



APPENDIX G
Laboratory Testing Results -
Land (Sta. 26+00 to Sta. 140+00)

Project:	Mid Barataria Diversion Project
File No.:	18274-001-00
Explorations:	Between Sta. 26+00 and Sta. 140+00

PointID	Depth	Percent Finer	Test	Silt	Clay	%Sand
IS-1A	35	56.4	#200			43.6
IS-1A	45	82.4	#200			17.6
IS-1A	64	35.9	#200			64.1
IS-1A	79	45.6	#200			54.4
IS-1A	91.5	53.9	#200			46.1
IS-2A	24.6	75.6	#200			24.4
IS-2A	25	96.3	#200	79.1	17.2	3.7
IS-2A	25.5		#200			
IS-2A	29.3	74.4	Sieve			25.6
IS-2A	31.25	95.3	#200			4.7
IS-2A	34	70.4	#200			29.6
IS-2A	39	59.3	Sieve			40.7
IS-2A	45.7	59.1	#200			40.9
IS-2A	54	40.8	#200			59.2
IS-2A	58	84.7	#200			15.3
IS-2A	60	33.1	#200			66.9
IS-2A	65	53.2	#200			46.8
IS-2A	70	53.8	#200	38	15.8	46.2
IS-2A	72	32.2	#200			67.8
IS-2A	75	11.3	Sieve			88.7
IS-2A	77.5	19.7	#200			80.3
IS-2A	80	21.6	Sieve			78.4
IS-2A	82.5					
IS-2A	92.5	62.5	#200	49.7	12.8	37.5
IS-2A	95	19.2	Sieve			80.8
IS-2A	97.5	33.5	#200			66.5
IS-3A	36	43.4	#200			56.6
IS-3A	46	16.8	Sieve			83.2
IS-3A	48.5		#200			
IS-3A	53.5	58.4	#200			41.6
IS-3A	56	86.7	#200			13.3
IS-3A	58.5	27.8	Sieve			72.2
IS-3A	61	89.1	#200	50.21	38.89	10.9
IS-3A	66	31.3	#200			68.7
IS-3A	76	63.2	#200	48.74	14.46	36.8
IS-3A	78.5	20.7	Sieve			79.3
IS-3A	98.5	34.7	#200			65.3
IS-7A	10	93	#200			7
IS-7A	11	99	#200			1
IS-7A	14	100	#200	70	30	0
IS-7A	15	78	#200			22

Project:	Mid Barataria Diversion Project
File No.:	18274-001-00
Explorations:	Between Sta. 26+00 and Sta. 140+00

PointID	Depth	Percent Finer	Test	Silt	Clay	%Sand
IS-7A	21.6	93	#200	74	19	7
IS-7A	22	89	#200			11
IS-7A	24	80	#200	54	26	20
IS-7A	27	89	#200	73	16	11
IS-7A	31					
IS-7A	35	84	#200	64	20	16
IS-7A	40	85	#200	65	20	15
IS-7A	44	65	#200			35
IS-7A	47	85	#200	66	19	15
IS-7A	48	78	#200			22
IS-7A	52.5	78	#200	61	17	22
IS-7A	54.5	73	#200			27
IS-7A	57.5	76	#200	60	16	24
IS-7A	60	60	#200			40
IS-7A	62.5	88	#200	69	19	12
IS-7A	66.5	75	#200			25
IS-7A	70.5	71	#200			29
IS-7A	71.5					
IS-7A	76.5	12	Sieve			88
IS-7A	81.5	68	Sieve			32
IS-8A	26	62.4	#200	55.06	7.34	37.6
IS-8A	30	65.2	#200	59.9	5.3	34.8
IS-8A	46	83.4	#200			16.6
IS-8A	51	74.9	#200			25.1
IS-8A	54	79.6	#200	71.24	8.36	20.4
IS-8A	55	72.5	#200			27.5
IS-8A	59	81.7	#200	73.68	8.02	18.3
IS-8A	63.5	67.4	#200	56.92	10.48	32.6
IS-8A	66	58.3	#200			41.7
IS-8A	68.5	86.1	#200	75.95	10.15	13.9
IS-8A	73.5	55.2	#200			44.8
IS-8A	78.5	42.1	#200			57.9
IS-8A	81	84.6	#200	59.85	24.75	15.4
IS-8A	86	91.9	#200			8.1
IS-8A	96	14.4	Sieve			85.6
IS-8A	101	11.1	Sieve			88.9
IS-8A	113.5	10.9	Sieve			89.1
IS-8A	121	12.6	Sieve			87.4
IS-8A	146.5	24.3	#200			75.7
IS-8A	147.5	31	Sieve			69
IS-8A	150	26.1	#200			73.9

Project:	Mid Barataria Diversion Project
File No.:	18274-001-00
Explorations:	Between Sta. 26+00 and Sta. 140+00

PointID	Depth	Percent Finer	Test	Silt	Clay	%Sand
IS-9A	27	83.1	#200			16.9
IS-9A	29	76.3	#200			23.7
IS-9A	41	83.5	#200			16.5
IS-9A	45	79.8	#200			20.2
IS-9A	47	79.9	#200			20.1
IS-9A	49	68.9	#200			31.1
IS-9A	51	85.7	#200			14.3
IS-9A	61	76.2	#200			23.8
IS-9A	65	85.2	#200			14.8
IS-9A	74	64.1	#200			35.9
IS-9A	89	78.4	#200			21.6
IS-9A	99	86.1	#200			13.9
IS-12A	5.5	99	#200	52	47	1
IS-12A	10	100	#200	62	38	0
IS-12A	13	99	#200			1
IS-12A	14	90	#200	69	21	10
IS-12A	15	82	#200			18
IS-12A	16.3	75	#200			25
IS-12A	19	93	#200	71	22	7
IS-12A	25	64	#200			36
IS-12A	27	85	#200			15
IS-12A	34	79	#200			21
IS-12A	37	69	#200			31
IS-12A	40.5	68	#200			32
IS-12A	45	98	#200	64	34	2
IS-12A	47	78	#200	61	17	22
IS-12A	49	85	#200			15
IS-12A	53	84	#200	66	18	16
IS-12A	54	80	#200	63	17	20
IS-12A	59	81	#200			19
IS-12A	61	81	#200			19
IS-12A	63	90	#200	71	19	10
IS-12A	73.1	82	#200	67	15	18
IS-12A	78	74	#200			26
IS-12A	80	75	#200			25
IS-13A	23.5	71.5	Sieve			28.5
IS-13A	24	93.7	#200	77.4	16.3	6.3
IS-13A	33.2	89.3	Sieve			10.7
IS-13A	35	89.6	Sieve			10.4
IS-13A	65.3	98.2	#200			1.8
IS-13A	66	92	#200			8

Project:	Mid Barataria Diversion Project
File No.:	18274-001-00
Explorations:	Between Sta. 26+00 and Sta. 140+00

PointID	Depth	Percent Finer	Test	Silt	Clay	%Sand
IS-13A	88	87.4	#200	69.6	17.8	12.6
IS-13A	93	66	#200	48.7	17.3	34
IS-13A	100.5	36.4	#200			63.6
IS-16A	5.3	93.4	#200			6.6
IS-16A	17	83.6	#200	72	11.6	16.4
IS-16A	27.5	92	#200			8
IS-16A	30	78.1	Sieve			21.9
IS-16A	35	64.1	Sieve			35.9
IS-16A	41	19.2	Sieve			80.8
IS-16A	46	20.1	Sieve			79.9
IS-16A	51.5	49.1	#200			50.9
IS-16A	54	30.2	#200			69.8
IS-16A	56.5	14.8	Sieve			85.2
IS-16A	59	63.2	#200			36.8
IS-16A	61.5	17.4	#200			82.6
IS-16A	66.5	49.9	Sieve			50.1
IS-16A	72.3	44.3	#200			55.7
IS-16A	74	39.4	Sieve			60.6
IS-16A	76.5	19.1	#200			80.9
IS-16A	94	29.8	Sieve			70.2
IS-16A	96.5	67.7	#200	55.6	12.1	32.3
IS-16A	99	59	Sieve			41
IS-17A	38	90	#200			10
IS-17A	43	28	#200			72
IS-17A	46.5	57	#200	49	8	43
IS-17A	48	69	#200	52	17	31
IS-17A	50.5	51	#200	24	27	49
IS-17A	53	17	Sieve			83
IS-17A	55.5	16	Sieve			84
IS-17A	58	94	#200	43	51	6
IS-17A	60.5	90	#200	45	45	10
IS-17A	63	40	#200			60
IS-17A	68	33	#200			67
IS-17A	75.5	36	#200			64
IS-17A	78.8	68	#200			32
IS-17A	80.5	99	#200	66	31	1
IS-17A	85.5	36	#200			64
IS-17A	93	63	#200			37
IS-17A	98	78	#200			22
NL-3A	23	99.7	#200	30	69.7	0.3
NL-3A	39	99.2	#200	10	89.8	0.8

Project:	Mid Barataria Diversion Project
File No.:	18274-001-00
Explorations:	Between Sta. 26+00 and Sta. 140+00

PointID	Depth	Percent Finer	Test	Silt	Clay	%Sand
NL-3A	114	28.1	#200			71.9
NL-3A	116	98.9	#200			1.1
NL-6A	9.6	92.4	#200			7.6
NL-6A	12.4	74	#200			26
NL-6A	13	42.8	#200	39	3.8	57.2
NL-6A	14	26	#200			74
NL-6A	16.8	44.5	#200			55.5
NL-6A	17	32	#200			68
NL-6A	18	53.2	#200			46.8
NL-6A	19.3	30.6	#200			69.4
NL-6A	20	71.9	#200			28.1
NL-6A	27	22.8	#200			77.2
NL-6A	30.5	74.4	#200			25.6
NL-6A	31.7	71.2	#200			28.8
NL-6A	33	90.1	#200			
NL-6A	37	63.1	#200			36.9
NL-8A	13.3	99.8	#200			0.2
NL-8A	24.5	98.9	#200			1.1
NL-8A	32.8	93.1	#200			6.9
NL-8A	115	31.3	#200			68.7
NL-9A	38	77.1	#200			22.9
NL-9A	41	35	#200			65
NL-9A	43.5	29.2	#200			70.8
NL-9A	46	79	#200	68.3	10.7	21
NL-9A	51	44	#200			56
NL-9A	53.5	44.1	#200			55.9
NL-9A	56	64.2	#200	55.6	8.6	35.8
NL-9A	63.5	60.6	#200			39.4
NL-9A	68.5	38	#200			62
NL-9A	73.5	31.9	#200			68.1
NL-9A	86					
NL-9A	93.5	64.7	#200	55.1	9.6	35.3
NL-9A	98.5	29.9	#200			70.1
PT-1	10	94.9	H	54.5	40.4	5.1
	12	97.1	H	35	62.1	2.9
Sample B	14	16.7	Sieve			83.3
Sample A	18	98.2	H	77.5	20.7	1.8
Sample B	18	53.6	H	49.5	4.1	46.4
	24	95	H	86.4	8.6	5
	28	95.6	H	85.5	10.1	4.4
	32	97.2	H	60.9	36.3	2.8

Project:	Mid Barataria Diversion Project
File No.:	18274-001-00
Explorations:	Between Sta. 26+00 and Sta. 140+00

PointID	Depth	Percent Finer	Test	Silt	Clay	%Sand
PT-2	8	96	H	82	14	4
	13	98.4	H	67.6	30.8	1.6
	18	95.4	H	52.6	42.8	4.6
	23	78.3	H	66.9	11.4	21.7
	28	57.6	H	50.3	7.3	42.4
	32	67.7	H	62.3	5.4	32.3
	36	69.9	H	56.9	13	30.1
	40	52.9	H	42.1	10.8	47.1
	44	57.8	H	46.5	11.3	42.2
	48	61.2	H	51.8	9.4	38.8
	52	81.1	H	55.2	25.9	18.9
	56	59.7	H	48.7	11	40.3
	62	99.8	H	35	64.8	0.2
	66	63.5	H	49	14.5	36.5
	70	99.6	H	23.3	76.3	0.4
	74	63.6	H	50.5	13.1	36.4
PZ-1	13	23.8	H		23.8	76.2
Sample A	13	98	H	41	57	2
	18	99.4	H		99.4	0.6
	23	98.3	H		98.3	1.7
	33	99.2	H		99.2	0.8
PZ-6	18	99.4	H	37.3	62.1	0.6
	28	90	H	78	12	10
Sample C	28	99	H	68.7	30.3	1
	33	86.8	H	80.6	6.2	13.2
PZ-8						
Sample B	8	98	H	79.3	18.7	2
	13	96.4	H	86.1	10.3	3.6
	18	71.1	H	66	5.1	28.9
	23	81.5	H	67	14.5	18.5
Sample A	28	72.5	H	61.7	10.8	27.5
Sample B	28	85.3	H	74.8	10.5	14.7
	33	69.3	H	58.7	10.6	30.7
	38	76.5	H	67	9.5	23.5
	43	54.4	H	45.9	8.5	45.6
	48	62.7	H	49.7	13	37.3
	53	54.1	H	47.2	6.9	45.9
PZ-10						
	13	98.6	H	72.5	26.1	1.4
	18	85.4	H	71.6	13.8	14.6
Sample A	23	83.9	H	67.7	16.2	16.1

Project:	Mid Barataria Diversion Project
File No.:	18274-001-00
Explorations:	Between Sta. 26+00 and Sta. 140+00

PointID	Depth	Percent Finer	Test	Silt	Clay	%Sand
Sample B	23	43.9	H	43.9	0	56.1
	28	61	H	52.4	8.6	39
	33	58.9	H	52.7	6.2	41.1
Sample A	38	89.1	H	74.5	14.6	10.9
Sample B	38	93.6	H	89	4.6	6.4
	43	87	H	78.9	8.1	13
Sample A	48	96	H	75.8	20.2	4
Sample B	48	58.4	H	47.2	11.2	41.6
PZ-11						
	8	99.2	H	78.3	20.9	0.8
	13	85.5	H	76.5	9	14.5
	18	86	H	74.3	11.7	14
Sample A	23	76.4	H	66.7	9.7	23.6
Sample B	23	77.6	H	71.6	6	22.4
	28	90.5	H	57	33.5	9.5
	33	88.8	H	75.3	13.5	11.2
	38	56.7	H	50	6.7	43.3
Sample A	43	89.7	H	82.5	7.2	10.3
Sample B	43	97	H	70.7	26.3	3
PZ-13						
	18	99.4	#200		99.4	0.6
	23	90.5	#200	90.5		9.5
PZ-15						
	33	80	#200	80		20
	40	74.1	H	65.8	8.3	25.9
	43.5	74.9	H	68.4	6.5	25.1
B-1Aa						
	20	86.3	H	77.8	8.5	13.7
	22	66.6	#200	66.6		33.4
	23.6	87.4	H	82.2	5.2	12.6
	27	92.5	H	77.2	15.3	7.5
	32	85.2	H	75.8	9.4	14.8
	34.5	68.8	H	58.2	10.6	31.2
	37	60.5	#200	60.5	0	39.5
	39.5	76.9	H	63.5	13.4	23.1
B-2A						
	17	73.9	H	64.7	9.2	26.1
	19	71.6	#200	71.6		28.4
	23.5	93.1	H	79.3	13.8	6.9
	36	80.2	H	68.6	11.6	19.8
	41	83.6	H	69	14.6	16.4

Project:	Mid Barataria Diversion Project
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Explorations:	Between Sta. 26+00 and Sta. 140+00

PointID	Depth	Percent Finer	Test	Silt	Clay	%Sand
	46.5	84.3	H	72.1	12.2	15.7
	47	71.8	#200	71.8		28.2
	48	83.8	#200	83.8		16.2
	49	75.7	#200	75.7		24.3
	51	72.8	H	63	9.8	27.2
	52	83.3	H	70.4	12.9	16.7
	55	75.8	H	62.3	13.5	24.2
	57	58.3	#200	58.3		41.7
	61.5	70.2	#200	70.2		29.8
	64	61.8	#200	61.8		38.2
	66.5	68.2	H	59.6	8.6	31.8
	71.5	58.9	#200	58.9		41.1
	74	74.2	H	58.7	15.5	25.8
	76.5	56.4	H	46.5	9.9	43.6
	79	63.1	H	56.2	6.9	36.9
	81	42.5	#200	42.5		57.5
	84	33.8	#200	33.8		66.2
B-4A						
	13	89.1	H	82	7.1	10.9
	17	95.4	H	82.3	13.1	4.6
	21	83.2	H	74	9.2	16.8
	38	83.1	H	68.6	14.5	16.9
	51	81.2	#200	81.2		18.8
	53	69.7	H	60.6	9.1	30.3
	55	54.8	H	54.8	0	45.2
	57	77.7	H	69.1	8.6	22.3
	61	72.2	H	64.7	7.5	27.8
	67	74.6	H	68.6	6	25.4
	70.5	84.4	H	71.3	13.1	15.6
	80.5	62.9	H	49.8	13.1	37.1
	85.5	74.4	H	63.7	10.7	25.6

Project: Mid Barataria Diversion Project
 File No.: 18274-001-00
 Explorations: Between Sta. 26+00 and Sta. 140+00

Boring	Depth Interval	Organic Content	Permeability
PT-1	14-16	7.92%	
	20-22	11.18%	
	22-24	26.13%	
PZ-1	8-10	3.00%	
	13-15A	5.02%	
	13-15B	2.05%	
PZ-2	23-25A	1.75%	
PZ-3	13-15A	5.99%	
	13-15B	12.55%	
	23-25A	9.56%	
PZ-5	18-20A	6.83%	
	23-25	3.20%	
PZ-6	18-20	6.90%	
	23-24	6.03%	
PZ-9	0-2	4.11%	
	3-5	3.51%	
	8-10	2.80%	
PZ-10	0-2	4.90%	
	3-5	3.97%	
	8-10	3.69%	
PZ-11	0-2	2.13%	
	3-5	3.83%	
	8-10	2.83%	
	13-15	2.75%	
PZ-12	0-2	2.58%	
	3-5	2.42%	
	8-10A	3.28%	
IS-2A	8-10B	4.27%	
	38-39		1.42E-06
	55-55.5		3.37E-07
IS-3A	29-30		1.64E-07
	35-36		3.17E-07
	76-77.5	0.93%	
IS-7A	66.5-67.5		1.05E-06
IS-8A	50-51		2.18E-06
IS-9A	46-47		2.08E-06
	55-56		2.83E-06
IS-12A	5.5-6		3.23E-08
	10-11		7.43E-06
	54-55		3.70E-06

Project: Mid Barataria Diversion Project
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Boring	Depth Interval	Organic Content	Permeability
	64.5-66		1.27E-06
IS-13A	34-35		1.97E-06
	45-46		1.94E-07
	54-55		2.83E-06
IS-16A	47-48		5.14E-04
NL-3A	5-6	5.50%	
	15-16	5.50%	
	23-24	3.90%	
NL-6A	39-40		
NL-8A	1-2	7.20%	
NL-9A	0-0.8	3.60%	
	7-8	2.80%	
	14-15		
B1-Aa	47-48		7.93E-08
	49-50		6.61E-06
B-2A	14-15		2.14E-06
	52-53		7.08E-07
	55-56		5.29E-06
B-4A	27-28		2.51E-06
	42-43		2.05E-06
	49-50		1.08E-06

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-1A	0.1	1.0	Stiff tan and gray clay with roots and trace of gravel (CL4)	21									MC		
B-1A	1.0	2.0	Medium dense tan and gray clayey silt with sand, shell fragments, and roots (ML)	22			28	22	6				MC,AL		
B-1A	2.7	3.0	Tan and gray clay (CL4)	22									MC		
B-1A	3.0	4.0	Stiff tan and gray clay with roots, sand lenses, sand pockets, and sand seams (CL4)	28	119.5	93.1	39	24	15	1.74	12	1.91	Multiple Shear	MC,UU-USACE,AL	
B-1A	5.0	6.0	Medium brown clay (CL4)	23	125.2	102.1	36	17	19	0.90	15	2.01	Yield	MC,UU-USACE,AL	
B-1A	7.8	8.0	Gray silty sand (SM)	29									MC		
B-1A	8.0	9.0	Medium gray clay with 5" silty sand layer (CL4)	31	121.7	93.4	33	19	14	0.77	15	3.90	Yield	MC,UU-USACE,AL	
B-1A	9.0	10.0	Soft gray clay (CL4)	36									MC		
B-1A	10.0	11.0	Soft gray clay (CH2)	42	119.7	85.0	51	25	26	0.43	10	2.28	Multiple Shear	MC,UU-USACE,AL	

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-1Aa	11.8	12.0	Gray clay with silt lenses (CL6)	48									MC		
B-1Aa	12.0	13.0	Soft gray clay with 2" clayey silt layer at bottom (CL6)	39	119.3	86.9	39	24	15	0.43	10	4.11	Bulge	MC,UU-USACE,AL	
B-1Aa	13.0	14.0	Soft gray clay with 4" silty sand layer and silt and sand pockets (CL4)	40									MC		
B-1Aa	14.0	15.0	Very soft gray clayey silt with 3" silty sand layer at bottom, silt and sand pockets (ML)	27	125.5	99.2	26	21	5	2.01	15	2.49	Yield	MC,UU-USACE,AL	
B-1Aa	16.0	17.0	Soft gray clay with silt and sand pockets (CL6)	41	112.4	78.3	45	22	23	0.29	5	4.32	Bulge	MC,UU-USACE,AL	
B-1Aa	17.0	18.0	Soft gray clay with sand lenses (CL4)	39									MC		
B-1Aa	18.0	19.0	Very soft gray clay with 4" loose clayey silt layer (CL4)	32	112.4	82.8	34	21	13	0.24	10	2.71	Bulge	MC,UU-USACE,AL	
B-1Aa	20.0	21.0	Medium dense gray sandy silt (ML)	32									MC,H	13.7% sand / 77.8% silt / 8.5% clay	
B-1Aa	21.0	22.0	Medium gray clay with 5" silty sand layer at top (CL4)	33	123.7	93.7	29	20	9	0.90	15	2.87	Yield	MC,UU-USACE,AL	
B-1Aa	22.0	23.0	Loose gray sandy silt (ML)	30									MC,M200	33.4% sand / 66.6% fines	
B-1Aa	23.6	24.0	Loose gray sandy silt (ML)	36									MC,H	12.6% sand / 82.2% silt / 5.2% clay	
B-1Aa	24.0	25.0	Loose gray silty sand with 5" silty clay layer (SM)	23									MC		
B-1Aa	25.0	26.0	Soft gray clay with sand lenses and 4" silty sand layer (CL4)	50									MC		
B-1Aa	26.0	27.0	Soft gray clay with sand lenses and pockets (CL4)	34	119.8	90.7	34	21	13	0.54	15	3.12	Yield	MC,UU-USACE,AL	
B-1Aa	27.0	28.5	Very loose gray clayey silt (ML)	36									MC,H	7.5% sand / 77.2% silt / 15.3% clay	
B-1Aa	29.5	31.0	Very loose gray clay silt (ML)	34									MC		
B-1Aa	32.0	33.5	Very loose gray sandy silt (ML)	33			27	20	7				MC,AL,H	14.8% sand / 75.8% silt / 9.4% clay	
B-1Aa	34.5	36.0	Loose gray sandy silt (ML)										H	31.2% sand / 58.2% silt / 10.6% clay	
B-1Aa	37.0	38.5	Very loose gray clayey silt with 8" clay layer (ML)	33			45	21	24				MC,AL,M200	39.5% sand / 60.5% fines	
B-1Aa	39.5	41.0	Very loose gray sandy silt with 4" clay layer (ML)	31									MC,H	23.1% sand / 63.5% silt / 13.4% clay	
B-1Aa	42.8	43.0	Very soft gray clay with sand lenses, pockets and seams (CL4)	24									MC		
B-1Aa	43.0	44.0	Medium gray clay with sand lenses (CL4)	31	118.2	90.8	35	20	15	0.73	8	4.01	Multiple Shear	MC,UU-USACE,AL	
B-1Aa	44.0	45.0	Soft gray clay with sand lenses, pockets, seams and 3 1/2" silty sand layer (CL4)	35									MC		
B-1Aa	45.0	46.0	Medium dense gray silty sand with 1.5 inch and 4 inch CL4 layers (SM)	31									MC,M200	66.3% sand / 33.7% fines	
B-1Aa	46.6	47.0	Medium gray clay with sand lenses (CL4)	45									MC		

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSE)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
B-1Aa	47.0	48.0	Medium gray clay with sand lenses, pockets and seams (CL4)	46										MC	
B-1Aa	48.0	49.0	Medium gray clay with sand lenses, pockets and seams and 1" sand layer and 2" sand layer (CL4)	34										MC	
B-1Aa	49.0	50.0	Medium dense gray silty sand (SM)	30										MC	
B-1Aa	50.5	51.5	Loose gray clayey silt with 4" clay layer (ML)	42										MC	
B-1Aa	55.0	56.5	Medium dense gray sand (SP)											Dry Sieve	77.4% sand / 22.6% fines
B-1Aa	57.5	59.0	Sand with silt (SP)											M200	90.5% sand / 9.5% fines
B-1Aa	62.5	64.0	Medium dense gray sand (SP)											Dry Sieve	83.0% sand / 17.0% fines
B-1Aa	67.5	69.0	Medium gray clay (CL6)	47			49	24	25					MC,AL,H	11.5% sand / 39.3% silt / 49.2% clay
B-1Aa	70.5	71.0	Loose gray silty sand (SM)	29										MC	
B-1Aa	71.0	72.0	Medium dense gray silty sand (SM)	29										MC,H	69.1% sand / 30.9% silt / 0% clay
B-1Aa	72.0	73.0	Soft gray clay with sand lenses, pockets and seams (CH4)	49	106.2	70.5	81	30	51	0.54	15	7.27	Yield	MC,UU-USACE,AL	
B-1Aa	76.5	78.0	Medium dense gray silty sand (SM)											H	76.4% sand / 18.3% silt / 5.3% clay
B-1Aa	81.5	83.0	Very dense gray sand (SP)											Dry Sieve	86.3% sand / 13.7% fines

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SUMMARY OF LABORATORY TEST RESULTS

Project: Mid Barataria Diversion

Assigned By: _____

Project Number: 04.55124092

Current Date: 11/6/2013

Boring: B-1Aa

Sample Number	Depth	Visual Classification	USCS	E (f)	W%	Dry Dens (pcf)	Wet Dens (pcf)	Sat %	Shear Test Type	Angle	Cohesion (psf)	Unconf. Comp. Str.	LL	PL	PI	TORVANE (tsf)	Other Tests
16	47	M GR CL6	CL6		38	82	114	99	UU	0	820					0.25	Kv= 7.93E-08, HYD
16	49	GR ML	ML		32	92	121	100									Kh= 6.61E-06, HYD
DRAFT																	

Remarks: _____
Fugro Consultants, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Checked by: _____
File Name: 04

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA

Technical Responsibility:

CLP

11/22/2013

Date:

Project ID: 18274-001-00

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-2A	0.0	1.0		27										MC	
B-2A	2.0	3.0		20										MC	
B-2A	5.5	6.0		26										MC	
B-2A	6.0	7.0		28										MC	
B-2A	7.0	8.0		30										MC	
B-2A	9.0	10.0		43										MC	
B-2A	10.0	11.0		36										MC	
B-2A	11.0	12.0		35										MC	
B-2A	12.0	13.0		39										MC	
B-2A	13.0	14.0		40										MC	
B-2A	14.0	15.0		31										MC	
B-2A	17.0	18.0		27										MC	
B-2A	18.0	19.0		32										MC	
B-2A	19.0	20.0		34										MC	
B-2A	21.0	22.5		36										MC	
B-2A	23.5	25.0		38										MC	
B-2A	26.0	27.5		35										MC	
B-2A	28.5	30.0		35										MC	
B-2A	31.0	32.5		50										MC	
B-2A	33.5	35.0		36										MC	
B-2A	36.0	37.5		33										MC	
B-2A	38.5	40.0		37										MC	
B-2A	41.0	42.5		34										MC	
B-2A	43.5	45.0		41										MC	
B-2A	46.5	47.0		33										MC	
B-2A	47.0	48.0		33										MC	
B-2A	48.0	49.0		32										MC	
B-2A	49.0	50.0		34										MC	
B-2A	50.5	51.0		33										MC	
B-2A	51.0	52.0		32										MC	
B-2A	52.0	53.0		38										MC	
B-2A	53.0	54.0		33										MC	
B-2A	55.0	56.0		31										MC	
B-2A	56.0	57.0		32										MC	
B-2A	57.0	58.0		34										MC	
B-2A	59.0	60.5		33										MC	
B-2A	61.5	63.0		35										MC	
B-2A	64.0	65.5		35										MC	
B-2A	69.0	70.5		45										MC	

"Confidential Information; Privileged & Confidential Work Product"

GeoEngineers, Inc.
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

Disclaimer: The results presented relate only to those samples tested. **Soil Description:** ASTM(D2487) AASHTO(M145) **Moisture Content:**

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA

Technical Responsibility:

CLP

11/22/2013

Date:

Project ID: 18274-001-00

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-2A	74.0	75.5		31									MC		
B-2A	76.5	78.0		31									MC		

DRAFT

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **10/28/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION													USCS	Remarks	
			D2216	D4318			D2166		D2166		D2850	D422, C136 or C117						
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)						
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt	Clay			% Passing #200
B-2A	0-2	St, Br Lean CLAY with Clay	26.0	48	24	24	104.5	82.8									(CL6)	CU Test in progress
B-2A	2-3	Gr and Br Lean CLAY with Silt		34	23	11											(CL4)	Sample too disturbed, unable to trim, No CU Test
B-2A	5.5-6	So, Gr and Br Lean CLAY with Silt and Voids	25.2	36	20	16	114.3	91.3									(CL4)	*CU Test in progress *Poor quality specimen due to voids
B-2A	7-8	M, Gr Silty CLAY		43	22	21											(CL6)	CU Test in progress
B-2A	9-10																	CU Test in progress
B-2A	10-11																	CU Test in progress
B-2A	12.3-13	Alternating Layers of So, Gr Lean CLAY and So, Gr SILT	35.4	35	23	12	116.6	86.1	420.4		16.6						(CL4)	Slumping under own weight
B-2A	13-14	St, Gr SILT with Clay and Fine Sand	32.1	NP	NP	NP	117.6	89.1	1987.1		16.9						(ML)	2.14x10 ⁻⁵ *Slumping under own weight
B-2A	17-18	Gr SILT with Sand and Tr Clay	31.2										26.1	64.7	9.2	73.9	(ML)	
B-2A	19-20	Gr SILT with Sand and Tr Clay	30.2													71.6	(ML)	
B-2A	21-22.5	Gr SILT with Sand and Tr Clay	30.5	NP	NP	NP											(ML)	
B-2A	23.5-25	Gr SILT with Clay and Tr Sand	27.8	34	24	10							6.9	79.3	13.8	93.2	(ML)	
B-2A	26-27.5	Gr SILT with Tr Clay and Tr Sand	34.9	31	26	5											(ML)	
B-2A	28.5-30	Gr Lean CLAY with Tr Sand	36.2	36	23	13											(CL4)	
B-2A	31-32.5	Alternating Layers of Gr CLAY and Sandy SILT	40.6	31	24	7											(ML)	
B-2A	33.5-35	Gr SILT with Tr Clay and Tr Fine Sand	32.3	32	23	9											(ML)	

"Confidential Information, Results presented are Confidential Work Product"
The results presented only relate to those samples tested

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **10/28/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks			
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117						
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)							
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt			Clay	% Passing #200	
B-2A	36-37.5	Gr SILT with Fine Sand and Clay	33.4	NP	NP	NP							19.8	68.6	11.6	80.2	(ML)		
B-2A	41-42.5	Gr SILT with Clay and Sand	32.6	31	24	7							16.4	69.0	14.6	83.6	(ML)		
B-2A	43.5-45	Gr Lean CLAY with Tr Fine SAND	35.9	47	23	24											(CL6)		
B-2A	46.5-47	Gr SILT with Fine Sand and Clay	30.7				116.5	89.1					15.7	72.1	12.2	84.3	(ML)		
B-2A	47-48	Gr SILT with Sand and Tr Clay	31.1													71.8	(ML)		
B-2A	48-49	Gr SILT with Sand and Tr Clay	33.8													83.8	(ML)		
B-2A	49-50	Gr SILT with Sand and Tr Clay	32.8													75.7	(ML)		
B-2A	51-52	Gr SILT with Sand and Tr Clay	30.3										27.2	63.0	9.8	72.8	(ML)		
B-2A	52-53	M, Gr SILT with Clay and Fine Sand	30.9	31	25	6	118.8	90.8	925.7		31.6		16.7	70.4	12.9	83.3	(ML)	7.08x10 ⁻⁷ Slumping	
B-2A	55-56	Gr SILT with Sand and Clay	31.6										24.2	62.3	13.5	75.8	(ML)	5.29x10 ⁻⁶	
B-2A	57-58	Gr Sandy SILT with Tr Clay	33.5													58.3	(ML)		
B-2A	61.5-63	Gr Sandy SILT with Tr Clay	35.3													70.2	(ML)		
B-2A	64-65.5	Gr Sandy SILT with Tr Clay	33.7													61.8	(ML)		
B-2A	66.5-68	Gr Silty SAND and Sandy SILT with Tr Clay	29.0										31.8	59.6	8.6	68.3	(SM/ML)		
B-2A	69-70.5	Alternating Layers of Gr Lean CLAY and Sandy SILT	39.4	43	19	24											(CL6)		
B-2A	71.5-73	Gr Sandy SILT with Tr Clay	28.9													58.9	(ML)		

"Confidential Information, results presented only to those samples tested"

Project: Mid Barataria Diversion

Technical Responsibility: RM

Quality Assurance Officer

Client: GeoEngineers

Project No.: B13-018

PM: RM

Date of Issue: 10/28/2013

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks		
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117					
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200	
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt				Clay
B-2A	74-75.5	Gr SILT with Sand and Tr Clay	31.7										25.8	58.7	15.5	74.2	(ML)	
B-2A	76.5-78	Gr Sandy SILT with Tr Clay	31.2										43.6	46.5	9.9	56.4	(ML)	No Density, Bag Sample
B-2A	79-80.5	Gr Sandy SILT with Tr Clay	28.5										36.9	56.2	6.9	63.1	(ML)	
B-2A	81.5-83	Gr Silty SAND with Tr Clay	27.8													42.5	(SM)	
B-2A	84-85.5	Gr Silty SAND with Tr Clay	31.5													33.8	(SM)	

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title:

Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-4A	0.0	1.3	Dark gray clay and wood with sand pockets (CL6)	30									MC		
B-4A	3.0	4.0	Very stiff brown and gray clay with 2" clayey silt layer (CL4)	26	120.1	95.2				2.28	11	1.9	Multiple Shear	MC,UU-USACE	
B-4A	6.1	7.0	Very stiff brown and gray clay with sand lenses, pockets and seams (CL4)	28	125.5	98.8	31	22	9	2.93	14	2.1	Yield	MC,UU-USACE,AL	
B-4A	7.0	8.0	Stiff brown and gray clay with 3" laminated silt and clay layers and sand lenses, pockets and seams (CL6)	28	120.6	94.0	46	20	26	1.40	6	3.9	Multiple Shear	MC,UU-USACE,AL	
B-4A	10.0	11.0	Stiff gray clay with sand lenses, pockets and seams and 2" silt layer (CL4)	30	124.2	97.1	42	22	20	1.61	15	2.3	Yield	MC,UU-USACE,AL	
B-4A	11.0	12.0	Soft gray clay with sand lenses, pockets and seams and 1 1/2" silty sand layer (CL4)	41										MC	
B-4A	12.6	13.0	Medium dense gray silty sand (SM)	31										MC	
B-4A	13.0	14.0	Medium dense gray sandy silt with 1 1/2" clay layer (ML)	33										MC,H	10.9% sand / 82.0% silt / 7.1% clay
B-4A	14.0	15.0	Soft gray clay with sand lenses, pockets and 1" sand layer (CH2)	50										MC	
B-4A	15.0	16.0	Very soft gray clay with sand lenses and 2x 2 1/2" clayey silt layers (CL4)	39	118.0	85.0	39	21	18	0.15	14	0.82	Bulge	MC,UU-USACE,AL	
B-4A	16.5	17.0	Loose gray clayey silt (ML)	39										MC	
B-4A	17.0	18.0	Loose gray clayey silt (ML)	33	106.8	80.5								MC,UW,H	4.6% sand / 82.3% silt / 13.1% clay
B-4A	18.0	19.0	Loose gray clayey silt (ML)	34										MC	
B-4A	19.0	20.0	Loose gray clayey silt with 4" very silty clay layer (ML)	36										MC	
B-4A	21.0	22.0	Medium dense gray sandy silt with clay (ML)	31										MC,H	16.8% sand / 74.0% silt / 9.2% clay
B-4A	22.0	23.0	Medium dense gray clayey silt with 4" very silty clay layer (ML)	35										MC	
B-4A	23.0	24.0	Loose gray clayey silt (ML)	31										MC	
B-4A	24.5	25.0	Loose gray clayey silt (ML)	34										MC	
B-4A	25.0	26.0	Loose gray clayey silt (ML)	33	53.0	39.8								MC,UW	
B-4A	26.0	27.0	Loose gray clayey silt (ML)	32										MC	
B-4A	27.0	28.0	Loose gray clayey silt (ML)	32										MC	
B-4A	28.0	29.5	Very loose gray clayey silt (ML)	35										MC	

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title:

Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-4A	30.5	32.0	Very soft gray clay (CL4)	41										MC	
B-4A	33.0	34.5	Very soft gray clay (CL4)	35										MC	
B-4A	35.5	37.0	Very loose gray clayey silt (ML)	34										MC	
B-4A	38.0	39.5	Very loose gray sandy silt with clay (ML)	35										MC,H	16.9% sand / 68.6% silt / 14.5% clay
B-4A	41.0	42.0	Medium dense gray clayey silt (ML)	29										MC	
B-4A	42.0	43.0	Medium dense gray clayey silt (ML)	32										MC	
B-4A	43.0	44.0	Medium dense gray clayey silt (ML)	30										MC	
B-4A	44.6	45.0	Loose gray clayey silt (ML)	32										MC	
B-4A	45.0	46.0	Medium dense gray clayey silt (ML)	27	126.6	96.6	25	20	5	0.63	15	4.1	Yield	MC,UU-USACE,AL	
B-4A	46.0	47.0	Medium dense gray clayey silt with 4" very silty clay layer (ML)	35										MC	
B-4A	47.0	48.0	Medium dense gray clayey silt with 4" clayey fine sand layer (ML)	33										MC	
B-4A	48.5	49.0	Soft gray clay (CL4)	32										MC	
B-4A	49.0	50.0	Soft gray clay (CL4)	31										MC	
B-4A	50.0	51.0	Medium gray clay (CL4)	31	126.8	97.0	29	20	9	0.60	15	4.4	Yield	MC,UU-USACE,AL	
B-4A	51.0	52.0	Soft gray clay with 3 inch clayey silt layer (CL4)	27										MC,M200	18.8% sand / 81.2% fines
B-4A	52.6	53.0	Loose gray clayey silt (ML)	32										MC	
B-4A	53.0	54.0	Medium dense gray sandy silt (ML)	34										MC,H	30.3% sand / 60.6% silt / 9.1% clay
B-4A	54.0	55.0	Medium dense gray clayey silt (ML)	33										MC	
B-4A	55.0	56.0	Medium dense gray sandy silt (ML)	33										MC,M200	45.2% sand / 54.8% fines
B-4A	57.0	58.0	Medium dense gray sandy silt (ML)	31										MC,H	22.3% sand / 69.1% silt / 8.6% clay
B-4A	58.0	59.0	Medium dense gray clayey silt (ML)	33										MC	
B-4A	59.0	60.0	Loose gray clayey silt (ML)	32										MC	
B-4A	61.0	62.0	Medium dense gray sandy silt (ML)	33										MC,H	27.8% sand / 64.7% silt / 7.5% clay
B-4A	62.0	63.0	Medium dense gray clayey silt (ML)	33										MC	
B-4A	63.0	64.0	Medium dense gray clayey silt (ML)	27										MC	
B-4A	64.8	65.0	Gray clayey silt (ML)	32										MC	
B-4A	65.0	66.0	Medium dense gray clayey silt (ML)	34										MC	

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title:

Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION			TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)		
B-4A	66.0	67.0	Medium dense gray clayey silt (ML)	33									MC	
B-4A	67.0	68.0	Medium dense gray sandy silt (ML)	31									MC,H	25.4% sand / 68.6% silt / 6.0% clay
B-4A	68.0	69.5	Loose gray clayey silt (ML)	33									MC	
B-4A	70.5	72.0	Loose gray clayey sandy silt (ML)	32									MC,H	15.6% sand / 71.3% silt / 13.1% clay
B-4A	73.0	74.5	Loose gray clayey silt (ML)	36									MC	
B-4A	75.5	77.0	Medium dense gray clayey silt with 4" clay layer (ML)	29									MC	
B-4A	78.0	79.5	Medium gray silty clay with sand pockets(CL4)	36									MC	
B-4A	80.5	82.0	Medium gray clayey sandy silt (ML)										H	37.1% sand / 49.8% silt / 13.1% clay
B-4A	83.0	84.5	Medium gray clayey silt (ML)	31									MC	
B-4A	85.5	87.0	Loose gray clayey sandy silt (ML)	33									MC,H	25.6% sand / 63.7% silt / 10.7% clay

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SUMMARY OF LABORATORY TEST RESULTS

Project: Mid Barataria Diversion

Assigned By: _____

Project Number: 04.55124092
Boring: B-4A

Current Date: 11/6/2013

Sample Number	Depth	Visual Classification	USCS	E (f)	W%	Dry Dens (pcf)	Wet Dens (pcf)	Sat %	Shear Test Type	Angle	Cohesion (psf)	Unconf. Comp. Str.	LL	PL	PI	TORVANE (tsf)	Other Tests
8	27	SO GR CL	CL		28	97	124	100								0.15	Kv= 2.51E-06, HYD
14	42	SO GR CL W/ ARS SP	CL		29	95	123	100								0.20	Kv= 2.05E-06, HYD
16	49	SO GR CL W/ ARS SP	CL		32	89	118	98	UU	0	357		29	22	7	0.25	Kh= 1.08E-06, HYD
<div style="position: absolute; opacity: 0.3; font-size: 100px; transform: rotate(-45deg); pointer-events: none;">DRAFT</div>																	

Remarks: _____
Fugro Consultants, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Checked by: _____
File Name: 04

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
 Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-1A	2.3	3.0	Very stiff tan and gray clay with sand pockets and sand seams (CL4)	20	126.6	104.8	36	19	17	4.00	2	5.31	Multiple Shear	MC,UU-USACE,AL	
IS-1A	3.0	4.0	Stiff gray clay with 2" sand layer (CH4)	22										MC	
IS-1A	6.0	7.0	Stiff gray clay with sand pockets and seams and 1/2" sand layer (CL4)	25										MC	
IS-1A	7.0	8.0	Soft gray clay with sand pockets and seams (CL4)	27	115.9	91.1	39	20	19	0.37	4	0.39	Multiple Shear	MC,UU-USACE,AL	
IS-1A	8.3	9.0	Soft gray clay (CH4)	32										MC	
IS-1A	9.0	10.0	Medium gray clay with organic material (CL6)	31	116.9	88.7	44	21	23	0.73	15	2.23	Multiple Shear	MC,UU-USACE,AL	
IS-1A	13.3	14.0	Medium gray clay (CL4)	32	123.1	93.6				0.94	15	0.71	Multiple Shear	MC,UU-USACE	
IS-1A	14.0	15.0	Medium dense gray clayey silt with 3" clay layer (ML)	33										MC	
IS-1A	15.0	16.0	Medium dense gray clayey silt with clay pockets and clay seams (ML)	34										MC	
IS-1A	16.7	17.5	Medium dense gray clayey silt (ML)	32										MC	
IS-1A	17.5	18.5	Soft gray clay (CL4)	30	122.1	80.3	35	20	15	0.46	15	4.41	Bulge	MC,UU-USACE,AL	
IS-1A	18.5	19.5	Medium dense gray clayey silt (ML)	34										MC	
IS-1A	20.7	21.0	Medium dense gray clayey silt (ML)	29										MC	
IS-1A	21.0	22.0	Medium dense gray clayey silt (ML)	33										MC	
IS-1A	22.0	23.0	Medium dense gray silty sand with 1 1/2" clay layer (SM)	28										MC	
IS-1A	23.0	24.0	Medium dense gray silty sand with 3 1/2" clay layer	31										MC	
IS-1A	25.5	26.0	Loose gray clayey silt (ML)	41	112.7	82.3				0.26	15	3.07	Yield	MC,UU-USACE	
IS-1A	26.0	27.0	Medium dense gray clayey silt (ML)	31										MC	
IS-1A	28.4	29.0	Loose gray clayey silt (ML)	35										MC	
IS-1A	29.0	30.0	Medium dense gray clayey silt with 3" clay layer and 1 1/2" silty sand layer (ML)	51										MC	
IS-1A	30.0	31.0	Soft gray clay with sand pockets, seams silt lenses, and two sand layers (1/2" and 1") (CL4)	44	108.7	75.3	40	23	17	0.47	3	1.63	Multiple Shear	MC,UU-USACE,AL	
IS-1A	31.0	32.0	Loose gray clayey silt with two clay layers (1" & 2") (ML)	47										MC	
IS-1A	33.0	34.0	Medium dense gray clayey silt with 4" clay layer (ML)	34										MC	
IS-1A	34.0	35.0	Medium dense gray silty sand (SM)	31	127.6	98.1				0.78	15	3.54	Multiple Shear	MC,UU-USACE	
IS-1A	35.0	36.0	Loose gray sandy silt with 3" and 1 1/2" clayey silt layers (ML)	39										MC,Dry Sieve	43.6% sand / 56.4% fines

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GeoEngineers, Inc.
 11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

Disclaimer: The results presented relate only to those samples tested. **Soil Description:** ASTM(D2487) AASHTO(M145) **Moisture Content:**

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	- TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-1A	36.7	- 37.5	Medium dense gray silty sand (SM)	29									MC		
IS-1A	37.5	- 38.5	Medium dense gray silty sand (SM)	32									MC		
IS-1A	40.0	- 41.5	Very soft gray clay (CL4)	37			32	19	13				MC,AL		
IS-1A	42.5	- 44.0	Medium gray clay (CL4)	32									MC		
IS-1A	44.7	- 45.0	Medium dense gray silty sand (SM)	32									MC		
IS-1A	45.0	- 46.0	Loose gray sandy silt with 4" clay layer (ML)	35									MC,Dry Sieve	17.6% sand / 82.4% fines	
IS-1A	46.0	- 47.0	Medium dense gray clayey silt with 3" silty sand layer (ML)	36									MC		
IS-1A	47.0	- 48.0	Medium dense gray silty sand with 4" clay layer (SM)	34									MC		
IS-1A	48.0	- 49.5	Medium gray clay (CL4)	35			33	23	10				MC,AL		
IS-1A	50.5	- 52.0	Loose gray clayey sand (SC)	32									MC		
IS-1A	53.0	- 54.5	Medium dense gray clayey silt (ML)	32									MC		
IS-1A	56.0	- 57.5	Loose gray clayey silt (ML)	37									MC		
IS-1A	59.0	- 60.5	Medium dense gray clayey sand (SC)	35									MC		
IS-1A	61.5	- 63.0	Loose gray clayey sand (SC)	31									MC		
IS-1A	64.0	- 65.5	Medium dense gray silty sand (SM)										Dry Sieve	64.1% sand / 35.9% fines	
IS-1A	66.5	- 68.0	Loose gray clayey silt (ML)	38									MC		
IS-1A	69.0	- 70.5	Medium dense gray clayey sand (SC)	34									MC		
IS-1A	71.5	- 73.0	Medium dense gray clayey sand with 4" silt layer (SC)	31									MC		
IS-1A	74.0	- 75.5	Medium dense gray clayey sand (SC)	32									MC		
IS-1A	79.0	- 80.5	Medium dense gray silty sand (SM)										Dry Sieve	54.4% sand / 45.6% fines	
IS-1A	84.0	- 85.5	Medium dense gray clayey sand (SC)	31									MC		
IS-1A	89.0	- 90.5	Medium dense gray clayey sand (SC)	33									MC		
IS-1A	91.5	- 93.0	Medium dense gray sandy silt (ML)										Dry Sieve	46.1% sand / 53.9% fines	
IS-1A	94.0	- 95.5	Medium dense gray silty sand with 6 inch clayey silt layer (SM)	31									MC		
IS-1A	96.5	- 98.0	Medium dense gray clayey sand (SC)	30									MC		

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Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-2A	2.2	3.0	Very stiff tan and gray clay with silt pockets and silt seams (CL4)	22									MC		
IS-2A	3.0	4.0	Very stiff tan and gray clay with 3" clay sand layer and silt seams and pockets (CL4)	23									MC		
IS-2A	5.0	6.0	Medium tan and gray clay with sand pockets and sand seams (CL4)	28									MC		
IS-2A	6.0	7.0	Medium tan and gray clay with sand pockets and sand seams (CL4)	28									MC		
IS-2A	7.0	8.0	Soft tan and gray clay with sand pockets and sand seams (CL4)	31									MC		
IS-2A	8.7	9.0	Medium tan and gray clay (CL4)	32									MC		
IS-2A	9.0	10.0	Medium tan and gray clay (CL4)	32									MC		
IS-2A	10.0	11.0	Medium dense tan and gray clayey sand (SC)	30									MC		
IS-2A	11.0	12.0	Medium dense gray sand with 1" wood layer and 3" clay layer (SP)	39									MC		
IS-2A	12.8	13.0	Medium gray clay (CL4)	34									MC		
IS-2A	13.0	14.0	Medium gray clay (CL4)	37									MC		
IS-2A	14.0	15.0	Medium gray clay (CL4)	33									MC		
IS-2A	15.0	16.0	Medium gray clay (CL4)	36									MC		
IS-2A	16.7	17.0	Soft gray clay (CL4)	36									MC		
IS-2A	17.0	18.0	Medium gray clay (CL4)	33									MC		
IS-2A	18.0	19.0	Medium gray clay (CL4)	36									MC		
IS-2A	19.0	20.0	Medium gray clay with 1/2" sand layer (CL4)	36									MC		
IS-2A	20.0	21.5	Soft gray clay (CL4)	39									MC		
IS-2A	21.5	22.0	Medium gray clay with sand seams and sand pockets (CL4)	37									MC		
IS-2A	22.0	23.0	Medium gray clay with sand seams and sand pockets (CL4)	36									MC		
IS-2A	23.0	24.0	Medium gray clay with sand seams, sand pockets, and 1 1/2" clayey sand layer (CL4)	37									MC		
IS-2A	24.6	25.0	Loose gray silty sand (SM)	28									MC		
IS-2A	25.0	26.0	Loose gray clayey silt with 4" silty sand layer (ML)	27									MC		

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Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-2A	26.0	27.0	Soft gray clay with 4" silty sand layer, sand seams and sand pockets (CL4)	35									MC		
IS-2A	27.0	28.0	Medium gray clay with sand seams and sand pockets (CL4)	61									MC		
IS-2A	29.3	30.0	Medium dense gray silty sand with 1" clay layer (SM)	42									MC		
IS-2A	30.0	31.0	Medium dense gray silty sand (SM)	38									MC		
IS-2A	31.0	32.0	Loose gray silty sand with 3" clay layer (SM)	45									MC		
IS-2A	32.3	33.0	Medium gray clay with sand lenses, pockets, and seams (CH2)	48									MC		
IS-2A	33.0	34.0	Medium gray clay with 6" silty sand layer (CL6)	50									MC		
IS-2A	34.0	35.0	Medium dense gray silty sand with 1/2" clay layer (SM)	43									MC		
IS-2A	35.0	35.6	Medium gray clay with sand streaks and seams (CL6)	45									MC		
IS-2A	36.0	37.5	Medium tan and gray clay with 6" silty sand layer (CL4)	55									MC		
IS-2A	37.5	38.0	Medium dense gray silty sand with 3" clay layer (SM)	45									MC		
IS-2A	38.0	39.0	Soft gray clay with 4" silty sand layer (CL4)	48									MC		
IS-2A	39.0	40.0	Medium dense gray silty sand (SM)	29									MC		
IS-2A	45.0	46.5	Medium dense gray silty sand with 6" clay layer (SM)	39									MC		
IS-2A	50.0	51.0	Gray clay (CL4)	57									MC		
IS-2A	51.0	52.0	Medium gray clay with sand pockets, seams, and 1" sand layer (CL4)	53									MC		
IS-2A	53.3	54.0	Medium dense gray silty sand with 4" clay layer (SM)	26									MC		
IS-2A	54.0	55.0	Medium dense gray silty sand (SM)	28									MC		
IS-2A	55.0	56.0	Medium gray clay with sand lenses and 5 1/2" silty sand layer (CL6)	57									MC		
IS-2A	57.6	58.0	Medium gray clay with sand pockets and sand seams (CL4)	30									MC		
IS-2A	58.0	59.0	Medium gray clay with sand seams, sand pockets and 6" sand layer (CL6)	25									MC		

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GeoEngineers, Inc.
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

Disclaimer: The results presented relate only to those samples tested. **Soil Description:** ASTM(D2487) AASHTO(M145) **Moisture Content:**

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-2A	59.0	60.0	Medium dense gray clayey silt with sand pockets, sand seams, and 2" sand layer (ML)	33									MC		
IS-2A	67.5	69.0	Stiff tan and gray clay with sand pockets (CL4)	56									MC		
IS-2A	70.0	71.5	Medium dense gray clayey sand (SC)	34									MC		
IS-2A	82.5	84.0	Medium dense gray clayey sand (SC)	30									MC		
IS-2A	85.0	86.5	Very stiff tan and gray clay with sand pockets (CL4)	45									MC		
IS-2A	87.5	89.0	Very stiff gray clay (CL6)	49									MC		
IS-2A	90.0	91.5	Very stiff gray clay with 6" silty sand layer (CL6)	44									MC		
IS-2A	92.5	94.0	Medium dense gray clayey sand (SC)	31									MC		
IS-2A	100.0	101.5	Dense gray silty sand with 8" clay layer (SM)	44									MC		

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Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/17/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION													USCS	Remarks	
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117					
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)						% Passing #200
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt	Clay			
IS-2A	5.1-6	Gray and Brown Lean CLAY with Trace Fine Sand	28.4	39	24	15											(CL)	Sample fell apart when trimming
IS-2A	7-8	Medium, Brown and Light Gray Lean CLAY	31.31 30.86 31.76				117.6 118.7 118.0	89.5 90.7 89.5		521.6 653.1 522.5	2.7 14.7 26.7						(CL4)	
IS-2A	13-14	Medium, Gray Lean CLAY with Trace Fine Sand and Trace Organics	35.82 33.52 34.68				120.8 118.2 117.7	88.8 88.4 87.4		944.3 801.3 945.2	4.9 16.9 28.9						(CL4)	
IS-2A	17-18	Soft, Gray Lean CLAY	35.88 37.18 37.74	40	25	15	126.0 123.2 123.7	92.7 89.8 89.8		371.2 315.2 348.3	6.4 18.4 30.4						(CL4)	
IS-2A	22-23	Soft Gray Lean CLAY	35.27 36.08 33.89				124.4 124.1 128.0	91.9 91.2 95.6		381.1 439.8 426.5	8.2 20.2 32.2						(CL4)	
IS-2A	24.6-25	Gray SILT with Sand	26.2												75.6		(ML)	
IS-2A	25-26	Gray SILT with Clay and Trace Fine Sand	32.6													3.7 79.1 17.2	(ML)	
IS-2A	26-27	Firm, Gray SILT with Clay and Trace Fine Sand	30.41 30.93 31.72	34	27	7	126.2	96.8		1112.9	9.7 21.7 33.7						(ML)	Unable to trim points 1 and 3
IS-2A	29.3-30	Gray SILT with Clay and Sand	36.2												74.4		(ML)	
IS-2A	31-32	Gray Lean Clay with Trace Ferrous Nodules	38.3												95.3		(CL4)	
IS-2A	32.3-33	Medium, Gray Fat CLAY with Silty Sand, Lenses and Layers	58.75 61.70 57.95				106.2 105.7 106.1	66.8 65.3 67.2		503.3 486.7 444.8	11.9 23.9 35.9						(CH3)	
IS-2A	34-35	Gray Sandy SILT with Clay	30.6												70.4		(ML)	
IS-2A	39-40	Gray Sandy SILT with Trace Clay	26.0												59.3		(ML)	

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The results presented only relate to those samples tested

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/17/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks		
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117					
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200	
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt				Clay
IS-2A	45.7-56.5	Gray Sandy SILT with Clay	26.7													59.1	(ML)	
IS-2A	50-51	No Sample																
IS-2A	54-55	Gray Silty SAND with Clay	27.2													40.8	(SM)	
IS-2A	58-58.5	Gray SILT with Clay and Sand	33.8													84.7	(ML)	
IS-2A	58.5-59	Firm, Gray SILT with Clay and Fine Sand	30.02 33.92 31.24				132.3 120.9 126.4	101.7 90.3 96.3		1218.6 565.9 1074.7	21.4 33.4 45.4						(ML)	
IS-2A	60-61.5	Gray Silty SAND	25.2													33.1	(SM)	
IS-2A	65-66.5	Gray Silty CLAY with Sand	26.6													53.2	(CL-ML)	
IS-2A	70-71.5	Gray Sandy Clayey SILT	31.6										46.2	38.0	15.8		(CL-ML)	
IS-2A	72.5-74	Gray Silty SAND with Clay	32.1													32.2	(SM)	
IS-2A	75-76.5	Gray Fine SAND with Silt and Trace Clay	21.9													11.3	(SM)	
IS-2A	77.5-79	Gray Silty SAND with Clay	23.1													19.7	(SM)	
IS-2A	80-81.5	Gray Silty SAND with Trace Clay	20.7													21.6	(SM)	

"Confidential Information, Privileged & Confidential Work Product"
The results presented only relate to those samples tested

Project: **Mid Barataria Diversion**

Technical Responsibility: *RM*

Quality Assurance Officer

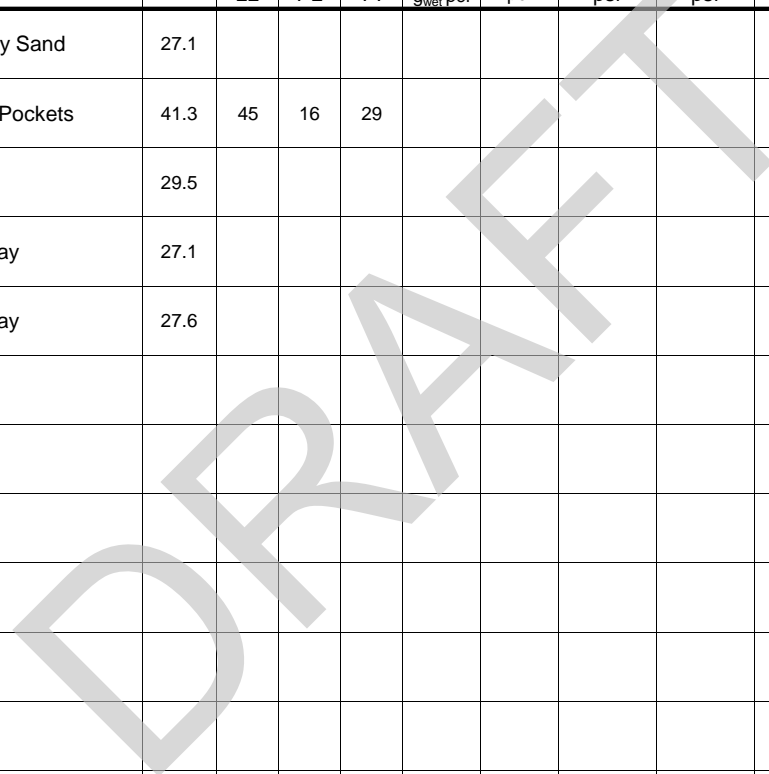
Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/17/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks		
			D2216	D4318			D2166		D2166		D2850	D422, C136 or C117						
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200	
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt				Clay
IS-2A	82.5-84	Gray Sandy CLAY with Silt or Clayey Sand	27.1													(CL)	Not enough sample for Hydrometer	
IS-2A	85-86.5	Gray Lean CLAY Saturated with Silt Pockets	41.3	45	16	29										(CL6)		
IS-2A	92.5-94	Gray Sandy SILT with Clay	29.5										37.5	49.7	12.8	(ML)		
IS-2A	95-96.5	Gray Silty SAND with Trace Clay	27.1												19.2	(SM)		
IS-2A	97.5-99	Gray Silty SAND with Trace Clay	27.6												33.5	(SM)		



The results presented only

"Confidential Information; Privileged & Confidential Work Product" to those samples tested

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-3A	2.4	3.0		19										MC	
IS-3A	3.0	4.0		18										MC	
IS-3A	4.7	5.0		32										MC	
IS-3A	5.0	6.0		32										MC	
IS-3A	6.0	7.0		28										MC	
IS-3A	7.0	8.0		30										MC	
IS-3A	8.5	9.0		31										MC	
IS-3A	9.0	10.0		33										MC	
IS-3A	10.0	11.0		32										MC	
IS-3A	11.0	12.0		39										MC	
IS-3A	12.7	13.0		33										MC	
IS-3A	13.0	14.0		35										MC	
IS-3A	14.0	15.0		41										MC	
IS-3A	15.0	16.0		34										MC	
IS-3A	17.2	18.0		32										MC	
IS-3A	18.0	19.0		34										MC	
IS-3A	19.0	20.0		36										MC	
IS-3A	20.5	21.0		35										MC	
IS-3A	21.0	22.0		36										MC	
IS-3A	22.0	23.0		38										MC	
IS-3A	23.0	24.0		35										MC	
IS-3A	24.5	25.0		37										MC	
IS-3A	25.0	26.0		39										MC	
IS-3A	26.0	27.0		46										MC	
IS-3A	27.0	28.0		37										MC	
IS-3A	28.5	29.0		40										MC	
IS-3A	29.0	30.0		40										MC	
IS-3A	30.0	31.0		40										MC	
IS-3A	31.0	32.0		35										MC	
IS-3A	32.4	33.0		45										MC	
IS-3A	33.0	34.0		44										MC	
IS-3A	34.0	35.0		35										MC	
IS-3A	35.0	36.0		40										MC	
IS-3A	36.0	37.5	Very loose gray clayey silty sand (ML)											M200	56.6% sand / 43.4% fines
IS-3A	41.0	42.5		35										MC	
IS-3A	46.0	47.5	Medium dense gray silty sand (SM)											Dry Sieve	83.2% sand / 16.8% fines
IS-3A	53.5	55.0	Loose gray sandy silt (ML)											M200	41.6% sand / 58.4% fines
IS-3A	56.0	57.5	Medium dense gray sandy silt with 5" clay layer (ML)	44										MC,M200	13.3% sand / 86.7% fines

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-3A	58.5	60.0	Medium dense gray silty sand with 1" clay layer (SM)											Dry Sieve	72.2% sand / 27.8% fines
IS-3A	61.0	62.5	Medium dense gray clayey silt with sand and 6" clay layer (ML)	40										MC,H	10.9% sand / 50.2% silt / 38.9% clay
IS-3A	66.0	67.5	Dense gray silty sand (SM)											M200	68.7% sand / 31.3% fines
IS-3A	71.0	72.5	Medium tan and gray clay with 6" sand layer (CH4)	58			78	30	48					MC,AL	36.8% sand / 48.7% silt / 14.5% clay
IS-3A	76.0	77.5	Medium dense sandy silt with clay, organic matter, and 3" silty clay layer (ML)											H	
IS-3A	78.5	80.0	Dense gray silty sand (SM)											Dry Sieve	79.3% sand / 20.7% fines
IS-3A	81.0	82.5	Medium gray clay (CL4)	43										MC	
IS-3A	83.5	85.0	Very stiff gray clay with sand pockets and 8" silty sand layer (CL4)	43										MC	
IS-3A	86.0	87.5	Very stiff gray clay with sand pockets and 4" clay layer (CL4)	36										MC	
IS-3A	88.5	90.0	Very stiff tan and gray clay with sand pockets (CL4)	54										MC	
IS-3A	91.0	92.5	Stiff tan and gray clay with sand pockets (CH2)	55			55	18	37					MC,AL	
IS-3A	93.5	95.0	Very stiff tan and gray clay with sand pockets (CL4)	44										MC	
IS-3A	96.0	97.5	Very stiff gray clay with sand pockets (CL4)	41			47	19	28					MC,AL	
IS-3A	98.5	100.0	Medium dense gray silty sand (SM)											M200	65.3% sand / 34.7% fines

DRAFT

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/10/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION													USCS	Remarks		
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117						
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)							
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt	Clay			% Passing #200	
IS-3A	2.4-3	Stiff to Very Stiff, Tan Lean CLAY with Clay Pockets and Shell Fragments	18.1	40	21	19												(CL4)	could not run UU, too brittle
IS-3A	9-10	Soft, Tan Lean CLAY with Trace Fragments of Sand	31.7 31.1 31.2	36	22	14	108.9 111.4 114.7	82.6 85.0 87.4			417.1 658.2 622.8	3.5 15.5 27.5						(CL4)	
IS-3A	13-14	Medium, Gray Lean CLAY with Clay Pockets	33.1 32.5 34.8				114.2 115.5 110.6	85.7 87.2 82.0			449.2 659.1 566.9	4.9 16.9 28.9						(CL4)	
IS-3A	21-22	Loose, Gray SILT with Clay	36.9 35.3 34.8	36	27	9	126.4 121.2 126.5	92.3 89.5 93.8			321.5 374.2 348.4	7.9 19.9 31.9						(ML)	
IS-3A	24.5-25	Loose, Gray SILT with Clay and Fine Sand	31.5 34.5 33.8				122.8 118.7 126.2	93.4 88.2 94.3			1655.6 625.9 1772.4	8.9 20.9 32.9						(ML)	
IS-3A	26-27	Medium, Gray Fat CLAY with Silt and Sandy Silt Lenses and Layers	61.0 61.8 61.0				104.1 104.6 103.4	64.6 64.7 64.2			538.7 617.9 562.0	9.7 21.7 33.7						(CH2)	
IS-3A	32.4-33	Medium, Gray Fat CLAY with Silt and Sandy Silt Lenses and Layers	48.6 45.9 46.9	60	25	35	110.8 113.0 112.0	74.6 77.4 76.2			482.3 503.3 524.2	11.9 23.9 35.9						(CH2)	

"Confidential Information, results presented only to those samples tested"

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-7A	0.5	1.0		22										MC	
IS-7A	1.0	2.0		22										MC	
IS-7A	2.0	3.0		30										MC	
IS-7A	3.0	4.0		33										MC	
IS-7A	6.0	7.0		32										MC	
IS-7A	7.0	8.0		29										MC	
IS-7A	9.5	10.0		34										MC	
IS-7A	10.0	11.0		36										MC	
IS-7A	11.0	12.0		33										MC	
IS-7A	14.0	15.0		33										MC	
IS-7A	15.0	16.0		30										MC	
IS-7A	16.0	17.5		34										MC	
IS-7A	18.5	20.0		33										MC	
IS-7A	21.6	22.0		34										MC	
IS-7A	22.0	23.0		36										MC	
IS-7A	23.0	24.0		34										MC	
IS-7A	24.0	25.0		36										MC	
IS-7A	26.0	27.0		35										MC	
IS-7A	27.0	28.0		29										MC	
IS-7A	28.0	29.0		32										MC	
IS-7A	30.0	31.0		33										MC	
IS-7A	31.0	32.0		33										MC	
IS-7A	32.0	33.0		32										MC	
IS-7A	33.6	34.0		31										MC	
IS-7A	34.0	35.0		32										MC	
IS-7A	35.0	36.0		34										MC	
IS-7A	36.0	37.0		33										MC	
IS-7A	37.5	38.0		32										MC	
IS-7A	38.0	39.0		32										MC	
IS-7A	39.0	40.0		31										MC	
IS-7A	40.0	41.0		32										MC	
IS-7A	43.3	44.0		30										MC	
IS-7A	44.0	45.0		31										MC	
IS-7A	46.0	47.0		31										MC	
IS-7A	47.0	48.0		33										MC	
IS-7A	48.0	49.0		31										MC	
IS-7A	49.0	50.5		30										MC	
IS-7A	52.0	52.5		30										MC	
IS-7A	52.5	53.5		31										MC	

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-7A	53.5	54.5		33										MC	
IS-7A	54.5	55.5		31										MC	
IS-7A	56.5	57.5		27										MC	
IS-7A	57.5	58.5		31										MC	
IS-7A	58.5	59.5		30										MC	
IS-7A	60.0	60.5		31										MC	
IS-7A	60.5	61.5		32										MC	
IS-7A	61.5	62.5		32										MC	
IS-7A	62.5	63.5		30										MC	
IS-7A	64.5	65.5		32										MC	
IS-7A	65.5	66.5		31										MC	
IS-7A	66.5	67.5		31										MC	
IS-7A	68.0	68.5		30										MC	
IS-7A	68.5	69.5		30										MC	
IS-7A	69.5	70.5		29										MC	
IS-7A	70.5	71.5		31										MC	
IS-7A	71.5	73.0		29										MC	
IS-7A	74.0	75.5		40										MC	
IS-7A	81.5	83.0		33										MC	

DRAFT

SUMMARY OF LABORATORY TEST RESULTS

Project: Mid Barataria Diversion

Assigned By: _____

Project Number: 04.55124092

Current Date: 9/18/2013

Boring: IS-7A

Sample Number	Depth	Visual Classification	USCS	E(f)	W%	Dry Dens (pcf)	Wet Dens (pcf)	Sat %	Shear Test Type	Angle	Cohesion (psf)	Unconf. Comp. Str.	LL	PL	PI	TORVANE (tsf)	Other Tests
N/A	1	ST BR CL6 W/ G	CL6		28	96	123	100	UU	0	1192		45	21	24	0.65	
N/A	3	M BR CL4	CL4		34	89	118	100	UU	0	786		37	23	14	0.35	
N/A	6	M LGR CH3	CH3		40	82	115	100	UU	0	708		63	22	41	0.40	
N/A	9.5	SO GR CL6	CL6		34	86	116	98	UU	0	304					0.10	
N/A	10	M GR CL4	CL4		31												-200
N/A	11	M GR CL4	CL4		31	90	117	96									CON, -200
N/A	14	BR ML W/ O	ML														SV, HYD
N/A	15	GR ML	ML		36												-200
N/A	21.6	BR ML W/ O	ML														SV, HYD
N/A	22	GR ML W/ ARS CH	ML		28												-200
N/A	24	BR ML W/ ARS CH, ARS SP, O	ML														SV, HYD
N/A	27	BR ML W/ ARS SP, O	ML														SV, HYD
N/A	31	SAMPLE MISSING															
N/A	35	BR ML W/ ARS SP, O	ML														SV, HYD
N/A	40	BR ML W/ ARS SP, O	ML														SV, HYD
N/A	44	GR ML W/ ARS SP	ML		28												-200
N/A	47	BR ML W/ ARS SP, O	ML														SV, HYD
N/A	48	GR ML W/ ARS CH & SP	ML		32												-200
N/A	49	GR ML W/ ARS CH	ML										28	25	3		
N/A	52.5	BR ML W/ ARS SP, O	ML														SV, HYD
N/A	54.5	GR ML W/ ARS SP	ML		30												-200
N/A	57.5	BR ML W/ ARS SP, O	ML														SV, HYD
N/A	60.0	GR ML W/ ARS CH & SP	ML		28												-200
N/A	62.5	BR ML W/ ARS SP, O	ML														SV, HYD
N/A	65.5	GR CL6 W/ LNS ML	CL6										46	19	27		
N/A	66.5	M GR CL4 W/ LNS SP	CL4		27	90	115	85									KV=1.05E-06, -200
N/A	70.5	GR ML	ML		29												-200
N/A	71.5	SAMPLE MISSING															-200
N/A	74	BR CL4	CL4										33	20	13		
N/A	76.5	GR SM	SM		22												SV
N/A	81.5	M GR CL W/ ARS SP	CL		31												SV

Remarks: _____
Fugro Consultants, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Checked by: _____
File Name: 04

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-8A	0.0	1.0	Very stiff brown and gray clay with shells, poorly graded gravel, grass, roots, sand seams and pockets (CL4)	28										MC	
IS-8A	1.0	1.8	Stiff brown and gray clay with silt and shells (CL6)	32	116.1	88.6	48	19	29	1.3	13	1.86	Multiple Shear	MC,UU-USACE,AL	
IS-8A	2.1	3.0	Medium brown and gray clay (CH3)	45	103.0	72.5	66	27	39	0.62	4	3.69	Multiple Shear	MC,UU-USACE,AL	
IS-8A	3.0	4.0	Medium brown and gray clay (CL6)	37										MC	
IS-8A	6.0	7.0	Soft gray clay (CH2)	41	117.5	83.5	51	22	29	0.3	14	0.36	Bulge	MC,UU-USACE,AL	
IS-8A	7.0	8.0	Stiff gray clay (CL6)	32										MC	
IS-8A	9.4	10.0	Medium gray clay (CL6)	38	117.6	85.0				0.83	15	2.3	Yield	MC,UU-USACE	
IS-8A	10.0	11.0	Medium dense gray silty sand with 3" and 2" clay layer (SM)	31										MC	
IS-8A	11.0	12.0	Very soft gray clay (CL6)	41	116.0	82.3	43	21	22	0.28	14	4.18	Bulge	MC,UU-USACE,AL	
IS-8A	13.0	14.0	Soft gray clay (CL4)	36										MC	
IS-8A	14.0	15.0	Soft gray clay (CL4)	37										MC	
IS-8A	15.0	16.0	Loose gray clayey silt (ML)	33	112.6	84.6	26	19	7	0.58	15	4.41	Yield	MC,UU-USACE,AL	
IS-8A	16.6	17.0	Loose gray sandy silt with clay (ML)	30										MC	
IS-8A	17.0	18.0	Loose gray sandy silt with clay (ML)	35			34	23	11					MC,AL	
IS-8A	18.0	19.0	Medium dense gray sandy silt with clay (ML)	33										MC	
IS-8A	19.0	20.0	Loose gray sandy silt with clay (ML)	36										MC	
IS-8A	20.5	21.0	Medium dense gray sandy silt with clay (ML)	33										MC	
IS-8A	21.0	22.0	Medium dense gray sandy silt with clay (ML)	34										MC	
IS-8A	22.0	23.0	Loose gray sandy silt with clay (ML)	33										MC	
IS-8A	23.0	24.0	Loose gray sandy silt (ML)	34										MC	
IS-8A	26.0	27.0	Medium dense gray sandy silt (ML)	28										MC,H	37.6% sand / 55.1% silt / 7.3% clay
IS-8A	27.0	28.0	Medium dense gray sandy silt (ML)	31										MC	
IS-8A	29.2	30.0	Medium dense gray silty sand (SM)	30										MC	
IS-8A	30.0	31.0	Loose gray sandy silt (ML)	32										MC,H	34.8% sand / 59.9% silt / 5.3% clay
IS-8A	31.0	32.0	Loose gray silty sand (SM)	33										MC	
IS-8A	33.2	34.0	Medium dense gray silty sand (SM)	31										MC	
IS-8A	34.0	35.0	Loose gray silty sand (SM)	32										MC	
IS-8A	35.0	36.0	Loose gray silty sand (SM)	32										MC	

