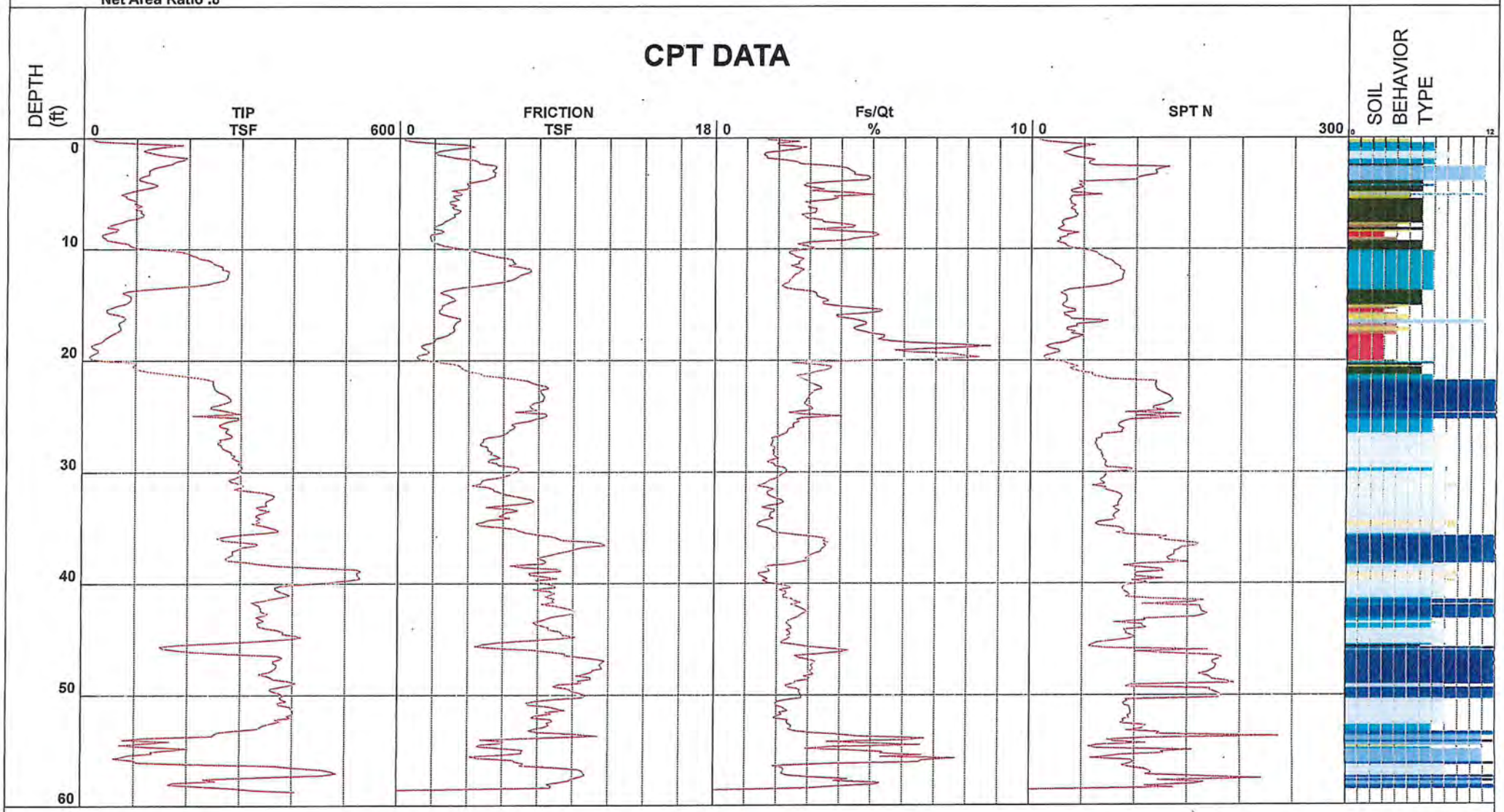
Petra Inc

Project	Seville Solar Site	Operator	RA-JC	Filename	SDF(237).cpt
Job Number	332-12	Cone Number	DSG1104	GPS	
Hole Number	CPT-02	Date and Time	11/13/2012 10:08:38 AM	Maximum Depth	58.73 ft
EST GW Depth During Test					

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Seville Solar Site

Project ID: Petra Geotech
Data File: SDF(237).cpt
CPT Date: 11/13/2012 10:08:38 AM
GW During Test: 33 ft

Sounding ID: CPT-02
Project No: 332-12
Cone/Rig: DSG1104

Depth ft	qc PS tsf	qcln PS -	qlncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato -	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60	SPT R-N1 60	Rel Den	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic	Nk - -	Vol Strn	Dry Stlmt 0.01	Liq Stlmt 0.00	Cycl SStn -
0.33	28.5	45.6	114.7	0.8	0.1	2.7	4	clayy SILT to silty CLAY	115	2.0	14	23	-	-	2.0	9.9	28	15	N/A	0.01	N/A	N/A
0.49	105.1	168.6	209.9	2.0	0.1	1.9	6	clean SAND to silty SAND	125	5.0	21	34	84	48	-	-	12	16	N/A	0.01	N/A	N/A
0.66	187.1	300.1	336.9	3.8	0.2	2.0	6	clean SAND to silty SAND	125	5.0	37	60	95	48	-	-	9	16	N/A	0.01	N/A	N/A
0.82	148.6	238.3	311.3	4.3	0.1	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.8	9.9	13	16	N/A	0.01	N/A	N/A
0.98	122.6	196.6	257.9	3.1	0.1	2.6	5	silty SAND to sandy SILT	120	4.0	31	49	89	48	-	-	13	16	N/A	0.01	N/A	N/A
1.15	111.6	179.1	224.0	2.3	0.1	2.1	6	clean SAND to silty SAND	125	5.0	22	36	86	48	-	-	12	16	N/A	0.01	N/A	N/A
1.31	125.7	201.7	229.4	2.0	0.1	1.6	6	clean SAND to silty SAND	125	5.0	25	40	90	48	-	-	9	16	N/A	0.01	N/A	N/A
1.48	142.2	228.0	251.0	2.2	0.1	1.5	6	clean SAND to silty SAND	125	5.0	28	46	94	48	-	-	8	16	N/A	0.01	N/A	N/A
1.64	162.6	260.7	284.9	2.7	0.1	1.6	6	clean SAND to silty SAND	125	5.0	33	52	95	48	-	-	8	16	N/A	0.01	N/A	N/A
1.80	195.0	312.8	331.2	3.2	0.2	1.6	6	clean SAND to silty SAND	125	5.0	39	63	95	48	-	-	7	16	N/A	0.01	N/A	N/A
1.97	188.6	302.5	346.7	4.2	0.2	2.2	6	clean SAND to silty SAND	125	5.0	39	60	95	48	-	-	9	16	N/A	0.01	N/A	N/A
2.13	172.5	276.7	338.1	4.5	0.2	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.4	9.9	11	16	N/A	0.01	N/A	N/A
2.30	168.0	269.4	334.4	4.5	0.2	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.1	9.9	12	16	N/A	0.01	N/A	N/A
2.46	153.2	245.7	343.8	5.3	0.2	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.1	9.9	15	16	N/A	0.01	N/A	N/A
2.62	137.3	220.2	340.7	5.6	0.2	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.1	9.9	17	16	N/A	0.01	N/A	N/A
2.79	127.6	204.7	332.5	5.4	0.2	4.3	9	very stiff fine SOIL	120	2.0	64	100	91	48	-	-	18	30	N/A	0.01	N/A	N/A
2.95	122.3	196.1	325.9	5.3	0.2	4.3	9	very stiff fine SOIL	120	2.0	61	98	89	48	-	-	19	30	N/A	0.01	N/A	N/A
3.12	123.7	198.4	333.2	5.5	0.2	4.4	9	very stiff fine SOIL	120	2.0	62	99	90	48	-	-	19	30	N/A	0.01	N/A	N/A
3.28	122.8	197.0	330.4	5.4	0.3	4.4	9	very stiff fine SOIL	120	2.0	61	99	89	48	-	-	19	30	N/A	0.01	N/A	N/A
3.45	111.7	179.1	328.9	5.4	0.2	4.9	9	very stiff fine SOIL	120	2.0	56	90	86	48	-	-	21	30	N/A	0.01	N/A	N/A
3.61	104.8	168.0	318.4	5.2	0.3	4.9	9	very stiff fine SOIL	120	2.0	52	84	84	48	-	-	22	30	N/A	0.01	N/A	N/A
3.77	103.4	165.8	311.2	5.0	0.3	4.8	9	very stiff fine SOIL	120	2.0	52	83	84	48	-	-	22	30	N/A	0.01	N/A	N/A
3.94	116.7	187.1	292.7	4.3	0.2	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.7	9.9	18	16	N/A	0.01	N/A	N/A
4.10	131.3	210.6	285.3	3.8	0.2	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.7	9.9	14	16	N/A	0.01	N/A	N/A
4.27	139.7	224.0	294.4	3.9	0.3	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.2	9.9	13	16	N/A	0.01	N/A	N/A
4.43	129.5	207.7	286.9	3.9	0.3	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.6	9.9	15	16	N/A	0.01	N/A	N/A
4.59	111.8	179.2	274.4	3.9	0.3	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.4	9.9	17	16	N/A	0.01	N/A	N/A
4.76	96.8	155.2	236.5	3.0	0.3	3.1	5	silty SAND to sandy SILT	120	4.0	24	39	82	46	-	-	17	16	N/A	0.01	N/A	N/A
4.92	82.2	131.9	251.5	3.5	0.2	4.2	9	very stiff fine SOIL	120	2.0	42	66	76	46	-	-	22	30	N/A	0.01	N/A	N/A
5.09	70.4	112.9	257.3	3.6	0.2	5.1	9	very stiff fine SOIL	120	2.0	35	56	71	45	-	-	26	30	N/A	0.01	N/A	N/A
5.25	80.3	128.8	233.6	3.0	0.2	3.8	8	stiff SAND to clayy SAND	115	1.0	80	100	-	-	5.3	9.9	21	16	N/A	0.01	N/A	N/A
5.41	79.9	128.1	238.1	3.1	0.1	3.9	8	stiff SAND to clayy SAND	115	1.0	80	100	-	-	5.3	9.9	21	16	N/A	0.01	N/A	N/A
5.58	92.7	148.7	250.6	3.4	0.1	3.7	8	stiff SAND to clayy SAND	115	1.0	93	100	-	-	6.1	9.9	19	16	N/A	0.01	N/A	N/A
5.74	100.2	160.7	234.3	2.9	0.1	2.9	5	silty SAND to sandy SILT	120	4.0	25	40	83	46	-	-	16	16	N/A	0.01	N/A	N/A
5.91	95.4	153.0	232.7	2.9	0.1	3.0	5	silty SAND to sandy SILT	120	4.0	24	38	81	45	-	-	17	16	N/A	0.01	N/A	N/A
6.07	110.0	176.4	253.5	3.3	0.1	3.0	5	silty SAND to sandy SILT	120	4.0	27	44	86	46	-	-	16	16	N/A	0.01	N/A	N/A
6.23	101.7	162.2	238.9	3.0	0.1	3.0	5	silty SAND to sandy SILT	120	4.0	25	41	83	46	-	-	16	16	N/A	0.01	N/A	N/A
6.40	97.1	152.8	240.0	3.1	0.1	3.3	5	silty SAND to sandy SILT	120	4.0	24	38	81	45	-	-	18	16	N/A	0.01	N/A	N/A
6.56	109.3	169.8	256.1	3.5	0.1	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.2	9.9	17	16	N/A	0.01	N/A	N/A
6.73	107.2	164.7	249.9	3.4	0.1	3.2	5	silty SAND to sandy SILT	120	4.0	27	41	83	45	-	-	17	16	N/A	0.01	N/A	N/A
6.89	113.8	172.7	241.5	3.1	0.1	2.7	5	silty SAND to sandy SILT	120	4.0	28	43	85	46	-	-	15	16	N/A	0.01	N/A	N/A
7.05	111.5	167.1	240.5	3.2	0.1	2.9	5	silty SAND to sandy SILT	120	4.0	28	42	84	45	-	-	16	16	N/A	0.01	N/A	N/A
7.22	101.2	150.0	226.8	3.0	0.0	3.0	5	silty SAND to sandy SILT	120	4.0	25	37	80	45	-	-	17	16	N/A	0.01	N/A	N/A
7.38	81.5	119.5	212.0	2.8	0.0	3.4	5	silty SAND to sandy SILT	120	4.0	20	30	73	44	-	-	20	16	N/A	0.01	N/A	N/A
7.55	74.5	107.9	200.7	2.5	0.0	3.4	5	silty SAND to sandy SILT	120	4.0	19	27	70	43	-	-	21	16	N/A	0.01	N/A	N/A
7.71	60.9	87.4	197.9	2.5	0.0	4.1	4	clayy SILT to silty CLAY	115	2.0	30	44	-	-	4.3	9.9	26	15	N/A	0.01	N/A	N/A
7.87	49.0	69.6	187.0	2.2	0.0	4.5	4	clayy SILT to silty CLAY	115	2.0	25	35	-	-	3.4	9.9	30	15	N/A	0.01	N/A	N/A
8.04	44.4	62.4	176.3	1.9	0.0	4.4	4	clayy SILT to silty CLAY	115	2.0	22	31	-	-	3.1	9.9	31	15	N/A	0.01	N/A	N/A
8.20	66.0	91.9	174.2	2.0	0.0	3.1	5	silty SAND to sandy SILT	120	4.0	17	23	64	42	-	-	22	16	N/A	0.01	N/A	N/A
8.37	61.9	85.2	196.8	2.5	0.0	4.1	4	clayy SILT to silty CLAY	115	2.0	31	43	-	-	4.3	9.9	26	15	N/A	0.01	N/A	N/A
8.53	47.3	64.5	196.1	2.4	-0.1	5.2	4	clayy SILT to silty CLAY	115	2.0	24	32	-	-	3.3	9.9	33	15	N/A	0.01	N/A	N/A
8.69	35.2	55.0	-	1.8	-0.1	5.3	4	clayy SILT to silty CLAY	115	2.0	19	27	-	-	2.5	9.9	36	15	N/A	0.01	N/A	N/A
8.86	35.2	54.2	179.8	1.8	0.0	5.1	4	clayy SILT to silty CLAY	115	2.0	19	27	-	-	2.4	9.9	35	15	N/A	0.01	N/A	N/A
9.02	40.9	54.3	166.5	1.8	-0.1	4.5	4	clayy SILT to silty CLAY	115	2.0	20	27	-	-	2.9	9.9	33	15	N/A	0.01	N/A	N/A
9.19	43.5	57.3	165.4	1.8	-0.1	4.2	4	clayy SILT to silty CLAY	115	2.0	22	29	-	-	3.0	9.9	32	15	N/A	0.01	N/A	N/A
9.35	62.8	82.0	163.1	1.9	-0.1	3.1	5	silty SAND to sandy SILT	120	4.0	16	20	60	41	-	-	23	16	N/A	0.01	N/A	N/A
9.51	84.6	109.5	176.6	2.2	-0.1	2.6	5	silty SAND to sandy SILT	120	4.0	21	27	70	43	-	-	18	16	N/A	0.01	N/A	N/A
9.68	87.3	111.9	187.2	2.5	-0.1	2.9	5	silty SAND to sandy SILT	120	4.0	22	29	71	43	-	-	19	16	N/A	0.01	N/A	N/A
9.84	97.0	123.4	207.6	3.1	-0.1	3.2	5	silty SAND to sandy SILT	120	4.0	24	31	74	43	-	-	19	16	N/A	0.01	N/A	N/A
10.01	125.6	158.4	236.1	3.7	-0.1	3.0	5	silty SAND to sandy SILT	120	4.0	31	40	82	44	-	-	16	16	N/A	0.01	N/A	N/A
10.17	178.1	222.8	277.7	4.3	0.0	2.4	6	clean SAND to silty SAND	125	5.0	36	45	93	46	-	-	12	16	N/A	0.01	N/A	N/A
10.34	194.0	240.6	293.0	4.6	0.0	2.4	6	clean SAND to silty SAND	125	5.0	39	48	95	46	-	-	11	16	N/A	0.01	N/A	N/A
10.50	202.0	248.5	306.6	5.1	0.0	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.3	9.9	11	16	N/A	0.01	N/A	N/A
10.66	213.4	260.6	321.4	5.5	0.0	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.1	9.9	11	16	N/A	0.01	N/A	N/A
10.83	218.7	265.1	336.0	6.2	0.0	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.4	9.9	12	16	N/A	0.01	N/A	N/A
10.99	236.2	284.2	351.4	6.5	0.1	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	15.6	9.9	12	16	N/A	0.01	N/A	N/A
11.16	243.6	291.0	354.2	6.5	0.2	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.1	9.9	11	16	N/A	0.01	N/A	N/A
11.32	247.9	294.0	358.4	6.6	0.2	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.4	9.9	11	16	N/A	0.01	N/A	N/A
11.48	256.8	302.5	355.7	6.2	0.3	2.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.0	9.9	10	16	N/A	0.01	N/A	N/A
11.65	265.2	310.2	371.9	7.0	0.3	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.5	9.9	11	16	N/A	0.01	N/A	N/A
11.81	263.0	305.6	376.8	7.5	0.5	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.4	9.9	11	16	N/A	0.01	N/A	N/A
11.98	276.2	318.8	384.5	7.5	0.5	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.3	9.9	11	16	N/A	0.01	N/A	N/A
12.14	276.5	317.0	379.9	7.3	0.4	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.3	9.9	11	16	N/A	0.01	N/A	N/A
12.30	273.8	311.8	369.4	6.9	0.4	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.1	9.9	10	16	N/A	0.01	N/A	N/A
12.47	273.7	309.8	365.2	6.8	0.4	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.1	9.9	10	16	N/A	0.01	N/A	N/A
12.63	272.0	305.9	359.4	6.6	0.5	2.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.0	9.9	10	16	N/A	0.01	N/A	N/A
12.80	268.4	299.9	351.5	6.4	0.5	2.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.7	9.9	10	16	N/A	0.01	N/A	N/A
12.96	249.7	277.3	328.7	5.9	0.5	2.4	6	clean SAND to silty SAND	125	5.0	50	55	95	46	-	-	10	16	N/A	0.01	N/A	N/A
13.12	237.2	261.7	307.6	5.2	0.5	2.2	6	clean SAND to silty SAND	125	5.0	47	52	95	46	-	-	10	16	N/A	0.01	N/A	N/A
13.29	209.5	229.6	274.2	4.4	0.5	2.1	6	clean SAND to silty SAND	125	5.0	42	46	94	45	-	-	11	16	N/A	0.01	N/A	N/A
13.45	161.7	176.1	227.5	3.6	0.4	2.2	5	silty SAND to sandy SILT	120	4.0	40	44	86	44	-	-	13	16	N/A	0.01	N/A	N/A
13.62	117.3	127.0	191.2	3.0	0.4	2.6	5	silty SAND to sandy SILT	120	4.0	29	32	75	42	-	-	17	16	N/A	0.01	N/A	N/A
13.78	84.4	90.8	172.9	2.6	0.4	3.1	5	silty SAND to sandy SILT	120	4.0	21	23	64	41	-	-	22	16	N/A	0.00	N/A	N/A
13.94	72.7	77.7	164.5	2.3	0.3	3.3	5	silty SAND to sandy SILT	120	4.0	18	19	59	40	-	-	24	16	N/A	0.00	N/A	N/A
14.11	83.9	89.2	176.0	2.7	0.3	3.3	5	silty SAND to sandy SILT	120	4.0	21	22	63	41	-	-	23	16	N/A	0.00	N/A	N/A
14.27	89.9	95.0	183.7	3.0	0.3	3.3	5	silty SAND to sandy SILT	120	4.0	22	24	65	41	-	-	22	16	N/A	0.00	N/A	N/A
14.44	89.1	93.6	189.2	3.1	0.3	3.5	5	silty SAND to sandy SILT	120	4.0	22	23	65	41	-	-	23	16	N/A	0.00	N/A	N/A
14.60	88.9	92.9	191.8	3.2	0.2	3.7	5	silty SAND to sandy SILT	120	4.0	22	23	65	41	-	-	24	16	N/A	0.00	N/A	N/A
14.76	85.0	88.3	180.6	2.9	0.2	3.4	5	silty SAND to sandy SILT	120	4.0	21	22	63	40	-	-	24	16	N/A	0.00	N/A	N/A
14.93	78.6	81.2	174.4	2.7	0.1	3.5	4	clayy SILT to silty CLAY	115	2.0	39	41	-	-	5.5	9.9	25	15	N/A	0.00	N/A	N/A
15.09	63.5	65.3	168.2	2.5	-0.1	3.9	4	clayy SILT to silty CLAY	115	2.0	32	33	-	-	4.4	9.9	29	15	N/A	0.00	N/A	N/A
15.26	52.6	53.7	173.0	2.5	-0.1	4.8	4	clayy SILT to silty CLAY	115	2.0	26	27	-	-	3.7	9.9	34	15	N/A	0.00	N/A	N/A
15.42	44.3	48.6	-	2.3	-0.2	5.4	3	silty CLAY to CLAY	115	1.5	30	32	-	-	3.1	9.9	38	15	N/A	0.00	N/A	N/A

