EnSafe / Allen & Hoshall
a joint venture for professional services

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19.41.00.0075
ID-00425

June 27, 1995

Mr. Greg Parker
Memphis and Shelby County Health Department
814 Jefferson Avenue
Memphis, Tennessee 38105

RE: Monitoring Well Construction Permit Nos. 95-075, 95-080; Assembly B and C Direct Push Technology Screening Survey; NAS Memphis RCRA Facility Investigation; Millington, Tennessee; CTO-094

Dear Mr. Parker:

In accordance with the requirements of the above-referenced permits, EnSafe/Allen & Hoshall is submitting copies of 7 logs produced from direct push technology (DPT) piezocone soundings at two Assembly B solid waste management units and four Assembly C solid waste management units at Naval Air Station Memphis. Also enclosed are tables and maps describing the locations, depths, and field analytical results of soil and groundwater samples collected during the DPT screening survey. Sampling at Assembly C solid waste management units 26 and 27 was conducted with a Geoprobe rig, so piezocone logs are not available. Also, samples collected by the Geoprobe rig were analyzed at an offsite laboratory and the results are currently unavailable; therefore, only maps with sample locations are included for these two sites. All DPT holes have been filled with cement.

The enclosed logs contain geotechnical information computed from piezocone tool measurement data using guidelines presented in *Guidelines for Use and Interpretation of the Electric Cone Penetration Test* (Robertson, P.K., and Campanella, R.G., 1989). It should be noted that the soil type descriptions shown on the logs have been developed for generic (non-site or location specific) soil materials and, thus, do not necessarily reflect accurate lithologic descriptions for the materials penetrated at NAS Memphis.

If you have any questions or comments, please contact me at 901/372-7962.

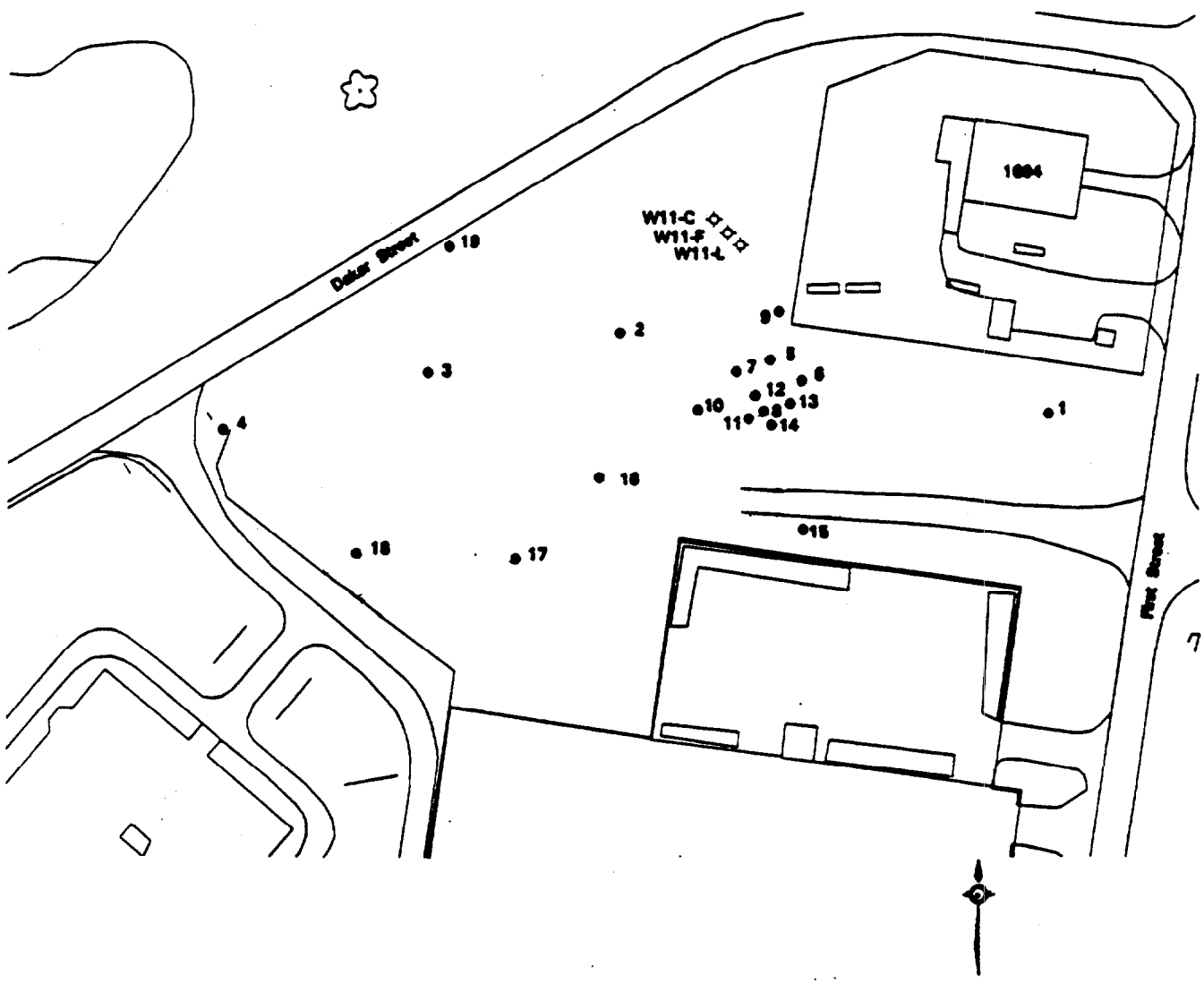
Sincerely,

EnSafe/Allen & Hoshall

By: Lawson M. Anderson, CHMM
Task Order Manager

Enclosures

cc: Tonya Barker, NAS Memphis



DPT Sample Location

USGS Monitoring Well

RFI WORK PLAN
NAS MEMPHIS
MILLINGTON, TN

SWMU 40
DPT SURVEY
SAMPLE LOCATIONS

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 40

SAMPLE LOCATION	SAMPLE ID	SAMPLE TYPE	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
1	40SG0103	SOIL	1 - 3	None detected
	40GH0112	WATER (LOESS)	11 - 12	None detected
	40GH0148	WATER (FLUVIAL)	47 - 48	None detected
2	40SG0203	SOIL	1 - 3	None detected
	40GH0215	WATER (LOESS)	14 - 15	None detected
	40GH0242	WATER (FLUVIAL)	41 - 42	None detected
3	40SG0303	SOIL	1 - 3	None detected
	40GH0314	WATER (LOESS)	13 - 14	None detected
	40SG0332	SOIL	31 - 33	None detected
	40GH0353	WATER (FLUVIAL)	52 - 53	None detected
4	40SG0403	SOIL	1 - 3	None detected
	40GH0413	WATER (LOESS)	12 - 13	None detected
	40GH0454	WATER (FLUVIAL)	53 - 54	None detected
5	40SG0503	SOIL	1 - 3	None detected
	40GH0512	WATER (LOESS)	11 - 12	None detected
	40GH0544	WATER (FLUVIAL)	43 - 44	None detected
6	40SG0603	SOIL	1 - 3	7.5 ug/kg MeCl (*See Notes)
	40GH0612	WATER (LOESS)	11 - 12	None detected
	40GH0646	WATER (FLUVIAL)	45 - 46	None detected
7	40SG0703	SOIL	1 - 3	31.4 ug/kg MeCl (*See Notes)
	40GH0712	WATER (LOESS)	11 - 12	None detected
	40GH0746	WATER (FLUVIAL)	45 - 46	None detected

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 40

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	40SG0803	SOIL	1 - 3	ethylbenzene - 15.43 ug/kg m,p-xylene - 74.67 ug/kg o-xylene - 126 ug/kg n-propylbenzene - 100.97 ug/kg 1,3,5-trimethylbenzene - 122.19 ug/kg tert-butylbenzene - 78.04 ug/kg 1,2,4-trimethylbenzene - 81.4 ug/kg s-butylbenzene - 88.71 ug/kg n-butylbenzene - 113.33 ug/kg naphthalene - 78.36 ug/kg methylene chloride - 68.1 ug/kg (Note: reanalysis - ethylbenzene - 245 ug/kg) (Note: reanalysis - xylenes - 400 ug/kg)
	40SG0805	SOIL	3 - 5	Ethylbenzene - 530 ug/kg m,p-xylenes - 1,900 ug/kg o-xylene - 1,600 ug/kg n-propylbenzene - 1,500 ug/kg 1,3,5-trimethylbenzene - 1,200 ug/kg t-butylbenzene - 5,200 ug/kg 1,2,4-trimethylbenzene - 1,500 ug/kg s-butylbenzene - 12,000 ug/kg n-butylbenzene - 3,700 ug/kg naphthalene - 2,000 ug/kg
	40SG0807	SOIL	5 - 7	ethylbenzene - 1,000 ug/kg m,p-xylenes - 1,500 ug/kg o-xylene - 970 ug/kg n-propylbenzene - 1,200 ug/kg 1,3,5-trimethylbenzene - 7,400 ug/kg t-butylbenzene - 4,100 ug/kg 1,2,4-trimethylbenzene - 1,200 ug/kg s-butylbenzene - 14,000 ug/kg n-butylbenzene - 7,100 ug/kg naphthalene - 3,800 ug/kg
	40SG0809	SOIL	7 - 9	m,p-xylenes - 18,000 ug/kg o-xylene - 2,200 ug/kg n-propylbenzene - 1,900 ug/kg tert-butylbenzene - 5,900 ug/kg 1,2,4-trimethylbenzene - 2,100 ug/kg s-butylbenzene/1,3-DCB - 26,000 ug/kg n-butylbenzene - 14,000 ug/kg naphthalene - 6,400 ug/kg
	40GH0812	WATER (LOESS)	11 - 12	ethylbenzene - 1,150 ug/L
	40GH0844	WATER (FLUVIAL)	43 - 44	naphthalene - 25.057 ug/L (Note: 8240 reanalysis - all non-detect)

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 40

SAMPLE LOCATION	SAMPLE ID	SAMPLE TYPE	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
9	40SG0903	SOIL	1 - 3	methylene chloride - 23.3 ug/kg (*See Notes)
	40GH0912	WATER (LOESS)	11 - 12	ethylbenzene - 8.878 ug/L m,p-xylenes - 14.487 ug/L 40,42 - 7.686 ug/L n-propylbenzene - 24.654 ug/L tert-butylbenzene - 5.636 ug/L 1,2,4-trimethylbenzene - 107.061 ug/L s-butylbenzene - 26.255 ug/L n-butylbenzene - 7.291 ug/L naphthalene - 9.437 ug/L
	40GH0951	WATER (FLUVIAL)	50 - 51	None detected
10	40SG1003	SOIL	1 - 3	methylene chloride - 37.2 ug/kg (*See Notes)
	40GH1012	WATER (LOESS)	11 - 12	None detected
	40GH1045	WATER (FLUVIAL)	44 - 45	None detected
11	* No sample submitted for analysis - all PID reading non-detect			
12	* No sample submitted for analysis - all PID reading non-detect			
13	40SG1305	SOIL	3 - 5	None detected
	40SS1309	SOIL	7 - 9	ethylbenzene - 1,100 ug/kg 40,42 - 1,600 ug/kg n-propylbenzene - 1,600 ug/kg tert-butylbenzene - 710 ug/kg 1,2,4-trimethylbenzene - 4,800 ug/kg s-butylbenzene - 2,000 ug/kg naphthalene - 1,700 ug/kg
	40SS1311	SOIL	9 - 11	ethylbenzene - 1,300 ug/kg 40,42 - 2,100 ug/kg n-propylbenzene - 2,000 ug/kg tert-butylbenzene - 1,000 ug/kg 1,2,4-trimethylbenzene - 5,200 ug/kg s-butylbenzene - 2,300 ug/kg naphthalene - 1,800 ug/kg