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-8A	38.1	39.0	Soft gray clay with sand lenses (CL4)	30	130.4	100.0	30	20	10	0.53	15	2.15	Yield	MC,UU-USACE,AL	
IS-8A	39.0	40.0	Soft gray clay (CL4)	34										MC	
IS-8A	40.7	41.0	Medium gray clay (CL4)	41										MC	
IS-8A	41.0	42.0	Medium gray clay (CL6)	37	117.0	85.0	49	21	28	0.6	11	4.08	Multiple Shear	MC,UU-USACE,AL	
IS-8A	42.0	44.0	Gray clay (CH2)	44			50	17	33					MC,AL	
IS-8A	45.2	46.0	Medium dense gray silty sand with 4" clay layer (SM)	29										MC	
IS-8A	46.0	47.0	Medium dense gray sandy silt (ML)	30										MC,M200	16.6% sand / 83.4% fines
IS-8A	47.0	48.0	Loose gray sandy silt (ML)	30										MC	
IS-8A	49.0	50.0	Medium gray clay with 3 1/2" silty sand layer, sand seams and sand pockets (CL6)	41	110.4	74.2	47	24	23	0.47	4	6.29	SLS (45°)	MC,UU-USACE,AL	
IS-8A	50.0	51.0	Medium gray clay with sand seams and pockets (CL6)	39										MC	
IS-8A	51.0	52.0	Loose gray sandy silt (ML)	33										MC,M200	25.1% sand / 74.9% fines
IS-8A	53.0	54.0	Medium dense gray silty sand (SM)	32										MC	
IS-8A	54.0	55.0	Medium dense gray sandy silty with clay (ML)	32										MC,H	20.4% sand / 71.2% silt / 8.4% clay
IS-8A	55.0	56.0	Loose gray sandy silt with clay (ML)	33										MC,M200	27.5% sand / 72.5% fines
IS-8A	57.0	58.0	Medium dense gray silty sand (SM)	31										MC	
IS-8A	58.0	59.0	Medium dense gray silty sand (SM)	28										MC	
IS-8A	59.0	60.0	Loose gray sandy silt with clay (ML)	31										MC,H	18.3% sand / 73.7% silt / 8.0% clay
IS-8A	61.0	62.5	Loose gray clayey silty sand (SM)	32										MC	
IS-8A	63.5	65.0	Very loose gray sandy silt with clay (ML)	33										MC,H	32.6% sand / 56.9% silt / 10.5% clay
IS-8A	66.0	67.5	Loose gray silty sand with clay (SM)	29										MC,M200	41.7% sand / 58.3% fines
IS-8A	68.5	70.0	Very loose gray sandy silt with clay (ML)	32										MC,H	13.9% sand / 76.0% silt / 10.1% clay
IS-8A	71.0	72.5	Loose gray clayey silty sand with clay (SM)	33										MC	
IS-8A	73.5	75.0	Loose gray sandy silt with clay (ML)	32										MC,M200	44.8% sand / 55.2% fines
IS-8A	76.0	77.5	Loose gray silty sand with clay (SM)	31										MC	
IS-8A	78.5	80.0	Medium dense gray silty sand with clay (SM)											M200	57.9% sand / 42.1% fines
IS-8A	81.0	82.5	Loose gray sandy clayey silt (ML)	35										MC,H	15.4% sand / 59.9% silt / 24.7% clay
IS-8A	86.0	87.5	Loose gray sandy silt with 3" clay layer (ML)											M200	8.1% sand / 91.9% fines
IS-8A	93.5	95.0	Medium gray sandy clay (CL4)	37			42	18	24					MC,AL	

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-8A	96.0	97.5	Dense gray silty sand (SM)											Dry Sieve	85.6% sand / 14.4% fines
IS-8A	101.0	102.5	Medium dense gray sand with silt (SP)											Dry Sieve	88.9% sand / 11.1% fines
IS-8A	106.0	107.5	Very stiff brown and gray clay with sand pockets and seams (CH3)	55			59	18	41					MC,AL	
IS-8A	113.5	115.0	Very dense gray sand with silt (SP)											Dry Sieve	89.1% sand / 10.9% fines
IS-8A	121.0	122.5	Very dense gray silty sand (SM)											Dry Sieve	87.4% sand / 12.6% fines
IS-8A	136.0	137.5	Hard light gray clay with 4" clay layer (CL4)	22			34	15	19					MC,AL	
IS-8A	139.8	140.5	Very stiff gray clay with sand pockets and seams (CL4)	19										MC	
IS-8A	140.5	141.5	Very stiff light gray clay with sand pockets and seams (CL4)	18	131.1	110.7	33	16	17	3.78	15	7.83	Yield	MC,UU-USACE,AL	
IS-8A	141.5	142.5	Very stiff light gray clay with sand pockets and seams (CL4)	19										MC	
IS-8A	142.5	143.5	Very stiff light gray clay with sand streaks (CL4)	21										MC	
IS-8A	143.5	144.5	Hard light gray clay with sand streaks (CL4)	22	128.5	105.5				4.35	12	9.78	Multiple Shear	MC,UU-USACE	
IS-8A	145.0	146.5	Stiff light gray clay (CL4)	29										MC	
IS-8A	146.5	147.5	Medium dense gray clayey sand (SM)	25										MC,M200	75.7% sand / 24.3% fines
IS-8A	147.5	149.0	Dense gray silty sand with clay pockets (SM)											Dry Sieve	69% sand / 31.0% fines
IS-8A	150.0	151.5	Very dense gray silty sand (SM)											M200	73.9% sand / 26.1% fines

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Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-9A	1.1	2.0		15										MC	
IS-9A	2.1	3.0		27										MC	
IS-9A	3.0	4.0		33										MC	
IS-9A	5.0	6.0		29										MC	
IS-9A	6.0	7.0		28										MC	
IS-9A	7.0	8.0		29										MC	
IS-9A	8.5	9.0		32										MC	
IS-9A	9.0	10.0		33										MC	
IS-9A	10.0	11.0		31										MC	
IS-9A	11.0	12.0		37										MC	
IS-9A	12.5	13.0		52										MC	
IS-9A	13.0	14.0		57										MC	
IS-9A	14.0	15.0		32										MC	
IS-9A	15.0	16.0		35										MC	
IS-9A	17.0	18.0		31										MC	
IS-9A	18.0	19.0		37										MC	
IS-9A	19.0	20.0		35										MC	
IS-9A	21.1	22.0		36										MC	
IS-9A	22.0	23.0		32										MC	
IS-9A	23.0	24.0		37										MC	
IS-9A	25.0	26.0		37										MC	
IS-9A	26.0	27.0		33										MC	
IS-9A	27.0	28.0		34										MC	
IS-9A	28.5	29.0		32										MC	
IS-9A	29.0	30.0		31										MC	
IS-9A	30.0	31.0		33										MC	
IS-9A	31.0	32.0		36										MC	
IS-9A	32.5	33.0		36										MC	
IS-9A	33.0	34.0		36										MC	
IS-9A	34.0	35.0		35										MC	
IS-9A	35.0	36.0		36										MC	
IS-9A	36.7	37.0		32										MC	
IS-9A	37.0	38.0		33										MC	
IS-9A	38.0	39.0		32										MC	
IS-9A	39.0	40.0		33										MC	
IS-9A	40.5	41.0		32										MC	
IS-9A	41.0	42.0		34										MC	
IS-9A	42.0	43.0		32										MC	
IS-9A	43.0	44.0		32										MC	
IS-9A	44.5	45.0		31										MC	

"Confidential Information; Privileged & Confidential Work Product"

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM - TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-9A	45.0 - 46.0		30										MC	
IS-9A	46.0 - 47.0		31										MC	
IS-9A	47.0 - 48.0		30										MC	
IS-9A	48.5 - 49.0		31										MC	
IS-9A	49.0 - 50.0		29										MC	
IS-9A	50.0 - 51.0		28										MC	
IS-9A	51.0 - 52.0		33										MC	
IS-9A	52.5 - 53.0		32										MC	
IS-9A	53.0 - 54.0		31										MC	
IS-9A	54.0 - 55.0		29										MC	
IS-9A	55.0 - 56.0		34										MC	
IS-9A	56.5 - 57.0		33										MC	
IS-9A	57.0 - 58.0		34										MC	
IS-9A	58.0 - 59.0		34										MC	
IS-9A	59.0 - 60.0		28										MC	
IS-9A	60.5 - 61.0		31										MC	
IS-9A	61.0 - 62.0		31										MC	
IS-9A	62.0 - 63.0		31										MC	
IS-9A	63.0 - 64.0		31										MC	
IS-9A	64.6 - 65.0		30										MC	
IS-9A	65.0 - 66.0		30										MC	
IS-9A	66.0 - 67.0		29										MC	
IS-9A	67.0 - 68.0		30										MC	
IS-9A	76.5 - 78.0		31										MC	
IS-9A	79.0 - 80.5		30										MC	
IS-9A	81.5 - 83.0		33										MC	
IS-9A	84.0 - 85.5		29										MC	
IS-9A	86.5 - 88.0		32										MC	
IS-9A	89.0 - 90.5		28										MC	
IS-9A	91.5 - 93.0		31										MC	
IS-9A	94.0 - 95.5		35										MC	
IS-9A	96.5 - 98.0		29										MC	
IS-9A	99.0 - 100.5		29										MC	

DRAFT

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/18/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks			
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117						
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200		
			LL	PL	PI	U psf			UU psf	Gravel		Sand	Silt	Clay					
IS-9A	3-4	M, Gr and Br Fat CLAY with Ferrous Nodules and Tr Shells	37.16 29.84 37.57	75	21	54	116.3 116.5 116.4	84.8 89.7 84.6			772.1 1154.5 863.0	1.3 13.3 25.3						(CH3)	
IS-9A	8.5-9	M, T Lean CLAY with Tr O	30.52 29.84 31.32				128.2 126.3 128.6	98.2 97.3 97.9			690.0 920.0 670.0	3.1 15.1 27.1						(CL4)	
IS-9A	10-11	M, Br and Gr Lean CLAY	28.67 28.59 28.17	33	20	13	121.5 130.3 129.1	94.4 101.3 100.7			527.3 633.6	3.8 15.8 27.8						(CL4)	could not test sample 1 of UU
IS-9A	13-14	M, Gr Fat CLAY with Silt Pockets, Jointed and Brittle	33.81 33.82 35.03				118.9 115.6 117.1	88.8 86.3 86.7			914.2 796.6 731.6	4.9 16.9 28.9						(CH3)	
IS-9A	17-18	M, Gr Lean CLAY	32.53 30.41 31.68	36	20	16	121.1 124.1 118.0	91.3 95.1 89.6			842.6 1142.6 972.5	6.4 18.4 30.4						(CL4)	
IS-9A	21-22	Loose, Gr SILT with Tr Clay and Tr Fine Sand	33.26 36.01 34.39	33	26	7	130.5 125.5 127.2	97.9 92.2 94.6			526.5 297.4 409.4	7.9 19.9 31.9						(ML)	
IS-9A	27-28	Loose, Gr SILT with Sand and Tr Clay	30.3														83.1	(ML)	could not test UU, slumped less than mold
IS-9A	29-30	Loose, Gr SILT with Sand and Tr Clay	28.1														76.3	(ML)	
IS-9A	30-31	So, Gr Lean CLAY with Tr Fine Sand	33.37 36.30 35.26				122.0 120.0 122.5	91.5 88.0 90.6			480.7 529.1 532.9	11.1 23.1 35.1						(CL6)	
IS-9A	33-34	So, Gr Lean CLAY	33.09 34.49 34.15				124.3 119.7 121.2	92.8 89.0 90.3			432.0 471.5 445.8	12.2 24.2 36.2						(CL4)	
IS-9A	37-38	Loose, Gr SILT with Tr Clay and Fine Sand	30.8									13.7						(ML)	could not test UU, slumped less than mold
IS-9A	41-42	Gr SILT with Sand and Tr Clay	32.4														83.5	(ML)	

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/18/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks				
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117							
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200			
			LL	PL	PI	U psf			UU psf	Gravel		Sand	Silt	Clay						
IS-9A	45-46	So, Gr Lean CLAY with Fine Sand and Gr Silty CLAY with Tr Fine Sand	30.97 29.97 32.52	30	23	7	126.8 128.3 127.8	96.8 98.7 96.4			410.2 463.9 409.4	16.6 28.6 40.6					79.8	(CL4) (CL- ML)		
IS-9A	47-48	Gr S SILT with Clay	31.4															79.9	(ML)	
IS-9A	49-50	Gr S SILT with Clay	28.2															68.9	(ML)	
IS-9A	51-52	Gr Lean CLAY with S Silt Layers	33.1															85.7	(CL4)	
IS-9A	53-54	M Dense, Gr SILT with Fine Sand and Clay	28.51 30.16 27.27				130.2 126.9 133.5	101.2 97.5 104.8			650.3 856.4	19.5 31.5 43.5							(ML)	could not test sample 2 of UU
IS-9A	54-55	Gr SILT with Tr Sand and Clay	32.1	31	23	8													(ML)	
IS-9A	58-59	So to M, Gr Lean CLAY with Tr Fine Sand	34.14 32.62 33.81				122.8 121.8 121.5	81.5 91.8 90.8			477.5 615.1 581.7	21.4 33.4 45.4							(CL4)	
IS-9A	61-61.5	Gr S SILT with Clay	28.7															76.2	(ML)	
IS-9A	65-66	Gr SILT with Clay and Fine Sand	26.7															85.2	(ML)	
IS-9A	74-75.5	Gr S SILT with Clay	27.6															64.1	(ML)	
IS-9A	79-80.5	Gr S SILT with Clay	27.8	26	23	3													(ML)	
IS-9A	89-90.5	Gr SILT with Clay and Sand	28.1															78.4	(ML)	
IS-9A	99-100.5	T Lean CLAY with Sand	26.8															86.1	(CL4)	

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
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Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-12A	0.3	1.0		25									MC		
IS-12A	1.0	2.0		25									MC		
IS-12A	3.0	4.0		33									MC		
IS-12A	5.5	6.0		42									MC		
IS-12A	6.0	7.0		40									MC		
IS-12A	7.0	8.0		34									MC		
IS-12A	9.0	10.0		38									MC		
IS-12A	10.0	11.0		41									MC		
IS-12A	11.0	12.0		42									MC		
IS-12A	12.6	13.0		36									MC		
IS-12A	13.0	14.0		36									MC		
IS-12A	14.0	15.0		36									MC		
IS-12A	15.0	16.0		32									MC		
IS-12A	16.3	17.0		34									MC		
IS-12A	17.0	18.0		35									MC		
IS-12A	18.0	19.0		35									MC		
IS-12A	19.0	20.0		32									MC		
IS-12A	20.5	21.0		37									MC		
IS-12A	21.0	22.0		38									MC		
IS-12A	22.0	23.0		33									MC		
IS-12A	23.0	24.0		32									MC		
IS-12A	24.5	25.0		30									MC		
IS-12A	25.0	26.0		37									MC		
IS-12A	26.0	27.0		35									MC		
IS-12A	27.0	28.0		30									MC		
IS-12A	29.0	30.0		33									MC		
IS-12A	30.0	31.0		33									MC		
IS-12A	31.0	32.0		33									MC		
IS-12A	33.0	34.0		33									MC		
IS-12A	34.0	35.0		33									MC		
IS-12A	35.0	36.0		33									MC		
IS-12A	37.0	38.0		33									MC		
IS-12A	38.0	39.0		32									MC		
IS-12A	39.0	40.0		29									MC		
IS-12A	40.5	41.0		31									MC		
IS-12A	41.0	42.0		31									MC		
IS-12A	42.0	43.0		30									MC		
IS-12A	43.0	44.0		31									MC		
IS-12A	44.6	45.0		31									MC		
IS-12A	45.0	46.0		30									MC		

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Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-12A	46.0	47.0		30										MC	
IS-12A	47.0	48.0		29										MC	
IS-12A	48.5	49.0		32										MC	
IS-12A	49.0	50.0		33										MC	
IS-12A	50.0	51.0		31										MC	
IS-12A	51.0	52.0		31										MC	
IS-12A	52.6	53.0		31										MC	
IS-12A	53.0	54.0		31										MC	
IS-12A	54.0	55.0		31										MC	
IS-12A	55.0	56.0		31										MC	
IS-12A	56.5	57.0		31										MC	
IS-12A	57.0	58.0		31										MC	
IS-12A	58.0	59.0		30										MC	
IS-12A	59.0	60.0		31										MC	
IS-12A	60.5	61.0		31										MC	
IS-12A	61.0	62.0		31										MC	
IS-12A	62.0	63.0		30										MC	
IS-12A	63.0	64.0		30										MC	
IS-12A	64.5	65.0		29										MC	
IS-12A	65.0	66.0		101										MC	
IS-12A	66.0	67.0		28										MC	
IS-12A	67.0	68.0		30										MC	
IS-12A	70.5	72.0		32										MC	
IS-12A	73.1	74.0		30										MC	
IS-12A	74.0	75.0		26										MC	
IS-12A	75.0	76.0		28										MC	
IS-12A	76.6	77.0		32										MC	
IS-12A	77.0	78.0		33										MC	
IS-12A	78.0	79.0		32										MC	
IS-12A	79.0	80.0		32										MC	
IS-12A	80.0	81.5		39										MC	
IS-12A	82.5	84.0		33										MC	
IS-12A	85.0	86.5		30										MC	

DRAFT

SUMMARY OF LABORATORY TEST RESULTS

Project: Mid Baratara Diversion

Assigned By: _____

Project Number: 04.55124092

Current Date: 10/30/2013

Boring: IS-12A

Sample Number	Depth	Visual Classification	USCS	E(f)	W%	Dry Dens (pcf)	Wet Dens (pcf)	Sat %	Shear Test Type	Angle	Cohesion (psf)	Unconf. Comp. Str.	LL	PL	PI	TORVANE (tsf)	Other Tests
N/A	1	ST BR CL6	CL6		25	96	120	89	UU	0	1717					0.32	
N/A	3	SO BR CL6	CL6		38	81	112	96	UU	0	407		46	25	21	0.18	
N/A	5.5	SO GR & BR CL6	CL6		38	81	112	95									Kh= 3.23E-08 SV, HYD
N/A	6	SO BR CL4	CL4		35	87	117	100	UU	0	357					0.18	
N/A	9	SO BR CL4	CL4		36	85	116	100	UU	0	278		33	23	10	0.12	
N/A	10	SO GR CL4	CL4		38	80	111	94									Kv= 7.43E-06 SV, HYD
N/A	13	SO BR CL4	CL4		40	81	113	100	UU	0	324					0.14	
N/A	14	BR & GR ML W/ ARS CH, O	ML														-200 SV, HYD
N/A	15	GR ML W/ ARS SM	ML		32												-200
N/A	16.3	BR & GR ML W/ ARS SM	ML		32												-200
N/A	19	BR & GR ML W/ ARS CH, O	ML														-200 SV, HYD
N/A	21	BR ML	ML		34	88	117	99	UU	0	410		33	26	7	0.15	
N/A	23	BR ML	ML		32	88	116	94	UU	0	560						
N/A	25	BR & GR ML W/ ARS SM	ML		31												-200
N/A	27	BR & GR ML	ML		31												-200
N/A	30	BR ML	ML		34	88	117	99	UU	0	463		31	24	7	0.10	
N/A	34	BR & GR ML W/ ARS SM	ML		31												-200
N/A	37	BR & GR ML W/ ARS SM	ML		30												-200
N/A	40.5	BR & GR ML W/ ARS SM	ML		29												-200
N/A	45	BR & GR ML W/ ARS CH & SM, O	ML														SV, HYD
N/A	47	BR & GR ML W/ ARS CH & SP, O	ML														SV, HYD
N/A	49	BR & GR ML	ML		32												-200
N/A	53	BR & GR ML W/ ARS CH & SM, O	ML														SV, HYD
N/A	54	GR ML W/ ARS SP, CH	ML		30	117	90	93									Kv= 3.70E-06 SV, HYD
N/A	59	BR & GR ML W/ ARS SM	ML		32												-200
N/A	61	BR & GR ML W/ ARS SM	ML		29												-200
N/A	63	BR & GR ML W/ ARS CH, O	ML														SV, HYD
N/A	64.5	SO GR CL4	CL4		28	95	121	99									Kv= 1.27E-06 SV, HYD
N/A	73.1	BR & GR ML W/ ARS SP, O	ML														SV, HYD
N/A	78	BR & GR ML W/ ARS SM	ML		32												-200
N/A	80	GR ML W/ ARS SM	ML		30												-200

Remarks: "Confidential Information: Privileged & Confidential Work Product"
Fugro Consultants, Inc.

Checked by: _____
File Name: 04

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM - TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-13A	2.2 - 3.0		21										MC	
IS-13A	3.2 - 4.0		29										MC	
IS-13A	5.0 - 6.0		30										MC	
IS-13A	6.0 - 7.0		31										MC	
IS-13A	7.0 - 8.0		31										MC	
IS-13A	8.7 - 9.0		35										MC	
IS-13A	9.0 - 10.0		36										MC	
IS-13A	10.0 - 11.0		39										MC	
IS-13A	11.0 - 12.0		38										MC	
IS-13A	13.0 - 14.0		30										MC	
IS-13A	14.0 - 15.0		39										MC	
IS-13A	15.0 - 16.0		30										MC	
IS-13A	16.5 - 17.0		36										MC	
IS-13A	17.0 - 18.0		36										MC	
IS-13A	18.0 - 19.0		35										MC	
IS-13A	19.0 - 20.0		37										MC	
IS-13A	20.6 - 21.0		34										MC	
IS-13A	21.0 - 22.0		35										MC	
IS-13A	22.0 - 23.0		43										MC	
IS-13A	23.0 - 24.0		35										MC	
IS-13A	24.0 - 25.5		33										MC	
IS-13A	26.5 - 27.4		31										MC	
IS-13A	27.4 - 28.0		38										MC	
IS-13A	29.0 - 30.5		35										MC	
IS-13A	31.5 - 33.0		34										MC	
IS-13A	33.0 - 34.0		33										MC	
IS-13A	34.0 - 35.0		33										MC	
IS-13A	35.0 - 36.0		32										MC	
IS-13A	36.5 - 37.0		41										MC	
IS-13A	37.0 - 38.0		41										MC	
IS-13A	38.0 - 39.0		33										MC	
IS-13A	39.0 - 40.0		32										MC	
IS-13A	41.1 - 42.0		28										MC	
IS-13A	42.0 - 43.0		33										MC	
IS-13A	43.0 - 44.0		34										MC	
IS-13A	44.5 - 45.0		32										MC	
IS-13A	45.0 - 46.0		32										MC	
IS-13A	46.0 - 47.0		32										MC	
IS-13A	47.0 - 48.0		35										MC	

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-13A	49.0	50.0		34									MC		
IS-13A	50.0	51.0		33									MC		
IS-13A	51.0	52.0		33									MC		
IS-13A	53.0	54.0		32									MC		
IS-13A	54.0	55.0		32									MC		
IS-13A	55.0	56.0		31									MC		
IS-13A	57.0	58.0		31									MC		
IS-13A	58.0	59.0		55									MC		
IS-13A	59.0	60.0		36									MC		
IS-13A	61.0	62.0		36									MC		
IS-13A	62.0	63.0		34									MC		
IS-13A	63.0	64.0		43									MC		
IS-13A	65.0	66.0		38									MC		
IS-13A	66.0	67.0		30									MC		
IS-13A	67.0	68.0		32									MC		
IS-13A	70.5	71.0		38									MC		
IS-13A	71.0	72.0		38									MC		
IS-13A	73.3	74.0		47									MC		
IS-13A	74.0	75.0		59									MC		
IS-13A	75.0	76.0		34									MC		
IS-13A	77.0	78.0		38									MC		
IS-13A	78.0	79.0		33									MC		
IS-13A	79.0	80.0		30									MC		
IS-13A	81.0	82.0		28									MC		
IS-13A	82.0	83.0		30									MC		
IS-13A	83.0	84.0		28									MC		
IS-13A	85.0	86.0		36									MC		
IS-13A	86.0	87.0		32									MC		
IS-13A	87.0	88.0		31									MC		
IS-13A	88.0	89.5		29									MC		
IS-13A	90.5	92.0		34									MC		
IS-13A	93.0	94.5		34									MC		
IS-13A	95.5	97.0		40									MC		
IS-13A	98.0	99.5		32									MC		

"Confidential Information; Privileged & Confidential Work Product"

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/19/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION													USCS	Remarks		
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117						
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)							
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt	Clay			% Passing #200	
IS-13A	2.2-3	T CLAY with Silt and Shells	18.1	41	21	20					0.9							(CL4)	Sample fell apart during UU Test
IS-13A	5-6	M, T and Gr Lean CLAY with Ferrous Nodules	27.93 28.21 30.60				118.8 120.0	92.8 93.6		665.9 1181.9	2.0 14.0 26.0							(CL4)	Sample 3 cracked while trimming during UU Test
IS-13A	9-10	M, Gr Lean CLAY with O Pockets	37.4 36.29 37.4				116.8 117.8 122.0	85.0 86.4 89.3		540.5 618.7 605.5	3.5 15.5 27.5							(CL4)	
IS-13A	14-15	St, O Clay with Silt and Sand	41.19 45.63 34.46	44	28	16	114.3 112.5 123.3	80.9 77.2 91.6		1012.2 1157.6 2353.4	5.3 17.3 29.3							(OL)	
IS-13A	15-16	M Dense, Gr SILT with Sand and Tr Clay	27.07 29.69 37.22	28	26	2	119.7 118.5 112.4	94.1 91.4 81.9		1470.5 2966.7 1523.6	5.7 17.7 29.7							(ML)	
IS-13A	17-18	M, Gr Lean CLAY with O Pockets	33.87 33.80 36.07	39	24	15	116.3 114.6 120.7	86.9 85.6 88.6		644.0 620.7 778.8	6.4 18.4 30.4							(CL4)	
IS-13A	18-19	M, Gr Silty CLAY with S Silt	30.02 30.88 31.45	33	22	11	124.3 123.5 127.0	95.5 94.3 96.6		642.0 547.7 1005.1	6.8 18.8 30.8							(CL4)	
IS-13A	22-22.5	Gr Fat CLAY with S SIS	45.0															(CH2)	
IS-13A	23.5-24	Gr SILT with Sand and Tr Clay	25.2													71.5		(ML)	
IS-13A	24-25.5	Gr SILT with Sand and Clay	29.8										6.3	77.4	16.3	93.7		(ML)	
IS-13A	29-30.5	Gr Lean CLAY with Tr Fine Sand	28.4	36	24	12												(CL4)	
IS-13A	31.5-33	Gr Lean CLAY with Tr Fine Sand	28.0	32	23	9												(CL4)	
IS-13A	33-34	Gr SILT with Sand and Clay	32.1													89.3		(ML)	
IS-13A	35-36	Gr SILT with Sand and Clay	32.2													89.6		(ML)	
IS-13A	38-39	M, Gr CLAY with Silt and Fine Sand	31.76 31.21 31.03	36	22	14	124.8 123.4 125.5	94.7 94.0 95.8		465.8 592.3 629.6	14.1 26.1 38.1							(CL4)	

"Confidential Information, results presented only to those samples tested"

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/19/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks				
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117							
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200			
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt				Clay		
IS-13A	43-44	Loose, Gr CLAY with Silt and Fine Sand	31.71 31.39 31.23	34	24	10	121.5 120.5 119.1	92.2 91.7 90.7			419.4 427.0 440.4	15.9 27.5 39.9						(CL4)		
IS-13A	46-47	M, Gr Lean CLAY with Tr Fine Sand	31.65 31.47 31.86	38	19	19	124.1 121.7 123.0	94.2 92.5 93.4			634.5 637.2 711.3	17.0 29.0 41.0						(CL4)		
IS-13A	51-52	M, Gr Lean CLAY with Tr Fine Sand	32.15 31.39 32.75	37	22	15	121.1 120.8 121.2	91.6 91.9 91.2			478.0 563.8 522.7	18.8 30.8 42.8						(CL4)		
IS-13A	55-56	Gr SILT with Clay and Fine Sand Pockets	24.2	32	25	7												(ML)		
IS-13A	59-59.7	M, Gr SILT with Clay and Fine Sand	32.48 32.33 33.00				120.2 124.3 123.7	90.7 93.9 93.0			628.3 1076.7 1018.1	21.7 33.7 45.7						(ML)		
IS-13A	60.8-61	No Sample																		
IS-13A	62-62.8	M, Gr Lean CLAY with Silt Pockets	35.98 35.48 35.32	43	23	20	115.5 116.8 116.4	84.9 86.2 86.0			850.5 896.7 827.0	22.8 34.8 46.8						(CL6)		
IS-13A	65.3-66	Gr Lean CLAY with S Silty Pockets	30.7														98.2	(CL4)		
IS-13A	66-67	Gr SILT with Tr Fine Sand and Clay Pockets	31.4														92.0	(ML)		
IS-13A	74-75	M, Gr Fat CLAY with S SIS	63.4	86	29	57												(CH4)		
IS-13A	75-76	St, Gr Lean CLAY with Fine Sand	29.00 29.02 29.39				123.1 122.4 126.7	95.4 94.8 97.9			1473.2 1310.1 1990.0	27.6 39.6 51.6						(CL4)		
IS-13A	79-80	M, Gr Fat CLAY with Silty SS	49.42 45.99 46.69				107.7 107.6 107.0	72.1 73.7 72.9			559.9 612.9 553.2	29.0 41.0 53.0						(CH3)		
IS-13A	85-86	St, Gr Laminating Fat CLAY with S Silt and Silty Clay	30.53 31.55 31.15				122.9 124.3 121.7	94.1 94.4 92.8			1264.9 1520.1 1678.7	31.2 43.2 55.2						(CH2)		
IS-13A	88-89.5	Gr SILT with Clay and Fine Sand	27.1													12.6	69.6	17.8	87.4	(ML)
IS-13A	93-94.5	Gr S SILT with Clay and Fine Sand	24.3													34.0	48.7	17.3	66.0	(ML)
IS-13A	100.5-102	Gr Silty SAND with Tr Clay	70.5																36.4	(SM)

"Confidential Information, results presented only, Confidential Work Product"
The results presented only relate to those samples tested

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM - TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-16A	1.0 - 2.0		25										MC	
IS-16A	2.0 - 2.3		26										MC	
IS-16A	3.3 - 4.0		24										MC	
IS-16A	5.3 - 6.0		26										MC	
IS-16A	6.0 - 7.0		29										MC	
IS-16A	7.0 - 8.0		27										MC	
IS-16A	9.0 - 10.0		29										MC	
IS-16A	10.0 - 11.0		35										MC	
IS-16A	11.0 - 12.0		38										MC	
IS-16A	13.2 - 14.0		37										MC	
IS-16A	14.0 - 15.0		35										MC	
IS-16A	15.0 - 16.0		33										MC	
IS-16A	16.6 - 17.0		35										MC	
IS-16A	17.0 - 18.0		34										MC	
IS-16A	18.0 - 19.0		33										MC	
IS-16A	19.0 - 20.0		35										MC	
IS-16A	20.5 - 21.0		35										MC	
IS-16A	21.0 - 22.0		35										MC	
IS-16A	22.0 - 23.0		34										MC	
IS-16A	23.0 - 24.0		36										MC	
IS-16A	24.5 - 25.0		35										MC	
IS-16A	25.0 - 26.0		34										MC	
IS-16A	26.0 - 27.0		35										MC	
IS-16A	27.0 - 27.4		37										MC	
IS-16A	27.4 - 28.0		32										MC	
IS-16A	29.0 - 30.0		31										MC	
IS-16A	30.0 - 31.0		27										MC	
IS-16A	31.0 - 32.0		34										MC	
IS-16A	32.6 - 33.0		42										MC	
IS-16A	33.0 - 34.0		45										MC	
IS-16A	34.0 - 35.0		42										MC	
IS-16A	35.0 - 36.0		34										MC	
IS-16A	36.7 - 37.0		39										MC	
IS-16A	37.0 - 38.0		39										MC	
IS-16A	38.0 - 39.0		55										MC	
IS-16A	39.0 - 40.0		47										MC	
IS-16A	43.5 - 45.0		43										MC	
IS-16A	45.5 - 46.0		41										MC	
IS-16A	46.0 - 47.0		24										MC	
IS-16A	47.0 - 48.0		24										MC	

"Confidential Information; Privileged & Confidential Work Product"

GeoEngineers, Inc.
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

Disclaimer: The results presented relate only to those samples tested. **Soil Description:** ASTM(D2487) AASHTO(M145) **Moisture Content:**

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-16A	49.0	50.5		41										MC	
IS-16A	59.0	60.5		44										MC	
IS-16A	67.3	68.0		42										MC	
IS-16A	69.0	70.5		41										MC	
IS-16A	71.5	72.3		49										MC	
IS-16A	81.5	83.0		34										MC	
IS-16A	84.0	85.5		32										MC	
IS-16A	86.5	88.0		28										MC	
IS-16A	89.0	90.5		53										MC	
IS-16A	91.5	93.0		41										MC	
IS-16A	94.0	95.5		37										MC	
IS-16A	96.5	98.0		31										MC	

DRAFT

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/29/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks					
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117								
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200				
			LL	PL	PI	U psf			UU psf	Gravel		Sand	Silt	Clay							
IS-16A	3.3-4	St to vSt, Br and Gr Lean CLAY	24.1 21.6 24.3				125.1 124.6 123.9	100.8 102.5 99.7			1880.5 2670.8 3070.8	1.3 13.3 25.3							(CL6)		
IS-16A	5.3-6	Gr Clayey SILT	25.1																93.4	(ML)	
IS-16A	6-7	St, Gr Lean CLAY with Sand and O	26.6 26.3 27.1	41	24	17	122.3 122.3 120.2	96.5 96.8 94.6			1076.0 1754.5	2.4 14.4 26.4								(CL4)	Sample 3 fell apart; no UU test
IS-16A	10-11	M, Gr Fat CLAY with O and Sand	32.9 32.9 35.5				119.9 117.6 119.3	90.1 88.5 88.0			584.8 633.7 596.0	3.8 15.8 27.8								(CH2)	
IS-16A	14-15	M Dense, SILT with Sand and Clay	28.4 29.1 28.8	32	24	8	121.1 124.7 126.3	94.3 96.6 98.0			1677.2 2298.0 2752.3	5.3 17.3 29.3								(ML)	
IS-16A	17-18	Gr SILT with Clay and Sand	31.2	31	27	4									16.4	72.0	11.6	83.6	(ML)		
IS-16A	19-20	Dense, Gr S SILT with Tr O and Clay	24.9 25.1 25.0	28	26	2	132.3 130.4 127.7	105.9 104.2 102.2			3886.0 5078.7 5160.1	7.1 19.1 31.1								(ML)	
IS-16A	21-22	M, Gr Fat CLAY with Silt Layers	34.3 34.6 33.6				123.7 122.6 122.7	92.1 91.1 91.8			515.7 517.5	7.9 19.9 31.9								(CH2)	Sample 3 was too soft to fit in membrane; no UU test
IS-16A	23-24	So, Gr Fat CLAY with S Pockets	39.3 40.8 40.8				116.8 119.5 117.9	83.8 84.8 83.7			487.8 444.9 449.5	8.6 20.6 32.6								(CH2)	
IS-16A	27.5-28	Gr SILT with Sand and Tr Clay	28.7																92.0	(ML)	
IS-16A	30-31	Gr SILT with Sand and Tr Clay	27.3																78.1	(ML)	
IS-16A	34-34.5	M, Gr Fat CLAY with S SIS and Pockets	44.8 41.8 42.1	68	24	44	114.5 114.3 117.7	79.1 80.5 82.8			482.9 550.8 525.5	12.6 24.6 36.6								(CH3)	
IS-16A	35-36	Gr S SILT	25.1																64.1	(ML)	
IS-16A	38-39	M, Gr Fat CLAY with S SIS and Pockets, Laminated Layers	42.9 88.9 42.7	66	22	44	111.3 112.3 115.1	77.8 78.4 80.6			587.3 590.5 637.4	14.1 26.1 38.1								(CH3)	
IS-16A	39-40	So, Gr Lean Clay with S SIS and Pockets	40.2 43.9 39.9	47	22	25	115.1 111.5 110.7	82.1 77.5 79.1			552.7 456.2 469.9	14.4 26.4 38.4								(CL4)	

"Confidential Information, results presented only on confidential Work Product"
The results presented only relate to those samples tested

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/29/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks				
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117							
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)								
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt			Clay	% Passing #200		
IS-16A	41-42.5	Gr Fine SAND with Silt	26.5														19.2	(SM)		
IS-16A	45.5-46	Loose Gr SILT with Clay Pockets	36.8 36.2 37.0				118.3 114.2 117.5	86.5 83.8 85.8		245.8 248.9 299.0	16.6 28.6 40.6								(ML)	
IS-16A	46-47	Gr Silty SAND with Tr Clay	25.5															20.1	(SM)	
IS-16A	49-50.5	Gr Lean CLAY	37.2	39	19	20													(CL4)	
IS-16A	51.5-53	Gr Silty SAND with Tr Clay	24.6															49.1	(SM)	
IS-16A	54-55.5	Gr Silty SAND with Tr Clay	28.7															30.2	(SM)	
IS-16A	56.5-58	Gr Fine Silty SAND with Tr Clay	27.4															14.8	(SM)	
IS-16A	59-60.5	Gr Lean CLAY with Silt and Sand	28.6	48	21	27												63.2	(CL6)	
IS-16A	61.5-63	Gr Fine Silty SAND	26.7															17.4	(SM)	
IS-16A	64-65.5	Gr Silty SAND with Tr Clay	26.1															49.9	(SM)	
IS-16A	69-70.5	Gr Fat CLAY with Silt and Sand	34.0	55	22	33													(CH2)	
IS-16A	72.3-73	Gr Silty SAND with Clay	25.4															44.3	(SM)	
IS-16A	74-75.5	Gr Silty SAND with Tr Clay	25.7															39.4	(SM)	
IS-16A	76.5-78	Gr Fine Silty SAND with Clay	25.1															19.1	(SM)	
IS-16A	81.5-83	Gr Lean CLAY with Tr Fine Sand	33.4	37	22	15													(CL4)	

"Confidential Information, Results presented only to those samples tested"

Project: Mid Barataria Diversion

Technical Responsibility: RM

Quality Assurance Officer

Client: GeoEngineers

Project No.: B13-018

PM: RM

Date of Issue: 7/29/2013

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks					
			D2216	D4318			D2166		D2166		D2850	D422, C136 or C117									
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200				
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt				Clay			
IS-16A	89.5-90	Gr Fat CLAY with S SIS and Pockets	47.2	96	26	70											(CH4)				
IS-16A	94-95.5	Gr Silty SAND with Tr Clay	28.1													29.8	(SM)				
IS-16A	96.5-98	Gr Sandy SILT with Clay	29.4												32.3	55.6	12.1	67.7	(ML)		
IS-16A	99-100.5	Gr Sandy SILT with Tr Clay	25.9															59.0	(ML)		

"Confidential Information, results presented only relate to those samples tested"

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
IS-17A	1.5	2.0		22										MC	
IS-17A	3.0	4.0		25										MC	
IS-17A	5.3	6.0		32										MC	
IS-17A	6.0	7.0		33										MC	
IS-17A	7.0	8.0		33										MC	
IS-17A	9.5	10.0		34										MC	
IS-17A	10.0	11.0		34										MC	
IS-17A	11.0	12.0		32										MC	
IS-17A	13.3	14.0		33										MC	
IS-17A	14.0	15.0		31										MC	
IS-17A	15.0	16.0		33										MC	
IS-17A	17.0	18.0		33										MC	
IS-17A	18.0	19.0		33										MC	
IS-17A	19.0	20.0		35										MC	
IS-17A	21.1	22.0		33										MC	
IS-17A	22.0	23.0		35										MC	
IS-17A	23.0	24.0		46										MC	
IS-17A	25.0	26.0		34										MC	
IS-17A	26.0	27.0		35										MC	
IS-17A	27.0	28.0		42										MC	
IS-17A	28.6	29.0		33										MC	
IS-17A	29.0	30.0		31										MC	
IS-17A	30.0	31.0		40										MC	
IS-17A	31.0	32.0		52										MC	
IS-17A	33.0	34.5		39										MC	
IS-17A	35.5	37.0		38										MC	
IS-17A	38.0	39.5		36										MC	
IS-17A	50.5	52.0		42										MC	
IS-17A	58.0	59.5		46										MC	
IS-17A	60.5	62.0		42										MC	
IS-17A	78.0	78.8		33										MC	
IS-17A	80.5	82.0		41										MC	
IS-17A	83.0	83.8		52										MC	
IS-17A	88.0	89.5		33										MC	
IS-17A	93.0	94.5		32										MC	
IS-17A	98.0	99.5		31										MC	
IS-17A	100.5	102.0		30										MC	

DRAFT

SUMMARY OF LABORATORY TEST RESULTS

Project: Mid Barataria Diversion

Assigned By: _____

Project Number: 04.55124092
Boring: IS-17A

Current Date: 9/12/2013

Sample Number	Depth	Visual Classification	USCS	E (f)	W%	Dry Dens (pcf)	Wet Dens (pcf)	Sat %	Shear Test Type	Angle	Cohesion (psf)	Unconf. Comp. Str.	LL	PL	PI	TORVANE (tsf)	Other Tests
N/A	3	BR ML	ML		26	97	122	96	UU	0	1510		26	22	4	0.20	
N/A	5.3	M BR CL	CL		31	91	119	98	UU	0	772		31	22	9	0.20	
N/A	9.5	SO DGR CH3 W/ O, ARS ML, WD	CH3		51	68	103	94	UU	0	452					0.30	
N/A	13.3	GR ML	ML		31	91	119	99	UU	0	740		34	26	8	0.25	
N/A	15	GR ML W/ ARS CH	ML		27	97	124	100	UU	0	1282					0.30	
N/A	18	DGR ML	ML		33	89	119	100	UU	0	483		29	24	5	0.10	
N/A	22	DGR ML	ML		37	85	116	100	UU	0	509					0.15	
N/A	23	M DGR CL6	CL6		41	80	113	100	UU	0	571		47	19	28	0.15	
N/A	26	M DGR CL6	CL6		35	86	116	99	UU	0	606					0.15	
N/A	29	DGR CL	CL										27	23	4		
N/A	30	SO GR CL6	CL6		39	83	116	100	UU	0	483		42	19	23	0.15	CON
N/A	38	M GR CL6	CL6		32												-200
N/A	43	BR SM	SM		26												-200
N/A	46.5	GR ML W/ O	ML														SV, HYD
N/A	48	BR & GR ML W/ O	ML														SV, HYD
N/A	50.5	BR & GR CL4 W/ O, ARS SP	CL4														SV, HYD
N/A	53	BR SM	SM		22												SV
N/A	55.5	BR SM	SM		24												SV
N/A	58	BR & GR CL6 W/ O	CL6										45	23	22		SV, HYD
N/A	60.5	BR & GR CL6 W/ O	CL6														SV, HYD
N/A	63	BR & GR SM W/ ARS CH, O	SM		25												-200
N/A	68	BR & GR SM W/ ARS CH, O	SM		27												-200
N/A	75.5	BR & GR SM W/ ARS CH, O	SM		24												-200
N/A	78.8	BR & GR ML W/ LNS SP	ML		25												-200
N/A	80.5	BR & GR ML W/ ARS CH, O	ML														SV, HYD
N/A	85.5	BR & GR SM W/ ARS CH, O	SM		25												-200
N/A	93	M BR CL4	CL4		28												-200
N/A	98	ST BR CH3 W/ ARS SP	CH3		32								64	27	37		-200
N/A	100.5	BR CL	CL										28	15	13		

Remarks: _____
Fugro Consultants, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Checked by: _____
File Name: 04

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
NL-3A	1.3	2.0		88									MC		
NL-3A	2.0	3.0		115									MC		
NL-3A	3.0	4.0		138									MC		
NL-3A	5.0	6.0		172									MC		
NL-3A	6.0	7.0		47									MC		
NL-3A	7.0	8.0		54									MC		
NL-3A	8.0	9.5		72									MC		
NL-3A	9.5	10.0		64									MC		
NL-3A	10.0	11.0		78									MC		
NL-3A	11.0	12.0		98									MC		
NL-3A	14.0	15.0		89									MC		
NL-3A	15.0	16.0		103									MC		
NL-3A	16.4	17.0		93									MC		
NL-3A	17.0	18.0		91									MC		
NL-3A	18.0	19.0		37									MC		
NL-3A	19.0	20.0		50									MC		
NL-3A	21.0	22.0		72									MC		
NL-3A	22.0	23.0		77									MC		
NL-3A	23.0	24.0		75									MC		
NL-3A	24.4	25.0		85									MC		
NL-3A	25.0	26.0		84									MC		
NL-3A	26.0	27.0		70									MC		
NL-3A	27.0	28.0		66									MC		
NL-3A	28.3	29.0		64									MC		
NL-3A	29.0	30.0		65									MC		
NL-3A	30.0	31.0		61									MC		
NL-3A	31.0	32.0		51									MC		
NL-3A	32.3	33.0		42									MC		
NL-3A	33.0	34.0		37									MC		
NL-3A	34.0	35.0		80									MC		
NL-3A	35.0	36.0		76									MC		
NL-3A	36.3	36.7		81									MC		
NL-3A	37.0	38.0		82									MC		
NL-3A	38.0	39.0		61									MC		
NL-3A	39.0	40.0		71									MC		
NL-3A	40.5	41.0		47									MC		
NL-3A	41.0	42.0		72									MC		

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM - TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
NL-3A	42.0 - 43.0		70										MC	
NL-3A	43.0 - 44.0		67										MC	
NL-3A	44.3 - 45.0		75										MC	
NL-3A	45.0 - 46.0		73										MC	
NL-3A	46.0 - 47.0		72										MC	
NL-3A	47.0 - 48.0		74										MC	
NL-3A	48.3 - 49.0		70										MC	
NL-3A	49.0 - 50.0		71										MC	
NL-3A	50.0 - 51.0		63										MC	
NL-3A	51.0 - 52.0													
NL-3A	53.3 - 54.0		54										MC	
NL-3A	54.0 - 55.0		55										MC	
NL-3A	55.0 - 56.0		61										MC	
NL-3A	56.3 - 57.0		68										MC	
NL-3A	57.0 - 58.0		68										MC	
NL-3A	58.0 - 59.0		68										MC	
NL-3A	59.0 - 60.0		52										MC	
NL-3A	61.3 - 62.0		55										MC	
NL-3A	62.0 - 63.0		56										MC	
NL-3A	63.0 - 64.0		57										MC	
NL-3A	65.6 - 66.0		58										MC	
NL-3A	66.0 - 67.0		57										MC	
NL-3A	67.0 - 68.0		64										MC	
NL-3A	70.0 - 71.0		64										MC	
NL-3A	71.0 - 72.0		52										MC	
NL-3A	72.4 - 73.0		60										MC	
NL-3A	73.0 - 74.0		60										MC	
NL-3A	74.0 - 75.0		56										MC	
NL-3A	75.0 - 76.0		57										MC	
NL-3A	76.4 - 77.0		64										MC	
NL-3A	77.0 - 78.0		63										MC	
NL-3A	78.0 - 79.0		56										MC	
NL-3A	79.0 - 80.0		66										MC	
NL-3A	81.0 - 82.0		53										MC	
NL-3A	82.0 - 83.0		66										MC	
NL-3A	83.0 - 84.0		65										MC	
NL-3A	85.0 - 86.0		53										MC	

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM - TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
NL-3A	86.0 - 87.0		50										MC	
NL-3A	87.0 - 88.0		57										MC	
NL-3A	88.5 - 89.0		54										MC	
NL-3A	89.0 - 90.0		55										MC	
NL-3A	90.0 - 91.0		60										MC	
NL-3A	91.0 - 92.0		59										MC	
NL-3A	94.0 - 95.0		59										MC	
NL-3A	95.0 - 96.0		50										MC	
NL-3A	96.3 - 97.0		59										MC	
NL-3A	97.0 - 98.0		60										MC	
NL-3A	98.0 - 99.0		56										MC	
NL-3A	99.0 - 100.0		52										MC	
NL-3A	100.6 - 101.0		54										MC	
NL-3A	101.0 - 102.0		52										MC	
NL-3A	102.0 - 103.0		54										MC	
NL-3A	103.0 - 104.0		54										MC	
NL-3A	105.0 - 106.0		62										MC	
NL-3A	106.0 - 107.0		30										MC	
NL-3A	108.6 - 109.0		57										MC	
NL-3A	109.0 - 110.0		56										MC	
NL-3A	110.0 - 111.0		52										MC	
NL-3A	111.0 - 112.0		53										MC	
NL-3A	112.7 - 113.0		35										MC	
NL-3A	114.0 - 115.5		25										MC	
NL-3A	116.0 - 117.5		58										MC	
NL-3A	120.4 - 121.0		63										MC	
NL-3A	121.0 - 122.0		63										MC	
NL-3A	122.0 - 123.0		62										MC	
NL-3A	123.0 - 124.0		62										MC	
NL-3A	124.4 - 125.0		65										MC	
NL-3A	125.0 - 126.0		64										MC	
NL-3A	126.0 - 127.0		64										MC	
NL-3A	127.0 - 128.0		64										MC	
NL-3A	129.1 - 130.0		63										MC	
NL-3A	130.0 - 131.0		62										MC	
NL-3A	131.0 - 132.0		60										MC	

DRAFT

SUMMARY OF LABORATORY TEST RESULTS

Project: Mid Barrataria Diversion

Assigned By: _____

Project Number: 04.55124092
Boring: NL-3A

Current Date: 6/21/2013

Sample Number	Depth	Visual Classification	USCS	E (f)	W%	Dry Dens (pcf)	Wet Dens (pcf)	Sat %	Shear Test Type	Angle	Cohesion (psf)	Unconf. Comp. Str.	LL	PL	PI	TORVANE (tsf)	Other Tests
NA	2.0	VSO DGR CHOA	CHOA		101	44	88	98	UU	0	187		141	40	101	0.20	
NA	3.0	VSO DGR CHOB	CHOB		131	37	85	100	UU	0	198		160	45	115	0.20	
NA	5.0	VSO GR CH3	CH3		56	67	103	97	UU	0	155		61	22	39	0.10	OC=5.5%
NA	7	VSO GR CH2 W/ LNS ML	CH2		53	69	106	100	UU	0	130		51	22	29	0.09	CON
NA	10	VSO GR CH3	CH3		67	61	101	100	UU	0	115		60	21	39	0.09	
NA	15	VSO GR CH4	CH4		95	47	92	100	UU	0	140		94	28	66	0.10	OC=5.5% CON
NA	17	VSO GR CH2 W/ LNS ML	CH2		49	72	107	99	UU	0	206		54	19	35	0.13	
NA	19	SO GR CL4 W/ LNS ML	CL4		39	82	114	100	UU	0	379		41	23	18	0.08	
NA	21	GR CH4	CH4										74	24	50		
NA	22	VSO GR CH4	CH4		83	52	95	100	UU	0	160					0.10	
NA	23	GR CH4	CH4														OC=3.9% SV, GSH CON
NA	25	GR CH4 W/ SIF	CH4		87	90	48	94					99	31	68		
NA	31	VSO GR CH4 W/ O	CH4		77	54	96	99	UU	0	194		88	27	61	0.12	
NA	34	GR CH4	CH4										83	24	59		
NA	36	VSO GR CH4	CH4		78	54	97	100	UU	0	139					0.09	
NA	39	GR CH4	CH4										101	28	73		SV, GSH
NA	40	SO GR CH4	CH4		58	67	105	100	UU	0	269		72	22	50	0.15	
NA	45	SO GR CH4	CH4		68	59	99	99	UU	0	345		74	23	51	0.13	
NA	55	SO GR CH4	CH4		62	63	102	99	UU	0	370		79	24	55	0.20	
NA	63	M GR CH4	CH4		56	67	104	98	UU	0	541		77	28	49	0.30	CON
NA	77	M GR CH4	CH4		60	65	103	100	UU	0	636					0.30	
NA	79	M GR CH4	CH4		64	62	101	99	UU	0	555		94	29	65	0.40	
NA	82	M GR CH4	CH4		66	61	101	100	UU	0	578		95	31	64	0.35	
NA	86	GR CH4	CH4										85	29	56		
NA	93.8	GR CH4	CH4										86	29	57		
NA	97	GR CH4	CH4										90	28	62		
NA	101	M GR CH4	CH4		57	66	103	98	UU	0	751					0.40	
NA	103	GR CH4	CH4										85	27	58		
NA	106	M GR CH3 W/ LYS ML	CH3		48	72	107	98	UU	0	733		72	25	47	0.35	
NA	109	GR CH3	CH3										72	30	42		
NA	112.0	GR CH3 W/ SHELLS	CH3														UNTESTAB
NA	114.0	GR SC W/ SHELLS	SC		24												-200
NA	116.0	GR CH4 W/ SIF	CH4		58												-200
NA	121	ST GR CH4	CH4		66	61	101	100	UU	0	1497		105	31	74	0.65	CON
NA	131	ST GR CH W/ SIF	CH		62	61	99	95	UU	0	1140		104	28	76	0.60	

Remarks: "Confidential Information: Privileged & Confidential Work Product"
Fugro Consultants, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Checked by: _____
File Name: 04

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM - TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
NL-6A	0.0 - 1.0		29										MC	
NL-6A	1.0 - 2.0		31										MC	
NL-6A	4.0 - 5.0		58										MC	
NL-6A	5.0 - 6.0		43										MC	
NL-6A	6.0 - 7.0		39										MC	
NL-6A	7.0 - 7.8		43										MC	
NL-6A	8.6 - 9.0		53										MC	
NL-6A	9.0 - 10.0		35										MC	
NL-6A	10.0 - 11.0		49										MC	
NL-6A	11.0 - 12.0		39										MC	
NL-6A	12.4 - 13.0		31										MC	
NL-6A	13.0 - 14.0		29										MC	
NL-6A	14.0 - 15.0		29										MC	
NL-6A	15.0 - 16.0		62										MC	
NL-6A	17.0 - 18.0		31										MC	
NL-6A	18.0 - 19.0		34										MC	
NL-6A	19.0 - 20.0		29										MC	
NL-6A	20.0 - 21.5		31										MC	
NL-6A	25.0 - 26.0		26										MC	
NL-6A	26.0 - 27.0		26										MC	
NL-6A	27.0 - 28.0		25										MC	
NL-6A	30.0 - 31.0		36										MC	
NL-6A	31.0 - 32.0		42										MC	
NL-6A	32.4 - 33.0		43										MC	
NL-6A	33.0 - 34.0		36										MC	
NL-6A	34.0 - 35.0		39										MC	
NL-6A	35.0 - 36.0		32										MC	
NL-6A	37.0 - 38.0		56										MC	
NL-6A	38.0 - 39.0		31										MC	
NL-6A	39.0 - 40.0		42										MC	
NL-6A	42.0 - 43.0		55										MC	
NL-6A	43.0 - 44.5		28										MC	
NL-6A	48.4 - 49.0		58										MC	
NL-6A	49.0 - 50.0		52										MC	
NL-6A	50.0 - 51.0		48										MC	
NL-6A	51.0 - 52.0		54										MC	
NL-6A	53.0 - 54.0		52										MC	
NL-6A	54.0 - 55.0		41										MC	
NL-6A	55.0 - 56.0		42										MC	
NL-6A	56.6 - 57.0		39										MC	

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
NL-6A	57.0	58.0		39										MC	
NL-6A	58.0	59.0		47										MC	
NL-6A	60.7	61.0		56										MC	
NL-6A	61.0	62.0		55										MC	
NL-6A	62.0	63.0		57										MC	
NL-6A	63.0	64.0		55										MC	
NL-6A	64.7	65.0		49										MC	
NL-6A	65.0	66.0		50										MC	
NL-6A	66.0	67.0		60										MC	
NL-6A	67.0	68.0		54										MC	
NL-6A	68.5	69.0		48										MC	
NL-6A	69.0	70.0		44										MC	
NL-6A	70.0	71.0		46										MC	
NL-6A	71.0	72.0		42										MC	
NL-6A	73.1	74.0		54										MC	
NL-6A	74.0	75.0		52										MC	
NL-6A	75.0	76.0		52										MC	
NL-6A	77.0	78.0		40										MC	
NL-6A	78.0	79.0		46										MC	
NL-6A	79.0	80.0		48										MC	
NL-6A	81.0	82.0		58										MC	
NL-6A	82.0	83.0		52										MC	
NL-6A	83.0	84.0		54										MC	
NL-6A	84.6	85.0		69										MC	
NL-6A	88.3	89.0		58										MC	
NL-6A	89.0	90.0		57										MC	
NL-6A	90.0	91.0		50										MC	
NL-6A	91.0	91.8		40										MC	
NL-6A	92.4	93.0		54										MC	
NL-6A	93.0	94.0		55										MC	
NL-6A	94.0	95.0		61										MC	
NL-6A	95.0	96.0		52										MC	
NL-6A	97.0	98.0		56										MC	
NL-6A	98.0	99.0		56										MC	
NL-6A	99.0	100.0		52										MC	
NL-6A	100.7	101.0	Medium gray clay (CH4)	56			90	30	60	0.64	6	8.78	Silt Streak	UU-USACE,AL	
NL-6A	101.0	102.0		54										MC	
NL-6A	102.0	103.0		55										MC	
NL-6A	103.0	104.0		54										MC	
NL-6A	104.5	105.0		58										MC	

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM - TO			WET	DRY	LL	PL	PI	C (KSF)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
NL-6A	105.0 - 106.0		58										MC	
NL-6A	106.0 - 107.0		52										MC	
NL-6A	107.0 - 108.0		58										MC	
NL-6A	108.4 - 109.0		47										MC	
NL-6A	109.0 - 110.0		26										MC	
NL-6A	112.4 - 113.0		58										MC	
NL-6A	113.0 - 114.0		55										MC	
NL-6A	114.0 - 115.0		55										MC	
NL-6A	115.0 - 116.0		59										MC	
NL-6A	116.3 - 117.0		53										MC	
NL-6A	117.0 - 118.0		32										MC	
NL-6A	118.0 - 119.0		33										MC	
NL-6A	119.0 - 120.0		32										MC	
NL-6A	120.7 - 121.0		37										MC	
NL-6A	121.0 - 122.0		31										MC	
NL-6A	122.0 - 123.0		26										MC	
NL-6A	123.0 - 124.0		33										MC	
NL-6A	125.3 - 126.0		36										MC	
NL-6A	126.0 - 127.0		70										MC	
NL-6A	129.0 - 130.0		40										MC	
NL-6A	130.0 - 131.0		38										MC	
NL-6A	131.0 - 132.0		37										MC	

DRAFT

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **6/20/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks				
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117							
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200			
			LL	PL	PI	U psf			UU psf	Gravel		Sand	Silt	Clay						
NL-6A	0-1	St, Gr Fat CLAY with silt pockets	27.9 27.7 30.3	61	21	40	112.6 117.7 117.6	88.0 92.1 90.3			811.6 1249.9 1392.1	0.2 11.7 23.1						(CH2)		
NL-6A	1-2	St, Gr and Br Fat CLAY with tr of silt	36.9 35.8 36.1	82	26	56	115.5 113.3 113.6	84.3 83.4 83.5			1126.7 1354.0 1550.2	0.5 12.0 23.4						(CH3)		
NL-6A	4.4-5	M, Gr and Br Fat CLAY with silt pockets	39.7 41.6 33.1	52	24	28	114.2 111.3 117.8	81.7 78.5 88.5			578.8 711.5 1068.6	1.5 13.0 24.4						(CH2)		
NL-6A	6-7	So, Gr Fat CLAY with silt pockets	30.9 37.9 44.0	47	21	26	115.3 111.0 105.3	88.1 80.5 73.1			617.9 345.8 250.0	2.2 13.7 25.1						(CL4) (CH2) (CL4)	3 Soil Types in Sample	
NL-6A	8.6-9	So, Gr and Br Lean CLAY with clay pockets	47.9 46.2 41.8	36	23	13	106.7 106.5 109.9	72.1 72.9 77.5			235.1 274.5 395.4	2.8 14.3 25.7						(CL4)		
NL-6A	9.6-10.3	Alternating Layers Gr CLAY, SILT, and Silty SAND	29.3														92.4	(ML)	only 7.6 > #200	
NL-6A	10.3-11	So, Gr CLAY with silt pockets and lenses with roots	58.7 57.5 57.4	65	27	38	103.2 103.7 104.3	65.2 65.8 66.2			356.4 357.7 378.7	3.5 15.0 26.4						(CH3)		
NL-6A	12.4-13	Gr SILT with sand and roots	28.1														74.0	(ML)		
NL-6A	13-14	Gr Silty SAND	26.0	NP	NP	NP											57.2 38.8 4.0	42.8	(SM)	
NL-6A	14-15	Gr Silty SAND	25.5															26.0	(SM)	
NL-6A	15-15.6	So, Gr Fat CLAY with silt pockets and lenses	55.2 56.4 55.6	73	26	47	106.1 104.8 106.2	68.3 67.0 68.3			423.0 470.8 430.0	5.1 16.6 28.0						(CH4)		
NL-6A	16.8-17	Gr Silty SAND	20.6															44.5	(SM)	
NL-6A	17-17.3	Gr Silty SAND	25.2															32.0	(SM)	
NL-6A	17.3-17.8	vSo, Gr CLAY with sand pockets and SIS	55.3 60.2				106.5 107.9	68.5 67.3			251.5 207.5	5.8 17.3						(CH4)	Could not trim 3rd Point	
NL-6A	18-19	Gr Sandy SILT	28.9															53.2	(ML)	

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 The results presented only relate
 to those samples tested

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **6/20/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks				
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117							
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200			
			LL	PL	PI	U psf			UU psf	Gravel		Sand	Silt	Clay						
NL-6A	19.3-20	Gr Silty SAND	19.2													30.6	(SM)			
NL-6A	20-21.5	Gr SILT with sand and clay	33.1													71.9	(ML)			
NL-6A	25-26	M, Gr Fat CLAY with S SIS	46.5 41.6 41.4	79	26	53	115.5 111.0 113.2	78.8 78.4 80.0		614.5 511.3 526.7	8.4 19.9 31.3							(CH4)		
NL-6A	27-28	Gr Silty SAND	25.1													22.8	(SM)			
NL-6A	30-30.5	So, Gr Fat CLAY with SIS	50.8 51.2 50.7	69	26	43	107.9 108.3 108.1	71.6 71.6 71.7		439.5 495.4 455.6	10.1 21.6 33.0							(CH4)		
NL-6A	30.5-31	Gr SILT with sand	25.2													74.4	(CH3)			
NL-6A	31-31.3	So, Alternating layers and lenses Gr CLAY, Silty CLAY, Sandy SILT, Silty SAND	36.8 35.9 35.3				119.7 118.0 120.5	87.5 86.8 89.0		395.2 317.1 444.7	10.4 21.9 33.3							(CL4)	Slumping Under Own Weight	
NL-6A	31.7-32	Gr Silty SAND	26.1													71.2	(SM)			
NL-6A	33-33.6	So, Alternating layers and lenses of Silty CLAY, Sandy SILT, Silty SAND	33.1 43.2 42.9	43	25	18	122.0 112.7 117.7	91.7 78.6 82.4		323.7 300.6 300.2	11.1 22.6 34.0					90.1	(CL6)	Slumping Under Own Weight		
NL-6A	37-38	Gr Silty SAND with O pockets and tr clay	27.4	NP	NP	NP										63.1	(SM)	NP Could Not Trim UU		
NL-6A	38-39	So, Alternating layers CLAY, Silty CLAY, Clayey SILT with O pockets	40.3 38.9 38.9				117.2 118.7 115.2	83.5 85.4 82.9		499.1 585.5 377.3	12.9 24.4 35.8							(CL4)		
NL-6A	39-40	So, Gr Lean CLAY	45.2 38.0 44.1	48	23	25	112.7 112.4 114.9	77.6 81.4 79.7		360.5 486.1 428.6	13.2 24.7 35.8							(CL6)		
NL-6A	42-42.3	Gr Silty SAND with clay pockets	25.3 25.0 24.7				128.2 127.4 133.4	102.3 101.8 106.9		4393.3 6788.8 9953.1	14.3 25.8 37.2							(SM)	Slumping Under Own Weight Point #1 Maxed out 100lb. Ring	
NL-6A	43-44	Gr Silty SAND with tr O		NP	NP	NP													(SM)	
NL-6A	48.4-49	M, Gr Fat CLAY	49.5 45.6 52.1	71	25	46	108.5 110.5 107.0	72.6 75.8 70.3		738.3 750.4 649.1	16.5 28.0 39.4							(CH4)		

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Southern Earth Sciences, Inc.