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Seville Solar Site

Project ID: Petra Geotech
Data File: SDF(237).cpt
CPT Date: 11/13/2012 10:08:38 AM
GW During Test: 33 ft

Sounding ID: CPT-02
Project No: 332-12
Cone/Rig: DSG1104

Depth ft	qc PS tsf	qcln PS -	qlncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato -	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60	SPT R-N1 60-	Rel Den -	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic	Hk - -	Vol Strn	Dry Stlmt 0.01	Liq Stlmt 0.00	Cycl SStn
15.58	43.5	47.2	-	2.3	-0.2	5.4	3	silty CLAY to CLAY	115	1.5	29	31	-	-	3.0	9.9	38	15	N/A	0.00	N/A	N/A
15.75	48.8	50.4	-	2.3	-0.3	4.8	4	clayy SILT to silty CLAY	115	2.0	24	25	-	-	3.4	9.9	36	15	N/A	0.00	N/A	N/A
15.91	67.0	67.1	169.9	2.6	-0.5	3.9	4	clayy SILT to silty CLAY	115	2.0	33	34	-	-	4.7	9.9	29	15	N/A	0.00	N/A	N/A
16.08	76.0	75.7	180.7	3.0	-0.3	3.9	4	clayy SILT to silty CLAY	115	2.0	38	38	-	-	5.3	9.9	27	15	N/A	0.00	N/A	N/A
16.24	79.8	79.1	197.6	3.5	-0.3	4.4	4	clayy SILT to silty CLAY	115	2.0	40	40	-	-	5.6	9.9	28	15	N/A	0.00	N/A	N/A
16.40	75.8	74.8	198.7	3.5	-0.3	4.7	4	clayy SILT to silty CLAY	115	2.0	38	37	-	-	5.3	9.9	30	15	N/A	0.00	N/A	N/A
16.57	68.7	67.5	193.9	3.3	-0.3	4.9	4	clayy SILT to silty CLAY	115	2.0	34	34	-	-	4.8	9.9	32	15	N/A	0.00	N/A	N/A
16.73	66.9	65.3	191.1	3.2	-0.3	4.9	4	clayy SILT to silty CLAY	115	2.0	33	33	-	-	4.7	9.9	32	15	N/A	0.00	N/A	N/A
16.90	68.5	66.6	187.2	3.1	-0.3	4.6	4	clayy SILT to silty CLAY	115	2.0	34	33	-	-	4.8	9.9	31	15	N/A	0.00	N/A	N/A
17.06	70.7	68.5	185.3	3.1	-0.3	4.5	4	clayy SILT to silty CLAY	115	2.0	35	34	-	-	4.9	9.9	30	15	N/A	0.00	N/A	N/A
17.23	70.8	68.2	187.3	3.2	-0.2	4.6	4	clayy SILT to silty CLAY	115	2.0	35	34	-	-	4.9	9.9	30	15	N/A	0.00	N/A	N/A
17.39	66.0	63.3	187.4	3.1	-0.3	4.8	4	clayy SILT to silty CLAY	115	2.0	33	32	-	-	4.6	9.9	32	15	N/A	0.00	N/A	N/A
17.55	59.2	56.5	182.7	2.9	-0.2	5.1	4	clayy SILT to silty CLAY	115	2.0	30	28	-	-	4.1	9.9	35	15	N/A	0.00	N/A	N/A
17.72	52.1	49.9	-	2.8	-0.3	5.5	3	silty CLAY to CLAY	115	1.5	35	33	-	-	3.6	9.9	38	15	N/A	0.00	N/A	N/A
17.88	47.4	44.9	-	2.6	-0.3	5.5	3	silty CLAY to CLAY	115	1.5	32	30	-	-	3.3	9.9	39	15	N/A	0.00	N/A	N/A
18.05	39.8	37.4	-	2.1	-0.3	5.3	3	silty CLAY to CLAY	115	1.5	27	25	-	-	2.7	9.9	42	15	N/A	0.00	N/A	N/A
18.21	37.7	35.1	-	2.1	-0.5	5.7	3	silty CLAY to CLAY	115	1.5	26	23	-	-	2.6	9.9	44	15	N/A	0.00	N/A	N/A
18.37	32.5	30.0	-	2.0	-2.6	6.4	3	silty CLAY to CLAY	115	1.5	22	20	-	-	2.2	9.6	49	15	N/A	0.00	N/A	N/A
18.54	20.7	19.0	-	1.6	-3.2	7.9	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	5.9	63	15	N/A	0.00	N/A	N/A
18.70	14.6	13.3	-	1.3	-3.0	9.4	3	silty CLAY to CLAY	115	1.5	10	9	-	-	1.0	4.1	76	15	N/A	0.00	N/A	N/A
18.87	19.0	17.1	-	1.4	-2.9	7.8	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	5.3	65	15	N/A	0.00	N/A	N/A
19.03	27.4	24.5	-	1.6	-3.1	6.0	3	silty CLAY to CLAY	115	1.5	18	16	-	-	1.9	7.7	52	15	N/A	0.00	N/A	N/A
19.19	28.1	24.9	-	1.7	-3.9	6.5	3	silty CLAY to CLAY	115	1.5	19	17	-	-	1.9	7.9	53	15	N/A	0.00	N/A	N/A
19.36	21.6	18.9	-	1.6	-4.4	7.9	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	5.9	63	15	N/A	0.00	N/A	N/A
19.52	15.2	13.2	-	1.2	-4.2	8.5	3	silty CLAY to CLAY	115	1.5	10	9	-	-	1.0	4.0	74	15	N/A	0.00	N/A	N/A
19.69	12.3	10.7	-	1.0	-3.9	9.2	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.8	3.2	82	15	N/A	0.00	N/A	N/A
19.85	15.7	13.4	-	1.1	-3.6	7.9	3	silty CLAY to CLAY	115	1.5	10	9	-	-	1.0	4.1	72	15	N/A	0.00	N/A	N/A
20.01	38.3	32.5	-	1.7	-2.5	4.6	3	silty CLAY to CLAY	115	1.5	26	22	-	-	2.6	9.9	42	15	N/A	0.00	N/A	N/A
20.18	101.8	90.8	155.0	2.5	-0.8	2.5	5	silty SAND to sandy SILT	120	4.0	25	23	64	40	-	-	20	16	N/A	0.00	N/A	N/A
20.34	98.2	87.2	175.6	3.2	-0.3	3.3	5	silty SAND to sandy SILT	120	4.0	25	22	62	39	-	-	23	16	N/A	0.00	N/A	N/A
20.51	94.3	83.4	184.9	3.5	-0.2	3.8	4	clayy SILT to silty CLAY	115	2.0	47	42	-	-	6.6	9.9	25	15	N/A	0.00	N/A	N/A
20.67	97.6	86.0	186.6	3.6	-0.2	3.7	4	clayy SILT to silty CLAY	115	2.0	49	43	-	-	6.8	9.9	25	15	N/A	0.00	N/A	N/A
20.83	106.9	93.8	189.3	3.7	-0.2	3.5	5	silty SAND to sandy SILT	120	4.0	27	23	65	40	-	-	23	16	N/A	0.00	N/A	N/A
21.00	126.3	110.4	197.0	4.0	0.1	3.2	5	silty SAND to sandy SILT	120	4.0	32	28	70	41	-	-	21	16	N/A	0.00	N/A	N/A
21.16	154.5	134.5	214.8	4.7	0.1	3.0	5	silty SAND to sandy SILT	120	4.0	39	34	77	42	-	-	18	16	N/A	0.00	N/A	N/A
21.33	182.5	158.3	223.9	4.8	0.0	2.6	5	silty SAND to sandy SILT	120	4.0	46	40	82	42	-	-	15	16	N/A	0.00	N/A	N/A
21.49	213.4	184.4	252.8	5.8	0.0	2.7	5	silty SAND to sandy SILT	120	4.0	53	46	87	43	-	-	14	16	N/A	0.00	N/A	N/A
21.65	233.9	201.3	273.6	6.6	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	58	50	90	44	-	-	14	16	N/A	0.00	N/A	N/A
21.82	247.5	212.2	289.0	7.3	0.1	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.3	9.9	14	16	N/A	0.00	N/A	N/A
21.98	247.7	211.5	292.3	7.6	0.2	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.3	9.9	15	16	N/A	0.00	N/A	N/A
22.15	246.9	210.1	296.2	7.9	0.2	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.3	9.9	15	16	N/A	0.00	N/A	N/A
22.31	249.2	211.3	304.1	8.4	0.2	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.4	9.9	16	16	N/A	0.00	N/A	N/A
22.47	249.4	210.7	306.2	8.5	0.3	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.4	9.9	16	16	N/A	0.00	N/A	N/A
22.64	253.2	213.2	299.1	8.1	0.3	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.7	9.9	15	16	N/A	0.00	N/A	N/A
22.80	258.7	217.1	300.8	8.1	0.4	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.1	9.9	15	16	N/A	0.00	N/A	N/A
22.97	267.2	223.4	304.0	8.2	0.4	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.6	9.9	14	16	N/A	0.00	N/A	N/A
23.13	274.7	228.8	307.6	8.3	0.5	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.1	9.9	14	16	N/A	0.00	N/A	N/A
23.30	277.1	230.0	308.6	8.3	0.6	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.3	9.9	14	16	N/A	0.00	N/A	N/A
23.46	281.2	232.7	308.4	8.2	0.6	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.5	9.9	13	16	N/A	0.00	N/A	N/A
23.62	280.7	231.4	307.0	8.2	0.6	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.5	9.9	13	16	N/A	0.00	N/A	N/A
23.79	271.8	223.4	296.0	7.7	0.6	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.9	9.9	13	16	N/A	0.00	N/A	N/A
23.95	260.0	212.9	287.9	7.6	0.6	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.1	9.9	14	16	N/A	0.00	N/A	N/A
24.12	244.7	199.7	280.4	7.5	0.6	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.1	9.9	15	16	N/A	0.00	N/A	N/A
24.28	242.0	196.9	280.8	7.6	0.6	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	15.9	9.9	15	16	N/A	0.00	N/A	N/A
24.44	264.7	214.6	292.4	7.9	0.6	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.4	9.9	14	16	N/A	0.00	N/A	N/A
24.61	282.2	228.1	281.6	6.7	0.6	2.4	6	clean SAND to silty SAND	125	5.0	56	46	84	44	-	-	12	16	N/A	0.00	N/A	N/A
24.77	299.3	241.0	311.0	8.4	0.7	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.7	9.9	13	16	N/A	0.00	N/A	N/A
24.94	208.1	167.1	285.9	8.5	0.5	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.7	9.9	20	16	N/A	0.00	N/A	N/A
25.10	295.1	236.1	306.4	8.3	0.5	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.5	9.9	13	16	N/A	0.00	N/A	N/A
25.26	296.4	236.5	299.4	7.7	0.5	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.5	9.9	12	16	N/A	0.00	N/A	N/A
25.43	277.9	221.0	287.6	7.5	0.4	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.3	9.9	13	16	N/A	0.00	N/A	N/A
25.59	267.5	212.0	272.3	6.7	0.4	2.5	5	silty SAND to sandy SILT	120	4.0	67	53	92	43	-	-	13	16	N/A	0.00	N/A	N/A
25.76	258.7	204.4	263.8	6.4	0.5	2.5	5	silty SAND to sandy SILT	120	4.0	65	51	91	43	-	-	13	16	N/A	0.00	N/A	N/A
25.92	261.9	206.3	267.4	6.7	0.4	2.6	5	silty SAND to sandy SILT	120	4.0	65	52	91	43	-	-	13	16	N/A	0.00	N/A	N/A
26.08	277.4	217.7	272.0	6.6	0.5	2.4	6	clean SAND to silty SAND	125	5.0	55	44	93	44	-	-	12	16	N/A	0.00	N/A	N/A
26.25	273.4	213.9	266.9	6.4	0.5	2.3	6	clean SAND to silty SAND	125	5.0	55	43	92	43	-	-	12	16	N/A	0.00	N/A	N/A
26.41	271.0	211.3	263.4	6.2	0.5	2.3	6	clean SAND to silty SAND	125	5.0	54	42	92	43	-	-	12	16	N/A	0.00	N/A	N/A
26.58	278.1	216.1	263.8	6.1	0.5	2.2	6	clean SAND to silty SAND	125	5.0	56	43	92	43	-	-	11	16	N/A	0.00	N/A	N/A
26.74	284.4	220.3	262.9	5.8	0.5	2.1	6	clean SAND to silty SAND	125	5.0	57	44	93	44	-	-	11	16	N/A	0.00	N/A	N/A
26.90	280.8	216.8	251.3	5.1	0.5	1.8	6	clean SAND to silty SAND	125	5.0	56	43	93	43	-	-	10	16	N/A	0.00	N/A	N/A
27.07	259.1	199.4	236.8	4.8	0.5	1.9	6	clean SAND to silty SAND	125	5.0	52	40	90	43	-	-	10	16	N/A	0.00	N/A	N/A
27.23	263.2	201.9	238.6	4.9	0.4	1.9	6	clean SAND to silty SAND	125	5.0	53	40	90	43	-	-	10	16	N/A	0.00	N/A	N/A
27.40	254.9	195.0	232.2	4.7	0.4	1.9	6	clean SAND to silty SAND	125	5.0	51	39	89	43	-	-	10	16	N/A	0.00	N/A	N/A
27.56	263.0	200.5	235.0	4.7	0.4	1.8	6	clean SAND to silty SAND	125	5.0	53	40	90	43	-	-	10	16	N/A	0.00	N/A	N/A
27.72	264.1	200.7	239.9	5.1	0.5	1.9	6	clean SAND to silty SAND	125	5.0	53	40	90	43	-	-	11	16	N/A	0.00	N/A	N/A
27.89	266.8	202.1	241.3	5.1	0.4	1.9	6	clean SAND to silty SAND	125	5.0	53	40	90	43	-	-	11	16	N/A	0.00	N/A	N/A
28.05	273.8	206.8	243.4	5.1	0.5	1.9	6	clean SAND to silty SAND	125	5.0	55	41	91	43	-	-	10	16	N/A	0.00	N/A	N/A
28.22	282.3	212.5	250.5	5.4	0.4	1.9	6	clean SAND to silty SAND	125	5.0	56	43	92	43	-	-	10	16	N/A	0.00	N/A	N/A
28.38	281.4	211.2	247.8	5.2	0.2	1.9	6	clean SAND to silty SAND	125	5.0	56	42	92	43	-	-	10	16	N/A	0.00	N/A	N/A
28.54	289.8	216.8	255.2	5.6	0.2	1.9	6	clean SAND to silty SAND	125	5.0	58	43	93	43	-	-	10	16	N/A	0.00	N/A	N/A
28.71	283.4	211.4	254.7	5.8	0.2	2.1	6	clean SAND to silty SAND	125	5.0	57	42	92	43	-	-	11	16	N/A	0.00	N/A	N/A
28.87	290.4	216.0	250.0	5.2	0.2	1.8	6	clean SAND to silty SAND	125	5.0	58	43	92	43	-	-	10	16	N/A	0.00	N/A	N/A
29.04	302.2	224.1	253.5	5.1	0.3	1.7	6	clean SAND to silty SAND	125	5.0	60	45	94	43	-	-	9	16	N/A	0.00	N/A	N/A
29.20	294.7	217.9	255.3	5.6	0.3	1.9	6	clean SAND to silty SAND	125	5.0	59	44	93	43	-	-	10	16	N/A	0.00	N/A	N/A
29.36	297.8	219.6	257.2	5.7	0.3	1.9	6	clean SAND to silty SAND	125	5.0	60	44	93	43	-	-	10	16	N/A	0.00	N/A	N/A
29.53	302.6	222.4	270.2	6.6	0.3	2.2	6	clean SAND to silty SAND	125	5.0	61	44	93	43	-	-	11	16	N/A	0.00	N/A	N/A
29.69	302.0	221.3	272.2	6.9	0.3	2.3	6	clean SAND to silty SAND	125	5.0	60	44	93	43	-	-	11	16	N/A	0.00	N/A	N/A
29.86	296.5	216.7	269.0	6.8	0.3	2.3	6	clean SAND to silty SAND	125	5.0	59	43	93	43	-	-	12	16	N/A	0.00	N/A	N/A
30.02	294.2	214.4	264.0	6.6	0.3	2.2	6	clean SAND to silty SAND	125	5.0	59	43	92	43	-	-	11	16	N/A	0.00	N/A	N/A
30.19	301.6	219.2	264.8	6.4	0.3	2.1	6	clean SAND to silty SAND	125	5.0	60	44	93	43	-	-	11	16	N/A	0.00	N/A	N/A
30.35	296.3	214.7	257.6	6.1	0.4	2.1	6	clean SAND to silty SAND	125	5.0	59	43	92	43	-	-	11	16	N/A	0.00	N/A	N/A
30.51	289.4	209.1	249.0	5.7	0.4	2.0	6	clean SAND to silty SAND	125	5.0	59	42	91	43	-	-	10	16	N/A	0.00	N/A	N/A
30.68	277.1	199.6	233.9	4.9	0.4	1.8	6	clean SAND to silty SAND	125	5.0	55	40	90	43	-	-	10	16	N/A	0.00	N/A	N/A
30.84	282.7	203.0	234.1	4.8	0.5	1.7	6	clean SAND to silty SAND	125	5.0	57	41	90	43	-	-	9	16	N/A	0.00	N/A	N/A

