APPENDIX A

GEOTECHNICAL ANALYSIS RESULTS

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APPENDIX A

Sample Number	Depth (ft)	Moisture Content (%)	Percent Passing (by weight) 3/8"	#4	#10	#40	#100	#200	Particle Size Distribution Gravel	Sand Cor.	Sand Med.	Sand Fine	Silt	Clay	Fines	Atterberg Limits LL	PL	PI	SPG	Density (pcf) Wet	Dry	Porosity	Permeability (cm/sec)	pH	TOC (mg/L)	TOC (mg/Kg) dry	USCS Classification	USCS Description
DAZ-SD095-0770-SD	--	24	100	98	92	63	7	4	2	6	29	59	1	3	4	--	--	--	--	--	--	--	--	--	8.33	7749	Visual	
DAZ-SD096-0771-SD	--	28	99	98	98	58	5	3	2	0	40	55	1	2	3	--	--	--	--	--	--	--	--	--	8.39	7805	Visual	
DAZ-SD097-0772-SD	--	89	100	100	97	91	83	79	0	3	6	12	47	33	79	--	--	--	--	--	--	--	--	--	9.50	8837	Visual	
DAZ-SD098-0773-SD	--	40	100	100	100	95	22	11	0	0	5	84	6	5	11	--	--	--	--	--	--	--	--	--	5.75	5349	Visual	
DAZ-SD099-0774-SD	--	57	100	100	99	93	49	35	0	1	6	58	26	9	35	--	--	--	--	--	--	--	--	--	4.45	4140	Visual	
DAZ-SD100-0775-SD	--	33	93	90	88	80	70	65	10	2	8	15	33	32	65	--	--	--	--	--	--	--	--	--	5.38	5005	Visual	
DAZ-SD101-0776-SD	--	28	95	89	83	67	25	18	11	6	16	49	10	8	18	--	--	--	--	--	--	--	--	--	4.62	4298	Visual	
DAZ-SD103-0778-SD	--	23	93	87	78	31	7	5	13	9	47	26	3	2	5	--	--	--	--	--	--	--	--	--	4.14	3851	Visual	
DAZ-SD094-0769-SD	--	26	100	99	97	93	86	83	1	2	4	10	54	29	83	--	--	--	--	--	--	--	--	--	4.56	4242	Visual	
DAZ-SD102-0777-SD	--	25	90	86	81	71	14	7	14	5	10	64	5	2	7	--	--	--	--	--	--	--	--	--	5.73	5330	Visual	
DAZ-SD101-0849-SD	--	27	97	92	88	73	24	15	8	4	15	58	10	5	15	--	--	--	--	--	--	--	--	--	7.88	7330	Visual	
DAZ-MW107-0821-SO	11.4	11	76	65	54	36	15	11	35	11	18	25	7	4	11	NP	NP	NP	2.673	133.4	120.2	0.208	1.16E-05	7.37	3.65	3395	SP-SC	Poorly Graded Sand with Silty Clay and Gravel
DAZ-MW107-0822-SO	13.5	12	99	97	93	89	88	87	3	4	4	2	57	30	87	31	19	12	2.716	139.6	124.3	0.267	1.73E-07	7.02	11.8	10977	CL	Lean Clay
DAZ-MW111-0837-SO	7.5	12	100	99	92	80	79	79	1	7	12	1	49	30	79	32	21	11	2.748	143.5	127.6	0.256	3.12E-08	7.70	9.92	9228	CL	Lean Clay with Gravel
DAZ-MW104-0809-SO	24.0	20	100	99	98	95	91	87	1	1	3	8	65	22	87	NP	NP	NP	2.703	131.5	110.0	0.348	3.83E-07	8.10	4.05	3767	ML	Silt
DAZ-MW109-0829-SO	21.5	10	99	96	92	80	58	51	4	4	12	29	32	19	51	17	12	5	2.712	137.7	124.9	0.262	6.35E-08	8.39	11.1	10326	CL-ML	Sandy Silty Clay
DAZ-MW109-0830-SO	23.3	11	98	95	92	86	68	60	5	3	6	26	39	21	60	19	15	4	2.697	143.0	129.0	0.234	8.14E-08	8.38	4.28	3981	CL-ML	Sandy Silty Clay
DAZ-MW110-0833-SO	13.0	11	86	84	81	74	57	49	16	3	7	25	31	18	49	18	14	4	2.718	145.5	131.4	0.226	4.74E-08	8.66	7.02	6530	CL-ML	Sandy Silty Clay with Gravel
DAZ-MW110-0834-SO	15.0	10	97	92	87	79	62	55	8	5	8	24	31	24	55	21	12	9	2.697	143.9	130.7	0.224	1.69E-07	7.72	10.5	9767	CL	Sandy Lean Clay

"Fines" = Silt and clay combined
Sample depths indicate top of sample interval

Project: 107-0821

Laboratory Test Summary
JL02350
8/29/2002

Client: SpecPro, Inc.

ASTM D 2216

Sample Data

Sample Number	Depth (m)	Depth (ft)	Tare Number	Tare Weight	Wet Weight	Dry Weight	Sample Weight	Moisture Content
DAZ-MW107-0821-SO	3.47	11.4	125	9.55	764.01	689.33	679.78	11.0%

ASTM D 2937

Bulk Density

Total Weight	Tube Weight	Sample Weight	Diameter (in)	Length (in)	Volume (cm^3)	Wet Density (pcf)	Dry Density (pcf)
1196.9	294.21	901.7	2.861	4.006	421.892	133.4	120.2

ASTM D 854

Specific Gravity (-10 Material)

Sample Weight (Mo)	Full Pycno (Mb)	Temp (°C)	Density Water $d(T_s)$	Correction K	Pyno/Water (M_a at T_x)	Specific Gravity (T_s)	Specific Gravity (T_{20})	Porosity (n)	V_s	V_w	V_a
39.10	186.3	23.4	0.99747	0.9992	161.77	2.675	2.673	0.280	72.0%	21.2%	6.8%

ASTM D 422

Particle Size Distribution

Percent Passing (by weight)						Gravel (%)	Sand			Silt (%)	Clay (%)	Fines (%)
3/8"	#4	#10	#40	#100	#200		Cor. (%)	Med. (%)	Fine (%)			
75.6	65.0	54.1	35.5	14.7	11.4	35.0	10.9	17.6	25.1	7.0	4.4	11.4

ASTM D 2487

Limits ASTM D 4318 **Classification**

Atterberg Limits LL	PL	PI	USCS Classification		Cu	Cc	D10	D30	D50	D60
NP	NP	NP	SP-SC	Poorly Graded Sand with silty clay and gravel	53	0.51	0.066	0.343	1.633	3.489

rev(2112/00)

Permeability Test Report

Project: Demo-Z, Phase II RI

Client: SpecPro, Inc.