Laboratory Test Results

Project: Mid Barataria Diversion

Technical Responsibility: *RM*

Quality Assurance Officer

Client: GeoEngineers

Project No.: B13-018

PM: RM

Date of Issue: 6/20/2013

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks		
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117					
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	U	UU	Confining Pressure psi	Grain Size (%)					% Passing #200	
			LL	PL	PI			psf	psf	Gravel		Sand	Silt	Clay				
NL-6A	51-51.7	M, Gr Lean CLAY with silt pockets and lenses	41.7 42.5 41.7	46	22	24	114.6 114.1 111.3	80.6 80.0 78.5			686.5 645.2 630.7	17.6 29.1 40.5					(CL6)	Void in 3rd point
NL-6A	53-54	M, Gr Fat CLAY with SIS	46.3 46.6 45.3	61	23	38	111.0 113.1 110.2	75.8 77.1 75.8			586.0 844.0 844.6	18.3 29.8 41.2					(CH3)	
NL-6A	57-58	M, Gr Fat CLAY	52.5 48.3 52.8	50	23	27	107.3 108.8 104.9	70.3 73.4 68.6			856.8 765.4 744.1	19.8 31.3 42.7					(CH4)	
NL-6A	59-60	M, Gr Fat CLAY	44.4 44.0 43.7				111.9 110.6 110.7	77.5 76.8 77.0			812.9 895.0 828.8	20.5 32.0 43.4					(CH4)	
NL-6A	63-63.6	M, Gr Fat CLAY	51.8 52.2 52.5	86	25	61	106.4 106.5 106.4	70.1 69.9 69.8			882.9 842.2 872.9	22.0 33.5 44.9					(CH4)	
NL-6A	66-67	M, Gr Fat CLAY	55.9 54.6 52.5				103.8 103.8 104.2	66.6 67.1 68.3			942.7 882.5 766.35	23.1 34.6 46.0					(CH4)	
NL-6A	70-71	St, Gr Fat CLAY	53.4 55.3 52.4	87	30	57	106.4 106.4 106.3	69.4 68.5 69.7			1177.0 1088.4 1186.7	24.5 36.0 47.4					(CH4)	
NL-6A	73.1-74	St, Gr Fat CLAY	50.5 50.5 49.2				107.6 107.7 107.8	71.5 71.6 72.2			1383.4 1369.6 1287.3	25.6 37.1 48.5					(CH4)	
NL-6A	75-76	St, Gr Fat CLAY	50.7 50.6 48.2	84	22	62	107.5 107.7 107.0	71.3 71.3 72.1			1430.6 973.8 1100.0	26.4 37.9 49.3					(CH4)	
NL-6A	78-79	St, Gr Fat CLAY	47.6 46.7 48.4	92	23	69	109.1 109.3 108.9	73.9 74.7 73.1			1385.2 1506.0 1341.5	27.5 39.0 50.4					(CH4)	
NL-6A	81-82	St, Gray Fat CLAY with SIS	55.2 57.1 53.0				107.5 106.1 106.3	69.3 67.5 69.5			1327.0 1293.0 1308.2	28.6 40.1 51.5					(CH4)	
NL-6A	83.5-84	M, Gr Fat CLAY with SIS	56.6 54.7 56.3	79	21	58	103.9 104.1 103.5	66.3 67.3 66.2			917.2 809.0 863.0	29.3 40.8 52.2					(CH4)	
NL-6A	84-84.6	Missing Sample																
NL-6A	88-89	St, Gr Fat CLAY with SIS	59.8 50.8 59.9				104.9 104.2 104.6	65.6 69.1 65.4			1408.5 1598.0 1565.3	31.1 42.6 54.0					(CH4)	Void at Bottom / More Silt in B Specimen than A & C
NL-6A	89-90	St, Gr Fat CLAY with SIS		83	30	53											(CH4)	
NL-6A	93-94	St, Gr Fat CLAY with SIS	57.2 55.6 56.6	76	22	54	106.0 107.6 105.6	67.4 69.2 67.45			1584.9 1578.9 1498.1	32.9 44.1 55.5					(CH4)	

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Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **6/20/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks				
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117							
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200			
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt				Clay		
NL-6A	98-99	M, Gr Fat CLAY with SIS	54.7 54.7 53.8				103.7 103.6 103.8	67.1 67.0 67.5			923.9 920.9 1002.4	34.8 46.3 57.7						(CH4)		
NL-6A	100.7-101	Missing Sample																		
NL-6A	103-104	St, Gr Fat CLAY with SIS	53.3 52.2 52.5				107.0 107.2 106.6	69.8 70.4 69.9			1442.3 1431.5 1483.9	36.6 48.1 59.5						(CH4)		
NL-6A	106-107	St, Gr Fat CLAY with SIS	51.4 51.1 52.9				105.7 106.4 106.2	69.8 70.4 69.5			1629.1 1735.9 1624.8	37.7 49.2 60.6						(CH4)	Flat Face on Specimen	
NL-6A	109-109.3	St, Gr Fat CLAY with sand pockets and shells	74.3 58.1 54.3	70	21	49	102.0 104.0 105.4	58.5 65.8 68.2			1227.9 1175.0 1168.5	38.8 50.3 61.7						(CH3)	Some voids due to Shell Pockets / No samples left, more Sand pockets	
NL-6A	113-114	St, Gr Fat CLAY	54.0 53.5 53.4				104.9 104.7 104.3	68.1 68.2 68.0			1164.7 1352.7 1190.9	40.2 21.7 63.1						(CH4)		
NL-6A	116.3-117	St, Gr Fat CLAY with SIS and tr shells	56.1 56.1 30.4	97	25	72	104.6 104.2 104.2	67.0 66.7 66.7			1896.9 1746.8 1829.1	41.3 52.8 64.2						(CH4)		
NL-6A	119-120	vSt, Gr Lean CLAY with SIS and layers	30.4 30.4 30.7				122.1 102.9	93.7 92.7			3085.5 2545.2	42.4 53.9 65.3						(CL6)	Brittle, less than 2:1 Ratio / 2 specimens only	
NL-6A	121-122	Alternating Layers and Lenses of vSt to St gnGr and IGr Fat to Lean CLAY with silty clay and S Silt	32.9	53	18	35						43.2						(CH2)	Unable to trim any specimen, too brittle with Sandy Silt Layers / Mixed sample for Atterberg	
NL-6A	126-127	vSt, Brittle, gnGr and IGr Fat CLAY with jointed S SIS	36.2 36.1 36.3				114.1 117.5 119.0	83.8 86.3 87.3			2945.9 3284.6 3672.1	44.9 56.5 67.9						(CH3)	Brittle - Jointed / Erratic Perimeter	
NL-6A	129-130	Very Firm, Brittle,gnGr and IGr Fat CLAY with jointed SIS and layers	35.2 34.1				118.0 116.8	87.3 87.1			2905.3 2369.2	46.1 57.6 69.0						(CH3)	Brittle - Jointed / with calcs / could not trim 3rd sample	
NL-6A	131-132	Alternating Layers of vSt, Brittle, gnGr and IGr Fat CLAY with jointed silty SS and pockets	35.9 36.0 35.5	72	18	54	118.3 118.4 118.7	87.1 87.1 87.6			3029.7 2132.6 3180.6	46.8 58.3 69.7						(CH3)	Brittle - Jointed	

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Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSE)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
NL-8A	1.0	2.0		33									MC		
NL-8A	5.3	6.0		40									MC		
NL-8A	6.0	7.0		42									MC		
NL-8A	7.0	8.0		37									MC		
NL-8A	10.0	11.0		36									MC		
NL-8A	11.0	12.0		39									MC		
NL-8A	13.3	14.0		35									MC		
NL-8A	14.0	15.0		44									MC		
NL-8A	15.0	16.0		35									MC		
NL-8A	17.2	18.0		47									MC		
NL-8A	18.0	19.0		35									MC		
NL-8A	19.0	20.0		34									MC		
NL-8A	21.0	22.0		33									MC		
NL-8A	22.0	23.0		33									MC		
NL-8A	23.0	24.0		32									MC		
NL-8A	24.5	25.0		42									MC		
NL-8A	25.0	26.0		37									MC		
NL-8A	26.0	27.0		40									MC		
NL-8A	27.0	28.0		46									MC		
NL-8A	28.5	29.0		37									MC		
NL-8A	29.0	30.0		39									MC		
NL-8A	30.0	31.0		33									MC		
NL-8A	31.0	32.0		63									MC		
NL-8A	33.0	34.0		66									MC		
NL-8A	34.0	35.0		72									MC		
NL-8A	35.0	36.0		49									MC		
NL-8A	37.0	38.0		48									MC		
NL-8A	38.0	39.0		53									MC		
NL-8A	39.0	40.0		37									MC		
NL-8A	40.5	41.0		66									MC		
NL-8A	41.0	42.0		58									MC		
NL-8A	42.0	43.0		57									MC		
NL-8A	43.0	44.0		39									MC		
NL-8A	44.7	45.0		52									MC		
NL-8A	45.0	46.0		51									MC		
NL-8A	46.0	47.0		36									MC		
NL-8A	47.0	48.0		39									MC		
NL-8A	48.6	49.0		36									MC		
NL-8A	49.0	50.0		36									MC		

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility: CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSE)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
NL-8A	50.0	51.0		34										MC	
NL-8A	51.0	52.0		39										MC	
NL-8A	53.0	54.0		55										MC	
NL-8A	54.0	55.0		50										MC	
NL-8A	55.0	56.0		60										MC	
NL-8A	57.0	58.0		38										MC	
NL-8A	58.0	59.0		66										MC	
NL-8A	59.0	60.0		46										MC	
NL-8A	60.0	61.0		46										MC	
NL-8A	61.0	62.0		53										MC	
NL-8A	62.5	64.0		51										MC	
NL-8A	64.4	65.0		49										MC	
NL-8A	65.0	66.0		49										MC	
NL-8A	66.0	67.0		53										MC	
NL-8A	67.0	68.0		61										MC	
NL-8A	68.4	69.0		58										MC	
NL-8A	69.0	70.0		59										MC	
NL-8A	70.0	71.0		55										MC	
NL-8A	71.0	72.0		53										MC	
NL-8A	73.0	74.0		55										MC	
NL-8A	74.0	75.0		52										MC	
NL-8A	75.0	76.0		51										MC	
NL-8A	76.6	77.0		53										MC	
NL-8A	77.0	78.0		53										MC	
NL-8A	78.0	79.0		53										MC	
NL-8A	79.0	80.0		53										MC	
NL-8A	80.4	81.0		55										MC	
NL-8A	81.0	82.0		55										MC	
NL-8A	82.0	83.0		54										MC	
NL-8A	83.0	84.0	Stiff gray clay (CH3)	56	105.8	68.5	95	35	60	1.22	7	6.12	SLS (60°)	MC,UU-USACE,AL	
NL-8A	84.4	85.0		58										MC	
NL-8A	85.0	86.0		58										MC	
NL-8A	86.0	87.0		56										MC	
NL-8A	87.0	88.0		51										MC	
NL-8A	88.5	89.0		36										MC	
NL-8A	89.0	90.0		27										MC	
NL-8A	90.0	91.0		47										MC	
NL-8A	91.0	92.0		42										MC	

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (KSE)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
NL-8A	93.0	94.0		53									MC		
NL-8A	94.0	95.0		51									MC		
NL-8A	95.0	96.0		52									MC		
NL-8A	96.5	97.0		49									MC		
NL-8A	97.0	98.0		51									MC		
NL-8A	98.0	99.0		52									MC		
NL-8A	99.0	100.0		52									MC		
NL-8A	100.6	101.0		49									MC		
NL-8A	101.0	102.0		48									MC		
NL-8A	102.0	103.0		53									MC		
NL-8A	103.0	104.0		53									MC		
NL-8A	105.2	106.0		31									MC		
NL-8A	106.0	107.0		51									MC		
NL-8A	107.0	108.0		51									MC		
NL-8A	109.1	110.0		52									MC		
NL-8A	110.0	111.0		55									MC		
NL-8A	111.0	112.0		49									MC		
NL-8A	112.3	113.0		51									MC		
NL-8A	113.0	114.0		51									MC		
NL-8A	118.2	119.0		45									MC		
NL-8A	120.0	121.5		45									MC		
NL-8A	122.5	124.0		51									MC		
NL-8A	125.1	126.0		53									MC		
NL-8A	126.0	127.0		56									MC		
NL-8A	127.0	128.0		62									MC		
NL-8A	128.4	129.0		61									MC		
NL-8A	129.0	130.0		63									MC		
NL-8A	130.0	131.0		61									MC		
NL-8A	131.0	132.0		63									MC		

SUMMARY OF LABORATORY TEST RESULTS

Project: Mid Barataria Diversion

Assigned By: _____

Project Number: 04.55124092
Boring: NL-8A

Current Date: 7/18/2013

Sample Number	Depth	Visual Classification	USCS	E (f)	W%	Dry Dens (pcf)	Wet Dens (pcf)	Sat %	Shear Test Type	Angle	Cohesion (psf)	Unconf. Comp. Str.	LL	PL	PI	TORVANE (tsf)	Other Tests
NA	1	GR CH3	CH3										64	25	39		OC=7.2%
NA	5.3	SO BR & GR CH2 W/ ARS SP	CH2		38	83	113	97	UU	0	309		51	21	30	0.40	
NA	11	SO BR & GR CL4 W/ O	CL4		41	81	115	100	UU	0	335		42	22	20	0.45	
NA	13.3	GR CH2	CH2		44												-200
NA	17.2	VSO GR CH2 W/ LYS ML	CH2		51	71	107	100	UU	0	181					0.03	
NA	24.5	GR CH2	CH2		31												-200
NA	26	SO GR CH3 W/ LNS ML	CH3		50	71	107	100	UU	0	467		62	19	43	0.25	CON
NA	32.8	GR CL4	CL4		28												-200
NA	34	SO BR & GR CH4 W/ LYS ML	CH4		59	66	104	100	UU	0	359		73	20	53	0.30	
NA	41	M BR CL6 W/ LNS & ARS SP	CL6		35	88	119	100	UU	0	587		43	17	26	0.35	CON
NA	45	M GR CH3 W/ LNS ML	CH3		55	68	105	100	UU	0	536					0.30	
NA	53	M GR CH3 W/ LYS ML	CH3		50	72	108	100	UU	0	727		64	23	41	0.30	
NA	67	M GR CH4	CH4		59	65	103	99	UU	0	908		89	31	58	0.55	
NA	73	M GR CH4	CH4		54	69	106	100	UU	0	993		85	31	54	0.55	
NA	84	M GR CH4 W/ SHELLS	CH4		60	63	101	97	UU	0	516					0.30	CON
NA	93	ST GR CH4 W/ LYS ML	CH4		52	70	107	100	UU	0	1191					0.60	
NA	103	ST GR CH4 W/ LNS ML	CH4		54	68	105	99	UU	0	1238		84	30	54	0.60	
NA	110	ST GR CH4 W/ LNS ML	CH4		56	68	105	100	UU	0	1539					0.60	
NA	115	GR SM	SM		27												-200
NA	118.3	GR CH3	CH3										70	19	51		
NA	122.5	GR CH4	CH4										82	24	58		
NA	129	ST GR CH4 W/ LNS ML	CH4		69	60	101	100	UU	0	1494					0.70	

Remarks: "Confidential Information: Privileged & Confidential Work Product"
Fugro Consultants, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Checked by: _____
File Name: 04

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
NL-9A	0.0	0.8		23										MC	
NL-9A	6.3	7.0		33										MC	
NL-9A	7.0	8.0		33										MC	
NL-9A	9.3	10.0		37										MC	
NL-9A	10.0	11.0		37										MC	
NL-9A	11.0	12.0		37										MC	
NL-9A	13.0	14.0		39										MC	
NL-9A	14.0	15.0		38										MC	
NL-9A	15.0	16.0		35										MC	
NL-9A	16.6	17.0		43										MC	
NL-9A	17.0	18.0		43										MC	
NL-9A	18.0	19.0		33										MC	
NL-9A	19.0	20.0		37										MC	
NL-9A	20.0	21.5		39										MC	
NL-9A	22.5	24.0	Very soft gray clay (CL4)	34			38	24	14					MC,AL	
NL-9A	25.0	26.5		34										MC	
NL-9A	27.5	29.0		33										MC	
NL-9A	30.0	31.5	Very soft gray clay (CL4)	35			36	23	13					MC,AL	
NL-9A	32.6	33.0		39										MC	
NL-9A	33.0	34.0		32										MC	
NL-9A	34.0	35.0		36										MC	
NL-9A	35.0	36.0		30										MC	
NL-9A	36.0	37.5		27										MC	
NL-9A	37.5	39.0		30										MC	
NL-9A	39.0	40.0		34										MC	
NL-9A	41.0	42.5												M200	65.0% sand / 35.0% fines
NL-9A	43.5	45.0												M200	70.8% sand / 29.2% fines
NL-9A	46.0	47.5		32										MC,H	21.0% sand / 65.2% silt / 13.8% clay
NL-9A	48.5	50.0		34										MC	
NL-9A	51.0	52.5	Soft gray clay with sand (CL4)	30			30	19	11					MC,AL,M200	56.0% sand / 44.0% fines
NL-9A	53.5	55.0		28										MC,M200	55.9% sand / 44.1% fines
NL-9A	56.0	57.5		32										MC,H	35.8% sand / 55.6% silt / 8.6% clay
NL-9A	58.5	60.0		30										MC	
NL-9A	63.5	65.0												M200	39.4% sand / 60.6% fines
NL-9A	66.0	67.5		39										MC	
NL-9A	68.5	70.0												M200	62.0% sand / 38.0% fines
NL-9A	73.5	75.0												M200	68.1% sand / 31.9% fines
NL-9A	81.0	82.5		36										MC	
NL-9A	83.5	85.0		43			37	22	15					MC,AL	
NL-9A	86.0	87.5		37										MC,M200	44.2% sand / 55.8% fines

"Confidential Information; Privileged & Confidential Work Product"

GeoEngineers, Inc.
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

Disclaimer: The results presented relate only to those samples tested. **Soil Description:** ASTM(D2487) AASHTO(M145) **Moisture Content:**

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
NL-9A	93.5	95.0		35									MC,H	35.3% sand / 55.1% silt / 9.6% clay	
NL-9A	98.5	100.0											M200	70.1% sand / 29.9% fines	
NL-9A	106.0	107.5											M200	47.1% sand / 52.9% fines	
NL-9A	108.5	110.0		37									MC		
NL-9A	111.0	112.5		60			89	28	61				MC,AL		
NL-9A	113.5	115.0		48									MC		
NL-9A	118.0	119.0		33									MC		
NL-9A	119.0	120.0		29									MC		
NL-9A	121.0	122.5		42									MC		
NL-9A	123.5	125.0		46									MC		
NL-9A	126.0	127.5		47			86	34	52				MC,AL		
NL-9A	128.5	130.0		55									MC		

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
NL-9A	0.0	0.8		23										MC	
NL-9A	6.3	7.0		33										MC	
NL-9A	7.0	8.0		33										MC	
NL-9A	9.3	10.0		37										MC	
NL-9A	10.0	11.0		37										MC	
NL-9A	11.0	12.0		37										MC	
NL-9A	13.0	14.0		39										MC	
NL-9A	14.0	15.0		38										MC	
NL-9A	15.0	16.0		35										MC	
NL-9A	16.6	17.0		43										MC	
NL-9A	17.0	18.0		43										MC	
NL-9A	18.0	19.0		33										MC	
NL-9A	19.0	20.0		37										MC	
NL-9A	20.0	21.5		39										MC	
NL-9A	22.5	24.0	Very soft gray clay (CL4)	34			38	24	14					MC,AL	
NL-9A	25.0	26.5		34										MC	
NL-9A	27.5	29.0		33										MC	
NL-9A	30.0	31.5	Very soft gray clay (CL4)	35			36	23	13					MC,AL	
NL-9A	32.6	33.0		39										MC	
NL-9A	33.0	34.0		32										MC	
NL-9A	34.0	35.0		36										MC	
NL-9A	35.0	36.0		30										MC	
NL-9A	36.0	37.5		27										MC	
NL-9A	37.5	39.0		30										MC	
NL-9A	39.0	40.0		34										MC	
NL-9A	41.0	42.5												M200	65.0% sand / 35.0% fines
NL-9A	43.5	45.0												M200	70.8% sand / 29.2% fines
NL-9A	46.0	47.5		32										MC,H	21.0% sand / 65.2% silt / 13.8% clay
NL-9A	48.5	50.0		34										MC	
NL-9A	51.0	52.5	Soft gray clay with sand (CL4)	30			30	19	11					MC,AL,M200	56.0% sand / 44.0% fines
NL-9A	53.5	55.0		28										MC,M200	55.9% sand / 44.1% fines
NL-9A	56.0	57.5		32										MC,H	35.8% sand / 55.6% silt / 8.6% clay
NL-9A	58.5	60.0		30										MC	
NL-9A	63.5	65.0												M200	39.4% sand / 60.6% fines
NL-9A	66.0	67.5		39										MC	
NL-9A	68.5	70.0												M200	62.0% sand / 38.0% fines
NL-9A	73.5	75.0												M200	68.1% sand / 31.9% fines
NL-9A	81.0	82.5		36										MC	
NL-9A	83.5	85.0		43			37	22	15					MC,AL	
NL-9A	86.0	87.5		37										MC,M200	44.2% sand / 55.8% fines

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GeoEngineers, Inc.
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

Disclaimer: The results presented relate only to those samples tested. **Soil Description:** ASTM(D2487) AASHTO(M145) **Moisture Content:**

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
NL-9A	93.5	95.0		35									MC,H	35.3% sand / 55.1% silt / 9.6% clay	
NL-9A	98.5	100.0											M200	70.1% sand / 29.9% fines	
NL-9A	106.0	107.5											M200	47.1% sand / 52.9% fines	
NL-9A	108.5	110.0		37									MC		
NL-9A	111.0	112.5		60			89	28	61				MC,AL		
NL-9A	113.5	115.0		48									MC		
NL-9A	118.0	119.0		33									MC		
NL-9A	119.0	120.0		29									MC		
NL-9A	121.0	122.5		42									MC		
NL-9A	123.5	125.0		46									MC		
NL-9A	126.0	127.5		47			86	34	52				MC,AL		
NL-9A	128.5	130.0		55									MC		

DRAFT

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/26/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION												USCS	Remarks			
			D2216	D4318			D2166		D2166		D2850		D422, C136 or C117						
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)					% Passing #200		
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt				Clay	
NL-9A	0-0.8	M, Gr Lean CLAY with Silt Pockets and Small Roots	26.0 26.3				108.7 116.6	86.2 92.2			739.2 1420.5	0.2 11.4						(CL6)	Sample 3 had roots & could not be trimmed for UU % Organic = 3.6
NL-9A	7-8	So, Gr Lean CLAY with Silt Pockets and Streaks	43.4 44.8 43.0	49	23	26	113.5 114.2 113.3	79.2 78.8 78.8			366.5 350.9 406.2	2.4 13.6 24.9						(CL4)	% Organic = 2.8
NL-9A	9.3-10	So, Gr Lean CLAY with Silt Pockets and Lenses	35.4 35.7 38.0				123.1 118.3 119.4	90.8 87.1 86.5			762.2 499.4 483.1	3.0 14.3 25.5						(CL6)	
NL-9A	11-11.8	So, Gr Lean CLAY with S Silt Layers	35.2 34.0 34.6				123.0 125.1 124.8	90.9 93.3 92.7			437.6 466.5 391.3	3.6 14.9 26.1						(CL4)	
NL-9A	14-15	So, Gr Lean CLAY with Silt Layers	34.1 34.8 35.3	35	23	12	122.3 122.4	91.1 90.4			365.0 408.8	4.6 27.1						(CL4)	
NL-9A	16-17	So, Gr Lean CLAY with Silt Layers	36.5 37.0 37.0				118.6 118.6 117.4	86.9 86.6 85.7			313.0 343.2 258.8	5.2 16.5 23.7						(CL4)	
NL-9A	17-18	So, Gr Lean CLAY with S Silt	35.8 37.0 38.5	36	24	12	118.0 116.5 120.0	86.9 85.0 86.6			334.5 309.4 255.3	5.5 16.8 28.0						(CL4)	
NL-9A	19-19.9	No Sample																	
NL-9A	35.2-35.8	M, Gr Lean CLAY with Fine Sand and Silt	34.0	45	24	21												(CL6)	
NL-9A	38-39	Gr SILT with Clay and Fine Sand	31.5														77.1	(ML)	
NL-9A	39-39.8	Gr SILT with Fine Sand and Clay	28.7	32	26	6												(ML)	

"Confidential Information, results presented only, Confidential Work Product"
The results presented only relate to those samples tested

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
PT-1	10.0	12.0	Medium dense gray clayey silt (ML)	84									MC,H	5.1% sand / 54.5% silt / 40.4% clay	
PT-1	12.0	14.0	Soft gray clay with sand (CL6)	82									MC,H	2.9% sand / 35.0% silt / 62.1% clay	
PT-1	14.0	16.0	Soft gray clay (CL6)	90									MC,H	0.2% sand / 24.6% silt / 75.2% clay	
PT-1	20.0	22.0	Medium gray clay with trace organic matter (CH4)	87									MC		
PT-1	22.0	24.0	Medium gray clay (CL6)	33									MC		
PT-1	24.0	26.0	Loose gray clayey silt with 1.5" sand layer (ML)	40									MC,H	5.0% sand / 86.4% silt / 8.6% clay	
PT-1	28.0	30.0	Dense gray clayey silt with sand pockets (ML)	32									MC,H	4.4% sand / 85.5% silt / 10.1% clay	
PT-1	32.0	34.0	Medium dense gray clayey silt with sand (ML)	40									MC,H	2.8% sand / 60.9% silt / 36.3% clay	
PT-1 SA	18.0	20.0	Dense gray clayey silt with sand (ML)	25									MC,H	1.8% sand / 77.5% silt / 20.7% clay	
PT-1 S6B	14.0	16.0	Medium dense gray clayey sand (SC)	100									MC,Dry Sieve	83.3% sand / 16.7% fines	
PT-1 SB	18.0	20.0	Medium dense gray sandy silt with clay (ML)	83									MC,H	46.4% sand / 49.5% silt / 4.1% clay	

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Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Project ID: 18274-001-00

Technical Responsibility: CLP
Title: Lab Manager

Date: 11/22/2013

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PT-2	3.0	5.0	Medium gray clay with silt pockets (CL4)	32			36	23	13					MC,AL	
PT-2	8.0	10.0	Very loose gray clayey silt (ML)	33										MC,H	4.0% sand / 82.1% silt / 13.9% clay
PT-2	13.0	15.0	Firm gray clayey silt (ML)	50										MC,H	1.6% sand / 67.6% silt / 30.8% clay
PT-2	18.0	20.0	Very loose brown and gray clayey silt with trace shells (ML)	48										MC,H	4.6% sand / 52.6% silt / 42.8% clay
PT-2	23.0	25.0	Very loose gray sandy silt with clay (ML)	33										MC,H	21.7% sand / 66.9% silt / 11.4% clay
PT-2	28.0	30.0	Very loose brown and gray sandy silt (ML)	25										MC,H	42.4% sand / 50.3% silt / 7.3% clay
PT-2	32.0	34.0	Firm brown and gray sandy silt (ML)	28										MC,H	32.3% sand / 62.3% silt / 5.4% clay
PT-2	36.0	38.0	Very loose brown and gray sandy silt with clay (ML)	29										MC,H	30.1% sand / 56.9% silt / 13.0% clay
PT-2	40.0	42.0	Very loose gray silty sand with clay and 1" sand layer (SM)	26										MC,H	47.1% sand / 42.1% silt / 10.8% clay
PT-2	44.0	46.0	Firm gray sandy silt with clay (ML)	28										MC,H	42.2% sand / 46.5% silt / 11.3% clay
PT-2	48.0	50.0	Loose gray sandy silt with clay and 1.5" sand layer (ML)	29										MC,H	38.8% sand / 51.8% silt / 9.4% clay
PT-2	52.0	54.0	Loose gray clayey silt with sand (ML)	32										MC,H	18.9% sand / 55.2% silt / 25.9% clay
PT-2	56.0	58.0	Firm gray sandy silt with clay (ML)	27										MC,H	40.3% sand / 48.7% silt / 11.0% clay
PT-2	62.0	64.0	Stiff gray clay with silt pockets (CL6)	51										MC,H	0.2% sand / 35.0% silt / 64.8% clay
PT-2	66.0	68.0	Firm gray sandy silt with clay (ML)	27										MC,H	36.5% sand / 49.0% silt / 14.5% clay
PT-2	70.0	72.0	Medium gray clay (CL4)	63										MC,H	0.4% sand / 23.3% silt / 76.3% clay
PT-2	74.0	76.0	Firm gray sandy silt with clay (ML)	27										MC,H	36.4% sand / 50.5% silt / 13.1% clay

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-1	13.0	15.0	Medium dense gray silty sand (SM)	42									MC,H	76.2% sand / 23.4% silt / 0.4% clay	
PZ-1	18.0	20.0	Soft gray clay (CL4)	53									MC,H	0.6% sand / 44.4% silt / 55.0% clay	
PZ-1	23.0	25.0	Soft gray clay with peat and trace sand (CL6)	87									MC,H	1.7% sand / 24.4% silt / 73.9% clay	
PZ-1	28.0	30.0	Dense gray silty sand (SM)	28									MC,DH		
PZ-1	33.0	35.0	Medium dark gray clay with silt lenses (CL4)	40									MC,H	0.8% sand / 45.2% silt / 54.0% clay	
PZ-1-S4A	13.0	15.0	Very soft gray clay (CL4)	79									MC,H	2.0% sand / 40.9% silt / 57.1% clay	

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Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
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Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-2	13.0	15.0	Soft brown clay (CH2)	66									MC		
PZ-2	18.0	20.0	Very soft gray clay with trace organic matter (CL4)	55									MC		
PZ-2	23.0	25.0	Stiff gray clay (CH4)	81									MC		
PZ-2	28.0	30.0	Medium gray clay (CL4)	31									MC		
PZ-2	33.0	35.0	Very stiff gray clay (CL4)	68									MC,DH		
PZ-2-S6B	23.0	25.0	Very stiff gray clay (CL4)	87									MC		

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Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-3	13.0	15.0	Medium dense gray silty sand (SM)	53									MC		
PZ-3	18.0	20.0	Medium dense brown clay with sand seams (CL6)	51									MC		
PZ-3	23.0	25.0	Medium dense gray silty sand with clay (SM)	35									MC		
PZ-3	28.0	30.0	Medium dense brown silty sand (SM)	26									MC		
PZ-3	33.0	35.0	Medium dense gray sandy silt with clay pockets (ML)	51									MC		
PZ-3-S4A	13.0	15.0	Soft gray clay (CH4)	74									MC		
PZ-3-S6A	23.0	25.0	Medium dense light gray clay with wood (CH4)	70									MC		

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Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-4	8.0	10.0	Soft gray clay (CL4)	62										MC,DH	
PZ-4	13.0	15.0	Loose gray silty sand (SM)	27										MC	
PZ-4	18.0	20.0	Dense gray sand (SP)	27										MC	
PZ-4	23.0	25.0	Dense gray sandy silt (ML)	25										MC	
PZ-4	28.0	30.0	Soft gray clay (CL4)	31										MC	
PZ-4	33.0	35.0	Medium gray clay with sand pockets (CL4)	30										MC	
PZ-4-S5A	18.0	20.0	Soft gray clay with silt (CL4)	34										MC	
PZ-4-S7B	28.0	30.0	Dense gray sand with 2" clay layer (SP)	40										MC	

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Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-5	13.0	15.0	Very soft gray clay with trace organic matter (CH4)	70									MC		
PZ-5	18.0	20.0	Very soft gray clay (CL4)	34									MC		
PZ-5	23.0	25.0	Soft gray clay with trace organic matter (CH2)	43									MC		
PZ-5	28.0	30.0	Dense gray sand with clay (SM)	43									MC		
PZ-5	33.0	35.0	Dense gray silty sand with clay pockets (SM)	58									MC		
PZ-5- S5A	18.0	20.0	Very soft gray clay (CH4)	82									MC,DH		
PZ-5-S7B	28.0	30.0	Dense gray silty sand (SM)	29									MC		

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Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
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Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-6	13.0	15.0	Soft gray clay (CH4)	59			92	28	64					MC,AL	
PZ-6	18.0	20.0	Very soft gray clay (CL4)	84										MC,H	0.6% sand / 37.3% silt / 62.1% clay
PZ-6	23.0	25.0	Medium gray clay with ferrous nodules (CH4)	90										MC,DH	
PZ-6	28.0	30.0	Medium dense gray clayey silt with sand (ML)	51										MC,H	10.0% sand / 78.0% silt / 12.0% clay
PZ-6	33.0	35.0	Medium dense gray sandy silt with clay (ML)	31										MC,H	13.2% sand / 80.6% silt / 6.2% clay
PZ-6-S7C	28.0	30.0	Medium dense gray clayey silt with sand pockets (ML)	32										MC,H	1.0% sand / 68.7% silt / 30.3% clay

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Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-7	0.0	2.0	Medium brown clay with organic matter (CL6)	32			44	20	24					MC,AL	
PZ-7	3.0	5.0	Medium brown clay with organic matter and silt (CL4)	31			41	19	22					MC,AL	
PZ-7	8.0	10.0	Soft gray clay with organic matter and sand (CL4)	33			37	19	18					MC,AL	
PZ-7	18.0	20.0	Very soft gray clay (CL4)	30			33	23	10					MC,AL	
PZ-7	23.0	25.0	Medium gray clay with 1" firm sandy silt (CH3)	55			55	22	33					MC,AL	
PZ-7a	13.0	15.0	Soft gray clay (CL4)	35			36	19	17					MC,AL	
PZ-7b	13.0	15.0	Firm gray clayey silt with silt (ML)	31			27	21	6					MC,AL	

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Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
PZ-8	0.0	2.0	Stiff brown clay with sand (CH2)	27			52	22	30					MC,AL	
PZ-8	3.0	5.0	Brown and gray clay (CL4)	34			39	22	17					MC,AL	
PZ-8	13.0	15.0	Brown and gray clayey silt (ML)	37			32	22	10					MC,AL,H	3.6% sand / 86.1% silt / 10.3% clay
PZ-8	18.0	20.0	Loose brown and gray sandy silt with clay (ML)	28			44	20	24					MC,AL,H	28.9% sand / 66.0% silt / 5.1% clay
PZ-8	23.0	25.0	Loose brown and gray sandy silt with clay (ML)	34			32	21	11					MC,AL,H	18.5% sand / 67.0% silt / 14.5% clay
PZ-8	33.0	35.0	Loose, gray sandy silt with clay (ML)	30										MC,H	30.7% sand / 58.7% silt / 10.6% clay
PZ-8	38.0	40.0	Loose gray sandy silt with clay (ML)	28										MC,H	23.5% sand / 67.0% silt / 9.5% clay
PZ-8	48.0	50.0	Dense gray clayey sandy silt (ML)	28										MC,H	37.3% sand / 49.7% silt / 13.0% clay
PZ-8 SA	8.0	10.0	Brown and gray clay (CL4)	38			36	19	17					MC,AL	
PZ-8 SA	28.0	30.0	Firm gray clayey sandy silt (ML)	31										MC,H	27.5% sand / 61.7% silt / 10.8% clay
PZ-8 SA	53.0	55.0	Dense gray sandy silt (ML)	25										MC,H	45.9% sand / 47.2% silt / 6.9% clay
PZ-8 SB	8.0	10.0	Brown and gray clayey silt (ML)	41			41	22	19					MC,AL,H	2.0% sand / 79.3% silt / 18.7% clay
PZ-8 SB	28.0	30.0	Loose gray clayey sandy silt (ML)	25										MC,H	14.7% sand / 74.8% silt / 10.5% clay
PZ-8 SB	43.0	45.0	Firm gray sandy silt with clay (ML)	31										MC,H	45.6% sand / 45.9% silt / 8.5% clay

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Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-9	0.0	2.0	Stiff brown and gray clay with trace of fine sand (CH3)	35			63	21	42					MC,AL	
PZ-9	3.0	5.0	Stiff brown and gray clay (CH2)	30			56	20	36					MC,AL	
PZ-9	8.0	10.0	Firm brown and gray clay (CL4)	39			39	21	18					MC,AL	
PZ-9	18.0	20.0	Firm gray sandy clayey silt (ML)	28			29	26	3					MC,AL	
PZ-9 SA	23.0	25.0	Medium gray clay (CL4)	27			28	18	10					MC,AL	
PZ-9 SB	13.0	15.0	Firm gray clayey silt (ML)	29			27	21	6					MC,AL	

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Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-10	0.0	2.0	Stiff tan and brown clay (CH2)	28			57	24	33					MC,AL	
PZ-10	3.0	5.0	Stiff tan and brown gray clay with sand (CL4)	30			36	22	14					MC,AL	
PZ-10	8.0	10.0	Gray and brown clay (CL4)	36			39	22	17					MC,AL	
PZ-10	13.0	15.0	Gray and brown clayey silt (ML)	38			39	21	18					MC,AL,H	1.4% sand / 72.5% silt / 26.1% clay
PZ-10	18.0	20.0	Very loose brown and gray clayey sandy silt (ML)	33			34	21	13					MC,AL,H	14.6% sand / 71.6% silt / 13.8% clay
PZ-10	23.0	25.0	Loose brown and gray sandy clayey silt (ML)	34			32	18	14					MC,AL,H	16.1% sand / 67.7% silt / 16.2% clay
PZ-10	28.0	30.0	Dense brown and gray sandy silt (ML)	28										MC,H	39.0% sand / 52.4% silt / 8.6% clay
PZ-10	33.0	35.0	Dense tan and gray sandy silt (ML)	26										MC,H	41.1% sand / 52.7% silt / 6.2% clay
PZ-10	38.0	40.0	Firm brown and gray clayey silt (ML)	111										MC,H	10.9% sand / 74.5% silt / 14.6% clay
PZ-10	43.0	45.0	Dense brown and gray sandy silt with clay (ML)	27										MC,H	13.0% sand / 78.9% silt / 8.1% clay
PZ-10	48.0	50.0	Firm brown and gray clayey silt (ML)	38										MC,H	4.0% sand / 75.8% silt / 20.2% clay
PZ-10B	23.0	25.0	Dense brown and gray silty sand (SP)	28										MC,H	56.1% sand / 43.9% silt / 0% clay
PZ-10B	38.0	40.0	Firm brown and gray sandy silt (ML)	25										MC,H	6.4% sand / 89.0% silt / 4.6% clay
PZ-10B	48.0	50.0	Firm brown and gray clayey sandy silt (ML)	26										MC,H	41.6% sand / 47.2% silt / 11.2% clay

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Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-11	0.0	2.0	Dense brown clayey silt (ML)	27			28	21	7					MC,AL	
PZ-11	3.0	5.0	Medium brown and gray clay with sand seams and organic matter (CH2)	45			51	21	30					MC,AL	
PZ-11	8.0	10.0	Medium brown and gray clay with silt and sand seams (CL6)	47			42	22	20					MC,AL,H	0.8% sand / 78.3% silt / 20.9% clay
PZ-11	13.0	15.0	Firm brown and gray sandy silt with clay (ML)	30			27	19	8					MC,AL,H	14.5% sand / 76.5% silt / 9.0% clay
PZ-11	18.0	20.0	Firm brown and gray sandy silt with clay (ML)	30			31	19	12					MC,AL,H	14.0% sand / 74.3% silt / 11.7% clay
PZ-11	23.0	25.0	Firm brown and gray sandy silt with clay (ML)	34			28	19	9					MC,AL,H	23.6% sand / 66.7% silt / 9.7% clay
PZ-11	28.0	30.0	Firm brown and gray sandy silt (ML)	28										MC,H	22.4% sand / 71.6% silt / 6.0% clay
PZ-11	33.0	35.0	Firm gray clayey silt with sand (ML)	26										MC,H	11.2% sand / 75.3% silt / 13.5% clay
PZ-11	38.0	40.0	Firm gray sandy silt (ML)	29										MC,H	43.3% sand / 50.0% silt / 6.7% clay
PZ-11	43.0	45.0	Firm gray sandy silt with clay (ML)	28										MC,H	10.3% sand / 82.5% silt / 7.2% clay
PZ-11B	28.0	30.0	Firm brown and gray clayey silt with sand (ML)	36										MC,H	9.5% sand / 57.0% silt / 33.5% clay
PZ-11B	43.0	45.0	Firm gray clayey silt (ML)	36										MC,H	3.0% sand / 70.7% silt / 26.3% clay

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	- TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-12	0.0	- 2.0	Brown clay (CL6)	25			40	19	21					MC,AL	
PZ-12	3.0	- 5.0	Tan and gray clay (CL6)	29			44	21	23					MC,AL	
PZ-12	13.0	- 15.0	Medium brown and gray clay (CL6)	42			44	21	23					MC,AL	
PZ-12	18.0	- 20.0	Medium brown and gray clay (CL6)	38			48	20	28					MC,AL	
PZ-12	23.0	- 25.0	Medium brown and gray clay (CL4)	38			39	21	18					MC,AL	
PZ-12 S3A	8.0	- 10.0	Medium brown clay with organic material (CL4)	31			39	18	21					MC,AL	
PZ-12 S3B	8.0	- 10.0	Gray clay (CL4)	29			35	20	15					MC,AL	

DRAFT

Project: **Mid Barataria Diversion**

Technical Responsibility: **RM**

Quality Assurance Officer

Client: **GeoEngineers**

Project No.: **B13-018**

PM: **RM**

Date of Issue: **7/29/2013**

Boring No.	Depth (ft)	Classification	ASTM DESIGNATION													USCS	Remarks	
			D2216	D4318			D2166		D2166		D2850	D422, C136 or C117						% Passing #200
			w %	Atterberg Limits			g _{wet} pcf	g _{dry} pcf	Cohesion		Confining Pressure psi	Grain Size (%)						
				LL	PL	PI			U psf	UU psf		Gravel	Sand	Silt	Clay			
PZ-13	3-5	Gr Clayey SILT	158.1	85	42	43	101.0	39.1									(MH)	
PZ-13	8.5-10	Intermixed Silt and CLAY	51.0	43	20	23											(CL6)	
PZ-13	13-15	St, Gr Fat CLAY with Tr O	144.6	195	46	149											(CHOC)	
PZ-13	18-20	So, Gr Fat CLAY with Peat Pockets	91.8	83	27	56									99.4		(CH4)	
PZ-13	23-25	Gr S SILT with Clay Pockets	43.7	NP	NP	NP									90.5		(ML)	
PZ-13	33-35	So, Gr Fat CLAY with SIS	56.7	88	24	64	104.5	66.6									(CH4)	
PZ-13	38-40	M, Gr Fat CLAY with Silt Pockets	56.2	74	21	53	106.7	60.3									(CH4)	
PZ-13	43-45	M, Gr Fat CLAY	66.7	92	32	60	101.2	60.7									(CH4)	
PZ-13	53-55	M, Gr Fat CLAY	63.8	86	31	56	100.7	61.5									(CH4)	
PZ-13	58-60	M, Gr Fat CLAY	52.8	73	28	45	104.8	68.6									(CH4)	

"Confidential Information, Privileged & Confidential Work Product"
The results presented only relate to those samples tested

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-14	0.0	2.0	Soft brown clay (CH4)	85	93.4	50.5	99	37	62	0.27	7	0.06	Multiple Shear	UU,AL	
PZ-14	3.0	5.0	Very soft gray clay (CH3)	47	107.2	72.9	71	21	50	0.03	9	0.23	Bulge	UU,AL	
PZ-14	8.0	10.0	Very soft gray clay (CL6)	43	117.7	82.4	48	25	23	0.09	11	0.52	Bulge	UU,AL	
PZ-14	13.0	15.0	Very soft gray clay (CH3)	52	96.6	63.6	68	21	47	0.04	7	0.81	Bulge	UU,AL	
PZ-14	18.0	20.0	Very soft gray and black clay with shells (CH4)	71	101.3	59.2				0.05	5	0.92	Bulge	UU	
PZ-14	23.0	25.0	Very soft gray clay (CH4)	73	100.3	58.0	89	31	58	0.17	9	1.38	Multiple Shear	UU,AL	
PZ-14	30.0	31.5	Very soft gray clay with silt lenses (CH4)	54			77	28	49					MC,AL	
PZ-14	33.0	35.0	Very soft gray clay (CH3)	85	96.6	52.3	74	30	44	0.02	7	1.96	Bulge	UU,AL	
PZ-14	38.0	40.0	Very soft gray clay (CH3)	57	109.6	69.8				0.24	11	2.25	Multiple Shear	UU	
PZ-14	43.0	45.0	Soft gray clay (CH3)	49										MC	
PZ-14	48.0	50.0	Soft gray clay (CH3)	53	104.5	68.1	75	31	44	0.39	6	2.82	Multiple Shear	UU,AL	
PZ-14	53.0	55.0	Soft gray clay (CH3)	56										MC	
PZ-14	58.0	60.0	Soft gray clay (CH3)	52	103.8	68.4	65	26	39	0.34	13	3.4	Bulge	UU,AL	

DRAFT

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153),
Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility:

CLP

Date: 11/22/2013

Title: Lab Manager

BORING NUMBER	DEPTH (FT)		SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			SHEAR STRENGTH INFORMATION				TEST TYPE	COMMENTS
	FROM	TO			WET	DRY	LL	PL	PI	C (ksf)	STRAIN %	CONFINING PRESSURE (KSE)	TYPE FAILURE		
PZ-15	0.0	2.0	Stiff brown and gray clay with roots (CH3)	35	105.0	77.9	77	27	50	1.56	7	0.06	Multiple Shear	UU,AL	
PZ-15	3.0	5.0	Medium brown clay with silt lenses (CH4)	49										MC	
PZ-15	8.0	10.0	Soft brown and gray clay (CH4)	50	103.4	68.8	83	26	57	0.27	13	0.52	Multiple Shear	UU,AL	
PZ-15	13.9	14.4	Very soft brown and gray clay (CL6)	39	105.4	75.9	49	19	30	0.03	7	0.81	Bulge	UU,AL	
PZ-15	14.4	15.0	Very soft brown clay (CH2)	51										MC	
PZ-15	18.0	20.0	Very soft brown and gray clay (CH2)	55	117.7	76.0	60	25	35	0.08	15	1.09	Yield	UU,AL	
PZ-15	23.0	23.5	Very soft tan and gray clay (CH2)	107	105.3	51.0	60	28	32	0.03	5	1.32	Bulge	UU,AL	
PZ-15	23.5	24.4	Very soft brown, tan, and gray clay (CH4)	41	99.1	70.2	136	35	101	0.06	11	1.35	Bulge	UU,AL	
PZ-15	24.4	25.0	Very soft tan and gray clay (CH4)	57										MC	
PZ-15	28.0	28.6	Very soft gray clay (CH4)	69										MC	
PZ-15	28.6	29.2	Soft brown and gray organic clay (CHOA)	117										MC	
PZ-15	29.2	30.0	Very soft tan and gray clay (CH3)	29	103.3	79.8	64	31	33	0.17	15	1.7	Yield	UU,AL	
PZ-15	33.0	35.0	Dense brown and tan sandy silt with clay (ML)	27	98.5	77.3				3.22	8	1.96	Bulge	UU,M200	20.0% sand / 80.0% fines
PZ-15	40.0	41.5	Medium dense gray sandy silt with clay (ML)	32										MC,H	25.9% sand / 65.8% silt / 8.3% clay
PZ-15	43.5	45.0	Medium dense gray sandy silt with clay (ML)	32										MC,H	25.1% sand / 68.4% silt / 6.5% clay
PZ-15	48.5	50.0	Soft gray and tan clay (CH3)	57			62	25	37					MC,AL	
PZ-15	53.0	55.0	Soft gray clay (CL4)	42										MC	
PZ-15	58.0	60.0	Medium gray clay (CH4)	59	107.5	67.7	83	30	53	0.73	12	3.4	Multiple Shear	UU,AL	

Southern Earth Sciences, Inc.

Laboratory Test Results

Project: Mid Barataria Diversion

Technical Responsibility: RM

Quality Assurance Officer

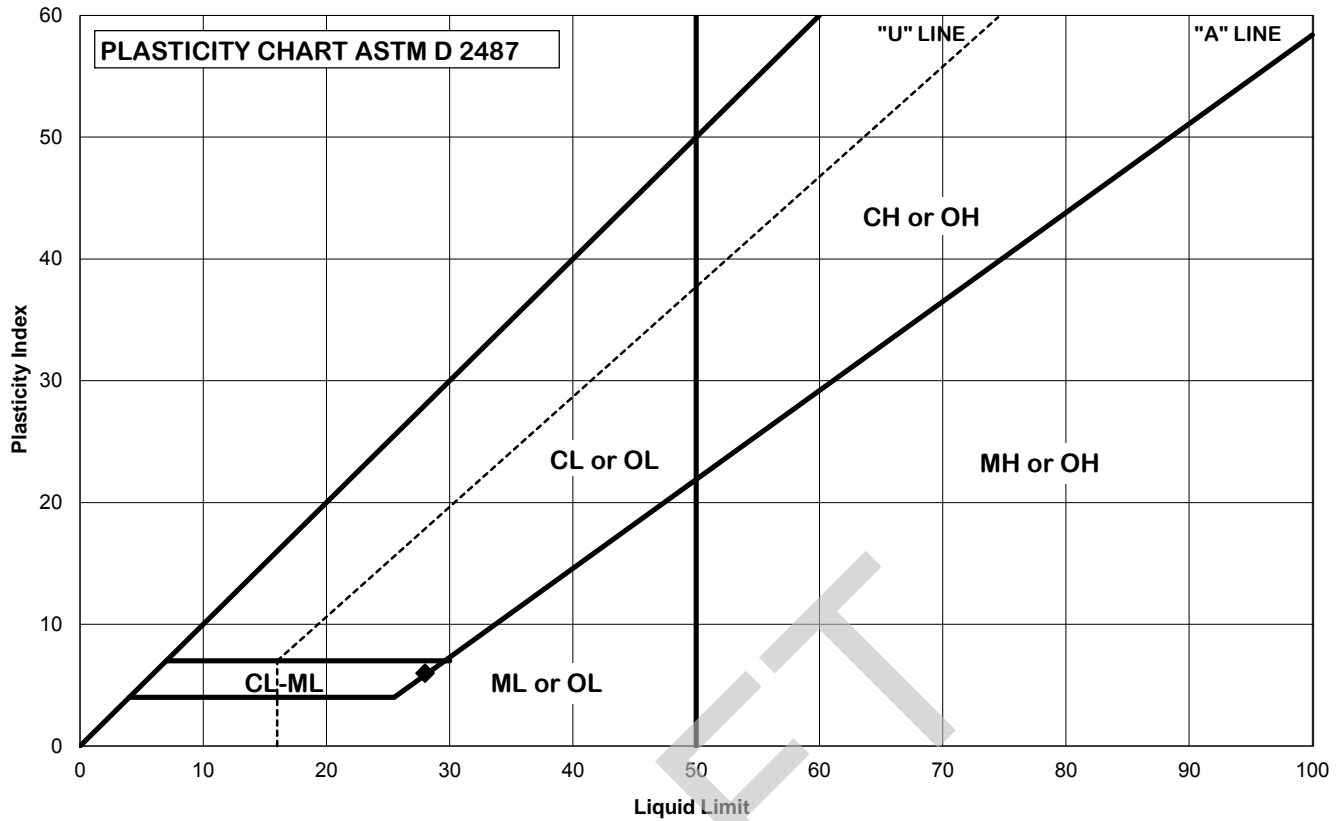
Client: GeoEngineers

Project No.: B13-018

PM: RM

Date of Issue: 9/11/2013

Sample No.	Depth (in)	Classification	ASTM DESIGNATION													USCS	D5084 Method E cm/sec		
			D2216	D4318			D2166		D2166	D2850	D422, C136 or C117							D2434	
			ω %	Atterberg Limits			γ _{wet} pcf	γ _{dry} pcf	Cohesion		Grain Size (% Passing)							Fxd. Wall Perm.	
				LL	PL	PI			U psf	UU psf	Gravel	Sand	Silt	Clay	#200				
IS-2A	38-39	Alternate Layers of Lean CLAY and Silty SAND, Sandy SILT	41.2				111.1	28.7										(CL4)	1.42E-06
IS-2A	55-55.5	Gray Lean CLAY with alternate layers of Clay and Silty SAND	46.9				108.6	73.9										(CL6)	3.37E-07
IS-3A	29-30	Gray Fat CLAY with Silt	38.6				113.1	81.6										(CH2)	1.64E-07
IS-3A	35-36	Alternate Layers of Gray Silty SAND with Trace Clay and Gray CLAY	40.9				109.3	77.6										(SM) (CH2)	3.17E-07
IS-9A	46-47	Gray Sandy SILT with thin Clay Layers at Bottom	30.8				122.8	93.9										(ML)	2.08E-06
IS-9A	50-51	Gray Sandy SILT with Clay	32.5				128.1	96.7				14.4	71.9	13.7				(ML)	1.58E-06
IS-9A	55-56	Gray Sandy SILT with Clay	32.2				121.7	92.0										(ML)	2.83E-06
IS-13A	34-35	Gray Sandy SILT with Clay	29.7				116.5	89.8				14.3	72.2	13.5				(ML)	1.97E-06
IS-13A	45-46	Gray Lean CLAY	33.5				118.2	88.6										(CL6)	1.94E-07
IS-13A	54-55	Gray Clayey Silty with Trace Fine Sand	31.1				118.5	90.4										(ML)	3.14E-07
IS-16A	47-48	Gray Fine SAND with Silt	25.0				122.7	98.2				80.6	17.1	2.3				(SM)	5.14E-04



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1A	Natural WC:	#DIV/0!
Depth, ft.	1 - 2	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium dense tan and gray clayey silt with sand, shell fragments, and roots (ML)		

Classification (fraction passing No. 40 sieve)
CL-ML

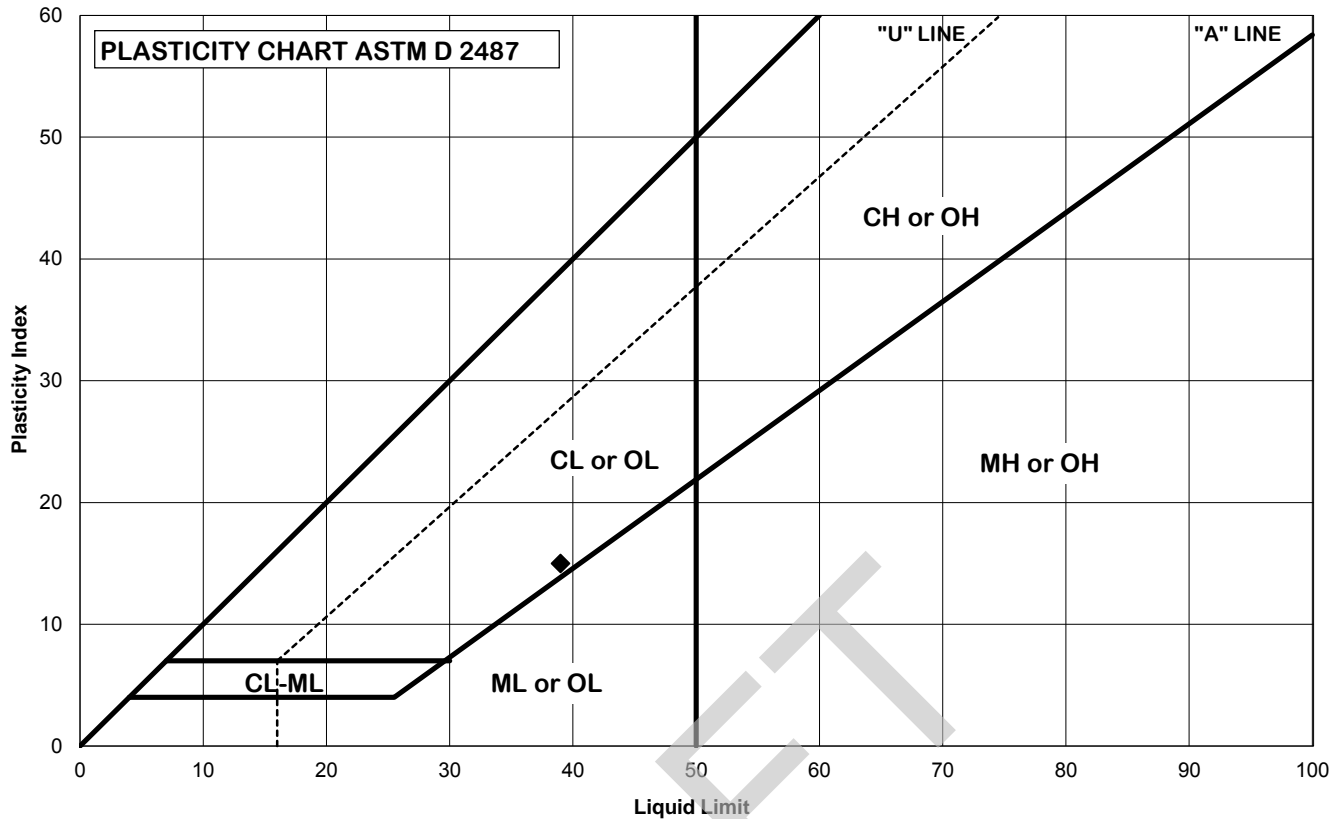
Liquid Limit =	28
Plastic Limit =	22
Plasticity Index =	6

Date:	9/24/2013
Tested By:	lc
Checked By:	slc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1A	Natural WC:	#DIV/0!
Depth, ft.	3 - 4	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff tan and gray clay with roots, sand lenses, sand pockets, and sand seams (CL4)		

Classification (fraction passing No. 40 sieve)
CL

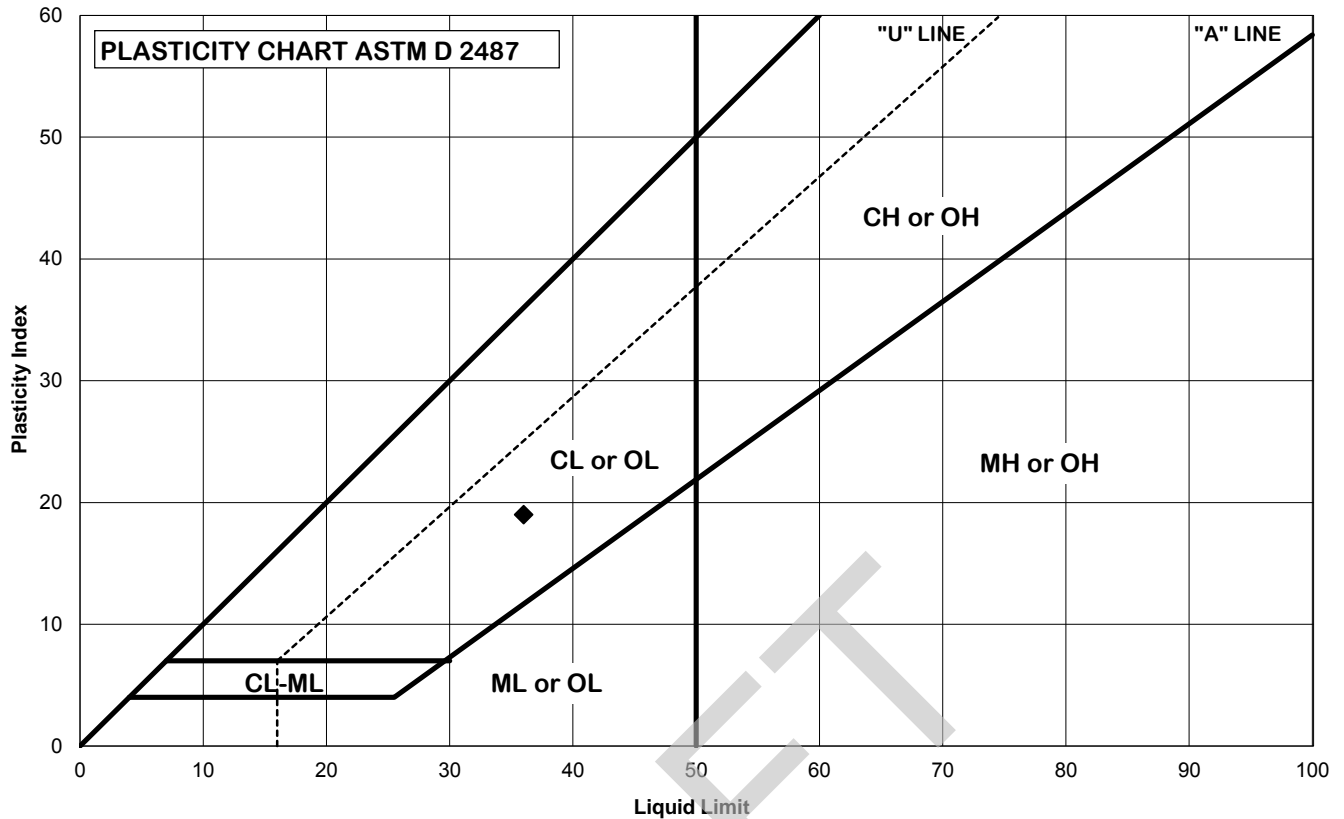
Liquid Limit =	39
Plastic Limit =	24
Plasticity Index =	15

Date:	9/24/2013
Tested By:	bh
Checked By:	slc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1A	Natural WC:	#DIV/0!
Depth, ft.	5 - 6	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium brown clay (CL4)		

Classification (fraction passing No. 40 sieve)
CL

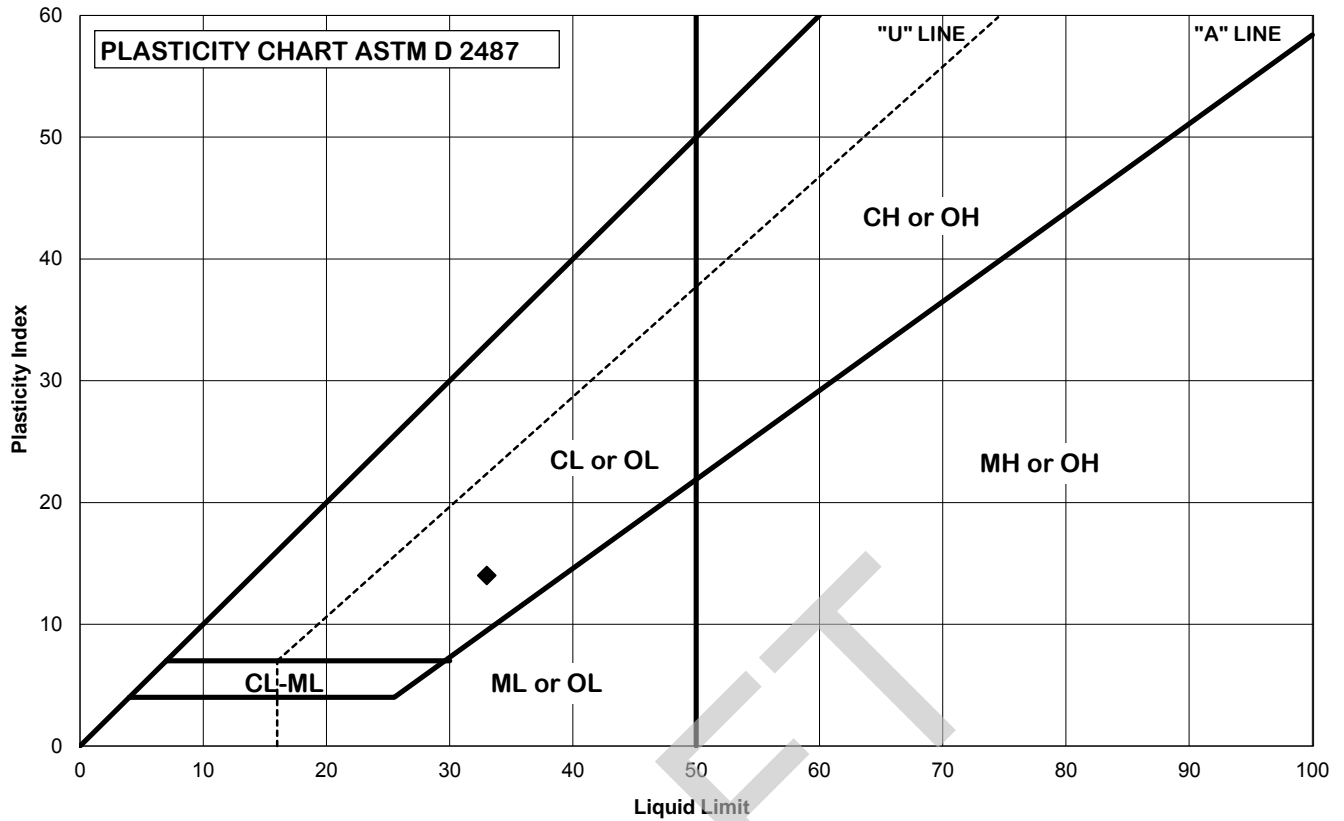
Liquid Limit =	36
Plastic Limit =	17
Plasticity Index =	19

Date:	9/24/2013
Tested By:	bh
Checked By:	slc

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1A	Natural WC:	#DIV/0!
Depth, ft.	8 - 9	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium gray clay with 5" silty sand layer (CL4)		

Classification (fraction passing No. 40 sieve)
CL

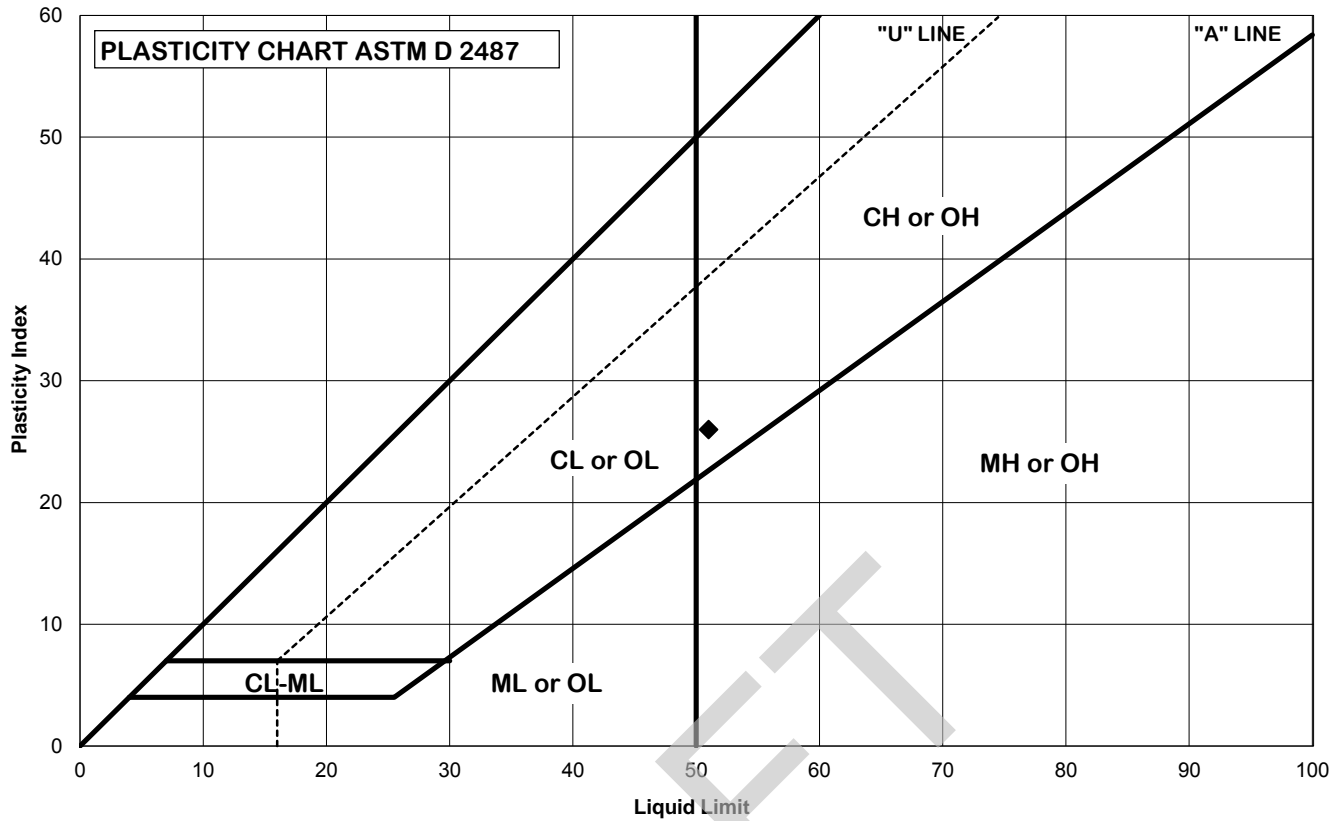
Liquid Limit =	33
Plastic Limit =	19
Plasticity Index =	14

Date:	9/25/2013
Tested By:	BH
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1A	Natural WC:	#DIV/0!
Depth, ft.	10 - 11	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay (CL2)		

Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	51
Plastic Limit =	25
Plasticity Index =	26

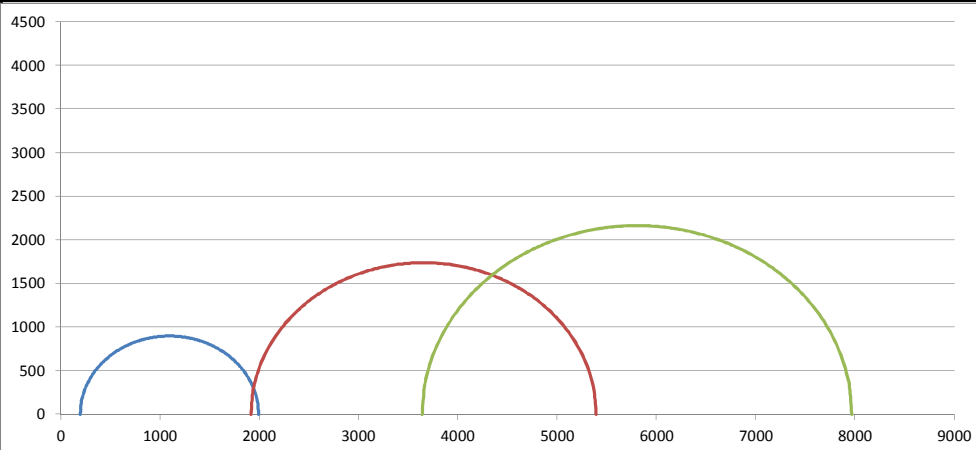
Date:	9/25/2013
Tested By:	BH
Checked By:	SLC

NOTES:

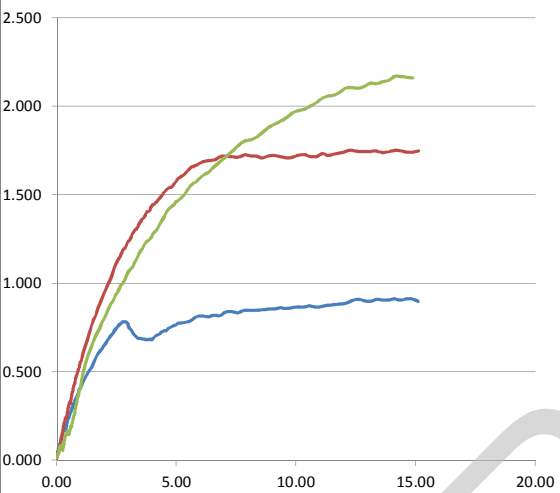
NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	1739
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Yield
Sample 4 Failure	#N/A

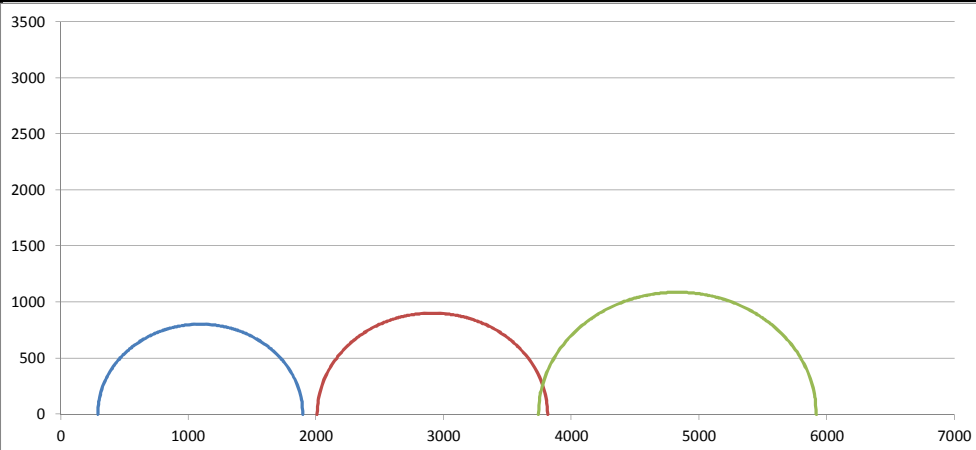


Specimen No.	1	2	3
WATER CONTENT %	27.80	28.45	26.57
DRY DENSITY, PCF	94.27	93.06	93.25
WET DENSITY, PCF	120.47	119.53	118.03
SATURATION %	96.62	96.00	90.09
VOID RATIO	0.77	0.79	0.79
WATER CONTENT %	30.22	29.62	30.51
DRY DENSITY, PCF	120.47	119.53	118.03
WET DENSITY, PCF	156.87	154.94	154.04
SATURATION %	100.64	97.94	96.63
VOID RATIO	0.80	0.81	0.84

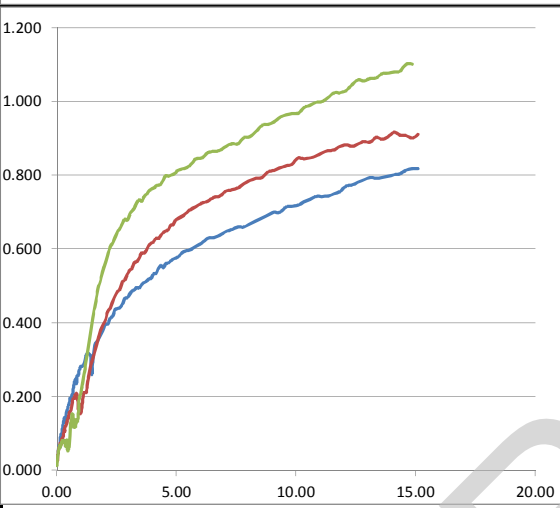
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.00	3.00	2.99
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.37	1.39	1.39
				CELL PRESSURE, PSI	1.30	13.30	25.30
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1796.70	3478.00	4328.00
REMARKS	0			STRAIN, %	14.08	12.35	15.11
				ULTIMATE STRESS, %	0.01	0.01	0.02
				σ_1 FAILURE, PSF	1991.10	5391.76	7966.88
				σ_3 FAILURE, PSF	194.40	1913.76	3638.88

SAMPLE DESCRIPTION				Stiff tan and gray clay with roots, sand lenses, sand pockets, and sand seams (CL4)			
BORING NO.	B-1A	SAMPLE NO.	2	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	9/10/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	3 - 4				
TESTED BY	jrk/jrk/jrk	CHECKED BY	slc/slc/slc/				

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	903
Sample 1 Failure	Yield
Sample 2 Failure	Yield
Sample 3 Failure	Yield
Sample 4 Failure	#N/A

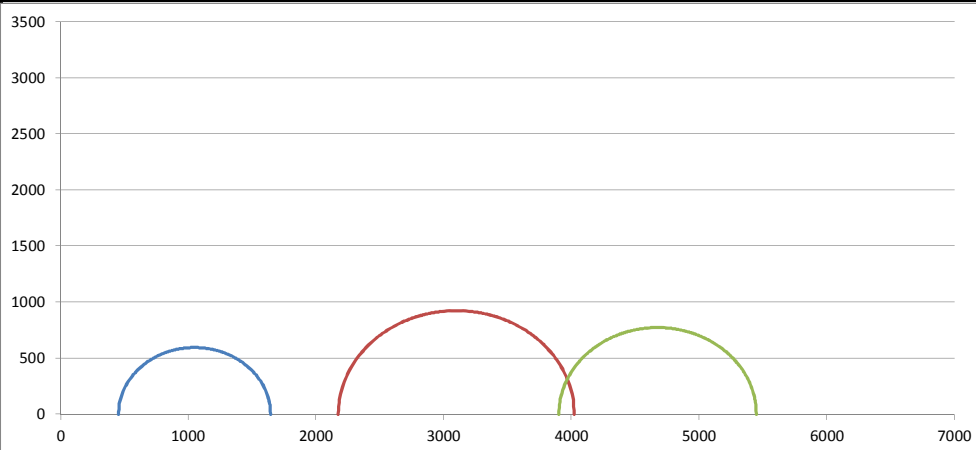


Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	22.94	22.64	22.91
	DRY DENSITY, PCF	100.26	102.06	101.72
	WET DENSITY, PCF	123.26	125.16	125.02
	SATURATION %	92.46	95.46	95.78
	VOID RATIO	0.66	0.63	0.64
AT TEST	WATER CONTENT %	22.97	22.29	22.15
	DRY DENSITY, PCF	123.26	125.16	125.02
	WET DENSITY, PCF	151.57	153.06	152.71
	SATURATION %	92.51	94.68	94.08
	VOID RATIO	0.66	0.63	0.63

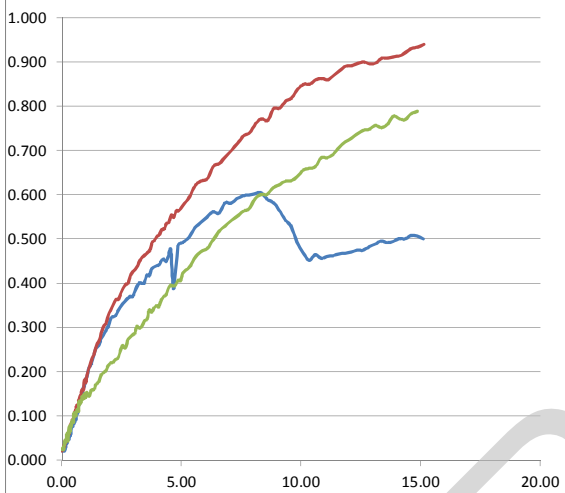
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.09	3.10	3.05
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.39	1.41	1.36
				CELL PRESSURE, PSI	2.00	14.00	26.00
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1608.00	1806.00	2178.00
REMARKS	0			STRAIN, %	14.84	14.09	15.10
				ULTIMATE STRESS, %	0.02	0.01	0.02
				σ_1 FAILURE, PSF	1896.00	3813.36	5919.12
				σ_3 FAILURE, PSF	288.00	2007.36	3741.12

SAMPLE DESCRIPTION	Medium brown clay (CL4)						
BORING NO.	B-1A			SAMPLE NO.	3	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	9/10/2013	
PROJECT NUMBER	18274-001-00			DEPTH FT.	5 - 6		
TESTED BY	jrk/JRK/JRK			CHECKED BY	clp/CLP/CLP/		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	774
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Yield
Sample 3 Failure	Yield
Sample 4 Failure	#N/A

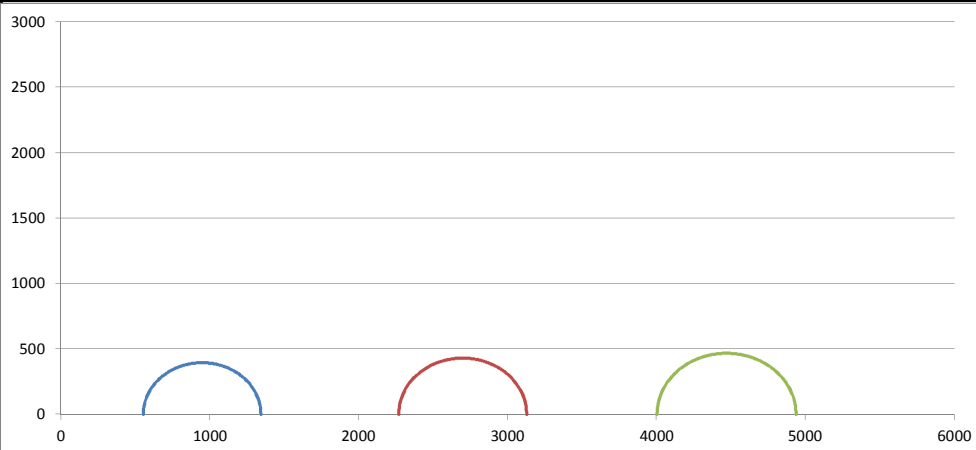


Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	30.74	32.55	30.25
	DRY DENSITY, PCF	96.83	94.85	93.45
	WET DENSITY, PCF	126.60	125.72	121.72
	SATURATION %	113.79	114.75	103.06
	VOID RATIO	0.72	0.76	0.78
AT TEST	WATER CONTENT %	30.84	30.54	30.99
	DRY DENSITY, PCF	126.60	125.72	121.72
	WET DENSITY, PCF	165.64	164.11	159.44
	SATURATION %	113.95	111.59	104.23
	VOID RATIO	0.72	0.73	0.79

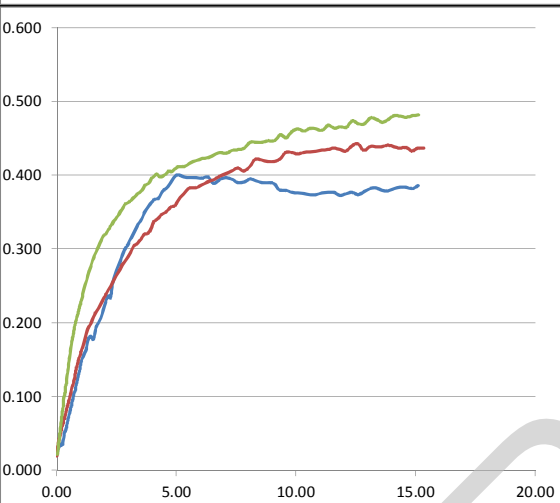
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	2.70	2.72	2.74
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.35	1.35	1.37
				CELL PRESSURE, PSI	3.10	15.10	27.10
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1192.00	1850.00	1548.00
REMARKS	0			STRAIN, %	8.32	15.13	14.85
				ULTIMATE STRESS, %	0.01	0.02	0.02
				σ_1 FAILURE, PSF	1642.72	4022.96	5448.96
				σ_3 FAILURE, PSF	450.72	2172.96	3900.96

SAMPLE DESCRIPTION	Medium gray clay with 5" silty sand layer (CL4)						
BORING NO.	B-1A	SAMPLE NO.	4	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	9/10/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	8 - 9				
TESTED BY	JRK/JRK/JRK	CHECKED BY	CLP/CLP/CLP/				

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	430
Sample 1 Failure	SLS 60°
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A

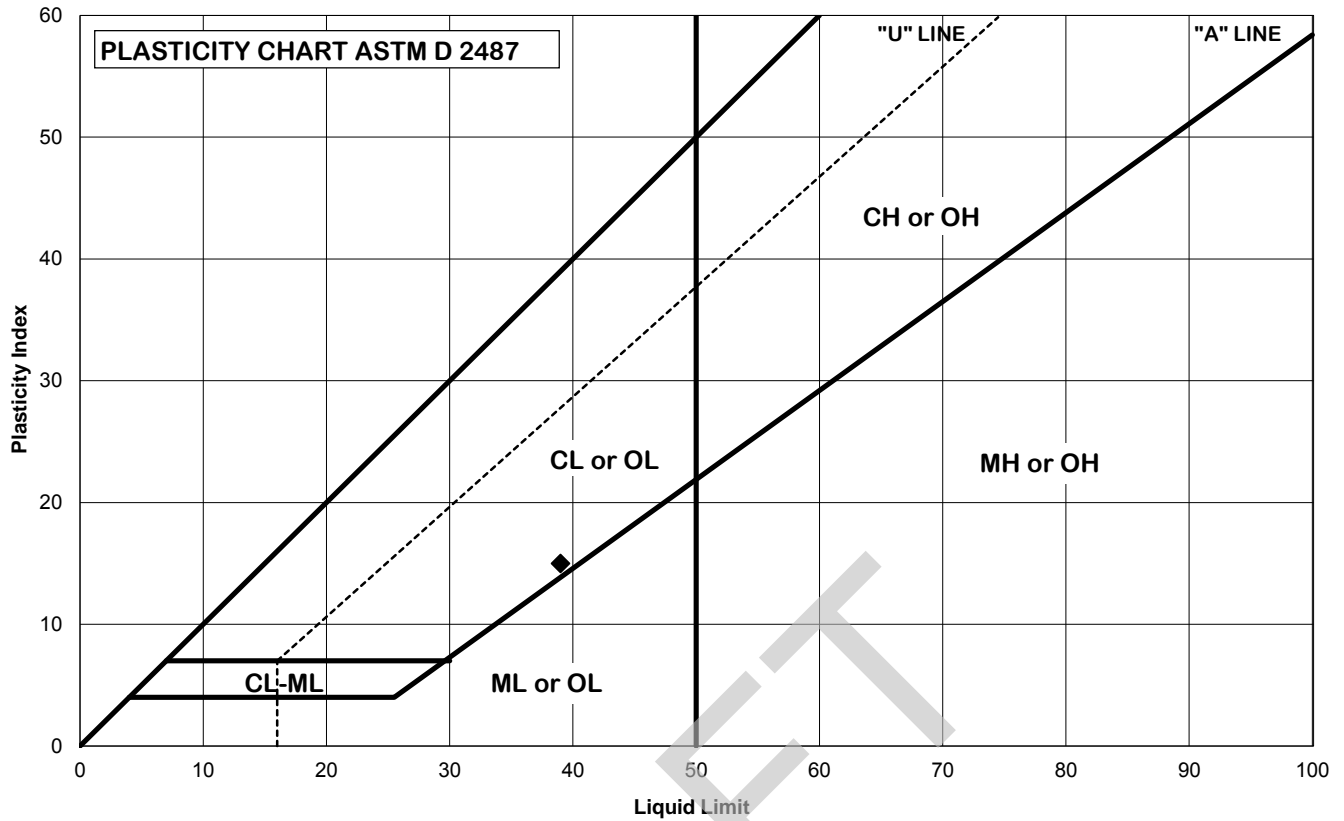


Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	42.41	40.85	42.43
	DRY DENSITY, PCF	83.27	84.96	82.81
	WET DENSITY, PCF	118.59	119.66	117.94
	SATURATION %	113.04	113.39	111.85
	VOID RATIO	1.00	0.96	1.01
AT TEST	WATER CONTENT %	43.03	44.05	41.83
	DRY DENSITY, PCF	118.59	119.66	117.94
	WET DENSITY, PCF	169.62	172.38	167.27
	SATURATION %	113.71	116.86	111.19
	VOID RATIO	1.01	1.01	1.00