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Seville Solar Site

Project ID: Petra Geotech
Data File: SDF(237).cpt
CPT Date: 11/13/2012 10:08:38 AM
GW During Test: 33 ft

Sounding ID: CPT-02
Project No: 332-12
Cone/Rig: DSG1104

Depth ft	qc PS tsf	qcln PS *	qincs PS *	Slv Stss tsf	pore prss (psi)	Frct Rato	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT N-H 60	SPT N-H1 60	Rel Den	Fin Ang deg	Und Shr tsf	OCR - -	Fin Ic	Nk - -	Vol Strn	Dry Stlmt 0.01	Liq Stlmt 0.00	Cycl SStn
31.01	297.0	212.7	239.7	4.7	0.4	1.6	6	clean SAND to silty SAND	125	5.0	59	43	92	43	-	-	9	16	N/A	0.00	N/A	N/A
31.17	306.1	218.6	237.4	4.2	0.4	1.4	6	clean SAND to silty SAND	125	5.0	61	44	93	43	-	-	9	16	N/A	0.00	N/A	N/A
31.33	299.4	213.3	243.9	5.1	0.5	1.7	6	clean SAND to silty SAND	125	5.0	60	43	92	43	-	-	9	16	N/A	0.00	N/A	N/A
31.50	288.0	204.6	242.5	5.4	0.4	1.9	6	clean SAND to silty SAND	125	5.0	58	41	91	43	-	-	10	16	N/A	0.00	N/A	N/A
31.66	315.1	223.3	254.4	5.5	0.3	1.7	6	clean SAND to silty SAND	125	5.0	63	45	94	43	-	-	9	16	N/A	0.00	N/A	N/A
31.83	344.3	243.3	271.3	5.8	0.4	1.7	6	clean SAND to silty SAND	125	5.0	69	49	95	44	-	-	8	16	N/A	0.00	N/A	N/A
31.99	357.7	252.1	280.0	6.1	0.3	1.7	6	clean SAND to silty SAND	125	5.0	72	50	95	44	-	-	8	16	N/A	0.00	N/A	N/A
32.15	365.1	256.5	288.3	6.6	0.4	1.8	6	clean SAND to silty SAND	125	5.0	73	51	95	44	-	-	9	16	N/A	0.00	N/A	N/A
32.32	362.0	253.7	292.0	7.2	0.4	2.0	6	clean SAND to silty SAND	125	5.0	72	51	95	44	-	-	9	16	N/A	0.00	N/A	N/A
32.48	354.1	247.5	292.7	7.6	0.5	2.2	6	clean SAND to silty SAND	125	5.0	71	50	95	44	-	-	10	16	N/A	0.00	N/A	N/A
32.65	348.8	243.1	290.8	7.7	0.5	2.2	6	clean SAND to silty SAND	125	5.0	70	49	95	44	-	-	11	16	N/A	0.00	N/A	N/A
32.81	347.9	241.9	284.0	7.2	0.5	2.1	6	clean SAND to silty SAND	125	5.0	70	48	95	43	-	-	10	16	N/A	0.00	N/A	N/A
32.97	351.1	243.5	272.7	6.0	0.5	1.7	6	clean SAND to silty SAND	125	5.0	70	49	95	43	-	-	9	16	N/A	0.00	N/A	N/A
33.14	330.4	228.8	251.8	5.0	0.5	1.5	6	clean SAND to silty SAND	125	5.0	66	46	94	43	-	-	8	16	0.00	-	0.00	0.0
33.30	337.2	233.3	270.7	6.5	0.6	1.9	6	clean SAND to silty SAND	125	5.0	67	47	95	43	-	-	10	16	0.00	-	0.00	0.0
33.47	355.8	245.8	282.3	6.8	0.6	1.9	6	clean SAND to silty SAND	125	5.0	71	49	95	44	-	-	9	16	0.00	-	0.00	0.0
33.63	344.2	237.5	269.8	6.2	0.5	1.8	6	clean SAND to silty SAND	125	5.0	69	47	95	43	-	-	9	16	0.00	-	0.00	0.0
33.79	332.8	229.3	262.3	6.0	0.7	1.8	6	clean SAND to silty SAND	125	5.0	67	46	94	43	-	-	9	16	0.00	-	0.00	0.0
33.96	329.5	226.7	258.2	5.8	0.7	1.8	6	clean SAND to silty SAND	125	5.0	66	45	94	43	-	-	9	16	0.00	-	0.00	0.0
34.12	338.3	232.5	268.5	6.4	0.8	1.9	6	clean SAND to silty SAND	125	5.0	68	46	95	43	-	-	9	16	0.00	-	0.00	0.0
34.29	330.6	226.9	252.2	5.2	0.8	1.6	6	clean SAND to silty SAND	125	5.0	66	45	94	43	-	-	8	16	0.00	-	0.00	0.0
34.45	337.5	231.4	251.5	4.9	0.7	1.5	6	clean SAND to silty SAND	125	5.0	68	46	95	43	-	-	8	16	0.00	-	0.00	0.0
34.61	322.1	220.5	239.3	4.4	0.6	1.4	6	clean SAND to silty SAND	125	5.0	64	44	93	43	-	-	7	16	0.00	-	0.00	0.0
34.78	342.5	234.2	251.1	4.7	0.6	1.4	6	clean SAND to silty SAND	125	5.0	69	47	95	43	-	-	7	16	0.00	-	0.00	0.0
34.94	356.1	243.2	270.1	5.9	0.6	1.7	6	clean SAND to silty SAND	125	5.0	71	49	95	43	-	-	8	16	0.00	-	0.00	0.0
35.11	367.8	250.8	283.5	6.7	0.6	1.8	6	clean SAND to silty SAND	125	5.0	74	50	95	44	-	-	9	16	0.00	-	0.00	0.0
35.27	373.9	254.6	288.0	6.9	0.6	1.9	6	clean SAND to silty SAND	125	5.0	75	51	95	44	-	-	9	16	0.00	-	0.00	0.0
35.43	343.5	233.6	277.9	7.3	0.6	2.1	6	clean SAND to silty SAND	125	5.0	69	47	95	43	-	-	10	16	0.00	-	0.00	0.0
35.60	299.9	203.7	268.2	7.9	0.6	2.6	5	silty SAND to sandy SILT	120	4.0	75	51	90	43	-	-	13	16	0.00	-	0.00	0.0
35.76	270.6	183.7	271.2	8.7	0.7	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.8	9.9	16	16	0.00	-	0.00	0.0
35.93	255.0	172.9	272.8	9.0	0.7	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.8	9.9	18	16	0.00	-	0.00	0.0
36.09	268.9	182.1	279.3	9.3	0.8	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.7	9.9	17	16	0.00	-	0.00	0.0
36.26	305.9	206.9	311.0	11.1	0.8	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	20.1	9.9	17	16	0.00	-	0.00	0.0
36.42	333.6	225.4	323.9	11.6	0.9	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.0	9.9	16	16	0.00	-	0.00	0.0
36.58	329.9	222.7	324.9	11.8	0.9	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	21.7	9.9	16	16	0.00	-	0.00	0.0
36.75	301.7	203.5	302.1	10.6	0.8	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.8	9.9	16	16	0.00	-	0.00	0.0
36.91	296.1	199.5	294.4	10.1	0.8	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.5	9.9	16	16	0.00	-	0.00	0.0
37.08	285.2	191.9	286.8	9.7	0.8	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.8	9.9	16	16	0.00	-	0.00	0.0
37.24	286.3	192.4	279.4	9.2	0.8	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.8	9.9	16	16	0.00	-	0.00	0.0
37.40	285.7	191.9	274.2	8.8	0.8	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.8	9.9	15	16	0.00	-	0.00	0.0
37.57	277.8	186.4	265.6	8.3	0.8	3.0	5	silty SAND to sandy SILT	120	4.0	69	47	88	42	-	-	15	16	0.00	-	0.00	0.0
37.73	271.8	182.1	258.2	7.9	0.7	2.9	5	silty SAND to sandy SILT	120	4.0	68	46	87	42	-	-	15	16	0.00	-	0.00	0.0
37.90	275.8	184.6	264.1	8.3	0.8	3.0	5	silty SAND to sandy SILT	120	4.0	69	46	87	42	-	-	15	16	0.00	-	0.00	0.0
38.06	316.2	211.4	277.7	8.5	0.6	2.7	5	silty SAND to sandy SILT	120	4.0	79	53	92	43	-	-	13	16	0.00	-	0.00	0.0
38.22	335.5	224.1	281.6	8.2	0.6	2.5	6	clean SAND to silty SAND	125	5.0	67	45	94	43	-	-	12	16	0.00	-	0.00	0.0
38.39	370.4	247.1	276.2	6.4	0.6	1.7	6	clean SAND to silty SAND	125	5.0	74	49	95	43	-	-	8	16	0.00	-	0.00	0.0
38.55	439.7	293.0	314.1	7.1	0.7	1.6	6	clean SAND to silty SAND	125	5.0	88	59	95	44	-	-	7	16	0.00	-	0.00	0.0
38.72	522.0	347.4	368.7	9.1	0.8	1.8	6	clean SAND to silty SAND	125	5.0	100	69	95	45	-	-	7	16	0.00	-	0.00	0.0
38.88	530.3	352.4	373.8	9.3	0.8	1.8	6	clean SAND to silty SAND	125	5.0	100	70	95	45	-	-	7	16	0.00	-	0.00	0.0
39.04	522.8	347.1	351.2	7.5	0.8	1.4	6	clean SAND to silty SAND	125	5.0	100	69	95	45	-	-	5	16	0.00	-	0.00	0.0
39.21	523.5	347.1	351.5	7.5	0.9	1.4	6	clean SAND to silty SAND	125	5.0	100	69	95	45	-	-	5	16	0.00	-	0.00	0.0
39.37	525.4	348.0	360.2	8.3	0.9	1.6	6	clean SAND to silty SAND	125	5.0	100	70	95	45	-	-	6	16	0.00	-	0.00	0.0
39.54	529.7	350.4	369.8	9.1	1.1	1.7	6	clean SAND to silty SAND	125	5.0	100	70	95	45	-	-	7	16	0.00	-	0.00	0.0
39.70	504.8	333.5	346.7	7.8	1.0	1.6	6	clean SAND to silty SAND	125	5.0	100	67	95	45	-	-	6	16	0.00	-	0.00	0.0
39.86	465.8	307.4	331.4	8.0	1.3	1.7	6	clean SAND to silty SAND	125	5.0	93	61	95	44	-	-	7	16	0.00	-	0.00	0.0
40.03	418.2	275.7	315.2	8.5	1.1	2.1	6	clean SAND to silty SAND	125	5.0	84	55	95	44	-	-	9	16	0.00	-	0.00	0.0
40.19	375.4	247.2	300.4	8.9	1.1	2.4	6	clean SAND to silty SAND	125	5.0	75	49	95	43	-	-	11	16	0.00	-	0.00	0.0
40.36	366.4	241.0	297.9	9.0	1.1	2.5	6	clean SAND to silty SAND	125	5.0	73	48	95	43	-	-	12	16	0.00	-	0.00	0.0
40.52	367.6	241.4	284.6	7.7	1.0	2.1	6	clean SAND to silty SAND	125	5.0	74	48	95	43	-	-	10	16	0.00	-	0.00	0.0
40.68	375.9	246.6	297.3	8.6	0.8	2.3	6	clean SAND to silty SAND	125	5.0	75	49	95	43	-	-	11	16	0.00	-	0.00	0.0
40.85	387.5	253.9	304.9	9.0	0.8	2.3	6	clean SAND to silty SAND	125	5.0	77	51	95	43	-	-	11	16	0.00	-	0.00	0.0
41.01	395.3	258.7	305.1	8.7	0.8	2.2	6	clean SAND to silty SAND	125	5.0	79	52	95	44	-	-	10	16	0.00	-	0.00	0.0
41.18	379.4	248.0	295.4	8.4	0.9	2.2	6	clean SAND to silty SAND	125	5.0	76	50	95	43	-	-	10	16	0.00	-	0.00	0.0
41.34	359.6	234.8	293.3	8.9	0.9	2.5	6	clean SAND to silty SAND	125	5.0	72	47	95	43	-	-	12	16	0.00	-	0.00	0.0
41.50	346.1	225.7	286.4	8.8	0.9	2.6	5	silty SAND to sandy SILT	120	4.0	87	56	94	43	-	-	12	16	0.00	-	0.00	0.0
41.67	321.6	209.5	279.6	8.9	1.0	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	21.2	9.9	14	16	0.00	-	0.00	0.0
41.83	331.4	215.7	273.9	8.2	1.0	2.5	5	silty SAND to sandy SILT	120	4.0	83	54	92	43	-	-	12	16	0.00	-	0.00	0.0
42.00	337.5	219.4	284.4	8.9	1.0	2.7	5	silty SAND to sandy SILT	120	4.0	84	55	93	43	-	-	13	16	0.00	-	0.00	0.0
42.16	338.5	219.9	289.9	9.4	0.9	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.3	9.9	13	16	0.00	-	0.00	0.0
42.32	340.3	220.8	295.7	9.9	0.9	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.4	9.9	14	16	0.00	-	0.00	0.0
42.49	340.0	220.4	298.1	10.1	0.9	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.4	9.9	14	16	0.00	-	0.00	0.0
42.65	353.7	229.1	301.1	10.0	0.9	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.3	9.9	13	16	0.00	-	0.00	0.0
42.82	347.3	224.7	293.8	9.6	0.9	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.9	9.9	13	16	0.00	-	0.00	0.0
42.98	329.8	213.2	279.1	8.8	0.9	2.7	5	silty SAND to sandy SILT	120	4.0	82	53	92	42	-	-	13	16	0.00	-	0.00	0.0
43.15	338.9	218.8	278.2	8.5	0.9	2.5	5	silty SAND to sandy SILT	120	4.0	85	55	93	43	-	-	12	16	0.00	-	0.00	0.0
43.31	345.8	223.1	277.6	8.2	0.9	2.4	6	clean SAND to silty SAND	125	5.0	69	45	93	43	-	-	12	16	0.00	-	0.00	0.0
43.47	333.4	214.8	267.6	7.7	0.9	2.3	6	clean SAND to silty SAND	125	5.0	67	43	92	43	-	-	12	16	0.00	-	0.00	0.0
43.64	334.1	215.0	269.6	7.9	0.9	2.4	6	clean SAND to silty SAND	125	5.0	67	43	92	43	-	-	12	16	0.00	-	0.00	0.0
43.80	335.3	215.5	273.7	8.2	0.9	2.5	5	silty SAND to sandy SILT	120	4.0	84	54	92	43	-	-	12	16	0.00	-	0.00	0.0
43.97	347.0	222.9	281.5	8.6	0.9	2.5	5	silty SAND to sandy SILT	120	4.0	87	56	93	43	-	-	12	16	0.00	-	0.00	0.0
44.13	369.8	237.2	289.2	8.6	0.9	2.3	6	clean SAND to silty SAND	125	5.0	74	47	95	43	-	-	11	16	0.00	-	0.00	0.0
44.29	382.5	245.1	300.7	9.2	0.9	2.4	6	clean SAND to silty SAND	125	5.0	77	49	95	43	-	-	11	16	0.00	-	0.00	0.0
44.46	381.0	243.9	300.5	9.3	0.8	2.5	6	clean SAND to silty SAND	125	5.0	76	49	95	43	-	-	11	16	0.00	-	0.00	0.0
44.62	404.9	258.9	310.4	9.4	0.8	2.3	6	clean SAND to silty SAND	125	5.0	81	52	95	43	-	-	11	16	0.00	-	0.00	0.0
44.79	417.0	266.3	321.6	10.1	0.7	2.4	6	clean SAND to silty SAND	125	5.0	83	53	95	44	-	-	11	16	0.00	-	0.00	0.0
44.95	391.8	249.9	302.6	9.2	0.7	2.4	6	clean SAND to silty SAND	125	5.0	78	50	95	43	-	-	11	16	0.00	-	0.00	0.0
45.11	338.9	216.0	264.9	7.5	0.7	2.2	6	clean SAND to silty SAND	125	5.0	68	43	92	42	-	-	11	16	0.00	-	0.00	0.0
45.28	266.5	169.7	218.8	5.7	0.7	2.2	5	silty SAND to sandy SILT	120	4.0	67	42	84	41	-	-	13	16	0.00	-	0.00	0.0
45.44	184.4	117.3	185.9	4.8	0.7	2.7	5	silty SAND to sandy SILT	120	4.0	46	29	72	39	-	-	18	16	0.00	-	0.00	0.0
45.61	147.0	93.4	175.0	4.4	0.8	3.1	5	silty SAND to sandy SILT	120	4.0	37	23	65	38	-	-	22	16	0.00	-	0.00	0.0
45.77	153.4	97.3	198.2	5.6	0.7	3.7	5	silty SAND to sandy SILT	120	4.0	38	24	66	38	-	-	24	16	0.00	-	0.00	0.0
45.93	177.9	112.8	235.6	7.6	0.6	4.3	9	very stiff fine SOIL	120	2.0	89	56	71	39	-	-	24	30	0.00	-	0.00	0.0
46.10	209.5	132.7	249.6	8.5	0.5	4.1	9	very stiff fine SOIL	120	2.0	100	66	76	40	-	-	22	30	0.00	-	0.00	0.0
46.26	289.9	183.4	274.0	9.5	0.2	3.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.0	9.9	16	16	0.00	-	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Petra Geotech
Data File: SDF(237).cpt
CPT Date: 11/13/2012 10:08:38 AM
GW During Test: 33 ft