Sample Data:

Sample Number	Sample Type	Depth (ft)
DAZ-MW107-0821-SO	ST	11.4

$K_{20°C}$ = 1.16E-05 cm/sec

Test Conditions:

Permeant Liquid	Back Pressure	Hydraulic Gradient	Consolidation Stress Max (psi)	Consolidation Stress Min (psi)	Total Test Time (min)	Total Flow (cc)
De-aired/De-ionized water	50 psi	5 psi	6	2	233	232.7

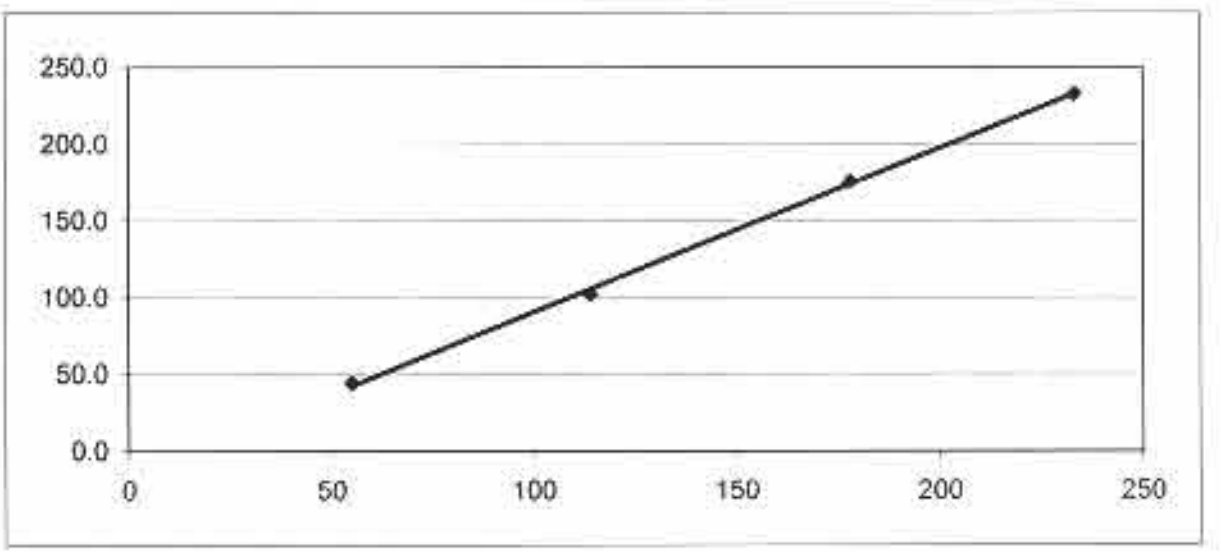
Initial Sample Data:

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
18.3	75.7	7.266	10.174	41.47	133.4	120.2

Final Sample Data

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
13.7	100.0	7.266	--	--	--	--

Reading	Time (min)	Chamber	Upper	Lower	Flow	K_{20} (cm/s)
1	0:00	19.3	252.6	174.2	0.0	--
2	0:55	19.4	208.3	218.5	44.3	9.37E-06
3	1:54	19.5	150.9	276.0	101.8	1.04E-05
4	2:58	19.6	78.7	351.6	175.6	1.15E-05
4	3:53	19.6	19.7	406.6	232.7	1.16E-05



J&L Laboratories, Inc.
8/29/2002

Project: 107-0822

Laboratory Test Summary
JL02350
8/29/2002

Client: SpecPro, Inc.

Sample Data — ASTM D 2216

Sample Number	Depth (m)	Depth (ft)	Tare Number	Tare Weight	Wet Weight	Dry Weight	Sample Weight	Moisture Content
DAZ-MW107-0822-SO	4.11	13.5	126	9.60	499.11	445.50	435.90	12.3%

Bulk Density — ASTM D 2937

Total Weight	Tube Weight	Sample Weight	Diameter (in)	Length (in)	Volume (cm^3)	Wet Density (pcf)	Dry Density (pcf)
1055.9	0.00	1055.9	2.859	4.491	472.348	139.6	124.3

Specific Gravity (-10 Material) — ASTM D 854

Sample Weight (Mo)	Full Pycno (Mb)	Temp (°C)	Density Water $d(T_b)$	Correction K	Pyno/Water (M_a at T_x)	Specific Gravity (T_b)	Specific Gravity (T_{20})	Porosity (n)	V_s	V_w	V_a
39.57	189.1	22.2	0.99775	0.9995	164.10	2.717	2.716	0.267	73.3%	24.5%	2.2%

Particle Size Distribution — ASTM D 422

Percent Passing (by weight)						Gravel (%)	Sand			Silt (%)	Clay (%)	Fines (%)
3/8"	#4	#10	#40	#100	#200		Cor. (%)	Med. (%)	Fine (%)			
99.0	97.3	93.3	89.5	88.7	87.2	2.7	3.9	3.8	2.3	56.7	30.5	87.2

Limits — ASTM D 4318 — **Classification** — ASTM D 2487

Atterberg Limits			USCS Classification		Cu	Cc	D10	D30	D50	D60
LL	PL	PI								
30.5	19.4	11.2	CL	LEAN CLAY	28	0.89	0.001	0.005	0.016	0.028

Permeability Test Report

Project: Demo-Z Phase II RI

Client: SpecPro, Inc.

Sample Data:

Sample Number	Sample Type	Depth (ft)
DAZ-MW107-0822-SO	ST	13.5

$K_{20°C}$ = 1.73E-07 cm/sec

Test Conditions:

Permeant Liquid	Back Pressure	Hydraulic Gradient	Consolidation Stress Max (psi)	Consolidation Stress Min (psi)	Total Test Time (min)	Total Flow (cc)
De-aired/De-ionized water	45 psi	5 psi	6	2	1211	15.8

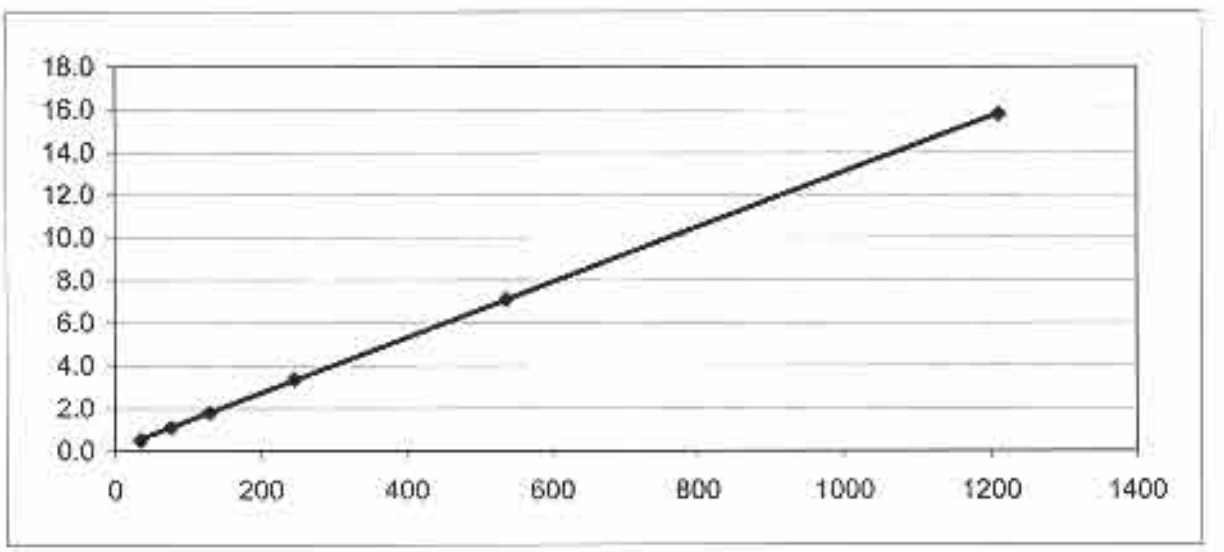
Initial Sample Data:

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
18.3	91.7	7.261	11.407	41.41	139.6	124.3

Final Sample Data

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
14.2	100.0	7.199	11.407	40.70	144.0	126.1

Reading	Time (min)	Chamber	Upper	Lower	Flow	K_{20} (cm/s)
1	0:00	15.5	18.3	8.2	0.0	--
2	0:35	15.4	17.8	8.7	0.5	1.90E-07
3	1:17	15.4	17.2	9.3	1.1	1.90E-07
4	2:10	15.4	16.5	10.0	1.8	1.84E-07
5	4:06	15.4	14.9	11.5	3.4	1.81E-07
6	8:57	15.5	11.2	15.3	7.1	1.76E-07
7	20:11	15.6	2.5	24.0	15.6	1.73E-07



J&L Laboratories, Inc.
8/29/2002

rev(7/12/96)

Project: 111-0837

Laboratory Test Summary
JL02350
8/30/2002

Client: SpecPro, Inc.

Sample Data ASTM D 2216

Sample Number	Depth (m)	Depth (ft)	Tare Number	Tare Weight	Wet Weight	Dry Weight	Sample Weight	Moisture Content
DAZ-MW111-0837-SO	2.29	7.5	127	9.53	495.11	442.13	432.60	12.5%

Bulk Density ASTM D 2937

Total Weight	Tube Weight	Sample Weight	Diameter (in)	Length (in)	Volume (cm^3)	Wet Density (pcf)	Dry Density (pcf)
1157.1	0.00	1157.1	2.854	4.801	503.223	143.5	127.6

Specific Gravity (-10 Material) ASTM D 854

Sample Weight (Mo)	Full Pycno (Mb)	Temp (°C)	Density Water $\delta(T_x)$	Correction K	Pyno/Water (M_a at T_x)	Specific Gravity (T_x)	Specific Gravity (T_{20})	Porosity (n)	V_s	V_w	V_a
39.06	188.7	22.9	0.99759	0.9994	163.84	2.750	2.748	0.256	74.4%	25.5%	0.1%

Particle Size Distribution ASTM D 422

Percent Passing (by weight)						Gravel (%)	Sand			Silt (%)	Clay (%)	Fines (%)
3/8"	#4	#10	#40	#100	#200		Cor. (%)	Med. (%)	Fine (%)			
100	98.6	92.1	80.4	79.4	78.9	1.4	6.4	11.7	1.5	48.8	30.1	78.9

Limits ASTM D 4318 **Classification** ASTM D 2487

Atterberg Limits LL	PL	PI	USCS Classification		Cu	Cc	D10	D30	D50	D60
31.4	20.6	10.8	CL	LEAN CLAY WITH GRAVEL	27	0.93	0.001	0.005	0.016	0.027

J&L Laboratories, Inc.

Permeability Test Report

Project: Demo-Z Phase II RI

Client: SpecPro, Inc

Sample Data:

Sample Number	Sample Type	Depth (ft)
DAZ-MW111-0637-SO	ST	7.5

$K_{20°C}$ = 3.12E-08 cm/sec

Test Conditions:

Permeant Liquid	Back Pressure	Hydraulic Gradient	Consolidation Stress Max (psi)	Consolidation Stress Min (psi)	Total Test Time (min)	Total Flow (cc)
De-aired/De-ionized water	45 psi	5 psi	6	2	2930	6.5

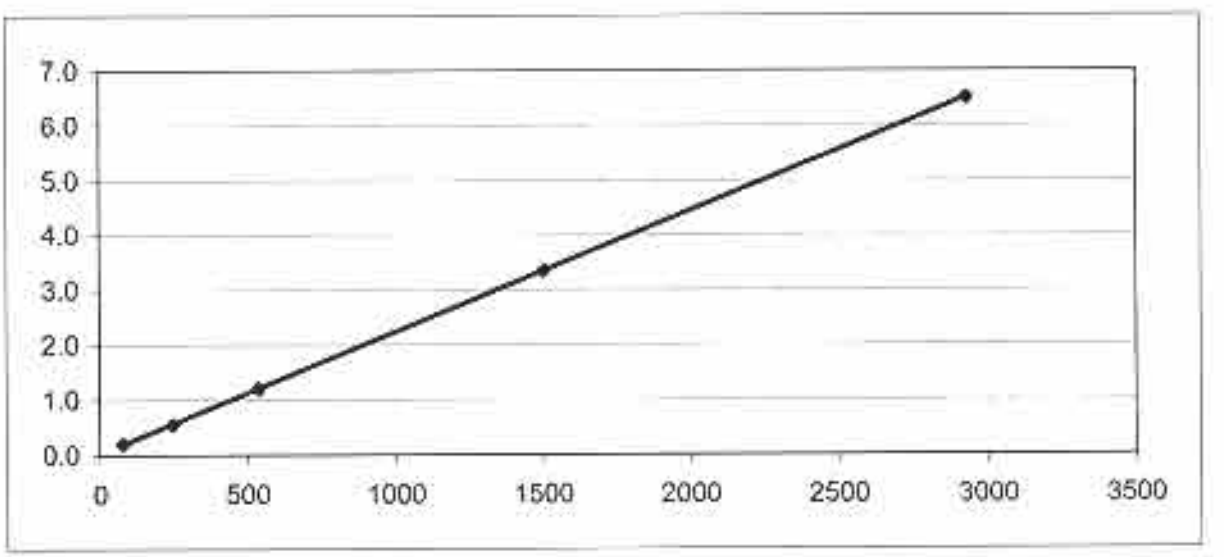
Initial Sample Data:

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
18.3	99.6	7.246	12.195	41.26	143.5	127.6

Final Sample Data

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
13.2	100.0	7.240	12.216	41.17	145.8	128.8

Reading	Time (min)	Chamber	Upper	Lower	Flow	K_{20} (cm/s)
1	0:00	21.1	23.6	4.0	0.0	---
2	1:17	21.0	23.4	4.2	0.2	3.65E-08
3	4:06	21.1	23.0	4.5	0.6	3.14E-08
4	8:57	21.2	22.3	5.1	1.2	3.14E-08
5	25:03	21.4	20.0	7.1	3.4	3.13E-08
6	48:50	21.3	17.1	10.5	6.5	3.12E-08



J&L Laboratories, Inc.
8/30/2002

rev[7/12/98]

Project: 104-0809

Laboratory Test Summary
JL02350
8/30/2002

Client: SpecPro, Inc.