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.03	3.03	3.05
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.38	1.31	1.38
				CELL PRESSURE, PSI	3.80	15.80	27.80
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	790.00	860.00	934.00
REMARKS	0			STRAIN, %	5.06	12.57	14.10
				ULTIMATE STRESS, %	0.01	0.01	0.01
				σ_1 FAILURE, PSF	1342.96	3128.00	4937.20
				σ_3 FAILURE, PSF	552.96	2268.00	4003.20

SAMPLE DESCRIPTION	Soft gray clay (CL2)						
BORING NO.	B-1A			SAMPLE NO.	4	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	9/10/2013	
PROJECT NUMBER	18274-001-00			DEPTH FT.	10 - 11		
TESTED BY	JRK/JRK/JRK			CHECKED BY	CLP/CLP/CLP/		

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ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1Aa	Natural WC:	#DIV/0!
Depth, ft.	12 - 13	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay with 2" clayey silt layer at bottom (CL6)		

Classification (fraction passing No. 40 sieve)
CL

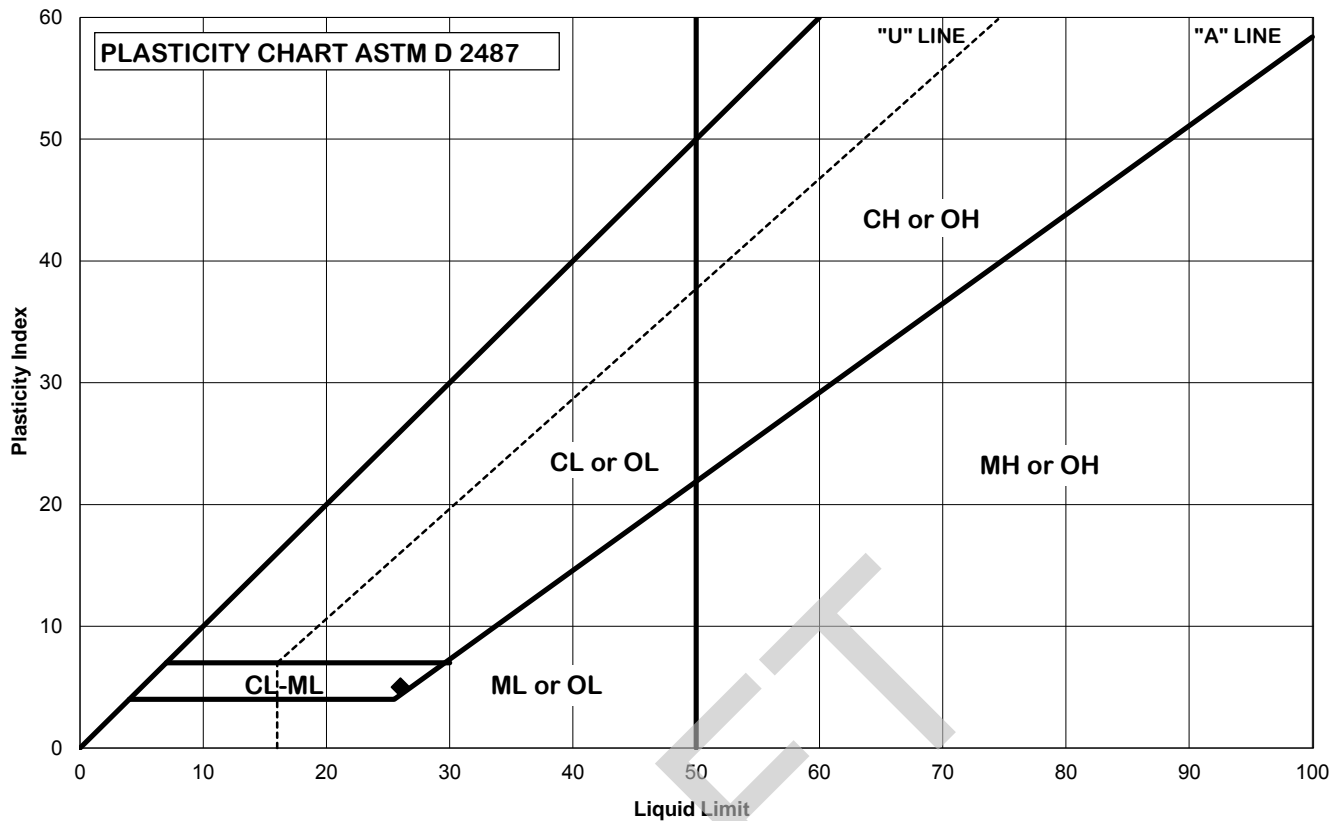
Liquid Limit =	39
Plastic Limit =	24
Plasticity Index =	15

Date:	9/25/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1Aa	Natural WC:	#DIV/0!
Depth, ft.	14 - 15	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clayey silt with 3" silty sand layer at bottom, silt and sand pockets (ML)		

Classification (fraction passing No. 40 sieve)
CL-ML

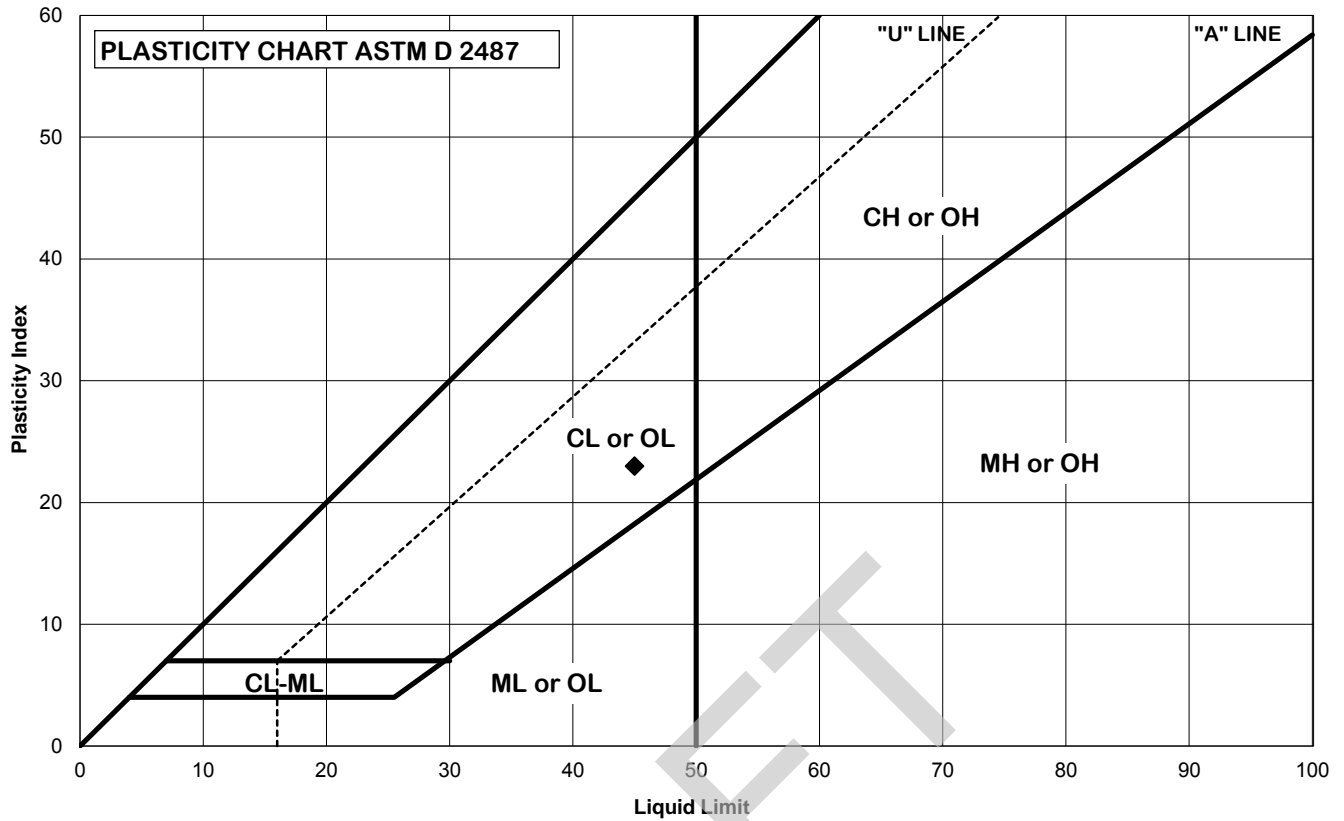
Liquid Limit =	26
Plastic Limit =	21
Plasticity Index =	5

Date:	9/25/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1Aa	Natural WC:	#DIV/0!
Depth, ft.	16 - 17	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay with silt and sand pockets (CL6)		

Classification (fraction passing No. 40 sieve)
CL

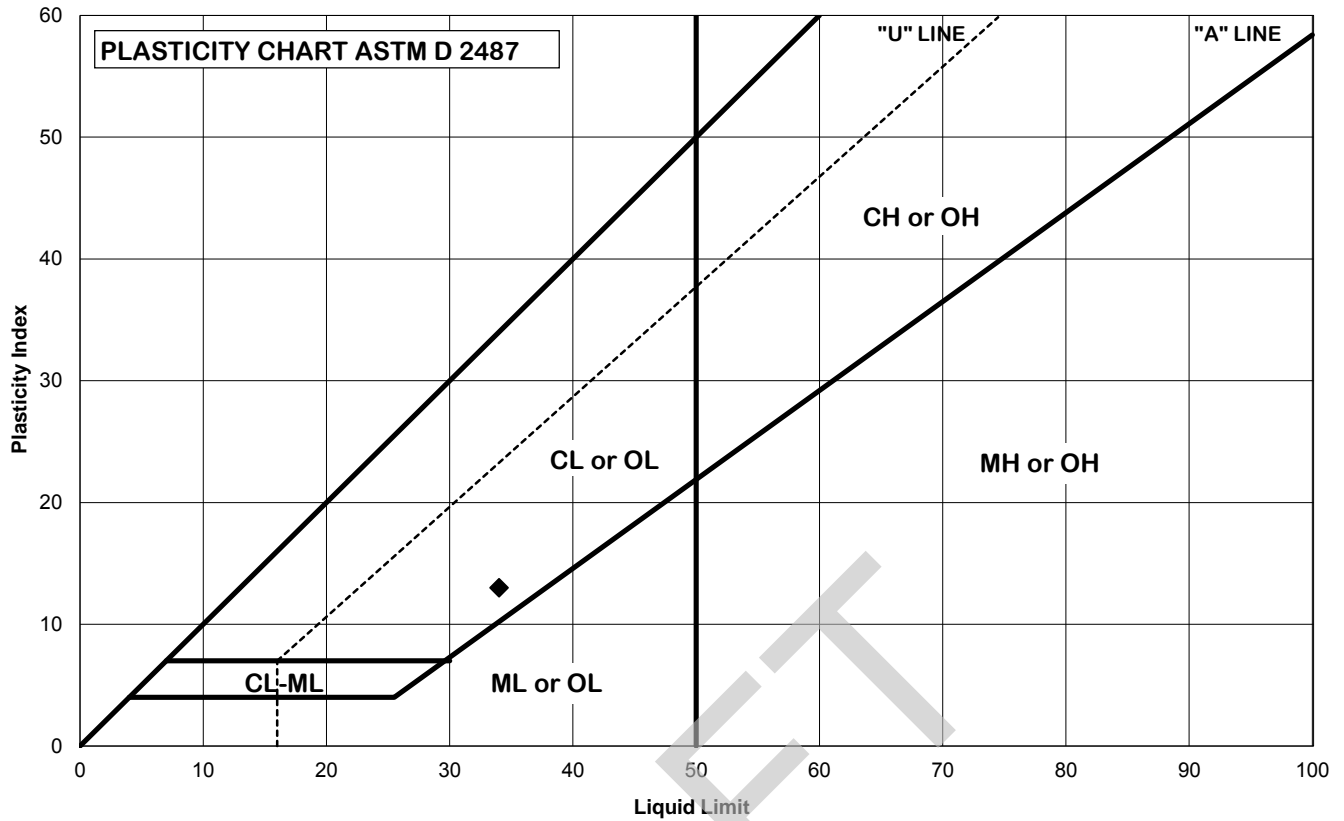
Liquid Limit =	45
Plastic Limit =	22
Plasticity Index =	23

Date:	9/26/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1Aa	Natural WC:	#DIV/0!
Depth, ft.	18 - 19	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay with 4" loose clayey silt layer (CL4)		

Classification (fraction passing No. 40 sieve)
CL

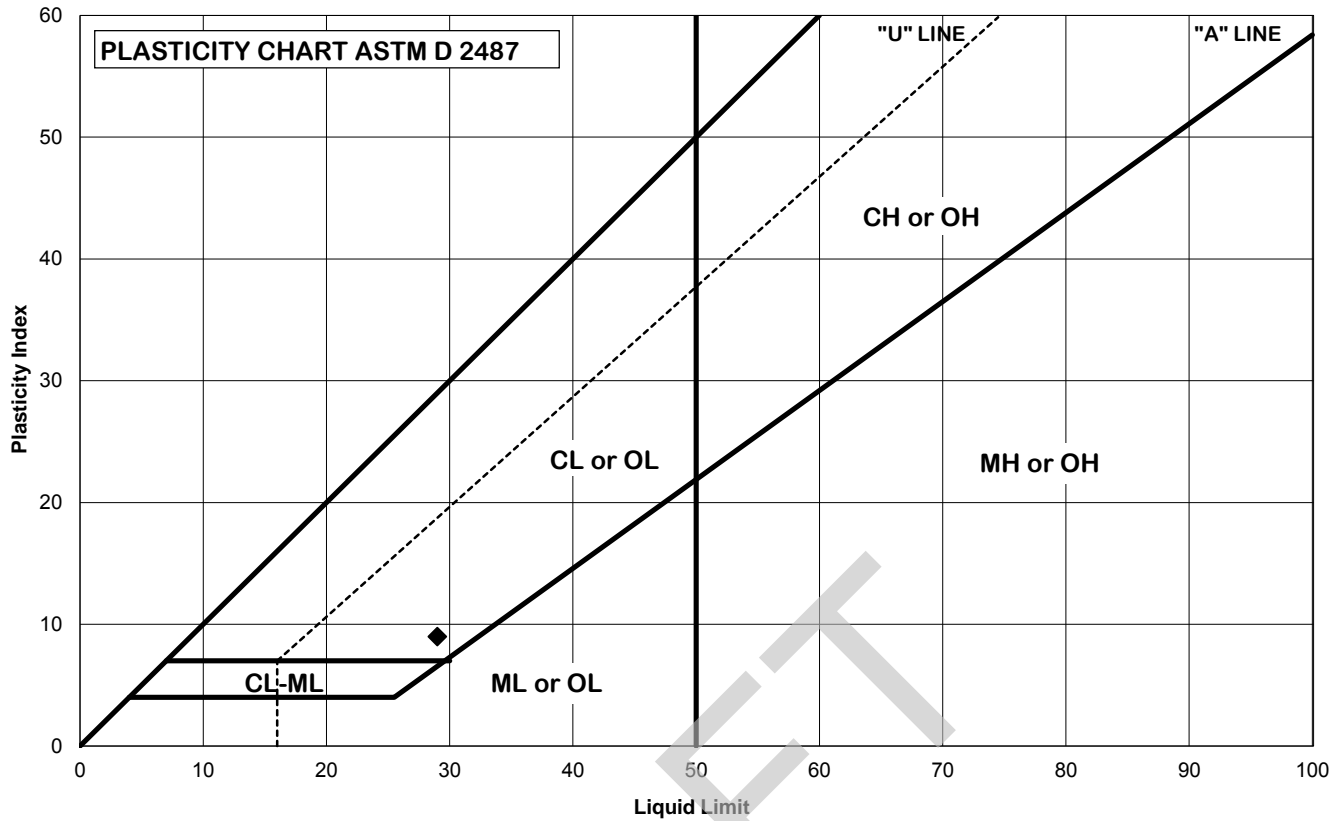
Liquid Limit =	34
Plastic Limit =	21
Plasticity Index =	13

Date:	9/26/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1Aa	Natural WC:	#DIV/0!
Depth, ft.	21 - 22	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium gray clay with 5" silty sand layer at top (CL4)		

Classification (fraction passing No. 40 sieve)
CL

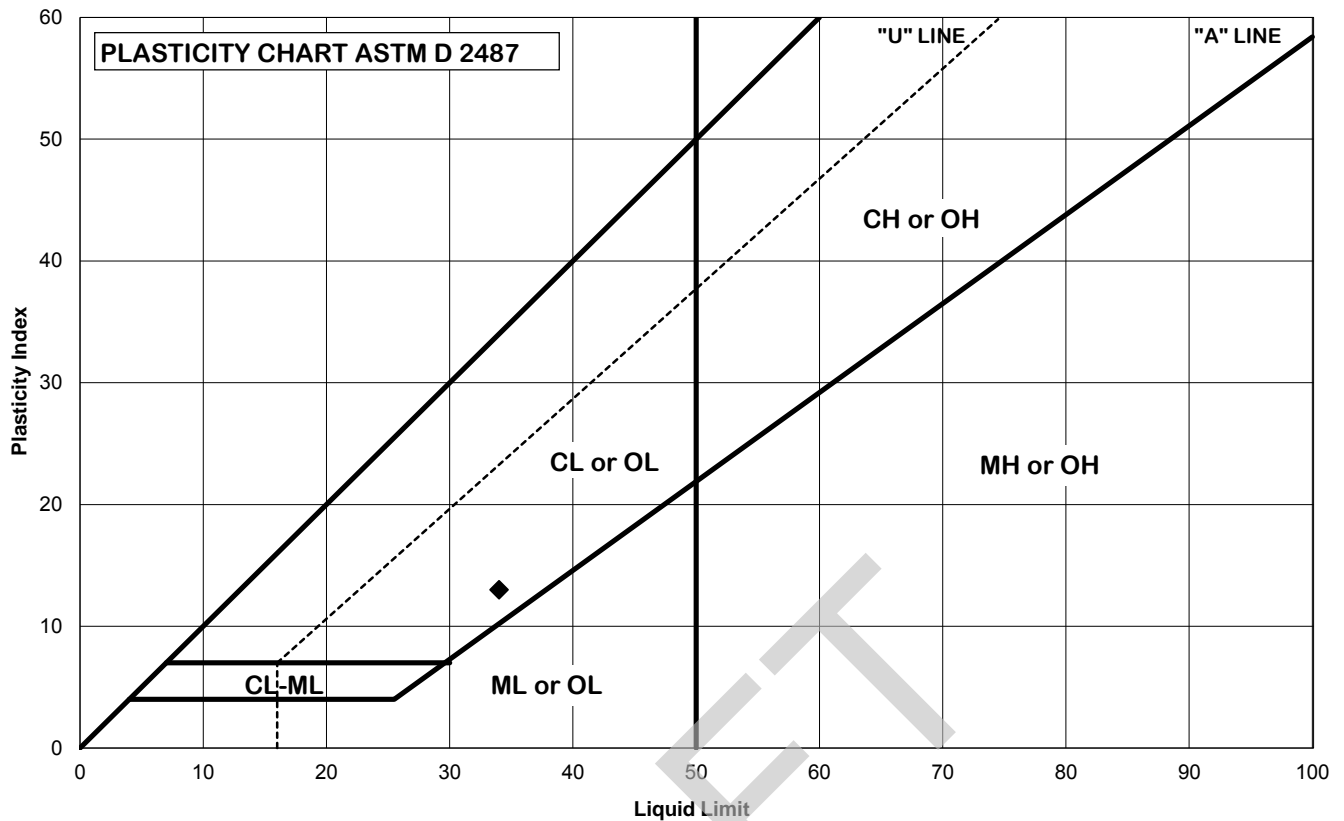
Liquid Limit =	29
Plastic Limit =	20
Plasticity Index =	9

Date:	9/26/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1Aa	Natural WC:	#DIV/0!
Depth, ft.	26 - 27	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay with sand lenses and pockets (CL4)		

Classification (fraction passing No. 40 sieve)
CL

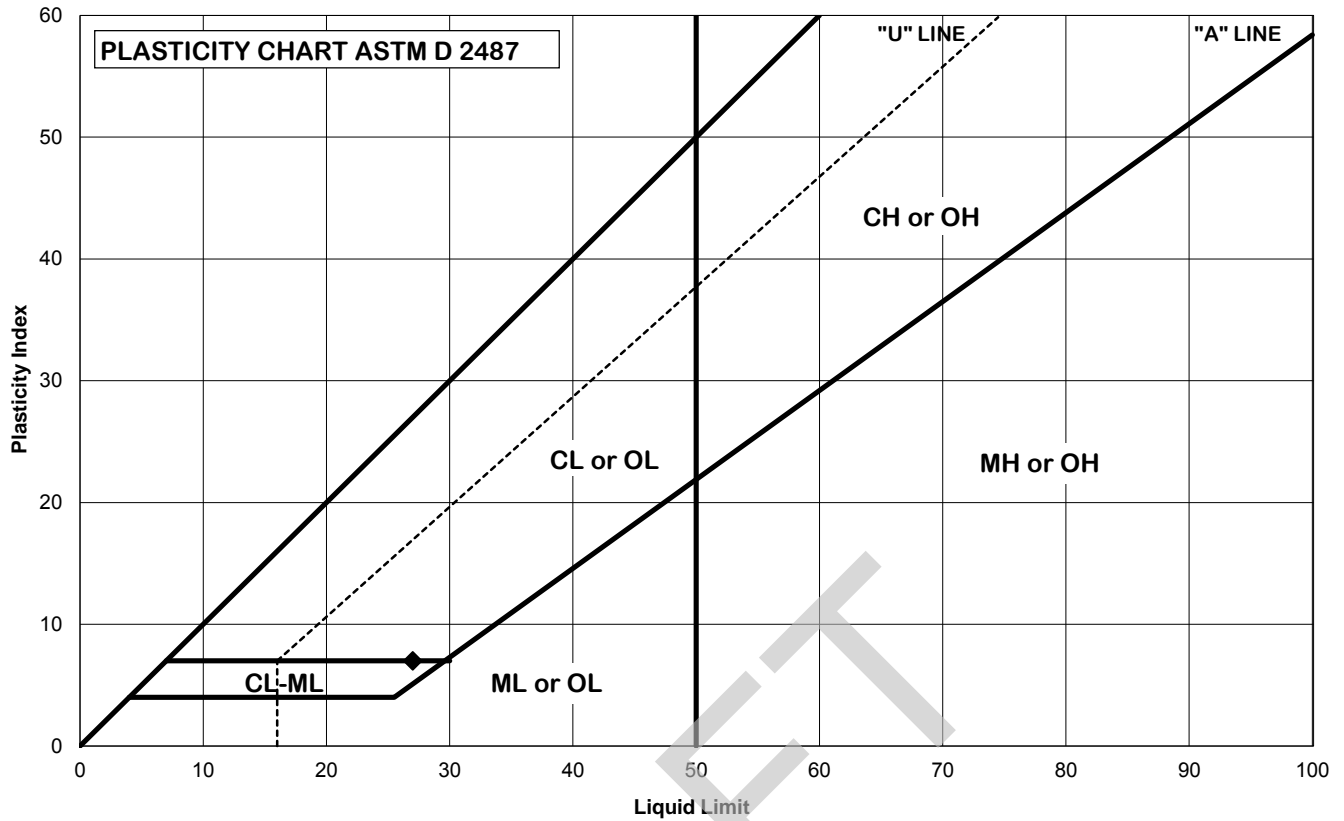
Liquid Limit =	34
Plastic Limit =	21
Plasticity Index =	13

Date:	10/1/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1Aa	Natural WC:	#DIV/0!
Depth, ft.	32 - 33.5	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very loose gray sandy silt (ML)		

Classification (fraction passing No. 40 sieve)
CL-ML

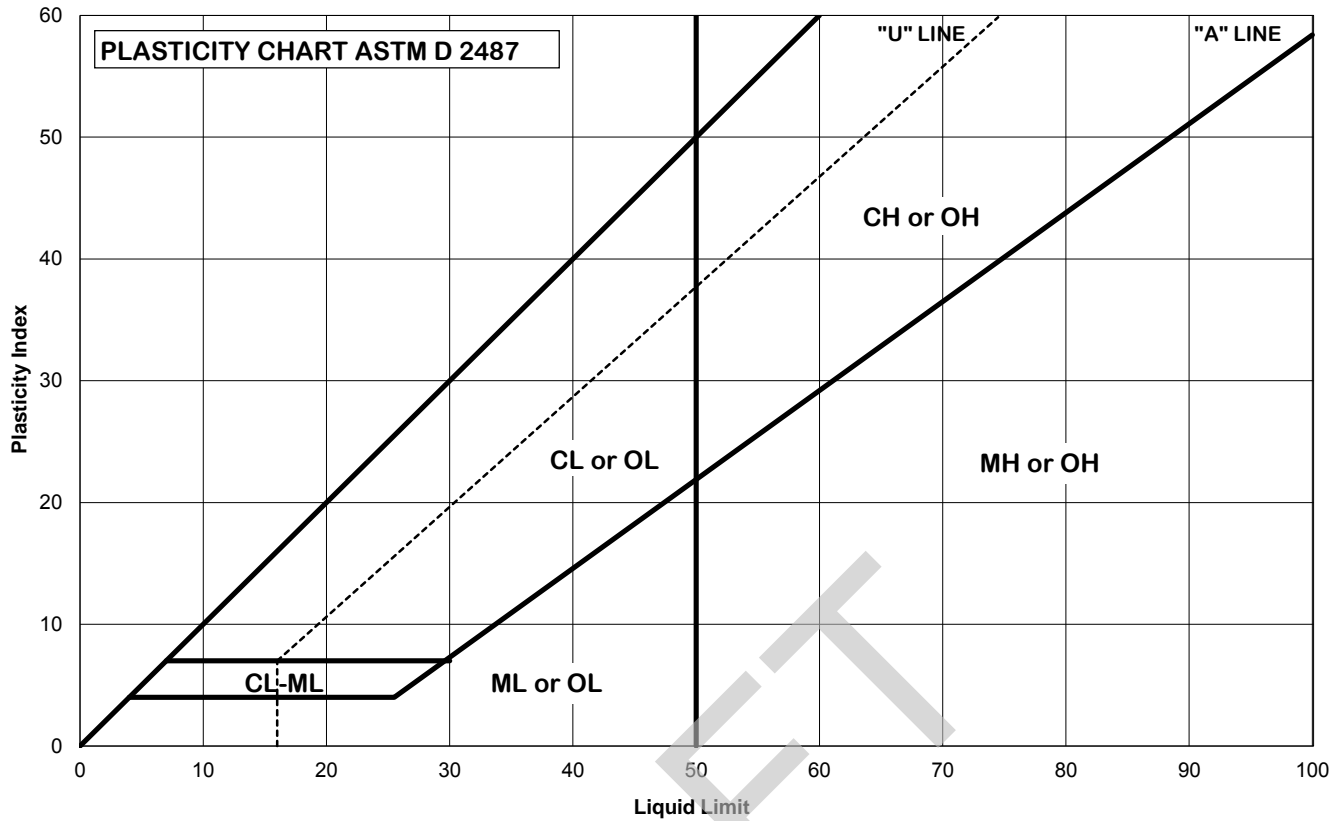
Liquid Limit =	27
Plastic Limit =	20
Plasticity Index =	7

Date:	10/1/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1Aa	Natural WC:	#DIV/0!
Depth, ft.	37 - 38.5	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very loose gray clay silt with 8" clay layer(ML)		


Classification (fraction passing No. 40 sieve)
CL

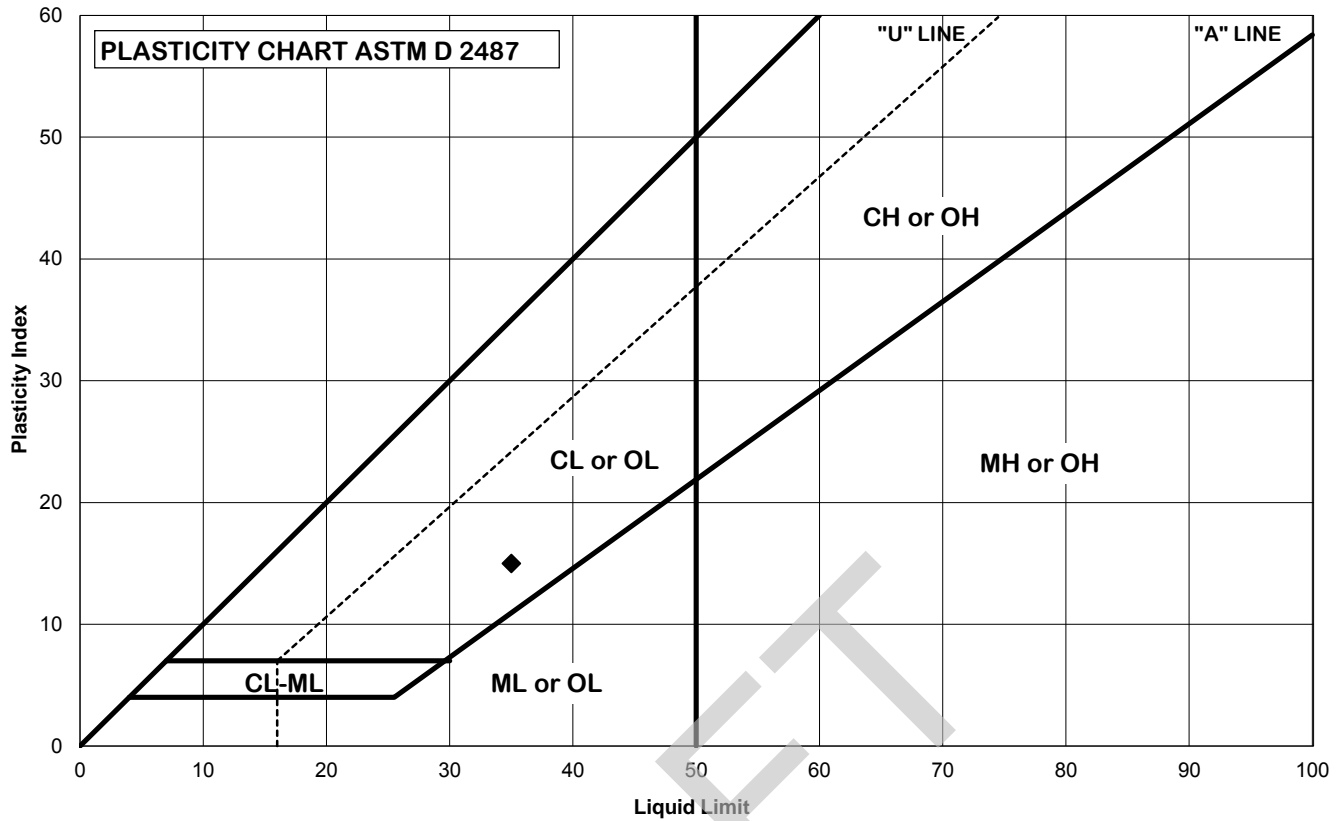
Liquid Limit =	45
Plastic Limit =	21
Plasticity Index =	24

Date:	9/26/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1Aa	Natural WC:	#DIV/0!
Depth, ft.	43 - 44	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium gray clay with sand lenses (CL4)		

Classification (fraction passing No. 40 sieve)
CL

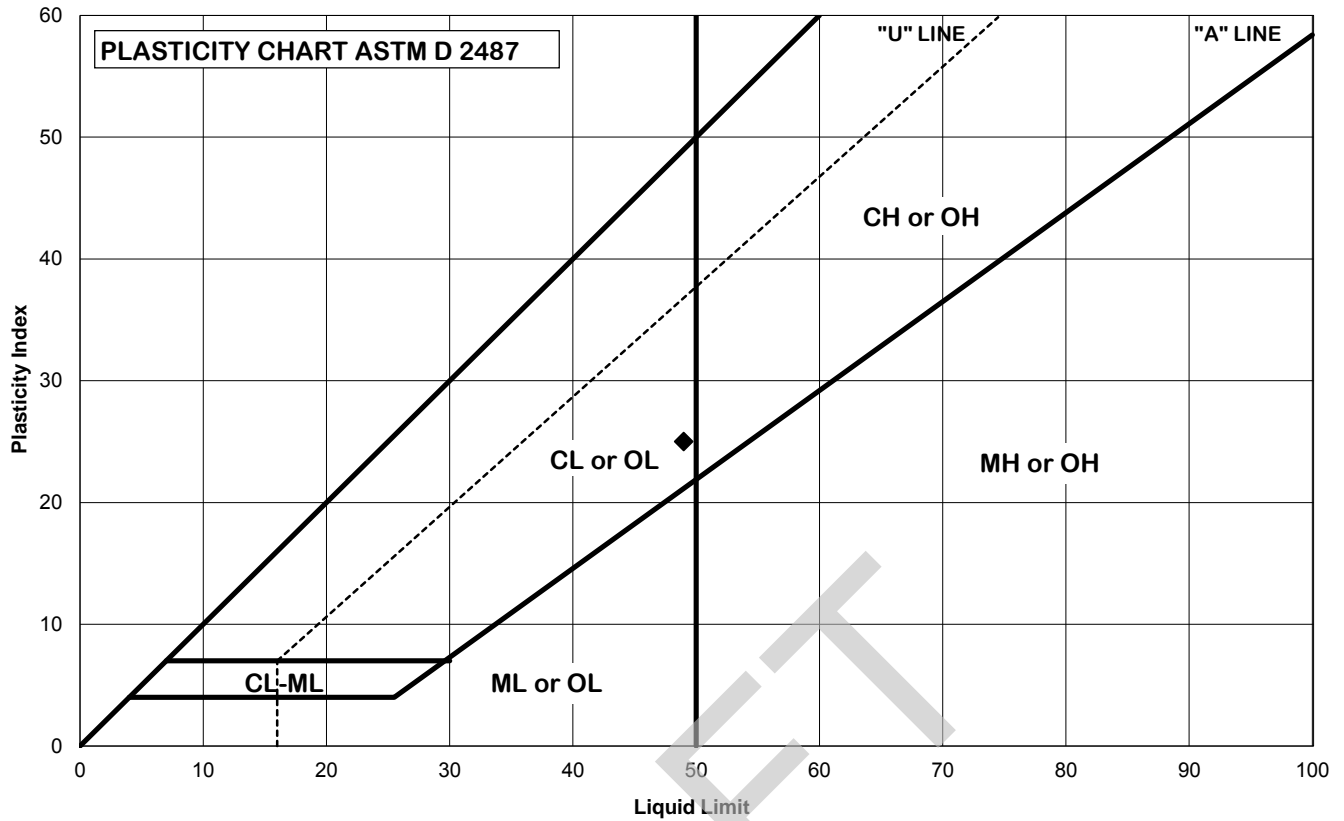
Liquid Limit =	35
Plastic Limit =	20
Plasticity Index =	15

Date:	10/1/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project			
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.			
18274-001-00			
Boring No.		Natural WC:	#DIV/0!
B-1Aa		Preparation:	Wet (as-received)
Depth, ft.		No. Points:	
67.5 - 69			
Cup No.		Estimated or Tested	0.0
1355			
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:		Medium gray clay (CL6)	

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	49
Plastic Limit =	24
Plasticity Index =	25

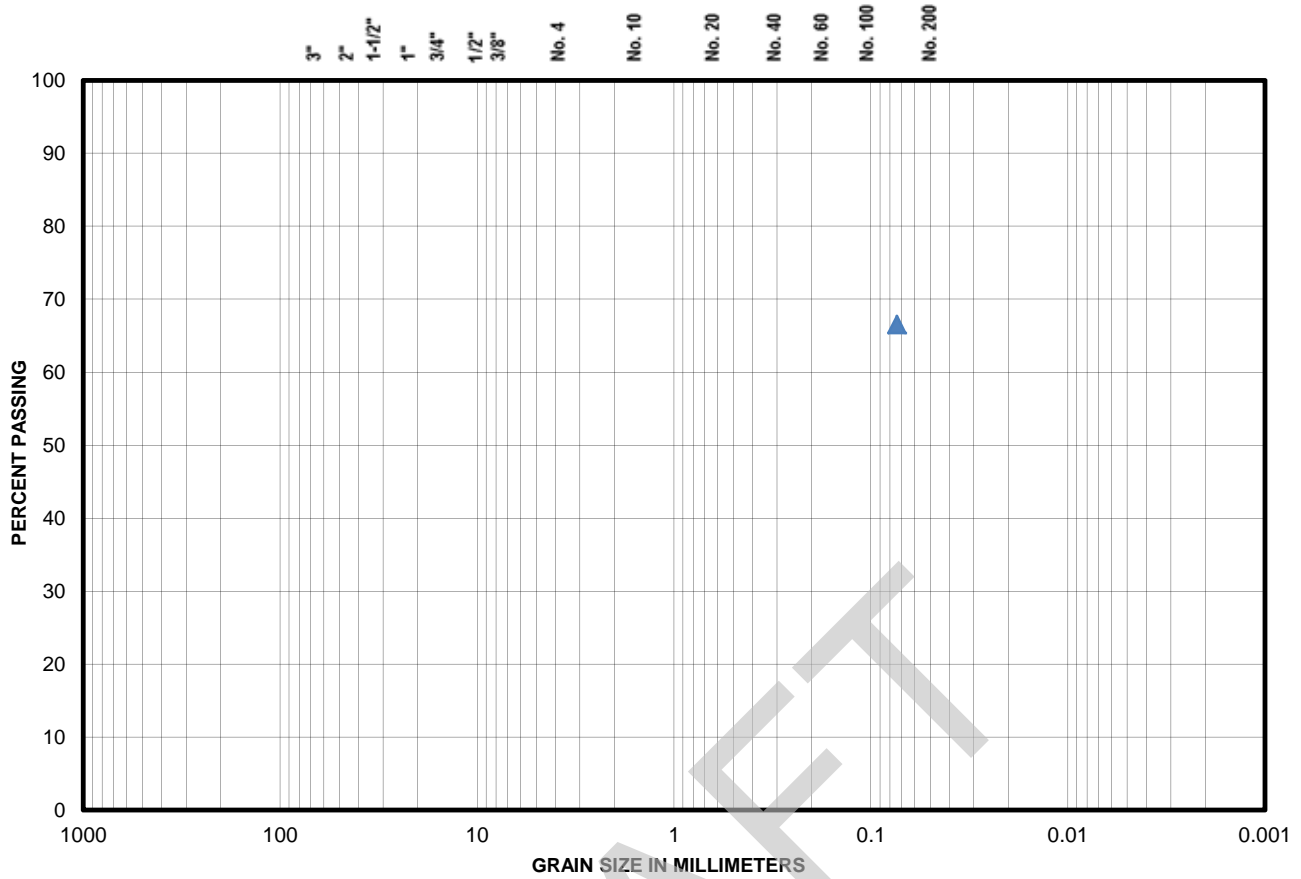
Date:	9/26/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	33.4	Fines (Silt & Clay) %	66.6
---------------	------	----------------------------------	------

USC Classification	(ML)	C_u	na	C_c	na
Description (D 2488)	Loose gray sandy silt (ML)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	66.6

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Pla	Date Tested	9/27/2013
Project No.	18274-001-00	Tested By	SB
Boring No.	B-1Aa	Checked By	SLC
Source/Depth (feet)	22 - 23	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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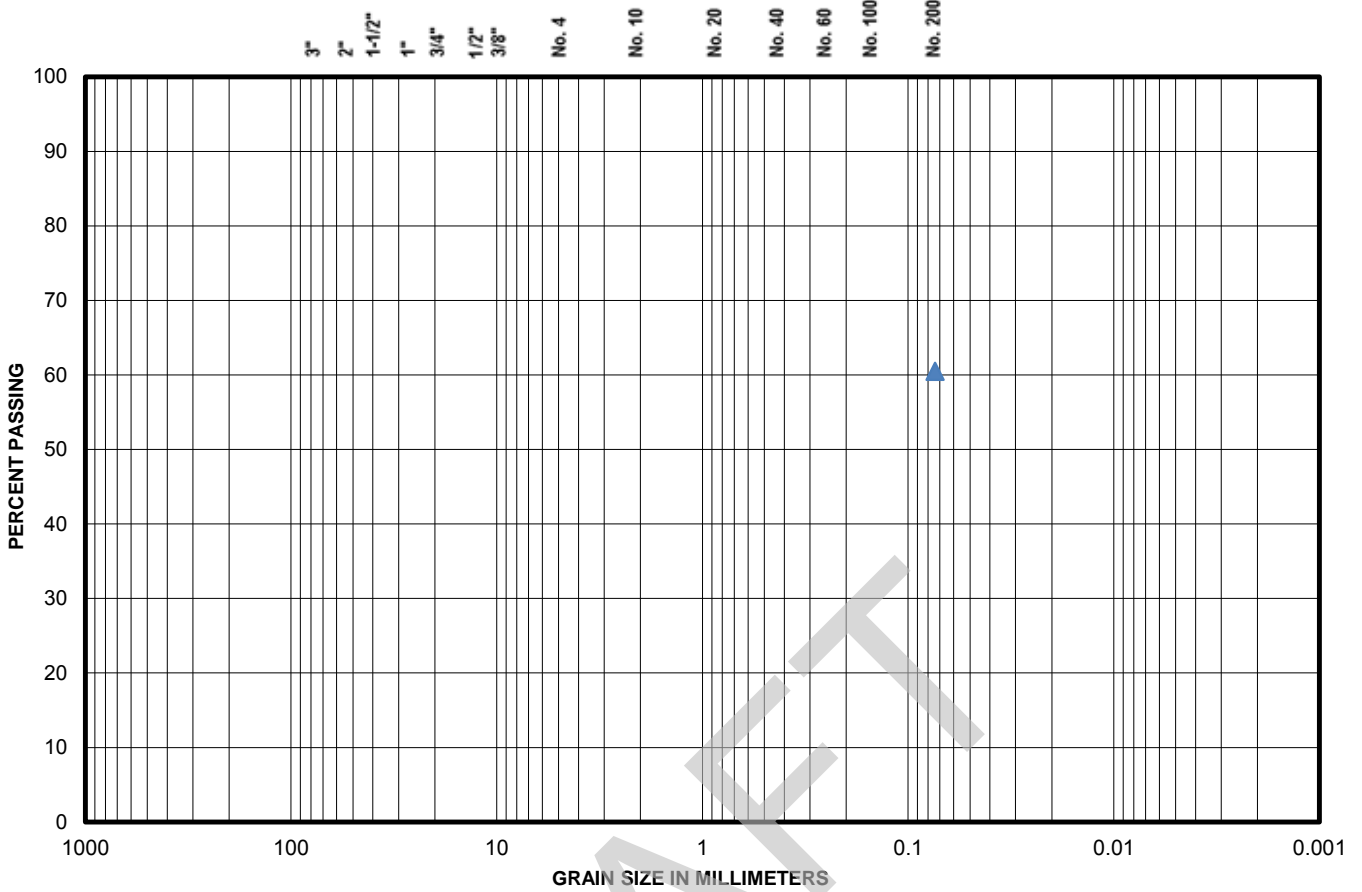
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

"Confidential Information; Privileged & Confidential Work Product"

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	39.5	Fines (Silt & Clay) %	60.5
---------------	------	----------------------------------	------

USC Classification	ML	C_u	na	C_c	na
Description (D 2488)	Very loose gray clay silt with 8" clay layer (ML)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	60.5

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines	Date Tested	9/27/2013
Project No.	18274-001-00	Tested By	SB
Boring No.	B-1Aa	Checked By	SLC
Source/Depth (feet)	37 - 38.5	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



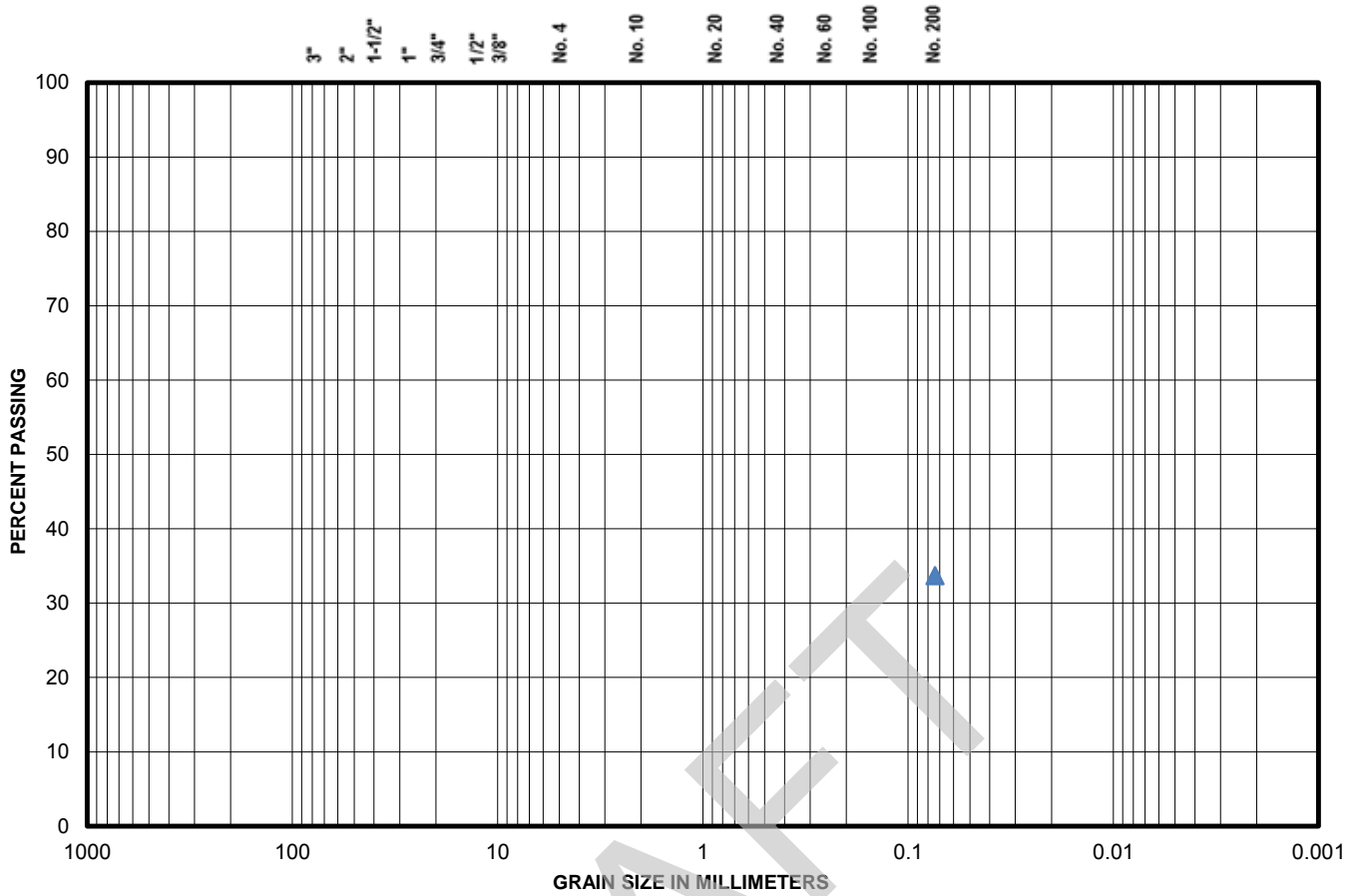
11955 Lakeland Park Blvd, Suite 100 Baton Rouge, La 70809

ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential Work Product 18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	66.3	Fines (Silt & Clay) %	33.7
---------------	------	----------------------------------	------

USC Classification	SM	C_u	na	C_c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	33.7

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines	Date Tested	9/27/2013
Project No.	18274-001-00	Tested By	SB
Boring No.	B-1Aa	Checked By	SLC
Source/Depth (feet)	45 - 46	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



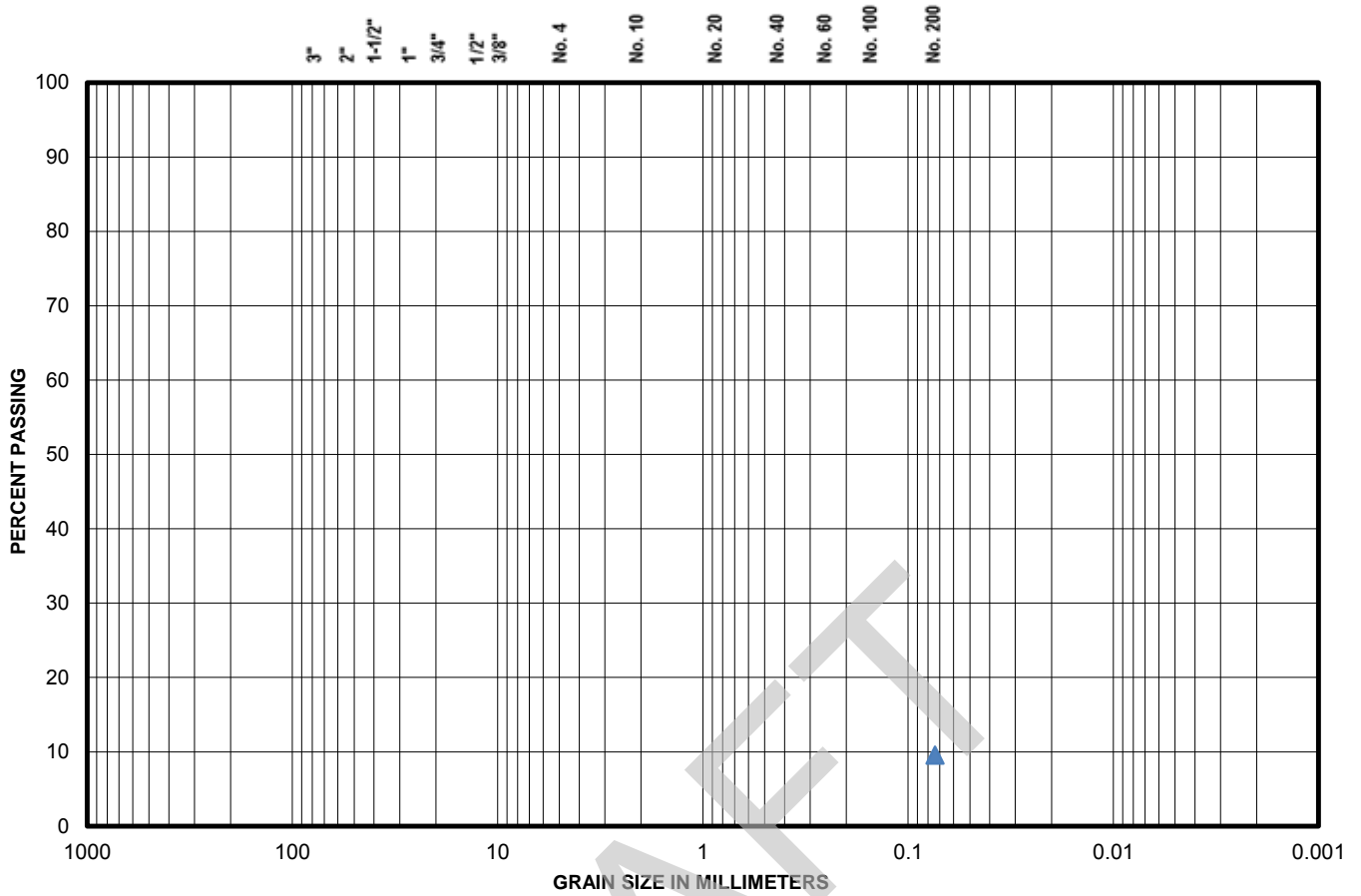
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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential Work Product 18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	90.5	Fines (Silt & Clay) %	9.5
---------------	------	----------------------------------	-----

USC Classification	SP	C_u	na	C_c	na
Description (D 2488)	Sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	9.5

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines	Date Tested	9/27/2013
Project No.	18274-001-00	Tested By	SB
Boring No.	B-1Aa	Checked By	SLC
Source/Depth (feet)	57.5 - 59	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



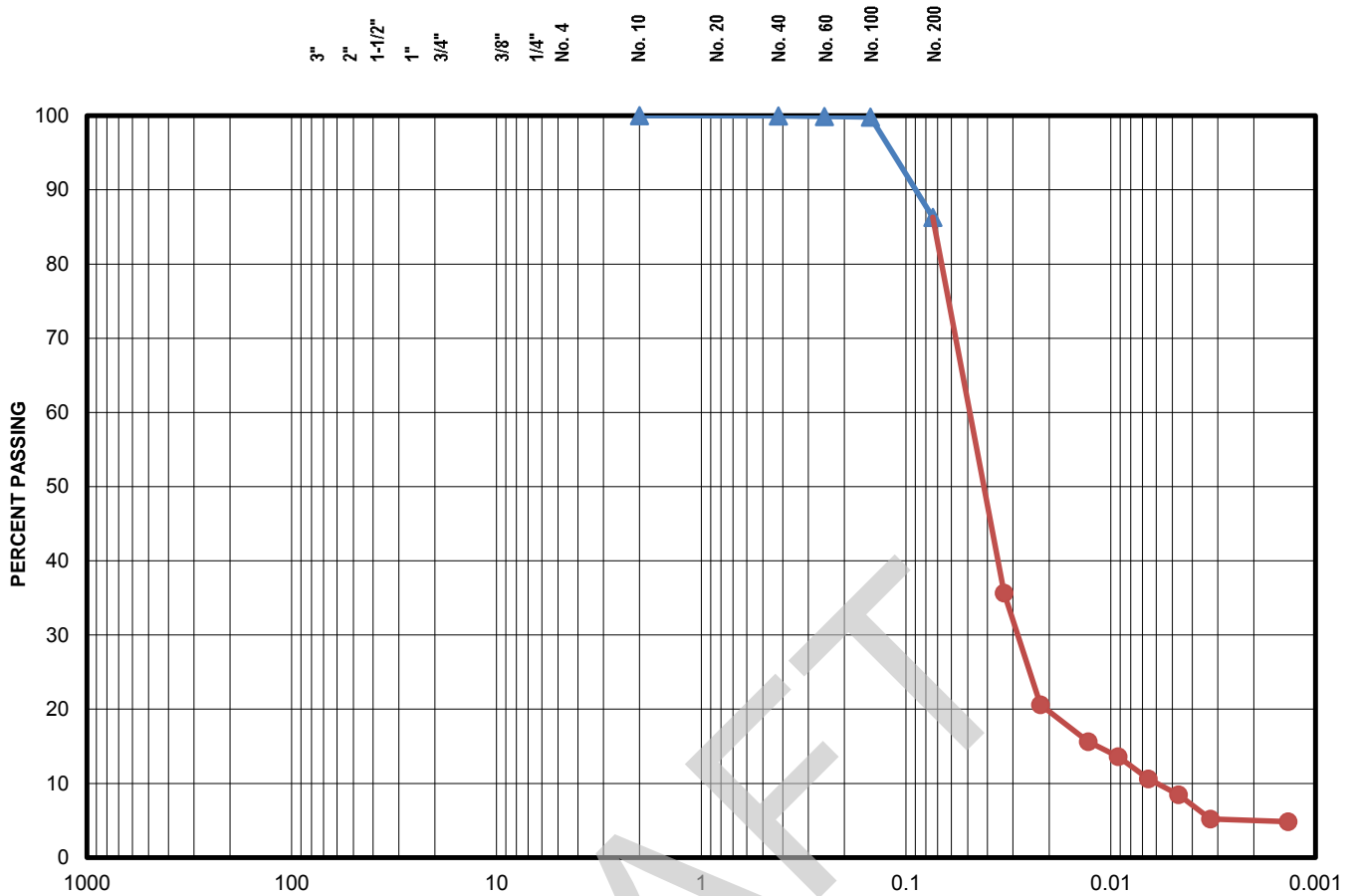
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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential Work Product 18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	99.8
1/4"	100.0	No. 200	86.3

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1158

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/7/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-1Aa	Checked By	SLC
Source/Depth (feet)	20 - 21		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



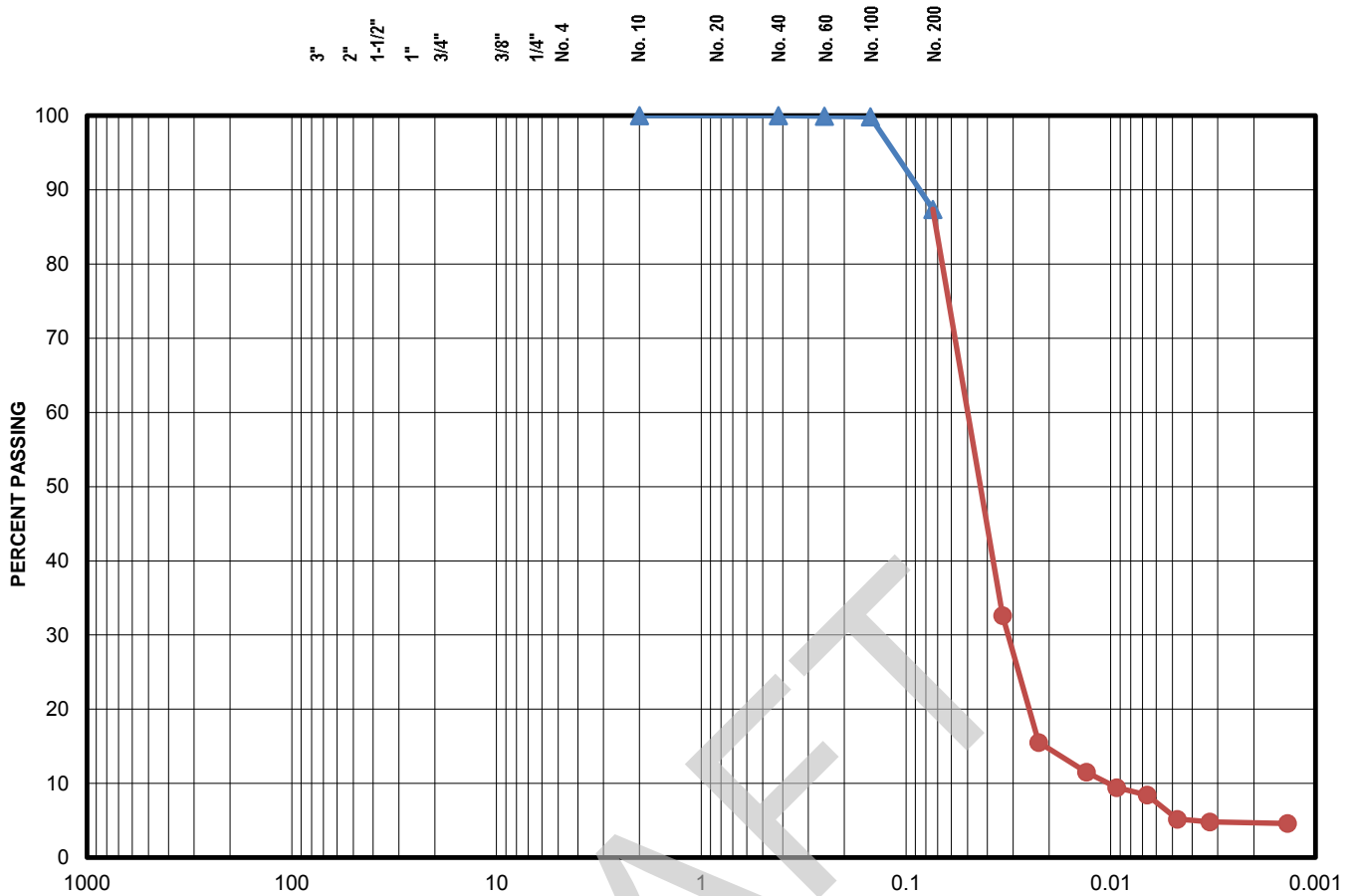
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Loose gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	99.8
1/4"	100.0	No. 200	87.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	1156

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/7/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-1Aa	Checked By	SLC
Source/Depth (feet)	23.6 - 24		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



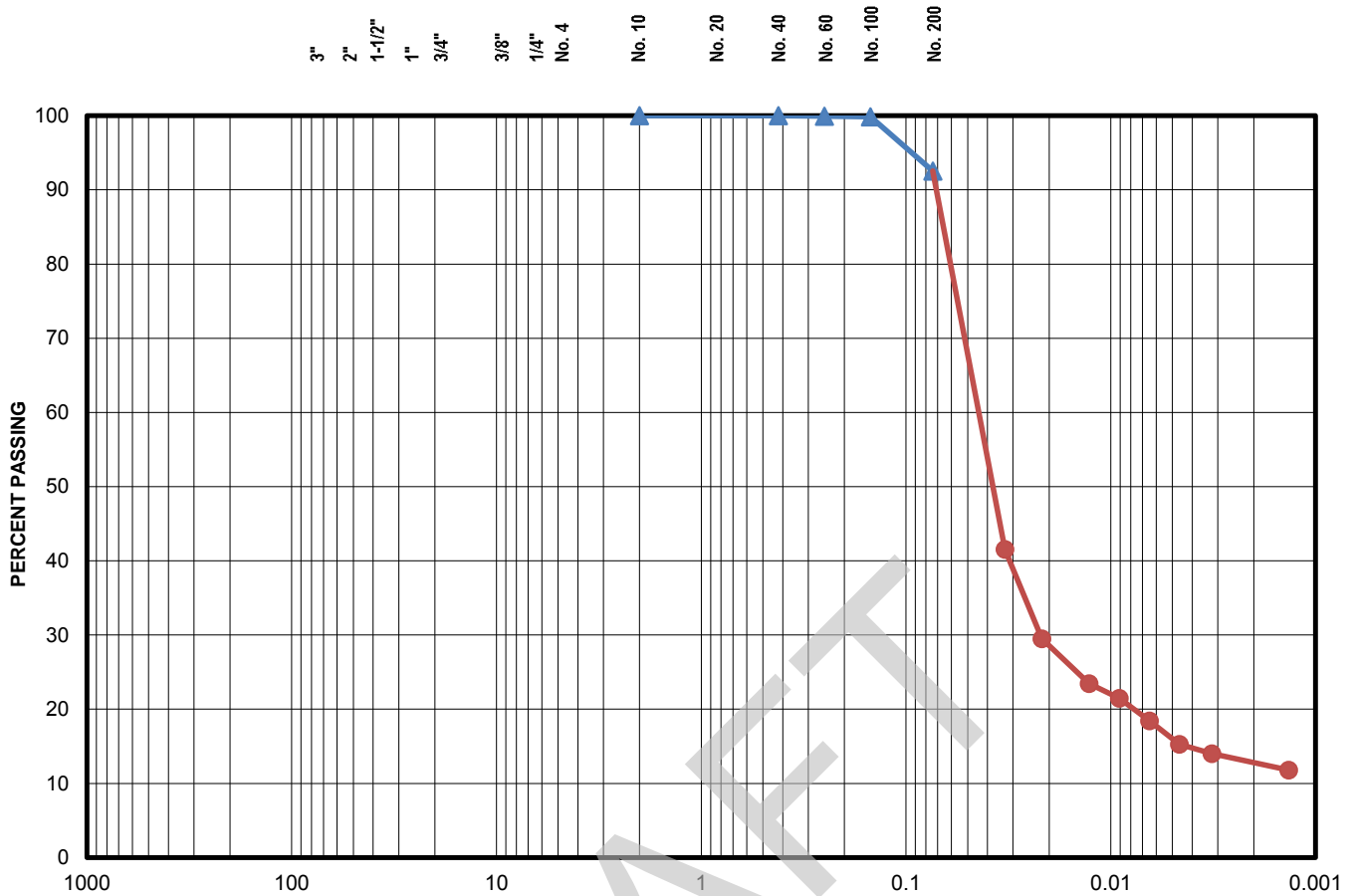
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose gray clayey silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	99.8
1/4"	100.0	No. 200	92.5

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1150

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-153), P	Date Tested	10/7/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-1Aa	Checked By	SLC
Source/Depth (feet)	27 - 28.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



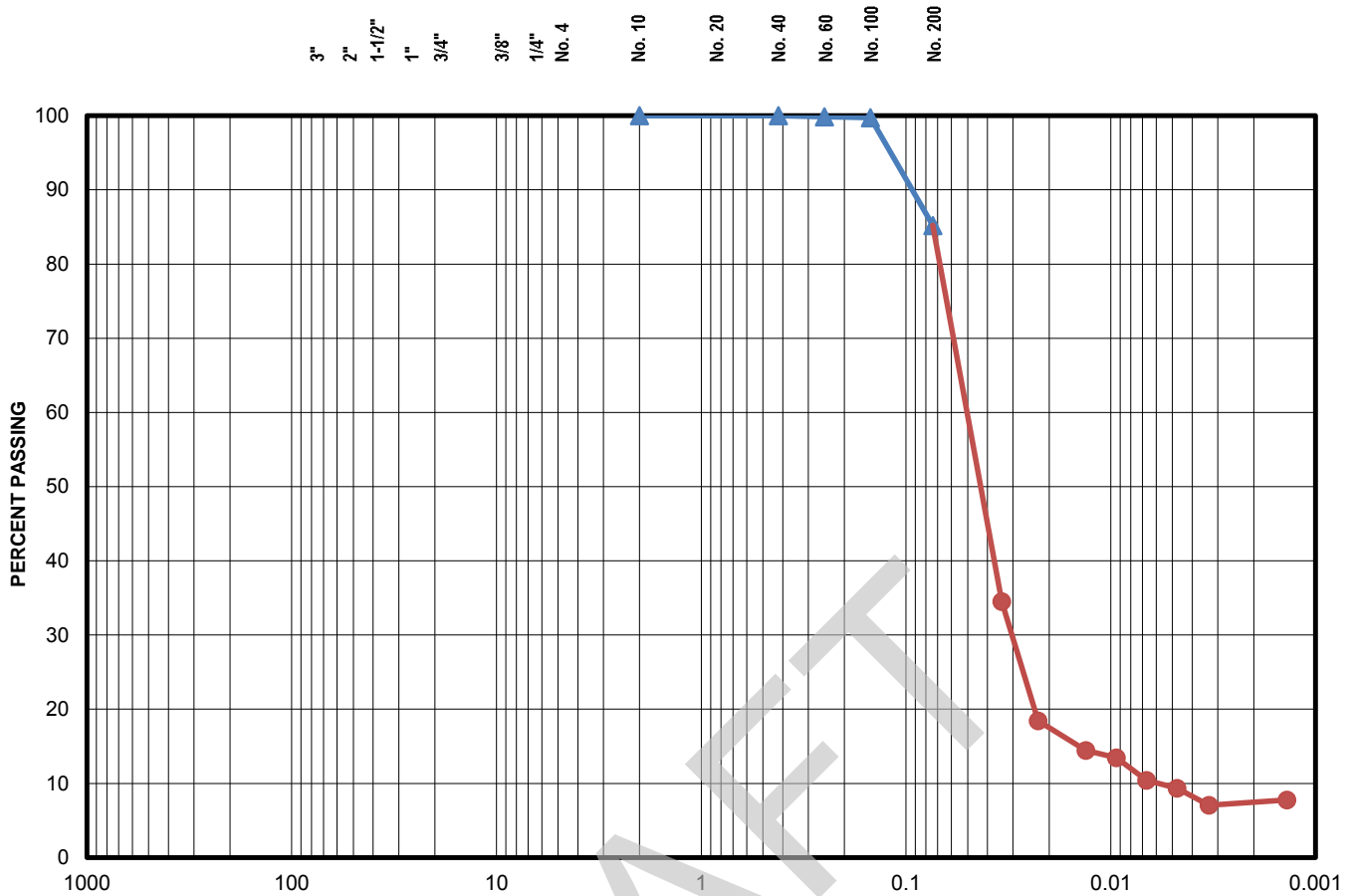
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	99.7
1/4"	100.0	No. 200	85.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1146
Hydro jar ID:	1154

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/7/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-1Aa	Checked By	SLC
Source/Depth (feet)	32 - 33.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



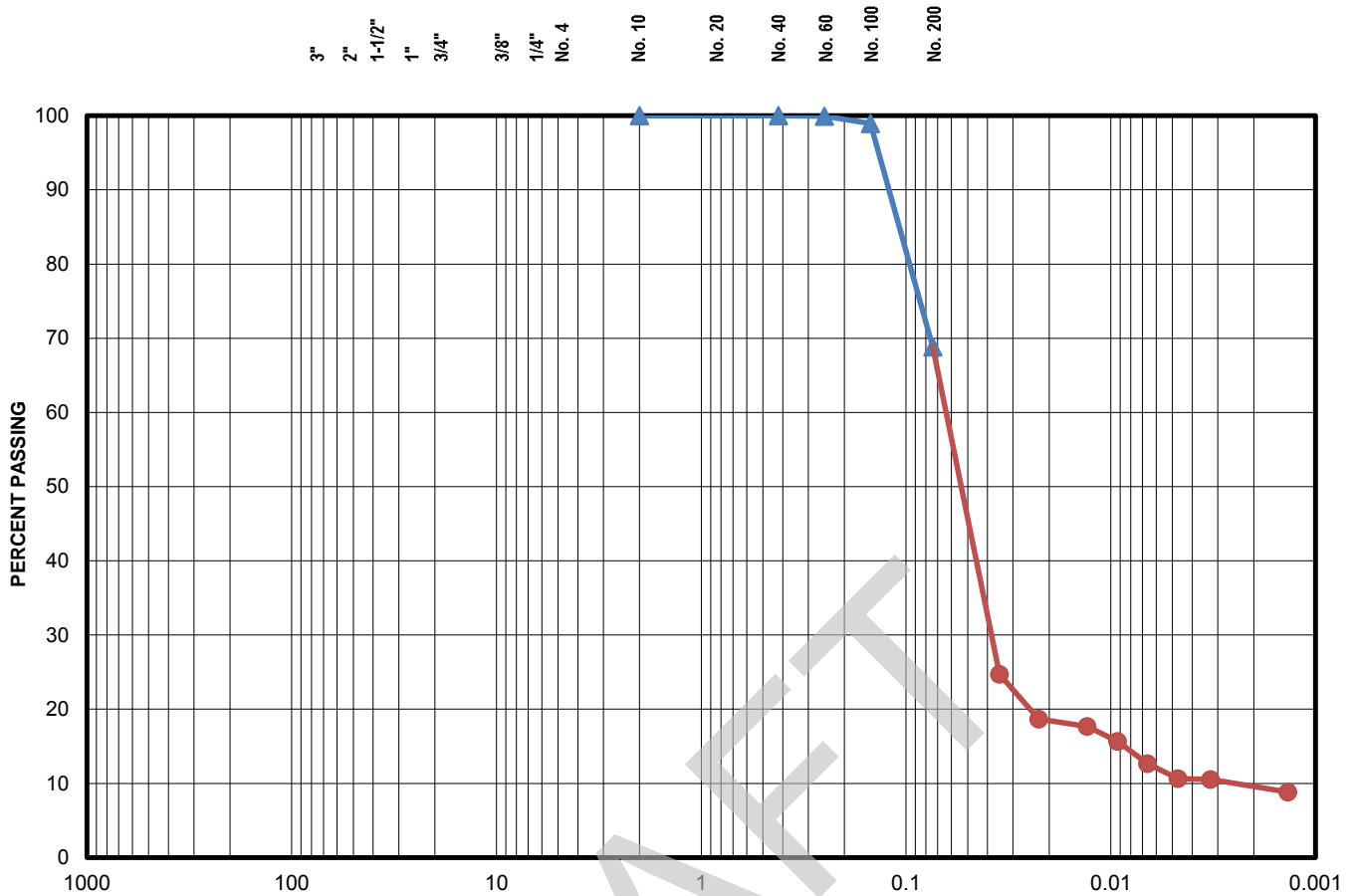
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Loose gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	98.9
1/4"	100.0	No. 200	68.8

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/7/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-1Aa	Checked By	SLC
Source/Depth (feet)	34.5 - 36		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



