OF A-7-5 ≤ (LL - 30); PI OF A-7-8 > (LL - 30)

TEXTURE OR GRAIN SIZE

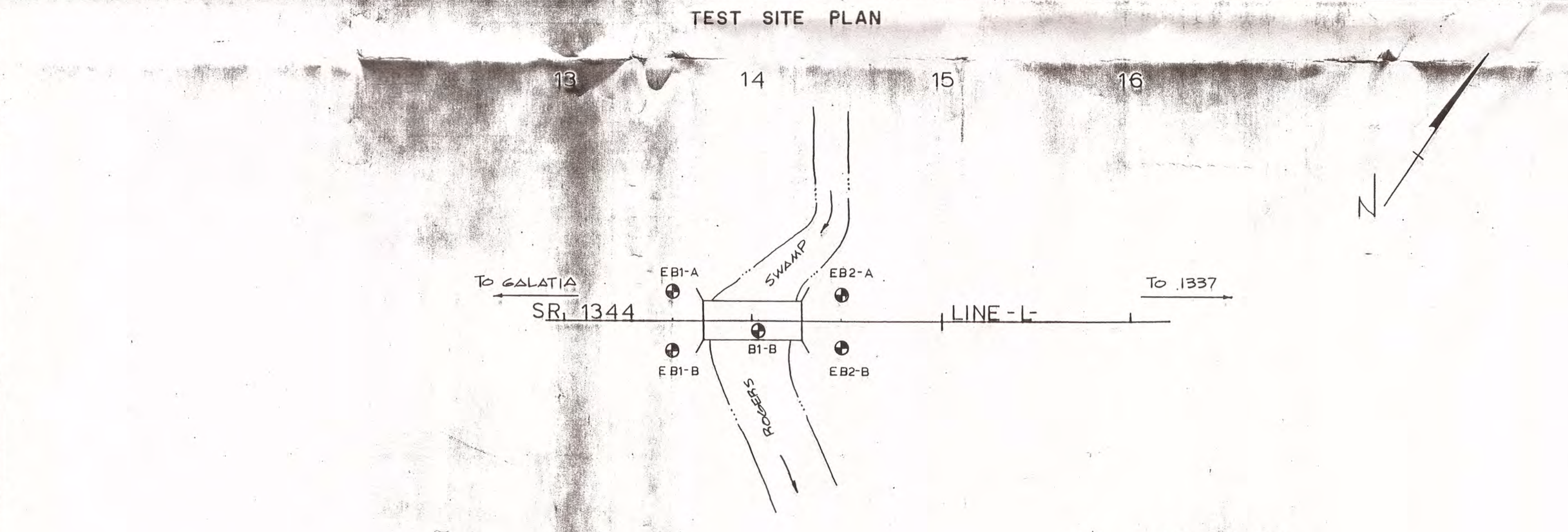
BOULDER	COBBLE	GRAVEL	COARSE SAND			FINE SAND			SILT	CLAY
			2	0.6	0.25	0.2	.05	.005		
MM 305	IN 12"	76	3"							
GRAIN SIZE										

SOIL MOISTURE - CORRELATION OF TERMS

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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (BPF)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (QU) (TONS/FT2)
GENERALLY GRANULAR MATERIAL	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
GENERALLY SILT-CLAY MATERIAL	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< .25 .25 TO .5 .5 TO 1 1 TO 2 2 TO 4 > 4