Sounding ID: CPT-02
Project No: 332-12
Cone/Rig: DSG1104

Depth ft	qc PS tsf	qcln PS *	qlncs PS *	Slv Stss tsf	pore prss (psi)	Frct Rato	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60	SPT R-N1 60	Rel Den	Fcn Ang deg	Und Shr tsf	OCR *	Fin Ic	NK *	Vol Strn	Dry Stlmt 0.01	Liq Stlmt 0.00	Cycl SStn
46.43	369.7	233.7	295.5	9.5	0.6	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	24.3	9.9	12	16	0.00	-	0.00	0.0
46.59	391.5	241.0	308.8	10.4	0.6	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	25.1	9.9	13	16	0.00	-	0.00	0.0
46.75	376.3	237.5	315.6	11.2	0.6	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	24.8	9.9	14	16	0.00	-	0.00	0.0
46.92	363.5	229.2	318.3	11.8	0.6	3.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.9	9.9	15	16	0.00	-	0.00	0.0
47.08	363.7	229.1	315.8	11.6	0.6	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.9	9.9	14	16	0.00	-	0.00	0.0
47.25	370.7	233.3	316.2	11.5	0.7	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	24.4	9.9	14	16	0.00	-	0.00	0.0
47.41	369.4	232.3	316.6	11.6	0.7	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	24.3	9.9	14	16	0.00	-	0.00	0.0
47.57	367.1	230.6	316.6	11.6	0.7	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	24.2	9.9	14	16	0.00	-	0.00	0.0
47.74	361.7	227.0	308.8	11.1	0.8	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.8	9.9	14	16	0.00	-	0.00	0.0
47.90	355.7	223.0	306.4	11.1	0.8	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.4	9.9	14	16	0.00	-	0.00	0.0
48.07	336.3	210.7	297.2	10.7	0.8	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.1	9.9	15	16	0.00	-	0.00	0.0
48.23	352.8	220.8	294.8	10.1	0.8	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.2	9.9	14	16	0.00	-	0.00	0.0
48.39	359.5	224.8	306.1	11.0	0.8	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.7	9.9	14	16	0.00	-	0.00	0.0
48.56	364.2	227.6	307.5	11.0	0.8	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	24.0	9.9	14	16	0.00	-	0.00	0.0
48.72	392.7	245.1	308.1	10.2	0.7	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	25.9	9.9	12	16	0.00	-	0.00	0.0
48.89	406.3	253.4	315.0	10.5	0.7	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	26.9	9.9	12	16	0.00	-	0.00	0.0
49.05	395.3	246.3	297.5	9.1	0.7	2.3	6	clean SAND to silty SAND	125	5.0	79	49	95	43	-	-	11	16	0.00	-	0.00	0.0
49.22	378.4	235.6	288.5	8.9	0.7	2.4	6	clean SAND to silty SAND	125	5.0	76	47	95	43	-	-	11	16	0.00	-	0.00	0.0
49.38	359.2	223.4	289.6	9.6	0.7	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.6	9.9	13	16	0.00	-	0.00	0.0
49.54	356.7	221.6	291.0	9.8	0.7	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.5	9.9	13	16	0.00	-	0.00	0.0
49.71	367.0	227.8	295.7	10.0	0.7	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	24.2	9.9	13	16	0.00	-	0.00	0.0
49.87	377.6	234.2	303.9	10.5	0.7	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	24.9	9.9	13	16	0.00	-	0.00	0.0
50.04	382.5	237.0	307.6	10.7	0.8	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	25.2	9.9	13	16	0.00	-	0.00	0.0
50.20	375.8	232.7	304.2	10.6	0.8	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	24.7	9.9	13	16	0.00	-	0.00	0.0
50.36	379.1	234.5	288.0	8.9	0.8	2.4	6	clean SAND to silty SAND	125	5.0	76	47	95	43	-	-	11	16	0.00	-	0.00	0.0
50.53	388.8	240.3	281.4	7.9	0.8	2.0	6	clean SAND to silty SAND	125	5.0	78	48	95	43	-	-	10	16	0.00	-	0.00	0.0
50.69	371.7	229.4	269.1	7.3	0.8	2.0	6	clean SAND to silty SAND	125	5.0	74	46	94	43	-	-	10	16	0.00	-	0.00	0.0
50.86	374.8	231.1	271.3	7.4	0.8	2.0	6	clean SAND to silty SAND	125	5.0	75	46	95	43	-	-	10	16	0.00	-	0.00	0.0
51.02	396.0	243.9	290.2	8.6	0.8	2.2	6	clean SAND to silty SAND	125	5.0	79	49	95	43	-	-	10	16	0.00	-	0.00	0.0
51.18	398.0	244.9	294.2	9.0	0.8	2.3	6	clean SAND to silty SAND	125	5.0	80	49	95	43	-	-	11	16	0.00	-	0.00	0.0
51.35	401.1	246.5	300.5	9.5	0.8	2.4	6	clean SAND to silty SAND	125	5.0	80	49	95	43	-	-	11	16	0.00	-	0.00	0.0
51.51	402.3	247.0	290.2	8.4	0.9	2.1	6	clean SAND to silty SAND	125	5.0	80	49	95	43	-	-	10	16	0.00	-	0.00	0.0
51.68	401.4	246.2	292.8	8.8	1.0	2.2	6	clean SAND to silty SAND	125	5.0	80	49	95	43	-	-	10	16	0.00	-	0.00	0.0
51.84	390.0	239.0	279.1	7.8	0.9	2.0	6	clean SAND to silty SAND	125	5.0	78	48	95	43	-	-	10	16	0.00	-	0.00	0.0
52.00	397.4	243.3	280.1	7.6	0.9	1.9	6	clean SAND to silty SAND	125	5.0	79	49	95	43	-	-	9	16	0.00	-	0.00	0.0
52.17	367.1	224.5	279.6	8.7	0.9	2.4	6	clean SAND to silty SAND	125	5.0	73	45	94	42	-	-	12	16	0.00	-	0.00	0.0
52.33	377.3	230.5	283.8	8.8	0.9	2.4	6	clean SAND to silty SAND	125	5.0	75	46	95	43	-	-	11	16	0.00	-	0.00	0.0
52.50	360.8	220.2	274.5	8.5	0.9	2.4	6	clean SAND to silty SAND	125	5.0	72	44	93	42	-	-	12	16	0.00	-	0.00	0.0
52.66	346.8	211.5	270.9	8.6	0.9	2.5	5	silty SAND to sandy SILT	120	4.0	87	53	92	42	-	-	13	16	0.00	-	0.00	0.0
52.82	338.9	206.4	265.7	8.4	0.9	2.5	5	silty SAND to sandy SILT	120	4.0	85	52	91	42	-	-	13	16	0.00	-	0.00	0.0
52.99	334.2	203.4	258.6	7.9	0.9	2.4	5	silty SAND to sandy SILT	120	4.0	84	51	90	42	-	-	12	16	0.00	-	0.00	0.0
53.15	288.7	175.6	240.3	7.5	0.9	2.6	5	silty SAND to sandy SILT	120	4.0	72	44	86	41	-	-	14	16	0.00	-	0.00	0.0
53.32	259.1	157.4	240.3	8.0	0.9	3.1	5	silty SAND to sandy SILT	120	4.0	65	39	82	41	-	-	17	16	0.00	-	0.00	0.0
53.48	251.8	152.8	269.4	10.1	0.9	4.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.5	9.9	20	16	0.00	-	0.00	0.0
53.64	248.2	150.5	288.9	11.4	0.7	4.6	9	very stiff fine SOIL	120	2.0	100	75	80	40	-	-	22	30	0.00	-	0.00	0.0
53.81	118.6	46.1	-	7.9	0.7	6.9	3	silty CLAY to CLAY	115	1.5	79	31	-	-	8.2	9.9	43	15	-	-	0.00	-
53.97	77.5	30.1	-	4.7	0.9	6.4	3	silty CLAY to CLAY	115	1.5	52	20	-	-	5.3	9.5	49	15	-	-	0.00	-
54.14	167.5	101.3	202.6	6.1	0.8	3.7	5	silty SAND to sandy SILT	120	4.0	42	25	67	38	-	-	23	16	0.00	-	0.00	0.0
54.30	116.2	45.0	-	5.9	0.8	5.3	3	silty CLAY to CLAY	115	1.5	77	30	-	-	8.0	9.9	39	15	-	-	0.00	-
54.46	70.8	27.4	-	4.7	0.8	6.9	3	silty CLAY to CLAY	115	1.5	47	18	-	-	4.8	8.6	52	15	-	-	0.00	-
54.63	117.4	70.8	177.2	4.5	2.0	4.0	4	clayy SILT to silty CLAY	115	2.0	59	35	-	-	8.1	9.9	28	15	0.00	-	0.00	0.0
54.79	201.9	121.7	201.0	5.9	1.2	3.0	5	silty SAND to sandy SILT	120	4.0	50	30	73	39	-	-	19	16	0.00	-	0.00	0.0
54.96	162.0	97.6	223.9	7.2	0.9	4.5	9	very stiff fine SOIL	120	2.0	81	49	66	38	-	-	26	30	0.00	-	0.00	0.0
55.12	130.5	50.1	-	7.0	0.8	5.5	3	silty CLAY to CLAY	115	1.5	87	33	-	-	9.0	9.9	38	15	-	-	0.00	-
55.28	133.9	51.3	-	7.1	1.0	5.4	3	silty CLAY to CLAY	115	1.5	89	34	-	-	9.3	9.9	37	15	-	-	0.00	-
55.45	89.4	34.2	-	5.9	0.4	6.9	3	silty CLAY to CLAY	115	1.5	60	23	-	-	6.1	9.9	48	15	-	-	0.00	-
55.61	77.6	29.6	-	4.1	0.9	5.6	3	silty CLAY to CLAY	115	1.5	52	20	-	-	5.3	9.4	47	15	-	-	0.00	-
55.78	60.2	22.9	-	4.6	-0.5	8.1	3	silty CLAY to CLAY	115	1.5	40	15	-	-	4.1	7.2	60	15	-	-	0.00	-
55.94	99.9	38.0	-	6.6	-0.4	6.8	3	silty CLAY to CLAY	115	1.5	67	25	-	-	6.9	9.9	46	15	-	-	0.00	-
56.11	103.4	39.3	-	6.7	-0.4	6.7	3	silty CLAY to CLAY	115	1.5	69	26	-	-	7.1	9.9	45	15	-	-	0.00	-
56.27	200.5	119.9	221.6	7.2	-0.2	3.7	5	silty SAND to sandy SILT	120	4.0	50	30	73	39	-	-	21	16	0.00	-	0.00	0.0
56.43	365.7	218.6	256.9	7.0	0.0	1.9	6	clean SAND to silty SAND	125	5.0	73	44	93	42	-	-	10	16	0.00	-	0.00	0.0
56.60	406.0	242.5	290.3	9.0	0.5	2.2	6	clean SAND to silty SAND	125	5.0	91	48	95	43	-	-	11	16	0.00	-	0.00	0.0
56.76	458.6	273.6	321.5	10.3	0.7	2.3	6	clean SAND to silty SAND	125	5.0	92	55	95	43	-	-	10	16	0.00	-	0.00	0.0
56.93	475.0	283.1	329.5	10.5	0.7	2.2	6	clean SAND to silty SAND	125	5.0	95	57	95	43	-	-	10	16	0.00	-	0.00	0.0
57.09	485.6	289.1	333.5	10.6	0.9	2.2	6	clean SAND to silty SAND	125	5.0	97	58	95	44	-	-	9	16	0.00	-	0.00	0.0
57.25	460.7	274.0	324.9	10.7	1.0	2.3	6	clean SAND to silty SAND	125	5.0	92	55	95	43	-	-	10	16	0.00	-	0.00	0.0
57.42	341.2	202.7	284.4	10.4	1.0	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.4	9.9	15	16	0.00	-	0.00	0.0
57.58	230.9	137.1	263.8	9.9	0.9	4.4	9	very stiff fine SOIL	120	2.0	100	69	77	40	-	-	22	30	0.00	-	0.00	0.0
57.75	255.1	151.3	262.3	9.8	1.1	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.7	9.9	20	16	0.00	-	0.00	0.0
57.91	173.1	102.6	256.1	9.2	0.8	5.4	9	very stiff fine SOIL	120	2.0	87	51	68	38	-	-	28	30	0.00	-	0.00	0.0
58.07	164.2	97.2	246.2	8.5	1.0	5.3	9	very stiff fine SOIL	120	2.0	82	49	66	38	-	-	29	30	0.00	-	0.00	0.0
58.24	228.9	135.5	245.5	8.8	1.0	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	15.0	9.9	21	16	0.00	-	0.00	0.0
58.40	285.3	168.7	250.8	8.7	0.5	3.1	5	silty SAND to sandy SILT	120	4.0	71	42	84	41	-	-	16	16	0.00	-	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

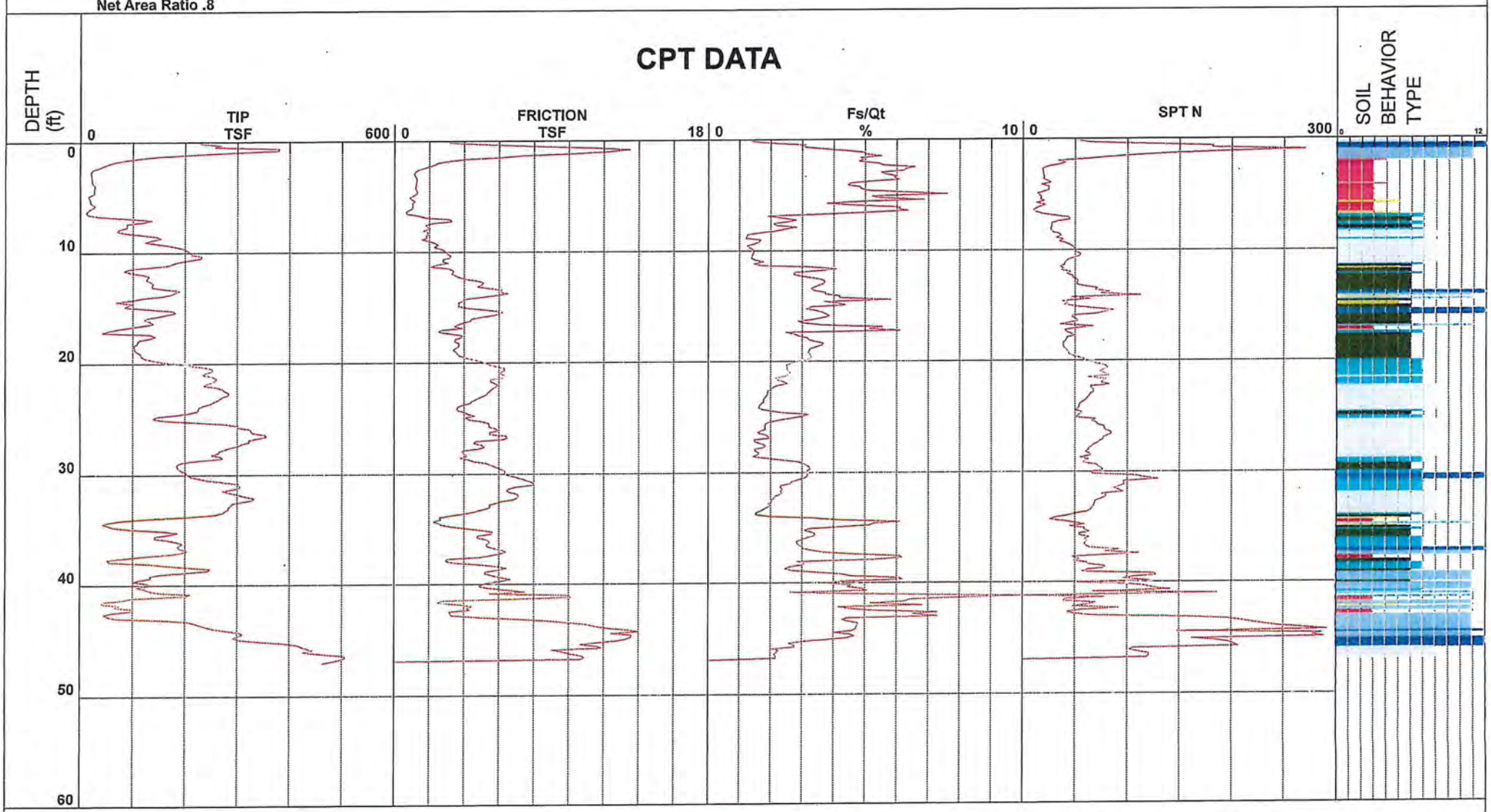
Middle Earth Geo Testing

Petra Inc

Project	Seville Solar Site	Operator	RA-JC	Filename	SDF(238).cpt
Job Number	332-12	Cone Number	DSG1104	GPS	
Hole Number	CPT-03	Date and Time	11/13/2012 11:20:32 AM	Maximum Depth	47.08 ft
EST GW Depth During Test					

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

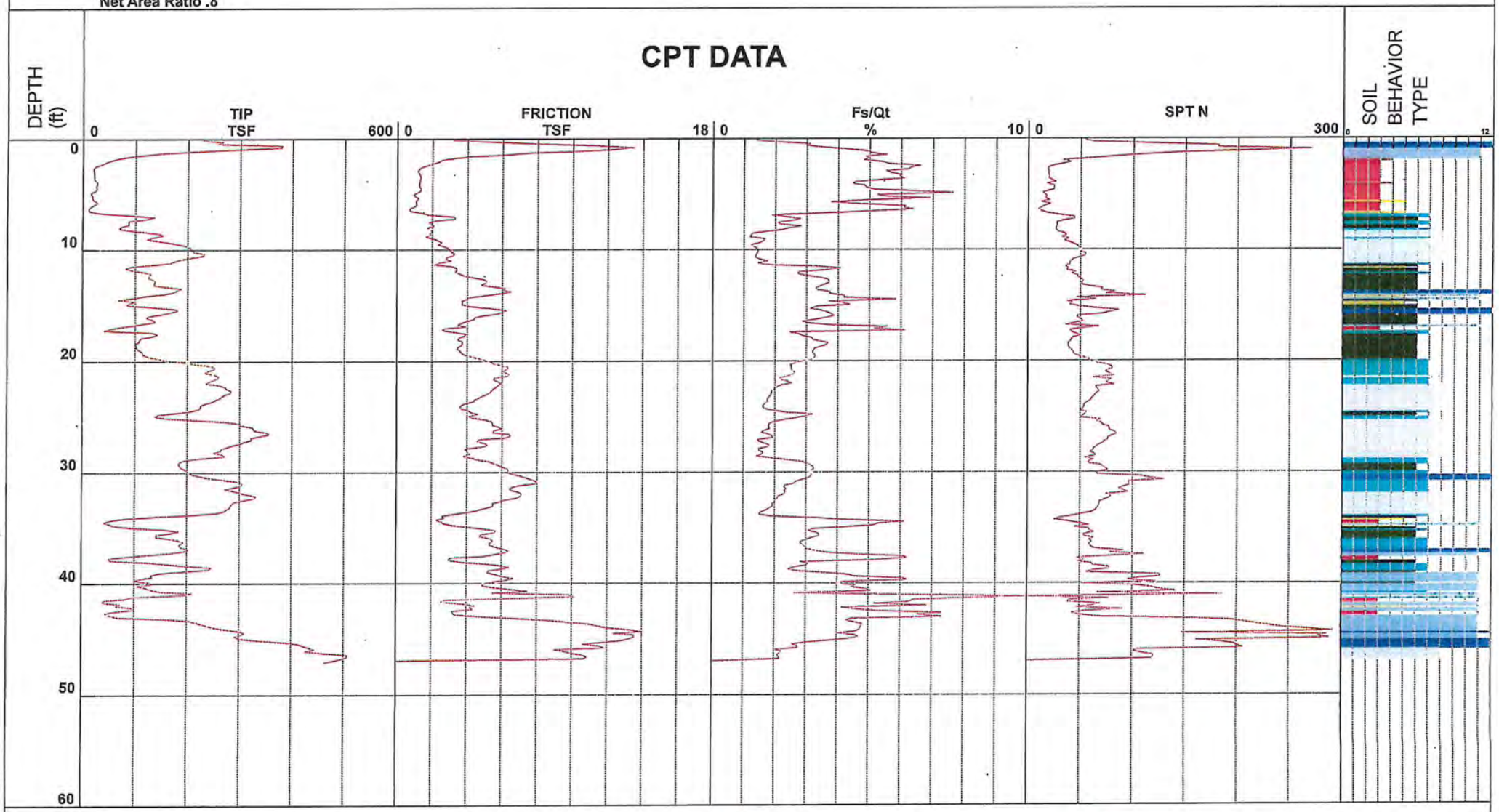
Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Petra Inc