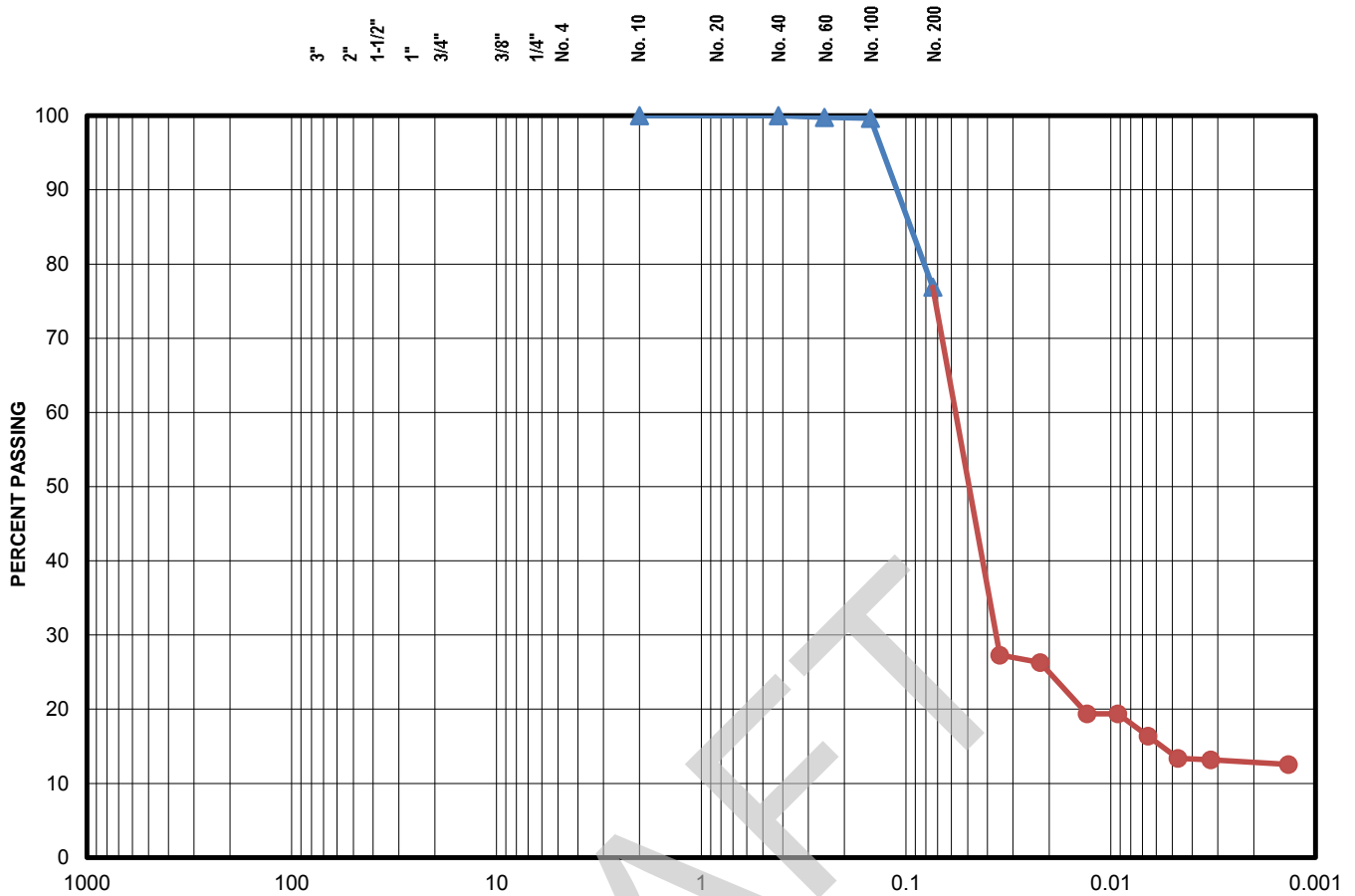
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose gray sandy silt with 4" clay layer (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.8
3/8"	100.0	No. 100	99.6
1/4"	100.0	No. 200	76.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1147
Hydro jar ID:	1161

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/8/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-1Aa	Checked By	SLC
Source/Depth (feet)	39.5 - 41		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



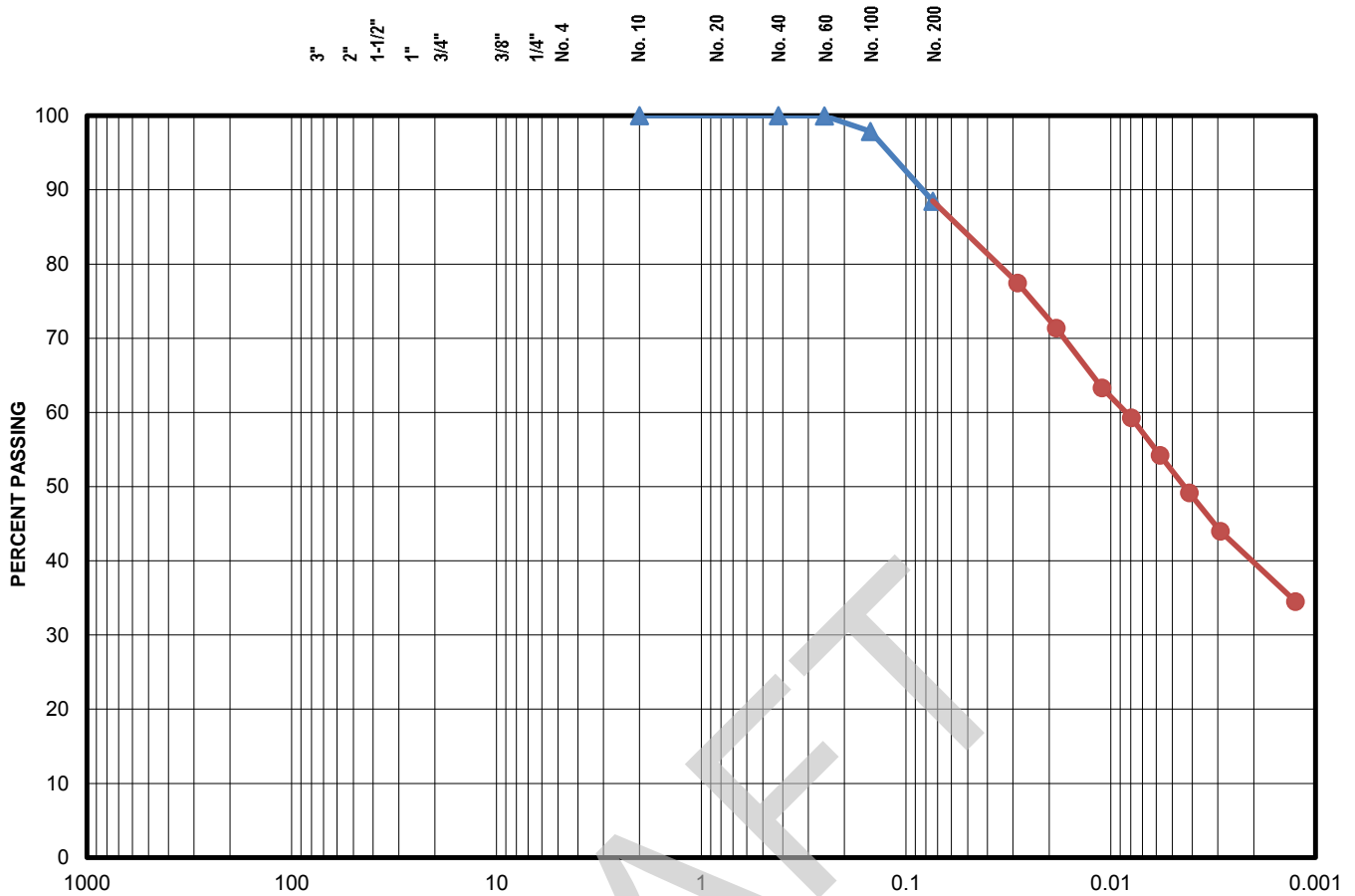
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium gray clay (CL6)
-----------------------------	------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	97.9
1/4"	100.0	No. 200	88.5

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-153)	Date Tested	10/10/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-1Aa	Checked By	SEF
Source/Depth (feet)	67.5 - 69		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



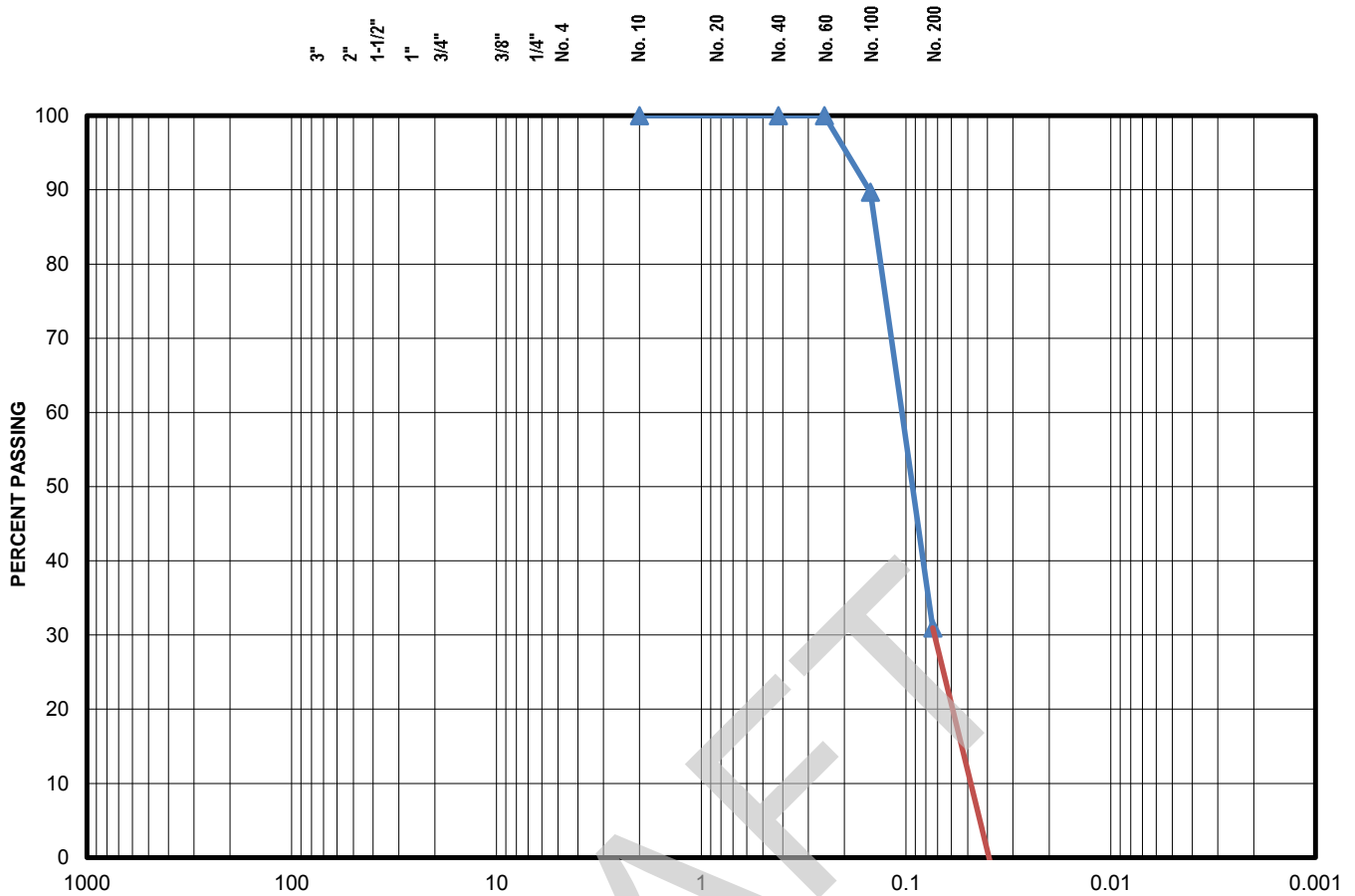
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium dense gray silty sand (SM)
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Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	89.7
1/4"	100.0	No. 200	30.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/10/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-1Aa	Checked By	SEF
Source/Depth (feet)	71 - 72		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



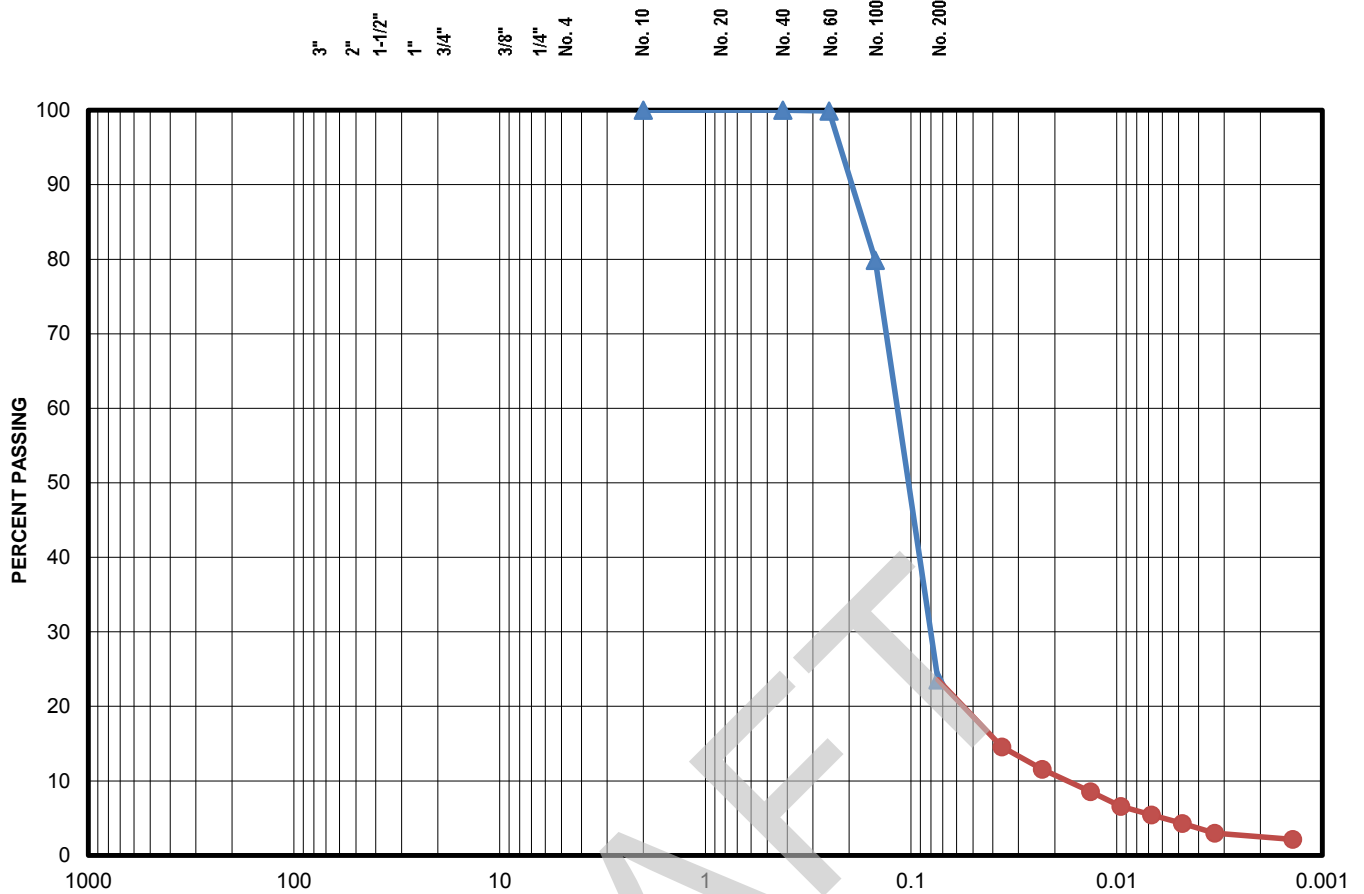
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray silty sand (SM)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	79.9
1/4"	100.0	No. 200	23.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/10/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-1Aa	Checked By	SEF
Source/Depth (feet)	76.5 - 78		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

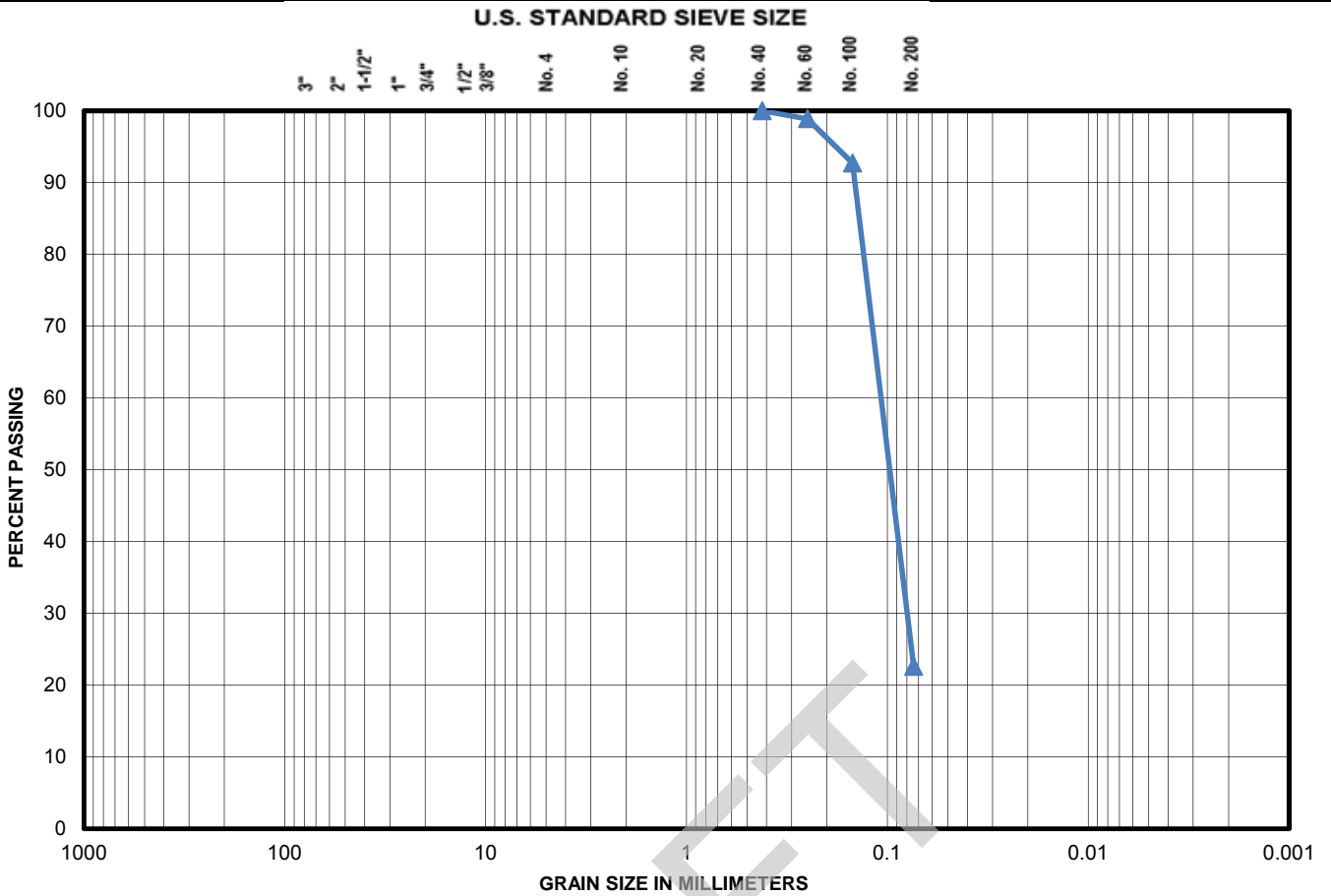


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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	77.4	Fines (Silt & Clay) %	22.6
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USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	98.9
1/2"	#N/A	No. 100	92.7
3/8"	#N/A	No. 200	22.6

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	Date Tested	9/26/2013
Project No.	18274-001-00	Tested By	SEF
Boring No.	B-1Aa	Checked By	SLC
Source/Depth (feet)	55 - 56.5	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

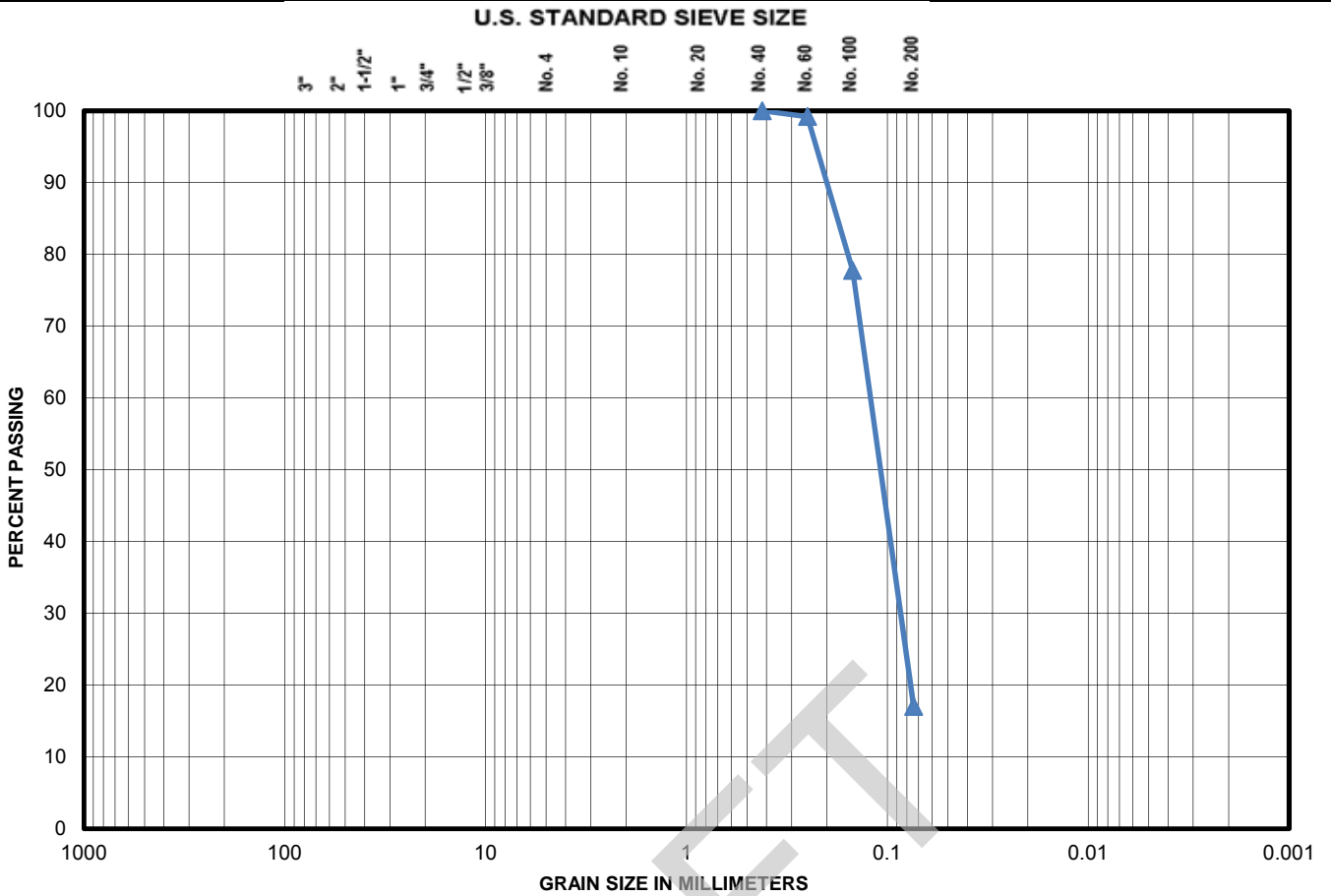


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	83.0	Fines (Silt & Clay) %	17.0
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USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	99.2
1/2"	#N/A	No. 100	77.8
3/8"	#N/A	No. 200	17.0

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	Date Tested	9/26/2013
Project No.	18274-001-00	Tested By	SEF
Boring No.	B-1Aa	Checked By	SLC
Source/Depth (feet)	62.5 - 64	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

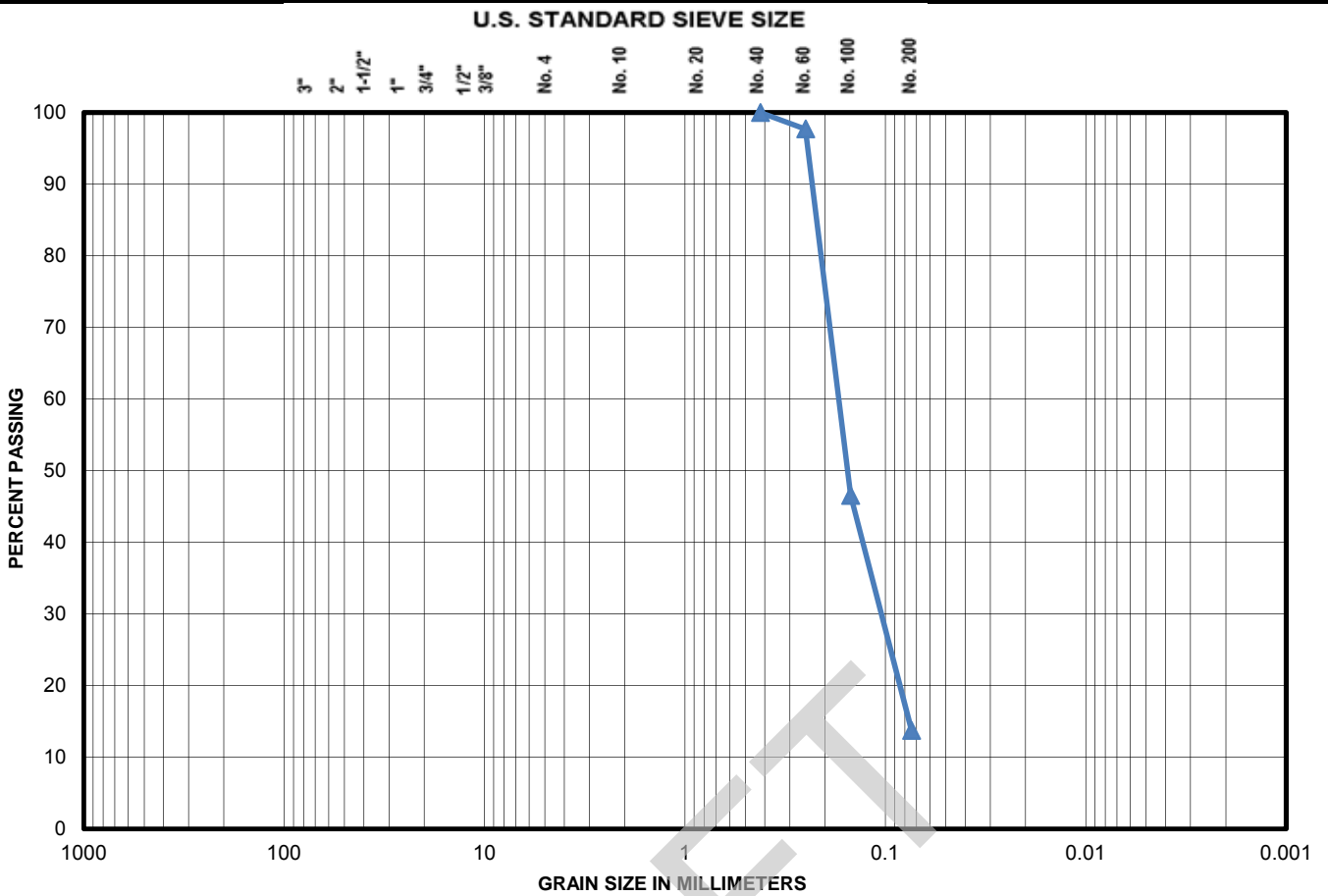


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	86.3	Fines (Silt & Clay) %	13.7
--------	------	-----------------------	------

USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	97.7
1/2"	#N/A	No. 100	46.5
3/8"	#N/A	No. 200	13.7

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	Date Tested	9/26/2013
Project No.	18274-001-00	Tested By	SEF
Boring No.	B-1Aa	Checked By	SLC
Source/Depth (feet)	81.5 - 83	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

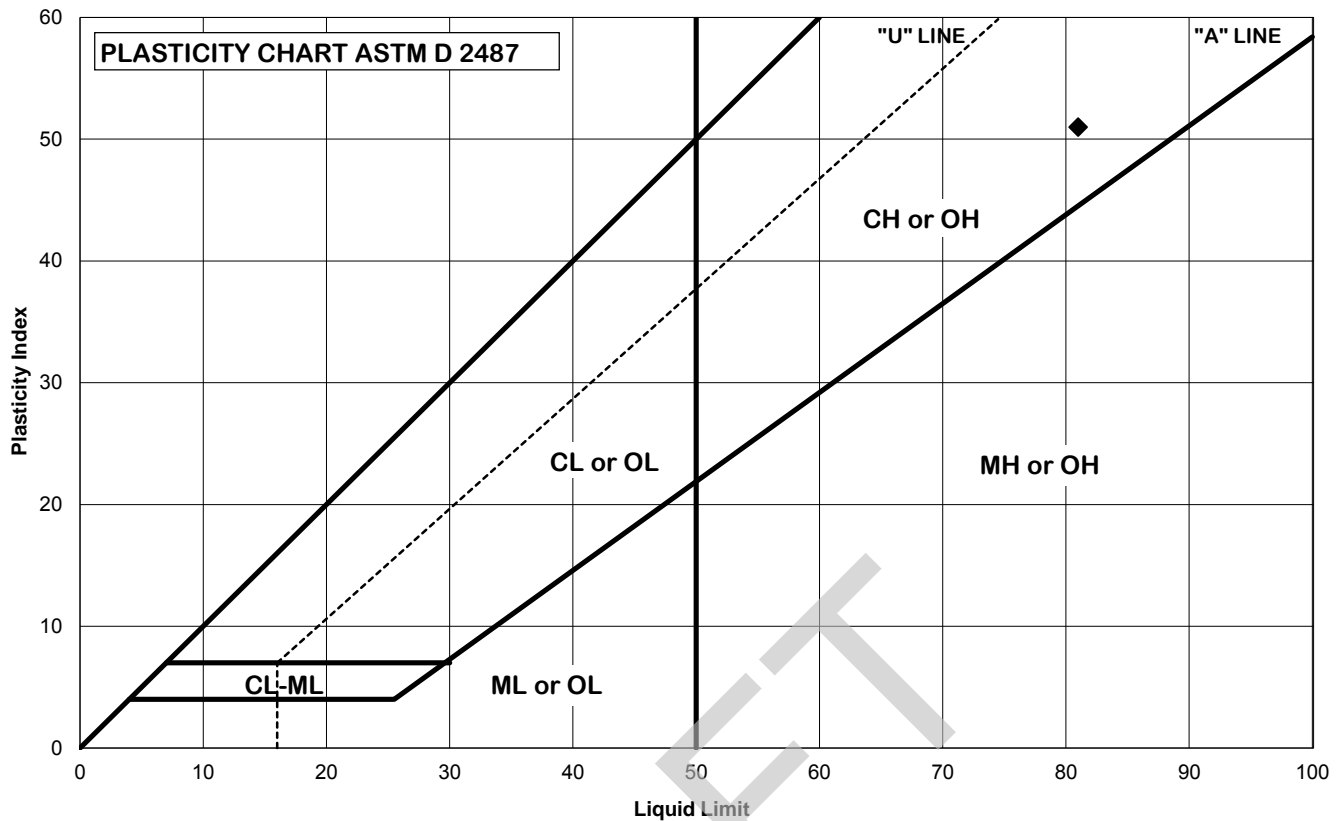


11955 Lakeland Park Blvd. Suite 100 Baton Rouge, La 70809

ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-1Aa	Natural WC:	#DIV/0!
Depth, ft.	72 - 73	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay with sand lenses, pockets and seams (CH4)		


Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	81
Plastic Limit =	30
Plasticity Index =	51

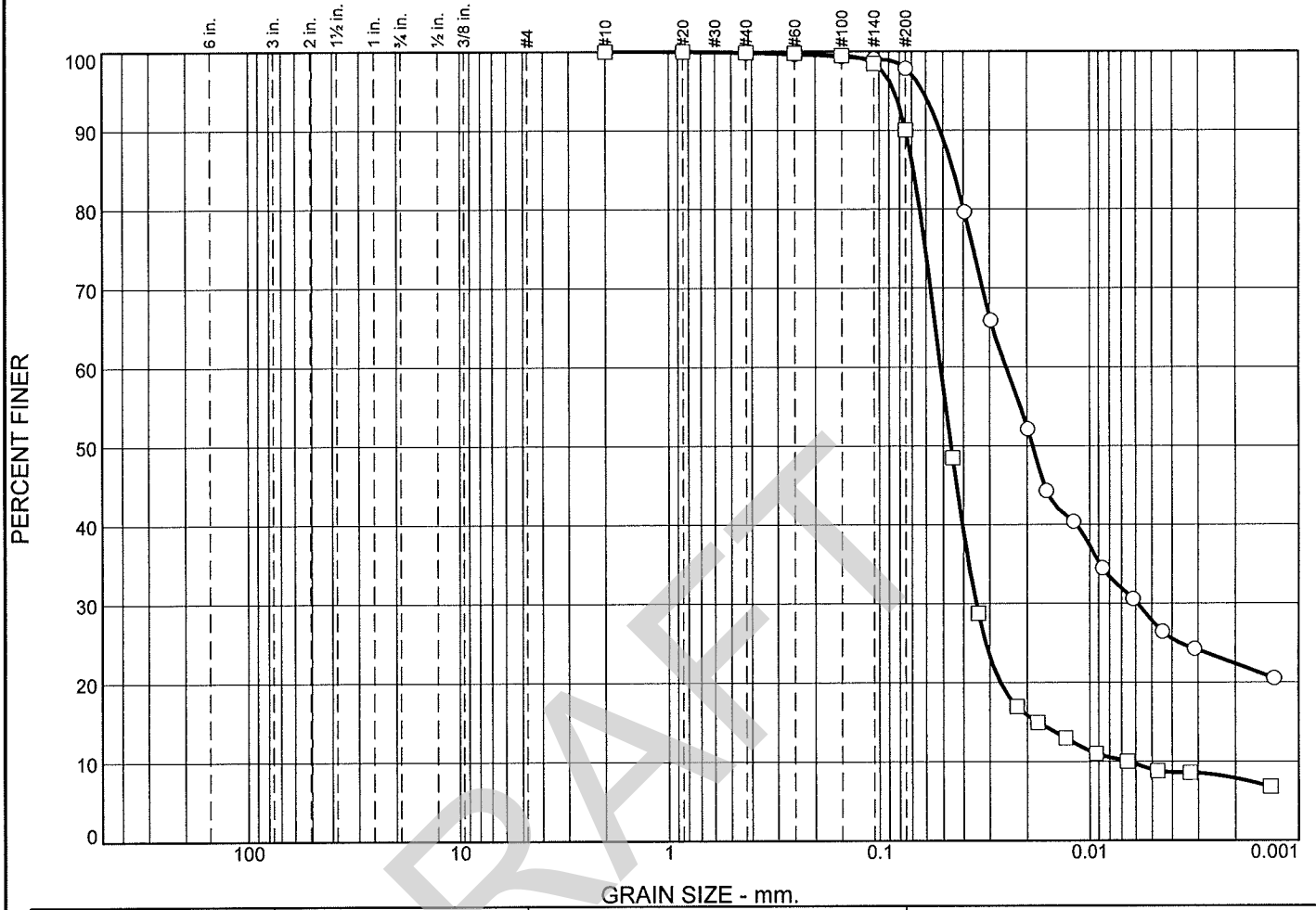
Date:	10/1/2013
Tested By:	BH
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00

Particle Size Distribution Report

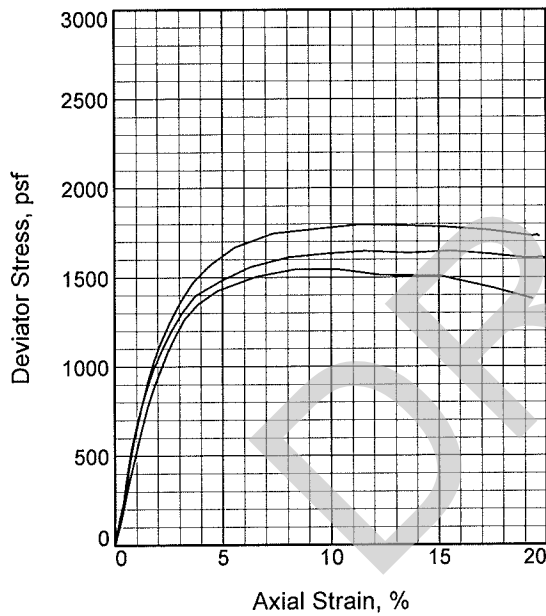
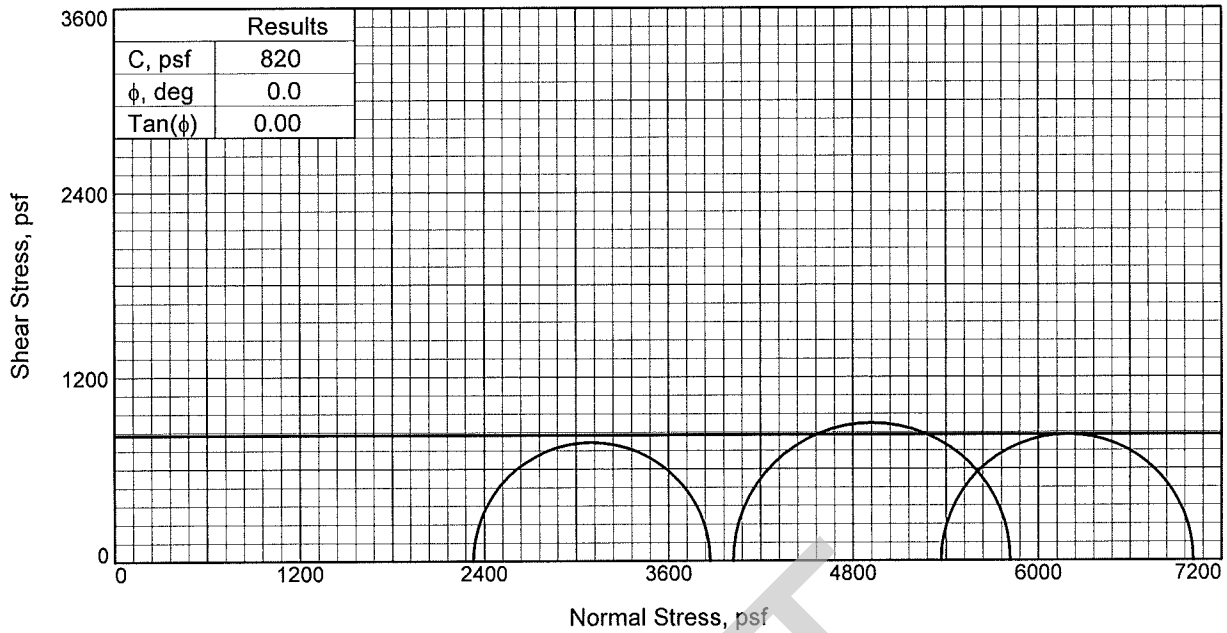


	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	0	2	70	28
□	0	0	0	0	0	10	81	9

	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
□	0.0690	0.0513	0.0459	0.0349	0.0179	0.0065	3.64	7.88		

Material Description	USCS	AASHTO
○ M GR CL6	CL6	
□ GR ML	ML	

<p>Project No. 04.55124092 Client: GeoEngineers</p> <p>Project: Mid Barataria Diversion</p> <p>○ Source of Sample: B-1Aa Depth: 47 Sample Number: 16</p> <p>□ Source of Sample: B-1Aa Depth: 49 Sample Number: 16</p> <p style="text-align: center;">Fugro Consultants, Inc.</p> <p style="text-align: center;">Baton Rouge, LA</p>	<p>Remarks:</p> <p style="text-align: right;">Figure</p>
---	---



Sample No.	1	2	3
Initial			
Water Content, %	39.0	37.2	38.0
Dry Density, pcf	81.8	82.9	82.1
Saturation, %	99.9	97.9	98.1
Void Ratio	1.0455	1.0182	1.0376
Diameter, in.	1.42	1.43	1.43
Height, in.	2.85	2.80	2.86
At Test			
Water Content, %	39.0	37.2	38.0
Dry Density, pcf	81.8	82.9	82.1
Saturation, %	99.9	97.9	98.1
Void Ratio	1.0455	1.0182	1.0376
Diameter, in.	1.42	1.43	1.43
Height, in.	2.85	2.80	2.86
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	16.16	27.93	37.28
Fail. Stress, psf	1544	1795	1646
Strain, %	10.3	11.3	11.6
Ult. Stress, psf	1508	1790	1636
Strain, %	14.3	13.3	13.6
σ_1 Failure, psf	3871	5817	7015
σ_3 Failure, psf	2327	4022	5368

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CL6

Assumed Specific Gravity= 2.68

Remarks:

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: B-1Aa **Depth:** 47

Sample Number: 16

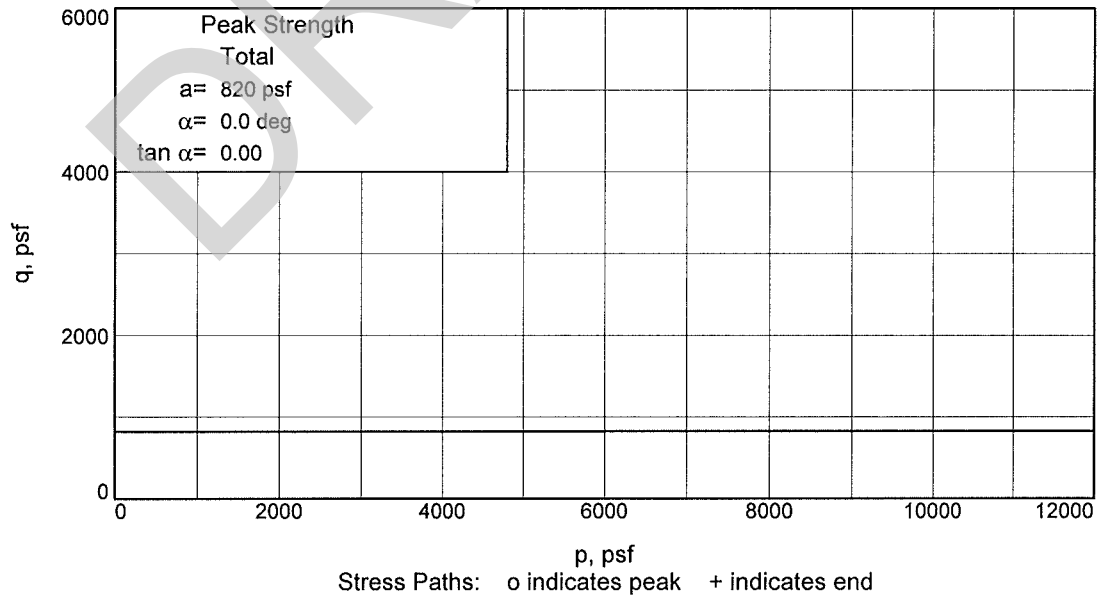
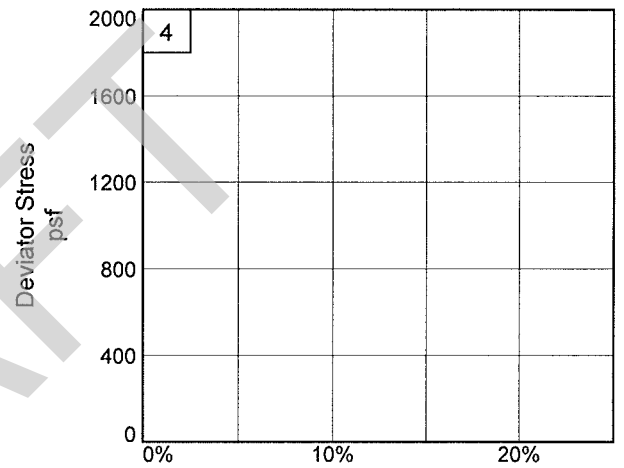
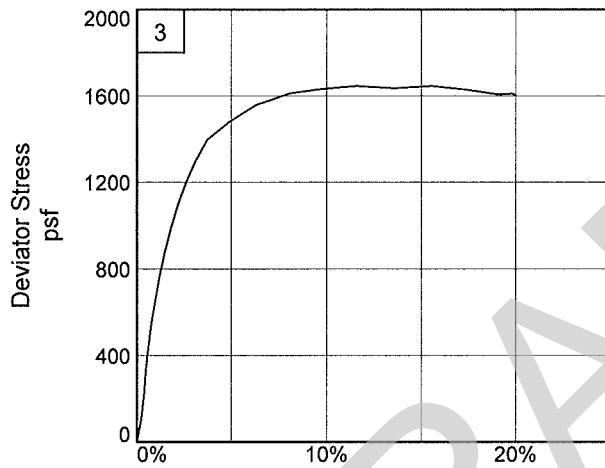
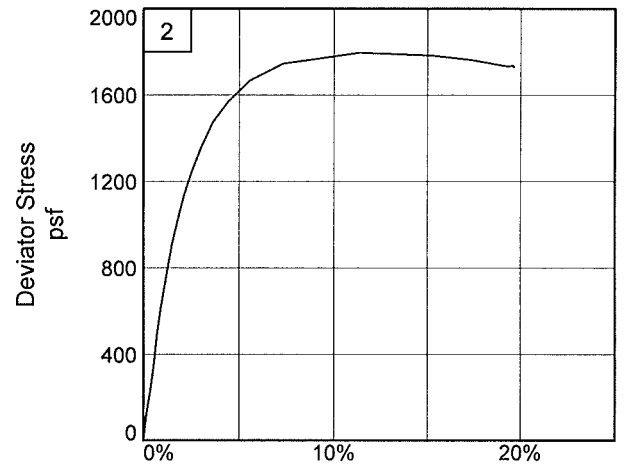
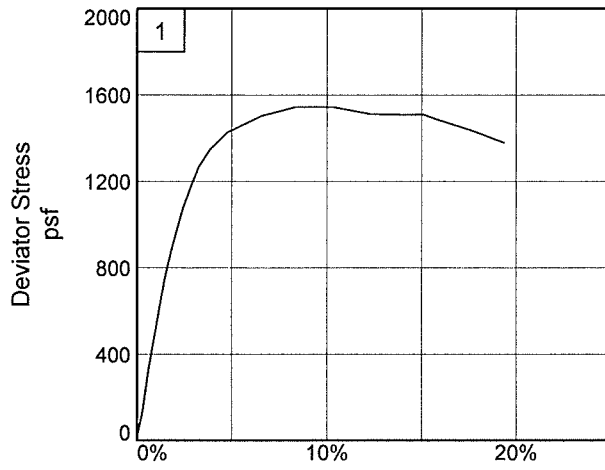
Proj. No.: 04.55124092

Date Sampled: 10/8/13

TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: B-1Aa

Depth: 47

Sample Number: 16

Project No.: 04.55124092

Figure _____

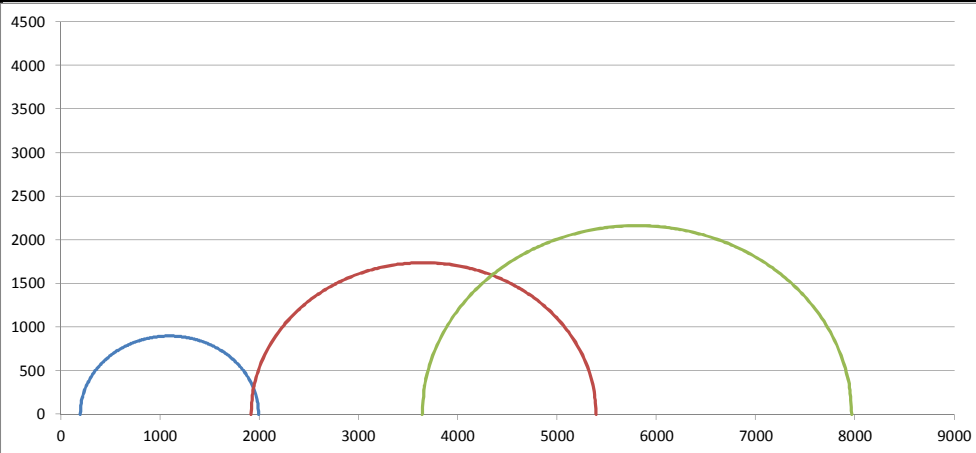
Fugro Consultants, Inc.

Tested By: IK

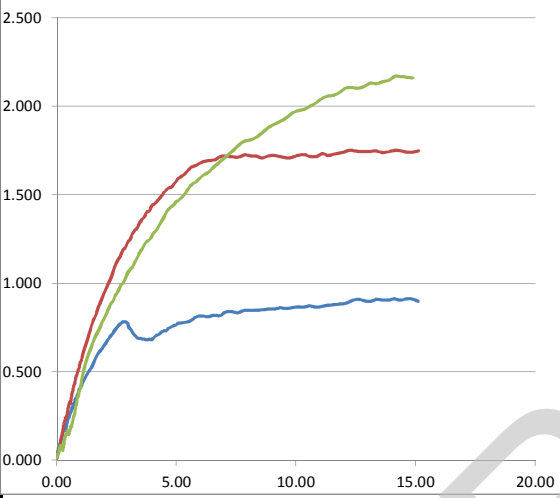
Checked By: DB

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	1739
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Yield
Sample 4 Failure	#N/A



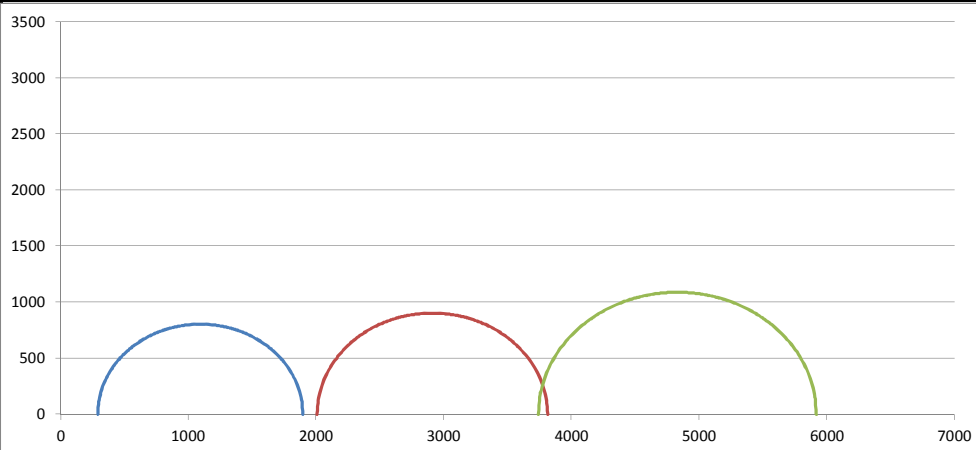
Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	27.80	28.45	26.57
	DRY DENSITY, PCF	94.27	93.06	93.25
	WET DENSITY, PCF	120.47	119.53	118.03
	SATURATION %	96.62	96.00	90.09
	VOID RATIO	0.77	0.79	0.79
AT TEST	WATER CONTENT %	30.22	29.62	30.51
	DRY DENSITY, PCF	120.47	119.53	118.03
	WET DENSITY, PCF	156.87	154.94	154.04
	SATURATION %	100.64	97.94	96.63
	VOID RATIO	0.80	0.81	0.84

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.00	3.00	2.99
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.37	1.39	1.39
				CELL PRESSURE, PSI	1.30	13.30	25.30
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1796.70	3478.00	4328.00
REMARKS	0			STRAIN, %	14.08	12.35	15.11
				ULTIMATE STRESS, %	0.01	0.01	0.02
				σ_1 FAILURE, PSF	1991.10	5391.76	7966.88
				σ_3 FAILURE, PSF	194.40	1913.76	3638.88

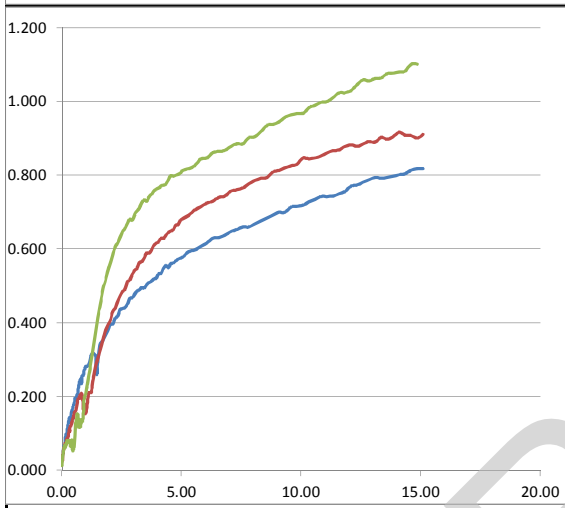
SAMPLE DESCRIPTION		Stiff tan and gray clay with roots, sand lenses, sand pockets, and sand seams (CL4)					
BORING NO.	B-1A	SAMPLE NO.	2	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	9/10/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	3 - 4				
TESTED BY	jrk/jrk/jrk	CHECKED BY	slc/slc/slc/				

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	903
Sample 1 Failure	Yield
Sample 2 Failure	Yield
Sample 3 Failure	Yield
Sample 4 Failure	#N/A



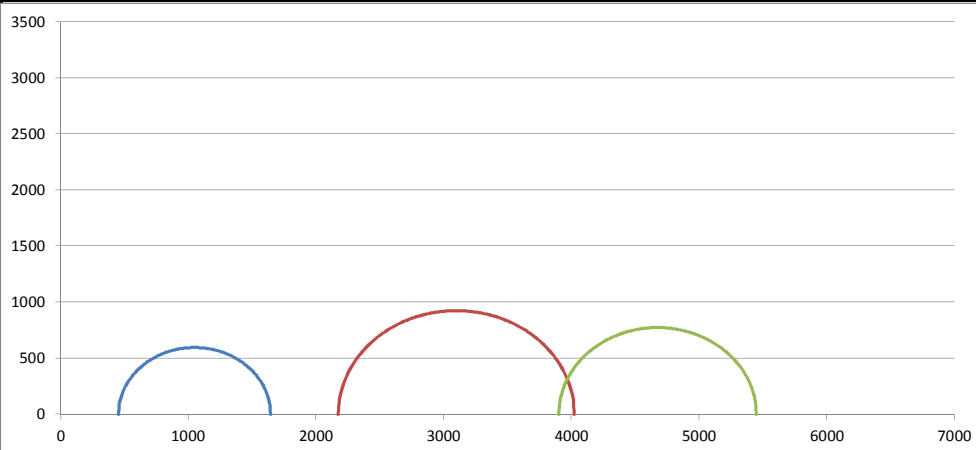
Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	22.94	22.64	22.91
	DRY DENSITY, PCF	100.26	102.06	101.72
	WET DENSITY, PCF	123.26	125.16	125.02
	SATURATION %	92.46	95.46	95.78
	VOID RATIO	0.66	0.63	0.64
AT TEST	WATER CONTENT %	22.97	22.29	22.15
	DRY DENSITY, PCF	123.26	125.16	125.02
	WET DENSITY, PCF	151.57	153.06	152.71
	SATURATION %	92.51	94.68	94.08
	VOID RATIO	0.66	0.63	0.63

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.09	3.10	3.05
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.39	1.41	1.36
				CELL PRESSURE, PSI	2.00	14.00	26.00
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1608.00	1806.00	2178.00
REMARKS	0			STRAIN, %	14.84	14.09	15.10
				ULTIMATE STRESS, %	0.02	0.01	0.02
				σ_1 FAILURE, PSF	1896.00	3813.36	5919.12
				σ_3 FAILURE, PSF	288.00	2007.36	3741.12

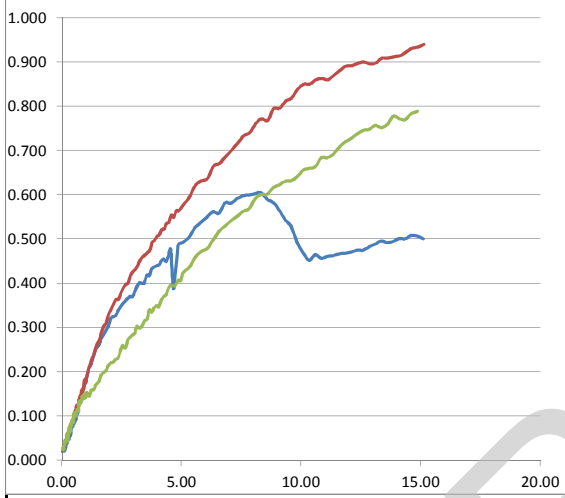
SAMPLE DESCRIPTION	Medium brown clay (CL4)						
BORING NO.	B-1A			SAMPLE NO.	3	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	9/10/2013	
PROJECT NUMBER	18274-001-00			DEPTH FT.	5 - 6		
TESTED BY	jrk/JRK/JRK			CHECKED BY	clp/CLP/CLP/		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	774
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Yield
Sample 3 Failure	Yield
Sample 4 Failure	#N/A

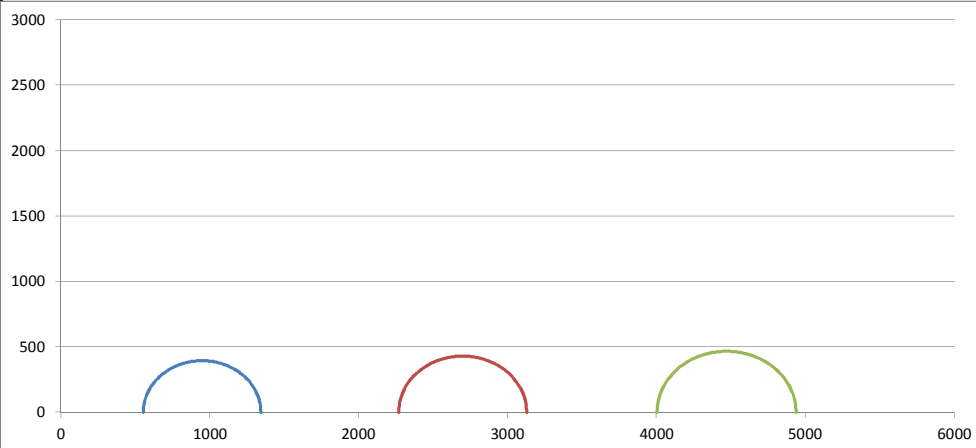


Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	30.74	32.55	30.25
	DRY DENSITY, PCF	96.83	94.85	93.45
	WET DENSITY, PCF	126.60	125.72	121.72
	SATURATION %	113.79	114.75	103.06
	VOID RATIO	0.72	0.76	0.78
AT TEST	WATER CONTENT %	30.84	30.54	30.99
	DRY DENSITY, PCF	126.60	125.72	121.72
	WET DENSITY, PCF	165.64	164.11	159.44
	SATURATION %	113.95	111.59	104.23
	VOID RATIO	0.72	0.73	0.79

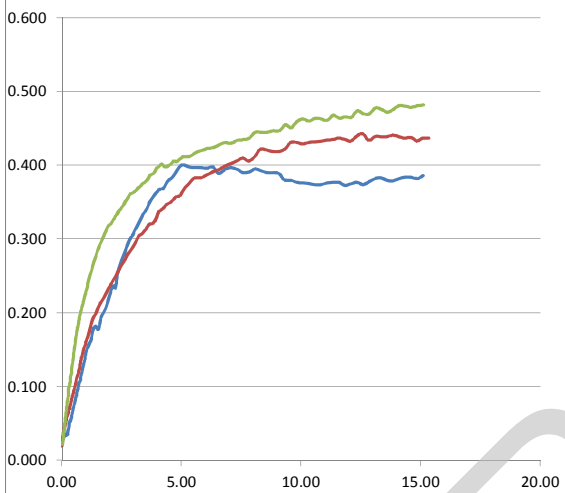
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	2.70	2.72	2.74
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.35	1.35	1.37
				CELL PRESSURE, PSI	3.10	15.10	27.10
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1192.00	1850.00	1548.00
REMARKS	0			STRAIN, %	8.32	15.13	14.85
				ULTIMATE STRESS, %	0.01	0.02	0.02
				σ_1 FAILURE, PSF	1642.72	4022.96	5448.96
				σ_3 FAILURE, PSF	450.72	2172.96	3900.96

SAMPLE DESCRIPTION	Medium gray clay with 5" silty sand layer (CL4)						
BORING NO.	B-1A	SAMPLE NO.	4	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	9/10/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	8 - 9				
TESTED BY	JRK/JRK/JRK	CHECKED BY	CLP/CLP/CLP/				

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	430
Sample 1 Failure	SLS 60°
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



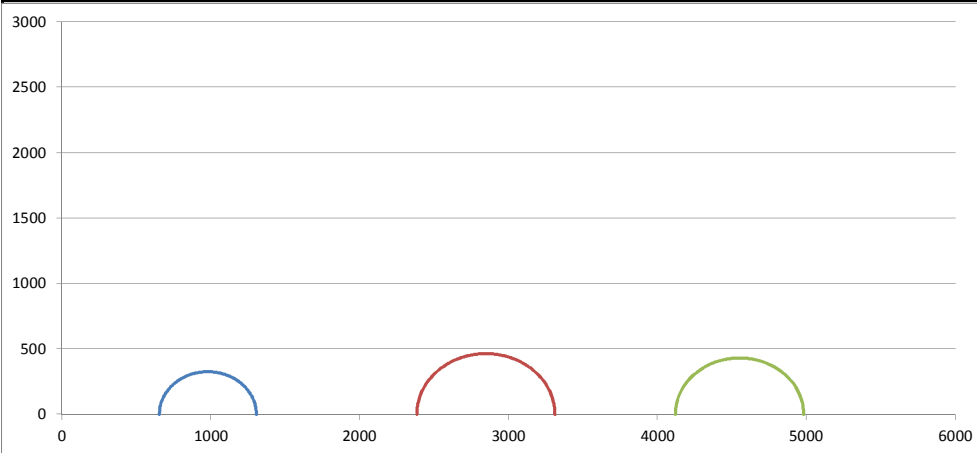
Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	42.41	40.85	42.43
	DRY DENSITY, PCF	83.27	84.96	82.81
	WET DENSITY, PCF	118.59	119.66	117.94
	SATURATION %	113.04	113.39	111.85
	VOID RATIO	1.00	0.96	1.01
AT TEST	WATER CONTENT %	43.03	44.05	41.83
	DRY DENSITY, PCF	118.59	119.66	117.94
	WET DENSITY, PCF	169.62	172.38	167.27
	SATURATION %	113.71	116.86	111.19
	VOID RATIO	1.01	1.01	1.00

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.03	3.03	3.05
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.38	1.31	1.38
				CELL PRESSURE, PSI	3.80	15.80	27.80
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	790.00	860.00	934.00
REMARKS	0			STRAIN, %	5.06	12.57	14.10
				ULTIMATE STRESS, %	0.01	0.01	0.01
				σ_1 FAILURE, PSF	1342.96	3128.00	4937.20
				σ_3 FAILURE, PSF	552.96	2268.00	4003.20

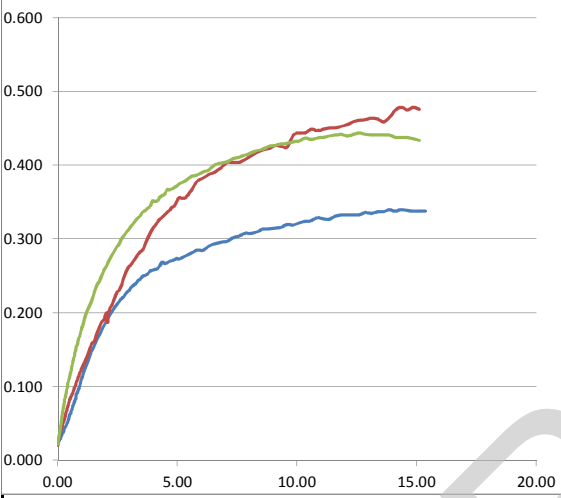
SAMPLE DESCRIPTION	Soft gray clay (CL2)						
BORING NO.	B-1A			SAMPLE NO.	4	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	9/10/2013	
PROJECT NUMBER	18274-001-00			DEPTH FT.	10 - 11		
TESTED BY	JRK/JRK/JRK			CHECKED BY	CLP/CLP/CLP/		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	431
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Yield
Sample 3 Failure	Bulge
Sample 4 Failure	#N/A

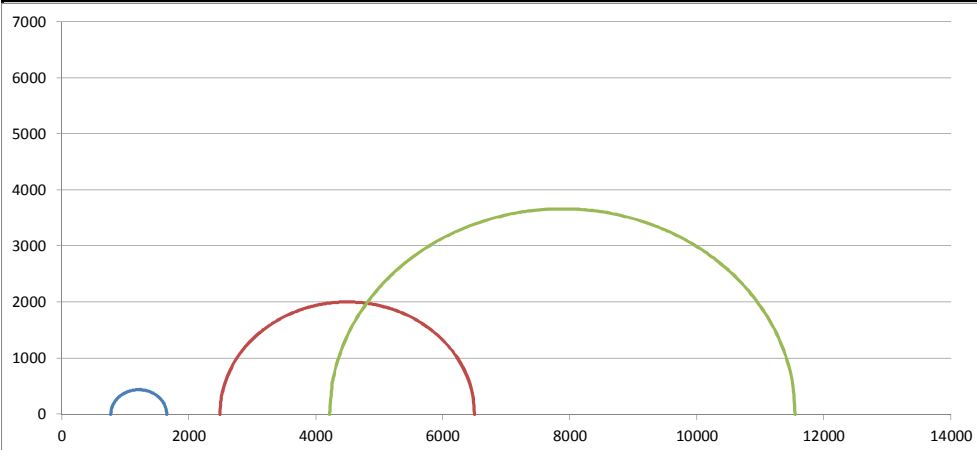


	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	38.56	36.54	37.23
	DRY DENSITY, PCF	88.92	88.77	86.93
	WET DENSITY, PCF	123.21	121.21	119.30
	SATURATION %	117.73	111.17	108.37
	VOID RATIO	0.87	0.88	0.92
AT TEST	WATER CONTENT %	39.43	37.20	39.70
	DRY DENSITY, PCF	123.21	121.21	119.30
	WET DENSITY, PCF	171.80	166.30	166.67
	SATURATION %	118.79	112.01	111.37
	VOID RATIO	0.89	0.89	0.95

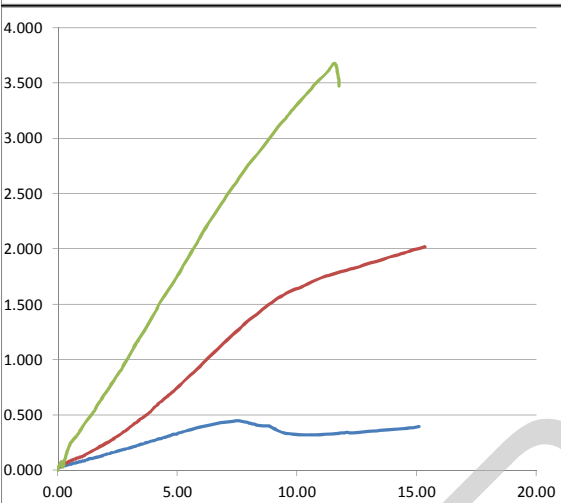
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.05	3.01	3.09
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.36	1.36	1.38
				CELL PRESSURE, PSI	4.60	16.60	28.60
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	652.00	928.00	862.00
REMARKS	0			STRAIN, %	13.84	14.35	12.59
				ULTIMATE STRESS, %	0.01	0.01	0.01
				σ_1 FAILURE, PSF	1305.76	3311.20	4981.84
				σ_3 FAILURE, PSF	653.76	2383.20	4119.84

SAMPLE DESCRIPTION		Soft gray clay with 2" clayey silt layer at bottom (CL6)					
BORING NO.	B-1Aa	SAMPLE NO.	5	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	9/10/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	12 - 13				
TESTED BY	JK/MM/JK/MM/JK/MM	CHECKED BY	SLC/SLC/SLC/				

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	2005
Sample 1 Failure	Bulge
Sample 2 Failure	Yield
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A

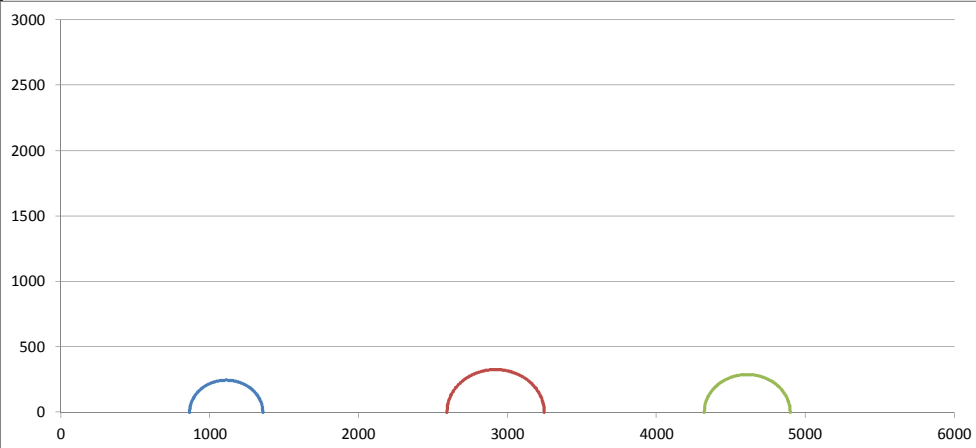


	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	26.66	26.60	28.71
	DRY DENSITY, PCF	100.69	99.17	92.77
	WET DENSITY, PCF	127.54	125.54	119.40
	SATURATION %	108.61	104.30	96.21
	VOID RATIO	0.66	0.68	0.80
AT TEST	WATER CONTENT %	28.16	26.66	24.98
	DRY DENSITY, PCF	127.54	125.54	119.40
	WET DENSITY, PCF	163.45	159.01	149.23
	SATURATION %	111.39	104.42	89.57
	VOID RATIO	0.67	0.68	0.74

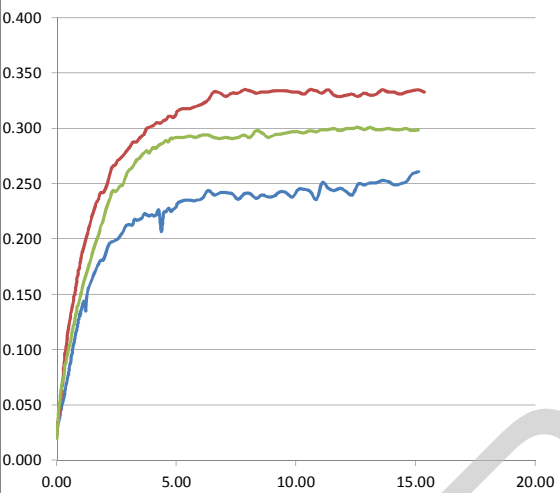
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.06	2.92	3.45
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.27	1.35	1.45
				CELL PRESSURE, PSI	5.30	17.30	29.30
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	880.00	4010.00	7332.00
REMARKS	0			STRAIN, %	7.57	15.34	11.58
				ULTIMATE STRESS, %	0.01	0.02	0.01
				σ_1 FAILURE, PSF	1648.96	6496.88	11546.88
				σ_3 FAILURE, PSF	768.96	2486.88	4214.88

SAMPLE DESCRIPTION		Very soft gray clayey silt with 3" silty sand layer at bottom, silt and sand pockets (ML)					
BORING NO.	B-1Aa	SAMPLE NO.	5	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	9/10/2013		
PROJECT NUMBER	18274-001-00		DEPTH FT.	14 - 15			
TESTED BY	JRK/JRK/JRK		CHECKED BY	CLP/CLP/CLP/			

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	289
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



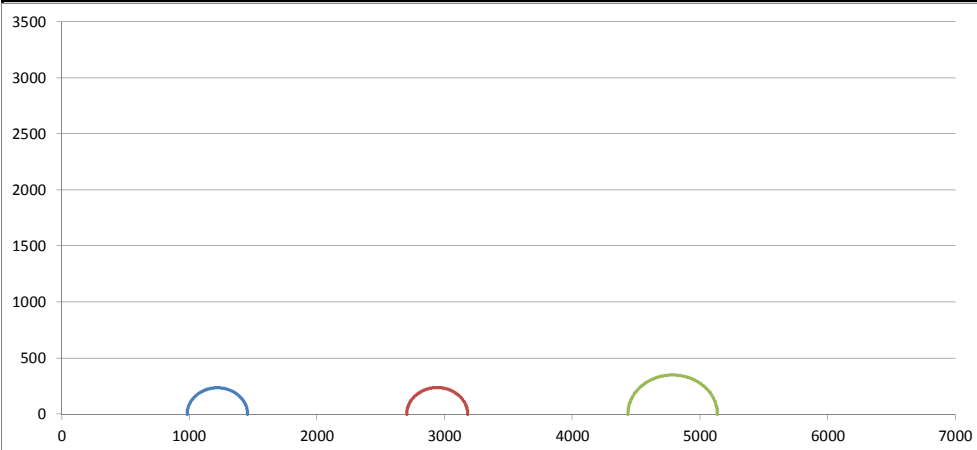
Specimen No.	1	2	3
INITIAL WATER CONTENT %	41.41	42.96	43.62
INITIAL DRY DENSITY, PCF	81.97	80.61	78.30
INITIAL WET DENSITY, PCF	115.91	115.25	112.45
INITIAL SATURATION %	106.96	107.44	103.17
INITIAL VOID RATIO	1.03	1.07	1.13
AT TEST WATER CONTENT %	44.19	44.34	45.42
AT TEST DRY DENSITY, PCF	116.91	115.25	112.45
AT TEST WET DENSITY, PCF	167.12	166.35	163.52
AT TEST SATURATION %	109.90	108.85	104.94
AT TEST VOID RATIO	1.07	1.09	1.16

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.10	3.07	3.08
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.38	1.39	1.40
				CELL PRESSURE, PSI	6.00	18.00	30.00
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	492.00	654.00	578.00
REMARKS	0			STRAIN, %	15.11	7.82	8.32
				ULTIMATE STRESS, %	0.02	0.01	0.01
				σ_1 FAILURE, PSF	1356.00	3246.00	4898.00
				σ_3 FAILURE, PSF	864.00	2592.00	4320.00

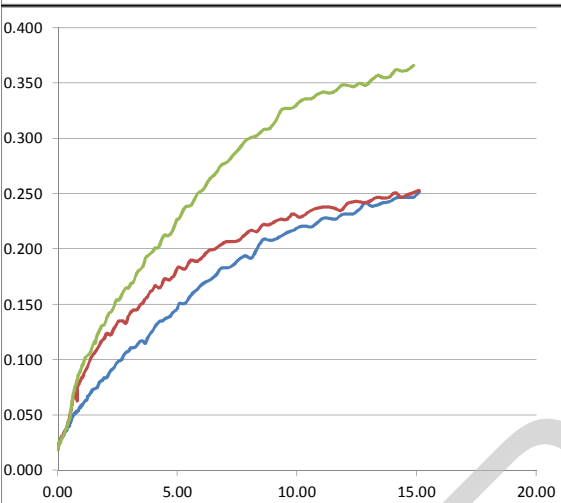
SAMPLE DESCRIPTION	Soft gray clay with silt and sand pockets (CL6)						
BORING NO.	B-1Aa		SAMPLE NO.	6	TEST TYPE	UU-USACE	
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	9/10/2013	
PROJECT NUMBER	18274-001-00		DEPTH FT.	16 - 17			
TESTED BY	JRK/JRK/JRK		CHECKED BY	CLP/CLP/CLP/			

"Confidential Information; Privileged & Confidential Work Product"

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	239
Sample 1 Failure	Bulge
Sample 2 Failure	Bulge
Sample 3 Failure	Yield
Sample 4 Failure	#N/A