Sample Data — ASTM D 2216

Sample Number	Depth (m)	Depth (ft)	Tare Number	Tare Weight	Wet Weight	Dry Weight	Sample Weight	Moisture Content
DAZ-MW104-0809-SO	7.32	24.0	101	9.42	449.25	377.36	367.94	19.5%

Bulk Density — ASTM D 2937

Total Weight	Tube Weight	Sample Weight	Diameter (in)	Length (in)	Volume (cm^3)	Wet Density (pcf)	Dry Density (pcf)
742.3	0.00	742.26	2.820	3.444	352.386	131.5	110.0

Specific Gravity (-10 Material) — ASTM D 854

Sample Weight (Mo)	Full Pycno (Mb)	Temp (°C)	Density Water d(T_t)	Correction K	Pynco/Water (M_a at T_x)	Specific Gravity (T_x)	Specific Gravity (T_{20})	Porosity (n)	V_a	V_w	V_s
36.86	185.7	22.8	0.99761	0.9994	162.45	2.705	2.703	0.348	65.2%	34.4%	0.4%

Particle Size Distribution — ASTM D 422

Percent Passing (by weight)						Gravel (%)	Sand			Silt (%)	Clay (%)	Fines (%)
3/8"	#4	#10	#40	#100	#200		Cor. (%)	Med. (%)	Fine (%)			
100	99.1	97.7	94.2	90.7	86.5	0.9	1.4	3.5	7.7	64.9	21.6	86.5

Limits — ASTM D 4318 Classification — ASTM D 2487

Atterberg Limits			USCS Classification		Cu	Cc	D10	D30	D50	D60
LL	PL	PI								
NP	NP	NP	ML	SILT	24	3.38	0.001	0.009	0.018	0.024

J&L Laboratories, Inc.

Permeability Test Report

Project: Demo-Z, Phase II RI

Client: SpecPro, Inc.

Sample Data:

Sample Number	Sample Type	Depth (ft)
DAZ-MW104-0809-SO	ST	24.0

$K_{20°C}$ = 3.83E-07 cm/sec

Test Conditions:

Permeant Liquid	Back Pressure	Hydraulic Gradient	Consolidation Stress Max (psi)	Consolidation Stress Min (psi)	Total Test Time (min)	Total Flow (cc)
De-aired/De-ionized water	40 psi	5 psi	6	2	480	18.8

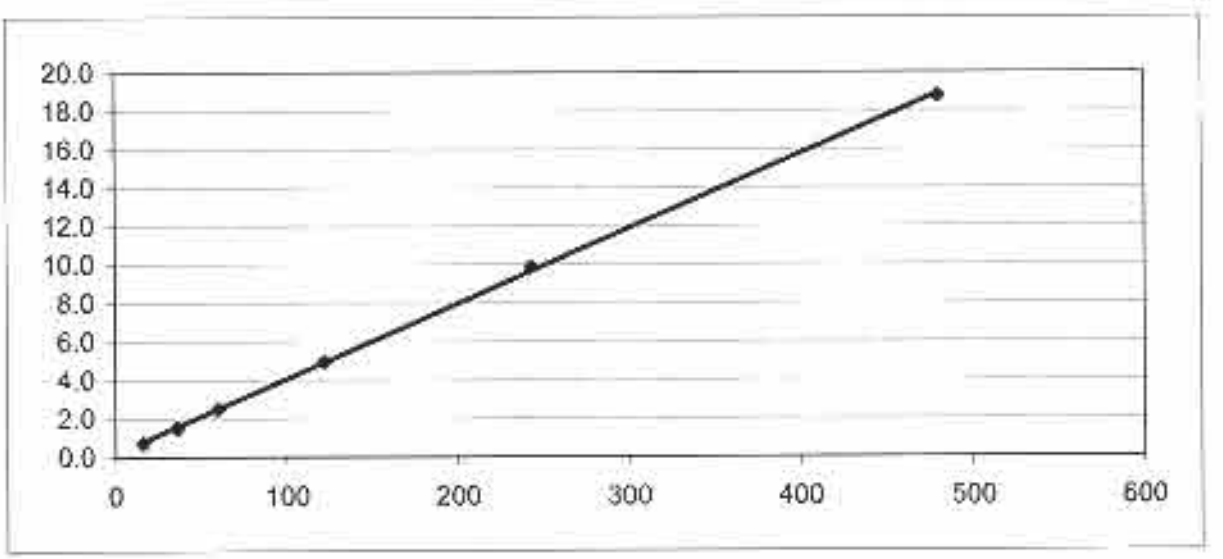
Initial Sample Data:

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
19.8	98.9	7.162	8.747	40.29	131.5	110.0

Final Sample Data

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
20.7	100.0	7.290	8.631	41.74	128.4	106.4

Reading	Time (min)	Chamber	Upper	Lower	Flow	K_{20} (cm/s)
1	0:01	3.1	21.1	4.9	0.0	--
2	0:16	3.1	20.4	5.6	0.7	4.29E-07
3	0:36	3.0	19.6	6.4	1.5	4.08E-07
4	1:00	3.1	18.6	7.4	2.5	4.08E-07
5	2:02	3.1	16.1	9.8	5.0	3.97E-07
6	4:03	3.0	11.2	14.7	9.9	3.97E-07
7	8:00	3.1	2.3	23.6	18.8	3.83E-07



J&L Laboratories, Inc.
8/30/2002

Project: 109-0829

Laboratory Test Summary
JL02350
8/30/2002

Client: SpecPro, Inc.

Sample Data ASTM D 2216

Sample Number	Depth (m)	Depth (ft)	Tare Number	Tare Weight	Wet Weight	Dry Weight	Sample Weight	Moisture Content
DAZ-MW109-0829-SO	6.55	21.5	115	9.46	630.66	572.92	563.46	10.2%

Bulk Density ASTM D 2937

Total Weight	Tube Weight	Sample Weight	Diameter (in)	Length (in)	Volume (cm^3)	Wet Density (pcf)	Dry Density (pcf)
1084.8	251.90	832.9	2.910	3.464	377.613	137.7	124.9

Specific Gravity (-10 Material) ASTM D 854

Sample Weight (Mo)	Full Pycno (Mb)	Temp (°C)	Density Water $d(T_x)$	Correction K	Pyno/Water (M_a at T_x)	Specific Gravity (T_x)	Specific Gravity (T_{20})	Porosity (n)	V_s	V_w	V_a
39.42	188.1	23.2	0.99752	0.9993	163.21	2.714	2.712	0.262	73.8%	20.5%	5.7%

Particle Size Distribution ASTM D 422

Percent Passing (by weight)						Gravel (%)	Sand			Silt (%)	Clay (%)	Fines (%)
3/8"	#4	#10	#40	#100	#200		Cor. (%)	Med. (%)	Fine (%)			
98.6	96.3	92.0	80.4	58.4	51.0	3.7	4.3	11.6	29.4	31.8	19.2	51.0

Limits ASTM D 4318 **Classification** ASTM D 2487

Atterberg Limits LL	PL	PI	USCS Classification		Cu	Cc	D10	D30	D50	D60
17.3	12.0	5.4	CL-ML	SANDY LEAN CLAY	57	0.33	0.003	0.013	0.069	0.170

rev.(7/12/98)

J&L Laboratories, Inc.

Permeability Test Report

Project: Demo-Z. Phase II RI

Client: SpecPro, Inc.