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 40

SAMPLE LOCATION	SAMPLE ID	SAMPLE TYPE	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
14	40SS1407	SOIL	5 - 7	ethylbenzene - 520 ug/kg m,p-xylenes - 20,000 ug/kg n-propylbenzene - 1,700 ug/kg 1,2,4-trimethylbenzene - 1,500 ug/kg s-butylbenzene/1,3-DCB - 23,000 ug/kg p-isopropyltoluene - 2,900 ug/kg n-butylbenzene - 11,000 ug/kg naphthalene - 6,300 ug/kg
	40SS1409	SOIL	7 - 9	ethylbenzene - 2,800 ug/kg m,p-xylenes - 17,000 ug/kg 40,42 - 4,900 ug/kg n-propylbenzene - 5,100 ug/kg 1,3,5-trimethylbenzene - 13,000 ug/kg tert-butylbenzene - 2,600 ug/kg 1,2,4-trimethylbenzene - 20,000 ug/kg s-butylbenzene/1,3-DCB - 5,600 ug/kg n-butylbenzene - 14,000 ug/kg 1,2,4-trichlorobenzene - 11,000 ug/kg naphthalene - 6,900 ug/kg
	40SS1411	SOIL	9 - 11	toluene - 507 ug/kg ethylbenzene - 1,300 ug/kg m,p-xylenes - 9,700 ug/kg o-xylene - 514 ug/kg 40,42 - 2,800 ug/kg n-propylbenzene - 2,700 ug/kg 1,3,5-trimethylbenzene - 4,400 ug/kg tert-butylbenzene - 1,500 ug/kg 1,2,4-trimethylbenzene - 7,700 ug/kg s-butylbenzene/1,3-DCB - 3,300 ug/kg n-butylbenzene - 2,900 ug/kg naphthalene - 2,900 ug/kg
15	40SS1503	SOIL	1 - 3	None detected
	40GH1512	WATER (LOESS)	11 - 12	None detected
	40GH1546	WATER (FLUVIAL)	45 - 46	None detected

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 40

SAMPLE LOCATION	SAMPLE ID	SAMPLE TYPE	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
16	40SG1603	SOIL	1 - 3	None detected
	40SG1614	SOIL	12 - 14	None detected
	40GH1652	WATER (FLUVIAL)	51 - 52	None detected
17	40SG1703	SOIL	1 - 3	7.4 ug/kg MeCl (*See Notes)
	40GH1714	WATER (LOESS)	13 - 14	None detected
	40GH1747	WATER (FLUVIAL)	46 - 47	None detected
18	40SG1804	SOIL	2 - 4	None detected
	40SG1813	SOIL	11 - 13	6 ug/kg MeCl (*See Notes)
	40GH1847	WATER (FLUVIAL)	46 - 47	m,p-xylenes - 10 ug/L 1,2,4-trimethylbenzene - 5.1 ug/kg
19	40SG1904	SOIL	2 - 4	7.1 ug/kg MeCl (*See Notes)
	40GH1908	WATER (LOESS)	7 - 8	None detected
	40GH1942	WATER (FLUVIAL)	41-42	None detected

NOTES: METHYLENE CHLORIDE IS A SUSPECTED LABORATORY ARTIFACT. WHERE INDICATED, THE REPORTED CONCENTRATION IS LESS THAN 5 TIMES THE CONTRACT REQUIRED QUANTITATION LIMIT.

PIEZOCONE SOUNDING LOG

SOUNDING #: 40-P01 CLIENT: ENSAFE DATE: 05-08-1995
JOB NAME OR #: NASM LOCATION: SWMU40 DEPTH OF GROUNDWATER: 18 FEET

Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	OC
2.00	0.51	46.01	0.62	1.34	Silty to Clayey F.S.	15	0.05	>45	88	101	---	---	276	--
3.00	-0.07	22.65	0.24	1.04	Clayey Fine Sand	9	0.10	---	---	301	1.5	5.8	45	>1
4.00	0.03	5.83	0.10	1.74	Silty Clay	4	0.14	---	---	76	0.4	3.5	41	>1
5.00	-0.04	9.32	0.12	1.25	Sandy Clay	5	0.19	---	---	122	0.6	4.8	47	>1
6.00	-0.03	20.18	0.32	1.60	Clayey Fine Sand	8	0.23	---	---	266	1.3	3.7	40	>1
7.00	-0.04	22.89	0.60	2.60	Sandy Clay	11	0.28	---	---	302	1.5	2.3	46	>1
8.00	-0.02	19.37	0.45	2.34	Sandy Clay	10	0.32	---	---	254	1.3	2.6	97	>1
9.00	-0.03	19.34	0.29	1.50	Clayey Fine Sand	8	0.37	---	---	253	1.3	4.0	97	>1
10.00	-0.01	13.21	0.47	3.57	Silty Clay	9	0.42	---	---	171	0.9	1.7	66	>1
11.00	0.00	14.36	0.23	1.58	Clayey Fine Sand	6	0.46	---	---	185	0.9	3.8	72	>1
12.00	0.00	11.91	0.28	2.37	Sandy Clay	6	0.51	---	---	152	0.8	2.5	60	
16.00	0.10	18.85	0.30	1.60	Clayey Fine Sand	8	0.69	---	---	242	1.2	3.8	94	
19.00	0.16	31.75	0.33	1.05	Silty to Clayey F.S.	11	0.82	35	37	70	---	---	191	--
20.00	0.19	28.83	0.33	1.14	Silty to Clayey F.S.	10	0.85	34	34	63	---	---	173	--
21.00	0.20	13.10	0.31	2.35	Sandy Clay	7	0.88	---	---	163	0.8	2.6	66	
22.00	0.25	19.13	0.38	1.97	Clayey Fine Sand	8	0.91	---	---	243	1.2	3.0	96	
23.00	0.28	13.03	0.21	1.63	Sandy Clay	7	0.94	---	---	161	0.8	3.7	65	
24.00	0.27	17.34	0.46	2.64	Sandy Clay	9	0.97	---	---	218	1.1	2.3	87	
25.00	0.32	17.09	0.36	2.12	Sandy Clay	9	0.99	---	---	215	1.1	2.8	85	
26.00	0.33	20.39	0.26	1.26	Clayey Fine Sand	8	1.02	---	---	258	1.3	4.8	41	
27.00	0.32	20.97	0.40	1.93	Clayey Fine Sand	8	1.05	---	---	265	1.3	3.1	42	
28.00	0.33	18.58	0.31	1.67	Clayey Fine Sand	7	1.09	---	---	233	1.2	3.6	93	
29.00	0.30	21.86	0.71	3.26	Sandy Clay	11	1.11	---	---	277	1.4	1.8	44	
30.00	0.23	33.02	0.66	2.01	Clayey Fine Sand	13	1.14	---	---	425	2.1	3.0	66	>1
31.00	0.28	18.62	0.27	1.47	Clayey Fine Sand	7	1.17	---	---	233	1.2	4.1	93	
32.00	0.23	20.09	0.21	1.03	Clayey Fine Sand	8	1.20	---	---	252	1.3	5.8	40	
33.00	0.21	8.13	0.26	3.14	Silty Clay	5	1.23	---	---	92	0.5	1.9	41	
34.00	0.25	44.37	0.11	0.24	Silty Fine Sand	11	1.26	34	40	98	---	---	266	--
35.00	0.29	28.79	0.51	1.77	Clayey Fine Sand	12	1.29	---	---	367	1.8	3.4	58	
36.00	0.37	31.42	0.84	2.68	Clayey Fine Sand	13	1.32	---	---	401	2.0	2.2	63	
38.00	0.39	26.85	0.46	1.70	Clayey Fine Sand	11	1.39	---	---	340	1.7	3.5	54	
39.00	0.38	19.74	0.39	1.97	Clayey Fine Sand	8	1.42	---	---	244	1.2	3.0	99	
40.00	0.40	14.29	0.22	1.51	Clayey Fine Sand	6	1.45	---	---	171	0.9	4.0	71	
41.00	0.40	45.92	0.46	1.01	Silty to Clayey F.S.	15	1.48	34	39	101	---	---	276	--
42.00	0.11	207.08	2.76	1.33	Silty Fine Sand	52	1.51	42	82	456	---	---	1242	--
43.00	-0.39	244.65	2.34	0.96	Fine Sand	49	1.54	43	86	538	---	---	1468	--
44.00	-0.17	219.90	2.04	0.93	Fine Sand	44	1.58	42	83	484	---	---	1319	--

SOUNDING #: 40-P01 CLIENT: ENSAFE DATE: 05-08-1995
JOB NAME OR #: NASM LOCATION: SWMU40 DEPTH OF GROUNDWATER: 18 FEET

Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	OC
45.00	-0.06	57.47	0.55	0.96	Silty Fine Sand	14	1.61	35	44	126	---	---	345	--
46.00	-0.41	185.97	0.80	0.43	Fine Sand	37	1.64	41	78	409	---	---	1116	--
47.00	-0.40	386.03	1.57	0.41	Cemented Sand to HardPan	64	1.68	45	98	849	---	---	2316	--

PP - Pore Pressure (Kg/cm2)
PT - Point Bearing (Kg/cm2)
SL - Sleeve Friction (Kg/cm2)
FR - Friction Ratio (%)
GWD - Ground Water Depth
N - Equivalent SPT Blow Count (bpf)
VES - Vertical Effective Stress (Kg/cm2)
FA - Friction Angle (Degress)
RD - Relative Density (+ or - 5%)
YM - Youngs Modulus
USS - Undrained Sheer Strength
SEN - Sensitivity
CM - Constrained Modulus
OCR - Estimated Over Consolidation Ratio

The above data was computed utilizing SST's in-house correlations and guidelines published in 'Guidelines for Use and Interpretation of the Electronic Cone Penetration Test', Robertson and Campanella, September, 1989.

PIEZOCONE SOUNDING LOG

SOUNDING #: 40-P02 CLIENT: ENSAFE DATE: 05-08-1995
JOB NAME OR #: NASM094 LOCATION: SWMU40 ST2 DEPTH OF GROUNDWATER: 18

Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	OC
2.00	0.11	31.33	0.34	1.08	Silty to Clayey F.S.	10	0.05	>45	77	69	---	---	188	--
3.00	-0.09	38.85	0.17	0.43	Silty to Clayey F.S.	13	0.10	>45	73	85	---	---	233	--
4.00	-0.06	7.69	0.14	1.79	Sandy Clay	4	0.14	---	---	101	0.5	3.3	38	>1
5.00	-0.04	6.81	0.07	0.97	Sensitive Fine Grain	3	0.18	---	---	133	0.7	6.2	48	>1
6.00	-0.03	10.84	0.09	0.82	Clayey Fine Sand	4	0.22	---	---	142	0.7	7.3	54	>1
7.00	-0.02	16.87	0.18	1.06	Clayey Fine Sand	7	0.27	---	---	221	1.1	5.7	84	>1
8.00	-0.04	20.72	0.43	2.08	Clayey Fine Sand	8	0.32	---	---	272	1.4	2.9	41	>1
9.00	-0.05	16.74	0.53	3.16	Sandy Clay	8	0.37	---	---	218	1.1	1.9	84	>1
10.00	-0.05	12.26	0.48	3.90	Clay	12	0.41	---	---	158	0.8	1.5	61	>1
11.00	-0.03	5.04	0.37	7.33	Clay	5	0.44	---	---	61	0.3	0.8	35	
12.00	-0.03	20.19	0.30	1.49	Clayey Fine Sand	8	0.49	---	---	263	1.3	4.0	40	>1
13.00	-0.02	14.24	0.42	2.98	Sandy Clay	7	0.54	---	---	183	0.9	2.0	71	
15.00	-0.01	17.64	0.28	1.57	Clayey Fine Sand	7	0.63	---	---	227	1.1	3.8	88	
17.00	-0.04	30.13	0.38	1.26	Silty to Clayey F.S.	10	0.73	35	37	66	---	---	181	--
18.00	-0.02	29.85	0.41	1.39	Clayey Fine Sand	12	0.78	---	---	388	1.9	4.3	60	>1
19.00	0.22	2.57	0.27	10.51	Organic Material	3	0.80	---	---	---	---	---	---	--
20.00	0.20	17.90	0.36	2.04	Clayey Fine Sand	7	0.83	---	---	228	1.1	2.9	90	
21.00	0.24	12.65	0.23	1.80	Sandy Clay	6	0.86	---	---	157	0.8	3.3	63	
22.00	0.28	8.56	0.13	1.57	Sandy Clay	4	0.88	---	---	102	0.5	3.8	43	
23.00	0.29	12.73	0.12	0.92	Clayey Fine Sand	5	0.91	---	---	158	0.8	6.5	64	
24.00	0.29	19.02	0.28	1.45	Clayey Fine Sand	8	0.94	---	---	241	1.2	4.1	95	
25.00	0.29	24.91	0.42	1.69	Clayey Fine Sand	10	0.98	---	---	319	1.6	3.5	50	
28.00	0.22	29.11	0.41	1.41	Clayey Fine Sand	12	1.07	---	---	374	1.9	4.3	58	
30.00	0.35	28.72	0.27	0.93	Silty to Clayey F.S.	10	1.13	32	30	63	---	---	172	--
31.00	0.21	36.34	0.49	1.34	Silty to Clayey F.S.	12	1.16	34	36	80	---	---	218	--
32.00	-0.18	76.84	2.05	2.67	Clayey Fine Sand	31	1.19	---	---	1009	5.0	2.2	154	>1
33.00	0.15	16.45	0.87	5.30	Clay	16	1.22	---	---	203	1.0	1.1	82	
34.00	0.08	42.37	0.36	0.85	Silty to Clayey F.S.	14	1.25	34	39	93	---	---	254	--
35.00	0.26	33.23	0.50	1.50	Clayey Fine Sand	13	1.28	---	---	426	2.1	4.0	66	
37.00	0.28	23.89	0.59	2.48	Sandy Clay	12	1.34	---	---	301	1.5	2.4	48	
38.00	0.29	28.92	0.67	2.32	Clayey Fine Sand	12	1.37	---	---	367	1.8	2.6	58	
39.00	-0.41	126.76	0.44	0.34	Fine Sand	25	1.40	40	69	279	---	---	761	--
40.00	-0.32	93.30	0.85	0.91	Silty Fine Sand	23	1.43	38	60	205	---	---	560	--
41.00	-0.55	430.06	2.01	0.47	Cemented Sand to HardPan	72	1.47	>45	100+	946	---	---	2580	--
42.00	-0.50	573.95	3.68	0.64	Cemented Sand to HardPan	96	1.50	>45	100+	1263	---	---	3444	--