Project	Seville Solar Site	Operator	RA-JC	Filename	SDF(238).cpt
Job Number	332-12	Cone Number	DSG1104	GPS	
Hole Number	CPT-03	Date and Time	11/13/2012 11:20:32 AM	Maximum Depth	47.08 ft
EST GW Depth During Test					

Net Area Ratio .8



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

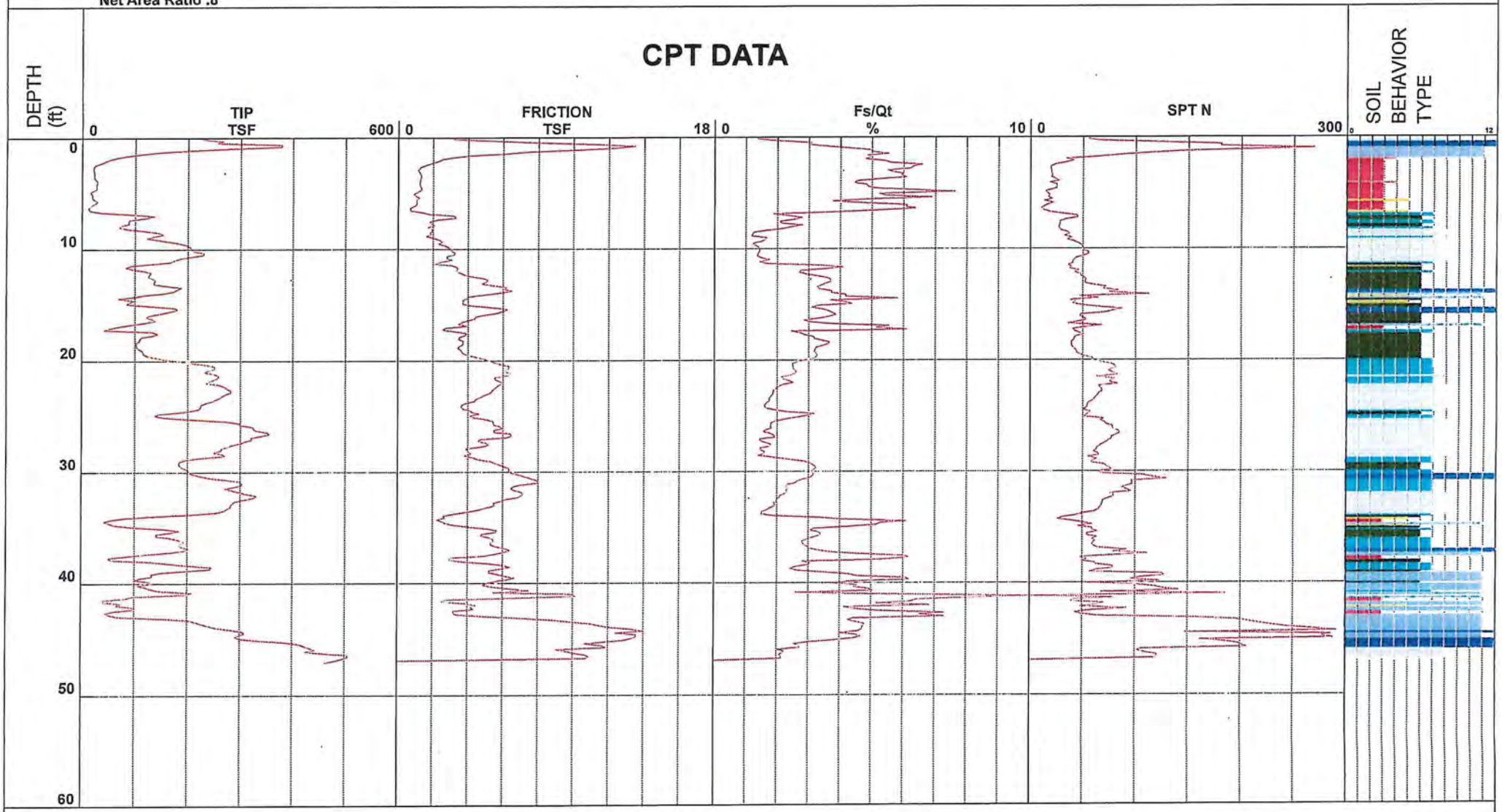
Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Petra Inc

Project	Seville Solar Site	Operator	RA-JC	Filename	SDF(238).cpt
Job Number	332-12	Cone Number	DSG1104	GPS	
Hole Number	CPT-03	Date and Time	11/13/2012 11:20:32 AM	Maximum Depth	47.08 ft
EST GW Depth During Test					

Net Area Ratio .8



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Seville Solar Site

Project ID: Petra Geotech
Data File: SDF(238).cpt
CPT Date: 11/13/2012 11:20:32 AM
GW During Test: 33 ft

Sounding ID: CPT-03
Project No: 332-12
Cone/Rig: DSG1104

Depth ft	qc PS tsf	qcln PS -	qlncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60	SPT R-N1 60	Rel Den	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic	Mk - -	Vol Strn	Dry Stlmt 0.01	Liq Stlmt 0.00	Cycl SStn -
0.33	267.0	428.2	456.5	5.4	0.0	2.0	6	clean SAND to silty SAND	125	5.0	53	86	95	48	-	-	7	16	N/A	0.01	N/A	N/A
0.49	255.7	410.0	493.1	7.9	0.0	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.9	9.9	11	16	N/A	0.01	N/A	N/A
0.66	379.6	608.8	687.1	11.4	-0.1	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	25.1	9.9	9	16	N/A	0.01	N/A	N/A
0.82	378.1	606.4	721.1	13.5	0.0	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	25.0	9.9	10	16	N/A	0.01	N/A	N/A
0.98	282.3	452.7	605.7	12.2	0.0	4.3	9	very stiff fine SOIL	120	2.0	100	100	95	48	-	-	14	30	N/A	0.01	N/A	N/A
1.15	205.9	330.2	505.4	10.2	0.0	5.0	9	very stiff fine SOIL	120	2.0	100	100	95	48	-	-	17	30	N/A	0.01	N/A	N/A
1.31	149.5	239.8	404.2	7.5	-0.1	5.0	9	very stiff fine SOIL	120	2.0	75	100	95	48	-	-	19	30	N/A	0.01	N/A	N/A
1.48	110.7	177.5	352.9	6.1	0.1	5.5	9	very stiff fine SOIL	120	2.0	55	89	86	48	-	-	23	30	N/A	0.01	N/A	N/A
1.64	86.5	138.8	281.1	4.2	0.0	4.9	9	very stiff fine SOIL	120	2.0	43	69	78	48	-	-	23	30	N/A	0.01	N/A	N/A
1.80	65.3	104.8	243.7	3.2	0.1	5.0	9	very stiff fine SOIL	120	2.0	33	52	69	46	-	-	27	30	N/A	0.01	N/A	N/A
1.97	52.6	84.3	213.5	2.5	0.1	4.8	4	clayy SILT to silty CLAY	115	2.0	26	42	-	-	3.7	9.9	29	15	N/A	0.01	N/A	N/A
2.13	43.2	69.3	208.9	2.3	0.1	5.4	4	clayy SILT to silty CLAY	115	2.0	22	35	-	-	3.0	9.9	33	15	N/A	0.01	N/A	N/A
2.30	35.5	57.0	-	2.0	0.0	5.6	4	clayy SILT to silty CLAY	115	2.0	18	28	-	-	2.5	9.9	36	15	N/A	0.01	N/A	N/A
2.46	24.7	39.5	-	1.6	-0.1	6.6	3	silty CLAY to CLAY	115	1.5	16	26	-	-	1.7	9.9	44	15	N/A	0.01	N/A	N/A
2.62	21.1	33.9	-	1.3	-0.2	6.3	3	silty CLAY to CLAY	115	1.5	14	23	-	-	1.5	9.9	46	15	N/A	0.01	N/A	N/A
2.79	19.7	31.6	-	1.2	-0.4	6.3	3	silty CLAY to CLAY	115	1.5	13	21	-	-	1.4	9.9	47	15	N/A	0.01	N/A	N/A
2.95	20.7	33.2	-	1.1	-0.1	5.5	3	silty CLAY to CLAY	115	1.5	14	22	-	-	1.4	9.9	44	15	N/A	0.01	N/A	N/A
3.12	21.2	34.0	-	1.2	-0.2	5.7	3	silty CLAY to CLAY	115	1.5	14	23	-	-	1.5	9.9	44	15	N/A	0.01	N/A	N/A
3.28	21.3	34.1	-	1.3	0.0	6.1	3	silty CLAY to CLAY	115	1.5	14	23	-	-	1.5	9.9	45	15	N/A	0.01	N/A	N/A
3.45	22.1	35.4	-	1.3	-0.1	6.0	3	silty CLAY to CLAY	115	1.5	15	24	-	-	1.5	9.9	44	15	N/A	0.01	N/A	N/A
3.61	21.3	34.2	-	1.3	-0.2	6.2	3	silty CLAY to CLAY	115	1.5	14	23	-	-	1.5	9.9	46	15	N/A	0.01	N/A	N/A
3.77	24.1	38.6	-	1.3	0.0	5.3	3	silty CLAY to CLAY	115	1.5	16	26	-	-	1.7	9.9	41	15	N/A	0.01	N/A	N/A
3.94	27.8	44.5	-	1.3	-0.1	4.6	4	clayy SILT to silty CLAY	115	2.0	14	22	-	-	1.9	9.9	36	15	N/A	0.01	N/A	N/A
4.10	27.5	44.1	-	1.2	-0.1	4.5	4	clayy SILT to silty CLAY	115	2.0	14	22	-	-	1.9	9.9	36	15	N/A	0.01	N/A	N/A
4.27	25.6	41.1	-	1.2	-0.1	4.9	3	silty CLAY to CLAY	115	1.5	17	27	-	-	1.8	9.9	39	15	N/A	0.01	N/A	N/A
4.43	26.3	42.3	-	1.3	-0.1	4.9	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	1.8	9.9	38	15	N/A	0.01	N/A	N/A
4.59	26.5	42.5	-	1.4	-0.1	5.2	3	silty CLAY to CLAY	115	1.5	18	28	-	-	1.9	9.9	39	15	N/A	0.01	N/A	N/A
4.76	20.6	33.1	-	1.3	-0.1	6.3	3	silty CLAY to CLAY	115	1.5	14	22	-	-	1.4	9.9	47	15	N/A	0.01	N/A	N/A
4.92	14.5	23.2	-	1.1	-0.1	7.8	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.0	9.9	58	15	N/A	0.01	N/A	N/A
5.09	17.2	27.7	-	0.9	-0.3	5.3	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	9.9	47	15	N/A	0.01	N/A	N/A
5.25	18.7	30.1	-	1.0	0.0	5.5	3	silty CLAY to CLAY	115	1.5	12	20	-	-	1.3	9.9	46	15	N/A	0.01	N/A	N/A
5.41	17.7	28.3	-	1.2	0.0	7.0	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.2	9.9	52	15	N/A	0.01	N/A	N/A
5.58	21.4	34.3	-	1.1	0.0	5.1	3	silty CLAY to CLAY	115	1.5	14	23	-	-	1.5	9.9	42	15	N/A	0.01	N/A	N/A
5.74	27.9	44.8	139.4	1.1	0.0	3.8	4	clayy SILT to silty CLAY	115	2.0	14	22	-	-	2.0	9.9	34	15	N/A	0.01	N/A	N/A
5.91	22.6	36.2	-	1.1	0.0	4.8	3	silty CLAY to CLAY	115	1.5	15	24	-	-	1.6	9.9	41	15	N/A	0.01	N/A	N/A
6.07	16.7	26.8	-	1.0	0.0	6.3	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	9.9	50	15	N/A	0.01	N/A	N/A
6.23	13.4	21.5	-	0.8	0.0	6.2	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	9.9	55	15	N/A	0.01	N/A	N/A
6.40	10.7	17.1	-	0.7	0.0	6.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.1	61	15	N/A	0.01	N/A	N/A
6.56	14.0	22.5	-	0.7	0.2	5.3	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.0	9.9	51	15	N/A	0.01	N/A	N/A
6.73	37.0	57.5	154.4	1.4	0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	19	29	-	-	2.6	9.9	30	15	N/A	0.01	N/A	N/A
6.89	92.9	142.6	184.8	1.8	0.1	1.9	5	silty SAND to sandy SILT	120	4.0	23	36	79	45	-	-	13	16	N/A	0.01	N/A	N/A
7.05	136.6	207.1	261.4	3.2	0.1	2.4	5	silty SAND to sandy SILT	120	4.0	34	52	91	46	-	-	12	16	N/A	0.01	N/A	N/A
7.22	118.5	177.6	248.7	3.3	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	30	44	86	46	-	-	15	16	N/A	0.01	N/A	N/A
7.38	88.5	131.2	194.7	2.2	0.1	2.5	5	silty SAND to sandy SILT	120	4.0	22	33	76	44	-	-	16	16	N/A	0.01	N/A	N/A
7.55	87.3	127.9	177.0	1.8	0.1	2.1	5	silty SAND to sandy SILT	120	4.0	22	32	75	44	-	-	15	16	N/A	0.01	N/A	N/A
7.71	88.6	128.3	179.7	1.9	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	22	32	75	44	-	-	15	16	N/A	0.01	N/A	N/A
7.87	73.9	105.9	179.5	2.1	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	18	26	69	43	-	-	19	16	N/A	0.01	N/A	N/A
8.04	69.2	98.2	160.4	1.7	0.1	2.4	5	silty SAND to sandy SILT	120	4.0	17	25	66	43	-	-	19	16	N/A	0.01	N/A	N/A
8.20	86.0	120.7	174.7	1.9	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	22	30	73	44	-	-	16	16	N/A	0.01	N/A	N/A
8.37	121.6	169.0	200.1	2.0	0.1	1.6	6	clean SAND to silty SAND	125	5.0	24	34	84	45	-	-	10	16	N/A	0.01	N/A	N/A
8.53	144.3	198.4	215.3	1.8	0.2	1.3	6	clean SAND to silty SAND	125	5.0	29	40	90	46	-	-	7	16	N/A	0.01	N/A	N/A
8.69	153.7	209.2	223.1	1.9	0.2	1.2	6	clean SAND to silty SAND	125	5.0	31	42	91	46	-	-	7	16	N/A	0.01	N/A	N/A
8.86	135.2	182.2	198.4	1.6	0.2	1.2	6	clean SAND to silty SAND	125	5.0	27	36	87	45	-	-	8	16	N/A	0.01	N/A	N/A
9.02	122.4	163.4	197.0	2.1	0.2	1.7	6	clean SAND to silty SAND	125	5.0	24	33	83	45	-	-	11	16	N/A	0.01	N/A	N/A
9.19	147.2	194.6	223.4	2.4	0.2	1.6	6	clean SAND to silty SAND	125	5.0	29	39	89	45	-	-	9	16	N/A	0.01	N/A	N/A
9.35	170.8	223.6	245.7	2.5	0.2	1.5	6	clean SAND to silty SAND	125	5.0	34	45	94	46	-	-	8	16	N/A	0.01	N/A	N/A
9.51	180.2	244.1	253.6	2.3	0.2	1.2	6	clean SAND to silty SAND	125	5.0	36	49	95	46	-	-	6	16	N/A	0.01	N/A	N/A
9.68	199.8	256.8	267.5	2.6	0.2	1.3	6	clean SAND to silty SAND	125	5.0	40	51	95	47	-	-	6	16	N/A	0.01	N/A	N/A
9.84	204.6	260.7	275.3	2.9	0.2	1.4	6	clean SAND to silty SAND	125	5.0	41	52	95	47	-	-	7	16	N/A	0.01	N/A	N/A
10.01	208.5	263.4	278.7	3.0	0.2	1.4	6	clean SAND to silty SAND	125	5.0	42	53	95	47	-	-	7	16	N/A	0.01	N/A	N/A
10.17	211.9	265.4	281.6	3.1	0.2	1.5	6	clean SAND to silty SAND	125	5.0	42	53	95	47	-	-	7	16	N/A	0.01	N/A	N/A
10.34	231.1	287.0	298.8	3.3	0.2	1.4	6	clean SAND to silty SAND	125	5.0	46	57	95	47	-	-	6	16	N/A	0.01	N/A	N/A
10.50	229.8	282.9	294.3	3.2	0.2	1.4	6	clean SAND to silty SAND	125	5.0	46	57	95	47	-	-	6	16	N/A	0.01	N/A	N/A
10.66	207.1	253.0	267.0	2.8	0.1	1.4	6	clean SAND to silty SAND	125	5.0	41	51	95	46	-	-	7	16	N/A	0.01	N/A	N/A
10.83	185.7	225.0	247.3	2.8	0.1	1.5	6	clean SAND to silty SAND	125	5.0	37	45	94	46	-	-	8	16	N/A	0.01	N/A	N/A
10.99	176.3	211.9	244.6	3.1	0.1	1.8	6	clean SAND to silty SAND	125	5.0	35	42	92	45	-	-	9	16	N/A	0.01	N/A	N/A
11.16	166.0	198.0	221.2	2.4	0.1	1.5	6	clean SAND to silty SAND	125	5.0	33	40	90	45	-	-	8	16	N/A	0.01	N/A	N/A
11.32	125.4	148.4	183.8	2.1	0.1	1.7	6	clean SAND to silty SAND	125	5.0	25	30	80	44	-	-	12	16	N/A	0.01	N/A	N/A
11.48	93.0	109.3	197.3	3.0	0.1	3.3	5	silty SAND to sandy SILT	120	4.0	23	27	70	42	-	-	21	16	N/A	0.01	N/A	N/A
11.65	82.3	96.0	208.8	3.4	0.2	4.1	4	clayy SILT to silty CLAY	115	2.0	41	48	-	-	5.8	9.9	25	15	N/A	0.01	N/A	N/A
11.81	95.6	110.7	208.9	3.4	0.1	3.6	5	silty SAND to sandy SILT	120	4.0	24	28	70	42	-	-	22	16	N/A	0.01	N/A	N/A
11.98	119.2	137.2	208.2	3.3	0.2	2.8	5	silty SAND to sandy SILT	120	4.0	30	34	77	43	-	-	17	16	N/A	0.01	N/A	N/A
12.14	130.2	148.8	217.7	3.5	0.2	2.7	5	silty SAND to sandy SILT	120	4.0	33	37	80	44	-	-	16	16	N/A	0.01	N/A	N/A
12.30	126.6	143.6	222.4	3.8	0.2	3.0	5	silty SAND to sandy SILT	120	4.0	32	36	79	43	-	-	17	16	N/A	0.01	N/A	N/A
12.47	124.8	140.7	232.4	4.2	0.2	3.4	5	silty SAND to sandy SILT	120	4.0	31	35	78	43	-	-	19	16	N/A	0.01	N/A	N/A
12.63	132.3	148.2	250.2	4.8	0.1	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.7	9.9	19	16	N/A	0.01	N/A	N/A
12.80	138.3	153.9	258.8	5.1	-0.1	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.1	9.9	19	16	N/A	0.01	N/A	N/A
12.96	136.2	150.6	254.4	5.0	-0.1	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.0	9.9	19	16	N/A	0.01	N/A	N/A
13.12	135.2	148.6	246.1	4.8	0.1	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.9	9.9	19	16	N/A	0.01	N/A	N/A
13.29	157.5	172.2	266.4	5.4	0.1	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.4	9.9	17	16	N/A	0.01	N/A	N/A
13.45	188.1	204.4	293.9	6.2	0.1	3.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.4	9.9	16	16	N/A	0.01	N/A	N/A
13.62	179.7	194.1	286.9	6.1	0.2	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.8	9.9	16	16	N/A	0.01	N/A	N/A
13.78	173.2	186.0	293.5	6.5	0.1	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.4	9.9	18	16	N/A	0.01	N/A	N/A
13.94	155.9	166.5	272.2	5.8	0.2	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.3	9.9	19	16	N/A	0.01	N/A	N/A
14.11	118.5	125.8	245.7	5.0	0.2	4.2	9	very stiff fine SOIL	120	2.0	58	63	75	42	-	-	23	30	N/A	0.01	N/A	N/A
14.27	97.4	102.8	219.5	4.1	0.2	4.2	9	very stiff fine SOIL	120	2.0	49	51	68	41	-	-	25	30	N/A	0.01	N/A	N/A
14.44	67.4	70.7	222.8	3.9	0.1	5.9	9	very stiff fine SOIL	120	2.0	34	35	56	39	-	-	34	30	N/A	0.01	N/A	N/A
14.60	99.5	103.8	205.7	3.7	-0.1	3.7	5	silty SAND to sandy SILT	120	4.0	25	26	68	41	-	-	23	16	N/A	0.01	N/A	N/A
14.76	89.7	93.1	208.3	3.7	0.0	4.2	4	clayy SILT to silty CLAY	115	2.0	45	47	-	-	6.3	9.9	26	15	N/A	0.01	N/A	N/A
14.93	84.2	86.9	207.1	3.7	0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	42	43	-	-	5.9	9.9	27	15	N/A	0.01	N/A	N/A
15.09	127.9	131.3	221.3	4.2	-0.1	3.3	5	silty SAND to sandy SILT	120	4.0	32	33	76	42	-	-	19	16	N/A	0.01	N/A	N/A
15.26	175.2	178.9	261.9	5.5	0.0	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.5	9.9	18	16	N/A	0.01	N/A	N/A
15.42	180.6	183.4	279.5	6.2	0.1	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.9	9.9	17	16	N/A	0.01	N/A	N/A