Sample Data:

Sample Number	Sample Type	Depth (ft)
DAZ-MW109-0829-SO	ST	21.5

K_{20^oC} = 6.35E-08 cm/sec

Test Conditions:

Permeant Liquid	Back Pressure	Hydraulic Gradient	Consolidation Stress Max (psi)	Consolidation Stress Min (psi)	Total Test Time (min)	Total Flow (cc)
De-aired/De-ionized water	45 psi	5 psi	6	2	483	3.2

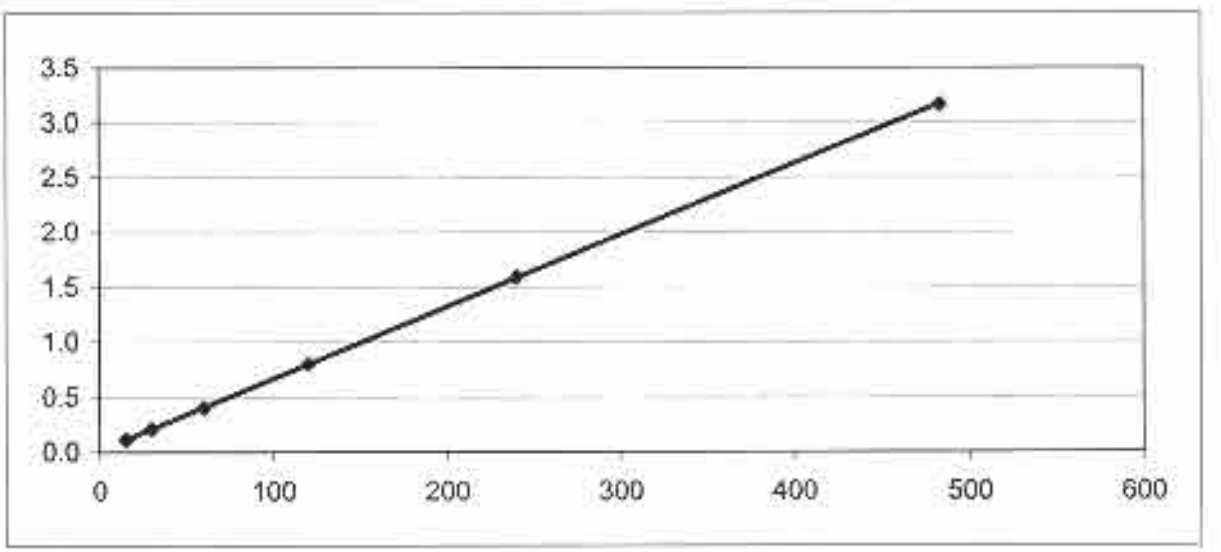
Initial Sample Data:

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
18.3	78.2	7.392	8.799	42.91	137.7	124.9

Final Sample Data

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
14.3	100.0	7.386	8.768	42.85	140.0	122.5

Reading	Time (min)	Chamber	Upper	Lower	Flow	K_{20} (cm/s)
1	0:00	3.7	24.2	2.1	0.0	--
2	0:15	3.7	24.1	2.2	0.1	7.11E-08
3	0:30	3.7	24.0	2.3	0.2	6.78E-08
4	1:00	3.6	23.8	2.5	0.4	6.46E-08
5	2:00	3.7	23.4	2.9	0.8	6.46E-08
6	4:00	3.8	22.6	3.7	1.6	6.42E-08
7	8:03	3.7	21.0	5.2	3.2	6.35E-08



J&L Laboratories, Inc.
8/30/2002

Project: 109-0830

Laboratory Test Summary
JL02350
8/30/2002

Client: SpecPro, Inc.

Sample Data ASTM D 2216

Sample Number	Depth (m)	Depth (ft)	Tare Number	Tare Weight	Wet Weight	Dry Weight	Sample Weight	Moisture Content
DAZ-MW109-0830-SO	7.10	23.3	443	9.44	637.63	576.50	567.06	10.8%

Bulk Density ASTM D 2937

Total Weight	Tube Weight	Sample Weight	Diameter (in)	Length (in)	Volume (cm^3)	Wet Density (pcf)	Dry Density (pcf)
1042.4	0.00	1042.4	2.841	4.382	455.222	143.0	129.0

Specific Gravity (-10 Material) ASTM D 854

Sample Weight (Mo)	Full Pycno (Mb)	Temp (°C)	Density Water $d(T_b)$	Correction K	Pynco/Water (M_a at T_b)	Specific Gravity (T_b)	Specific Gravity (T_{20})	Porosity (n)	V_s	V_w	V_a
39.83	187.5	22.9	0.99759	0.9994	162.38	2.699	2.697	0.234	76.6%	22.3%	1.1%

Particle Size Distribution ASTM D 422

Percent Passing (by weight)							Sand					
3/8"	#4	#10	#40	#100	#200	Gravel (%)	Cor. (%)	Med. (%)	Fine (%)	Silt (%)	Clay (%)	Fines (%)
98.5	95.0	91.8	86.0	68.0	59.9	5.0	3.2	5.7	26.1	39.3	20.6	59.9

Limits ASTM D 4318 **Classification** ASTM D 2487

Atterberg Limits			USCS Classification		Cu	Cc	D10	D30	D50	D60
LL	PL	PI								
18.5	15.2	3.3	ML	SANDY SILT	75	1.33	0.001	0.010	0.031	0.075

Permeability Test Report

Project: 109-0830

Client: SpecPro, Inc.

Sample Data:

Sample Number	Sample Type	Depth (ft)
DAZ-MW109-0830-SO	ST	23.3

$K_{20°C}$ = 8.14E-08 cm/sec

Test Conditions:

Permeant Liquid	Back Pressure	Hydraulic Gradient	Consolidation Stress Max (psi)	Consolidation Stress Min (psi)	Total Test Time (min)	Total Flow (cc)
De-aired/De-ionized water	40 psi	5 psi	6	2	1415	9.2

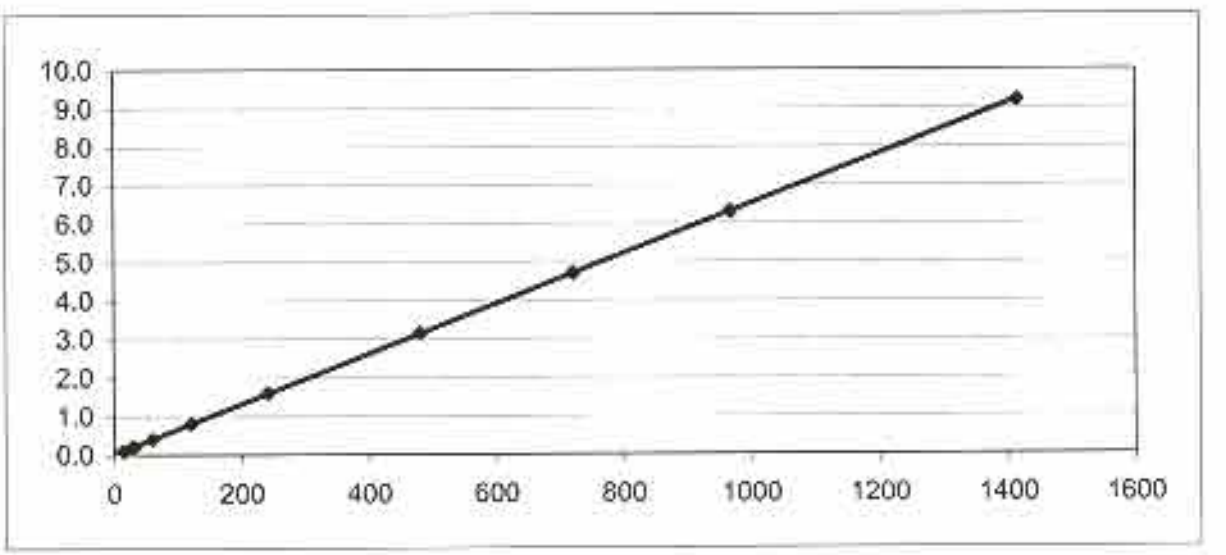
Initial Sample Data:

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
18.3	95.4	7.216	11.131	40.90	143.0	129.0

Final Sample Data

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
11.3	100.0	7.253	10.923	41.31	144.8	130.1

Reading	Time (min)	Chamber	Upper	Lower	Flow	K_{20} (cm/s)
1	0:00	3.3	24.3	3.0	0.0	--
2	0:15	3.3	24.2	3.1	0.1	8.35E-08
3	0:30	3.3	24.1	3.2	0.2	8.35E-08
4	1:00	3.3	23.9	3.4	0.4	8.35E-08
5	2:01	3.2	23.5	3.8	0.8	8.28E-08
6	4:02	3.3	22.7	4.6	1.6	8.28E-08
7	8:00	3.3	21.1	6.1	3.2	8.22E-08
8	12:01	3.3	19.6	7.7	4.7	8.16E-08
9	16:08	3.3	18.0	9.3	6.3	8.15E-08
100	23:35	3.3	16.1	12.2	9.2	8.14E-08



J&L Laboratories, Inc.
8/30/2002

rev(7/12/96)

Project: 110-0833

Laboratory Test Summary
JL02350
8/30/2002

Client: SpecPro, Inc.

Sample Data ASTM D 2216

Sample Number	Depth (m)	Depth (ft)	Tare Number	Tare Weight	Wet Weight	Dry Weight	Sample Weight	Moisture Content
DAZ-MW110-0833-SO	3.96	13.0	180	9.30	673.87	609.55	600.25	10.7%

Bulk Density ASTM D 2937

Total Weight	Tube Weight	Sample Weight	Diameter (in)	Length (in)	Volume (cm^3)	Wet Density (pcf)	Dry Density (pcf)
988.4	0.00	988.4	2.845	4.074	424.218	145.5	131.4

Specific Gravity (-10 Material) ASTM D 854

Sample Weight (Mo)	Full Pycno (Mb)	Temp (°C)	Density Water $d(T_b)$	Correction K	Pyno/Water (M_a at T_b)	Specific Gravity (T_b)	Specific Gravity (T_{20})	Porosity (n)	V_s	V_w	V_a
39.89	186.7	22.7	0.99763	0.9994	161.47	2.720	2.718	0.226	77.4%	22.6%	0.0%

Particle Size Distribution ASTM D 422

Percent Passing (by weight) 3/8"	#4	#10	#40	#100	#200	Gravel (%)	Sand Cor. (%)	Sand Med. (%)	Sand Fine (%)	Silt (%)	Clay (%)	Fines (%)
86.3	84.1	81.1	73.6	57.2	49.2	15.9	3.0	7.5	24.4	31.4	17.6	49.2

Limits ASTM D 4318 **Classification** ASTM D 2487

Atterberg Limits LL	PL	PI	USCS Classification		Cu	Cc	D10	D30	D50	D60
17.8	13.5	4.3	CL-ML	SANDY SILTY CLAY w/ GRAVEL	199	1.29	0.001	0.016	0.083	0.199

Permeability Test Report

Project: Demo-Z, Phase II RI

Client: SpecPro, Inc.

Sample Data:

Sample Number	Sample Type	Depth (ft)
DAZ-MW110-0833-SO	ST	13.0

$K_{20°C}$ = 4.74E-08 cm/sec

Test Conditions:

Permeant Liquid	Back Pressure	Hydraulic Gradient	Consolidation Stress Max (psi)	Consolidation Stress Min (psi)	Total Test Time (min)	Total Flow (cc)
De-aired/De-ionized water	40 psi	5 psi	6	2	1410	5.6

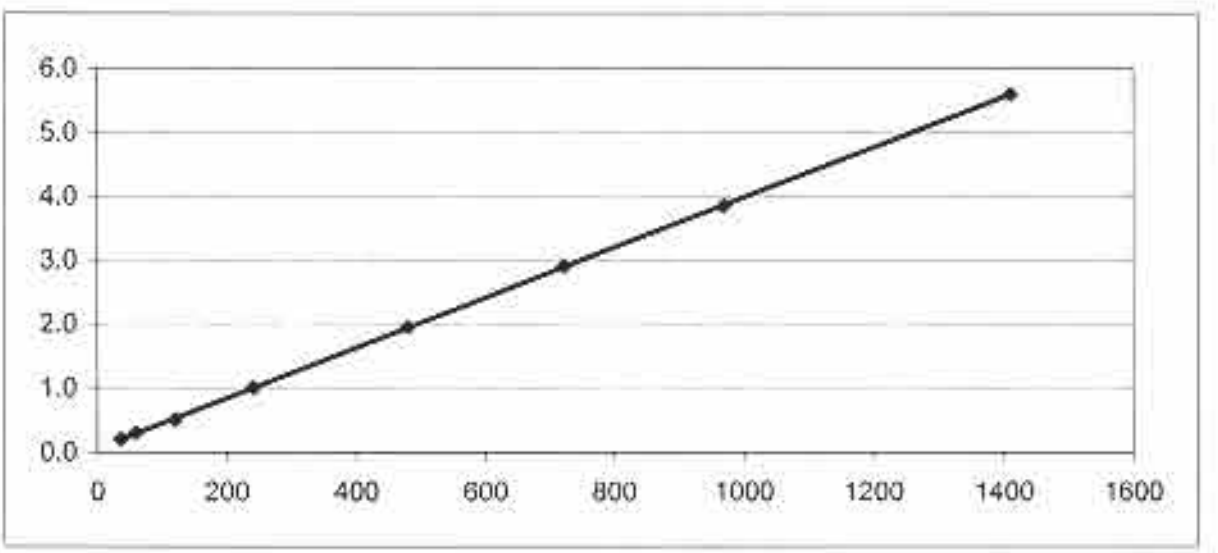
Initial Sample Data:

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
18.3	99.9	7.225	10.347	41.00	145.5	131.4

Final Sample Data

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
10.2	100.0	7.201	10.251	40.73	148.6	134.8

Reading	Time (min)	Chamber	Upper	Lower	Flow	K_{20} (cm/s)
1	0:00	3.6	24.6	1.9	0.0	--
2	0:36	3.6	24.4	2.1	0.2	6.62E-08
3	1:00	3.5	24.3	2.2	0.3	5.96E-08
4	2:00	3.6	24.1	2.4	0.5	4.97E-08
5	4:01	3.6	23.6	2.9	1.0	4.95E-08
6	8:00	3.6	22.6	3.8	2.0	4.84E-08
7	12:02	3.7	21.6	4.7	2.9	4.79E-08
8	16:09	3.8	20.7	5.7	3.9	4.74E-08
9	23:30	3.7	18.9	7.4	5.6	4.74E-08



J&L Laboratories, Inc.
8/30/2002

rev(7/12/96)

Project: 110-0834

Laboratory Test Summary
JL02350
8/30/2002

Client: SpecPro, Inc.