PP - Pore Pressure (Kg/cm2)
PT - Point Bearing (Kg/cm2)
SL - Sleeve Friction (Kg/cm2)
FR - Friction Ratio (%)
GWD - Ground Water Depth

N - Equivalent SPT Blow Count (bpf)
VES - Vertical Effective Stress (Kg/cm2)
FA - Friction Angle (Degress)
RD - Relative Density (+ or - 5%)
YM - Youngs Modulus

USS - Undrained Sheer Strength
SEN - Sensitivity
CM - Constrained Modulus
OCR - Estimated Over Consolidation Ratio

ne above data was computed utilizing SST's in-house correlations and guidelines published in 'Guidelines for Use and Interpretation of the Electronic Cone Penetration Test', Robertson and Campanella, September, 1989.

PIEZOCONE SOUNDING LOG

SOUNDING #: 40-P03 CLIENT: ENSAFE DATE: 05-08-1995
JOB NAME OR #: NASM094 LOCATION: SWMU40 ST3 DEPTH OF GROUNDWATER: 18

Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	O
2.00	-0.29	50.30	0.40	0.80	Silty to Clayey F.S.	17	0.05	>45	91	111	---	---	302	-
3.00	0.21	12.59	0.17	1.38	Clayey Fine Sand	5	0.10	---	---	167	0.8	4.4	63	>
4.00	0.16	19.55	0.14	0.70	Clayey Fine Sand	8	0.15	---	---	259	1.3	8.6	98	>
5.00	0.13	24.80	0.45	1.83	Clayey Fine Sand	10	0.20	---	---	328	1.6	3.3	50	>
6.00	0.09	23.01	0.26	1.11	Clayey Fine Sand	9	0.24	---	---	304	1.5	5.4	46	>
7.00	-0.00	18.44	0.08	0.42	Silty to Clayey F.S.	6	0.29	38	36	41	---	---	111	-
8.00	-0.13	21.75	0.12	0.55	Silty to Clayey F.S.	7	0.34	38	39	48	---	---	131	-
9.00	-0.13	21.68	0.08	0.35	Silty to Clayey F.S.	7	0.39	37	37	48	---	---	130	-
10.00	-0.13	15.26	0.41	2.66	Sandy Clay	8	0.43	---	---	198	1.0	2.3	76	>
11.00	-0.07	11.61	0.42	3.60	Silty Clay	8	0.48	---	---	148	0.7	1.7	58	
13.00	-0.00	9.63	0.23	2.35	Sandy Clay	5	0.57	---	---	121	0.6	2.6	48	
14.00	-0.03	21.74	0.34	1.57	Clayey Fine Sand	9	0.62	---	---	282	1.4	3.8	43	>
15.00	-0.02	24.59	0.32	1.30	Clayey Fine Sand	10	0.67	---	---	319	1.6	4.6	49	>
16.00	-0.03	31.98	0.58	1.82	Clayey Fine Sand	13	0.72	---	---	417	2.1	3.3	64	>
17.00	0.04	22.80	0.44	1.95	Clayey Fine Sand	9	0.77	---	---	294	1.5	3.1	46	>
18.00	0.09	15.01	0.31	2.06	Sandy Clay	8	0.81	---	---	189	0.9	2.9	75	
19.00	0.11	27.38	0.59	2.17	Clayey Fine Sand	11	0.84	---	---	354	1.8	2.8	55	>
20.00	0.17	20.60	0.44	2.12	Clayey Fine Sand	8	0.87	---	---	263	1.3	2.8	41	
22.00	0.19	10.72	0.13	1.21	Sandy Clay	5	0.93	---	---	131	0.7	5.0	54	
23.00	0.16	23.17	0.27	1.15	Clayey Fine Sand	9	0.96	---	---	296	1.5	5.2	46	
25.00	0.15	27.53	0.65	2.36	Clayey Fine Sand	11	1.02	---	---	354	1.8	2.5	55	
27.00	0.12	22.49	0.28	1.25	Clayey Fine Sand	9	1.08	---	---	285	1.4	4.8	45	
28.00	-0.02	35.22	0.33	0.94	Silty to Clayey F.S.	12	1.11	34	36	77	---	---	211	-
29.00	0.21	21.70	0.27	1.23	Clayey Fine Sand	9	1.14	---	---	274	1.4	4.9	43	
30.00	-0.02	36.13	0.07	0.18	Silty Fine Sand	9	1.17	34	36	79	---	---	217	-
31.00	-0.46	176.45	1.17	0.66	Fine Sand	35	1.20	42	81	388	---	---	1059	-
32.00	0.14	71.78	2.92	4.07	Sandy Clay	36	1.23	---	---	941	4.7	1.5	144	1
33.00	0.15	30.07	0.91	3.03	Sandy Clay	15	1.26	---	---	384	1.9	2.0	60	
35.00	0.23	18.67	0.30	1.59	Clayey Fine Sand	7	1.32	---	---	231	1.2	3.8	93	
36.00	0.14	23.15	0.21	0.90	Silty to Clayey F.S.	8	1.35	<30	21	51	---	---	139	-
37.00	0.20	25.24	0.20	0.79	Silty to Clayey F.S.	8	1.38	30	23	56	---	---	151	-
38.00	0.21	13.98	0.36	2.61	Sandy Clay	7	1.40	---	---	168	0.8	2.3	70	
39.00	0.22	8.14	0.26	3.14	Silty Clay	5	1.43	---	---	90	0.4	1.9	41	
40.00	0.21	11.40	0.22	1.93	Sandy Clay	6	1.46	---	---	133	0.7	3.1	57	
41.00	0.15	21.67	0.21	0.96	Clayey Fine Sand	9	1.49	---	---	269	1.3	6.2	43	
42.00	0.15	18.13	0.14	0.77	Clayey Fine Sand	7	1.52	---	---	221	1.1	7.8	91	
43.00	-0.02	38.03	0.28	0.73	Silty to Clayey F.S.	13	1.55	32	33	84	---	---	228	
44.00	0.26	11.88	0.90	7.59	Clay	12	1.58	---	---	137	0.7	0.8	59	

SOUNDING #: 40-P03 CLIENT: ENSAFE DATE: 05-08-1995
JOB NAME OR #: NASM094 LOCATION: SWMU40 ST3 DEPTH OF GROUNDWATER: 18

Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	OCR
45.00	0.22	20.35	0.34	1.66	Clayey Fine Sand	8	1.61	---	---	250	1.2	3.6	41	[illegible]
46.00	0.23	29.23	0.24	0.81	Silty to Clayey F.S.	10	1.64	<30	25	64	---	---	175	---
47.00	0.30	12.40	0.16	1.31	Clayey Fine Sand	5	1.67	---	---	143	0.7	4.6	62	[illegible]
48.00	0.26	17.48	0.19	1.10	Clayey Fine Sand	7	1.70	---	---	210	1.1	5.4	87	[illegible]
49.00	0.36	14.71	0.15	1.00	Clayey Fine Sand	6	1.73	---	---	173	0.9	6.0	74	[illegible]

PP - Pore Pressure (Kg/cm2)
PT - Point Bearing (Kg/cm2)
SL - Sleeve Friction (Kg/cm2)
FR - Friction Ratio (%)
GWD - Ground Water Depth

N - Equivalent SPT Blow Count (bpf)
VES - Vertical Effective Stress (Kg/cm2)
FA - Friction Angle (Degress)
RD - Relative Density (+ or - 5%)
YM - Youngs Modulus

USS - Undrained Sheer Strength
SEN - Sensitivity
CM - Constrained Modulus
OCR - Estimated Over Consolidation Ratio

The above data was computed utilizing SST's in-house correlations and guidelines published in 'Guidelines for Use and Interpretation of the Electronic Cone Penetration Test', Robertson and Campanella, September, 1989.

PIEZOCONE SOUNDING LOG

SOUNDING #: 40-P04 CLIENT: ENSAFE DATE: 05-08-1995
JOB NAME OR #: NASM094 LOCATION: SWMU40 ST4 DEPTH OF GROUNDWATER: 18

Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	OC
2.00	-0.25	28.99	0.36	1.23	Silty to Clayey F.S.	10	0.05	>45	75	64	---	---	174	---
3.00	-0.11	17.51	0.32	1.82	Clayey Fine Sand	7	0.10	---	---	232	1.2	3.3	88	>1
4.00	-0.03	12.93	0.42	3.28	Silty Clay	9	0.14	---	---	170	0.9	1.8	65	>1
5.00	-0.09	17.16	0.36	2.10	Sandy Clay	9	0.19	---	---	226	1.1	2.9	86	>1
6.00	-0.04	13.99	0.50	3.55	Silty Clay	9	0.23	---	---	184	0.9	1.7	70	>1
7.00	-0.03	8.85	0.38	4.27	Clay	9	0.27	---	---	114	0.6	1.4	44	>1
8.00	-0.07	15.59	0.30	1.95	Sandy Clay	8	0.31	---	---	204	1.0	3.1	78	>1
9.00	-0.08	15.24	0.24	1.55	Clayey Fine Sand	6	0.36	---	---	198	1.0	3.9	76	>1
10.00	-0.07	14.82	0.22	1.50	Clayey Fine Sand	6	0.41	---	---	192	1.0	4.0	74	>1
11.00	-0.06	25.57	0.45	1.77	Clayey Fine Sand	10	0.46	---	---	335	1.7	3.4	51	>1
12.00	-0.12	35.29	0.59	1.67	Clayey Fine Sand	14	0.51	---	---	464	2.3	3.6	71	>1
13.00	-0.17	41.60	0.79	1.91	Clayey Fine Sand	17	0.56	---	---	547	2.7	3.1	83	>1
14.00	-0.17	33.31	1.00	3.00	Sandy Clay	17	0.60	---	---	436	2.2	2.0	67	>1
15.00	-0.12	32.89	0.85	2.57	Clayey Fine Sand	13	0.65	---	---	430	2.1	2.3	66	>1
16.00	-0.12	24.14	0.62	2.57	Sandy Clay	12	0.69	---	---	313	1.6	2.3	48	>1
17.00	-0.06	26.15	0.67	2.57	Clayey Fine Sand	10	0.74	---	---	339	1.7	2.3	52	>1
18.00	-0.02	20.88	0.67	3.21	Sandy Clay	10	0.79	---	---	268	1.3	1.9	42	
20.00	0.07	18.57	0.34	1.81	Clayey Fine Sand	7	0.84	---	---	236	1.2	3.3	93	
21.00	0.10	12.75	0.18	1.44	Sandy Clay	6	0.87	---	---	158	0.8	4.2	64	
22.00	0.10	14.84	0.26	1.72	Sandy Clay	7	0.90	---	---	186	0.9	3.5	74	
23.00	0.08	17.23	0.27	1.56	Clayey Fine Sand	7	0.93	---	---	217	1.1	3.8	86	
24.00	0.04	16.20	0.51	3.17	Sandy Clay	8	0.96	---	---	203	1.0	1.9	81	
25.00	0.15	17.80	0.86	4.86	Clay	18	0.98	---	---	224	1.1	1.2	89	
26.00	0.09	27.94	0.31	1.10	Silty to Clayey F.S.	9	1.01	33	30	61	---	---	168	--
27.00	0.09	22.02	0.24	1.09	Clayey Fine Sand	9	1.04	---	---	280	1.4	5.5	44	
28.00	0.05	30.11	0.68	2.27	Clayey Fine Sand	12	1.07	---	---	387	1.9	2.6	60	>1
29.00	0.04	29.13	0.25	0.84	Silty to Clayey F.S.	10	1.11	33	30	64	---	---	175	--
30.00	0.18	19.23	0.21	1.08	Clayey Fine Sand	8	1.14	---	---	241	1.2	5.6	96	
31.00	-0.30	40.99	0.89	2.16	Clayey Fine Sand	16	1.17	---	---	531	2.7	2.8	82	>1
32.00	-0.30	31.23	-0.01	0.02	Silty Fine Sand	8	1.20	32	31	69	---	---	187	--
33.00	-0.32	20.51	0.57	2.76	Sandy Clay	10	1.22	---	---	257	1.3	2.2	41	
34.00	-0.11	24.64	0.48	1.93	Clayey Fine Sand	10	1.26	---	---	312	1.6	3.1	49	
35.00	-0.16	30.58	0.48	1.57	Clayey Fine Sand	12	1.29	---	---	391	2.0	3.8	61	
37.00	0.01	31.40	0.23	0.75	Silty to Clayey F.S.	10	1.35	32	30	69	---	---	188	--
38.00	0.08	29.32	0.14	0.47	Silty to Clayey F.S.	10	1.38	31	27	65	---	---	176	--
39.00	0.04	29.34	0.15	0.52	Silty to Clayey F.S.	10	1.41	31	27	65	---	---	176	--
40.00	0.02	27.20	0.05	0.18	Silty to Clayey F.S.	9	1.44	30	24	60	---	---	163	--
41.00	-0.01	28.20	-0.02	0.07	Silty to Clayey F.S.	9	1.47	30	25	62	---	---	169	--
42.00	-0.20	116.67	0.63	0.54	Fine Sand	23	1.50	39	66	257	---	---	700	--
43.00	-0.36	100.43	3.24	3.23	Sand to Clayey F.S.	50	1.54	---	---	1319	6.6	1.9	201	>1
44.00	0.01	34.14	0.30	0.87	Silty to Clayey F.S.	11	1.57	31	30	75	---	---	205	--