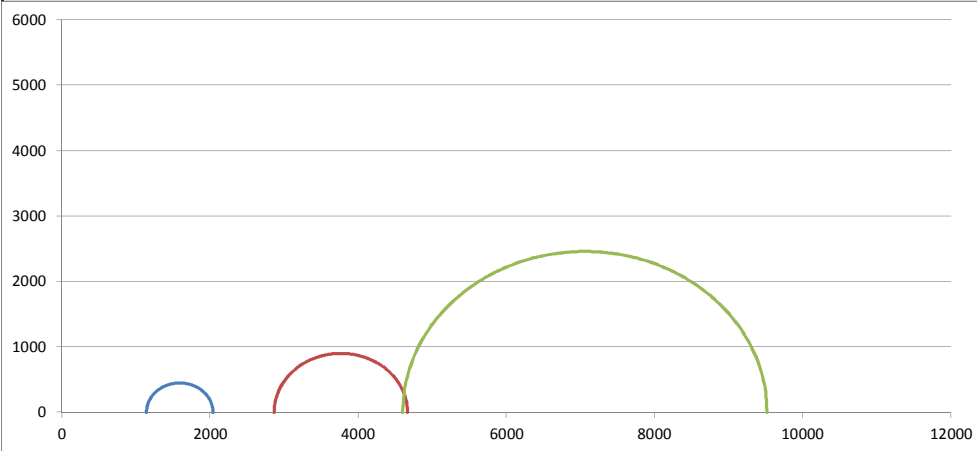


Specimen No.	1	2	3
INITIAL WATER CONTENT %	32.35	35.75	32.67
INITIAL DRY DENSITY, PCF	83.48	82.79	84.98
INITIAL WET DENSITY, PCF	110.48	112.39	112.74
INITIAL SATURATION %	86.65	94.20	90.72
INITIAL VOID RATIO	1.00	1.01	0.96
AT TEST WATER CONTENT %	32.66	34.54	32.58
AT TEST DRY DENSITY, PCF	110.48	112.39	112.74
AT TEST WET DENSITY, PCF	146.56	151.21	149.47
AT TEST SATURATION %	87.07	92.66	90.60
AT TEST VOID RATIO	1.00	1.00	0.96

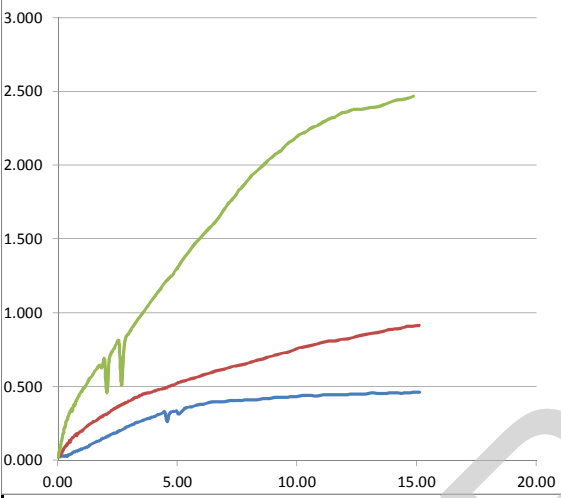
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	2.93	3.00	3.08
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.40	1.45	1.43
				CELL PRESSURE, PSI	6.80	18.80	30.80
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	474.00	478.00	702.00
REMARKS	0			STRAIN, %	15.10	15.09	14.87
				ULTIMATE STRESS, %	0.02	0.01	0.01
				σ_1 FAILURE, PSF	1454.64	3179.44	5135.76
				σ_3 FAILURE, PSF	980.64	2701.44	4433.76

SAMPLE DESCRIPTION	Very soft gray clay with 4" loose clayey silt layer (CL4)						
BORING NO.	B-1Aa			SAMPLE NO.	6	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	9/10/2013	
PROJECT NUMBER	18274-001-00			DEPTH FT.	18 - 19		
TESTED BY	JK/MM/JK/MM/JK/MM			CHECKED BY	SLC/SLC/SLC/		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	901
Sample 1 Failure	Yield
Sample 2 Failure	Yield
Sample 3 Failure	Yield
Sample 4 Failure	#N/A

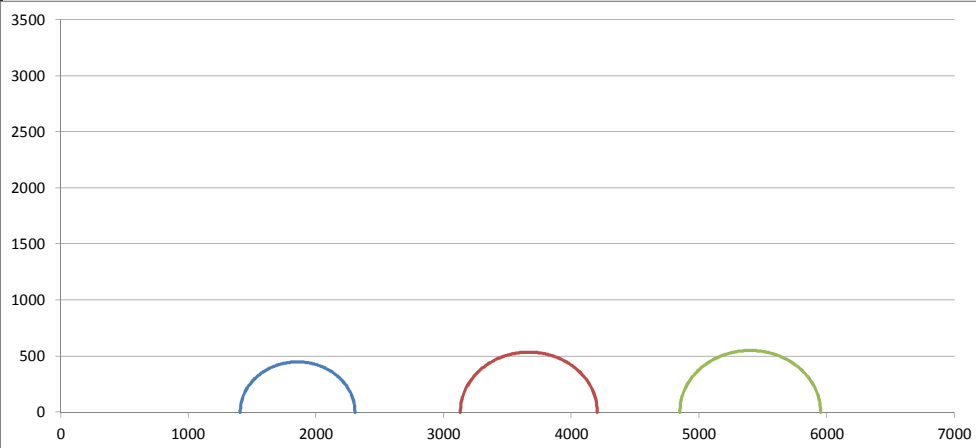


	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	32.70	32.01	29.31
	DRY DENSITY, PCF	92.74	93.71	88.18
	WET DENSITY, PCF	123.07	123.71	114.03
	SATURATION %	109.50	109.76	87.90
	VOID RATIO	0.80	0.78	0.89
AT TEST	WATER CONTENT %	30.48	29.52	26.33
	DRY DENSITY, PCF	123.07	123.71	114.03
	WET DENSITY, PCF	160.58	160.23	144.05
	SATURATION %	106.07	105.78	83.04
	VOID RATIO	0.77	0.75	0.85

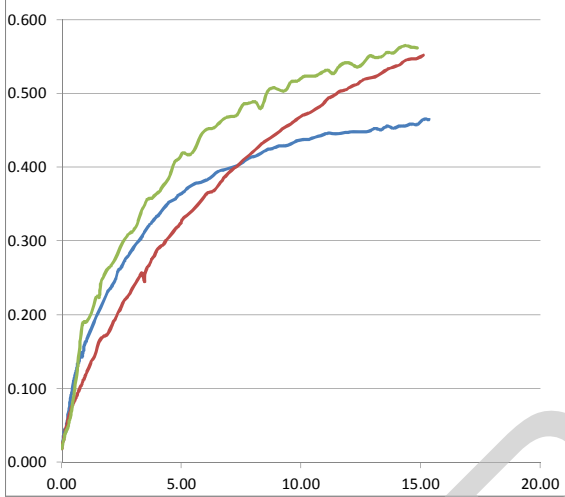
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.19	3.31	3.01
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.36	1.34	1.37
				CELL PRESSURE, PSI	7.90	19.90	31.90
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	898.00	1802.00	4920.00
REMARKS	0			STRAIN, %	15.10	15.09	15.10
				ULTIMATE STRESS, %	0.02	0.02	0.02
				σ_1 FAILURE, PSF	2038.48	4664.72	9517.92
				σ_3 FAILURE, PSF	1140.48	2862.72	4597.92

SAMPLE DESCRIPTION	Medium gray clay with 5" silty sand layer at top (CL4)						
BORING NO.	B-1Aa			SAMPLE NO.	7	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	9/10/2013	
PROJECT NUMBER	18274-001-00			DEPTH FT.	21 - 22		
TESTED BY	JK/MM/JK/MM/JK/MM			CHECKED BY	SLC/SLC/SLC/		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	537
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Yield
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A

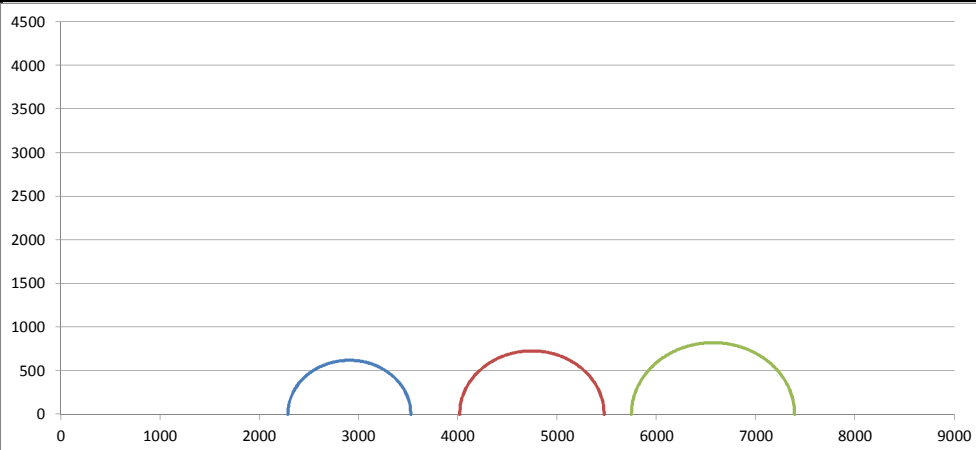


Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	33.61	32.13	32.17
	DRY DENSITY, PCF	87.98	90.68	89.99
	WET DENSITY, PCF	117.56	119.82	118.93
	SATURATION %	100.33	102.37	100.77
	VOID RATIO	0.89	0.84	0.85
AT TEST	WATER CONTENT %	32.47	31.72	32.47
	DRY DENSITY, PCF	117.56	119.82	118.93
	WET DENSITY, PCF	155.73	157.84	157.55
	SATURATION %	98.71	101.76	101.22
	VOID RATIO	0.88	0.83	0.86

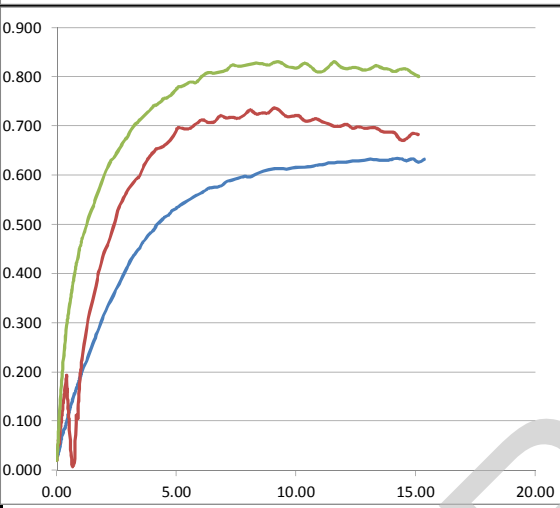
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.05	2.94	3.04
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.41	1.41	1.43
				CELL PRESSURE, PSI	9.70	21.70	33.70
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	900.00	1074.00	1104.00
REMARKS	0			STRAIN, %	15.10	15.10	14.35
				ULTIMATE STRESS, %	0.02	0.01	0.01
				σ_1 FAILURE, PSF	2304.00	4203.12	5952.48
				σ_3 FAILURE, PSF	1404.00	3129.12	4848.48

SAMPLE DESCRIPTION	Soft gray clay with sand lenses and pockets (CL4)						
BORING NO.	B-1Aa			SAMPLE NO.	8	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	9/10/2013	
PROJECT NUMBER	18274-001-00			DEPTH FT.	26 - 27		
TESTED BY	JRK/JRK/JRK			CHECKED BY	CLP/CLP/CLP/		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	728
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



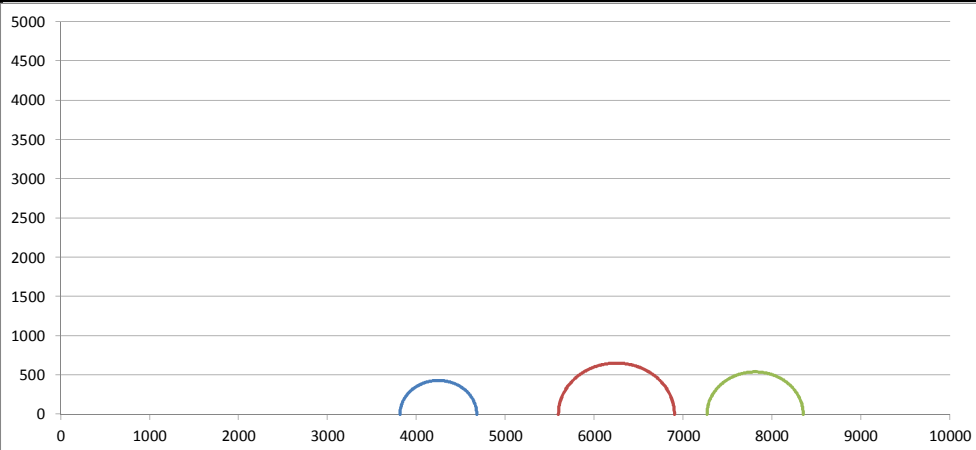
Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	31.31	30.13	29.53
	DRY DENSITY, PCF	89.83	90.80	92.24
	WET DENSITY, PCF	117.95	118.16	119.47
	SATURATION %	97.69	96.27	97.68
	VOID RATIO	0.86	0.84	0.81
AT TEST	WATER CONTENT %	33.35	32.75	31.72
	DRY DENSITY, PCF	117.95	118.16	119.47
	WET DENSITY, PCF	157.29	156.85	157.36
	SATURATION %	100.68	100.20	101.09
	VOID RATIO	0.88	0.87	0.84

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.03	3.16	3.04
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.41	1.41	1.43
				CELL PRESSURE, PSI	15.90	27.90	39.90
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1240.00	1456.00	1644.00
REMARKS	0			STRAIN, %	13.10	9.08	9.09
				ULTIMATE STRESS, %	0.01	0.01	0.01
				σ_1 FAILURE, PSF	3525.28	5472.16	7391.04
				σ_3 FAILURE, PSF	2285.28	4016.16	5747.04

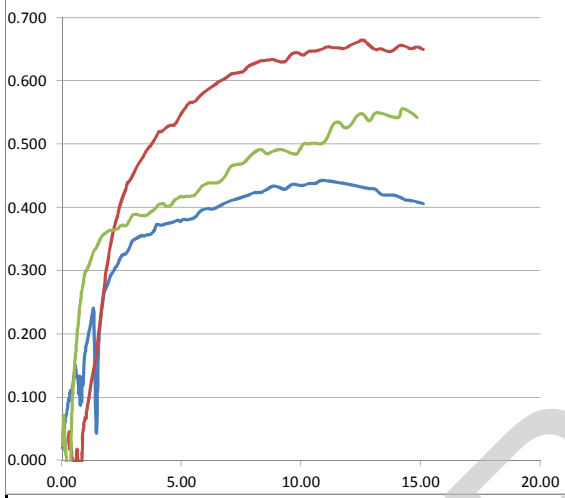
SAMPLE DESCRIPTION	Medium gray clay with sand lenses (CL4)						
BORING NO.	B-1Aa	SAMPLE NO.	15	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	9/10/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	43 - 44				
TESTED BY	JRK/MSM/JRK	CHECKED BY	CLP/CLP/CLP/				

"Confidential Information; Privileged & Confidential Work Product"

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	541
Sample 1 Failure	SLS 60°
Sample 2 Failure	SLS
Sample 3 Failure	Yield
Sample 4 Failure	#N/A

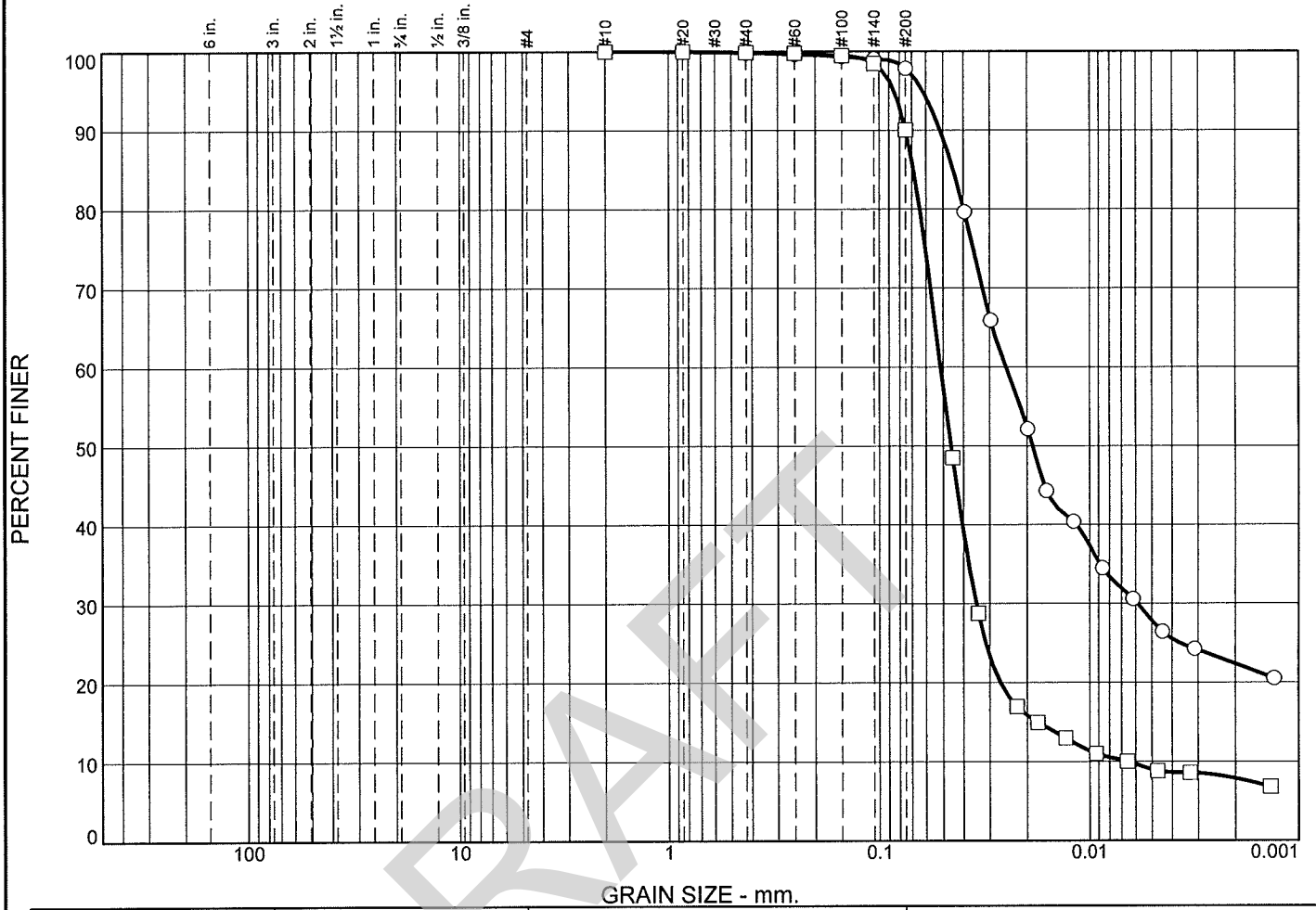


Specimen No.	1	2	3
INITIAL WATER CONTENT %	48.88	50.83	50.51
INITIAL DRY DENSITY, PCF	72.35	70.23	70.53
INITIAL WET DENSITY, PCF	107.72	105.93	106.16
INITIAL SATURATION %	100.10	98.82	98.92
INITIAL VOID RATIO	1.30	1.37	1.36
AT TEST WATER CONTENT %	52.89	52.85	53.82
AT TEST DRY DENSITY, PCF	107.72	105.93	106.16
AT TEST WET DENSITY, PCF	164.70	161.91	163.29
AT TEST SATURATION %	103.40	100.42	101.54
AT TEST VOID RATIO	1.37	1.41	1.42

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.15	2.83	3.01
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.43	1.41	1.38
				CELL PRESSURE, PSI	26.50	38.90	50.50
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	864.00	1306.00	1082.00
REMARKS	0			STRAIN, %	10.84	12.58	14.21
				ULTIMATE STRESS, %	0.01	0.01	0.01
				σ_1 FAILURE, PSF	4677.12	6900.40	8348.24
				σ_3 FAILURE, PSF	3813.12	5594.40	7266.24

SAMPLE DESCRIPTION		Soft gray clay with sand lenses, pockets and seams (CH4)					
BORING NO.	B-1Aa	SAMPLE NO.	25	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	9/10/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	72 - 73				
TESTED BY	JRK/JRK/JRK	CHECKED BY	SLC/SLC/SLC/				

Particle Size Distribution Report

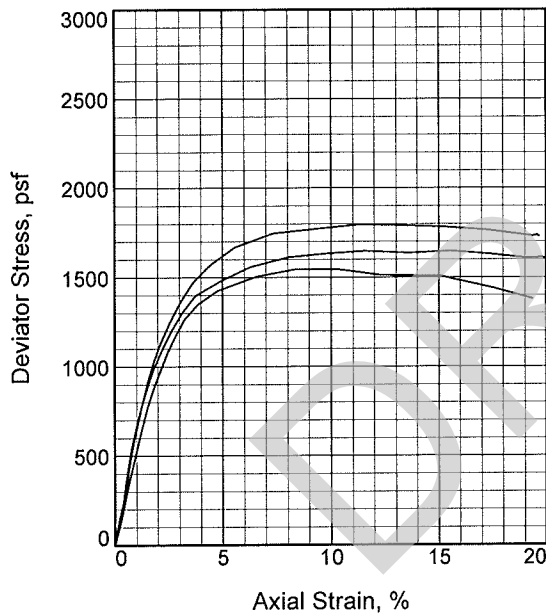
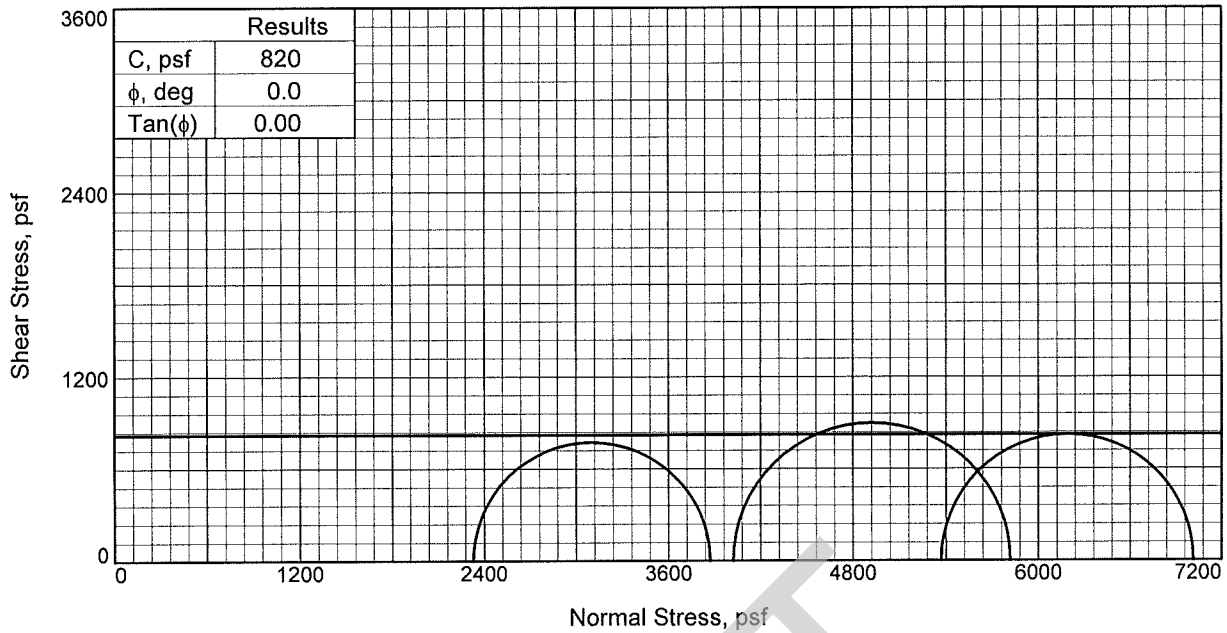


	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	0	2	70	28
□	0	0	0	0	0	10	81	9

	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
□	0.0690	0.0513	0.0459	0.0349	0.0179	0.0065	3.64	7.88		

Material Description	USCS	AASHTO
○ M GR CL6 □ GR ML	CL6 ML	

<p>Project No. 04.55124092 Client: GeoEngineers</p> <p>Project: Mid Barataria Diversion</p> <p>○ Source of Sample: B-1Aa Depth: 47 Sample Number: 16</p> <p>□ Source of Sample: B-1Aa Depth: 49 Sample Number: 16</p> <p style="text-align: center;">Fugro Consultants, Inc.</p> <p style="text-align: center;">Baton Rouge, LA</p>	<p>Remarks:</p> <p style="text-align: right;">Figure</p>
---	---



Sample No.	1	2	3
Initial			
Water Content, %	39.0	37.2	38.0
Dry Density, pcf	81.8	82.9	82.1
Saturation, %	99.9	97.9	98.1
Void Ratio	1.0455	1.0182	1.0376
Diameter, in.	1.42	1.43	1.43
Height, in.	2.85	2.80	2.86
At Test			
Water Content, %	39.0	37.2	38.0
Dry Density, pcf	81.8	82.9	82.1
Saturation, %	99.9	97.9	98.1
Void Ratio	1.0455	1.0182	1.0376
Diameter, in.	1.42	1.43	1.43
Height, in.	2.85	2.80	2.86
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	16.16	27.93	37.28
Fail. Stress, psf	1544	1795	1646
Strain, %	10.3	11.3	11.6
Ult. Stress, psf	1508	1790	1636
Strain, %	14.3	13.3	13.6
σ_1 Failure, psf	3871	5817	7015
σ_3 Failure, psf	2327	4022	5368

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CL6

Assumed Specific Gravity= 2.68

Remarks:

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: B-1Aa **Depth:** 47

Sample Number: 16

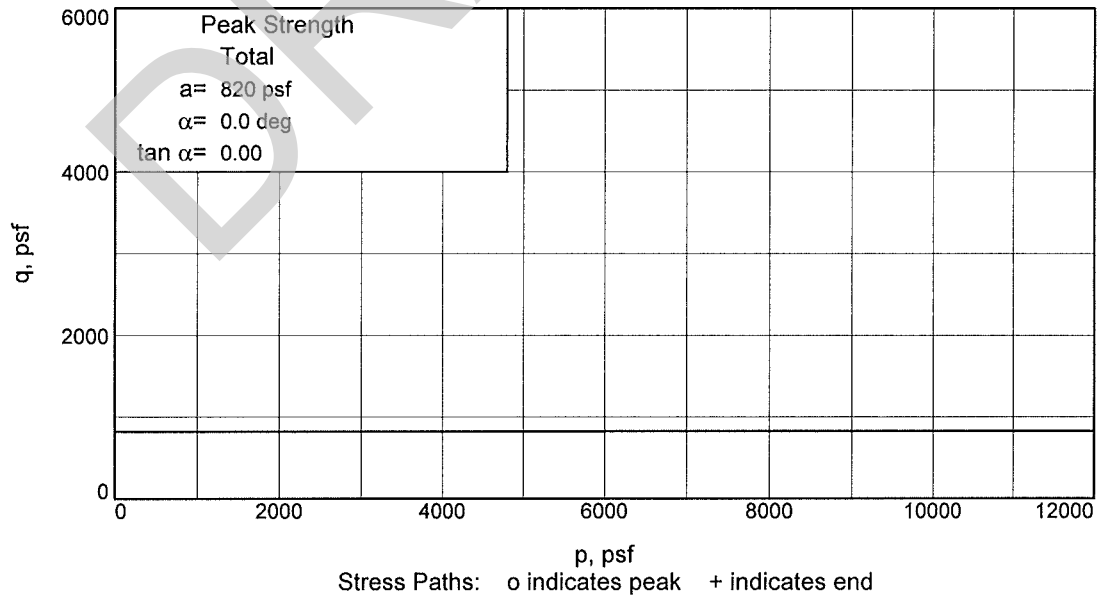
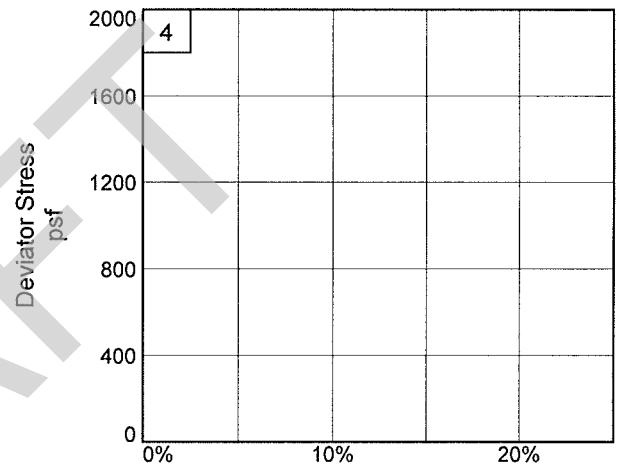
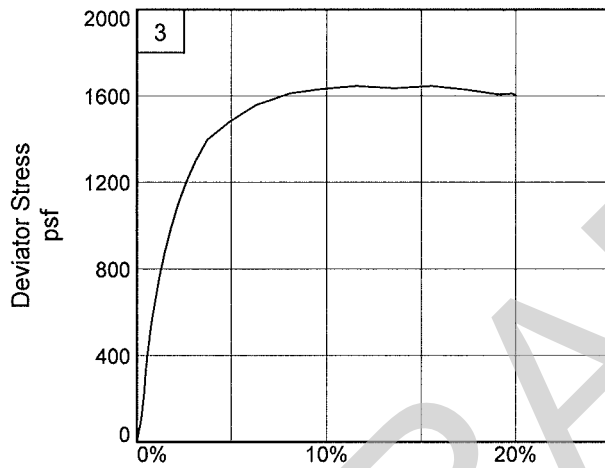
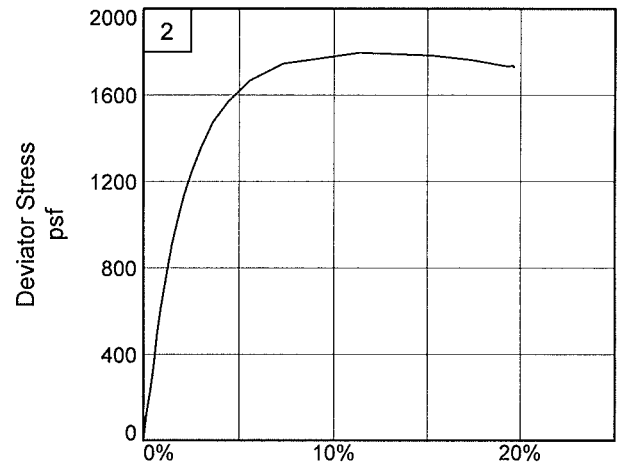
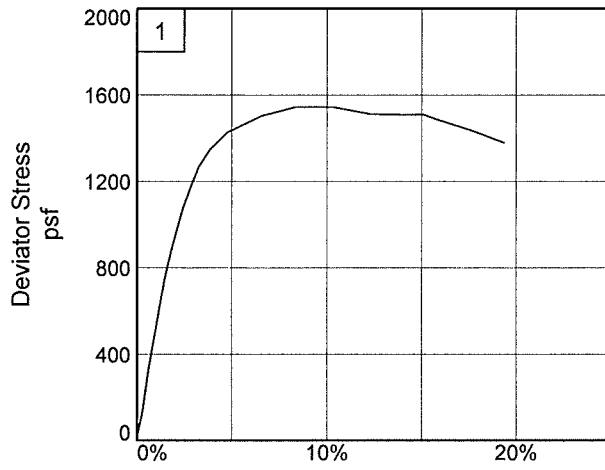
Proj. No.: 04.55124092

Date Sampled: 10/8/13

TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: B-1Aa

Depth: 47

Sample Number: 16

Project No.: 04.55124092

Figure _____

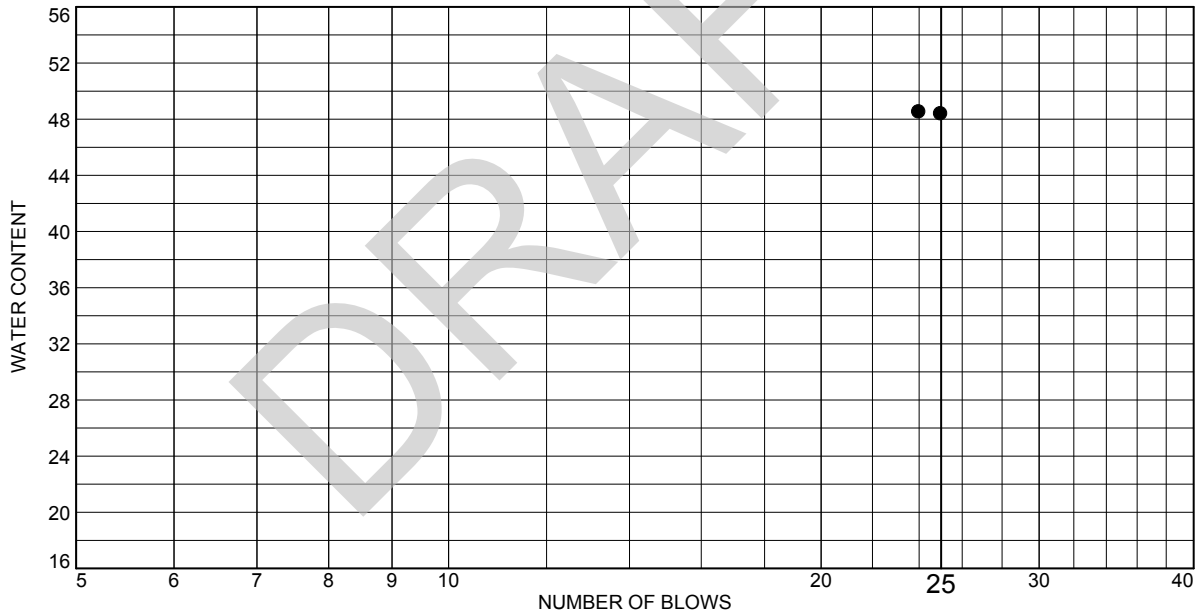
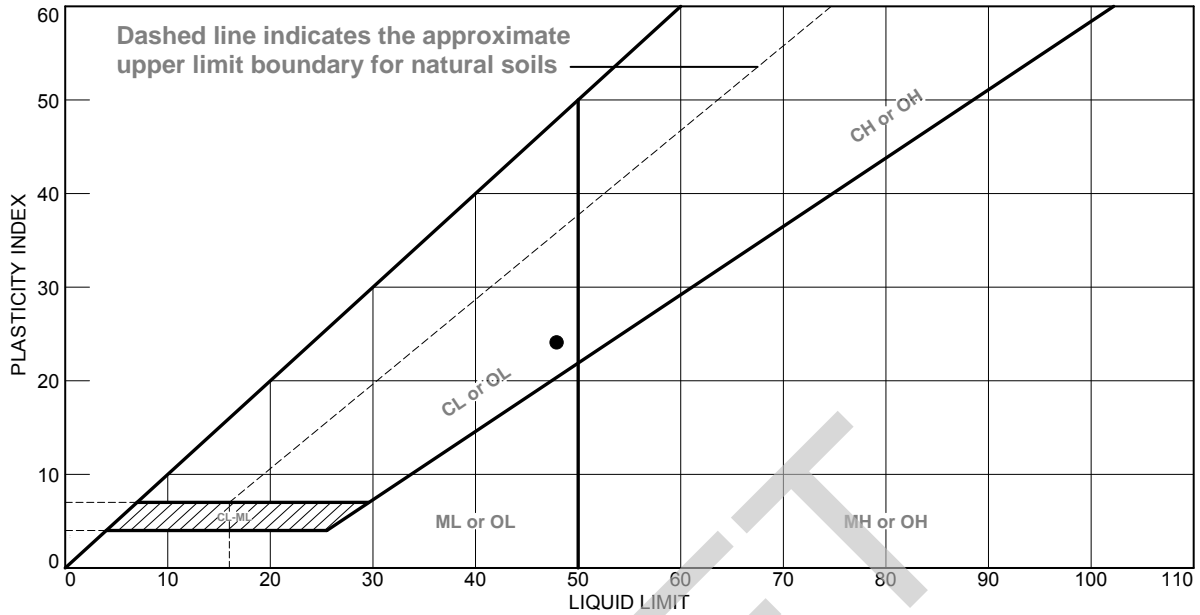
Fugro Consultants, Inc.

Tested By: IK

Checked By: DB

"Confidential Information; Privileged & Confidential Work Product"

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Br Lean CLAY	48	24	24			(CL6)

Project No. B13-018 Client: GeoEngineers
 Project: Mid Barataria Diversion
 Source of Sample: B-2A Depth: 0-2

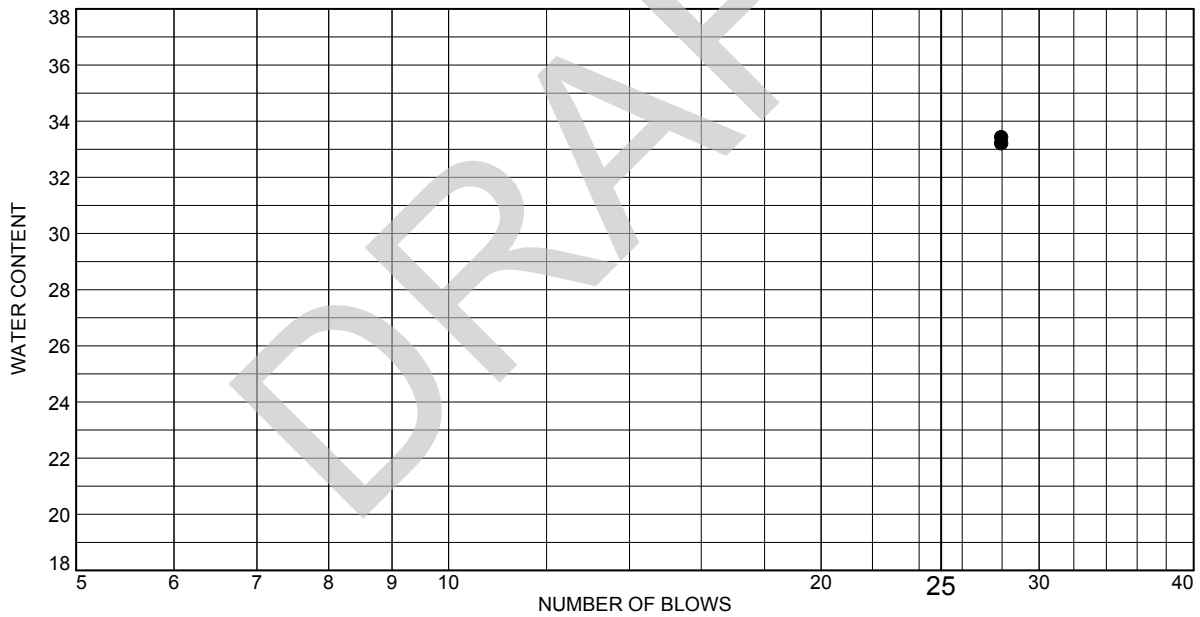
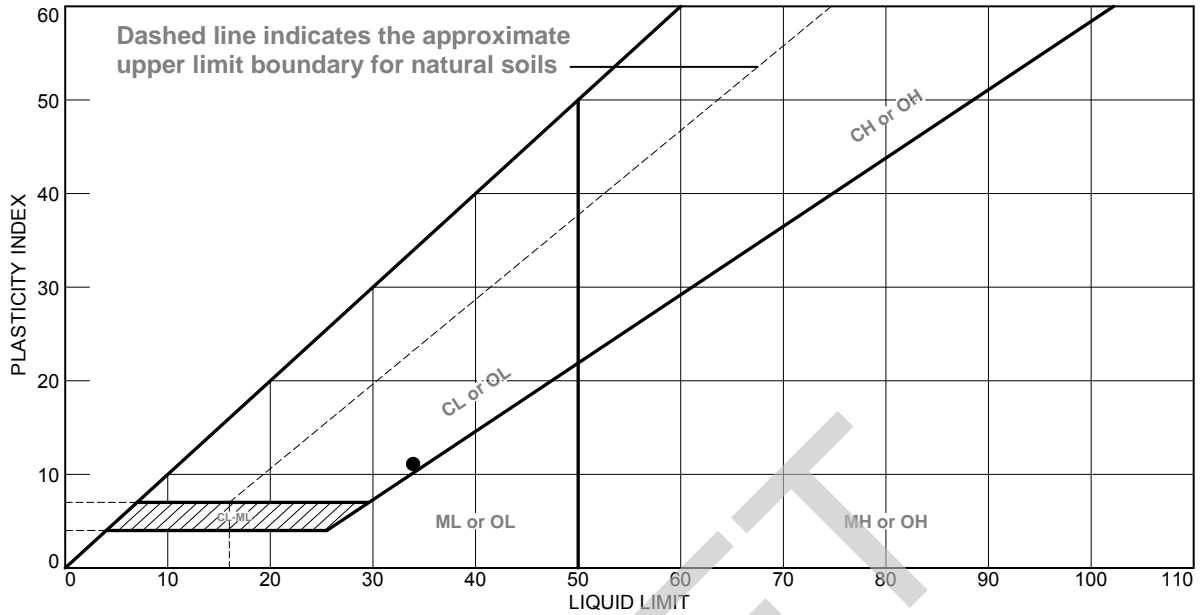
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



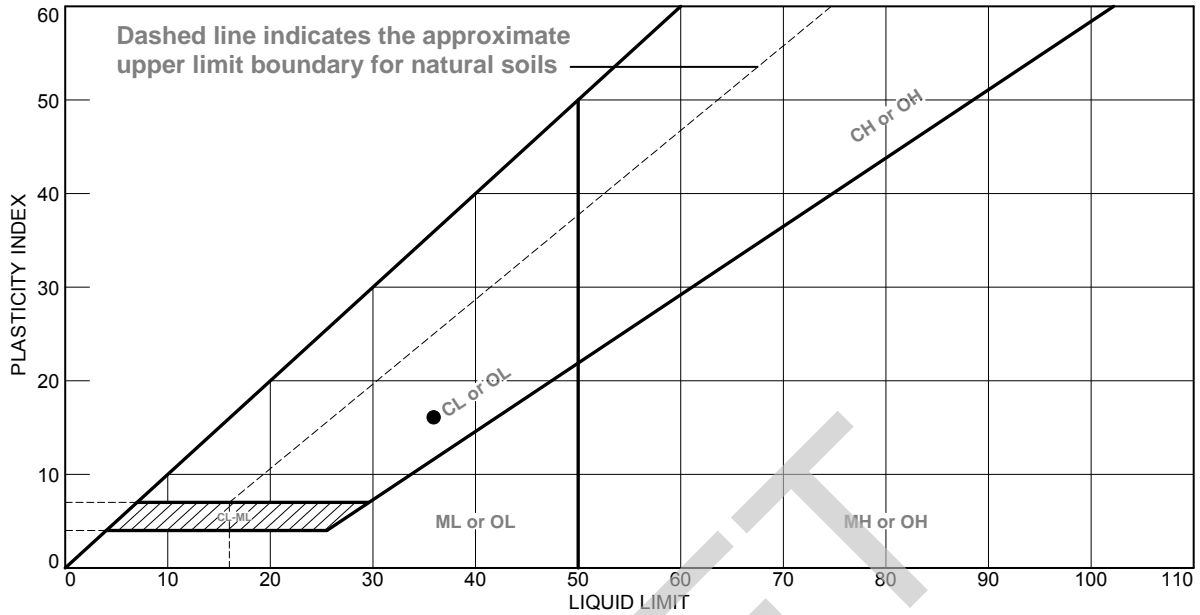
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Gr and Br Lean CLAY with Silt	34	23	11			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: B-2A **Depth:** 2-3
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



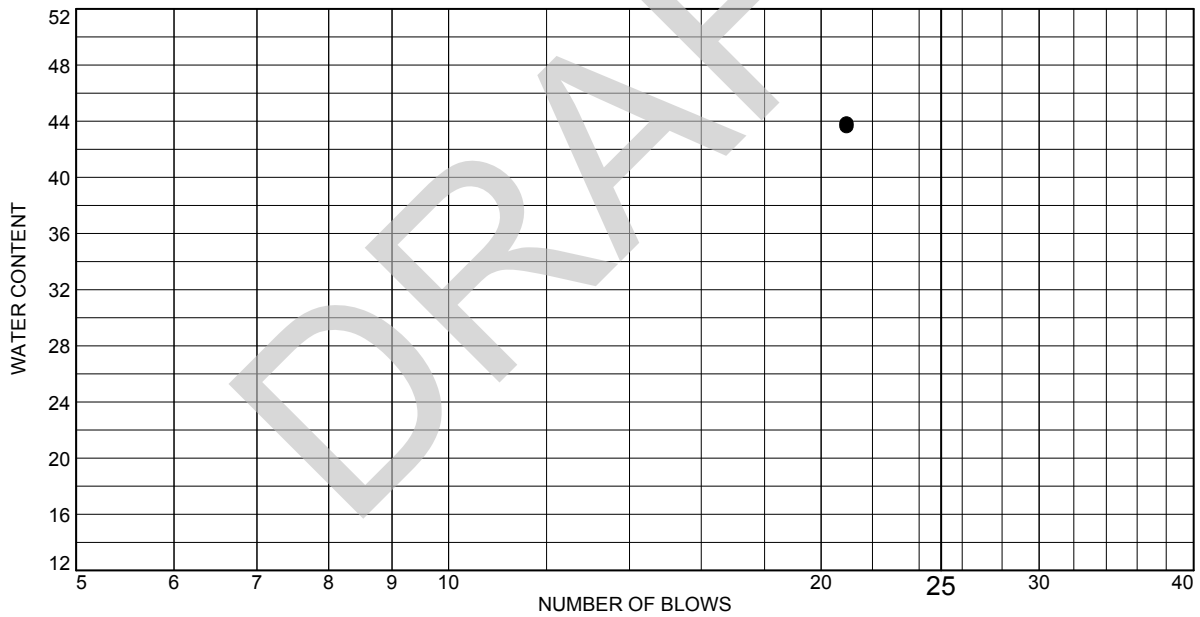
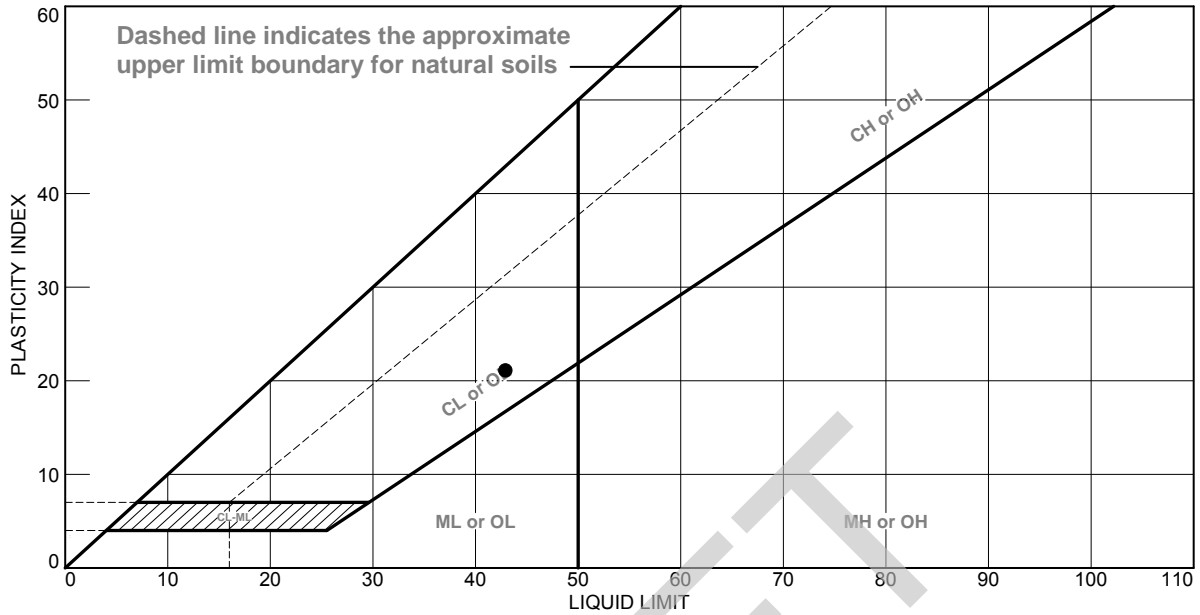
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Gr and Br Lean CLAY with Silt and Voids	36	20	16			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: B-2A **Depth:** 5.5-6
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



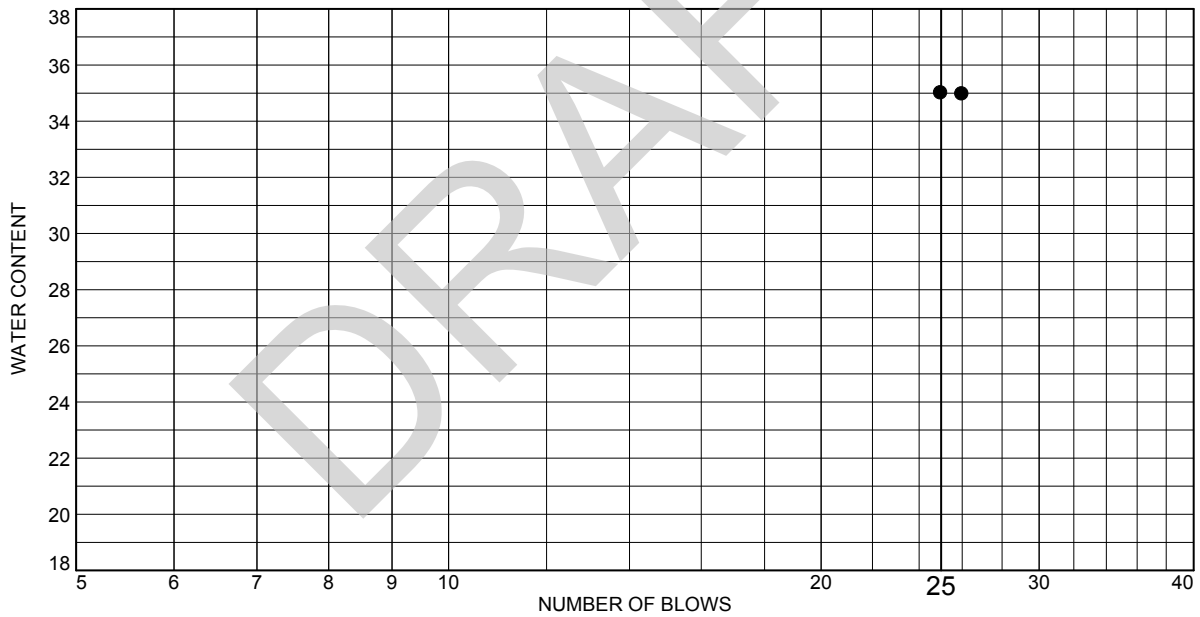
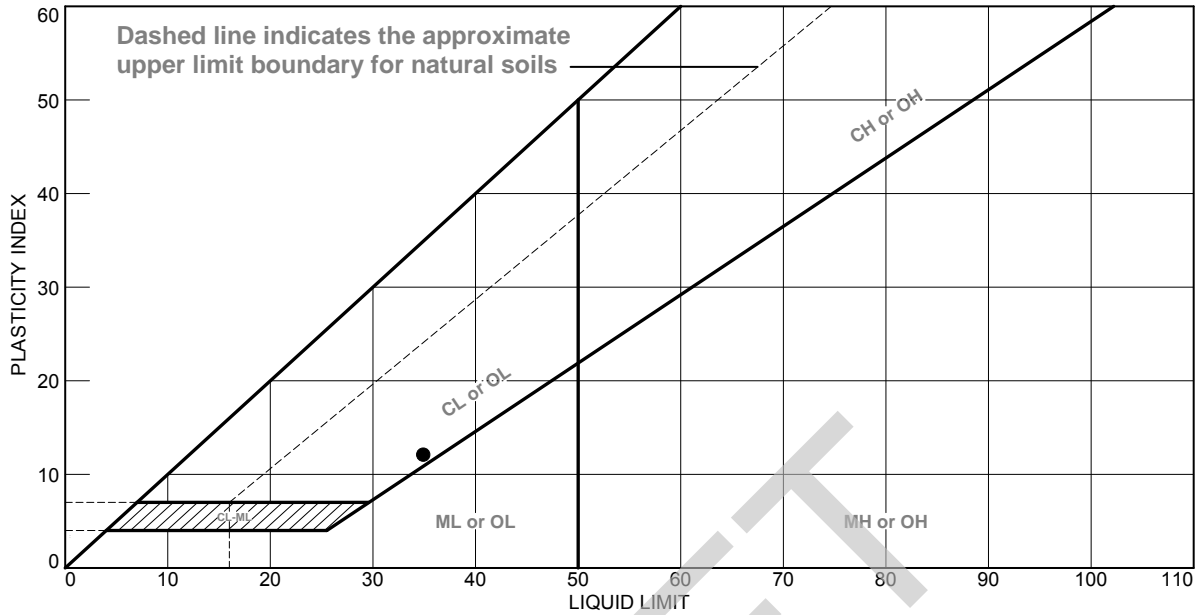
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	43	22	21			(CL6)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: B-2A **Depth:** 7-8
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



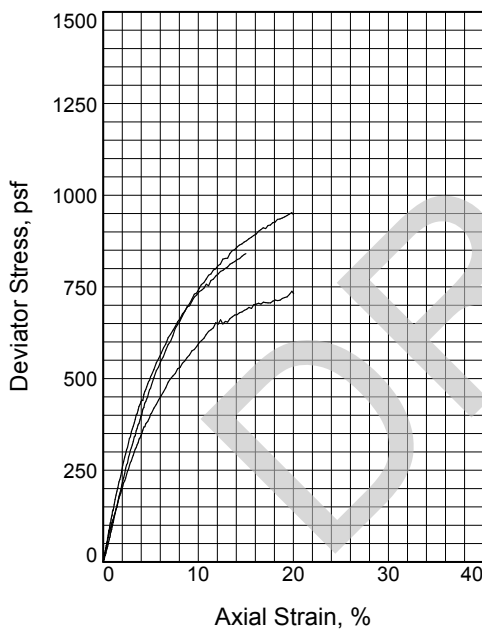
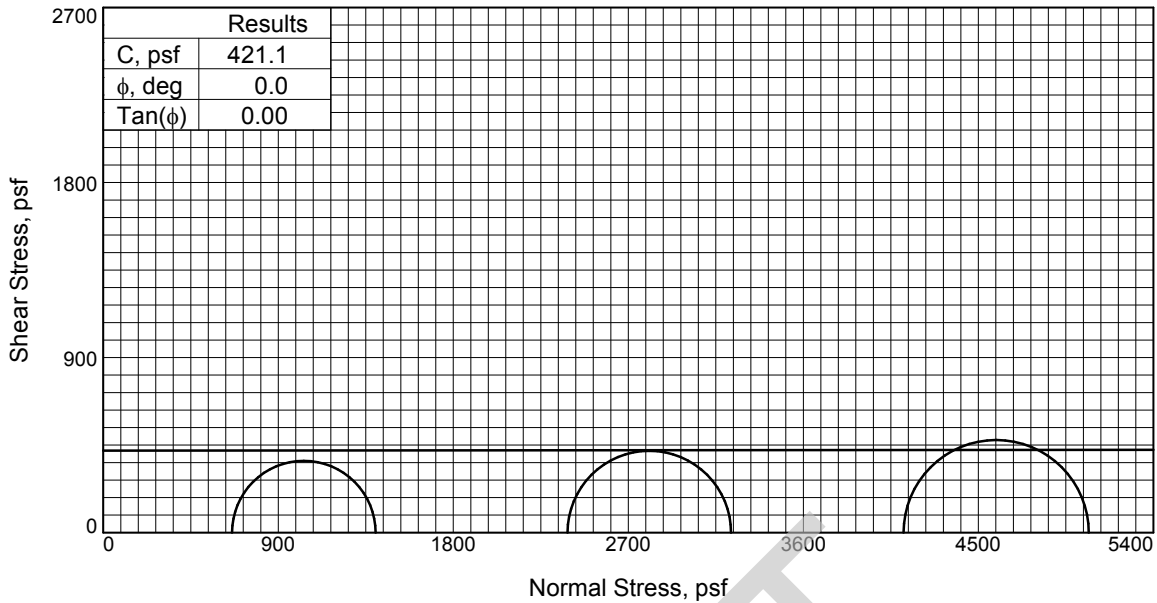
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Alternating Layers of So, Gr Lean CLAY and So, Gr SILT	35	23	12			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: B-2A **Depth:** 12.3-13
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	35.8	35.4	34.1
	Dry Density, pcf	85.3	86.2	87.5
	Saturation, %	99.1	99.9	99.3
	Void Ratio	0.9760	0.9562	0.9263
	Diameter, in.	1.385	1.385	1.385
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	36.1	35.4	34.3
	Dry Density, pcf	85.3	86.2	87.5
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.9760	0.9562	0.9263
Strain rate, in./min.	Diameter, in.	1.384	1.385	1.385
	Height, in.	2.800	2.800	2.800
	Strain rate, in./min.	1.001	1.000	1.000
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	4.600	16.580	28.580	
Fail. Stress, psf	Strain, %	737.9	840.7	952.2
	Strain, %	19.8	15.0	19.8
Ult. Stress, psf	Strain, %			
	Strain, %			
σ_1 Failure, psf	1400.3	3228.3	5067.7	
σ_3 Failure, psf	662.4	2387.5	4115.5	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: Alternating Layers of So, Gr Lean CLAY and So, Gr SILT (CL4)

Assumed Specific Gravity= 2.70

Remarks: Type Failure:

- Bulge
- Slumping under own weight

Figure _____

Client: GeoEngineers

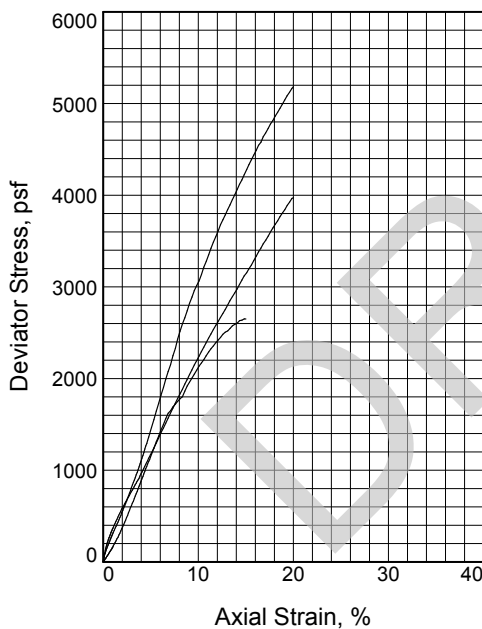
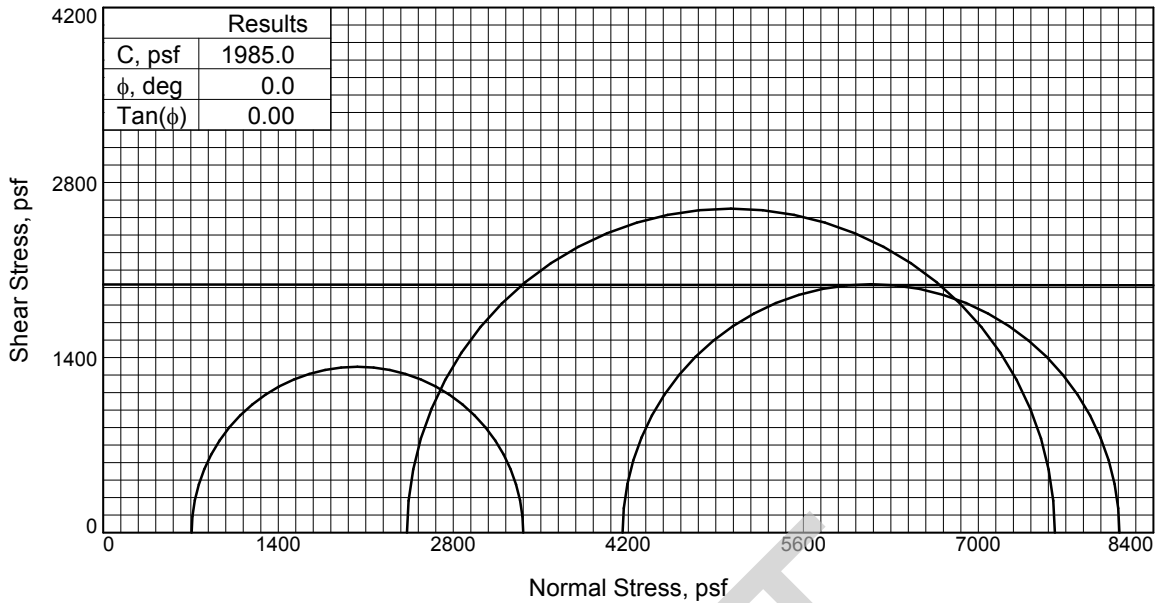
Project: Mid Barataria Diversion

Source of Sample: B-2A **Depth:** 12.3-13

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	31.1	31.4	32.1
	Dry Density, pcf	88.1	89.7	89.1
	Saturation, %	93.7	98.4	99.4
	Void Ratio	0.8786	0.8443	0.8559
	Diameter, in.	1.385	1.382	1.385
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	33.2	31.9	32.3
	Dry Density, pcf	88.1	89.7	89.1
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.8786	0.8443	0.8559
Diameter, in.	1.385	1.382	1.384	
	Height, in.	2.800	2.800	2.800
	Strain rate, in./min.	1.000	1.000	1.000
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	4.910	16.870	28.850	
Fail. Stress, psf	2652.0	5183.0	3974.1	
	Strain, %	14.8	20.0	20.0
Ult. Stress, psf				
	Strain, %			
σ_1 Failure, psf	3359.0	7612.3	8128.5	
σ_3 Failure, psf	707.0	2429.3	4154.4	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr SILT with Clay and Fine Sand

Assumed Specific Gravity= 2.65

Remarks: Type Failure:

Bulge

Slumping under own weight

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: B-2A

Depth: 13-14

Proj. No.: B13-018

Date Sampled:

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	26.2	73.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.8		
#100	99.0		
#140	92.4		
#200	73.8		

Material Description
Gr SILT with Sand and Tr Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

F.M.=0.01

* (no specification provided)

Source of Sample: B-2A Depth: 17-18

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018	Figure
--	---	--------

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						71.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	71.6		

Material Description

Gr SILT with Sand and Tr Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (ML) AASHTO=

Remarks

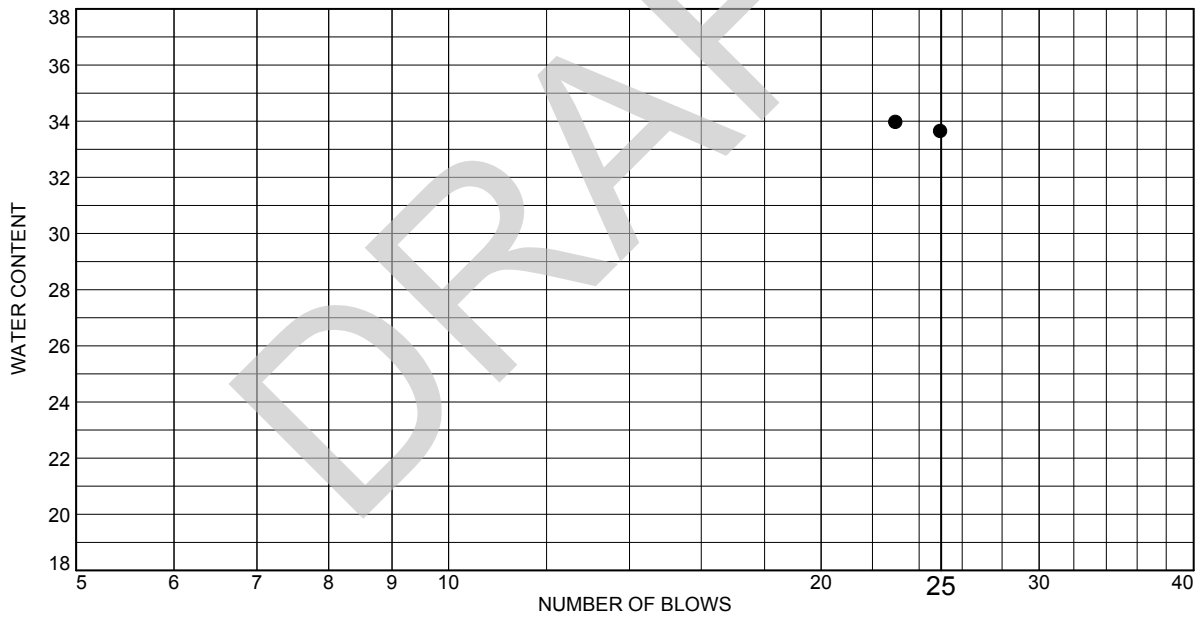
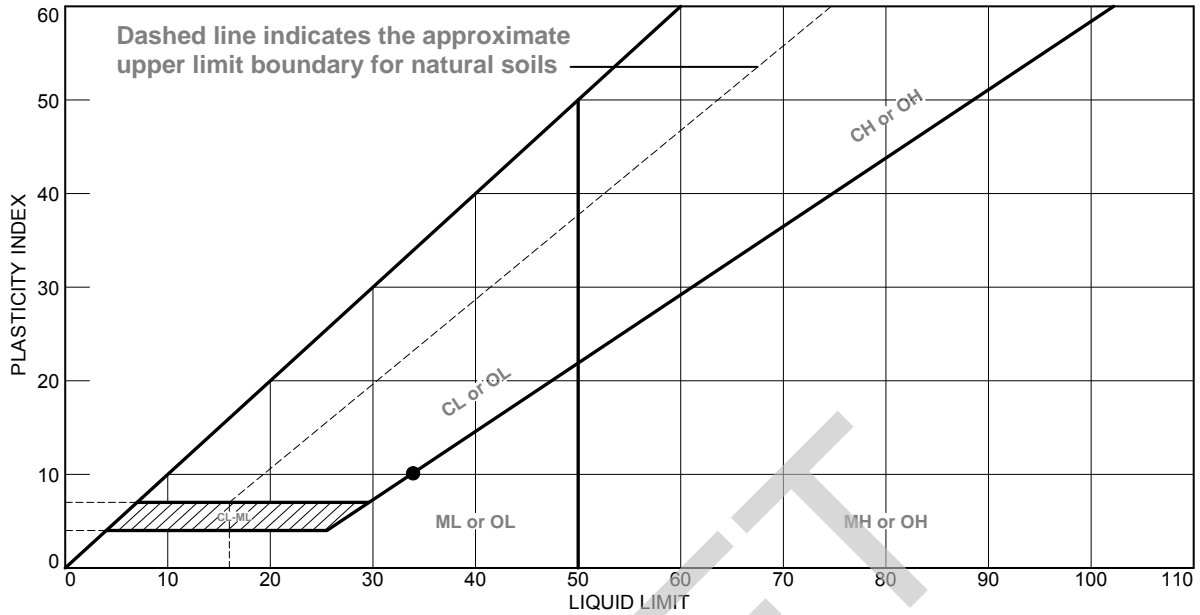
* (no specification provided)

Source of Sample: B-2A Depth: 19-20

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018	Figure
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LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Gr SILT with Clay and Tr Sand	34	24	10			(ML)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: B-2A **Depth:** 23.5-25

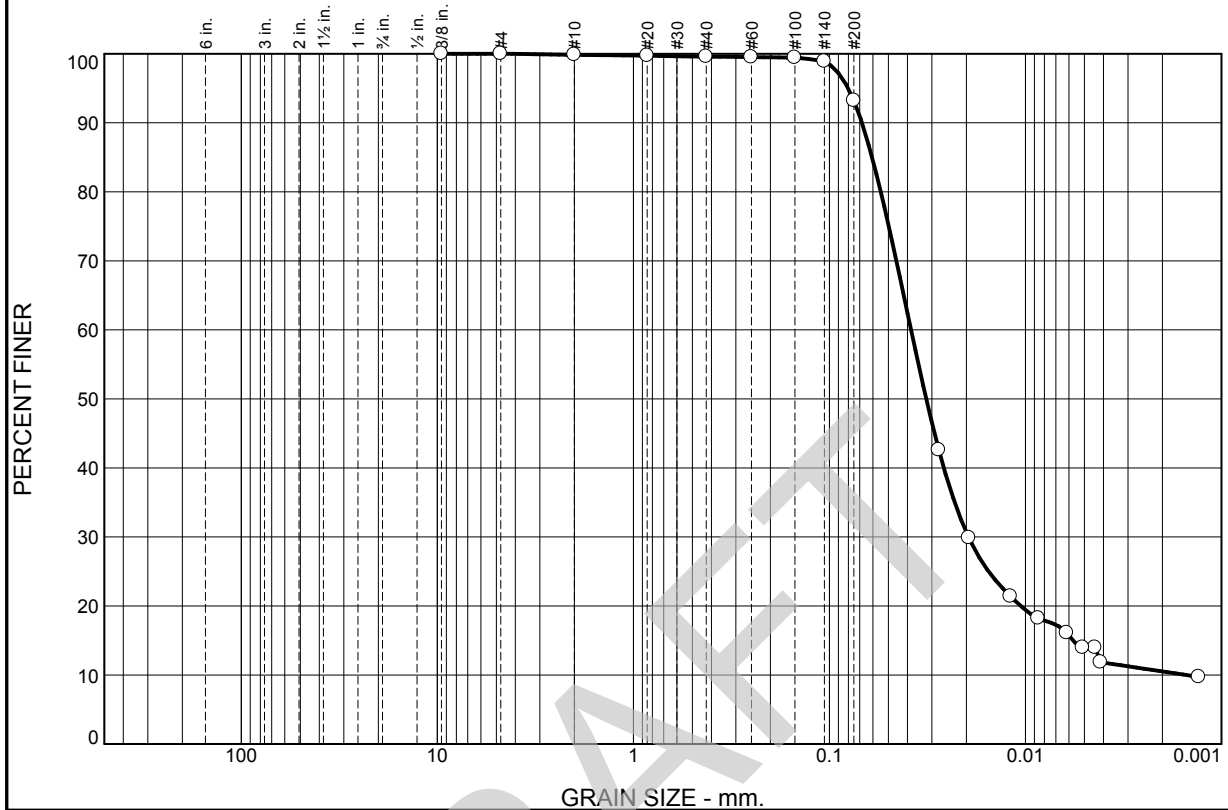
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.2	6.4	79.2	14.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	99.8		
#20	99.7		
#40	99.6		
#60	99.5		
#100	99.4		
#140	98.9		
#200	93.2		

Material Description
Gr SILT with Clay and Tr Sand

PL= 24 **Atterberg Limits** LL= 34 PI= 10

USCS= (ML) **Classification** AASHTO= A-4(10)

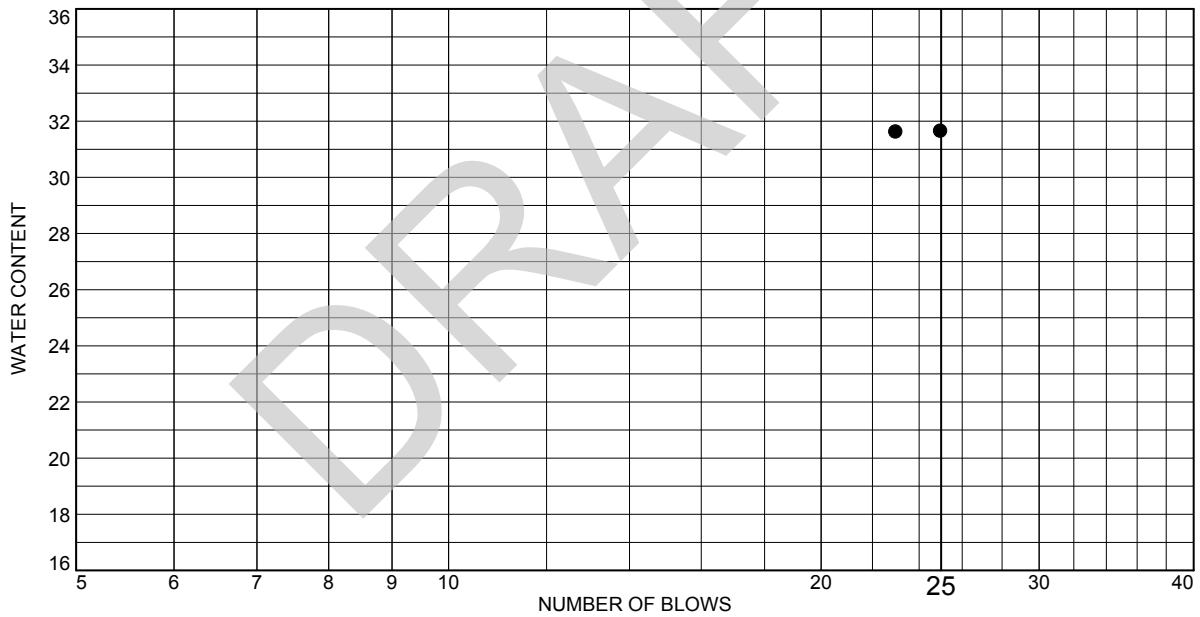
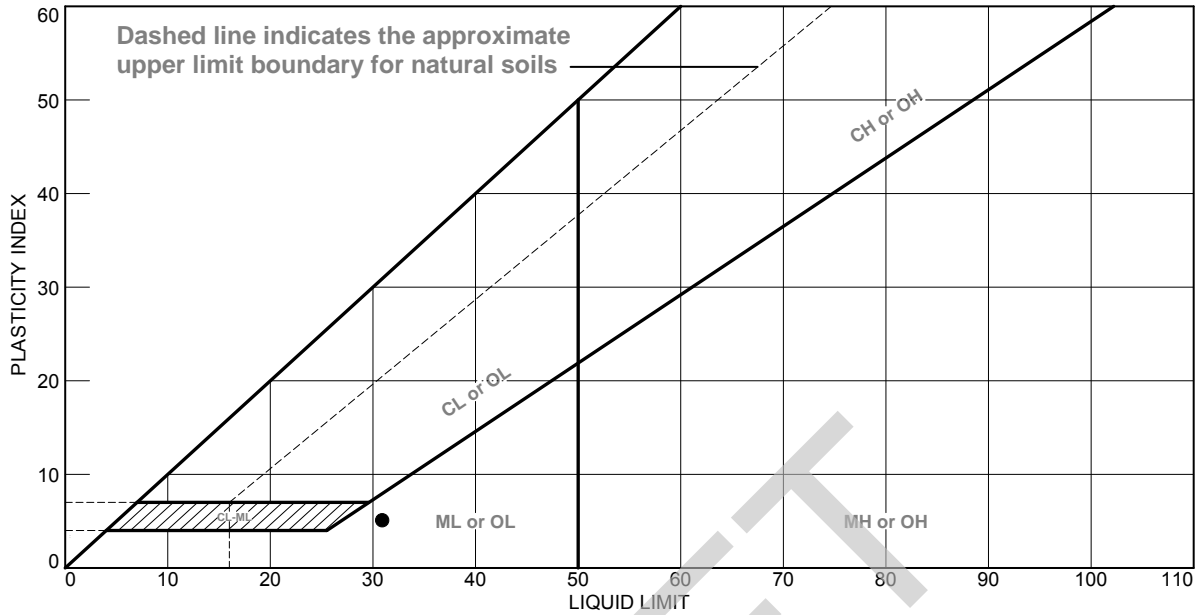
Remarks
F.M.=0.02