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Seville Solar Site

Project ID: Petra Geotech
Data File: SDF(238).cpt
CPT Date: 11/13/2012 11:20:32 AM
GW During Test: 33 ft

Sounding ID: CPT-03
Project No: 332-12
Cone/Rig: DSG1104

Depth ft	qc PS tsF	qcln PS -	qlncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato -	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60	SPT R-N1 60	Rel Den	Fin Ang deg	Und Shr tsF	OCR - -	Fin Ic	Nk - -	Vol Strn	Dry Stlmt 0.01	Liq Stlmt 0.00	Cycl SStn
15.58	164.7	166.4	269.0	6.0	0.1	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.9	9.9	18	16	N/A	0.01	N/A	N/A
15.75	149.3	150.1	257.2	5.6	0.1	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.8	9.9	20	16	N/A	0.01	N/A	N/A
15.91	126.4	126.4	235.4	4.9	0.1	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.3	9.9	21	16	N/A	0.01	N/A	N/A
16.08	121.5	121.0	222.8	4.5	0.1	3.7	5	silty SAND to sandy SILT	120	4.0	30	30	73	42	-	-	21	16	N/A	0.01	N/A	N/A
16.24	132.3	131.0	221.0	4.4	0.0	3.3	5	silty SAND to sandy SILT	120	4.0	33	33	76	42	-	-	19	16	N/A	0.01	N/A	N/A
16.40	138.6	136.6	211.2	4.0	0.1	2.9	5	silty SAND to sandy SILT	120	4.0	35	34	77	42	-	-	17	16	N/A	0.01	N/A	N/A
16.57	119.7	117.3	199.5	3.7	0.1	3.1	5	silty SAND to sandy SILT	120	4.0	30	29	72	42	-	-	19	16	N/A	0.01	N/A	N/A
16.73	94.4	92.1	192.5	3.5	0.1	3.7	4	clayy SILT to silty CLAY	115	2.0	47	46	-	-	6.6	9.9	24	15	N/A	0.01	N/A	N/A
16.90	70.8	68.7	213.9	3.9	0.1	5.6	4	clayy SILT to silty CLAY	115	2.0	35	34	-	-	4.9	9.9	34	15	N/A	0.01	N/A	N/A
17.06	53.5	53.0	-	2.8	-0.4	5.2	4	clayy SILT to silty CLAY	115	2.0	27	26	-	-	3.7	9.9	36	15	N/A	0.01	N/A	N/A
17.23	41.6	40.7	-	2.5	-0.4	6.3	3	silty CLAY to CLAY	115	1.5	28	27	-	-	2.9	9.9	43	15	N/A	0.01	N/A	N/A
17.39	131.5	125.9	187.6	3.2	-0.4	2.5	5	silty SAND to sandy SILT	120	4.0	33	31	75	42	-	-	16	16	N/A	0.01	N/A	N/A
17.55	142.8	136.1	207.5	3.9	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	36	34	77	42	-	-	17	16	N/A	0.01	N/A	N/A
17.72	132.7	125.8	202.1	3.8	0.1	2.9	5	silty SAND to sandy SILT	120	4.0	33	31	75	42	-	-	18	16	N/A	0.01	N/A	N/A
17.88	112.2	105.9	191.1	3.5	0.1	3.2	5	silty SAND to sandy SILT	120	4.0	28	26	69	41	-	-	21	16	N/A	0.01	N/A	N/A
18.05	108.4	101.8	188.2	3.5	0.1	3.2	5	silty SAND to sandy SILT	120	4.0	27	25	68	41	-	-	21	16	N/A	0.01	N/A	N/A
18.21	107.8	100.8	194.6	3.7	0.1	3.5	5	silty SAND to sandy SILT	120	4.0	27	25	67	41	-	-	22	16	N/A	0.01	N/A	N/A
18.37	101.0	94.1	195.0	3.7	0.0	3.7	5	silty SAND to sandy SILT	120	4.0	25	24	65	40	-	-	24	16	N/A	0.01	N/A	N/A
18.54	102.4	94.9	194.3	3.7	0.0	3.7	5	silty SAND to sandy SILT	120	4.0	26	24	65	40	-	-	24	16	N/A	0.00	N/A	N/A
18.70	102.5	94.6	188.5	3.5	0.1	3.5	5	silty SAND to sandy SILT	120	4.0	26	24	65	40	-	-	23	16	N/A	0.00	N/A	N/A
18.87	104.6	96.1	184.4	3.4	0.1	3.3	5	silty SAND to sandy SILT	120	4.0	26	24	66	40	-	-	22	16	N/A	0.00	N/A	N/A
19.03	110.7	101.2	188.4	3.6	0.0	3.3	5	silty SAND to sandy SILT	120	4.0	28	25	67	40	-	-	21	16	N/A	0.00	N/A	N/A
19.19	114.4	104.2	190.3	3.6	0.0	3.2	5	silty SAND to sandy SILT	120	4.0	29	26	68	41	-	-	21	16	N/A	0.00	N/A	N/A
19.36	115.4	104.6	192.4	3.7	0.0	3.3	5	silty SAND to sandy SILT	120	4.0	29	26	68	41	-	-	21	16	N/A	0.00	N/A	N/A
19.52	122.5	110.6	199.9	4.0	0.0	3.3	5	silty SAND to sandy SILT	120	4.0	31	28	70	41	-	-	21	16	N/A	0.00	N/A	N/A
19.69	135.3	121.6	210.4	4.4	0.0	3.3	5	silty SAND to sandy SILT	120	4.0	34	30	73	41	-	-	20	16	N/A	0.00	N/A	N/A
19.85	153.7	137.6	223.2	4.9	0.0	3.2	5	silty SAND to sandy SILT	120	4.0	38	34	79	42	-	-	18	16	N/A	0.00	N/A	N/A
20.01	183.5	163.6	236.9	5.2	0.0	2.9	5	silty SAND to sandy SILT	120	4.0	46	41	83	43	-	-	16	16	N/A	0.00	N/A	N/A
20.18	207.8	184.5	249.9	5.5	0.0	2.7	5	silty SAND to sandy SILT	120	4.0	52	46	87	43	-	-	14	16	N/A	0.00	N/A	N/A
20.34	235.8	208.5	267.5	5.9	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	59	52	91	44	-	-	13	16	N/A	0.00	N/A	N/A
20.51	251.2	221.2	281.1	6.3	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	63	55	93	44	-	-	12	16	N/A	0.00	N/A	N/A
20.67	252.3	221.3	280.7	6.3	0.1	2.5	5	silty SAND to sandy SILT	120	4.0	63	55	93	44	-	-	12	16	N/A	0.00	N/A	N/A
20.83	240.4	210.0	271.3	6.1	0.1	2.6	5	silty SAND to sandy SILT	120	4.0	60	53	91	44	-	-	13	16	N/A	0.00	N/A	N/A
21.00	232.0	201.8	266.3	6.1	0.1	2.6	5	silty SAND to sandy SILT	120	4.0	58	50	90	44	-	-	13	16	N/A	0.00	N/A	N/A
21.16	248.2	215.1	277.9	6.4	0.1	2.6	5	silty SAND to sandy SILT	120	4.0	62	54	92	44	-	-	13	16	N/A	0.00	N/A	N/A
21.33	259.3	223.9	280.6	6.3	0.1	2.5	6	clean SAND to silty SAND	125	5.0	52	45	94	44	-	-	12	16	N/A	0.00	N/A	N/A
21.49	257.3	221.3	267.4	5.5	0.1	2.2	6	clean SAND to silty SAND	125	5.0	51	44	93	44	-	-	11	16	N/A	0.00	N/A	N/A
21.65	250.6	214.6	263.0	5.5	0.1	2.2	6	clean SAND to silty SAND	125	5.0	50	43	92	44	-	-	11	16	N/A	0.00	N/A	N/A
21.82	241.9	206.4	261.4	5.7	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	60	52	91	44	-	-	12	16	N/A	0.00	N/A	N/A
21.98	235.3	199.9	260.9	6.0	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	59	50	90	44	-	-	13	16	N/A	0.00	N/A	N/A
22.15	260.7	220.7	269.8	5.8	0.0	2.2	6	clean SAND to silty SAND	125	5.0	52	44	93	44	-	-	11	16	N/A	0.00	N/A	N/A
22.31	271.7	229.1	272.4	5.7	0.0	2.1	6	clean SAND to silty SAND	125	5.0	54	46	94	44	-	-	10	16	N/A	0.00	N/A	N/A
22.47	274.5	230.6	271.3	5.5	0.1	2.0	6	clean SAND to silty SAND	125	5.0	55	46	95	44	-	-	10	16	N/A	0.00	N/A	N/A
22.64	282.9	236.8	273.4	5.4	0.1	1.9	6	clean SAND to silty SAND	125	5.0	57	47	95	44	-	-	9	16	N/A	0.00	N/A	N/A
22.80	282.2	235.3	271.1	5.3	0.1	1.9	6	clean SAND to silty SAND	125	5.0	56	47	95	44	-	-	9	16	N/A	0.00	N/A	N/A
22.97	272.7	226.5	262.8	5.1	0.1	1.9	6	clean SAND to silty SAND	125	5.0	55	45	94	44	-	-	10	16	N/A	0.00	N/A	N/A
23.13	265.5	219.7	254.6	4.9	0.1	1.8	6	clean SAND to silty SAND	125	5.0	53	44	93	44	-	-	10	16	N/A	0.00	N/A	N/A
23.30	260.9	215.1	248.8	4.7	0.1	1.8	6	clean SAND to silty SAND	125	5.0	52	43	92	44	-	-	10	16	N/A	0.00	N/A	N/A
23.46	253.3	208.1	241.1	4.4	0.1	1.8	6	clean SAND to silty SAND	125	5.0	51	42	91	44	-	-	10	16	N/A	0.00	N/A	N/A
23.62	246.9	202.1	236.2	4.4	0.1	1.8	6	clean SAND to silty SAND	125	5.0	49	40	90	43	-	-	10	16	N/A	0.00	N/A	N/A
23.79	233.0	190.0	221.9	3.9	0.1	1.7	6	clean SAND to silty SAND	125	5.0	47	38	88	43	-	-	10	16	N/A	0.00	N/A	N/A
23.95	225.2	183.0	213.8	3.7	0.1	1.6	6	clean SAND to silty SAND	125	5.0	45	37	87	43	-	-	10	16	N/A	0.00	N/A	N/A
24.12	224.6	181.9	211.9	3.6	0.1	1.6	6	clean SAND to silty SAND	125	5.0	45	36	87	43	-	-	10	16	N/A	0.00	N/A	N/A
24.28	222.4	179.4	211.6	3.7	0.2	1.7	6	clean SAND to silty SAND	125	5.0	44	36	86	43	-	-	10	16	N/A	0.00	N/A	N/A
24.44	206.9	166.3	210.0	4.1	0.2	2.0	6	clean SAND to silty SAND	125	5.0	41	33	84	42	-	-	12	16	N/A	0.00	N/A	N/A
24.61	178.9	143.3	201.4	4.2	0.2	2.4	5	silty SAND to sandy SILT	120	4.0	45	36	76	42	-	-	15	16	N/A	0.00	N/A	N/A
24.77	144.6	115.4	202.5	4.6	0.2	3.2	5	silty SAND to sandy SILT	120	4.0	36	29	72	40	-	-	20	16	N/A	0.00	N/A	N/A
24.94	137.7	109.6	189.3	4.1	0.1	3.0	5	silty SAND to sandy SILT	120	4.0	34	27	70	40	-	-	20	16	N/A	0.00	N/A	N/A
25.10	160.6	127.4	196.3	4.3	-0.3	2.7	5	silty SAND to sandy SILT	120	4.0	40	32	75	41	-	-	17	16	N/A	0.00	N/A	N/A
25.26	218.3	172.6	226.1	5.0	-0.3	2.3	5	silty SAND to sandy SILT	120	4.0	55	43	85	42	-	-	13	16	N/A	0.00	N/A	N/A
25.43	274.1	216.0	256.2	5.4	0.0	2.0	6	clean SAND to silty SAND	125	5.0	55	43	92	44	-	-	10	16	N/A	0.00	N/A	N/A
25.59	298.3	234.3	268.0	5.4	0.1	1.8	6	clean SAND to silty SAND	125	5.0	60	47	95	44	-	-	9	16	N/A	0.00	N/A	N/A
25.76	300.6	235.3	268.5	5.5	0.1	1.8	6	clean SAND to silty SAND	125	5.0	60	47	95	44	-	-	9	16	N/A	0.00	N/A	N/A
25.92	323.7	252.5	283.7	5.8	0.1	1.8	6	clean SAND to silty SAND	125	5.0	65	51	95	44	-	-	9	16	N/A	0.00	N/A	N/A
26.08	325.4	253.0	285.8	6.0	0.1	1.8	6	clean SAND to silty SAND	125	5.0	65	51	95	44	-	-	9	16	N/A	0.00	N/A	N/A
26.25	328.3	254.4	281.0	5.5	0.1	1.7	6	clean SAND to silty SAND	125	5.0	66	51	95	44	-	-	8	16	N/A	0.00	N/A	N/A
26.41	351.8	271.8	292.1	5.5	0.1	1.6	6	clean SAND to silty SAND	125	5.0	70	54	95	45	-	-	7	16	N/A	0.00	N/A	N/A
26.58	356.1	274.2	304.1	6.4	0.1	1.8	6	clean SAND to silty SAND	125	5.0	71	55	95	45	-	-	8	16	N/A	0.00	N/A	N/A
26.74	339.1	260.3	295.4	6.5	0.1	1.9	6	clean SAND to silty SAND	125	5.0	68	52	95	44	-	-	9	16	N/A	0.00	N/A	N/A
26.90	320.4	245.2	282.3	6.2	0.1	1.9	6	clean SAND to silty SAND	125	5.0	64	49	95	44	-	-	9	16	N/A	0.00	N/A	N/A
27.07	322.9	246.3	264.9	4.7	0.1	1.5	6	clean SAND to silty SAND	125	5.0	65	49	95	44	-	-	7	16	N/A	0.00	N/A	N/A
27.23	309.2	235.1	256.2	4.6	0.1	1.5	6	clean SAND to silty SAND	125	5.0	62	47	95	44	-	-	8	16	N/A	0.00	N/A	N/A
27.40	300.7	227.9	256.4	5.0	0.1	1.7	6	clean SAND to silty SAND	125	5.0	60	46	94	44	-	-	9	16	N/A	0.00	N/A	N/A
27.56	284.8	215.2	250.0	5.2	0.1	1.8	6	clean SAND to silty SAND	125	5.0	57	43	92	43	-	-	10	16	N/A	0.00	N/A	N/A
27.72	275.2	207.3	240.2	4.8	0.1	1.8	6	clean SAND to silty SAND	125	5.0	55	41	91	43	-	-	10	16	N/A	0.00	N/A	N/A
27.89	264.6	198.7	223.1	3.9	0.1	1.5	6	clean SAND to silty SAND	125	5.0	53	40	90	43	-	-	9	16	N/A	0.00	N/A	N/A
28.05	264.1	197.7	222.5	3.9	0.2	1.5	6	clean SAND to silty SAND	125	5.0	53	40	89	43	-	-	9	16	N/A	0.00	N/A	N/A
28.22	248.9	185.8	216.2	4.0	0.2	1.6	6	clean SAND to silty SAND	125	5.0	50	37	87	43	-	-	10	16	N/A	0.00	N/A	N/A
28.38	266.2	198.1	225.9	4.2	0.2	1.6	6	clean SAND to silty SAND	125	5.0	53	40	90	43	-	-	9	16	N/A	0.00	N/A	N/A
28.54	271.1	201.2	222.9	3.8	0.2	1.4	6	clean SAND to silty SAND	125	5.0	54	40	90	43	-	-	8	16	N/A	0.00	N/A	N/A
28.71	227.8	168.5	208.3	4.3	0.2	1.9	6	clean SAND to silty SAND	125	5.0	46	34	84	42	-	-	12	16	N/A	0.00	N/A	N/A
28.87	195.9	144.5	201.7	4.6	0.2	2.4	5	silty SAND to sandy SILT	120	4.0	49	36	79	41	-	-	15	16	N/A	0.00	N/A	N/A
29.04	185.9	136.7	211.4	5.3	0.2	2.9	5	silty SAND to sandy SILT	120	4.0	48	34	77	41	-	-	17	16	N/A	0.00	N/A	N/A
29.20	182.8	134.1	215.3	5.6	0.2	3.1	5	silty SAND to sandy SILT	120	4.0	48	34	77	41	-	-	18	16	N/A	0.00	N/A	N/A
29.36	184.2	134.7	219.7	5.8	0.3	3.2	5	silty SAND to sandy SILT	120	4.0	46	34	77	41	-	-	19	16	N/A	0.00	N/A	N/A
29.53	189.3	137.3	225.1	6.1	0.3	3.3	5	silty SAND to sandy SILT	120	4.0	47	34	77	41	-	-	19	16	N/A	0.00	N/A	N/A
29.69	194.7	141.6	229.8	6.3	0.3	3.3	5	silty SAND to sandy SILT	120	4.0	49	35	78	41	-	-	18	16	N/A	0.00	N/A	N/A
29.86	200.8	145.6	231.3	6.4	0.3	3.2	5	silty SAND to sandy SILT	120	4.0	50	36	79	41	-	-	18	16	N/A	0.00	N/A	N/A
30.02	203.9	147.5	230.4	6.3	0.3	3.1	5	silty SAND to sandy SILT	120	4.0	51	37	80	41	-	-	18	16	N/A	0.00	N/A	N/A
30.19	210.7	152.0	238.0	6.7	0.3	3.2	5	silty SAND to sandy SILT	120	4.0	53	38	81	41	-	-	18	16	N/A	0.00	N/A	N/A
30.35	225.1	161.9	246.6	7.1	0.3	3.2	5	silty SAND to sandy SILT	120	4.0	56	40	83	42	-	-	17	16	N/A	0.00	N/A	N/A
30.51	242.2	173.7	255.0	7.4	0.3	3.1	5	silty SAND to sandy SILT	120	4.0	61	43	85	42	-	-	16	16	N/A	0.00	N/A	N/A
30.68	272.0	194.6	267.4	7.7	0.3	2.9	5	silty SAND to sandy SILT	120	4.0	68	49	89	43	-	-	14	16	N/A	0.00	N/A	N/A
30.84	301.1	214.9	280.5	8.0	0.3	2.7	5	silty SAND to sandy SILT	120	4.0	75	54	92	43	-	-	13	16	N/A	0.00	N/A	N/A