SOUNDING #: 40-P04 CLIENT: ENSAFE DATE: 05-08-1995
JOB NAME OR #: NASM094 LOCATION: SWMU40 ST4 DEPTH OF GROUNDWATER: 18

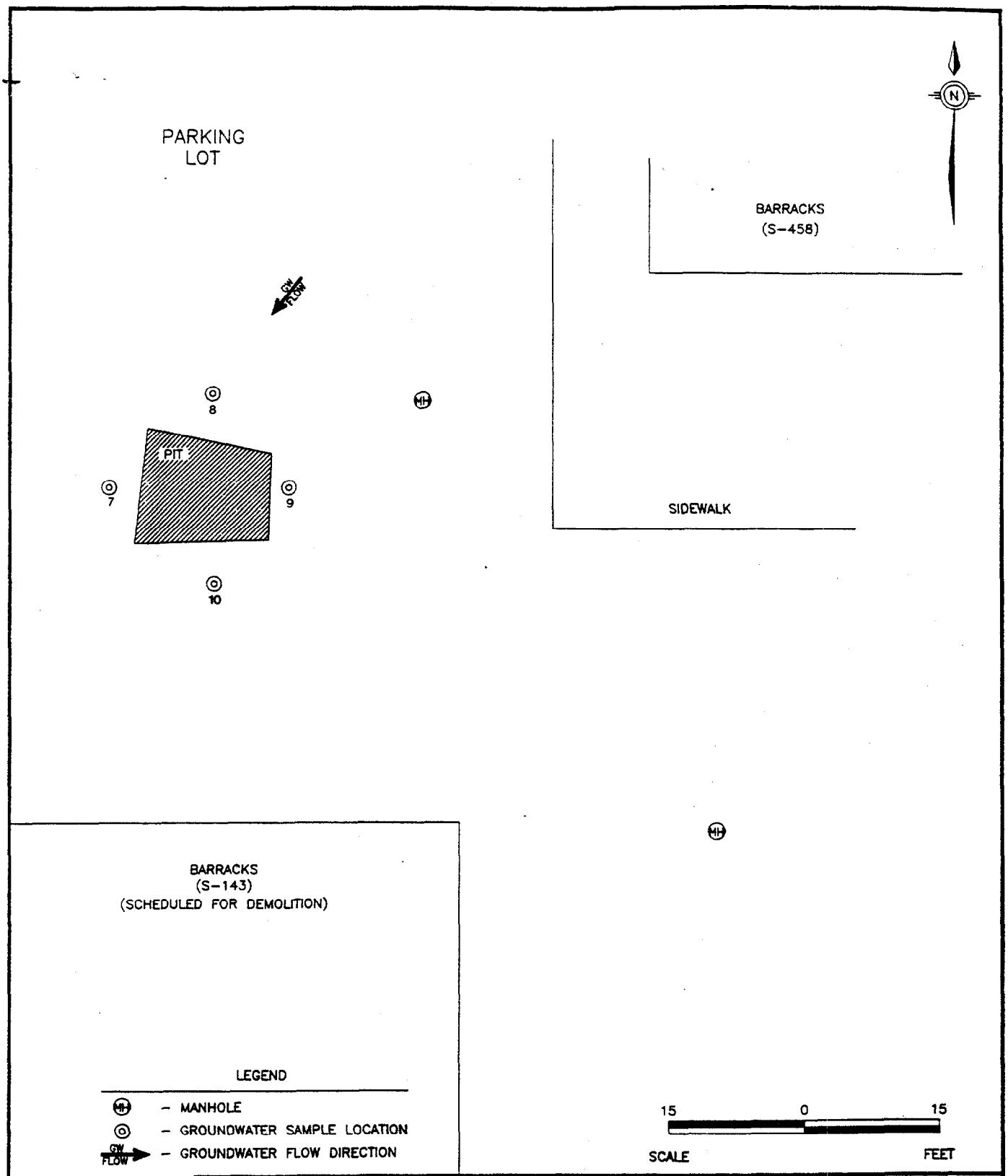
Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	O
45.00	0.02	42.21	0.59	1.41	Silty to Clayey F.S.	14	1.60	33	36	93	---	---	253	-
46.00	-0.02	19.67	0.56	2.83	Sandy Clay	10	1.63	---	---	241	1.2	2.1	98	
47.00	0.02	21.33	0.52	2.43	Sandy Clay	11	1.65	---	---	262	1.3	2.5	43	
48.00	-0.08	27.55	1.39	5.03	Clay	28	1.68	---	---	345	1.7	1.2	55	
49.00	-0.49	452.66	1.17	0.26	Cemented Sand to HardPan	75	1.72	>45	100+	996	---	---	2716	-

PP - Pore Pressure (Kg/cm2)
PT - Point Bearing (Kg/cm2)
SL - Sleeve Friction (Kg/cm2)
FR - Friction Ratio (%)
GWD - Ground Water Depth

N - Equivalent SPT Blow Count (bpf)
VES - Vertical Effective Stress (Kg/cm2)
FA - Friction Angle (Degress)
RD - Relative Density (+ or - 5%)
YM - Youngs Modulus

USS - Undrained Sheer Strength
SEN - Sensitivity
CM - Constrained Modulus
OCR - Estimated Over Consolidation Ratio

The above data was computed utilizing SST's in-house correlations and guidelines published in 'Guidelines for Use and Interpretation of the Electronic Cone Penetration Test', Robertson and Campanella, September, 1989.



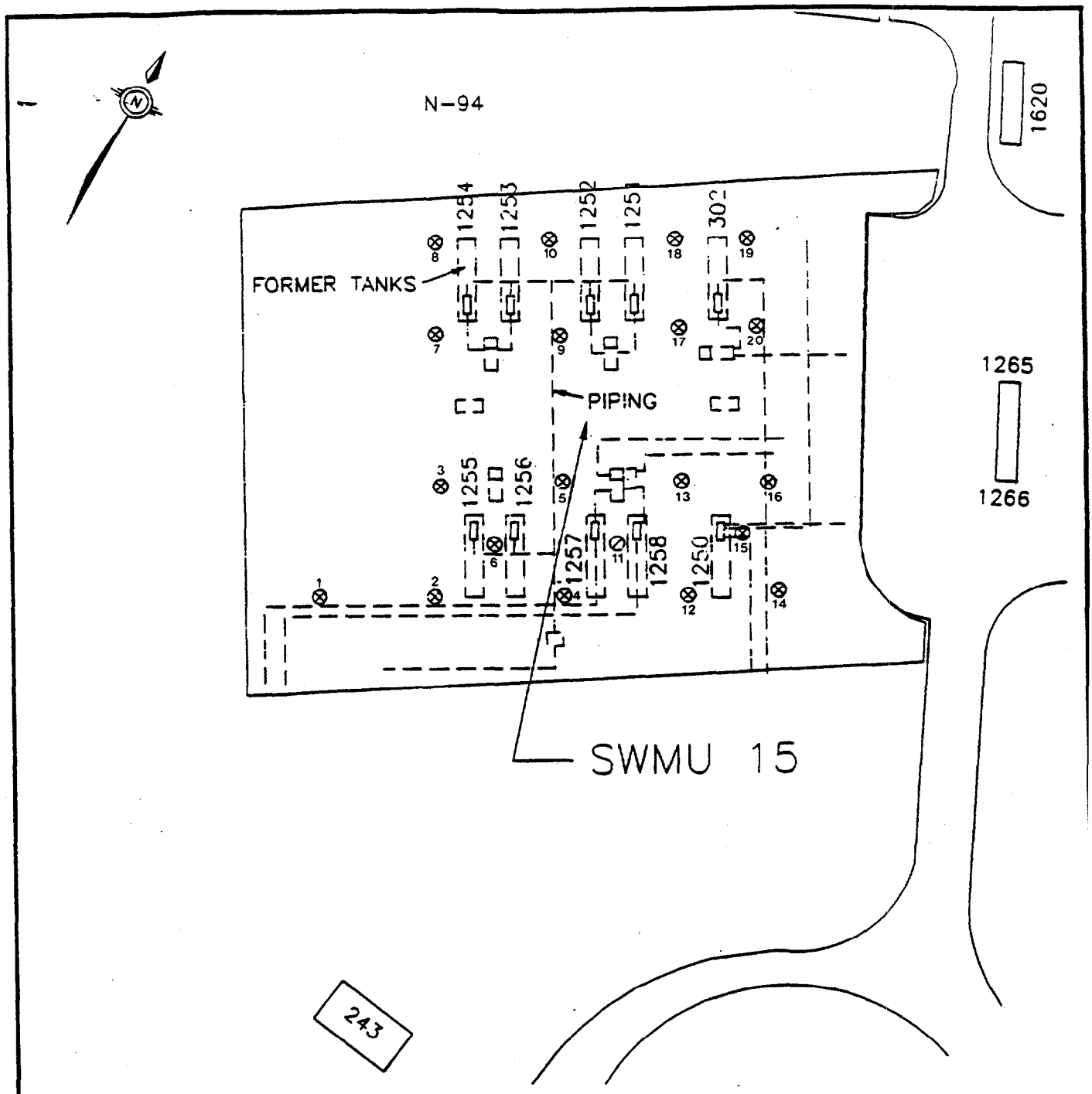
INTERIM MEASURES
WORK PLAN
NAS MEMPHIS
MILLINGTON, TENNESSEE

FIGURE 4
PROPOSED DPT
SAMPLE LOCATION MAP
SWMU 45

DWG DATE: 04/10/95 | DWG NAME: 16MEMDSL

NAS Memphis RFI SWMU 45 Interim Measure DPT Survey Groundwater Analytical Data		
Sample I.D.	**Sample Depth (ft. bgs.)**	**Analytical Results**
45GH0740	40	ND
45GH0842	42	ND
45GH0937	37	ND
45GH1040	40	ND

Notes:
ND - None Detected, all results were below practical quantitation limits.