MISCELLANEOUS SYMBOLS AND ABBREVIATIONS

[Symbol]	ROADWAY EMBANKMENT WITH SOIL DESCRIPTION	[Symbol]	SPT TEST BORING	[Symbol]	SAMPLE DESIGNATIONS
[Symbol]	ARTIFICIAL FILL OTHER THAN ROADWAY EMBANKMENTS	[Symbol]	AUGER BORING	S	BULK SAMPLE
[Symbol]	INFERRED SOIL BOUNDARIES	[Symbol]	CORE BORING	SS	SPLIT SPOON SAMPLE
[Symbol]	STRIKE AND DIP OF BEDS	[Symbol]	PIEZOMETER INSTALLATION	ST	3" SHELBY TUBE SAMPLE
[Symbol]	APPARENT DIP (NORMAL TO ...)	[Symbol]	SLOPE INDICATOR INSTALLATION	WS	WASH SAMPLE
[Symbol]		[Symbol]	SPT N-COUNT		

ABBREVIATIONS

ALLUV.	ALLUVIUM	REF. RES.	REFER TO RESIDUAL
BLDR.	AUGER REFUSAL	S. SAT.	SOFT SATURATED
BPF	BLOWS PER FOOT	SD	SANDY
C	COHESIVE	SDY	SANDY
CALC.	CALCAREOUS	SED(S)	SEDIMENT(S)
CL.	CLAY	SILT	SILT
CLT.	CLAYEY	SILT(S)	SILT(S)
COB.	COBBLE	SLT.	SILT
CSE.	COARSE		
DPT	DYNAMIC PENETRATION TEST	SPT	STANDARD PENETRATION TEST
F	VOID RATIO	TS	TOPSOIL
F.	FOSSILIFEROUS	VST	VANE SHEAR TEST
FRAC.	FRAGMENTED	W	WATER CONTENT
FRAG(S)	FRAGMENT(S)	W/W	WATER WEIGHT
GR.	GRAVEL	W/W	WATER WEIGHT
GS	SPECIFIC GRAVITY	W/W	WATER WEIGHT
GW	GROUND WATER	V.	VERY ESTIMATED
MEG.	MICACEOUS	EST.	ESTIMATED
MIC.	MICACEOUS	EMB.	EMBANKMENT
MOT.	MOTTLED		
N	BLOW COUNT		
NS	NO SAMPLE TAKEN		
ORG.	ORGANIC		

ROCK DESCRIPTION

IN THE BROADEST MEANING, HARD ROCK IS CONSIDERED TO BE THAT INDURATED EARTH MATERIAL WHICH CANNOT BE SAMPLED BY CONVENTIONAL SOIL SAMPLING TOOLS OR TECHNIQUES. THE BOUNDARY BETWEEN SOIL AND ROCK IS ARBITRARY. TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF "WEATHERED ROCK". FOR THE PURPOSE OF THIS INVESTIGATION, THESE MATERIALS ARE DIVIDED AS FOLLOWS:

TERM	SYMBOLS	DESCRIPTION
HARD ROCK (HR)	[Symbol]	MATERIAL THAT CANNOT BE PENETRATED BY POWER AUGERS, EXCEPT IN THIN LEDGES, AND REQUIRES ROCK CORING TOOLS FOR OBTAINING SAMPLE.
WEATHERED ROCK (HWR)	[Symbol]	MATERIAL THAT CAN BE PENETRATED WITH GREAT DIFFICULTY USING POWER AUGERS AND YIELDS SPT REFUSAL ¹
SOFT WEATHERED ROCK (SWR)	[Symbol]	MATERIAL THAT CAN BE PENETRATED WITH SOME DIFFICULTY USING POWER AUGERS AND YIELDS SPT VALUES > 100 BPF BUT < SPT REFUSAL.

¹ SPT REFUSAL (ASTM) ≤ 1 INCH OF PENETRATION PER 50 BLOWS.
² AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH AUGERS COULD NO LONGER PENETRATE. THE HARD ROCK SYMBOL IS SHOWN WHEN ROCK IS CORED AND ONLY TO THAT DEPTH CORED. A DESCRIPTION OF ROCK IS GIVEN, INCLUDING:
 CORE RECOVERY (REC.) - TOTAL LENGTH OF ROCK RECOVERED IN THE CORE BARREL DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.
 ROCK QUALITY DESIGNATION (RQD) - TOTAL LENGTH OF SOUND ROCK SEGMENTS RECOVERED THAT ARE LONGER THAN OR EQUAL TO 4" DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.
 ROCK CORE NOMINAL SIZES: AX CORE (1 3/16"); BX CORE (1 5/8"); NX CORE (2 1/8"); NXWL CORE (1 5/16")