Sample Data ASTM D 2216

Sample Number	Depth (m)	Depth (ft)	Tare Number	Tare Weight	Wet Weight	Dry Weight	Sample Weight	Moisture Content
DAZ-MW110-0834-SO	4.57	15.0	100	9.44	662.92	620.96	611.52	10.1%

Bulk Density ASTM D 2937

Total Weight	Tube Weight	Sample Weight	Diameter (in)	Length (in)	Volume (cm^3)	Wet Density (pcf)	Dry Density (pcf)
1002.0	0.00	1002.0	2.806	4.289	434.667	143.9	130.7

Specific Gravity (-10 Material) ASTM D 854

Sample Weight (Mo)	Full Pycno (Mb)	Temp (°C)	Density Water d(T$_b$)	Correction K	Pyno/Water (M$_a$ at T$_b$)	Specific Gravity (T$_b$)	Specific Gravity (T$_{20}$)	Porosity (n)	V$_v$	V$_w$	V$_a$
39.70	187.17	23.0	0.99756	0.9993	162.18	2.699	2.697	0.224	77.6%	21.2%	1.2%

Particle Size Distribution ASTM D 422

Percent Passing (by weight)						Sand						
3/8"	#4	#10	#40	#100	#200	Gravel (%)	Cor. (%)	Med. (%)	Fine (%)	Silt (%)	Clay (%)	Fines (%)
96.9	92.0	87.1	78.7	62.1	54.8	8.0	4.9	8.4	23.9	30.9	23.9	54.8

Limits ASTM D 4318 **Classification** ASTM D 2487

Atterberg Limits			USCS Classification		Cu	Cc	D10	D30	D50	D60
LL	PL	PI								
20.8	12.4	8.4	CL	SANDY LEAN CLAY	43	0.26	0.003	0.010	0.059	0.129

Permeability Test Report

Project: Demo-Z, Phase II, RI

Client: SpecPro, Inc.

Sample Data:

Sample Number	Sample Type	Depth (ft)
DAZ-MW110-0834-SO	ST	15.0

$K_{20°C}$ = 1.69E-07 cm/sec

Test Conditions:

Permeant Liquid	Back Pressure	Hydraulic Gradient	Consolidation Stress Max (psi)	Consolidation Stress Min (psi)	Total Test Time (min)	Total Flow (cc)
De-aired/De-ionized water	45 psi	5 psi	6	2	489	6.6

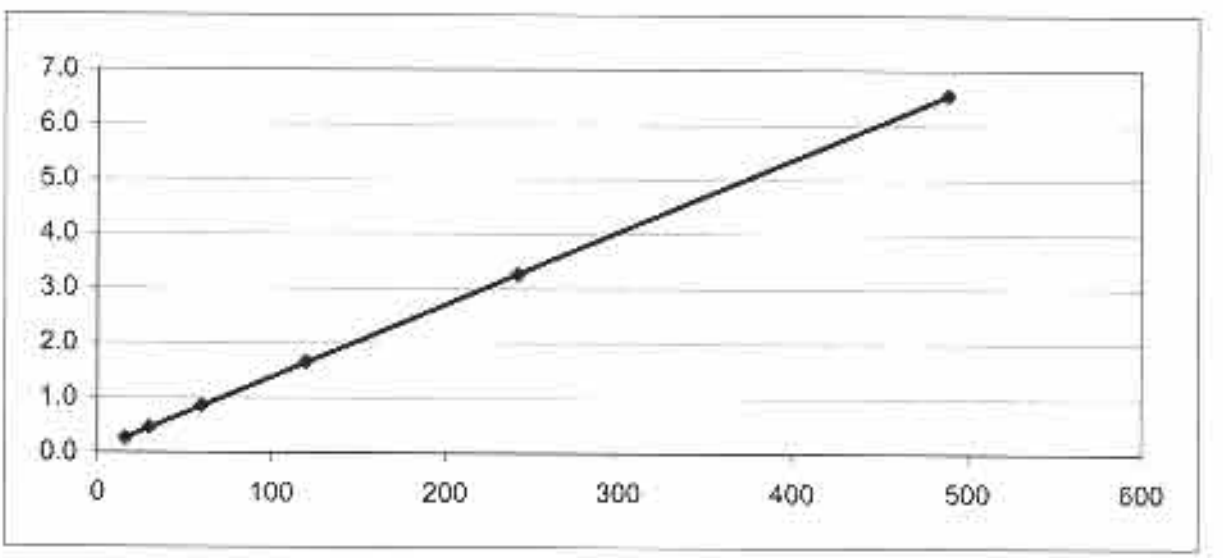
Initial Sample Data:

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
18.3	94.7	7.127	10.895	39.90	143.9	130.7

Final Sample Data

Moisture (%)	Saturation (%)	Diameter (cm)	Length (cm)	Area (cm^2)	Wet Density (pcf)	Dry Density (pcf)
12.0	100.0	7.155	10.729	40.21	146.3	130.6

Reading	Time (min)	Chamber	Upper	Lower	Flow	K_{20} (cm/s)
1	0:00	5.2	24.8	5.4	0.0	--
2	0:15	5.3	24.5	5.6	0.3	1.97E-07
3	0:30	5.3	24.3	5.8	0.5	1.90E-07
4	1:00	5.4	23.9	6.2	0.9	1.79E-07
5	2:00	5.4	23.1	7.0	1.7	1.74E-07
6	4:02	5.4	21.5	8.6	3.3	1.70E-07
7	8:09	5.5	18.2	11.9	6.6	1.69E-07



J&L Laboratories, Inc.
8/30/2002

rev(7/12/98)

J&L LABORATORIES, INC.