LEGEND

⊗ DPT SAMPLING LOCATION

SCALE: NOT TO SCALE

RFI WORK PLAN
NAS MEMPHIS
MILLINGTON, TN

FIGURE 2
PROPOSED DPT SAMPLING LOCATIONS
BUILDING N-94
FORMER UNDERGROUND TANK FARM
SWMU 15

DWG DATE: 04/06/95 | DWG NAME: 94N94DPT

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 15

SAMPLE LOCATION	SAMPLE ID	MEDIA	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
1	015S000101	SOIL	5 - 7	RESULTS NOT AVAILABLE
	015G000102	WATER (LOESS)	13 - 14	Ethylbenzene - 174 ug/L m,p-Xylenes - 144 ug/L n-Propylbenzene - 16.2 ug/L 1,3,5-Trimethylbenzene - 35.4 ug/L 1,2,4-Trimethylbenzene - 63.5 ug/L Naphthalene - 103 ug/L
	015G000103	WATER (FLUVIAL)	48 - 49	Ethylbenzene - 8.1 ug/L m,p-Xylenes - 21.2 ug/L Styrene - 14.4 ug/L o-Xylene - 38.9 ug/L 40,42 - 5.2 ug/L
2	015S000201	SOIL	7 - 9	Benzene - 36.8 ug/kg Ethylbenzene - 48.5 ug/kg m,p-Xylenes - 68.5 ug/kg o-Xylene - 29.7 ug/kg 40,42 - 44.5 ug/kg n-Propylbenzene - 21.7 ug/kg t-Butylbenzene - 7.2 ug/kg s-butylbenzene - 18.0 ug/kg
	015G000202	WATER (LOESS)	14 -15	Benzene - 20 ug/L Ethylbenzene - 34.8 ug/L m,p-Xylenes - 34.9 ug/L 40,42 - 5.7 ug/L n-Propylbenzene - 71.4 ug/L 1,2,4-Trimethylbenzene - 9.5 ug/L s-Butylbenzene - 10.2 ug/L
	015G000203	WATER (FLUVIAL)	51 - 52	Carbon tetrachloride - 43.435 ug/L

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 15

SAMPLE LOCATION	SAMPLE ID	MEDIA	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
3	015S003007	SOIL	5 - 7	None detected
	015S003017	SOIL	15 - 17	Ethylbenzene - 41.7 ug/kg m,p-Xylenes - 47.3 ug/kg Styrene 10.6 ug/kg o-Xylene - 2.5 ug/kg 40,42 - 17.6 ug/kg 1,3,5-Trimethylbenzene - 15.8 ug/kg s-Butylbenzene - 10.5 ug/kg
	015G003048	WATER (FLUVIAL)	47 - 48	None detected
4	015S000401	SOIL	5 - 7	Ethylbenzene - 23.1 ug/kg m,p-Xylenes - 55.5 ug/kg Styrene - 15.2 ug/kg o-Xylene - 31.5 ug/kg 40,42 - 28.5 ug/kg n-Propylbenzene - 41.3 ug/kg 1,2,4-Trimethylbenzene - 144 ug/kg s-Butylbenzene - 26.4 ug/kg
	015G000402	WATER (LOESS)	14 - 15	Benzene - 3,200 ug/L Toluene - 186 ug/L Ethylbenzene 1,300 ug/L m,p-Xylenes - 4,200 ug/L o-Xylene - 500 ug/L n-Propylbenzene - 98 ug/L 1,3,5-Trimethylbenzene - 222 ug/L 1,2,4-Trimethylbenzene - 550 ug/L
	015G000403	WATER (FLUVIAL)	44 - 45	Styrene - 5.5 ug/L o-Xylene - 9.4 ug/L

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 15

SAMPLE LOCATION	SAMPLE ID	MEDIA	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
5	015S005007	SOIL	5 - 7	RESULTS NOT AVAILABLE
	015S000502	WATER (LOESS)	15 - 17	Benzene - 13.1 ug/L
	015G000503	WATER (FLUVIAL)	39 - 40	Benzene - 741 ug/L Ethylbenzene - 27.2 ug/L
6	015S000601	SOIL	5 - 7	40,42 - 5.9 ug/kg 1,3,5-Trimethylbenzene - 8.4 ug/kg 1,2,4-Trimethylbenzene - 6.1 ug/kg s-Butylbenzene - 5.9 ug/kg
	015S006017	SOIL	15 - 17	Benzene - 210 ug/kg Ethylbenzene - 190 ug/kg m,p-Xylenes - 450 ug/kg o-Xylene - 14 ug/kg n-Propylbenzene - 34.6 ug/kg 1,3,5-Trimethylbenzene - 48.8 ug/kg 1,2,4-Trimethylbenzene - 160 ug/kg s-Butylbenzene - 14.4 ug/kg Naphthalene - 40.3 ug/kg
	015G006050	WATER (FLUVIAL)	49 - 50	None detected
7	015S007007	SOIL	5 - 7	None detected
	015S007017	SOIL	15 - 17	Benzene - 6.2 ug/kg Ethylbenzene - 18.6 ug/kg m,p-Xylenes - 5.7 ug/kg 40,42 - 7.5 ug/kg n-Propylbenzene - 22 ug/kg s-Butylbenzene - 10.2 ug/kg
	015G007047	WATER (FLUVIAL)	46 - 47	None detected

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 15

SAMPLE LOCATION	SAMPLE ID	MEDIA	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
8	015S008007	SOIL	5 - 7	None detected
	015G008015	WATER (LOESS)	14 - 15	Benzene - 230 ug/L Ethylbenzene - 390 ug/L m,p-Xylenes - 340 ug/L n-Propylbenzene - 140 ug/L
	015G008043	WATER (FLUVIAL)	42 - 43	Benzene - 176 ug/L Ethylbenzene - 17.7 ug/L
9	015S000901	SOIL	5 - 7	m,p-Xylenes - 6.0 ug/kg Styrene - 7.1 ug/kg o-Xylene - 18.4 ug/kg 40,42 - 6.6 ug/kg n-Propylbenzene - 13.3 ug/kg Methylene chloride - 9.6 ug/kg (*See Notes)
	015S000902	SOIL	15 - 17	Benzene - 163 ug/kg Toluene - 15.9 ug/kg Ethylbenzene - 83.5 ug/kg m,p-Xylenes - 176 ug/kg Styrene - 14.1 ug/kg o-Xylene - 51.8 ug/kg 40,42 - 26.1 ug/kg n-Propylbenzene - 79.1 ug/kg 1,3,5-Trimethylbenzne - 135 ug/kg t-butylbenzene - 57.5 ug/kg 1,2,4-Trimethylbenzene - 209 ug/kg s-Butylbenzene - 191 ug/kg p-Isopropyltoluene - 6.9 ug/kg n-Butylbenzene - 10.2 ug/kg Methylene chloride - 7 ug/kg
	015G000903	WATER (FLUVIAL)	41 - 42	None detected

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 15

SAMPLE LOCATION	SAMPLE ID	MEDIA	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
10	015S010007	SOIL	5 - 7	None detected
	015S010017	SOIL	15 - 17	None detected
	015G010045	WATER (FLUVIAL)	44 - 45	Benzene - 9.8 ug/L Toluene - 12.9 ug/L m,p-Xylenes - 10.4 ug/L 40,42 - 5.1 ug/L
11	015S001101	SOIL	5 - 7	Ethylbenzene - 119 ug/kg m,p-Xylenes - 206 ug/kg o-Xylenes - 191 ug/kg 40,42 - 18.5 ug/kg n-Propylbenzene - 12 ug/kg 1,3,5-Trimethylbenzene - 23.6 ug/kg 1,2,4-Trimethylbenzene - 13.6 ug/kg s-Butylbenzene - 20.8 ug/kg p-Isopropyltoluene - 9.2 ug/kg n-Butylbenzene - 22.2 ug/kg Naphthalene - 12.3 ug/kg
	015S001102	SOIL	14 - 16	None
	015G001103	WATER (FLUVIAL)	41 - 42	Benzene - 780 ug/L Ethylbenzene - 490 ug/L m,p-Xylenes - 13.6 ug/L o-Xylene - 13.7 ug/L n-Propylbenzene - 22.1 ug/L

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 15

SAMPLE LOCATION	SAMPLE ID	MEDIA	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
12	015S001201	SOIL	5 - 7	Benzene - 48.8 ug/kg Ethylbenzene - 644 ug/kg m,p-Xylenes - 170 ug/kg Styrene - 46.3 ug/kg o-Xylenes - 81.1 ug/kg 40,42 - 100 ug/kg n-Propylbenzene - 328 ug/kg 1,3,5-Trimethylbenzene - 343 ug/kg 1,2,4-Trimethylbenzene - 115 ug/kg s-butylbenzene - 115 ug/kg p-Isopropyltoluene - 66.2 ug/kg n-Butylbenzene - 41.1 ug/kg
	015S001202	SOIL	15 - 17	Benzene - 1,100 ug/kg Toluene - 1,300 ug/kg Ethylbenzene - 1,500 ug/kg m,p-Xylenes - 7,500 ug/kg o-Xylene - 2,100 ug/kg 40,42 - 3,300 ug/kg n-Propylbenzene - 928 ug/kg 1,3,5-Trimethylbenzene - 1,700 ug/kg t-Butylbenzene - 2,800 ug/kg 1,2,4-Trimethylbenzene - 548 ug/kg s-Butylbenzene - 9,600 ug/kg
	015G001203	WATER (FLUVIAL)	41 - 42	Benzene - 370 ug/L Ethylbenzene - 140 ug/L
13	015S013007	SOIL	5 - 7	m,p-Xylenes - 7.8 ug/kg
	015S013017	SOIL	15 - 17	Benzene - 320 ug/kg Ethylbenzene - 45.6 ug/kg m,p-Xylenes - 32.8 ug/kg o-Xylene - 60.1 ug/kg 40,42 - 21.6 ug/kg n-Propylbenzene - 77.3 ug/kg 1,3,5-Trimethylbenzene - 63.3 ug/kg 1,2,4-Trimethylbenzene - 20.1 ug/kg
	015G013038	WATER (FLUVIAL)	37 - 38	None detected

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 15

SAMPLE LOCATION	SAMPLE ID	MEDIA	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
14	015S001401	SOIL	5 - 7	Benzene - 1,700 ug/kg Toluene - 1,200 ug/kg Ethylbenzene - 2,700 ug/kg m,p-Xylenes - 9,900 ug/kg Styrene - 1,200 ug/kg o-Xylene - 4,000 ug/kg 40,42 - 3,700 ug/kg n-Propylbenzene - 1,100 ug/kg 1,3,5-Trimethylbenzene - 1,800 ug/kg t-Butylbenzene - 2,900 ug/kg 1,2,4-Trimethylbenzene - 677 ug/kg s-Butylbenzene - 9,500 ug/kg
	015S001402	SOIL	15 - 17	Benzene - 1,300 ug/kg Toluene - 2,000 ug/kg m,p-Xylenes - 2,200 ug/kg 40,42 - 631 ug/kg n-Propylbenzene - 708 ug/kg 1,3,5-Trimethylbenzene - 1,100 ug/kg 1,2,4-Trimethylbenzene - 1,500 ug/kg s-butylbenzene - 505 ug/kg
	015G001403	WATER (FLUVIAL)	41 - 42	Benzene - 100 ug/L Ethylbenzene - 330 ug/L m,p-Xylenes - 45 ug/L n-Propylbenzene - 20.2 ug/L

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 15

SAMPLE LOCATION	SAMPLE ID	MEDIA	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
15	015S001501	SOIL	7 - 9	Benzene - 1,100 ug/kg
				Toluene - 3,500 ug/kg
				m,p-Xylenes - 1,300 ug/kg
				o-Xylene - 1,700 ug/kg
				40,42 - 1,300 ug/kg
				n-Propylbenzene - 915 ug/kg
				1,3,5-Trimethylbenzene - 1,800 ug/kg
				1,2,4-Trimethylbenzene - 1,700 ug/kg
				s-Butylbenzene - 727 ug/kg
	015S001502	SOIL	15 - 17	Ethylbenzene - 174 ug/kg
				m,p-Xylenes - 144 ug/kg
				n-Propylbenzene - 16.2 ug/kg
				1,3,5-Trimethylbenzene - 35.4 ug/kg
				1,2,4-Trimethylbenzene - 63.5 ug/kg
				Naphthalene - 103 ug/kg
	015G001503	WATER (FLUVIAL)	42 - 43	Benzene - 60 ug/L
				Ethylbenzene - 260 ug/L
				m,p-Xylenes - 19.5 ug/L
				n-Propylbenzene - 18.2 ug/L
				Bromomethane - 80 ug/L
				1,1-Dichloroethane - 23 ug/L
				Methylene chloride - 62 ug/L