B.M. BM No. 1 ELEV 58.60 P.R. SPIKE IN BASE 8' GUM 97' RT. L. STA. 10+05

MISC:

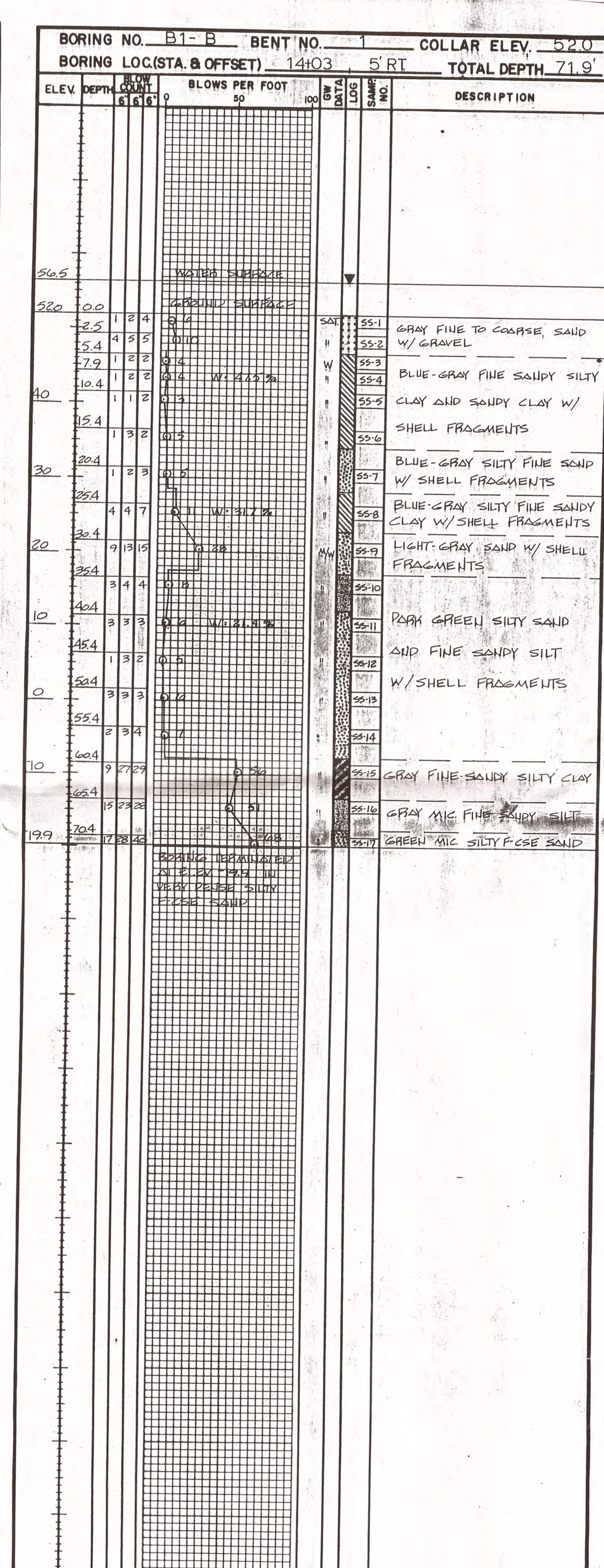
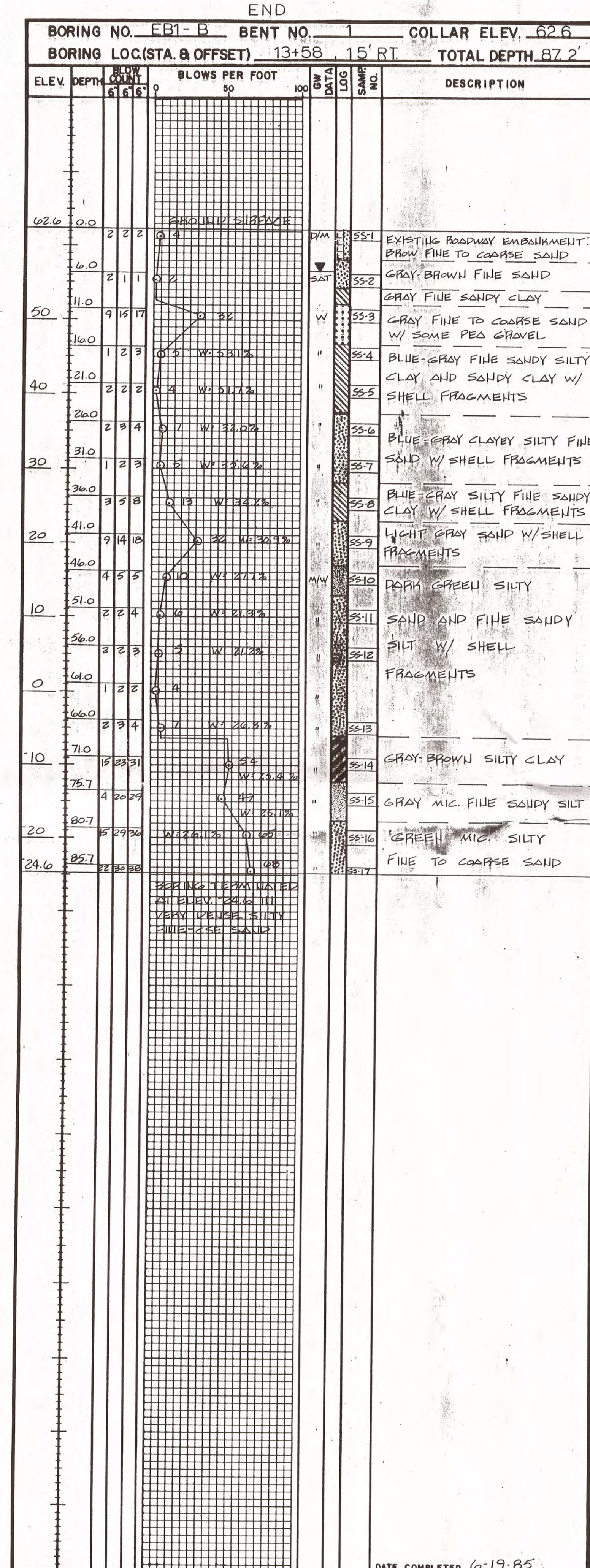