* (no specification provided)

Source of Sample: B-2A Depth: 23.5-25 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



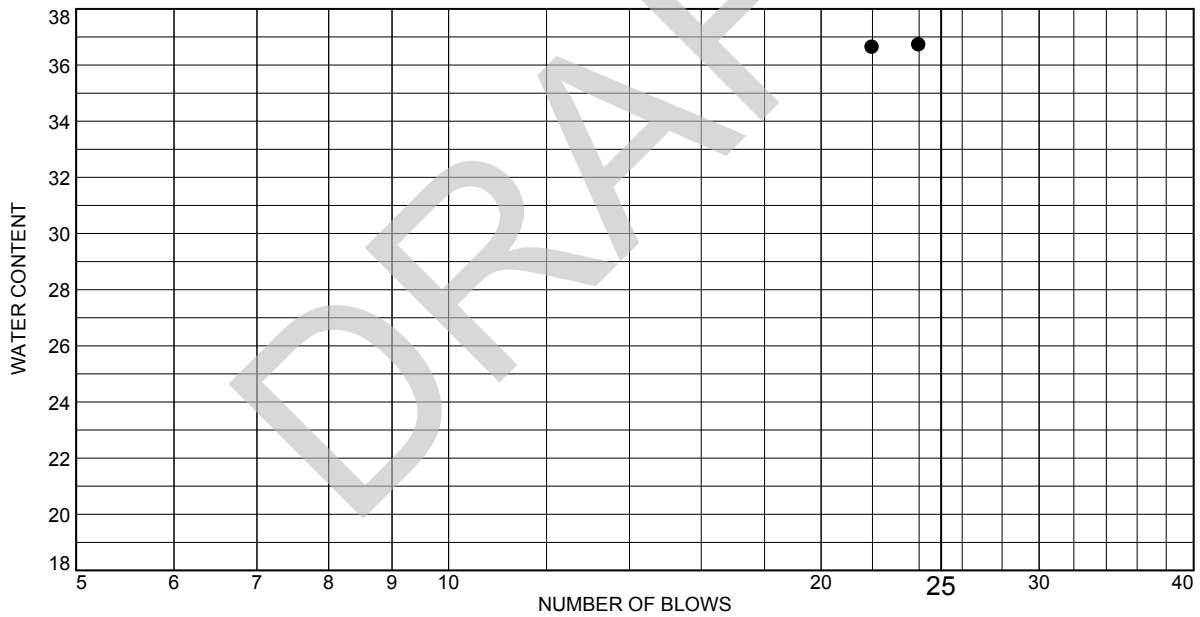
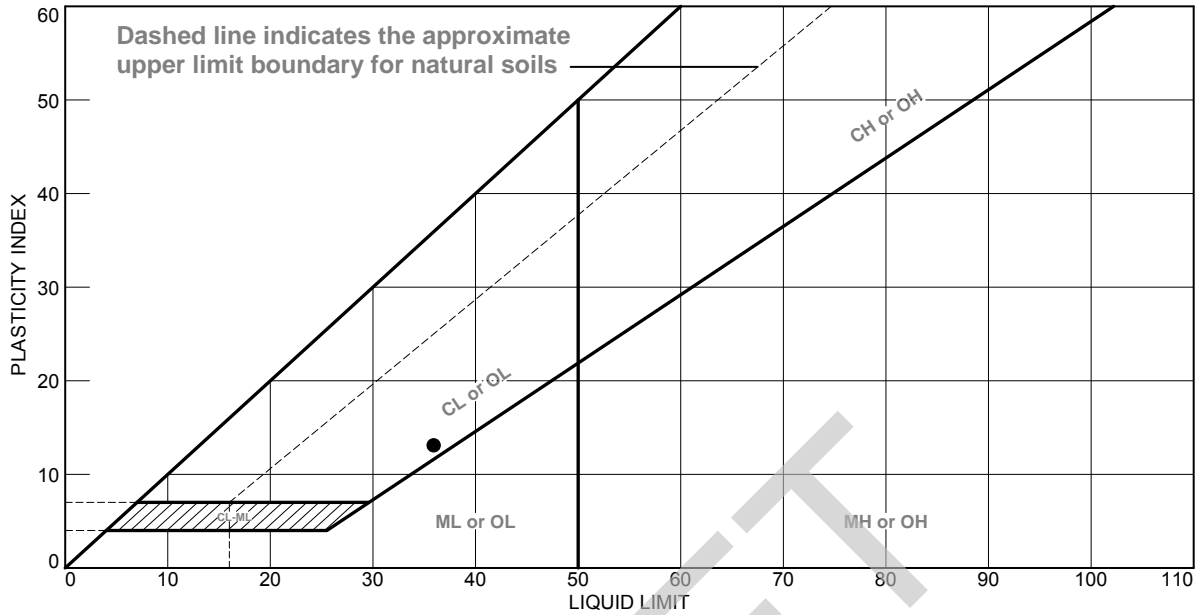
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Gr SILT with Tr Clay and Tr Sand	31	26	5			(ML)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: B-2A **Depth:** 26-27.5
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Gr Lean CLAY with Tr Sand	36	23	13			(CL4)

Project No. B13-018 Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: B-2A Depth: 28.5-30

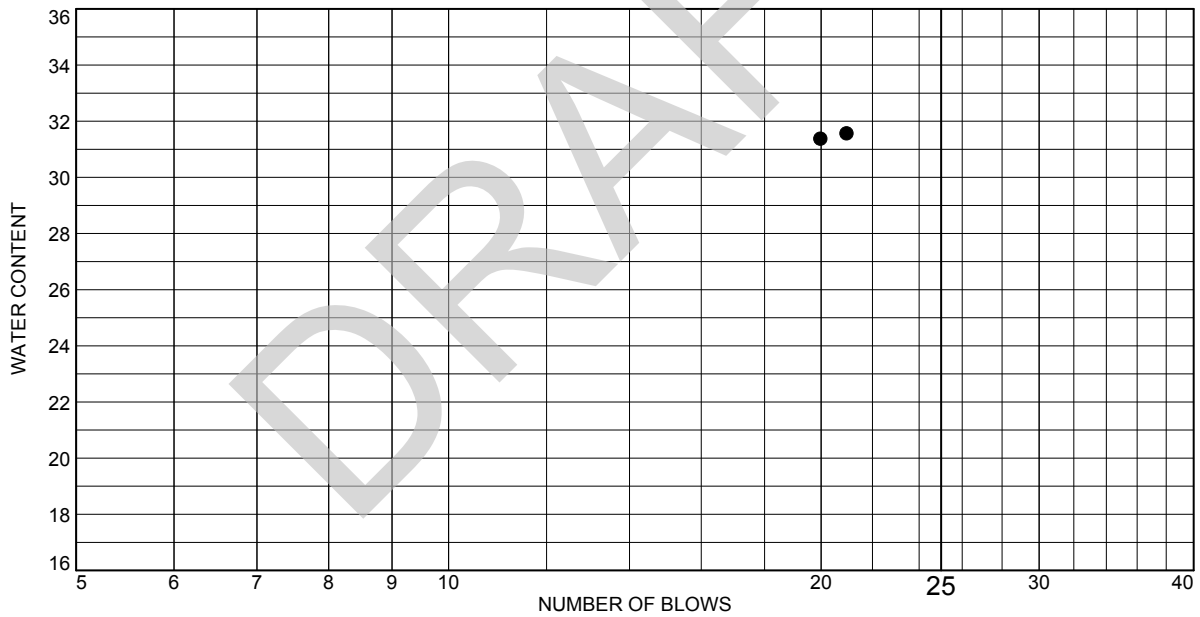
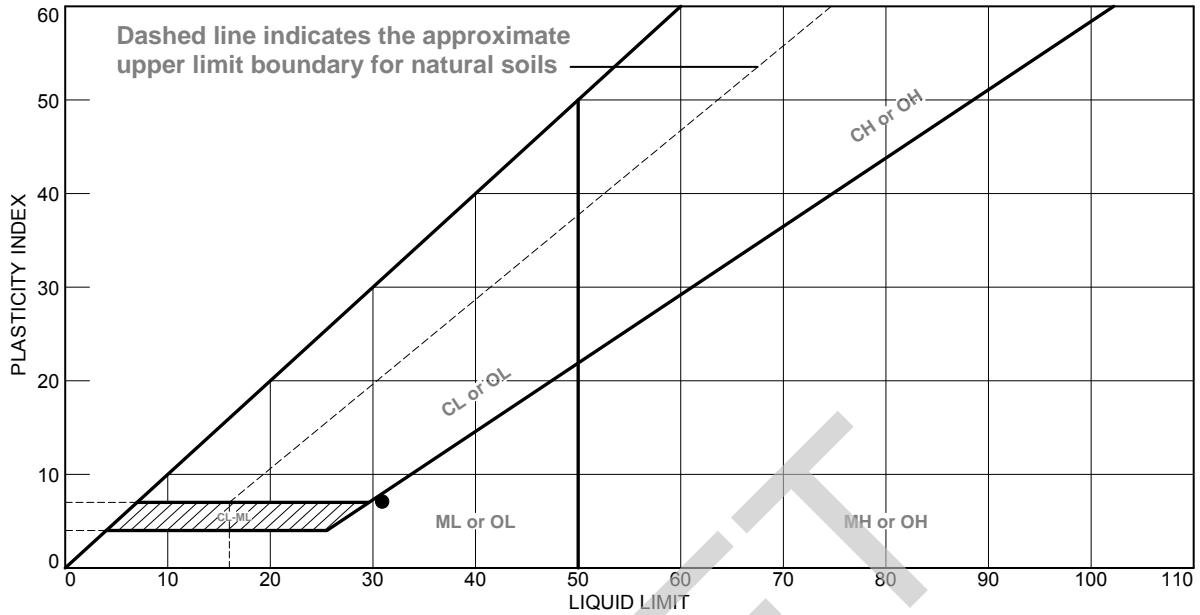
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



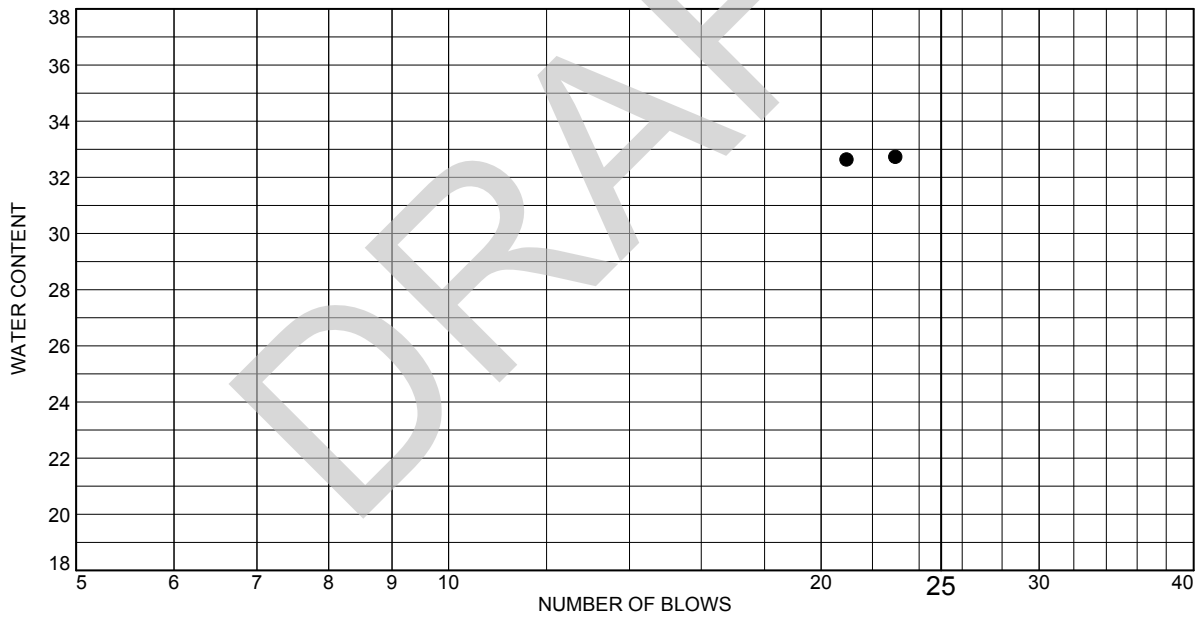
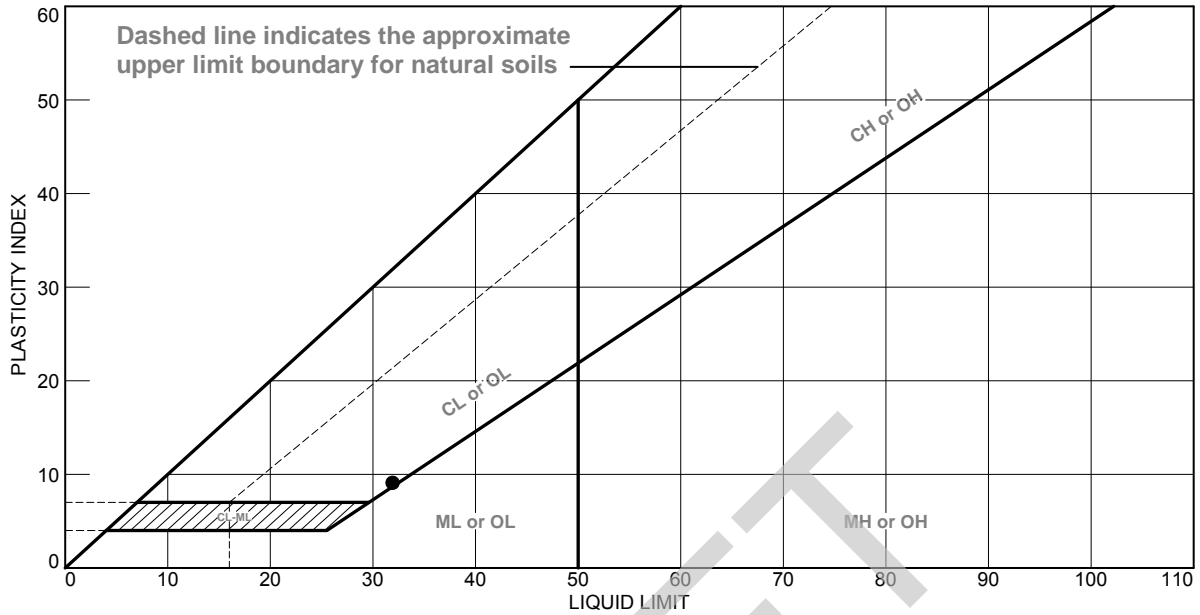
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Alternating Layers of Gr CLAY and Sandy SILT	31	24	7			(ML)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: B-2A **Depth:** 31-32.5
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Gr SILT with Tr Clay and Tr Fine Sand	32	23	9			(ML)

Project No. B13-018 Client: GeoEngineers
 Project: Mid Barataria Diversion
 Source of Sample: B-2A Depth: 33.5-35

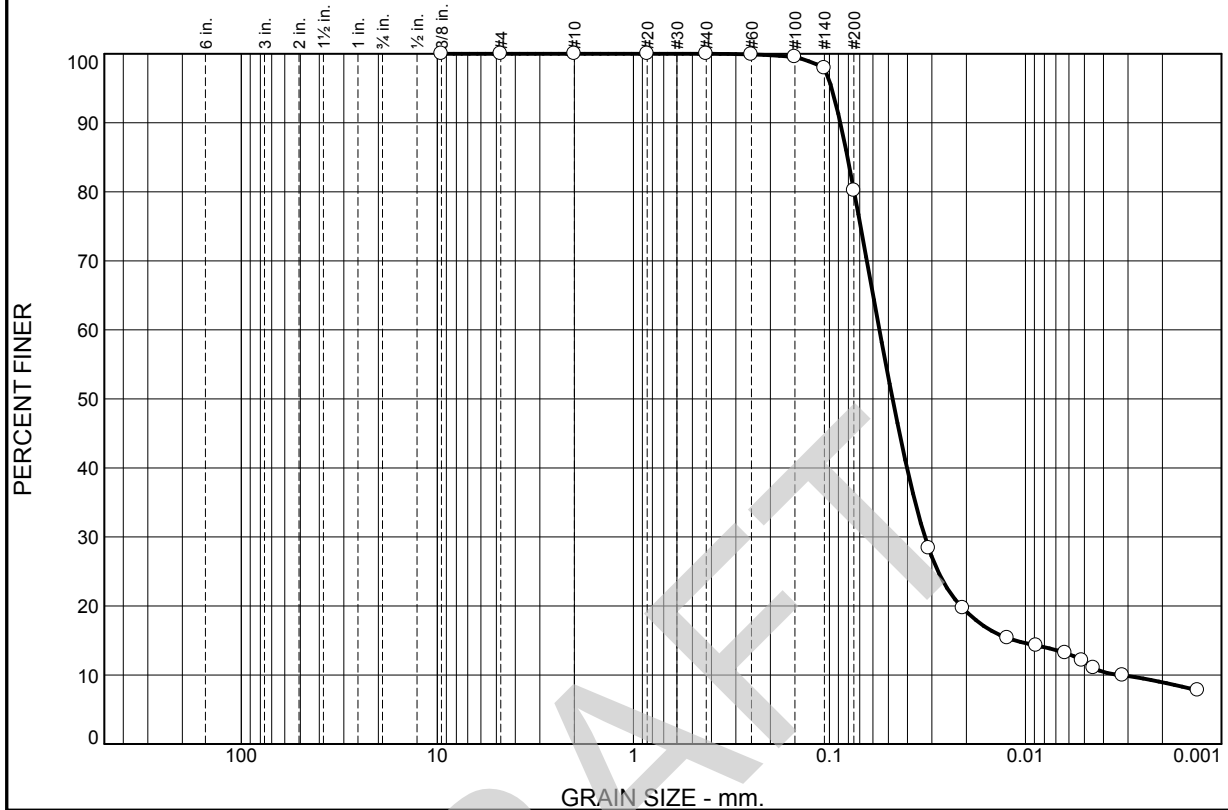
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	19.8	68.3	11.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.9		
#100	99.5		
#140	97.9		
#200	80.2		

Material Description
Gr SILT with Fine Sand and Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

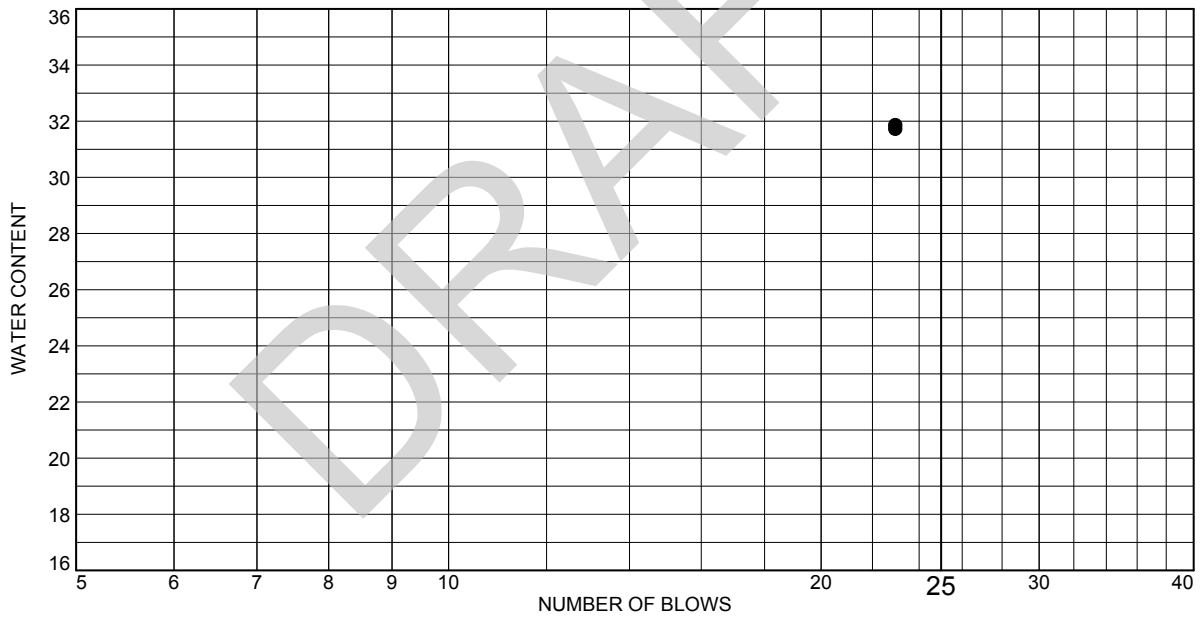
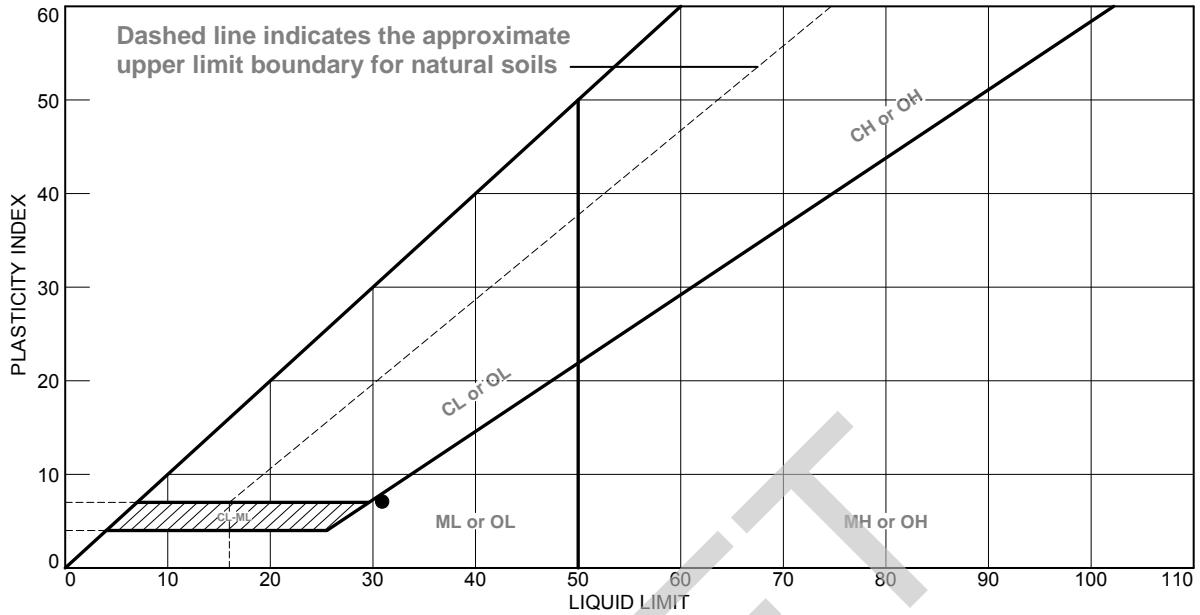
F.M.=0.01

* (no specification provided)

Source of Sample: B-2A Depth: 36-37.5 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Gr SILT with Clay and Sand	31	24	7			(ML)

Project No. B13-018 Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: B-2A Depth: 41-42.5

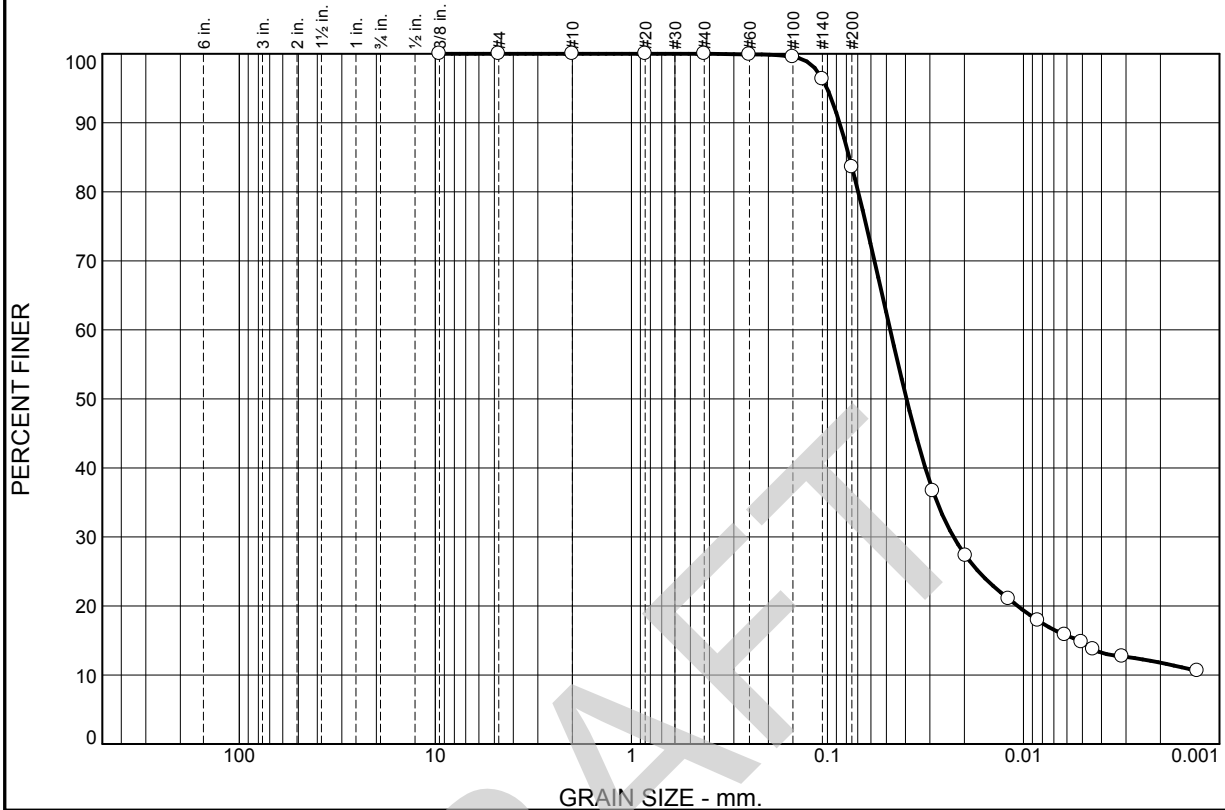
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	16.4	68.9	14.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.9		
#100	99.5		
#140	96.3		
#200	83.6		

Material Description

Gr SILT with Clay and Sand

Atterberg Limits

PL= 24 LL= 31 PI= 7

Classification

USCS= (ML) AASHTO= A-4(6)

Remarks

F.M.=0.01

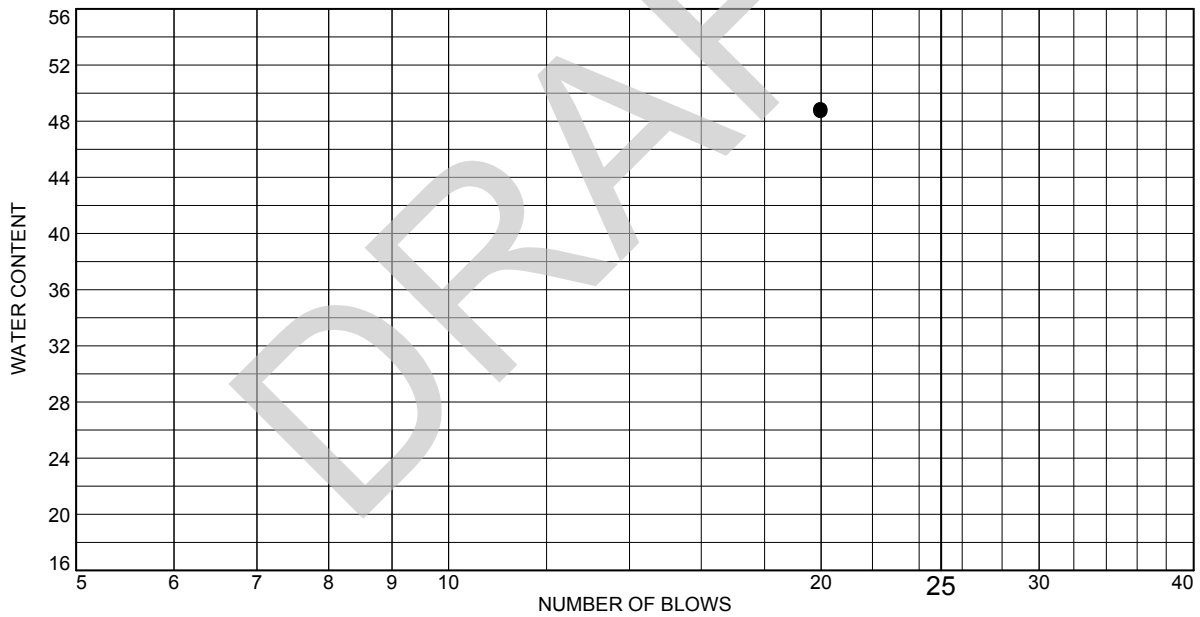
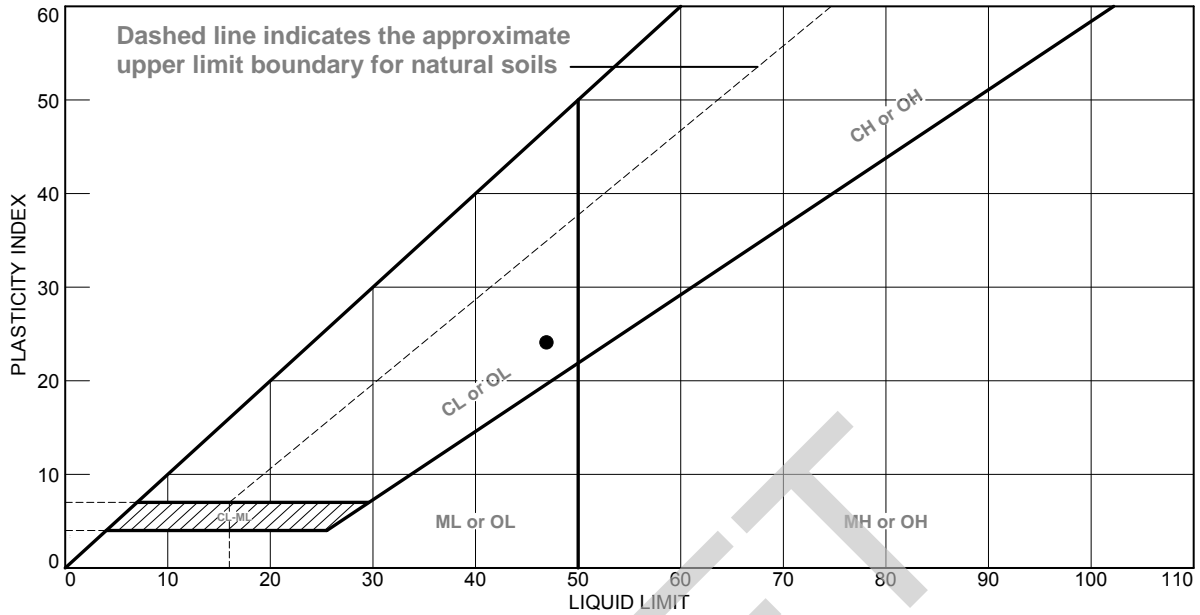
* (no specification provided)

Source of Sample: B-2A Depth: 41-42.5 Date: _____

<p style="text-align: center;">Southern Earth Sciences, Inc. Baton Rouge, LA</p>	<p>Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018</p>
---	---

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Gr Lean CLAY with Tr Fine SAND	47	23	24			(CL6)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: B-2A **Depth:** 43.5-45
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	15.7	72.1	12.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.9		
#100	99.5		
#140	98.3		
#200	84.3		

Material Description
Gr SILT with Fine Sand and Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

F.M.=0.00

* (no specification provided)

Source of Sample: B-2A Depth: 46.5-47 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018 Figure
--	--

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						71.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	71.8		

Material Description

Gr SILT with Sand and Tr Clay

Atterberg Limits

PL= LL= PI=

Classification

USCS= (ML) AASHTO=

Remarks

* (no specification provided)

Source of Sample: B-2A Depth: 47-48

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						83.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	83.8		

Material Description
Gr SILT with Sand and Tr Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (ML) AASHTO=

Remarks

* (no specification provided)

Source of Sample: B-2A Depth: 48-49

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						75.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	75.7		

Material Description

Gr SILT with Sand and Tr Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (ML) AASHTO=

Remarks

* (no specification provided)

Source of Sample: B-2A Depth: 49-50

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	27.0	62.7	10.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.8		
#60	99.3		
#100	97.9		
#140	89.7		
#200	72.8		

Material Description

Gr SILT with Sand and Tr Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

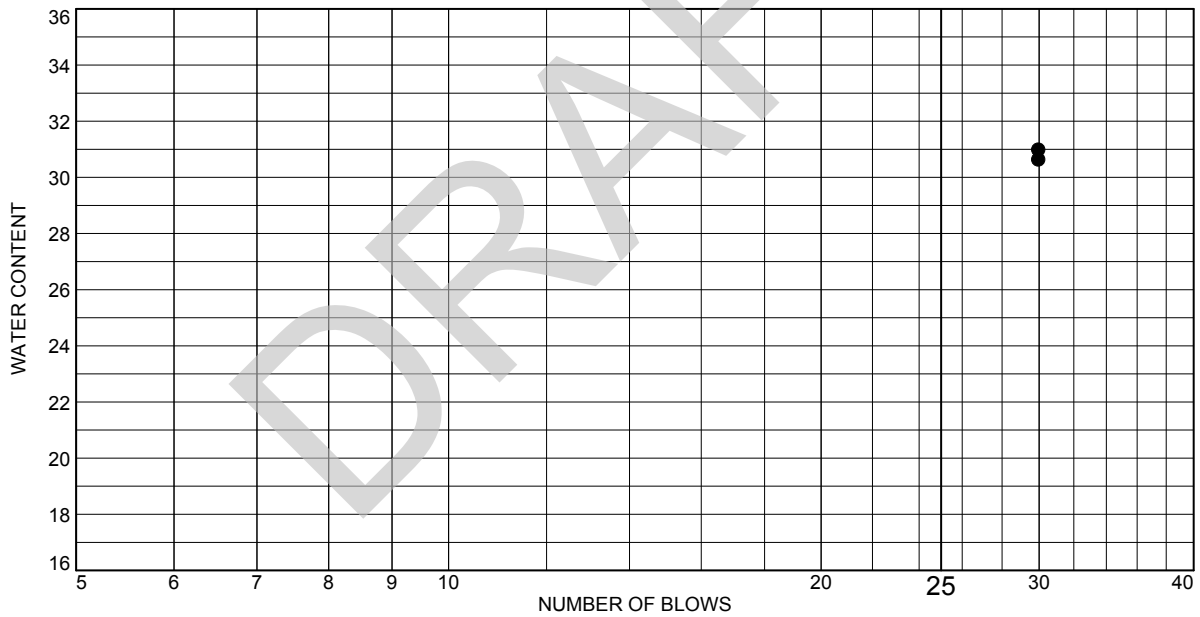
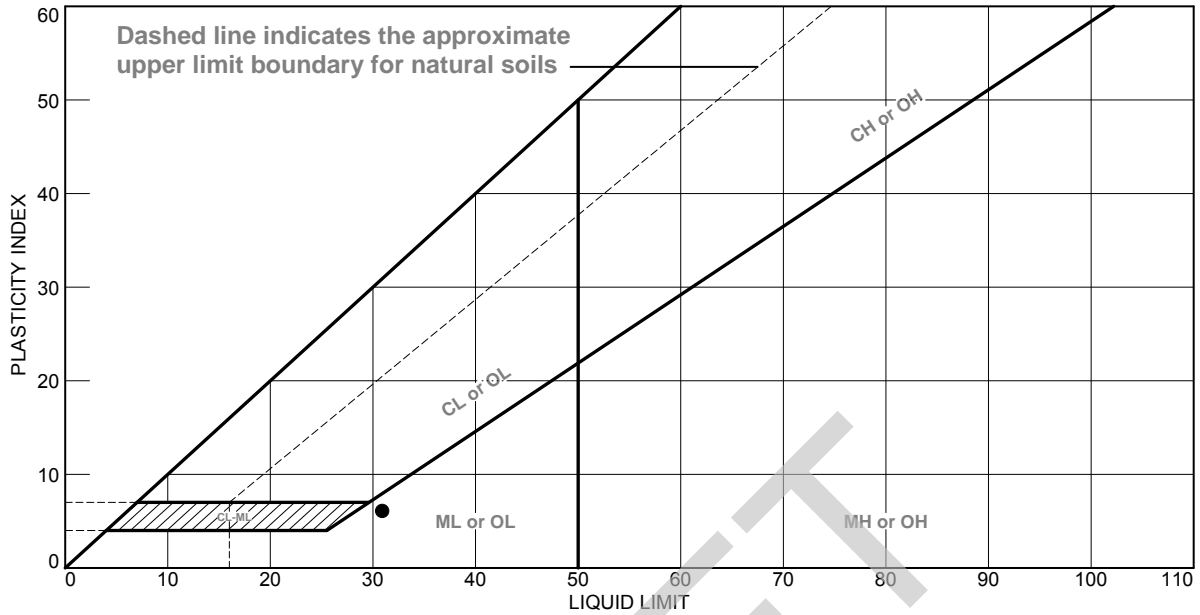
F.M.=0.03

* (no specification provided)

Source of Sample: B-2A Depth: 51-52 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● M to St, Gr SILT with Clay and Fine Sand (ML)	31	25	6			(ML)

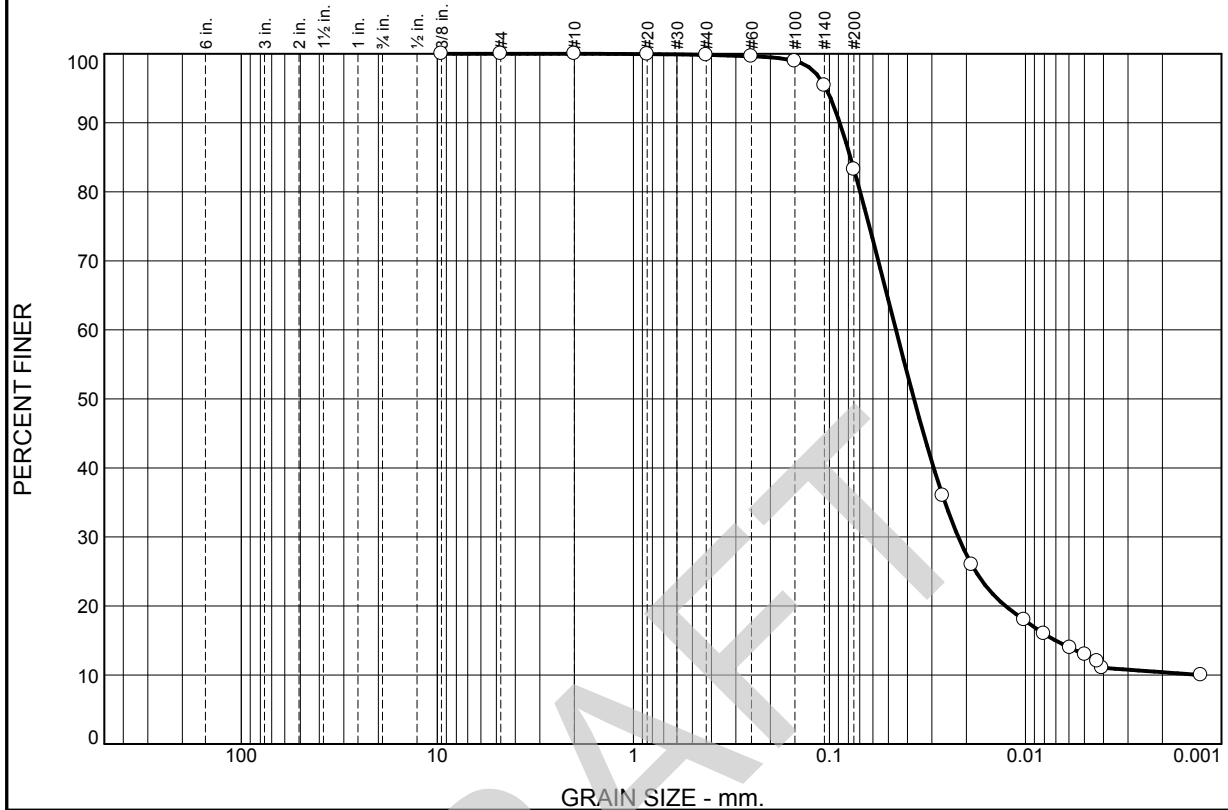
Project No. B13-018 Client: GeoEngineers
 Project: Mid Barataria Diversion
 Source of Sample: B-2A Depth: 52-53

Southern Earth Sciences, Inc.
 Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	16.5	70.3	13.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.8		
#60	99.6		
#100	98.9		
#140	95.4		
#200	83.3		

Material Description
M to St, Gr SILT with Clay and Fine Sand (ML)

Atterberg Limits
PL= 25 LL= 31 PI= 6

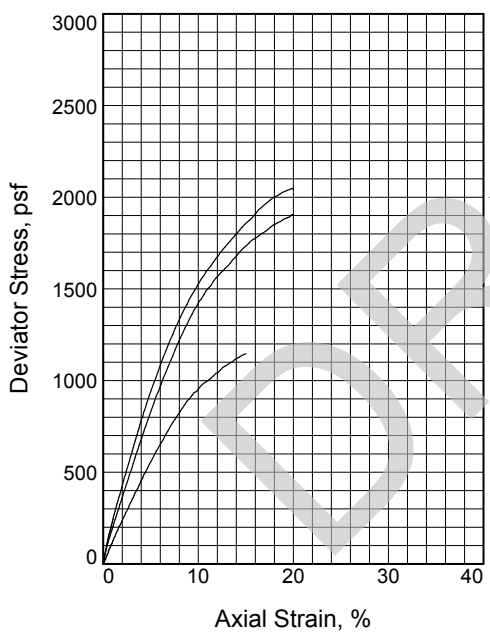
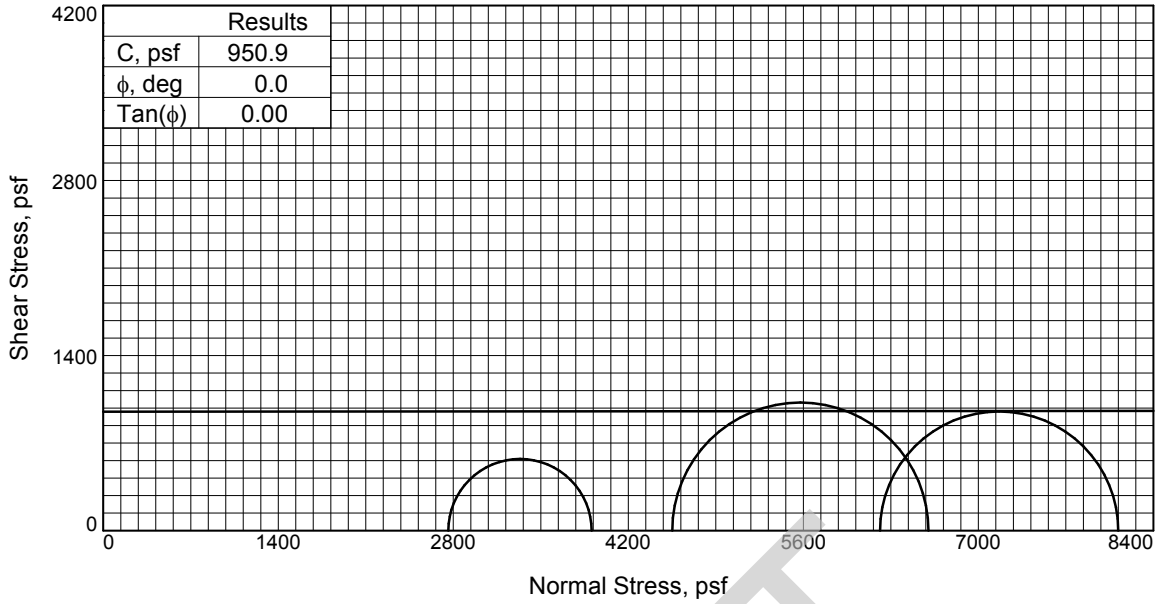
Classification
USCS= ML AASHTO= A-4(5)

Remarks
F.M.=0.01

* (no specification provided)

Source of Sample: B-2A Depth: 52-53 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure



	1	2	3	
Sample No.				
Initial	Water Content, %	31.1	30.7	30.9
	Dry Density, pcf	89.0	92.1	90.8
	Saturation, %	96.0	102.0	99.5
	Void Ratio	0.8582	0.7968	0.8217
	Diameter, in.	1.380	1.376	1.395
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	32.4	30.1	31.0
	Dry Density, pcf	89.0	92.1	90.8
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.8582	0.7968	0.8217
Ult. Stress, psf	Diameter, in.	1.380	1.376	1.395
	Height, in.	2.800	2.800	2.800
	Strain rate, in./min.	0.999	1.000	1.000
	Back Pressure, psi	0.000	0.000	0.000
	Cell Pressure, psi	19.170	31.610	43.150
Fail. Stress, psf	Fail. Stress, psf	1146.0	2048.8	1905.4
	Strain, %	15.0	19.9	19.9
σ_1 Failure, psf	Ult. Stress, psf			
	Strain, %			
σ_3 Failure, psf	σ_1 Failure, psf	3906.4	6600.6	8119.0
	σ_3 Failure, psf	2760.5	4551.8	6213.6

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: M to St, Gr SILT with Clay and Fine Sand (ML)

LL= 31 PL= 25 PI= 6

Assumed Specific Gravity= 2.65

Remarks: Type Failure:
Bulge (sample 1,3)
Shear / Bulge (sample 2)
Slumping

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

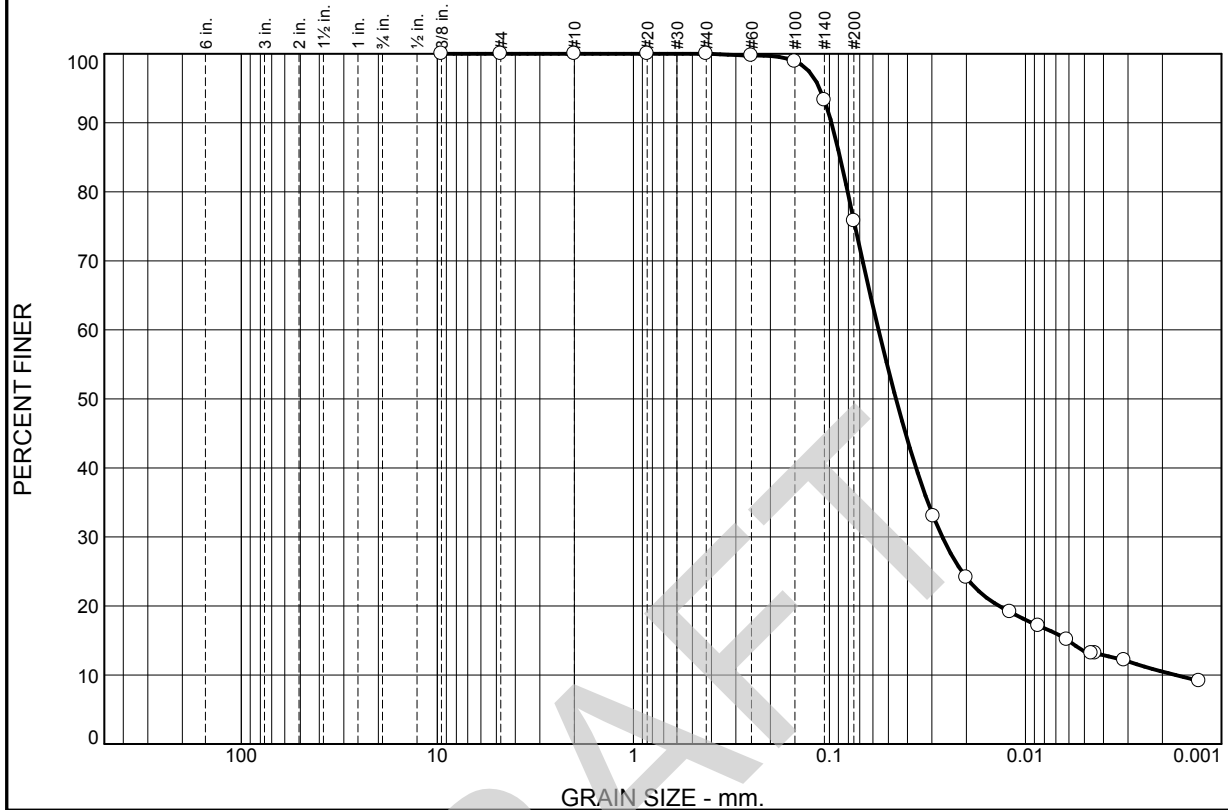
Source of Sample: B-2A **Depth:** 52-53

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	24.2	62.4	13.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.7		
#100	98.9		
#140	93.3		
#200	75.8		

Material Description
Gr SILT with Sand and Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (ML) AASHTO=

Remarks

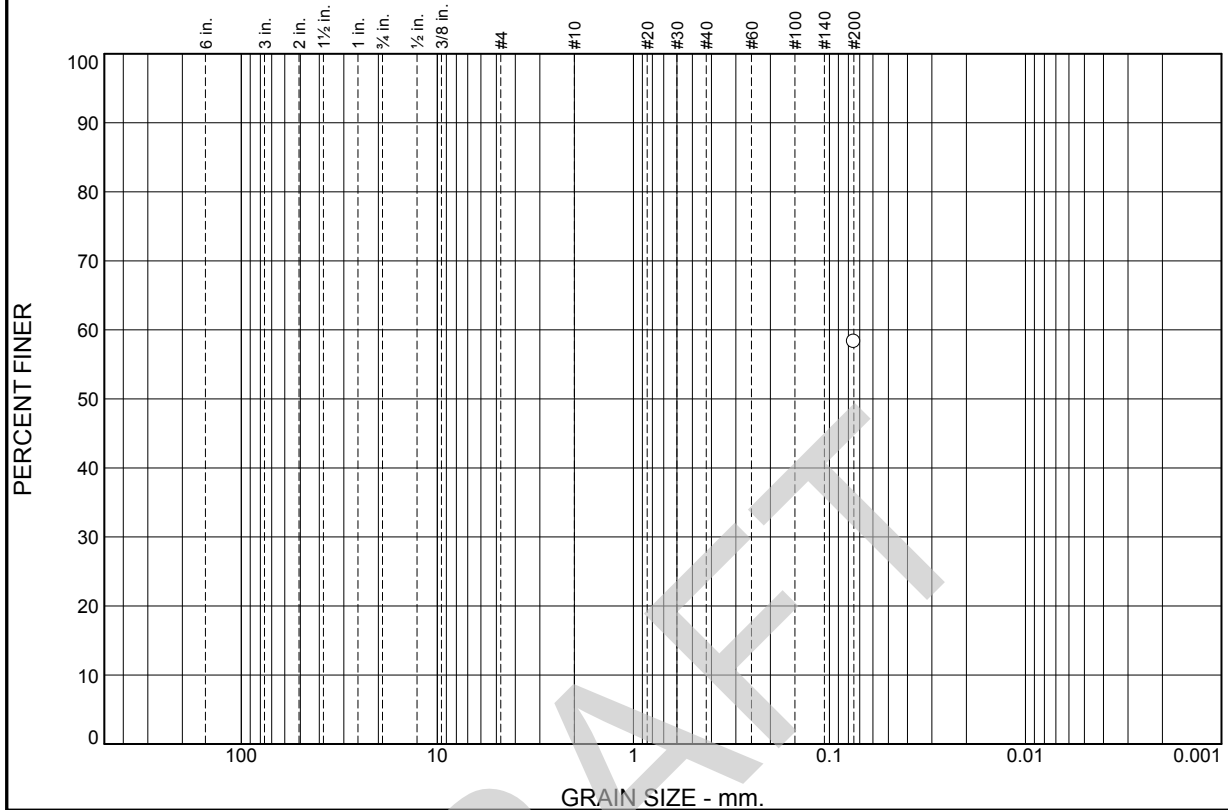
F.M.=0.01

* (no specification provided)

Source of Sample: B-2A Depth: 55-56 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018 Figure
--	--

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						58.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	58.3		

Material Description

Gr Sandy SILT with Tr Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

* (no specification provided)

Source of Sample: B-2A Depth: 57-58

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						70.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	70.2		

Material Description

Gr Sandy SILT with Tr Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

* (no specification provided)

Source of Sample: B-2A

Depth: 61.5-63

Date:

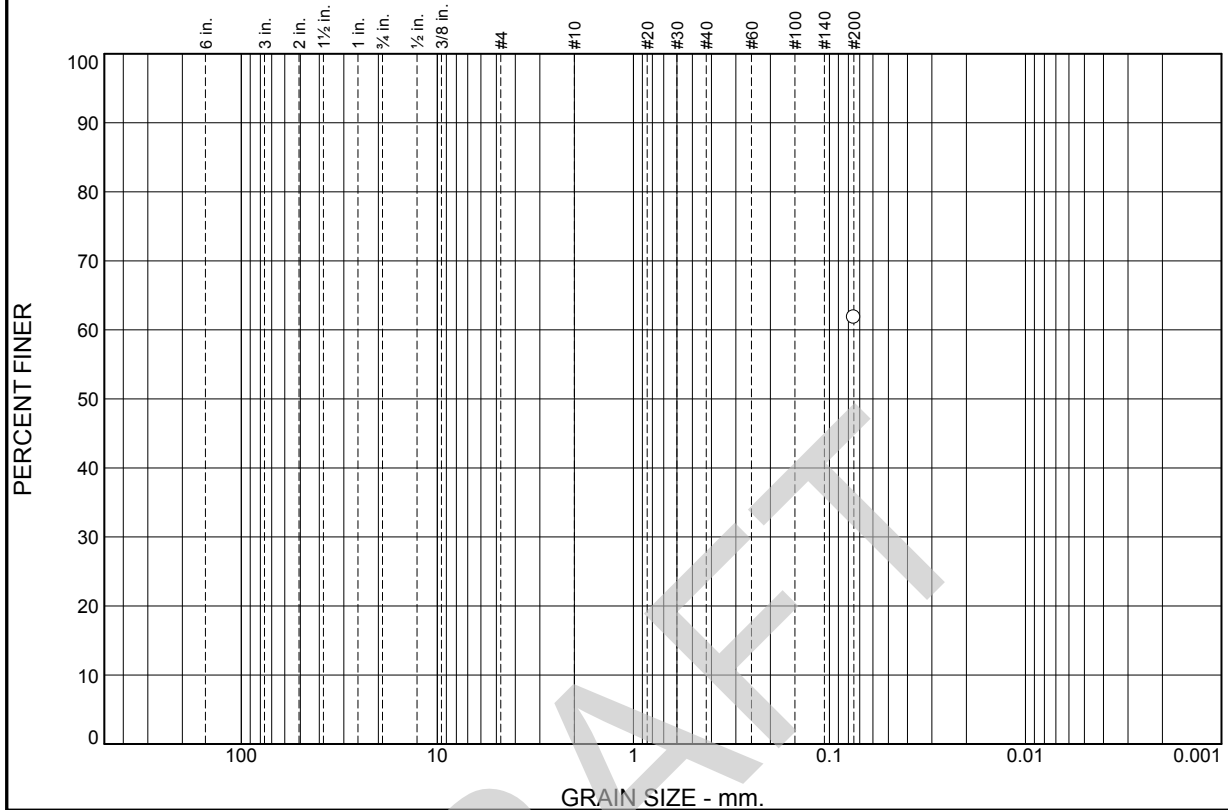
Southern Earth Sciences, Inc.
Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						61.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	61.8		

Material Description

Gr Sandy SILT with Tr Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (ML) AASHTO=

Remarks

* (no specification provided)

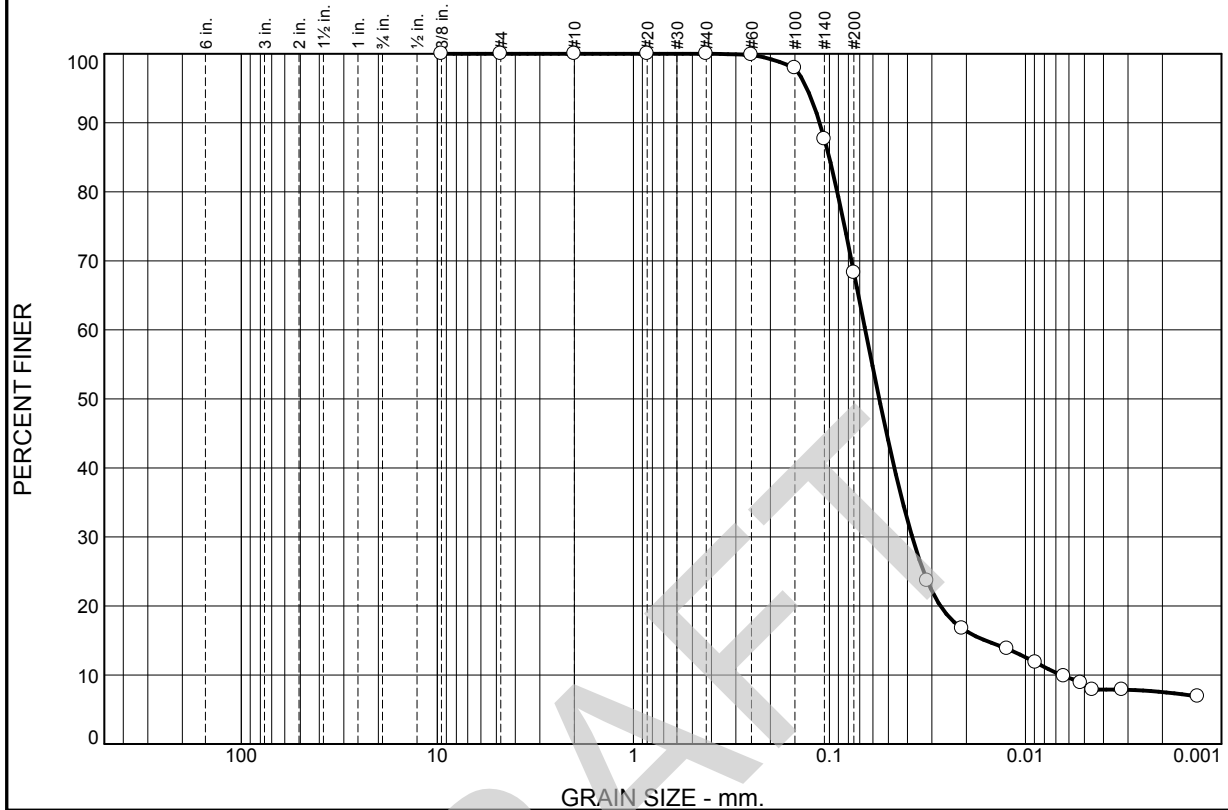
Source of Sample: B-2A Depth: 64-65.5

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
--	--

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	31.7	59.8	8.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.8		
#100	97.9		
#140	87.6		
#200	68.3		

Material Description
Gr Sandy SILT with Tr Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

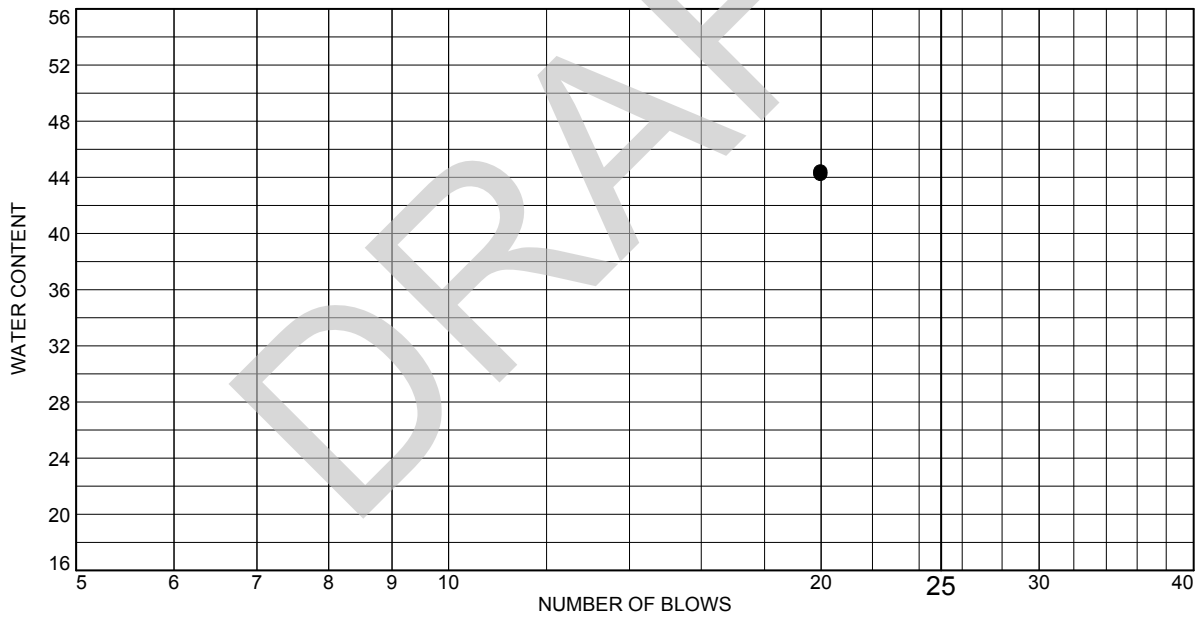
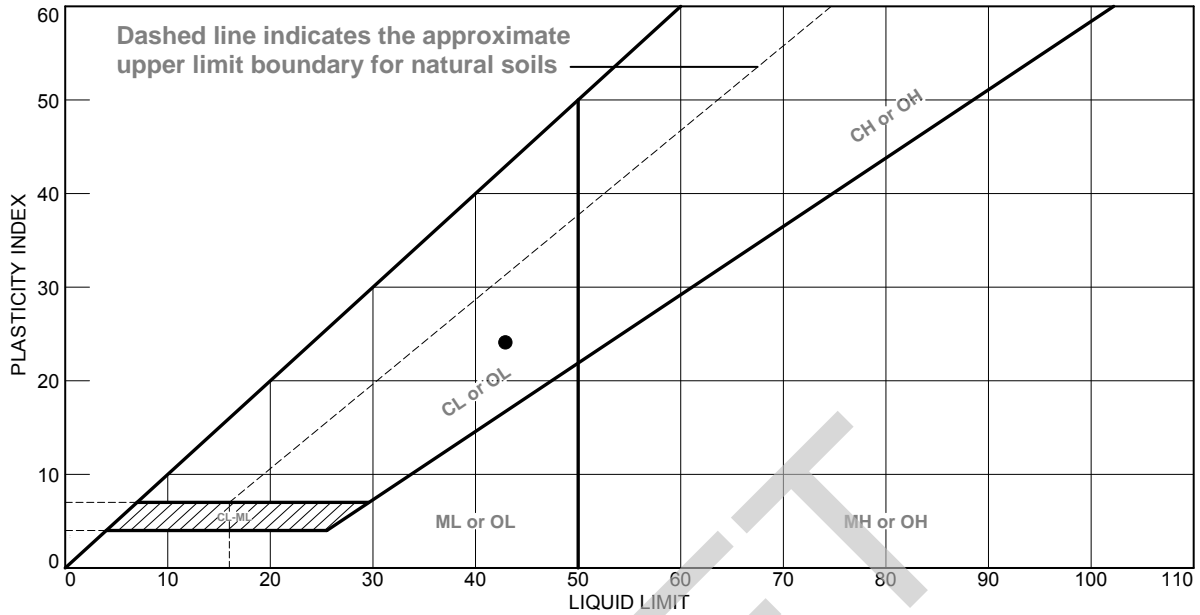
F.M.=0.02

* (no specification provided)

Source of Sample: B-2A Depth: 66.5-68 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018	Figure
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LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Alternating Layers of Gr Lean CLAY and Sandy SILT	43	19	24			(CL6)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: B-2A **Depth:** 69-70.5
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						58.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	58.9		

Material Description

Gr Sandy SILT with Tr Clay

Atterberg Limits

PL= LL= PI=

Classification

USCS= (ML) AASHTO=

Remarks

* (no specification provided)

Source of Sample: B-2A

Depth: 71.5-73

Date:

**Southern Earth
Sciences, Inc.
Baton Rouge, LA**

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	25.8	58.7	15.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.9		
#100	98.9		
#140	91.6		
#200	74.2		

Material Description
Gr SILT with Sand and Tr Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (ML) AASHTO=

Remarks

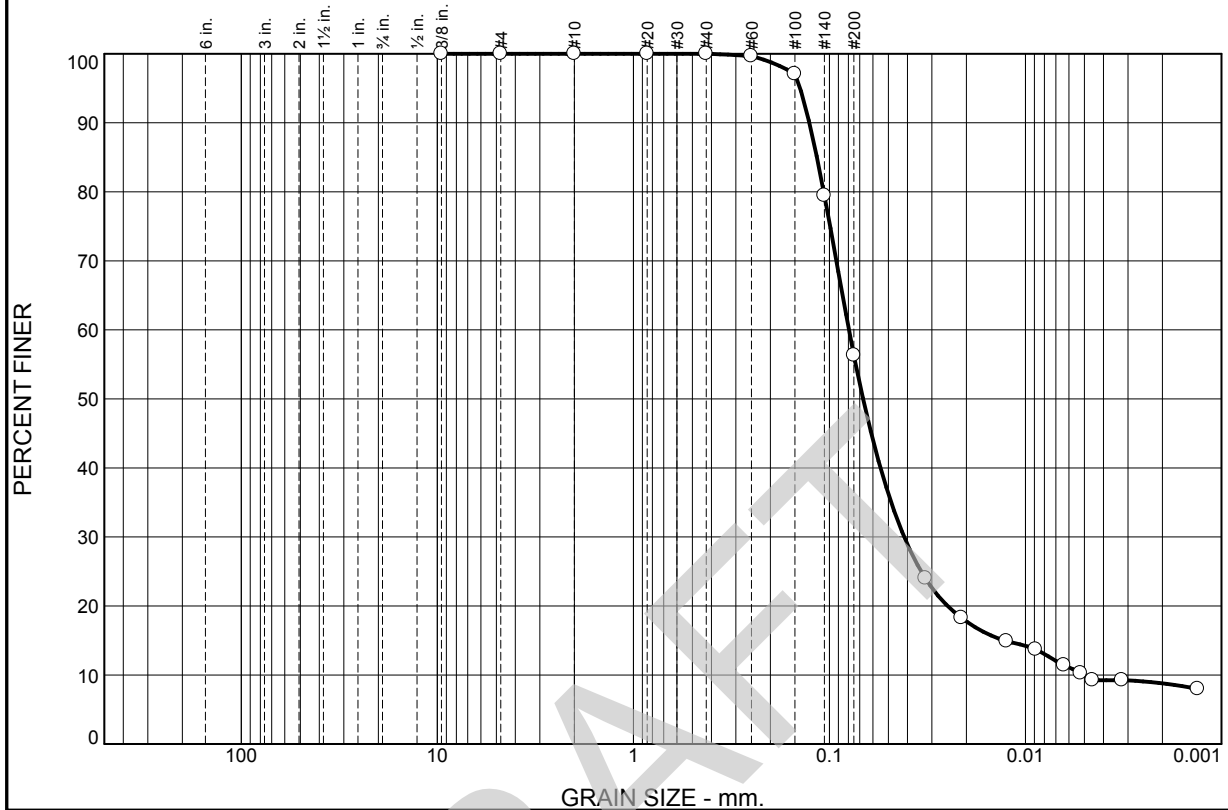
F.M.=0.01

* (no specification provided)

Source of Sample: B-2A Depth: 74-75.5 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018 Figure
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Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	43.7	46.4	9.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.7		
#100	97.1		
#140	79.4		
#200	56.3		

Material Description
Gr Sandy SILT with Tr Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

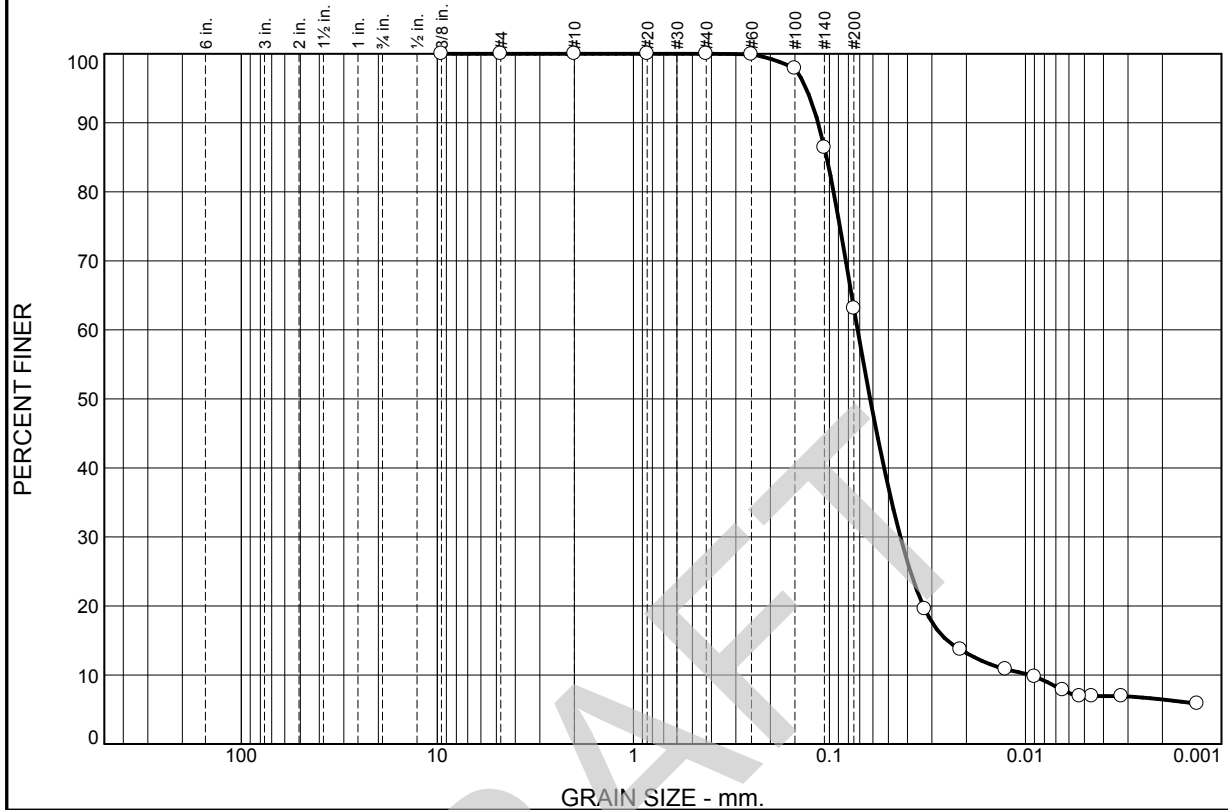
F.M.=0.03

* (no specification provided)

Source of Sample: B-2A Depth: 76.5-78 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	36.9	56.2	6.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.9		
#100	97.9		
#140	86.4		
#200	63.1		

Material Description
Gr Sandy SILT with Tr Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

F.M.=0.02

* (no specification provided)

Source of Sample: B-2A **Depth:** 79-80.5

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018	Figure
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Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						42.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	42.5		

Material Description
Gr Silty SAND with Tr Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (SM) AASHTO=

Remarks

* (no specification provided)

Source of Sample: B-2A Depth: 81.5-83

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						33.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	33.8		

Material Description
Gr Silty SAND with Tr Clay

Atterberg Limits
 PL= LL= PI=

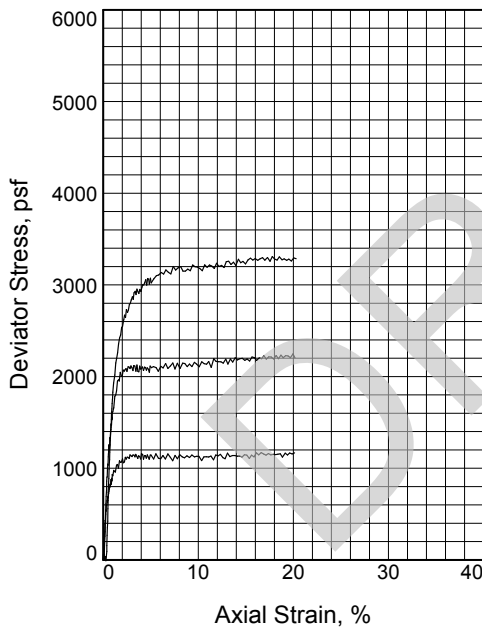
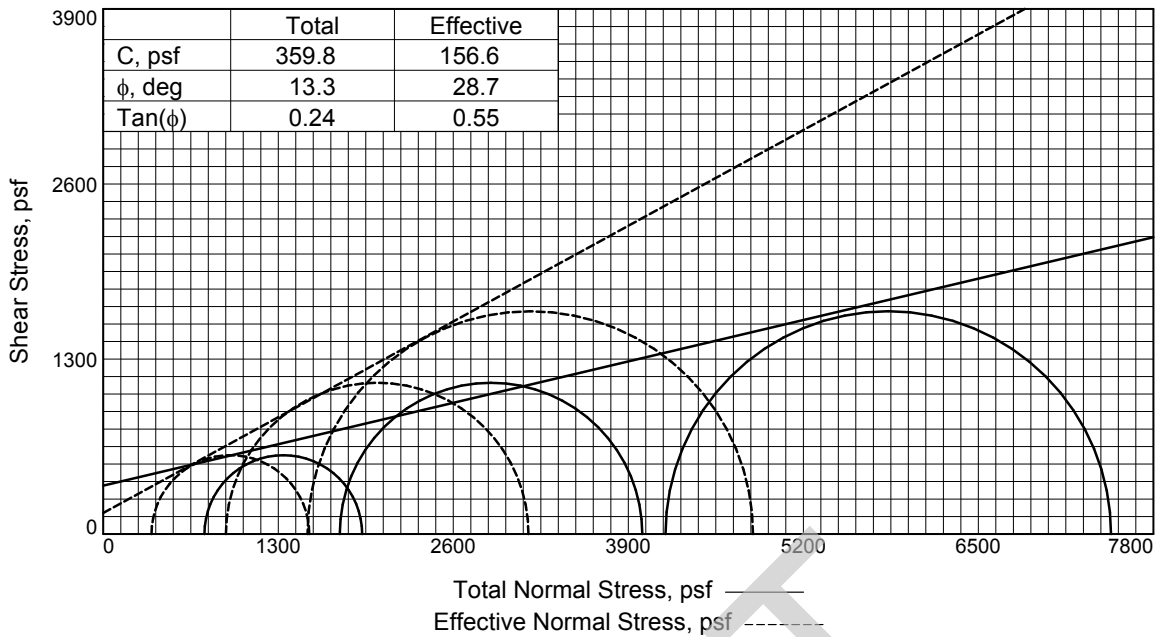
Classification
 USCS= (SM) AASHTO=