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Seville Solar Site

Project ID: Petra Geotech
Data File: SDF(238).cpt
CPT Date: 11/13/2012 11:20:32 AM
GW During Test: 33 ft

Sounding ID: CPT-03
Project No: 332-12
Cone/Rig: DSG1104

Depth ft	qc PS tsf	*qcln PS -	*qincs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato	*Mat Typ Zon	*Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60	SPT R-N1 60	*Rel Den	*Fin Ang deg	Und Shr tsf	OCR - -	Fin Ic	Nk -	*Vol Strn	*Dry Stlmt 0.01	*Liq Stlmt 0.00	*Cycl SStn
31.01	303.9	216.3	279.5	7.9	0.3	2.6	5	silty SAND to sandy SILT	120	4.0	78	54	92	43	-	-	13	16	N/A	0.00	N/A	N/A
31.17	302.7	214.9	267.5	7.0	0.4	2.3	6	clean SAND to silty SAND	125	5.0	61	43	92	43	-	-	12	16	N/A	0.00	N/A	N/A
31.33	289.4	204.9	257.0	6.6	0.4	2.3	6	clean SAND to silty SAND	125	5.0	58	41	91	43	-	-	12	16	N/A	0.00	N/A	N/A
31.50	271.2	191.5	247.3	6.4	0.4	2.4	5	silty SAND to sandy SILT	120	4.0	68	48	88	42	-	-	13	16	N/A	0.00	N/A	N/A
31.66	287.3	202.3	255.0	6.6	0.3	2.3	6	clean SAND to silty SAND	125	5.0	57	40	90	43	-	-	12	16	N/A	0.00	N/A	N/A
31.83	300.0	210.7	264.3	7.0	0.3	2.4	6	clean SAND to silty SAND	125	5.0	60	42	92	43	-	-	12	16	N/A	0.00	N/A	N/A
31.99	314.0	219.9	270.8	7.1	0.3	2.3	6	clean SAND to silty SAND	125	5.0	63	44	93	43	-	-	11	16	N/A	0.00	N/A	N/A
32.15	332.2	232.1	276.5	7.0	0.3	2.1	6	clean SAND to silty SAND	125	5.0	66	46	95	43	-	-	10	16	N/A	0.00	N/A	N/A
32.32	325.9	227.1	270.9	6.8	0.3	2.1	6	clean SAND to silty SAND	125	5.0	65	45	94	43	-	-	10	16	N/A	0.00	N/A	N/A
32.48	306.3	212.9	254.4	6.1	0.3	2.0	6	clean SAND to silty SAND	125	5.0	61	43	92	43	-	-	11	16	N/A	0.00	N/A	N/A
32.65	289.6	200.7	243.3	5.8	0.3	2.0	6	clean SAND to silty SAND	125	5.0	58	40	90	43	-	-	11	16	N/A	0.00	N/A	N/A
32.81	286.4	198.0	236.9	5.5	0.3	1.9	6	clean SAND to silty SAND	125	5.0	57	40	90	42	-	-	11	16	N/A	0.00	N/A	N/A
32.97	282.5	194.8	235.8	5.5	0.4	2.0	6	clean SAND to silty SAND	125	5.0	56	39	89	42	-	-	11	16	N/A	0.00	N/A	N/A
33.14	282.5	194.5	233.6	5.4	0.4	1.9	6	clean SAND to silty SAND	125	5.0	57	39	89	42	-	-	11	16	0.00	-	0.00	0.0
33.30	275.2	189.2	224.4	4.9	0.4	1.8	6	clean SAND to silty SAND	125	5.0	55	38	88	42	-	-	10	16	0.00	-	0.00	0.0
33.47	271.5	186.4	218.6	4.5	0.4	1.7	6	clean SAND to silty SAND	125	5.0	54	37	88	42	-	-	10	16	0.00	-	0.00	0.0
33.63	256.4	175.9	204.0	3.9	0.4	1.5	6	clean SAND to silty SAND	125	5.0	51	35	86	42	-	-	10	16	0.00	-	0.00	0.0
33.79	210.7	144.3	174.7	3.2	0.4	1.5	6	clean SAND to silty SAND	125	5.0	42	29	79	41	-	-	11	16	0.00	-	0.00	0.0
33.96	135.8	92.9	140.5	2.6	0.4	1.9	5	silty SAND to sandy SILT	120	4.0	34	23	65	38	-	-	17	16	0.37	-	0.00	2.0
34.12	81.5	55.7	145.2	2.7	0.4	3.4	4	clayy SILT to silty CLAY	115	2.0	41	28	-	-	5.6	9.9	29	15	0.22	-	0.00	0.6
34.29	55.1	27.2	-	2.3	0.4	4.3	3	silty CLAY to CLAY	115	1.5	37	18	-	-	3.8	8.6	44	15	-	-	0.00	-
34.45	42.1	20.8	-	2.6	0.5	6.4	3	silty CLAY to CLAY	115	1.5	28	14	-	-	2.8	6.5	57	15	-	-	0.00	-
34.61	51.0	25.1	-	2.7	2.6	5.5	3	silty CLAY to CLAY	115	1.5	34	17	-	-	3.5	7.9	50	15	-	-	0.00	-
34.78	61.2	30.0	-	3.2	2.1	5.4	3	silty CLAY to CLAY	115	1.5	41	20	-	-	4.2	9.6	46	15	-	-	0.00	-
34.94	94.8	64.4	178.2	4.0	2.4	4.4	4	clayy SILT to silty CLAY	115	2.0	47	32	-	-	6.6	9.9	31	15	0.00	-	0.00	0.0
35.11	154.7	105.0	193.0	5.0	1.5	3.3	5	silty SAND to sandy SILT	120	4.0	39	26	69	39	-	-	21	16	0.00	-	0.00	0.0
35.27	184.5	125.1	207.6	5.7	0.4	3.1	5	silty SAND to sandy SILT	120	4.0	46	31	74	40	-	-	19	16	0.00	-	0.00	0.0
35.43	167.9	113.7	205.1	5.6	0.3	3.4	5	silty SAND to sandy SILT	120	4.0	42	28	71	39	-	-	21	16	0.00	-	0.00	0.0
35.60	141.0	95.4	189.4	4.8	0.3	3.5	5	silty SAND to sandy SILT	120	4.0	35	24	65	38	-	-	23	16	0.00	-	0.00	0.0
35.76	141.2	95.5	187.5	4.7	0.3	3.4	5	silty SAND to sandy SILT	120	4.0	35	24	65	38	-	-	23	16	0.00	-	0.00	0.0
35.93	166.0	112.1	197.9	5.2	0.2	3.2	5	silty SAND to sandy SILT	120	4.0	42	28	71	39	-	-	20	16	0.00	-	0.00	0.0
36.09	184.3	124.3	203.4	5.5	0.2	3.0	5	silty SAND to sandy SILT	120	4.0	46	31	74	40	-	-	19	16	0.00	-	0.00	0.0
36.26	193.5	130.3	204.4	5.5	0.3	2.8	5	silty SAND to sandy SILT	120	4.0	48	33	76	40	-	-	18	16	0.00	-	0.00	0.0
36.42	187.6	126.2	200.7	5.3	0.3	2.9	5	silty SAND to sandy SILT	120	4.0	47	32	75	40	-	-	18	16	0.00	-	0.00	0.0
36.58	184.4	123.9	200.4	5.3	0.3	2.9	5	silty SAND to sandy SILT	120	4.0	46	31	74	40	-	-	18	16	0.00	-	0.00	0.0
36.75	189.5	127.2	206.7	5.6	0.3	3.0	5	silty SAND to sandy SILT	120	4.0	47	32	75	40	-	-	18	16	0.00	-	0.00	0.0
36.91	203.2	136.2	216.9	6.1	0.3	3.0	5	silty SAND to sandy SILT	120	4.0	51	34	77	40	-	-	18	16	0.00	-	0.00	0.0
37.08	192.5	128.9	220.3	6.4	0.3	3.4	5	silty SAND to sandy SILT	120	4.0	48	32	75	40	-	-	20	16	0.00	-	0.00	0.0
37.24	164.3	110.0	213.3	6.1	0.3	3.7	5	silty SAND to sandy SILT	120	4.0	41	27	70	39	-	-	22	16	0.00	-	0.00	0.0
37.40	117.0	78.2	207.3	5.5	0.3	4.8	4	clayy SILT to silty CLAY	115	2.0	59	39	-	-	8.1	9.9	30	15	0.00	-	0.00	0.0
37.57	80.8	38.2	-	4.9	0.3	6.3	3	silty CLAY to CLAY	115	1.5	54	25	-	-	5.6	9.9	44	15	-	-	0.00	-
37.73	49.6	23.4	-	3.1	0.3	6.5	3	silty CLAY to CLAY	115	1.5	33	16	-	-	3.4	7.4	54	15	-	-	0.00	-
37.90	56.2	26.4	-	3.0	0.5	5.5	3	silty CLAY to CLAY	115	1.5	37	18	-	-	3.8	8.4	49	15	-	-	0.00	-
38.06	128.1	85.3	161.4	3.6	-0.1	2.9	5	silty SAND to sandy SILT	120	4.0	32	21	62	38	-	-	22	16	0.00	-	0.00	0.0
38.22	159.6	106.1	189.5	4.9	0.2	3.1	5	silty SAND to sandy SILT	120	4.0	40	27	69	39	-	-	21	16	0.00	-	0.00	0.0
38.39	196.6	130.6	210.4	5.9	0.3	3.0	5	silty SAND to sandy SILT	120	4.0	49	33	76	40	-	-	18	16	0.00	-	0.00	0.0
38.55	246.3	163.4	229.0	6.4	0.2	2.6	5	silty SAND to sandy SILT	120	4.0	62	41	83	41	-	-	15	16	0.00	-	0.00	0.0
38.72	242.9	160.9	220.6	5.9	0.3	2.5	5	silty SAND to sandy SILT	120	4.0	61	40	83	41	-	-	14	16	0.00	-	0.00	0.0
38.88	195.7	129.5	198.9	5.2	0.3	2.7	5	silty SAND to sandy SILT	120	4.0	49	32	76	40	-	-	17	16	0.00	-	0.00	0.0
39.04	149.3	98.7	195.1	5.2	0.3	3.5	5	silty SAND to sandy SILT	120	4.0	37	25	67	38	-	-	23	16	0.00	-	0.00	0.0
39.21	131.4	86.8	205.9	5.6	0.3	4.4	4	clayy SILT to silty CLAY	115	2.0	66	43	-	-	9.1	9.9	27	15	0.00	-	0.00	0.0
39.37	133.8	88.3	214.6	6.1	0.2	4.6	4	clayy SILT to silty CLAY	115	2.0	67	44	-	-	9.3	9.9	28	15	0.00	-	0.00	0.0
39.54	109.5	50.4	-	6.7	0.3	6.2	3	silty CLAY to CLAY	115	1.5	73	34	-	-	7.6	9.9	40	15	-	-	0.00	-
39.70	100.4	46.2	-	6.2	0.3	6.4	3	silty CLAY to CLAY	115	1.5	67	31	-	-	6.9	9.9	41	15	-	-	0.00	-
39.86	128.3	84.4	202.7	5.5	0.2	4.4	4	clayy SILT to silty CLAY	115	2.0	64	42	-	-	8.9	9.9	27	15	0.00	-	0.00	0.0
40.03	134.5	88.4	193.2	5.1	0.3	3.9	4	clayy SILT to silty CLAY	115	2.0	67	44	-	-	9.4	9.9	25	15	0.00	-	0.00	0.0
40.19	105.8	48.4	-	4.9	0.4	4.7	4	clayy SILT to silty CLAY	115	2.0	53	24	-	-	7.3	9.9	36	15	-	-	0.00	-
40.36	122.4	80.3	202.6	5.4	0.3	4.5	4	clayy SILT to silty CLAY	115	2.0	61	40	-	-	8.5	9.9	28	15	0.00	-	0.00	0.0
40.52	130.5	85.5	222.0	6.4	0.2	5.0	9	very stiff fine SOIL	120	2.0	65	43	62	38	-	-	29	30	0.00	-	0.00	0.0
40.68	148.3	97.1	240.7	7.5	0.4	5.1	9	very stiff fine SOIL	120	2.0	74	49	66	38	-	-	28	30	0.00	-	0.00	0.0
40.85	209.5	137.0	203.5	5.4	0.2	2.6	5	silty SAND to sandy SILT	120	4.0	52	34	77	40	-	-	16	16	0.00	-	0.00	0.0
41.01	195.1	127.5	277.1	9.8	0.3	5.1	9	very stiff fine SOIL	120	2.0	98	64	75	40	-	-	25	30	0.00	-	0.00	0.0
41.18	96.2	43.4	-	10.1	0.3	9.9	3	silty CLAY to CLAY	115	1.5	64	29	-	-	6.6	9.9	51	15	-	-	0.00	-
41.34	82.3	37.1	-	6.4	0.3	8.0	3	silty CLAY to CLAY	115	1.5	55	25	-	-	5.7	9.9	49	15	-	-	0.00	-
41.50	42.4	19.1	-	2.7	0.3	6.8	3	silty CLAY to CLAY	115	1.5	28	13	-	-	2.8	5.9	60	15	-	-	0.00	-
41.67	40.2	18.0	-	2.5	0.6	6.7	3	silty CLAY to CLAY	115	1.5	27	12	-	-	2.7	5.6	61	15	-	-	0.00	-
41.83	73.3	32.8	-	3.8	1.5	5.4	3	silty CLAY to CLAY	115	1.5	49	22	-	-	5.0	9.9	44	15	-	-	0.00	-
42.00	65.4	29.2	-	4.5	0.8	7.1	3	silty CLAY to CLAY	115	1.5	44	19	-	-	4.5	9.3	52	15	-	-	0.00	-
42.16	100.6	44.9	-	4.2	0.9	4.2	4	clayy SILT to silty CLAY	115	2.0	50	22	-	-	6.9	9.9	35	15	-	-	0.00	-
42.32	95.9	42.7	-	4.4	0.4	4.7	4	clayy SILT to silty CLAY	115	2.0	48	21	-	-	6.6	9.9	38	15	-	-	0.00	-
42.49	59.8	26.6	-	3.1	0.3	5.5	3	silty CLAY to CLAY	115	1.5	40	18	-	-	4.1	8.4	49	15	-	-	0.00	-
42.65	44.4	19.7	-	3.2	0.3	7.8	3	silty CLAY to CLAY	115	1.5	30	13	-	-	3.0	6.1	62	15	-	-	0.00	-
42.82	50.4	22.3	-	3.3	0.4	6.9	3	silty CLAY to CLAY	115	1.5	34	15	-	-	3.4	7.0	57	15	-	-	0.00	-
42.98	68.2	30.2	-	5.0	1.1	7.6	3	silty CLAY to CLAY	115	1.5	45	20	-	-	4.7	9.6	52	15	-	-	0.00	-
43.15	162.5	104.8	231.4	7.2	1.3	4.5	9	very stiff fine SOIL	120	2.0	81	52	69	38	-	-	25	30	0.00	-	0.00	0.0
43.31	204.3	131.6	256.0	8.7	0.9	4.3	9	very stiff fine SOIL	120	2.0	100	66	76	40	-	-	22	30	0.00	-	0.00	0.0
43.47	216.9	139.6	273.4	9.8	0.6	4.6	9	very stiff fine SOIL	120	2.0	100	70	78	40	-	-	23	30	0.00	-	0.00	0.0
43.64	228.2	146.7	291.9	11.0	0.5	4.9	9	very stiff fine SOIL	120	2.0	100	73	80	41	-	-	23	30	0.00	-	0.00	0.0
43.80	240.0	154.2	299.0	11.4	0.4	4.8	9	very stiff fine SOIL	120	2.0	100	77	81	41	-	-	22	30	0.00	-	0.00	0.0
43.97	254.4	163.2	308.1	12.0	0.3	4.8	9	very stiff fine SOIL	120	2.0	100	82	83	41	-	-	22	30	0.00	-	0.00	0.0
44.13	280.9	180.1	326.5	13.2	0.3	4.8	9	very stiff fine SOIL	120	2.0	100	90	86	42	-	-	21	30	0.00	-	0.00	0.0
44.29	304.6	195.1	338.3	14.0	0.3	4.6	9	very stiff fine SOIL	120	2.0	100	98	89	42	-	-	20	30	0.00	-	0.00	0.0
44.46	309.5	198.0	317.3	12.4	0.4	4.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	20.4	9.9	18	16	0.00	-	0.00	0.0
44.62	300.1	191.8	332.0	13.6	0.4	4.6	9	very stiff fine SOIL	120	2.0	100	96	88	42	-	-	20	30	0.00	-	0.00	0.0
44.79	290.2	185.3	330.8	13.6	0.3	4.7	9	very stiff fine SOIL	120	2.0	100	93	87	42	-	-	21	30	0.00	-	0.00	0.0
44.95	301.5	192.3	328.5	13.3	0.3	4.5	9	very stiff fine SOIL	120	2.0	100	96	89	42	-	-	20	30	0.00	-	0.00	0.0
45.11	337.3	214.9	327.6	12.9	0.3	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.2	9.9	17	16	0.00	-	0.00	0.0
45.28	387.8	246.8	327.3	11.8	0.3	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	25.5	9.9	13	16	0.00	-	0.00	0.0
45.44	413.8	263.2	324.2	10.6	0.3	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	27.3	9.9	11	16	0.00	-	0.00	0.0
45.61	422.5	268.4	336.5	11.6	0.3	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	27.8	9.9	12	16	0.00	-	0.00	0.0
45.77	431.9	274.2	342.3	11.9	0.3	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	28.5	9.9	12	16	0.00	-	0.00	0.0
45.93	444.3	281.8	320.6	9.0	0.3	2.0	6	clean SAND to silty SAND	125	5.0	89	56	95	44	-	-	9	16	0.00	-	0.00	0.0
46.10	425.5	269.6	317.7	9.6	0.3	2.3	6	clean SAND to silty SAND	125	5.0	85	54	95	44	-	-	10	16	0.00	-	0.00	0.0
46.26	464.1	293.7	337.3	10.1	0.4	2.2	6	clean SAND to silty SAND	125	5.0	93	59	95	44	-	-	9	16	0.00	-	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Petra Geotech
Data File: SDF(238).cpt
CPT Date: 11/13/2012 11:20:32 AM
GW During Test: 33 ft