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 15

SAMPLE LOCATION	SAMPLE ID	MEDIA	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
16	015S016007	SOIL	5 - 7	Toluene - 411 ug/kg
				Ethylbenzene - 202 ug/kg
				m,p-Xylenes - 944 ug/kg
				Styrene - 207 ug/kg
				o-Xylene - 193 ug/kg
				40,42 - 220 ug/kg
				n-Propylbenzene - 810 ug/kg
				1,3,5-Trimethylbenzene - 154 ug/kg
				t-Butylbenzene - 145 ug/kg
				1,2,4-Trimethylbenzene - 264 ug/kg
				s-Butylbenzene - 344 ug/kg
				p-Isopropyltoluene - 134 ug/kg
				n-Butylbenzene - 405 ug/kg
				Naphthalene - 63.5 ug/kg
	015S016017	SOIL	15 - 17	Benzene - 5.2 ug/kg
				m,p-Xylenes - 26.6 ug/kg
				Styrene - 8.3 ug/kg
				o-Xylene - 10.8 ug/kg
				40,42 - 23.9 ug/kg
				n-Propylbenzene - 37.4 ug/kg
				t-Butylbenzene - 7.2 ug/kg
				1,2,4-Trimethylbenzene - 10.3 ug/kg
				s-butylbenzene - 9.6 ug/kg
				n-butylbenzene - 6.8 ug/kg
	015G016049	WATER (FLUVIAL)	48 - 49	Benzene - 46.8 ug/L
				Ethylbenzene - 124 ug/L
				m,p-Xylenes - 12.2 ug/L
				40,42 - 6.9 ug/L
				n-Propylbenzene - 20.3 ug/L
				s-Butylbenzene - 6.6 ug/L

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 15

SAMPLE LOCATION	SAMPLE ID	MEDIA	DEPTH (FEET BGS)	COMPOUNDS DETECTED/CONCENTRATION
17	015S001701	SOIL	5 - 7	None detected
	015S001702	SOIL	15 - 17	None detected
	015G001703	WATER (FLUVIAL)	35 - 36	None detected
18	015S018007	SOIL	5 - 7	None detected
	015S018017	SOIL	15 - 17	None detected
	015G018045	WATER (FLUVIAL)	44 - 45	Benzene - 13.9 ug/L Ethylbenzene - 81.7 ug/L m,p-Xylenes - 14.6 ug/L n-Propylbenzene - 11.0 ug/L s-Butylbenzene - 5.0 ug/L
19	015S019007	SOIL	5 - 7	None detected
	015S019017	SOIL	15 - 17	Toluene - 6.1 ug/kg Ethylbenzene - 10.2 ug/kg m,p-Xylenes - 26.9 ug/kg o-Xylene - 9.0 ug/kg 40,42 - 78.5 ug/kg n-Propylbenzene - 7.4 ug/kg 1,3,5-Trimethylbenzene - 33.4 ug/kg t-Butylbenzene - 7.6 ug/kg s-Butylbenzene - 13.0 ug/kg
	015G019046	WATER (FLUVIAL)	45 - 46	Ethylbenzene - 62.6 ug/L m,p-Xylenes - 8.5 ug/L n-Propylbenzene - 14.9 ug/L 1,2,4-Trimethylbenzene - 7.3 ug/kg
20	015S020007	SOIL	5 - 7	m,p-Xylenes - 5.8 ug/kg
	015S020017	SOIL	15 - 17	None detected
	015G020045	WATER	44 - 45	Benzene - 9.7 ug/L Toluene - 20.4 ug/L Ethylbenzene - 155 ug/L m,p-Xylenes - 41.9 ug/L 40,42 - 6.2 ug/L n-Propylbenzene - 28.5 ug/L s-Butylbenzene - 5.2 ug/L

Note: Methylene chloride is a suspected laboratory artifact. Where indicated, the concentration is less than 5 times the Contract Reporting Quantitation Limit.

PIEZOCONE SOUNDING LOG

SOUNDING #: 15-P01 CLIENT: ENSAFE DATE: 05-16-1995
JOB NAME OR #: NASM094 LOCATION: SWMU15 ST1 DEPTH OF GROUNDWATER: 18

Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	OC
2.00	-0.30	112.43	1.05	0.94	Silty Fine Sand	28	0.05	>45	100+	247	---	---	675	--
3.00	0.03	25.17	1.30	5.16	Clay	25	0.09	---	---	334	1.7	1.2	50	>1
4.00	0.02	26.20	0.14	0.53	Silty to Clayey F.S.	9	0.14	44	57	58	---	---	157	--
5.00	-0.00	31.86	0.32	1.01	Silty to Clayey F.S.	11	0.19	43	58	70	---	---	191	--
6.00	0.09	25.05	0.27	1.07	Silty to Clayey F.S.	8	0.23	41	48	55	---	---	150	--
7.00	0.01	24.57	0.40	1.63	Clayey Fine Sand	10	0.28	---	---	324	1.6	3.7	49	>1
8.00	0.05	23.35	0.45	1.93	Clayey Fine Sand	9	0.33	---	---	307	1.5	3.1	47	>1
9.00	0.12	16.52	0.27	1.65	Clayey Fine Sand	7	0.38	---	---	215	1.1	3.6	83	>1
10.00	0.14	18.43	0.12	0.63	Clayey Fine Sand	7	0.43	---	---	240	1.2	9.5	92	>1
11.00	0.16	17.90	0.19	1.08	Clayey Fine Sand	7	0.48	---	---	232	1.2	5.5	90	>1
12.00	0.20	18.20	0.25	1.40	Clayey Fine Sand	7	0.53	---	---	236	1.2	4.3	91	>1
13.00	0.22	14.17	0.17	1.22	Clayey Fine Sand	6	0.58	---	---	181	0.9	4.9	71	
15.00	1.13	30.77	0.80	2.60	Clayey Fine Sand	12	0.67	---	---	401	2.0	2.3	62	>1
16.00	1.31	14.66	0.31	2.14	Sandy Clay	7	0.72	---	---	186	0.9	2.8	73	
17.00	1.29	11.00	0.14	1.23	Sandy Clay	5	0.76	---	---	137	0.7	4.9	55	
18.00	1.30	6.53	0.10	1.60	Sandy Clay	3	0.81	---	---	76	0.4	3.8	46	
19.00	1.36	12.58	0.12	0.93	Clayey Fine Sand	5	0.84	---	---	157	0.8	6.5	63	
20.00	1.37	8.58	0.04	0.45	Sensitive Fine Grain	4	0.86	---	---	154	0.8	13.4	43	
21.00	1.39	10.18	0.02	0.18	Clayey Fine Sand	4	0.89	---	---	124	0.6	33.4	51	
22.00	1.40	10.60	0.05	0.48	Clayey Fine Sand	4	0.92	---	---	129	0.6	12.5	53	
23.00	1.39	11.28	0.04	0.32	Clayey Fine Sand	5	0.95	---	---	138	0.7	18.7	56	
24.00	1.46	13.78	0.10	0.73	Clayey Fine Sand	6	0.98	---	---	171	0.9	8.2	69	
25.00	1.58	20.51	0.33	1.60	Clayey Fine Sand	8	1.01	---	---	260	1.3	3.7	41	
26.00	1.65	14.89	0.20	1.34	Clayey Fine Sand	6	1.04	---	---	185	0.9	4.5	74	
27.00	1.52	39.95	0.84	2.10	Clayey Fine Sand	16	1.07	---	---	518	2.6	2.9	80	>
28.00	1.79	31.46	0.46	1.45	Clayey Fine Sand	13	1.10	---	---	405	2.0	4.1	63	>
29.00	1.71	48.85	0.66	1.34	Silty to Clayey F.S.	16	1.14	36	45	107	---	---	293	-
30.00	1.73	46.92	1.76	3.75	Sandy Clay	23	1.16	---	---	610	3.1	1.6	94	>
31.00	1.88	45.22	0.96	2.13	Clayey Fine Sand	18	1.19	---	---	587	2.9	2.8	90	>
32.00	1.98	29.48	0.46	1.57	Clayey Fine Sand	12	1.22	---	---	377	1.9	3.8	59	
34.00	2.14	20.86	0.26	1.26	Clayey Fine Sand	8	1.29	---	---	261	1.3	4.8	42	
35.00	2.19	30.28	0.30	0.98	Silty to Clayey F.S.	10	1.32	32	29	67	---	---	182	-
36.00	2.24	27.01	0.16	0.59	Silty to Clayey F.S.	9	1.35	31	25	59	---	---	162	-
37.00	2.37	27.52	0.23	0.82	Silty to Clayey F.S.	9	1.38	31	25	61	---	---	165	-
38.00	1.80	210.74	0.78	0.37	Fine Sand	42	1.41	43	83	464	---	---	1264	-
39.00	1.54	122.22	1.64	1.34	Silty Fine Sand	31	1.44	40	68	269	---	---	733	-
40.00	2.25	40.53	0.85	2.10	Clayey Fine Sand	16	1.47	---	---	521	2.6	2.9	81	
42.00	0.94	243.35	1.78	0.73	Fine Sand	49	1.54	43	86	535	---	---	1460	-
43.00	0.94	254.02	1.12	0.44	Cemented Sand to HardPan	42	1.58	43	87	559	---	---	1524	-
44.00	0.91	199.67	0.45	0.23	Fine Sand	40	1.61	42	80	439	---	---	1198	-

SOUNDING #: 15-P01 CLIENT: ENSAFE DATE: 05-16-1995
JOB NAME OR #: NASM094 LOCATION: SWMU15 ST1 DEPTH OF GROUNDWATER: 18

Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	O
45.00	0.88	207.99	0.75	0.36	Fine Sand	42	1.64	42	81	458	---	---	1248	-
46.00	0.69	307.65	1.74	0.57	Cemented Sand to HardPan	51	1.68	44	92	677	---	---	1846	-

PP - Pore Pressure (Kg/cm2)
PT - Point Bearing (Kg/cm2)
SL - Sleeve Friction (Kg/cm2)
FR - Friction Ratio (%)
GWD - Ground Water Depth
N - Equivalent SPT Blow Count (bpf)
VES - Vertical Effective Stress (Kg/cm2)
FA - Friction Angle (Degress)
RD - Relative Density (+ or - 5%)
YM - Youngs Modulus
USS - Undrained Sheer Strength
SEN - Sensitivity
CM - Constrained Modulus
OCR - Estimated Over Consolidation Ratio

The above data was computed utilizing SST's in-house correlations and guidelines published in 'Guidelines for Use and Interpretation of the Electronic Cone Penetration Test', Robertson and Campanella, September, 1989.