215 Rainbow Street • Wadsworth, OH 44281
Phone: (330) 335-0606 • Fax: (330) 335-0909

CHAIN OF CUSTODY

No. 020072

Page ____ of ____

CLIENTS NAME: Rec Pro INC	CLIENTS ADDRESS: 8451 St Rt 5		
PROJECT MANAGER: Susan McCaslin	PHONE NUMBER: (330) 358-1753	FAX NUMBER: 330-358-1754	PROPOSAL NUMBER
PROJECT NAME: Demo-2 Phase II RI	PROJECT LOCATION (Twp., City, County, State): Ravenna Ohio 44266		PROJECT NUMBER
LAB CONTACT	LABORATORY ADDRESS	PHONE NUMBER: 330	FAX NUMBER

TAT: ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☐ Standard 7 or 14 Days

REPORTING: Submit data via ☐ Verbal ☐ Fax ☐ Hardcopy

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE	COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TOC	Grain Size	COMMENTS
DA2Sd 095-077-SD	7-11-02	1325	Sed				X	X	
DA2 Sd 096-077-SD	7-11-02	1114	sed				X	X	
DA2 Sd 097-077-SD	7-11-02	0943	Sed				X	X	
DA2Sd 098-077-SD	7-11-02	1005	Sed				X	X	
DA2Sd 099-077SD	7-11-02	0855	sed				X	X	
DA2Sd 100-077SD	7-10-02	0945	Sed				X	X	
Da2Sd 101-076SD	7-10-02	1337	Sed				X	X	
Da2Sd 103-078SD	7-10-02	1035	Sed				X	X	
Da2Sd 094-076SD	7-10-02	0908	Sed				X	X	
Da2Sd 102-077SD	7-10-02	1055	Sed				X	X	
Da2Sd 161-084-SD	7-10-02	1337	sed				X	X	

SAMPLED BY (Please Print Name)

SAMPLED BY (Signature)

ADDITIONAL COMMENTS

RELINQUISHED BY / AFFILIATION (Print Name / Signature)	DATE	TIME	ACCEPTED BY / AFFILIATION (Print Name / Signature)	DATE	TIME
Chantelle Carnell	7/15/02	923	Tom Maxwell	7/15/02	09:24

JcL LABORATORIES, INC. 215 Rainbow Street • Wadsworth, OH 44281 Phone: (330) 335-0606 • Fax: (330) 335-0908

CHAIN OF CUSTODY

No. 020073

Page 1 of 1

CLIENTS NAME: Spectra Inc	CLIENTS ADDRESS: 8451 STRTS, Ravenna OH 44266		
PROJECT MANAGER: Susan McCauslin	PHONE NUMBER: 330-358-1753	FAX NUMBER: 330-358-1754	PROPOSAL NUMBER:
PROJECT NAME: SMD AREA 2 PHASE II-RI	PROJECT LOCATION (Twp., City, County, State): RAVENNA OH 44266		PROJECT NUMBER:
LAB CONTACT: Lance Cole	LABORATORY ADDRESS: 215 Rainbow ST Wadsworth	PHONE NUMBER: 330-335-0606	FAX NUMBER: 330-335-0908

TAT: ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☒ Standard 7 or 14 Days

REPORTING: Submit data via ☐ Verbal ☐ Fax ☒ Hardcopy

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE	COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TOC	Grain Size Sieve	Moisture Content	Atterburg Limits	USCS Classification	Bulk Density	Porosity	Hydraulic Conductivity	Specific Gravity	pH	COMMENTS
DMW107-0821-SO	07-18	1040	SOIL	1	Soil Jar		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DMW107-0822-SO	07-18	1120	SOIL	1	Soil Jar		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DMW111-0837-SO	07-18	1420	SOIL	1	Soil Jar		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DMW104-0809-SO	07-14	1457	SOIL	1	Soil Jar		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

SAMPLED BY (Please Print Name): Susan McCauslin

SAMPLED BY (Signature): Susan McCauslin

ADDITIONAL COMMENTS:

RELINQUISHED BY / AFFILIATION (Print Name / Signature)	DATE	TIME	ACCEPTED BY / AFFILIATION (Print Name / Signature)	DATE	TIME
Susan McCauslin	07-19-02	12:01	JHL LABS	7/19/02	10:01

OOC-(3/01)

J&L LABORATORIES, INC.

215 Rainbow Street • Wadsworth, OH 44281
Phone: (330) 335-0606 • Fax: (330) 335-0908

CHAIN OF CUSTODY

No. 020074

Page 1 of 1

CLIENTS NAME: SECARO, INC.	CLIENTS ADDRESS: 8451 ST. RT. 5, RAVENNA OH 44266		
PROJECT MANAGER: Susan McCauslin	PHONE NUMBER: 330-358-1753	FAX NUMBER: 330-358-1754	PROPOSAL NUMBER:
PROJECT NAME: DEMO AREA 2 PHASE II RI	PROJECT LOCATION (Twp., City, County, State): RAVENNA OH 44266		PROJECT NUMBER:
LAB CONTACT: Lance Cole	LABORATORY ADDRESS: 215 Rainbow ST., Wadsworth	PHONE NUMBER: 330-335-0606	FAX NUMBER: 330-335-0908

TAT: ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☒ Standard 7 or 14 Days

REPORTING: Submit data via ☐ Verbal ☐ Fax ☒ Hardcopy

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE	COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TOC	Grain Size Sieve	Moisture Content	Atterburg Limits	USCS Classification	Bulk Density	Porosity	Hydraulic Conductivity	Specific Gravity	pH	COMMENTS
DMW109-0829-SO	7-22-02	1210	Soil	1	Shelby Tube		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DMW109-0830-SO	7-22-02	1350	Soil	1	Shelby Tube		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

SAMPLED BY (Please Print Name): Susan McCauslin

SAMPLED BY (Signature): Susan McCauslin

ADDITIONAL COMMENTS:

RELINQUISHED BY / AFFILIATION (Print Name / Signature)	DATE	TIME	ACCEPTED BY / AFFILIATION (Print Name / Signature)	DATE	TIME
SMcCauslin	07-24-02	0805	Tom Maxwell	07/24/02	0814

COC-(3/01)

J&L LABORATORIES, INC.
215 Rainbow Street • Wadsworth, OH 44281
Phone: (330) 335-0606 • Fax: (330) 335-0908

CHAIN OF CUSTODY

No. 020075

Page 1 of 1

CLIENTS NAME: SPEC PRO, INC.	CLIENTS ADDRESS: 8451 ST. RT. 5, RAVENNA, OH 44266		
PROJECT MANAGER: Susan McClauslin	PHONE NUMBER: (330) 358-1753	FAX NUMBER: (330) 358-1754	PROPOSAL NUMBER:
PROJECT NAME: DUO AREA 2 PHASE II RI	PROJECT LOCATION (Twp., City, County, State): RAVENNA, OH 44266		PROJECT NUMBER:
LAB CONTACT: Larry Cole	LABORATORY ADDRESS: 215 Rainbow ST, Wadsworth	PHONE NUMBER: (330) 335-0606	FAX NUMBER: (330) 335-0908

TAT: ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☒ Standard 7 or 14 Days

REPORTING: Submit data via ☐ Verbal ☐ Fax ~~☐ Hardcopy~~

SAMPLE DESCRIPTION	COLLECTION DATE	COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TOC	Grain Size Sieve	Moisture Content	Atterburg Limits	USCS Classification	Bulk Density	Porosity	Hydraulic conductivity	Specific Gravity	pH	COMMENTS
DUO-MW110-0833-SO	07-24-02	0833	SOIL	1	Shelby Tube		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DUO-MW110-0834-SO	07-24-02	1030	SOIL	1	Shelby Tube		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

SAMPLED BY (Please Print Name): Susan McClauslin

SAMPLED BY (Signature): Susan McClaud

RELINQUISHED BY / AFFILIATION (Print Name / Signature)	DATE	TIME	ACCEPTED BY / AFFILIATION (Print Name / Signature)	DATE	TIME
Susan McClauslin Susan McClaud	07-25-02	0756	J&L LABS	7/25	10:15am

ADDITIONAL COMMENTS:

COC-1001