Sounding ID: CPT-03
Project No: 332-12
Cone/Rig: DSG1104

Depth ft	qc PS tsf	qcln PS -	qincs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato -	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60	SPT R-N1 60	Rel Den	Fin Ang deg	Und Sht tsf	OCR - -	Fin Ic	Nk - -	Vol Strn	Dry Stlmt 0.01	Liq Stlmt 0.00	Cycl SStn
46.43	505.0	319.2	358.9	10.6	0.5	2.1	6	clean SAND to silty SAND	125	5.0	100	64	95	44	-	-	9	16	0.00	-	0.00	0.0
46.59	506.5	319.8	361.5	10.9	0.5	2.2	6	clean SAND to silty SAND	125	5.0	100	64	95	44	-	-	9	16	0.00	-	0.00	0.0
46.75	496.2	313.0	355.3	10.7	0.5	2.2	6	clean SAND to silty SAND	125	5.0	99	63	95	44	-	-	9	16	0.00	-	0.00	0.0

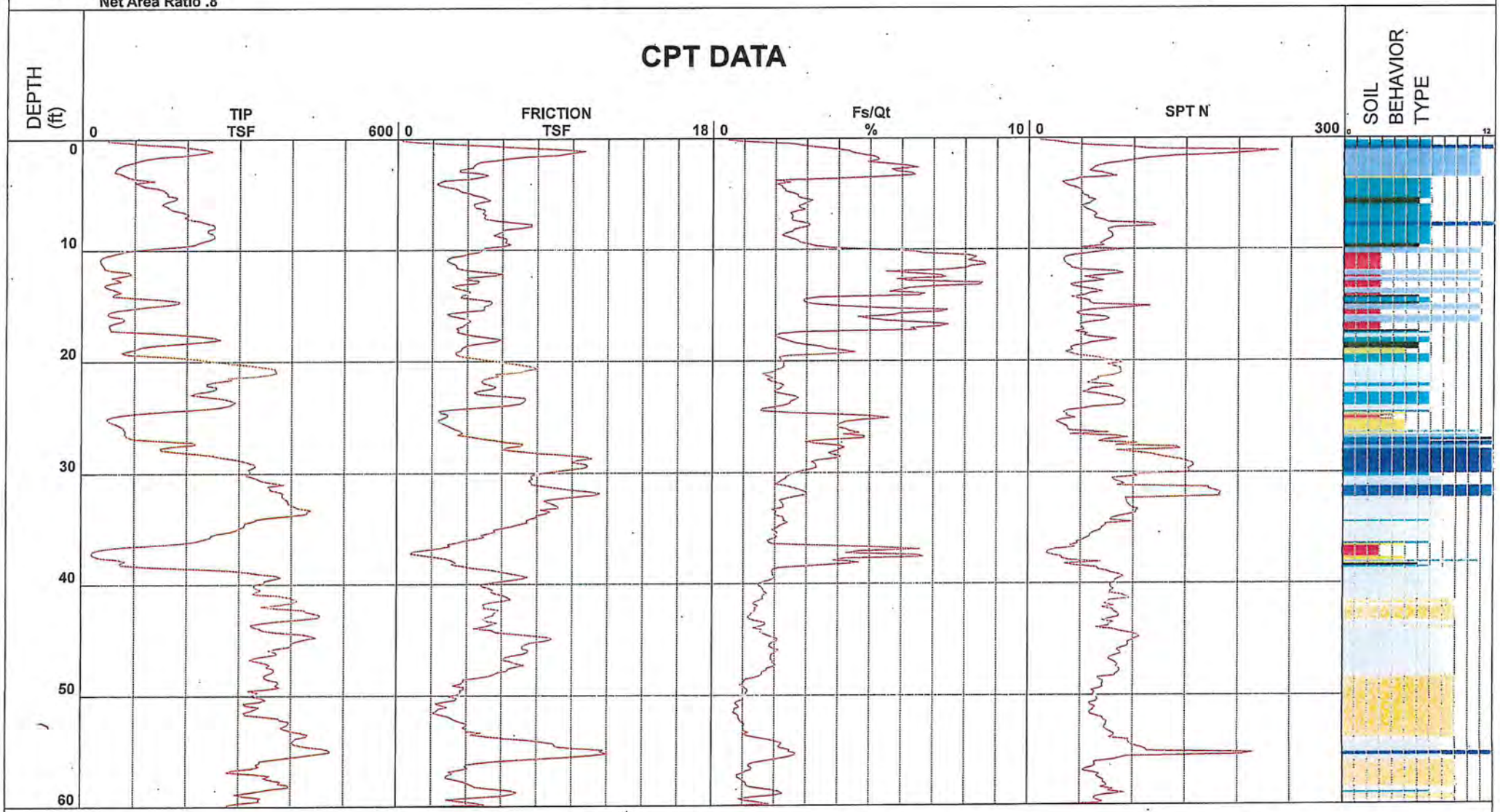
* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Petra Inc

Project	Seville Solar Site	Operator	RA-JC	Filename	SDF(239).cpt
Job Number	332-12	Cone Number	DSG1104	GPS	
Hole Number	CPT-04	Date and Time	11/13/2012 12:23:46 PM	Maximum Depth	60.20 ft
EST GW Depth During Test					

Net Area Ratio .8



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

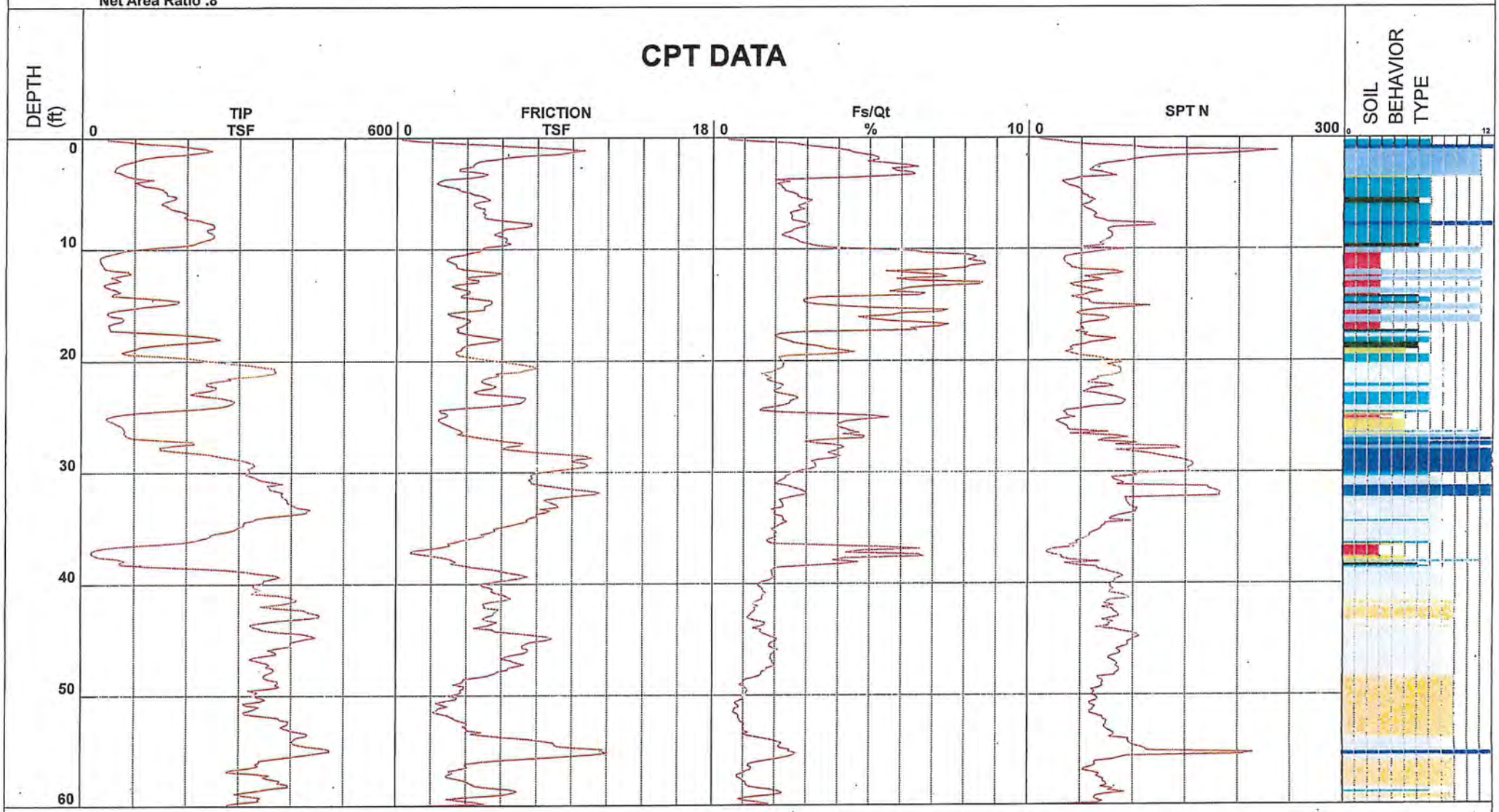
Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Petra Inc

Project	Seville Solar Site	Operator	RA-JC	Filename	SDF(239).cpt
Job Number	332-12	Cone Number	DSG1104	GPS	
Hole Number	CPT-04	Date and Time	11/13/2012 12:23:46 PM	Maximum Depth	60.20 ft
EST GW Depth During Test					

Net Area Ratio .8



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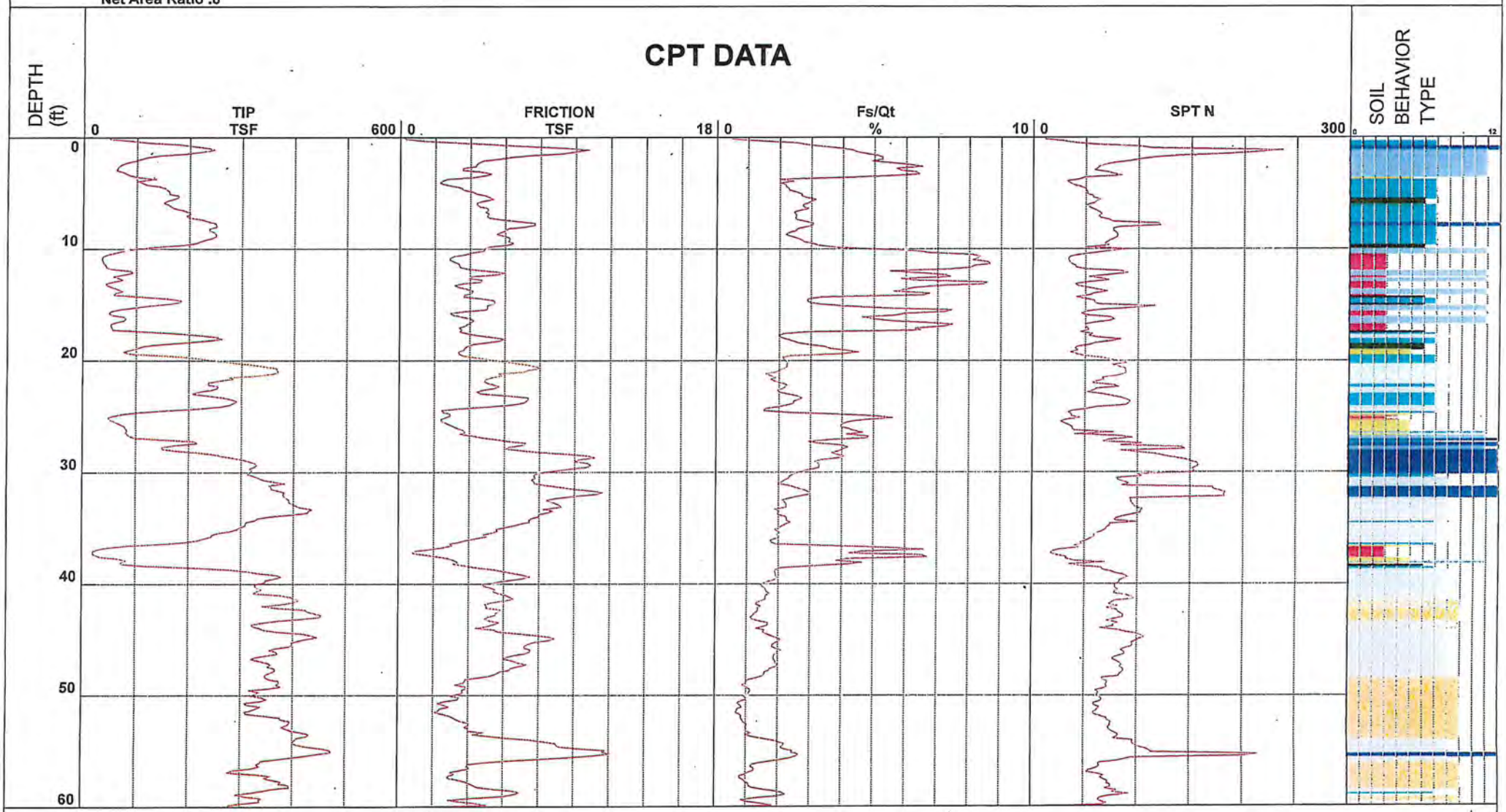
Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Petra Inc

Project	Seville Solar Site	Operator	RA-JC	Filename	SDF(239).cpt
Job Number	332-12	Cone Number	DSG1104	GPS	
Hole Number	CPT-04	Date and Time	11/13/2012 12:23:46 PM	Maximum Depth	60.20 ft
EST GW Depth During Test					

Net Area Ratio .8



1 - sensitive fine grained
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5 - clayey silt to silty clay
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8 - sand to silty sand
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10 - gravelly sand to sand
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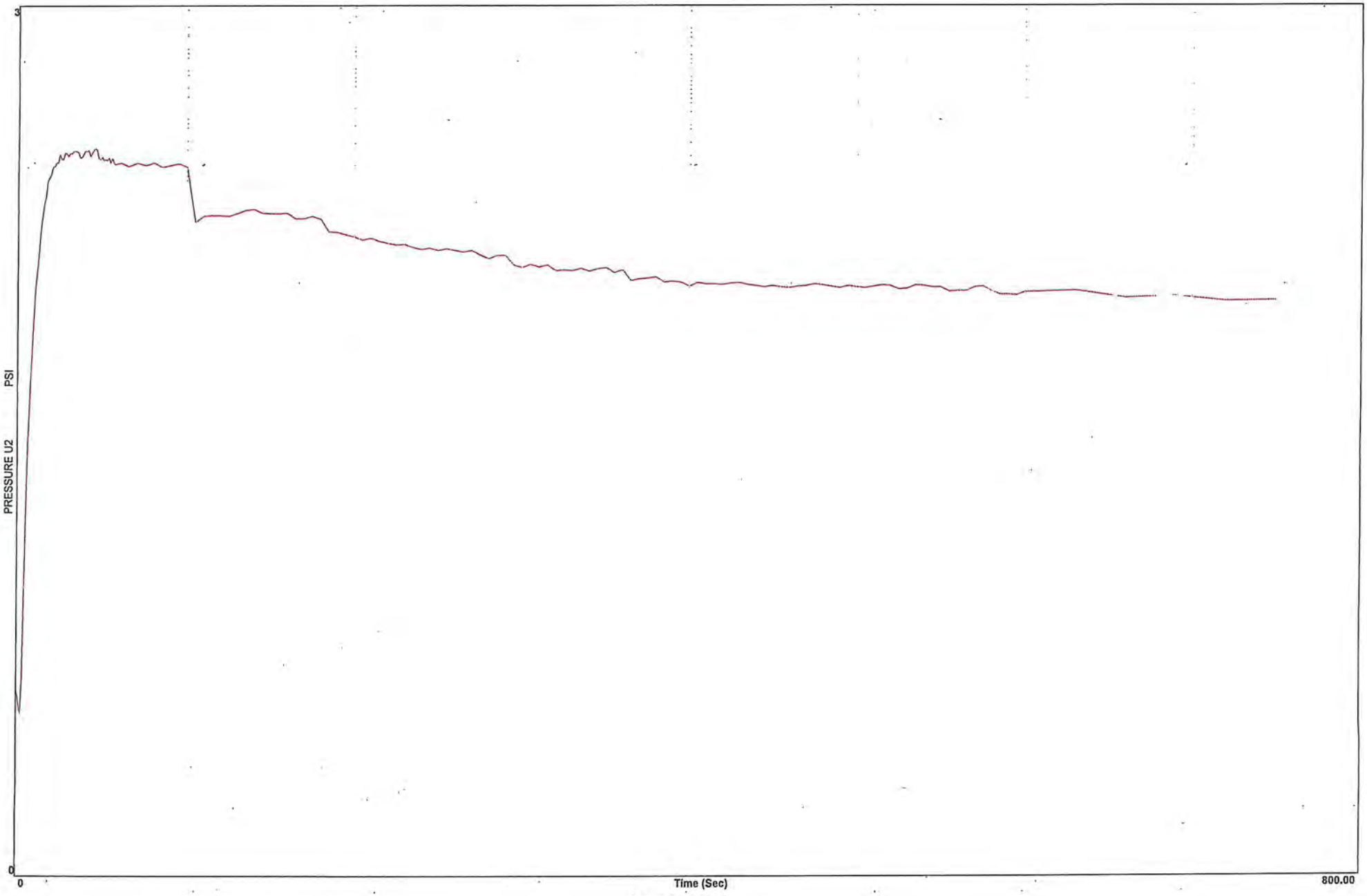
Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Petra Inc

Location	Seville Solar Site	Operator	RA-JC	GPS	
Job Number	332-12	Cone Number	DSG1104		
Hole Number	CPT-04	Date and Time	11/13/2012 12:23:46 PM		
Equilized Pressure	1.9	EST GW Depth During Test	32.9