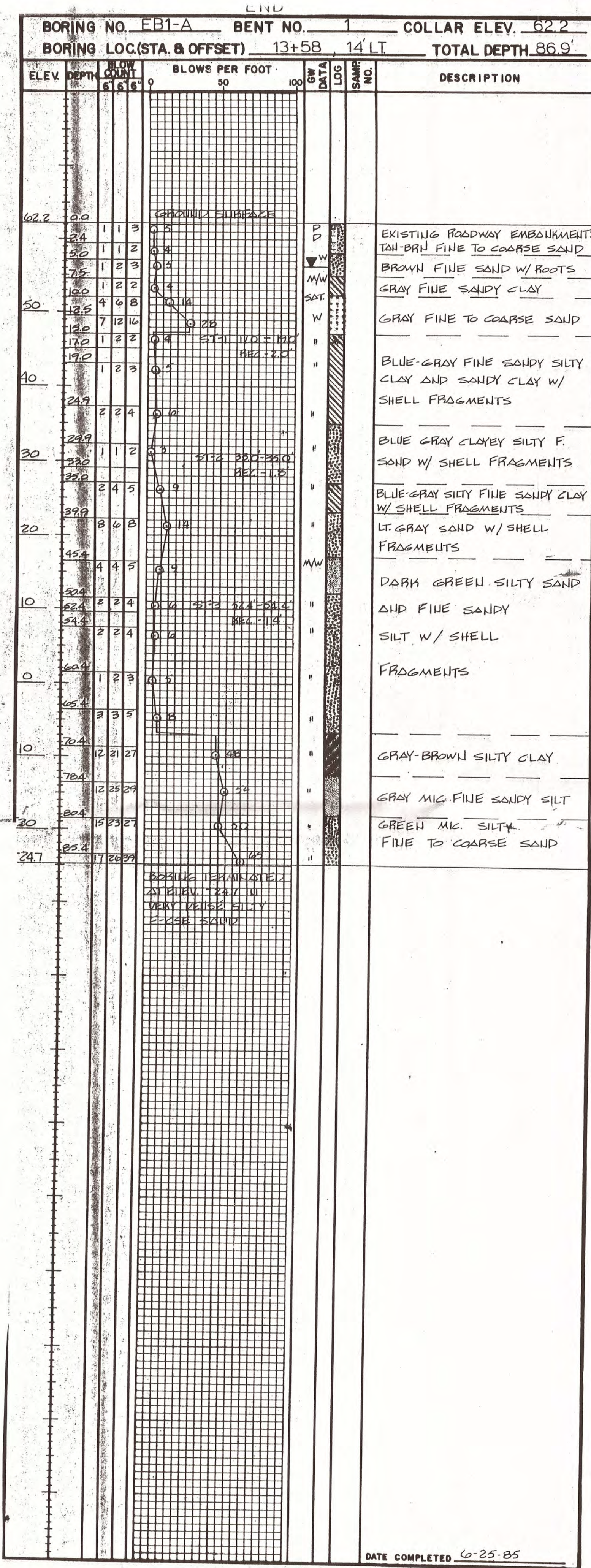
NOTE: THE SUBSURFACE INFORMATION SUPPLIED IN THIS REPORT IS BASED ON A PRELIMINARY BRIDGE REPORT. A REVIEW OF THE SUBSURFACE CONDITIONS IS NECESSARY IF SIGNIFICANT CHANGES ARE MADE IN THE DESIGN AND/OR LOCATION OF THE PROPOSED STRUCTURE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT

STATE PROJECT NO. B.2100101(B-1304) F.A. NO. _____
 COUNTY NORTHAMPTON ROUTE SR 1344
 BRIDGE ON SR 1344
 OVER ROGERS SWAMP (Northampton 12)

PROJECT GEOLOGIST R.R. WHITE DRAWN BY J.W. BRICKHOUSE
 CHECKED BY R.R. WHITE SUBMITTED BY G.L. BUNCH
 PERSONNEL M.W.S., S.S.B., A.W.R. DATE SUBMITTED AUGUST, 1985

FORM-GE0-01 REVISED 4-77



SOIL CLASSIFICATION AND GRADATION

SAMPLE	LOCATION	DEPTH	AASHTO CLASSIFICATION	% PASSING #200 SIEVE	COARSE SAND	FINE SAND	SILT	CLAY	LL	PI	MOISTURE
SS-1	EB1-B	0.0-1.5	A-2.4(0)	4	20	26	58	10	6	18	NP
SS-2	"	6.0-7.5	A-2.4(0)	2	22	21	59	12	8	23	NP
SS-3	"	11.0-12.5	A-3(0)	32	6	64	30	4	2	19	NP
SS-4	"	16.0-17.5	A-6(9)	5	70	4	37	4	18	36	16
SS-5	"	21.0-22.5	A-6(4)	4	40	26	30	26	18	33	17
SS-6	"	26.0-27.5	A-2.4(0)	7	33	34	34	18	14	26	9
SS-7	"	31.0-32.5	A-2.4(0)	5	30	20	52	18	10	24	4
SS-8	"	36.0-37.5	A-6(4)	13	40	14	47	15	24	34	20
SS-9	"	41.0-42.5	A-2.4(0)	32	17	30	54	8	8	21	NP
SS-10	"	46.0-47.5	A-4(0)	10	36	22	54	14	10	23	NP
SS-11	"	51.0-52.5	A-2.4(0)	6	33	31	47	16	6	21	NP
SS-12	"	56.0-57.5	A-2.4(0)	5	21	37	45	10	8	20	NP
SS-13	"	60.0-61.5	A-2.4(0)	7	26	27	48	11	14	23	7
SS-14	"	71.0-72.5	A-7.6(19)	54	87	3	16	49	32	53	25
SS-15	"	75.7-77.2	A-4(7)	49	69	8	34	50	8	30	NP
SS-16	"	80.7-82.2	A-2.4(0)	65	22	33	48	17	2	26	NP
SS-17	"	85.7-87.2	A-2.4(0)	68	15	69	18	11	2	26	NP
SS-1	B1-B	0.0-1.5	A-3(0)	6	7	60	34	4	2	18	NP
SS-2	"	2.5-4.0	A-3(0)	10	4	58	39	2	1	20	NP
SS-3	"	5.4-6.9	A-6(13)	4	74	5	34	39	22	38	22
SS-4	"	7.9-9.4	A-6(12)	4	69	15	27	32	26	39	25
SS-5	"	10.4-11.9	A-6(7)	3	51	23	28	29	20	36	20
SS-6	"	15.4-16.9	A-6(3)	5	41	26	35	25	14	30	15
SS-7	"	20.4-21.9	A-2.4(0)	5	31	20	50	16	14	25	NP
SS-8	"	25.4-26.9	A-6(4)	11	41	16	44	18	22	35	22
SS-9	"	30.4-31.9	A-2.4(0)	28	15	31	55	10	4	18	NP
SS-10	"	35.4-36.9	A-4(1)	8	41	16	58	18	8	23	4
SS-11	"	40.4-41.9	A-2.4(0)	6	33	32	46	16	6	20	NP
SS-12	"	45.4-46.9	A-2.4(0)	5	22	39	42	13	6	20	NP
SS-13	"	50.4-51.9	A-2.4(0)	6	25	25	52	15	8	22	NP
SS-14	"	55.4-56.9	A-2.4(0)	7	30	28	43	15	14	24	9
SS-15	"	60.4-61.9	A-7.6(15)	50	81	5	22	49	24	45	24
SS-16	"	65.4-66.9	A-4(2)	51	47	9	53	30	8	27	6
SS-17	"	70.4-71.9	A-2.4(0)	68	20	47	36	13	4	31	NP

SOIL PROPERTIES AND TEST RESULTS

SAMPLE	LOCATION	DEPTH	AASHTO CLASS.	LL	PI	7d AV PCF	w% AV	e AV
ST-1	13+58, 14'L-L	17'-19'	A-6(12)	39	23	71.7	49.0	1.352
ST-2	13+58, 14'L-L	33'-35'	A-2.4(0)	22	7	88.7	33.5	.931
ST-3	13+58, 14'L-L	52.4'-54.4'	A-2.4(0)	19	NP	110.8	20.4	.5125
ST-4	14+48, 14'R-L	17'-19'	A-6(12)	36	22	73.4	48.4	1.279
ST-5	14+48, 14'R-L	23'-25'	A-4(2)	23	8	90.5	33.2	.8695
ST-6	14+48, 14'R-L	47'-49'	A-4(2)	23	2	102.5	24.4	.6335
ST-7	14+48, 14'R-L	57'-59'	A-4(1)	25	10	97.73	26.27	.7506

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