PIEZOCONE SOUNDING LOG

SOUNDING #: 15-P18 CLIENT: ENSAFE DATE: 05-16-1995
JOB NAME OR #: NASM094 LOCATION: SWMU15 ST1 DEPTH OF GROUNDWATER: 18

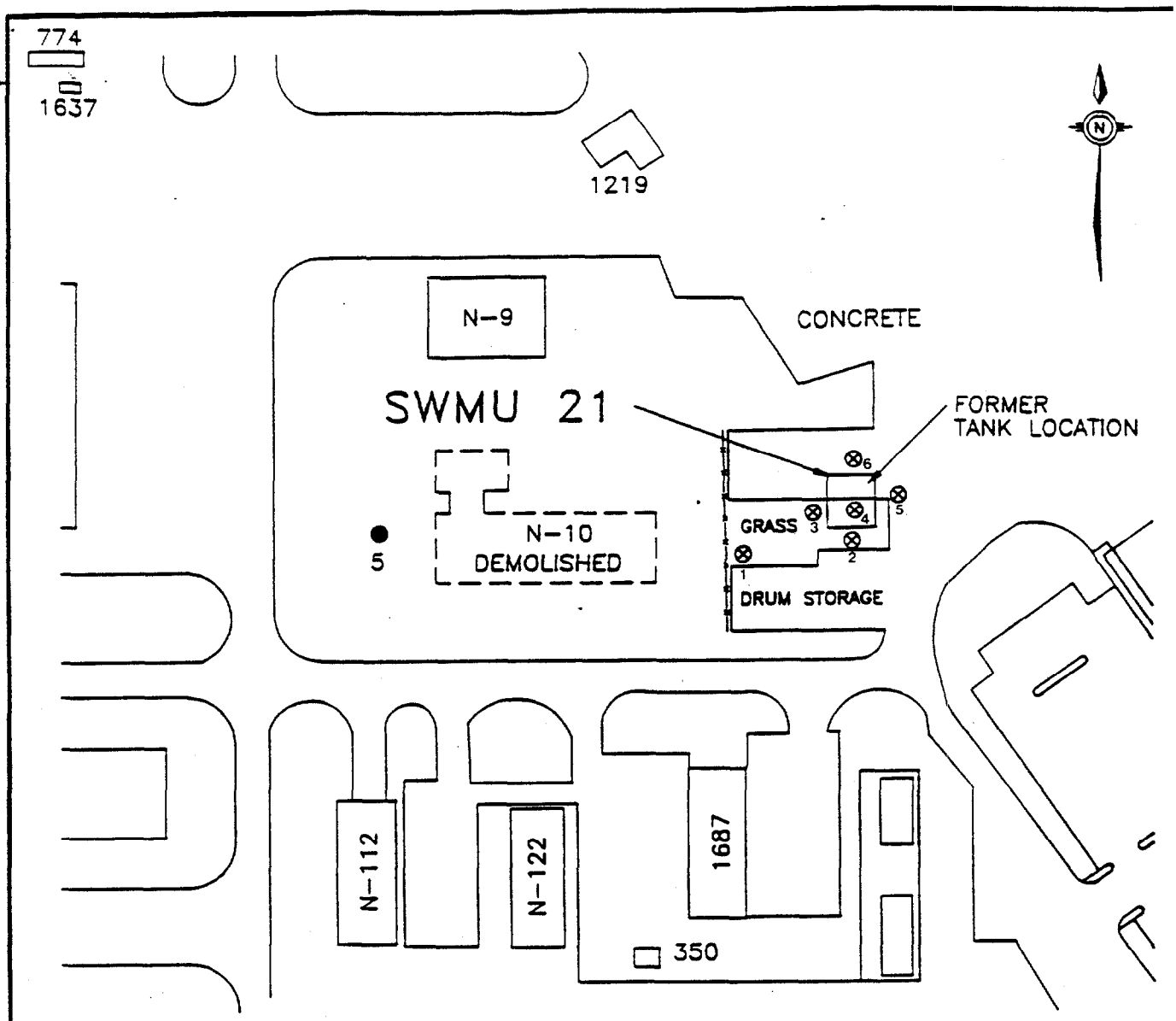
Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	OCI
2.00	0.85	29.58	0.05	0.16	Silty to Clayey F.S.	10	0.05	>45	75	65	---	---	177	---
3.00	1.09	20.33	0.15	0.76	Clayey Fine Sand	8	0.10	---	---	270	1.3	7.9	41	>1
4.00	1.02	18.79	0.22	1.16	Clayey Fine Sand	8	0.15	---	---	249	1.2	5.2	94	>1
5.00	0.75	9.72	0.32	3.32	Silty Clay	6	0.19	---	---	127	0.6	1.8	49	>1
6.00	0.93	6.78	0.06	0.91	Sensitive Fine Grain	3	0.22	---	---	131	0.7	6.6	47	>1
7.00	0.19	104.21	0.53	0.50	Fine Sand	21	0.28	>45	87	229	---	---	625	---
8.00	1.06	6.20	0.09	1.44	Sandy Clay	3	0.32	---	---	78	0.4	4.2	43	
9.00	1.11	1.40	0.15	10.63	Organic Material	1	0.35	---	---	---	---	---	---	---
10.00	1.02	2.94	0.10	3.29	Clay	3	0.39	---	---	34	0.2	1.8	21	
11.00	1.07	0.19	0.09	47.22	Undefined	0	0.39	---	---	---	---	---	---	---
12.00	1.07	1.70	0.21	12.31	Organic Material	2	0.42	---	---	---	---	---	---	---
13.00	0.79	4.38	0.29	6.68	Clay	4	0.46	---	---	52	0.3	0.9	31	
14.00	0.86	2.01	0.20	9.88	Organic Material	2	0.50	---	---	---	---	---	---	---
15.00	0.85	1.56	0.19	12.19	Organic Material	2	0.53	---	---	---	---	---	---	---
16.00	0.81	13.87	0.12	0.83	Clayey Fine Sand	6	0.58	---	---	177	0.9	7.2	69	
18.00	0.86	13.89	0.47	3.39	Silty Clay	9	0.66	---	---	176	0.9	1.8	69	
19.00	0.79	23.12	0.46	2.00	Clayey Fine Sand	9	0.69	---	---	299	1.5	3.0	46	>1
20.00	0.84	28.99	0.40	1.39	Clayey Fine Sand	12	0.73	---	---	377	1.9	4.3	58	>1
21.00	0.84	29.81	0.28	0.95	Silty to Clayey F.S.	10	0.76	35	36	66	---	---	179	---
22.00	0.63	60.76	0.90	1.49	Silty to Clayey F.S.	20	0.79	39	56	134	---	---	365	---
23.00	0.84	30.49	0.60	1.97	Clayey Fine Sand	12	0.82	---	---	396	2.0	3.0	61	>1
24.00	0.94	22.33	0.18	0.81	Silty to Clayey F.S.	7	0.85	33	26	49	---	---	134	---
25.00	0.98	19.93	0.40	1.99	Clayey Fine Sand	8	0.88	---	---	254	1.3	3.0	100	1
26.00	1.02	15.29	0.23	1.48	Clayey Fine Sand	6	0.91	---	---	192	1.0	4.0	76	
27.00	1.04	8.90	0.05	0.51	Sensitive Fine Grain	4	0.93	---	---	159	0.8	11.7	44	
28.00	1.07	12.17	0.10	0.83	Clayey Fine Sand	5	0.96	---	---	149	0.7	7.2	61	
29.00	1.07	11.26	0.01	0.10	Clayey Fine Sand	5	0.99	---	---	137	0.7	60.6	56	
30.00	1.10	14.85	0.11	0.71	Clayey Fine Sand	6	1.02	---	---	184	0.9	8.4	74	
31.00	1.08	15.62	0.22	1.38	Clayey Fine Sand	6	1.06	---	---	194	1.0	4.3	78	
32.00	1.00	31.16	0.61	1.96	Clayey Fine Sand	12	1.09	---	---	401	2.0	3.1	62	>1
33.00	0.63	92.72	0.14	0.15	Fine Sand	19	1.12	39	63	204	---	---	556	---
34.00	0.57	123.69	0.12	0.10	Fine Sand	25	1.15	41	71	272	---	---	742	---
35.00	0.59	135.83	0.30	0.22	Fine Sand	27	1.19	41	73	299	---	---	815	---
36.00	0.52	153.68	0.54	0.35	Fine Sand	31	1.22	42	76	338	---	---	922	---
37.00	0.51	194.56	0.77	0.39	Fine Sand	39	1.25	43	83	428	---	---	1167	---
38.00	0.51	196.73	0.75	0.38	Fine Sand	39	1.29	43	83	433	---	---	1180	---
39.00	0.53	225.44	1.16	0.51	Fine Sand	45	1.32	43	86	496	---	---	1353	---
40.00	0.70	208.64	1.81	0.87	Fine Sand	42	1.35	43	84	459	---	---	1252	---
41.00	0.65	249.47	1.61	0.65	Fine Sand	50	1.38	44	89	549	---	---	1497	---
42.00	0.67	246.77	2.30	0.93	Fine Sand	49	1.42	43	88	543	---	---	1481	---
43.00	0.77	237.14	2.13	0.90	Fine Sand	47	1.45	43	86	522	---	---	1423	---
44.00	0.77	153.31	1.54	1.00	Fine Sand	31	1.48	41	74	337	---	---	920	---

SOUNDING #: 15-P18 CLIENT: ENSAFE DATE: 05-16-1995
JOB NAME OR #: NASM094 LOCATION: SWMU15 ST1 DEPTH OF GROUNDWATER: 18

Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	OC
45.00	0.75	271.85	1.48	0.54	Cemented Sand to HardPan	45	1.52	43	90	598	---	---	1631	--
46.00	0.90	264.74	1.49	0.56	Fine Sand	53	1.55	43	89	582	---	---	1588	--
47.00	0.80	373.91	1.77	0.47	Cemented Sand to HardPan	62	1.59	45	98	823	---	---	2243	--
48.00	0.90	446.37	3.20	0.72	Cemented Sand to HardPan	74	1.63	>45	100+	982	---	---	2678	--

PP - Pore Pressure (Kg/cm2)
PT - Point Bearing (Kg/cm2)
SL - Sleeve Friction (Kg/cm2)
FR - Friction Ratio (%)
GWD - Ground Water Depth
N - Equivalent SPT Blow Count (bpf)
VES - Vertical Effective Stress (Kg/cm2)
FA - Friction Angle (Degress)
RD - Relative Density (+ or - 5%)
YM - Youngs Modulus
USS - Undrained Sheer Strength
SEN - Sensitivity
CM - Constrained Modulus
OCR - Estimated Over Consolidation Ratio

The above data was computed utilizing SST's in-house correlations and guidelines published in 'Guidelines for Use and Interpretation of the Electronic Cone Penetration Test', Robertson and Campanella, September, 1989.



LEGEND

⊗ DPT SAMPLING LOCATION

● STRATIGRAPHIC TEST HOLE

100 0 100

SCALE FEET

RFI WORK PLAN
NAS MEMPHIS
MILLINGTON, TN

FIGURE 2
PROPOSED DPT SAMPLE LOCATION
BUILDING N-10
UNDERGROUND WASTE TANK
SWMU 21

DWG DATE: 01/18/95 | DWG NAME: 94N10

NAS MEMPHIS RFI
DPT SURVEY RESULTS - PRELIMINARY ANALYTICAL DATA
SWMU 21

SAMPLE LOCATION	SAMPLE ID	MEDIA	DEPTH (FEET BGS)	COMPOUND DETECTED/CONCENTRATION
1	021S001010	SOIL	9 - 10	Methylene chloride - 6.4 ug/kg (*See Notes)
	021G001017	WATER (LOESS)	16 - 17	None detected
	NOT SAMPLED	WATER (FLUVIAL)	NOT SAMPLED	NOT SAMPLED
2	021S000201	SOIL	9 - 11	None detected
	021G000202	WATER (LOESS)	16 - 17	None detected
	021G000203	WATER (FLUVIAL)	34 - 35	Carbon tetrachloride - 163 ug/L
3	021S003010	SOIL	9 - 10	None detected
	021G003017	WATER (LOESS)	16 - 17	None detected
	021G003048	WATER (FLUVIAL)	47 - 48	None detected
4	021S004010	SOIL	9 - 10	None detected
	021G004017	WATER (LOESS)	16 - 17	None detected
	021G004040	WATER (FLUVIAL)	39 - 40	Carbon tetrachloride - 81 ug/L
5	021S005010	SOIL	9 - 10	None detected
	021G005018	WATER (LOESS)	17 - 18	None detected
	021G005040	WATER (FLUVIAL)	39 - 40	Dichlorofluoromethane - 5.4 ug/L
6	021S006010	SOIL	9 - 10	None detected
	NOT SAMPLED	WATER (LOESS)	NOT SAMPLED	NOT SAMPLED
	021G006041	WATER (FLUVIAL)	40 - 41	Dichlorfluoromethane - 6.5 ug/L Carbon tetrachloride - 15.2 ug/L

Note: Methylene chloride is a suspected laboratory artifact. Where reported, the concentration is less than 5 times the Contract Required Quantitation Limit.

SOUNDING #: 21-P02 CLIENT: ENSAFE DATE: 05-23-1995
JOB NAME OR #: NASM094 LOCATION: SWMU21 ST2 DEPTH OF GROUNDWATER: 18

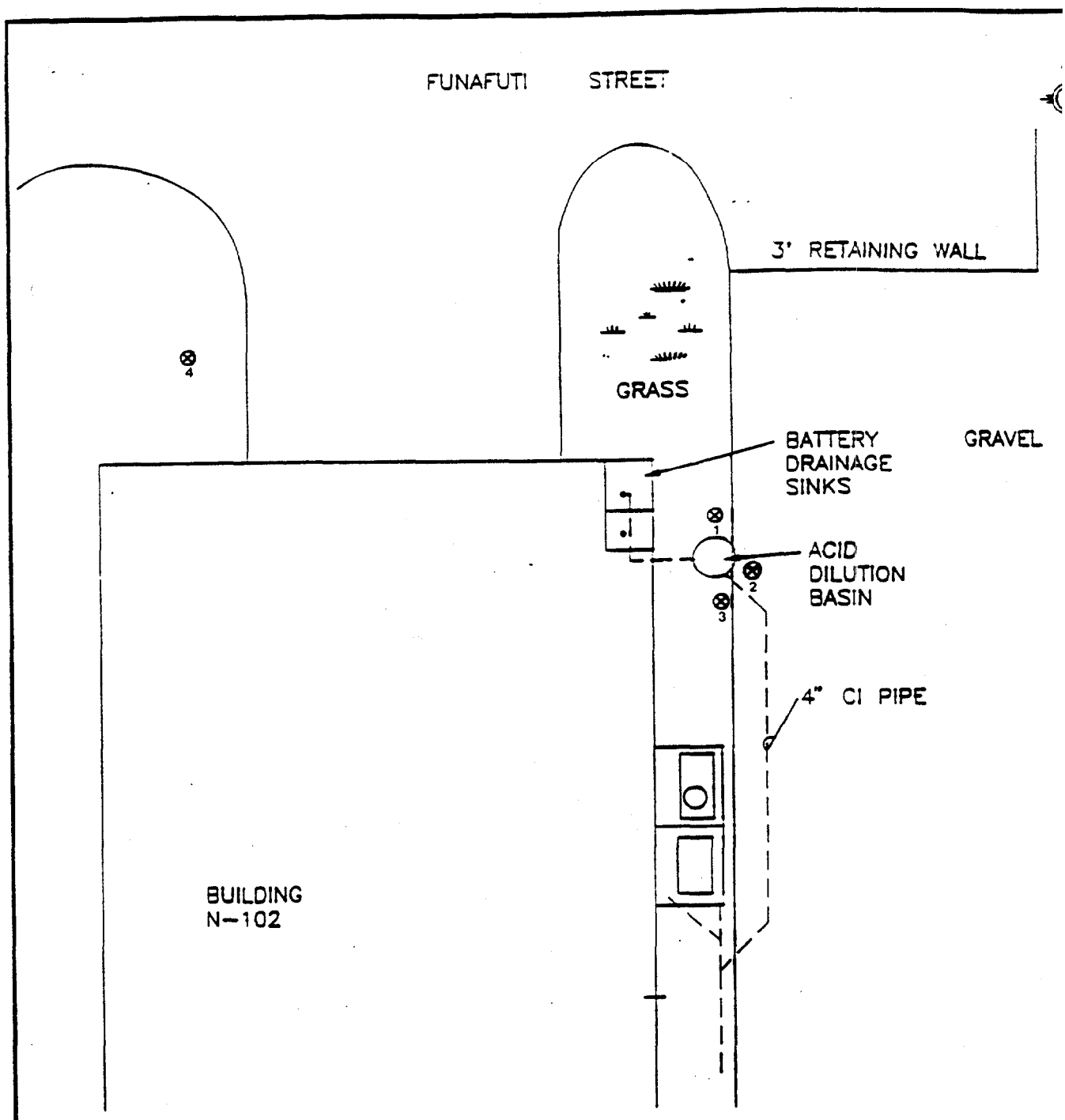
Depth	PP	PT	SL	FR	Soil Type	N	VES	FA	RD	YM	USS	SEN	CM	OC
2.00	-0.27	151.52	1.06	0.70	Fine Sand	30	0.05	>45	100+	333	---	---	909	--
3.00	-0.11	28.86	1.25	4.33	Silty Clay	19	0.10	---	---	384	1.9	1.4	58	>1
4.00	-0.30	34.82	0.32	0.91	Silty to Clayey F.S.	12	0.15	45	64	77	---	---	209	--
5.00	-0.23	30.35	0.56	1.83	Clayey Fine Sand	12	0.20	---	---	402	2.0	3.3	61	>1
6.00	-0.18	28.06	0.39	1.39	Clayey Fine Sand	11	0.24	---	---	371	1.9	4.3	56	>1
7.00	-0.29	31.19	0.50	1.59	Clayey Fine Sand	12	0.29	---	---	412	2.1	3.8	62	>1
8.00	-0.24	29.25	0.64	2.20	Clayey Fine Sand	12	0.34	---	---	385	1.9	2.7	59	>1
9.00	-0.15	39.20	0.56	1.42	Silty to Clayey F.S.	13	0.39	41	54	86	---	---	235	--
10.00	-0.54	57.48	0.87	1.51	Silty to Clayey F.S.	19	0.44	42	63	126	---	---	345	--
11.00	-0.39	45.03	0.86	1.90	Clayey Fine Sand	18	0.49	---	---	594	3.0	3.2	90	>
12.00	-0.30	33.75	0.40	1.19	Silty to Clayey F.S.	11	0.54	38	45	74	---	---	203	--
13.00	-0.33	35.24	0.58	1.64	Clayey Fine Sand	14	0.59	---	---	462	2.3	3.7	70	>
14.00	-0.31	29.30	0.37	1.25	Silty to Clayey F.S.	10	0.63	36	38	64	---	---	176	--
15.00	-0.29	29.36	0.34	1.17	Silty to Clayey F.S.	10	0.68	36	37	65	---	---	176	--
16.00	-0.44	72.88	0.26	0.36	Silty Fine Sand	18	0.73	40	62	160	---	---	437	--
17.00	-0.54	195.54	1.42	0.73	Fine Sand	39	0.79	>45	90	430	---	---	1173	--
18.00	-0.36	47.33	1.49	3.14	Clayey Fine Sand	19	0.84	---	---	620	3.1	1.9	95	>
19.00	-0.01	22.82	0.23	1.02	Clayey Fine Sand	9	0.87	---	---	293	1.5	5.9	46	
21.00	-0.10	40.14	0.73	1.81	Clayey Fine Sand	16	0.93	---	---	523	2.6	3.3	80	>
22.00	-0.28	58.97	1.23	2.09	Silty to Clayey F.S.	20	0.96	38	52	130	---	---	354	--
23.00	-0.29	57.94	2.02	3.49	Sandy Clay	29	0.99	---	---	759	3.8	1.7	116	>
24.00	-0.47	99.84	1.31	1.31	Silty Fine Sand	25	1.02	40	67	220	---	---	599	--
25.00	-0.21	64.46	0.87	1.34	Silty to Clayey F.S.	21	1.05	38	54	142	---	---	387	--
26.00	-0.17	62.20	2.17	3.48	Sandy Clay	31	1.07	---	---	815	4.1	1.7	124	>
27.00	-0.47	224.31	1.10	0.49	Fine Sand	45	1.11	44	89	493	---	---	1346	--
28.00	-0.31	156.81	3.68	2.35	Silty to Clayey F.S.	52	1.14	42	78	345	---	---	941	--
29.00	-0.19	94.23	1.92	2.04	Silty to Clayey F.S.	31	1.17	39	63	207	---	---	565	--
30.00	-0.05	83.27	1.75	2.10	Silty to Clayey F.S.	28	1.20	38	59	183	---	---	500	--
31.00	-0.23	99.31	0.69	0.70	Silty Fine Sand	25	1.23	39	64	218	---	---	596	--
32.00	-0.26	74.42	2.92	3.93	Sandy Clay	37	1.26	---	---	976	4.9	1.5	149	>
33.00	-0.33	87.33	0.82	0.94	Silty Fine Sand	22	1.29	38	59	192	---	---	524	--
34.00	-0.23	51.44	0.89	1.72	Silty to Clayey F.S.	17	1.32	35	44	113	---	---	309	--
35.00	-0.46	166.71	1.72	1.03	Fine Sand	33	1.35	42	77	367	---	---	1000	--
36.00	-0.44	138.88	2.13	1.53	Silty Fine Sand	35	1.38	41	72	306	---	---	833	--
37.00	-0.46	171.70	1.57	0.92	Fine Sand	34	1.42	42	78	378	---	---	1030	--
38.00	-0.47	167.34	2.58	1.54	Silty Fine Sand	42	1.45	41	76	368	---	---	1004	--
39.00	-0.43	228.64	2.60	1.14	Fine Sand	46	1.48	43	85	503	---	---	1372	--
40.00	-0.47	272.25	3.40	1.25	Fine Sand	54	1.51	43	90	599	---	---	1634	--

PP - Pore Pressure (Kg/cm2)
PT - Point Bearing (Kg/cm2)
SL - Sleeve Friction (Kg/cm2)
FR - Friction Ratio (%)
GWD - Ground Water Depth

N - Equivalent SPT Blow Count (bpf)
VES - Vertical Effective Stress (Kg/cm2)
FA - Friction Angle (Degress)
RD - Relative Density (+ or - 5%)
YM - Youngs Modulus

USS - Undrained Sheer Strength
SEN - Sensitivity
CM - Constrained Modulus
OCR - Estimated Over Consolidation Ratio

The above data was computed utilizing SST's in-house correlations and guidelines published in 'Guidelines for Use and Interpretation of the Electronic Cone Penetration Test', Robertson and Campanella, September, 1989.



LEGEND

⊗ DPT SAMPLING LOCATION

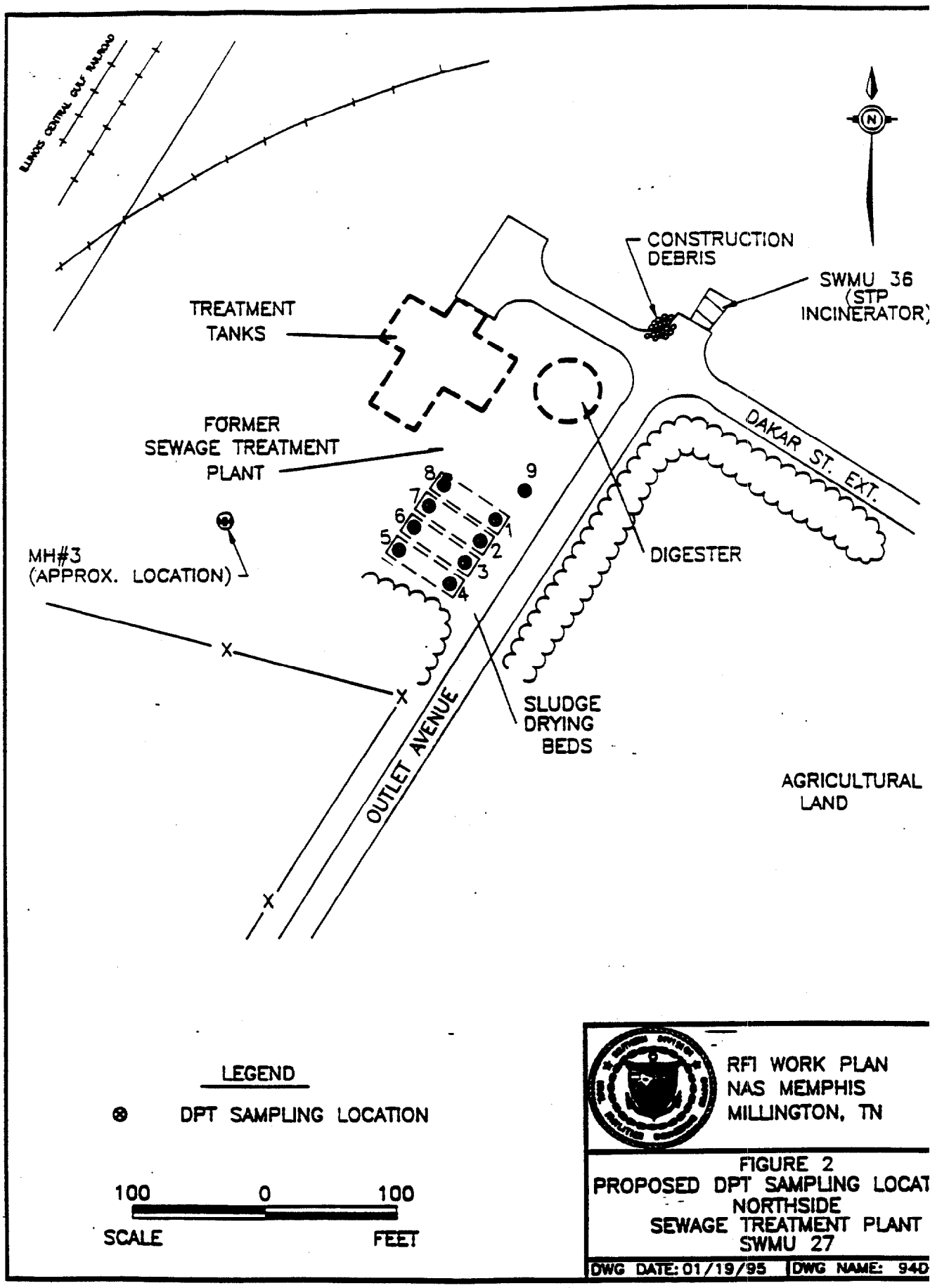
10 0 10

SCALE FEET

RFI WORK PLAN
NAS MEMPHIS
MILLINGTON, TN

FIGURE 3
DPT SAMPLING LOCATION
BUILDING N-102
BATTERY ACID NEUTRALIZATION
SWMU 26

DWG DATE: 01/18/95 | DWG NAME: 94N1



RFI WORK PLAN
NAS MEMPHIS
MILLINGTON, TN

FIGURE 2
PROPOSED DPT SAMPLING LOCAT
NORTHSIDE
SEWAGE TREATMENT PLANT
SWMU 27

DWG DATE: 01/19/95 | DWG NAME: 94D