Remarks

* (no specification provided)

Source of Sample: B-2A Depth: 84-85.5 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018 Figure
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	1	2	3	
Sample No.				
Initial	Water Content, %	25.7	26.6	26.0
	Dry Density, pcf	83.0	87.4	82.9
	Saturation, %	67.2	77.4	67.8
	Void Ratio	1.0319	0.9282	1.0343
	Diameter, in.	1.394	1.380	1.399
Height, in.	2.800	2.800	2.800	
At Test	Water Content, %	37.2	32.7	35.2
	Dry Density, pcf	84.1	89.6	86.4
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.0047	0.8819	0.9511
	Diameter, in.	1.388	1.369	1.380
Height, in.	2.787	2.777	2.761	
Strain rate, in./min.	0.033	0.033	0.033	
Eff. Cell Pressure, psi	5.220	12.200	29.000	
Fail. Stress, psf	1171.3	2247.1	3309.3	
Excess Pore Pr., psf	393.1	845.4	2659.0	
Strain, %	16.6	19.9	17.8	
Ult. Stress, psf				
Excess Pore Pr., psf				
Strain, %				
$\bar{\sigma}_1$ Failure, psf	1529.9	3158.5	4826.3	
$\bar{\sigma}_3$ Failure, psf	358.6	911.4	1517.0	

Type of Test:

CU with Pore Pressures

Sample Type: Undisturbed

Description: Br Lean CLAY (CL6)

LL= 48 PL= 24 PI= 24

Assumed Specific Gravity= 2.70

Remarks:

Figure _____

Client: GeoEngineers

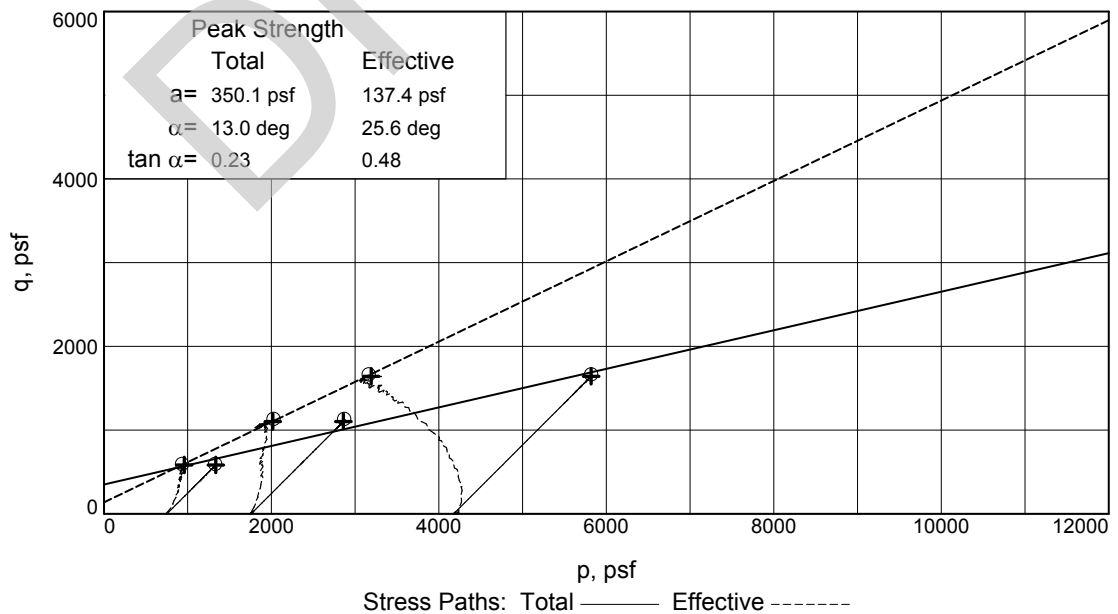
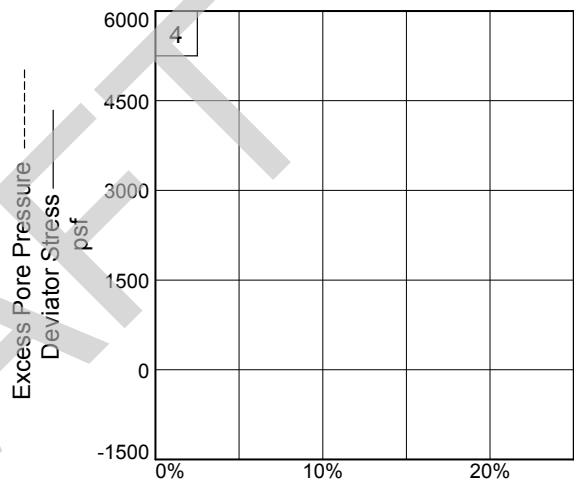
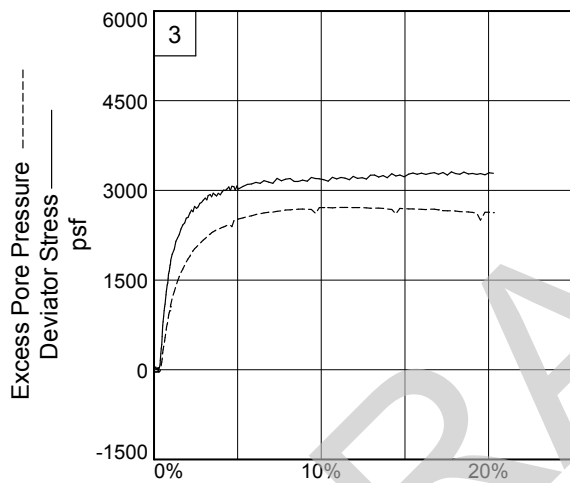
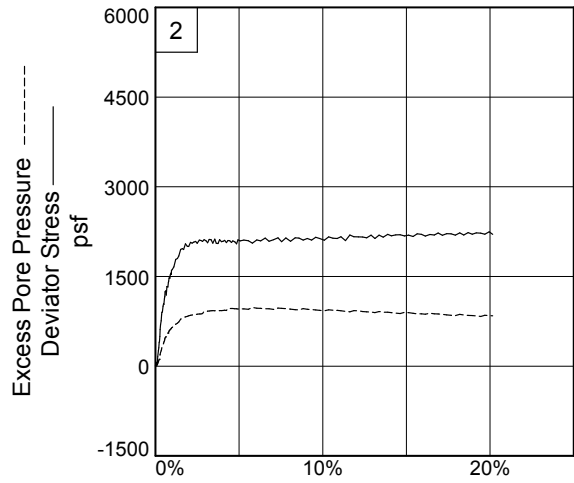
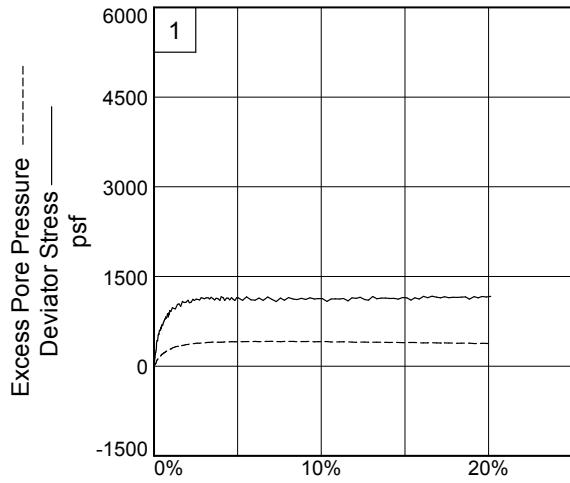
Project: Mid Baratara Diversion

Source of Sample: B-2A **Depth:** 0-1

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers
Project: Mid Baratara Diversion
Source of Sample: B-2A **Depth:** 0-1
Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

TRIAxIAL COMPRESSION TEST
CU with Pore Pressures

12/10/2013
2:26 PM

Date:
Client: GeoEngineers
Project: Mid Barataria Diversion
Project No.: B13-018
Location: B-2A
Depth: 0-1
Description: Br Lean CLAY (CL6)
Remarks:

Type of Sample: Undisturbed

Assumed Specific Gravity=2.70 **LL**=48 **PL**=24 **PI**=24

Test Method: COE uniform strain

Parameters for Specimen No. 1

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	155.880			162.930
Moisture content: Dry soil+tare, gms.	131.990			129.520
Moisture content: Tare, gms.	38.910			38.120
Moisture, %	25.7	38.2	37.2	36.6
Moist specimen weight, gms.	116.94			
Diameter, in.	1.394	1.394	1.388	
Area, in. ²	1.526	1.526	1.513	
Height, in.	2.800	2.800	2.787	
Net decrease in height, in.		0.000	0.013	
Wet density, pcf	104.2	114.7	115.4	
Dry density, pcf	83.0	83.0	84.1	
Void ratio	1.0319	1.0319	1.0047	
Saturation, %	67.2	100.0	100.0	

Test Readings for Specimen No. 1

Consolidation cell pressure = 80.220 psi (11551.7 psf)
Consolidation back pressure = 75.000 psi (10800.0 psf)
Consolidation effective confining stress = 751.7 psf
Strain rate, in./min. = 0.033
Fail. Stress = 1171.3 psf at reading no. 126

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	1.2	0	0.0	0.0	737.1	737.1	1.00	75.101	737.1	0.0
1	0.0006	1.7	1	0.0	53.3	737.0	790.3	1.07	75.102	763.7	26.7
2	0.0016	2.7	2	0.1	144.5	727.8	872.3	1.20	75.166	800.0	72.2
3	0.0022	3.3	2	0.1	203.3	718.2	921.5	1.28	75.233	819.8	101.6
4	0.0030	3.6	2	0.1	235.1	705.2	940.3	1.33	75.323	822.7	117.6
5	0.0037	4.0	3	0.1	266.6	693.5	960.1	1.38	75.404	826.8	133.3
6	0.0040	4.5	3	0.1	313.4	678.8	992.2	1.46	75.506	835.5	156.7
7	0.0044	5.3	4	0.2	391.6	663.5	1055.1	1.59	75.613	859.3	195.8
8	0.0053	5.7	5	0.2	430.3	650.8	1081.1	1.66	75.701	865.9	215.2
9	0.0060	5.6	4	0.2	425.2	638.8	1064.0	1.67	75.784	851.4	212.6
10	0.0069	6.6	5	0.2	511.5	627.4	1138.9	1.82	75.863	883.1	255.7
11	0.0076	6.9	6	0.3	544.8	618.5	1163.2	1.88	75.925	890.9	272.4
12	0.0083	6.8	6	0.3	532.2	612.5	1144.7	1.87	75.967	878.6	266.1
13	0.0090	7.4	6	0.3	593.3	601.1	1194.4	1.99	76.046	897.8	296.7
14	0.0096	7.5	6	0.3	601.8	592.0	1193.8	2.02	76.109	892.9	300.9
15	0.0107	7.5	6	0.4	598.7	587.1	1185.7	2.02	76.143	886.4	299.3
16	0.0114	8.0	7	0.4	647.1	578.8	1225.9	2.12	76.200	902.4	323.5
17	0.0118	8.1	7	0.4	652.7	570.6	1223.3	2.14	76.258	896.9	326.3
18	0.0122	7.8	7	0.4	626.0	566.0	1192.0	2.11	76.289	879.0	313.0
19	0.0127	8.3	7	0.5	675.1	559.8	1234.9	2.21	76.332	897.4	337.5
20	0.0133	8.5	7	0.5	690.5	554.2	1244.7	2.25	76.371	899.5	345.3
21	0.0143	8.3	7	0.5	677.6	546.1	1223.7	2.24	76.427	884.9	338.8
22	0.0153	8.7	8	0.5	711.2	542.6	1253.8	2.31	76.452	898.2	355.6
23	0.0157	8.8	8	0.6	726.4	535.5	1261.9	2.36	76.502	898.7	363.2
24	0.0165	9.1	8	0.6	747.2	530.0	1277.2	2.41	76.540	903.6	373.6
25	0.0173	9.3	8	0.6	765.4	527.4	1292.9	2.45	76.557	910.1	382.7
26	0.0182	9.5	8	0.7	788.9	520.7	1309.5	2.52	76.604	915.1	394.4
27	0.0189	9.5	8	0.7	788.6	516.0	1304.6	2.53	76.637	910.3	394.3
28	0.0193	9.7	8	0.7	803.0	511.3	1314.3	2.57	76.669	912.8	401.5
29	0.0197	9.9	9	0.7	825.3	508.2	1333.5	2.62	76.691	920.8	412.7
30	0.0205	9.7	9	0.7	804.5	502.0	1306.4	2.60	76.734	904.2	402.2
31	0.0214	9.8	9	0.8	817.0	497.3	1314.4	2.64	76.766	905.9	408.5
32	0.0225	10.5	9	0.8	877.0	495.6	1372.6	2.77	76.779	934.1	438.5
33	0.0231	10.2	9	0.8	852.5	491.0	1343.5	2.74	76.810	917.3	426.3
34	0.0238	9.9	9	0.9	825.6	482.8	1308.5	2.71	76.867	895.7	412.8
35	0.0248	10.6	9	0.9	892.1	480.3	1372.4	2.86	76.885	926.4	446.1
36	0.0253	10.5	9	0.9	883.5	475.4	1358.9	2.86	76.918	917.2	441.7
37	0.0258	10.3	9	0.9	862.9	471.2	1334.1	2.83	76.948	902.7	431.4
38	0.0264	11.1	10	0.9	932.4	467.6	1400.0	2.99	76.973	933.8	466.2
39	0.0274	10.9	10	1.0	918.8	463.7	1382.5	2.98	77.000	923.1	459.4
40	0.0282	10.9	10	1.0	917.3	463.5	1380.8	2.98	77.001	922.1	458.6
41	0.0307	11.5	10	1.1	977.3	447.8	1425.1	3.18	77.111	936.4	488.7
42	0.0333	11.4	10	1.2	964.0	436.8	1400.8	3.21	77.186	918.8	482.0
43	0.0356	11.4	10	1.3	957.7	427.4	1385.1	3.24	77.252	906.3	478.8
44	0.0392	12.2	11	1.4	1033.6	420.6	1454.2	3.46	77.299	937.4	516.8
45	0.0418	12.3	11	1.5	1041.1	414.3	1455.4	3.51	77.343	934.8	520.6
46	0.0446	11.8	11	1.6	1000.0	409.9	1409.9	3.44	77.373	909.9	500.0

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
47	0.0475	12.7	12	1.7	1082.2	404.9	1487.1	3.67	77.408	946.0	541.1
48	0.0502	12.6	11	1.8	1064.3	400.1	1464.5	3.66	77.441	932.3	532.2
49	0.0532	12.6	11	1.9	1067.5	392.0	1459.5	3.72	77.498	925.8	533.7
50	0.0567	13.0	12	2.0	1102.7	388.6	1491.3	3.84	77.521	940.0	551.4
51	0.0591	12.6	11	2.1	1060.6	382.4	1442.9	3.77	77.565	912.6	530.3
52	0.0619	12.7	11	2.2	1069.0	378.6	1447.5	3.82	77.591	913.1	534.5
53	0.0650	13.2	12	2.3	1119.9	375.4	1495.3	3.98	77.613	935.4	560.0
54	0.0672	13.0	12	2.4	1099.2	373.6	1472.8	3.94	77.626	923.2	549.6
55	0.0702	13.3	12	2.5	1121.2	369.0	1490.3	4.04	77.657	929.7	560.6
56	0.0729	13.2	12	2.6	1117.7	367.1	1484.8	4.04	77.671	925.9	558.8
57	0.0762	13.1	12	2.7	1107.0	369.5	1476.5	4.00	77.654	923.0	553.5
58	0.0787	13.6	12	2.8	1145.8	365.1	1510.9	4.14	77.685	938.0	572.9
59	0.0817	13.5	12	2.9	1135.9	363.6	1499.5	4.12	77.695	931.6	568.0
60	0.0842	13.4	12	3.0	1127.2	362.8	1490.0	4.11	77.700	926.4	563.6
61	0.0870	13.6	12	3.1	1143.8	357.6	1501.3	4.20	77.737	929.4	571.9
62	0.0903	13.6	12	3.2	1143.5	354.0	1497.5	4.23	77.762	925.7	571.7
63	0.0927	13.4	12	3.3	1123.8	355.3	1479.1	4.16	77.753	917.2	561.9
64	0.0953	13.7	13	3.4	1151.6	350.7	1502.2	4.28	77.785	926.4	575.8
65	0.0983	13.5	12	3.5	1129.4	348.8	1478.2	4.24	77.797	913.5	564.7
66	0.1012	13.2	12	3.6	1107.2	349.3	1456.5	4.17	77.794	902.9	553.6
67	0.1036	13.6	12	3.7	1136.0	350.9	1486.9	4.24	77.783	918.9	568.0
68	0.1067	13.5	12	3.8	1128.8	351.2	1479.9	4.21	77.781	915.6	564.4
69	0.1098	13.2	12	3.9	1101.5	351.8	1453.3	4.13	77.777	902.5	550.7
70	0.1121	13.9	13	4.0	1160.3	350.3	1510.5	4.31	77.788	930.4	580.1
71	0.1154	13.7	13	4.1	1146.7	347.6	1494.3	4.30	77.806	921.0	573.4
72	0.1178	13.2	12	4.2	1098.6	346.7	1445.3	4.17	77.812	896.0	549.3
73	0.1207	13.6	12	4.3	1136.5	342.9	1479.4	4.31	77.839	911.2	568.2
74	0.1235	13.7	13	4.4	1139.1	343.4	1482.5	4.32	77.835	913.0	569.6
75	0.1263	13.4	12	4.5	1109.8	344.7	1454.5	4.22	77.826	899.6	554.9
76	0.1292	13.8	13	4.6	1145.2	342.0	1487.2	4.35	77.845	914.6	572.6
77	0.1317	13.6	12	4.7	1123.3	341.5	1464.7	4.29	77.849	903.1	561.6
78	0.1348	13.3	12	4.8	1097.9	344.6	1442.5	4.19	77.827	893.6	549.0
79	0.1378	13.8	13	4.9	1145.2	343.0	1488.2	4.34	77.838	915.6	572.6
80	0.1402	13.8	13	5.0	1143.4	343.9	1487.3	4.32	77.832	915.6	571.7
81	0.1476	13.4	12	5.3	1101.5	342.1	1443.6	4.22	77.845	892.8	550.8
82	0.1542	14.0	13	5.5	1158.2	340.5	1498.7	4.40	77.855	919.6	579.1
83	0.1617	13.5	12	5.8	1108.9	339.0	1448.0	4.27	77.866	893.5	554.5
84	0.1686	13.5	12	6.0	1104.1	338.1	1442.2	4.27	77.872	890.1	552.0
85	0.1750	13.9	13	6.3	1138.9	341.3	1480.3	4.34	77.850	910.8	569.5
86	0.1821	13.5	12	6.5	1101.1	337.8	1438.9	4.26	77.874	888.4	550.6
87	0.1895	14.2	13	6.8	1156.0	337.1	1493.2	4.43	77.879	915.1	578.0
88	0.1968	13.8	13	7.1	1117.8	335.7	1453.5	4.33	77.888	894.6	558.9
89	0.2037	13.4	12	7.3	1081.4	338.8	1420.1	4.19	77.868	879.4	540.7
90	0.2107	14.1	13	7.6	1139.7	341.0	1480.6	4.34	77.852	910.8	569.8
91	0.2173	13.8	13	7.8	1104.4	337.0	1441.4	4.28	77.880	889.2	552.2
92	0.2243	14.3	13	8.0	1147.0	337.0	1484.0	4.40	77.880	910.5	573.5
93	0.2317	14.0	13	8.3	1123.8	337.8	1461.6	4.33	77.874	899.7	561.9

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
94	0.2382	14.0	13	8.5	1113.4	341.3	1454.7	4.26	77.850	898.0	556.7
95	0.2456	14.2	13	8.8	1135.2	340.5	1475.7	4.33	77.855	908.1	567.6
96	0.2529	14.1	13	9.1	1117.0	339.2	1456.2	4.29	77.865	897.7	558.5
97	0.2600	14.4	13	9.3	1144.4	338.2	1482.6	4.38	77.871	910.4	572.2
98	0.2673	14.2	13	9.6	1124.3	343.4	1467.7	4.27	77.836	905.5	562.2
99	0.2735	14.3	13	9.8	1129.6	341.7	1471.3	4.31	77.847	906.5	564.8
100	0.2807	14.4	13	10.1	1130.6	340.6	1471.2	4.32	77.855	905.9	565.3
101	0.2882	13.9	13	10.3	1083.8	339.7	1423.5	4.19	77.861	881.6	541.9
102	0.2950	14.4	13	10.6	1123.7	345.4	1469.1	4.25	77.822	907.2	561.9
103	0.3025	14.4	13	10.9	1126.2	348.0	1474.2	4.24	77.804	911.1	563.1
104	0.3093	14.4	13	11.1	1122.9	344.3	1467.2	4.26	77.829	905.8	561.4
105	0.3159	14.6	13	11.3	1133.1	343.5	1476.6	4.30	77.835	910.0	566.5
106	0.3234	14.1	13	11.6	1092.0	346.3	1438.3	4.15	77.815	892.3	546.0
107	0.3300	14.8	14	11.8	1144.2	349.2	1493.4	4.28	77.795	921.3	572.1
108	0.3369	14.7	14	12.1	1135.3	352.2	1487.5	4.22	77.774	919.8	567.6
109	0.3435	15.0	14	12.3	1152.3	347.8	1500.1	4.31	77.805	924.0	576.1
110	0.3510	14.6	13	12.6	1115.3	347.5	1462.9	4.21	77.806	905.2	557.7
111	0.3574	14.5	13	12.8	1104.2	351.0	1455.3	4.15	77.782	903.2	552.1
112	0.3644	15.2	14	13.1	1165.2	350.4	1515.6	4.33	77.787	933.0	582.6
113	0.3714	14.8	14	13.3	1127.2	350.4	1477.6	4.22	77.787	914.0	563.6
114	0.3787	15.0	14	13.6	1139.0	350.0	1489.0	4.25	77.789	919.5	569.5
115	0.3859	15.1	14	13.8	1138.8	353.9	1492.8	4.22	77.762	923.4	569.4
116	0.3930	15.0	14	14.1	1131.6	354.2	1485.8	4.19	77.760	920.0	565.8
117	0.3997	15.1	14	14.3	1134.8	352.1	1486.9	4.22	77.775	919.5	567.4
118	0.4071	15.0	14	14.6	1121.5	354.8	1476.4	4.16	77.756	915.6	560.8
119	0.4140	15.3	14	14.9	1147.8	357.9	1505.6	4.21	77.735	931.7	573.9
120	0.4210	15.3	14	15.1	1143.2	357.2	1500.3	4.20	77.740	928.7	571.6
121	0.4282	14.9	14	15.4	1106.0	354.6	1460.6	4.12	77.757	907.6	553.0
122	0.4347	15.4	14	15.6	1142.5	355.1	1497.7	4.22	77.754	926.4	571.3
123	0.4421	15.2	14	15.9	1124.1	362.4	1486.5	4.10	77.703	924.5	562.0
124	0.4490	15.8	15	16.1	1167.5	362.4	1529.9	4.22	77.703	946.1	583.8
125	0.4559	15.6	14	16.4	1146.1	361.4	1507.4	4.17	77.711	934.4	573.0
126	0.4633	15.9	15	16.6	1171.3	358.6	1529.9	4.27	77.730	944.3	585.6
127	0.4706	15.8	15	16.9	1154.7	361.3	1515.9	4.20	77.711	938.6	577.3
128	0.4772	15.7	14	17.1	1143.4	364.7	1508.1	4.13	77.687	936.4	571.7
129	0.4842	15.9	15	17.4	1160.8	362.9	1523.7	4.20	77.700	943.3	580.4
130	0.4912	15.8	15	17.6	1145.5	364.0	1509.5	4.15	77.692	936.7	572.8
131	0.4982	15.9	15	17.9	1151.9	364.6	1516.6	4.16	77.688	940.6	576.0
132	0.5055	15.9	15	18.1	1149.3	369.0	1518.3	4.11	77.657	943.7	574.6
133	0.5121	16.0	15	18.4	1153.7	366.8	1520.6	4.14	77.672	943.7	576.9
134	0.5192	16.1	15	18.6	1158.0	364.9	1522.9	4.17	77.686	943.9	579.0
135	0.5256	15.7	15	18.9	1120.6	367.1	1487.7	4.05	77.671	927.4	560.3
136	0.5336	16.3	15	19.1	1164.3	372.2	1536.5	4.13	77.635	954.4	582.1
137	0.5401	16.1	15	19.4	1144.1	374.2	1518.3	4.06	77.621	946.3	572.1
138	0.5466	16.4	15	19.6	1166.4	369.7	1536.1	4.16	77.653	952.9	583.2
139	0.5539	16.3	15	19.9	1155.8	370.1	1526.0	4.12	77.650	948.1	577.9
140	0.5611	16.5	15	20.1	1167.6	375.2	1542.8	4.11	77.615	959.0	583.8

Parameters for Specimen No. 2

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	145.650			190.570
Moisture content: Dry soil+tare, gms.	123.230			159.010
Moisture content: Tare, gms.	39.000			62.470
Moisture, %	26.6	34.4	32.7	32.7
Moist specimen weight, gms.	121.68			
Diameter, in.	1.380	1.380	1.369	
Area, in. ²	1.496	1.496	1.472	
Height, in.	2.800	2.800	2.777	
Net decrease in height, in.		0.000	0.022	
Wet density, pcf	110.7	117.5	118.8	
Dry density, pcf	87.4	87.4	89.6	
Void ratio	0.9282	0.9282	0.8819	
Saturation, %	77.4	100.0	100.0	

Test Readings for Specimen No. 2

Consolidation cell pressure = 87.200 psi (12556.8 psf)

Consolidation back pressure = 75.000 psi (10800.0 psf)

Consolidation effective confining stress = 1756.8 psf

Strain rate, in./min. = 0.033

Fail. Stress = 2247.1 psf at reading no. 139

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	0.9	0	0.0	0.0	1743.4	1743.4	1.00	75.093	1743.4	0.0
1	0.0008	1.5	1	0.0	60.9	1741.8	1802.6	1.03	75.104	1772.2	30.4
2	0.0012	1.0	0	0.0	7.2	1744.7	1751.8	1.00	75.084	1748.3	3.6
3	0.0018	1.4	1	0.1	49.9	1742.0	1792.0	1.03	75.103	1767.0	25.0
4	0.0025	1.6	1	0.1	65.4	1738.0	1803.4	1.04	75.131	1770.7	32.7
5	0.0030	1.4	0	0.1	46.9	1734.7	1781.6	1.03	75.154	1758.1	23.4
6	0.0037	2.5	2	0.1	159.6	1712.9	1872.6	1.09	75.305	1792.8	79.8
7	0.0048	3.5	3	0.2	257.5	1686.7	1944.2	1.15	75.486	1815.5	128.7
8	0.0056	4.0	3	0.2	306.9	1660.6	1967.5	1.18	75.668	1814.1	153.4
9	0.0063	5.0	4	0.2	397.9	1641.0	2038.9	1.24	75.804	1840.0	198.9
10	0.0067	5.1	4	0.2	410.9	1629.9	2040.8	1.25	75.881	1835.4	205.4
11	0.0072	6.0	5	0.3	497.6	1596.9	2094.5	1.31	76.111	1845.7	248.8
12	0.0077	7.2	6	0.3	612.9	1560.8	2173.8	1.39	76.361	1867.3	306.5
13	0.0085	8.0	7	0.3	691.4	1527.6	2219.0	1.45	76.592	1873.3	345.7
14	0.0095	8.7	8	0.3	760.4	1499.7	2260.1	1.51	76.785	1879.9	380.2
15	0.0102	9.7	9	0.4	858.7	1468.6	2327.3	1.58	77.001	1897.9	429.4
16	0.0106	10.1	9	0.4	901.2	1442.6	2343.8	1.62	77.182	1893.2	450.6
17	0.0115	10.2	9	0.4	908.0	1418.9	2327.0	1.64	77.346	1872.9	454.0
18	0.0125	11.2	10	0.5	1001.9	1396.3	2398.2	1.72	77.504	1897.2	501.0
19	0.0134	11.6	11	0.5	1045.5	1374.2	2419.7	1.76	77.657	1896.9	522.7
20	0.0139	11.5	11	0.5	1032.0	1353.3	2385.3	1.76	77.802	1869.3	516.0
21	0.0147	12.4	12	0.5	1123.7	1334.9	2458.6	1.84	77.930	1896.8	561.9
22	0.0153	12.8	12	0.5	1156.5	1316.9	2473.4	1.88	78.055	1895.2	578.2
23	0.0155	12.9	12	0.6	1165.2	1300.8	2466.0	1.90	78.166	1883.4	582.6
24	0.0160	13.7	13	0.6	1244.3	1284.0	2528.3	1.97	78.283	1906.1	622.1
25	0.0171	13.8	13	0.6	1258.5	1267.9	2526.4	1.99	78.395	1897.1	629.3
26	0.0177	13.1	12	0.6	1187.9	1266.1	2454.1	1.94	78.407	1860.1	594.0

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
27	0.0185	13.7	13	0.7	1244.9	1245.3	2490.2	2.00	78.552	1867.7	622.5
28	0.0189	14.6	14	0.7	1331.9	1231.9	2563.8	2.08	78.645	1897.8	665.9
29	0.0196	14.6	14	0.7	1330.7	1225.4	2556.1	2.09	78.690	1890.8	665.3
30	0.0206	14.5	14	0.7	1324.7	1203.2	2527.9	2.10	78.844	1865.6	662.3
31	0.0214	15.3	14	0.8	1402.3	1197.2	2599.4	2.17	78.886	1898.3	701.1
32	0.0219	15.5	15	0.8	1421.5	1186.3	2607.8	2.20	78.962	1897.1	710.8
33	0.0225	16.0	15	0.8	1470.1	1171.3	2641.4	2.26	79.066	1906.3	735.1
34	0.0230	16.2	15	0.8	1483.2	1161.0	2644.2	2.28	79.138	1902.6	741.6
35	0.0239	16.0	15	0.9	1470.4	1152.1	2622.5	2.28	79.200	1887.3	735.2
36	0.0247	16.6	16	0.9	1524.2	1142.0	2666.2	2.33	79.269	1904.1	762.1
37	0.0256	16.9	16	0.9	1555.9	1132.8	2688.7	2.37	79.333	1910.8	777.9
38	0.0263	16.7	16	0.9	1534.9	1126.7	2661.6	2.36	79.376	1894.1	767.4
39	0.0266	17.4	17	1.0	1599.5	1117.0	2716.5	2.43	79.443	1916.8	799.8
40	0.0278	17.6	17	1.0	1617.0	1108.9	2725.9	2.46	79.499	1917.4	808.5
41	0.0306	18.0	17	1.1	1659.9	1082.2	2742.2	2.53	79.685	1912.2	830.0
42	0.0336	19.4	18	1.2	1784.9	1055.0	2839.9	2.69	79.874	1947.4	892.5
43	0.0365	19.5	19	1.3	1800.4	1037.1	2837.6	2.74	79.998	1937.3	900.2
44	0.0387	20.0	19	1.4	1843.7	1018.0	2861.8	2.81	80.130	1939.9	921.9
45	0.0418	21.1	20	1.5	1951.9	970.7	2922.7	3.01	80.459	1946.7	976.0
46	0.0447	21.3	20	1.6	1965.3	955.2	2920.5	3.06	80.567	1937.9	982.7
47	0.0468	21.2	20	1.7	1951.0	942.1	2893.2	3.07	80.657	1917.6	975.5
48	0.0498	22.2	21	1.8	2046.3	931.5	2977.9	3.20	80.731	1954.7	1023.2
49	0.0529	21.8	21	1.9	2004.0	922.2	2926.3	3.17	80.795	1924.3	1002.0
50	0.0550	21.8	21	2.0	2002.3	913.8	2916.1	3.19	80.854	1914.9	1001.2
51	0.0583	22.5	22	2.1	2070.8	906.6	2977.4	3.28	80.904	1942.0	1035.4
52	0.0609	22.4	22	2.2	2057.8	900.3	2958.1	3.29	80.948	1929.2	1028.9
53	0.0638	22.6	22	2.3	2074.8	893.3	2968.0	3.32	80.997	1930.6	1037.4
54	0.0666	22.7	22	2.4	2087.3	891.4	2978.7	3.34	81.010	1935.0	1043.6
55	0.0692	22.4	22	2.5	2056.2	888.7	2944.9	3.31	81.028	1916.8	1028.1
56	0.0729	23.0	22	2.6	2108.0	884.2	2992.2	3.38	81.060	1938.2	1054.0
57	0.0755	23.0	22	2.7	2103.1	882.4	2985.6	3.38	81.072	1934.0	1051.6
58	0.0781	22.8	22	2.8	2086.9	876.8	2963.7	3.38	81.111	1920.3	1043.5
59	0.0809	23.2	22	2.9	2116.2	841.8	2958.0	3.51	81.354	1899.9	1058.1
60	0.0838	23.0	22	3.0	2098.6	840.2	2938.8	3.50	81.365	1889.5	1049.3
61	0.0867	22.7	22	3.1	2065.1	836.9	2902.0	3.47	81.389	1869.4	1032.6
62	0.0893	23.3	22	3.2	2120.4	834.8	2955.2	3.54	81.403	1895.0	1060.2
63	0.0924	23.2	22	3.3	2114.6	830.4	2945.1	3.55	81.433	1887.7	1057.3
64	0.0953	22.7	22	3.4	2058.1	828.2	2886.3	3.48	81.449	1857.2	1029.0
65	0.0985	23.4	23	3.5	2125.6	829.3	2955.0	3.56	81.441	1892.2	1062.8
66	0.1011	22.7	22	3.6	2056.0	828.0	2883.9	3.48	81.450	1856.0	1028.0
67	0.1037	22.7	22	3.7	2051.9	827.5	2879.4	3.48	81.453	1853.5	1025.9
68	0.1065	23.4	22	3.8	2115.1	828.5	2943.7	3.55	81.446	1886.1	1057.6
69	0.1095	23.0	22	3.9	2081.4	826.8	2908.2	3.52	81.458	1867.5	1040.7
70	0.1122	23.1	22	4.0	2089.8	824.7	2914.4	3.53	81.473	1869.5	1044.9
71	0.1150	23.3	22	4.1	2104.6	820.8	2925.3	3.56	81.500	1873.0	1052.3
72	0.1177	22.9	22	4.2	2066.6	824.2	2890.8	3.51	81.477	1857.5	1033.3
73	0.1205	23.4	22	4.3	2103.1	791.5	2894.5	3.66	81.704	1843.0	1051.5

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
74	0.1233	23.3	22	4.4	2099.0	792.4	2891.3	3.65	81.697	1841.8	1049.5
75	0.1262	23.0	22	4.5	2069.0	792.3	2861.3	3.61	81.698	1826.8	1034.5
76	0.1285	23.3	22	4.6	2095.1	792.5	2887.6	3.64	81.696	1840.1	1047.5
77	0.1318	23.2	22	4.7	2079.9	796.6	2876.5	3.61	81.668	1836.5	1039.9
78	0.1346	22.9	22	4.8	2046.1	797.3	2843.4	3.57	81.663	1820.3	1023.1
79	0.1370	23.6	23	4.9	2114.1	799.6	2913.7	3.64	81.647	1856.6	1057.0
80	0.1405	23.5	23	5.1	2096.7	799.5	2896.2	3.62	81.648	1847.9	1048.3
81	0.1467	23.6	23	5.3	2109.0	798.1	2907.0	3.64	81.658	1852.6	1054.5
82	0.1544	23.6	23	5.6	2097.2	804.6	2901.9	3.61	81.612	1853.3	1048.6
83	0.1610	23.2	22	5.8	2058.5	775.5	2834.0	3.65	81.814	1804.8	1029.2
84	0.1683	23.9	23	6.1	2111.3	786.9	2898.2	3.68	81.736	1842.5	1055.6
85	0.1746	23.7	23	6.3	2094.7	789.2	2884.0	3.65	81.719	1836.6	1047.4
86	0.1821	24.3	23	6.6	2141.8	795.1	2937.0	3.69	81.678	1866.0	1070.9
87	0.1886	23.8	23	6.8	2088.0	796.6	2884.7	3.62	81.668	1840.6	1044.0
88	0.1961	24.2	23	7.1	2116.0	807.6	2923.6	3.62	81.592	1865.6	1058.0
89	0.2034	24.6	24	7.3	2147.6	785.7	2933.3	3.73	81.744	1859.5	1073.8
90	0.2095	23.9	23	7.5	2082.6	790.0	2872.6	3.64	81.714	1831.3	1041.3
91	0.2165	24.7	24	7.8	2145.6	794.6	2940.2	3.70	81.682	1867.4	1072.8
92	0.2243	24.1	23	8.1	2089.0	803.6	2892.5	3.60	81.620	1848.1	1044.5
93	0.2320	24.8	24	8.4	2146.0	811.2	2957.2	3.65	81.566	1884.2	1073.0
94	0.2382	24.8	24	8.6	2142.1	815.2	2957.3	3.63	81.539	1886.3	1071.1
95	0.2452	24.5	24	8.8	2108.4	793.7	2902.1	3.66	81.688	1847.9	1054.2
96	0.2521	24.9	24	9.1	2135.9	804.6	2940.6	3.65	81.612	1872.6	1068.0
97	0.2591	24.7	24	9.3	2108.1	811.3	2919.4	3.60	81.566	1865.4	1054.0
98	0.2662	25.3	24	9.6	2155.1	815.4	2970.5	3.64	81.538	1892.9	1077.6
99	0.2726	25.1	24	9.8	2136.4	822.2	2958.6	3.60	81.491	1890.4	1068.2
100	0.2804	24.8	24	10.1	2107.1	831.1	2938.2	3.54	81.428	1884.7	1053.5
101	0.2876	25.5	25	10.4	2161.8	813.4	2975.2	3.66	81.551	1894.3	1080.9
102	0.2947	25.4	24	10.6	2141.2	820.2	2961.4	3.61	81.504	1890.8	1070.6
103	0.3017	25.4	24	10.9	2135.1	822.5	2957.6	3.60	81.489	1890.0	1067.6
104	0.3079	25.8	25	11.1	2164.6	829.1	2993.6	3.61	81.443	1911.3	1082.3
105	0.3154	25.1	24	11.4	2100.2	840.9	2941.1	3.50	81.360	1891.0	1050.1
106	0.3229	26.3	25	11.6	2194.4	846.9	3041.3	3.59	81.318	1944.1	1097.2
107	0.3294	26.0	25	11.9	2165.8	827.1	2992.9	3.62	81.456	1910.0	1082.9
108	0.3369	26.0	25	12.1	2162.0	832.0	2994.0	3.60	81.422	1913.0	1081.0
109	0.3440	26.1	25	12.4	2160.5	842.5	3002.9	3.56	81.349	1922.7	1080.2
110	0.3506	26.0	25	12.6	2146.2	847.9	2994.1	3.53	81.312	1921.0	1073.1
111	0.3579	26.6	26	12.9	2190.9	851.2	3042.1	3.57	81.289	1946.6	1095.4
112	0.3643	26.0	25	13.1	2136.0	860.1	2996.1	3.48	81.227	1928.1	1068.0
113	0.3714	26.8	26	13.4	2192.0	842.7	3034.7	3.60	81.348	1938.7	1096.0
114	0.3782	26.4	26	13.6	2157.8	854.6	3012.4	3.53	81.265	1933.5	1078.9
115	0.3856	27.0	26	13.9	2204.1	853.2	3057.3	3.58	81.275	1955.3	1102.0
116	0.3917	26.8	26	14.1	2181.0	860.4	3041.4	3.53	81.225	1950.9	1090.5
117	0.3989	27.1	26	14.4	2195.0	870.0	3064.9	3.52	81.159	1967.5	1097.5
118	0.4061	27.2	26	14.6	2198.3	877.3	3075.5	3.51	81.108	1976.4	1099.1
119	0.4135	27.0	26	14.9	2177.0	855.7	3032.7	3.54	81.258	1944.2	1088.5
120	0.4202	27.3	26	15.1	2191.8	861.5	3053.3	3.54	81.218	1957.4	1095.9

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
121	0.4276	27.1	26	15.4	2170.1	872.5	3042.6	3.49	81.141	1957.6	1085.0
122	0.4346	27.7	27	15.6	2214.0	880.2	3094.2	3.52	81.088	1987.2	1107.0
123	0.4416	27.7	27	15.9	2205.9	881.8	3087.8	3.50	81.076	1984.8	1103.0
124	0.4482	27.4	27	16.1	2176.1	886.9	3063.0	3.45	81.041	1974.9	1088.1
125	0.4556	27.8	27	16.4	2203.5	871.4	3074.9	3.53	81.149	1973.1	1101.8
126	0.4629	27.8	27	16.7	2194.7	880.7	3075.4	3.49	81.084	1978.0	1097.3
127	0.4694	28.3	27	16.9	2228.1	883.8	3111.8	3.52	81.063	1997.8	1114.0
128	0.4764	27.9	27	17.2	2190.3	888.5	3078.8	3.47	81.030	1983.7	1095.2
129	0.4835	28.3	27	17.4	2215.5	897.9	3113.4	3.47	80.965	2005.7	1107.8
130	0.4908	28.4	27	17.7	2213.6	906.6	3120.2	3.44	80.904	2013.4	1106.8
131	0.4979	28.2	27	17.9	2191.6	910.9	3102.5	3.41	80.874	2006.7	1095.8
132	0.5051	28.7	28	18.2	2229.1	888.9	3117.9	3.51	81.027	2003.4	1114.5
133	0.5118	28.4	27	18.4	2194.3	900.5	3094.8	3.44	80.946	1997.7	1097.2
134	0.5192	29.0	28	18.7	2233.2	907.0	3140.2	3.46	80.901	2023.6	1116.6
135	0.5260	28.7	28	18.9	2206.1	910.2	3116.3	3.42	80.879	2013.3	1103.1
136	0.5327	29.1	28	19.2	2228.4	914.6	3143.1	3.44	80.848	2028.9	1114.2
137	0.5400	29.1	28	19.4	2224.9	925.4	3150.3	3.40	80.773	2037.9	1112.4
138	0.5468	29.0	28	19.7	2206.9	904.8	3111.7	3.44	80.917	2008.2	1103.4
139	0.5541	29.6	29	19.9	2247.1	911.4	3158.5	3.47	80.871	2035.0	1123.6
140	0.5599	29.1	28	20.2	2205.2	913.6	3118.8	3.41	80.856	2016.2	1102.6

DRAFT

Parameters for Specimen No. 3

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	158.410			158.600
Moisture content: Dry soil+tare, gms.	133.570			130.710
Moisture content: Tare, gms.	37.940			37.940
Moisture, %	26.0	38.3	35.2	30.1
Moist specimen weight, gms.	117.93			
Diameter, in.	1.399	1.399	1.380	
Area, in. ²	1.537	1.537	1.495	
Height, in.	2.800	2.800	2.761	
Net decrease in height, in.		0.000	0.038	
Wet density, pcf	104.4	114.6	116.8	
Dry density, pcf	82.9	82.9	86.4	
Void ratio	1.0343	1.0343	0.9511	
Saturation, %	67.8	100.0	100.0	

Test Readings for Specimen No. 3

Consolidation cell pressure = 104.000 psi (14976.0 psf)

Consolidation back pressure = 75.000 psi (10800.0 psf)

Consolidation effective confining stress = 4176.0 psf

Strain rate, in./min. = 0.033

Fail. Stress = 3309.3 psf at reading no. 130

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	0.9	0	0.0	0.0	4210.9	4210.9	1.00	74.758	4210.9	0.0
1	0.0007	1.2	0	0.0	30.9	4209.3	4240.2	1.01	74.769	4224.8	15.4
2	0.0017	1.0	0	0.1	9.8	4209.2	4219.0	1.00	74.769	4214.1	4.9
3	0.0024	1.3	0	0.1	40.9	4212.4	4253.2	1.01	74.747	4232.8	20.4
4	0.0032	1.3	0	0.1	42.9	4210.7	4253.7	1.01	74.759	4232.2	21.5
5	0.0039	1.0	0	0.1	13.5	4210.4	4223.9	1.00	74.761	4217.1	6.7
6	0.0044	1.0	0	0.2	12.0	4212.4	4224.3	1.00	74.747	4218.4	6.0
7	0.0055	1.2	0	0.2	26.2	4211.1	4237.4	1.01	74.756	4224.2	13.1
8	0.0063	0.9	0	0.2	-2.8	4209.3	4206.5	1.00	74.769	4207.9	-1.4
9	0.0067	1.2	0	0.2	30.1	4209.3	4239.3	1.01	74.769	4224.3	15.0
10	0.0070	1.3	0	0.3	37.7	4209.1	4246.9	1.01	74.770	4228.0	18.9
11	0.0075	0.8	0	0.3	-8.9	4213.8	4204.8	1.00	74.738	4209.3	-4.5
12	0.0081	1.1	0	0.3	21.8	4209.2	4231.0	1.01	74.769	4220.1	10.9
13	0.0089	1.2	0	0.3	32.8	4210.6	4243.4	1.01	74.760	4227.0	16.4
14	0.0102	1.9	1	0.4	93.5	4191.9	4285.4	1.02	74.890	4238.6	46.8
15	0.0105	2.5	2	0.4	157.3	4163.3	4320.6	1.04	75.088	4242.0	78.6
16	0.0113	3.7	3	0.4	268.7	4134.4	4403.0	1.06	75.289	4268.7	134.3
17	0.0120	4.5	4	0.4	350.1	4095.8	4445.9	1.09	75.557	4270.8	175.0
18	0.0130	5.3	4	0.5	423.0	4046.6	4469.6	1.10	75.899	4258.1	211.5
19	0.0136	6.7	6	0.5	558.7	3999.5	4558.2	1.14	76.226	4278.8	279.3
20	0.0141	7.6	7	0.5	648.3	3941.4	4589.7	1.16	76.629	4265.6	324.1
21	0.0143	8.6	8	0.5	737.8	3889.9	4627.7	1.19	76.987	4258.8	368.9
22	0.0151	9.2	8	0.5	801.4	3843.2	4644.6	1.21	77.311	4243.9	400.7
23	0.0160	10.1	9	0.6	887.4	3787.7	4675.2	1.23	77.696	4231.4	443.7
24	0.0169	11.2	10	0.6	989.3	3736.7	4726.0	1.26	78.051	4231.3	494.7
25	0.0177	12.0	11	0.6	1063.1	3684.2	4747.2	1.29	78.415	4215.7	531.5
26	0.0183	12.4	11	0.7	1097.3	3637.8	4735.1	1.30	78.738	4186.4	548.6

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
27	0.0190	13.2	12	0.7	1174.4	3590.2	4764.5	1.33	79.068	4177.3	587.2
28	0.0199	14.0	13	0.7	1255.1	3543.6	4798.7	1.35	79.392	4171.1	627.6
29	0.0204	14.5	14	0.7	1302.2	3499.2	4801.5	1.37	79.700	4150.3	651.1
30	0.0209	14.9	14	0.8	1338.3	3455.9	4794.2	1.39	80.001	4125.1	669.2
31	0.0218	15.7	15	0.8	1420.0	3413.5	4833.4	1.42	80.295	4123.5	710.0
32	0.0228	16.1	15	0.8	1449.6	3373.5	4823.1	1.43	80.573	4098.3	724.8
33	0.0234	16.9	16	0.8	1529.5	3332.5	4862.0	1.46	80.858	4097.2	764.8
34	0.0239	17.5	17	0.9	1587.3	3294.7	4882.0	1.48	81.120	4088.3	793.7
35	0.0244	17.8	17	0.9	1612.1	3257.3	4869.5	1.49	81.380	4063.4	806.1
36	0.0252	18.1	17	0.9	1647.5	3221.8	4869.2	1.51	81.627	4045.5	823.7
37	0.0260	18.8	18	0.9	1706.6	3189.0	4895.6	1.54	81.854	4042.3	853.3
38	0.0266	19.2	18	1.0	1748.2	3153.8	4902.0	1.55	82.098	4027.9	874.1
39	0.0271	19.3	18	1.0	1759.6	3122.0	4881.7	1.56	82.319	4001.9	879.8
40	0.0276	20.1	19	1.0	1828.9	3091.5	4920.4	1.59	82.531	4005.9	914.4
41	0.0301	21.1	20	1.1	1930.2	2973.4	4903.6	1.65	83.351	3938.5	965.1
42	0.0336	22.1	21	1.2	2017.3	2868.8	4886.1	1.70	84.078	3877.5	1008.6
43	0.0363	23.5	23	1.3	2147.9	2777.7	4925.6	1.77	84.711	3851.6	1074.0
44	0.0388	24.1	23	1.4	2200.9	2695.5	4896.4	1.82	85.281	3795.9	1100.4
45	0.0418	24.7	24	1.5	2260.3	2619.3	4879.6	1.86	85.811	3749.4	1130.2
46	0.0446	25.7	25	1.6	2354.4	2550.5	4904.9	1.92	86.288	3727.7	1177.2
47	0.0476	26.5	26	1.7	2423.4	2491.2	4914.6	1.97	86.700	3702.9	1211.7
48	0.0508	26.8	26	1.8	2455.2	2426.1	4881.3	2.01	87.152	3653.7	1227.6
49	0.0534	27.7	27	1.9	2535.4	2372.2	4907.6	2.07	87.526	3639.9	1267.7
50	0.0562	27.9	27	2.0	2548.4	2322.3	4870.6	2.10	87.873	3596.4	1274.2
51	0.0594	28.7	28	2.2	2620.9	2276.3	4897.2	2.15	88.192	3586.7	1310.4
52	0.0618	29.2	28	2.2	2670.7	2232.2	4902.9	2.20	88.499	3567.6	1335.3
53	0.0644	29.0	28	2.3	2643.5	2188.7	4832.2	2.21	88.801	3510.4	1321.7
54	0.0671	29.9	29	2.4	2731.8	2152.6	4884.4	2.27	89.051	3518.5	1365.9
55	0.0702	29.6	29	2.5	2700.0	2121.9	4821.9	2.27	89.264	3471.9	1350.0
56	0.0730	30.0	29	2.6	2726.3	2090.0	4816.4	2.30	89.486	3453.2	1363.2
57	0.0759	30.6	30	2.7	2784.9	2060.8	4845.7	2.35	89.689	3453.2	1392.4
58	0.0785	30.8	30	2.8	2798.0	2036.8	4834.8	2.37	89.855	3435.8	1399.0
59	0.0814	31.2	30	2.9	2834.7	2006.5	4841.2	2.41	90.066	3423.8	1417.3
60	0.0846	31.6	31	3.1	2871.2	1979.7	4851.0	2.45	90.252	3415.3	1435.6
61	0.0872	31.3	30	3.2	2841.6	1954.3	4795.9	2.45	90.428	3375.1	1420.8
62	0.0895	32.1	31	3.2	2913.0	1927.9	4840.9	2.51	90.612	3384.4	1456.5
63	0.0927	32.4	31	3.4	2930.4	1907.1	4837.6	2.54	90.756	3372.4	1465.2
64	0.0953	32.0	31	3.4	2893.6	1885.4	4779.1	2.53	90.907	3332.2	1446.8
65	0.0977	32.7	32	3.5	2953.4	1867.4	4820.8	2.58	91.032	3344.1	1476.7
66	0.1011	32.4	32	3.7	2925.1	1849.0	4774.1	2.58	91.160	3311.5	1462.5
67	0.1033	32.2	31	3.7	2905.8	1832.5	4738.2	2.59	91.275	3285.3	1452.9
68	0.1063	32.7	32	3.8	2951.0	1825.6	4776.6	2.62	91.322	3301.1	1475.5
69	0.1096	32.5	32	4.0	2927.1	1810.6	4737.7	2.62	91.426	3274.2	1463.6
70	0.1124	33.1	32	4.1	2973.7	1796.3	4770.0	2.66	91.526	3283.2	1486.9
71	0.1152	33.4	33	4.2	3004.3	1785.8	4790.1	2.68	91.598	3288.0	1502.1
72	0.1176	33.4	33	4.3	2998.7	1775.9	4774.6	2.69	91.668	3275.2	1499.4
73	0.1205	33.7	33	4.4	3023.7	1761.5	4785.2	2.72	91.767	3273.3	1511.8

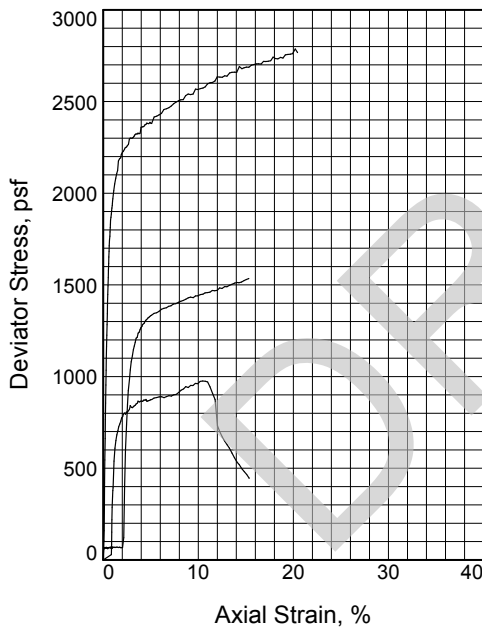
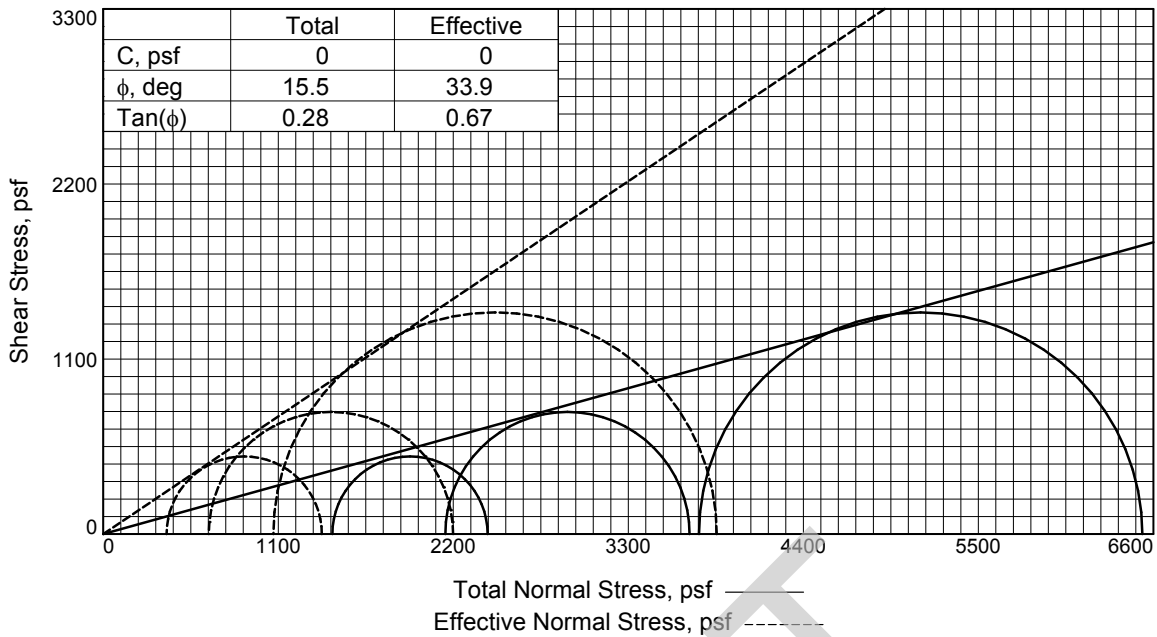
Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
74	0.1235	34.1	33	4.5	3057.4	1754.4	4811.7	2.74	91.817	3283.0	1528.7
75	0.1260	33.5	33	4.6	2997.3	1757.4	4754.8	2.71	91.796	3256.1	1498.7
76	0.1287	34.3	33	4.7	3069.6	1781.6	4851.2	2.72	91.627	3316.4	1534.8
77	0.1319	34.3	33	4.8	3061.7	1684.4	4746.1	2.82	92.303	3215.3	1530.9
78	0.1341	33.7	33	4.9	3007.4	1671.1	4678.4	2.80	92.395	3174.8	1503.7
79	0.1370	34.4	34	5.0	3072.7	1664.6	4737.3	2.85	92.440	3201.0	1536.4
80	0.1392	33.9	33	5.0	3022.2	1654.5	4676.8	2.83	92.510	3165.7	1511.1
81	0.1471	34.5	34	5.3	3066.7	1634.6	4701.3	2.88	92.649	3168.0	1533.4
82	0.1543	35.0	34	5.6	3100.9	1616.0	4717.0	2.92	92.777	3166.5	1550.5
83	0.1610	35.1	34	5.8	3107.7	1600.6	4708.4	2.94	92.884	3154.5	1553.9
84	0.1682	35.5	35	6.1	3135.1	1579.7	4714.7	2.98	93.030	3147.2	1567.5
85	0.1752	35.4	35	6.3	3117.8	1565.9	4683.7	2.99	93.126	3124.8	1558.9
86	0.1818	36.0	35	6.6	3163.8	1553.5	4717.3	3.04	93.212	3135.4	1581.9
87	0.1893	35.9	35	6.9	3137.8	1541.4	4679.2	3.04	93.296	3110.3	1568.9
88	0.1961	35.7	35	7.1	3119.1	1540.4	4659.5	3.02	93.303	3100.0	1559.6
89	0.2033	36.8	36	7.4	3201.8	1525.5	4727.3	3.10	93.406	3126.4	1600.9
90	0.2104	36.4	36	7.6	3161.7	1517.8	4679.5	3.08	93.460	3098.6	1580.9
91	0.2174	36.8	36	7.9	3186.9	1504.7	4691.5	3.12	93.551	3098.1	1593.4
92	0.2249	37.0	36	8.1	3199.2	1501.0	4700.2	3.13	93.576	3100.6	1599.6
93	0.2315	36.6	36	8.4	3149.7	1494.2	4643.9	3.11	93.624	3069.0	1574.9
94	0.2384	36.7	36	8.6	3150.3	1491.3	4641.6	3.11	93.644	3066.5	1575.2
95	0.2454	37.0	36	8.9	3171.9	1487.8	4659.7	3.13	93.668	3073.8	1585.9
96	0.2529	36.9	36	9.2	3154.5	1492.8	4647.3	3.11	93.633	3070.1	1577.3
97	0.2599	37.7	37	9.4	3216.8	1494.1	4710.9	3.15	93.624	3102.5	1608.4
98	0.2667	37.6	37	9.7	3197.9	1560.5	4758.4	3.05	93.163	3159.4	1599.0
99	0.2731	37.7	37	9.9	3194.6	1463.6	4658.2	3.18	93.836	3060.9	1597.3
100	0.2802	37.6	37	10.1	3179.4	1464.4	4643.8	3.17	93.831	3054.1	1589.7
101	0.2875	37.4	37	10.4	3154.1	1464.1	4618.3	3.15	93.832	3041.2	1577.1
102	0.2947	38.3	37	10.7	3218.9	1467.6	4686.5	3.19	93.808	3077.1	1609.4
103	0.3016	38.1	37	10.9	3192.0	1463.3	4655.2	3.18	93.839	3059.2	1596.0
104	0.3088	38.5	38	11.2	3217.6	1461.5	4679.2	3.20	93.850	3070.4	1608.8
105	0.3153	38.4	38	11.4	3205.3	1461.7	4667.0	3.19	93.849	3064.3	1602.6
106	0.3225	38.3	37	11.7	3179.6	1462.6	4642.3	3.17	93.843	3052.5	1589.8
107	0.3289	39.0	38	11.9	3235.5	1462.7	4698.1	3.21	93.843	3080.4	1617.7
108	0.3360	38.7	38	12.2	3201.0	1463.2	4664.2	3.19	93.839	3063.7	1600.5
109	0.3438	39.0	38	12.4	3213.2	1464.4	4677.6	3.19	93.831	3071.0	1606.6
110	0.3507	38.8	38	12.7	3189.6	1467.7	4657.3	3.17	93.808	3062.5	1594.8
111	0.3573	39.7	39	12.9	3253.6	1475.1	4728.7	3.21	93.757	3101.9	1626.8
112	0.3642	39.8	39	13.2	3257.4	1471.7	4729.1	3.21	93.780	3100.4	1628.7
113	0.3710	39.5	39	13.4	3222.4	1473.2	4695.6	3.19	93.770	3084.4	1611.2
114	0.3783	39.9	39	13.7	3247.6	1477.8	4725.5	3.20	93.737	3101.7	1623.8
115	0.3850	39.6	39	13.9	3212.7	1486.2	4698.9	3.16	93.679	3092.6	1606.4
116	0.3926	40.6	40	14.2	3279.0	1494.5	4773.5	3.19	93.622	3134.0	1639.5
117	0.3994	40.2	39	14.5	3241.9	1569.2	4811.2	3.07	93.102	3190.2	1621.0
118	0.4059	40.5	40	14.7	3256.0	1475.7	4731.8	3.21	93.752	3103.7	1628.0
119	0.4131	40.3	39	15.0	3228.6	1483.8	4712.4	3.18	93.696	3098.1	1614.3
120	0.4205	40.9	40	15.2	3271.7	1485.1	4756.8	3.20	93.687	3121.0	1635.8

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
121	0.4275	41.3	40	15.5	3291.2	1485.3	4776.5	3.22	93.685	3130.9	1645.6
122	0.4344	41.2	40	15.7	3270.3	1490.2	4760.5	3.19	93.652	3125.3	1635.2
123	0.4415	41.5	41	16.0	3287.5	1492.7	4780.2	3.20	93.634	3136.4	1643.8
124	0.4488	41.4	41	16.3	3268.3	1496.6	4764.8	3.18	93.607	3130.7	1634.1
125	0.4558	41.7	41	16.5	3284.9	1491.1	4776.0	3.20	93.645	3133.5	1642.5
126	0.4627	42.0	41	16.8	3297.7	1489.3	4786.9	3.21	93.658	3138.1	1648.8
127	0.4695	41.8	41	17.0	3269.8	1500.6	4770.4	3.18	93.579	3135.5	1634.9
128	0.4771	42.3	41	17.3	3298.2	1513.6	4811.8	3.18	93.489	3162.7	1649.1
129	0.4843	41.9	41	17.5	3257.6	1516.7	4774.3	3.15	93.467	3145.5	1628.8
130	0.4910	42.7	42	17.8	3309.3	1517.0	4826.3	3.18	93.465	3171.7	1654.7
131	0.4980	42.4	42	18.0	3281.7	1521.0	4802.8	3.16	93.437	3161.9	1640.9
132	0.5049	42.4	42	18.3	3270.6	1529.5	4800.1	3.14	93.379	3164.8	1635.3
133	0.5117	43.0	42	18.5	3305.4	1534.1	4839.5	3.15	93.346	3186.8	1652.7
134	0.5191	42.7	42	18.8	3273.9	1537.3	4811.2	3.13	93.324	3174.3	1636.9
135	0.5256	43.0	42	19.0	3284.4	1544.6	4829.0	3.13	93.274	3186.8	1642.2
136	0.5329	42.9	42	19.3	3268.5	1557.1	4825.6	3.10	93.187	3191.4	1634.2
137	0.5390	43.2	42	19.5	3281.4	1673.7	4955.1	2.96	92.377	3314.4	1640.7
138	0.5464	43.1	42	19.8	3260.1	1541.0	4801.1	3.12	93.298	3171.1	1630.0
139	0.5535	43.6	43	20.0	3293.6	1542.6	4836.1	3.14	93.288	3189.3	1646.8
140	0.5603	43.7	43	20.3	3285.1	1549.1	4834.2	3.12	93.243	3191.6	1642.6

DRAFT



	1	2	3	
Sample No.				
Initial	Water Content, %	25.2	24.0	24.3
	Dry Density, pcf	91.3	90.3	94.0
	Saturation, %	77.0	71.8	79.3
	Void Ratio	0.9152	0.9348	0.8593
	Diameter, in.	1.397	1.391	1.416
	Height, in.	2.800	2.800	2.800
At Test	Water Content, %	28.5	29.1	26.6
	Dry Density, pcf	97.3	96.3	100.2
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.7966	0.8150	0.7442
	Diameter, in.	1.367	1.361	1.386
	Height, in.	2.741	2.741	2.741
Strain rate, in./min.	0.017	0.017	0.017	
Eff. Cell Pressure, psi	10.000	14.930	26.000	
Fail. Stress, psf	975.6	1535.1	2786.4	
Excess Pore Pr., psf	1041.9	1486.6	2674.8	
Strain, %	10.5	15.3	20.2	
Ult. Stress, psf				
Excess Pore Pr., psf				
Strain, %				
$\bar{\sigma}_1$ Failure, psf	1373.7	2198.4	3855.6	
$\bar{\sigma}_3$ Failure, psf	398.1	663.3	1069.2	

Type of Test:

CU with Pore Pressures

Sample Type: Undisturbed

Description: So, Gr and Br Lean CLAY with Silt and Voids (CL6)

LL= 36 **PL=** 20 **PI=** 16

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

Bulge (sample 1)

Multi Shear / Bulge (sample 2)

Figure _____

Client: GeoEngineers

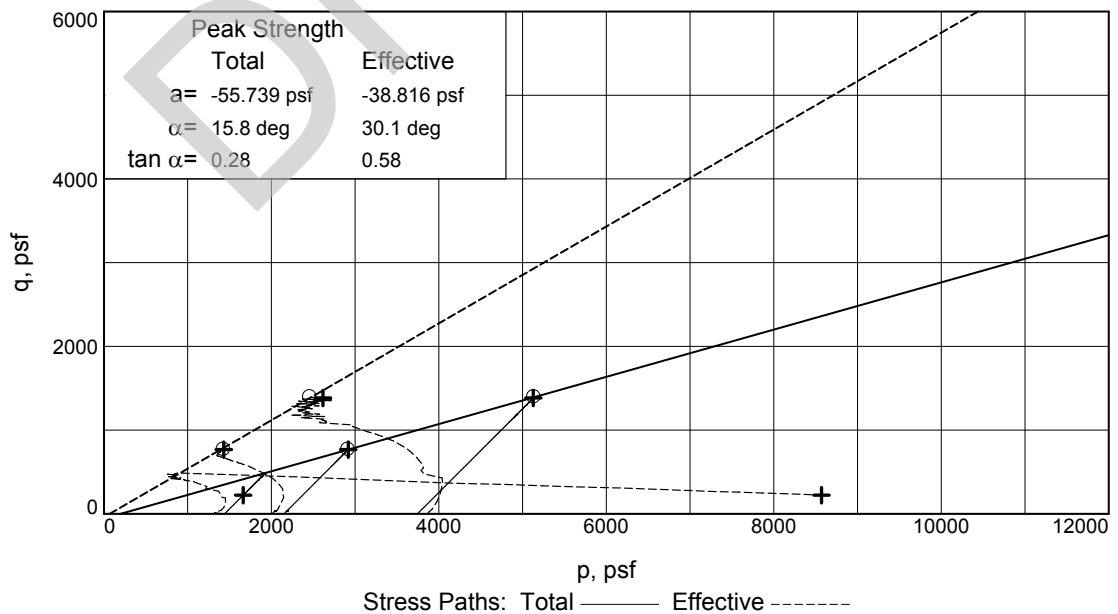
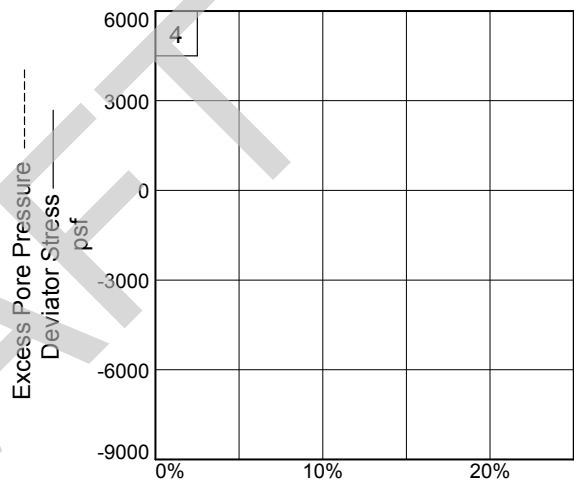
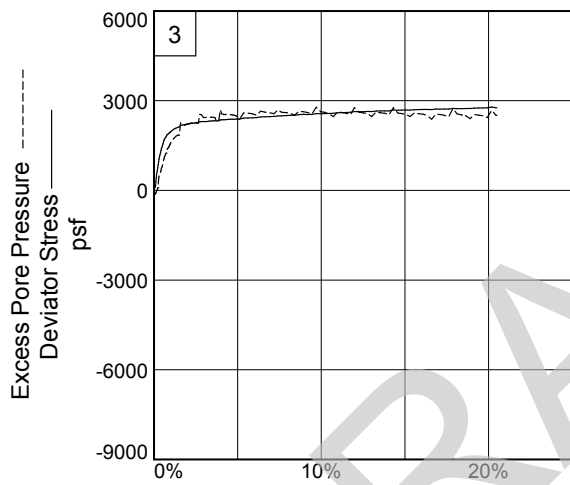
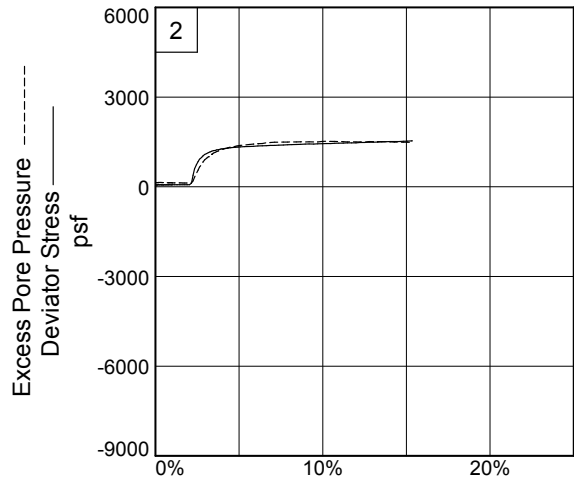
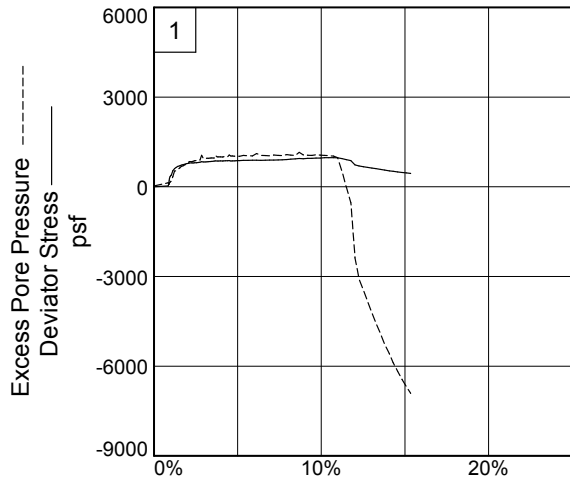
Project: Mid Baratara Diversion

Source of Sample: B-2A **Depth:** 5.5-6

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: B-2A

Depth: 5.5-6

Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

"Confidential Information; Privileged & Confidential Work Product"

TRIAXIAL COMPRESSION TEST
CU with Pore Pressures

12/10/2013
2:31 PM

Date:
Client: GeoEngineers
Project: Mid Barataria Diversion
Project No.: B13-018
Location: B-2A
Depth: 5.5-6
Description: So, Gr and Br Lean CLAY with Silt and Voids (CL6)
Remarks: Type Failure:
Bulge (sample 1)
Multi Shear / Bulge (sample 2)
Type of Sample: Undisturbed
Assumed Specific Gravity=2.80 **LL**=36 **PL**=20 **PI**=16
Test Method: COE uniform strain

Parameters for Specimen No. 1

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	194.600			191.950
Moisture content: Dry soil+tare, gms.	163.120			164.840
Moisture content: Tare, gms.	38.040			62.480
Moisture, %	25.2	32.7	28.5	26.5
Moist specimen weight, gms.	128.70			
Diameter, in.	1.397	1.397	1.367	
Area, in. ²	1.533	1.533	1.469	
Height, in.	2.800	2.800	2.741	
Net decrease in height, in.		0.000	0.059	
Wet density, pcf	114.2	121.1	125.0	
Dry density, pcf	91.3	91.3	97.3	
Void ratio	0.9152	0.9152	0.7966	
Saturation, %	77.0	100.0	100.0	

Test Readings for Specimen No. 1

Consolidation cell pressure = 85.000 psi (12240.0 psf)
Consolidation back pressure = 75.000 psi (10800.0 psf)
Consolidation effective confining stress = 1440.0 psf
Strain rate, in./min. = 0.017
Fail. Stress = 975.6 psf at reading no. 101

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	0.2	0	0.0	0.0	1410.6	1410.6	1.00	75.204	1410.6	0.0
1		0.2	0			1414.7			75.176		
2		0.1	0			1415.0			75.173		
3		0.1	0			1417.5			75.156		
4		0.1	0			1425.8			75.099		
5		0.1	0			1427.4			75.087		
6		0.1	0			1433.0			75.049		
7		0.1	0			1437.7			75.016		
8		0.1	0			1437.4			75.018		
9		0.0	0			1436.0			75.028		
10		0.0	0			1436.0			75.028		
11		-0.1	0			1433.2			75.047		
12		-0.1	0			1434.2			75.040		
13		-0.1	0			1435.5			75.031		
14		-0.1	0			1439.0			75.007		
15		0.0	0			1346.8			75.648		
16		0.0	0			1372.9			75.466		
17		0.0	0			1411.4			75.198		
18		0.0	0			1422.0			75.125		
19		-0.1	0			1428.5			75.080		
20		-0.1	0			1426.4			75.095		
21		-0.3	-1			1426.1			75.097		
22		0.0	0			1427.8			75.085		
23		-0.1	0			1427.3			75.088		
24		-0.1	0			1429.3			75.074		
25		-0.1	0			1436.6			75.024		
26		-0.1	0			1439.0			75.007		
27		-0.1	0			1440.5			74.996		
28		-0.1	0			1443.6			74.975		
29		-0.1	0			1444.8			74.967		
30		0.0	0			1443.9			74.973		
31		0.5	0			806.1			79.402		
32		0.0	0			1420.1			75.138		
33	0.0233	0.5	0	0.8	29.0	1306.3	1335.3	1.02	75.929	1320.8	14.5
34	0.0242	1.1	1	0.9	86.4	1355.0	1441.5	1.06	75.590	1398.3	43.2
35	0.0247	1.8	2	0.9	151.9	1354.1	1506.0	1.11	75.596	1430.1	75.9
36	0.0250	2.5	2	0.9	218.7	1334.8	1553.4	1.16	75.731	1444.1	109.3
37	0.0255	3.2	3	0.9	287.1	1307.9	1595.0	1.22	75.917	1451.5	143.6
38	0.0266	3.8	4	1.0	343.8	1280.3	1624.1	1.27	76.109	1452.2	171.9
39	0.0277	4.1	4	1.0	378.2	1261.3	1639.5	1.30	76.241	1450.4	189.1
40	0.0285	4.3	4	1.0	393.6	1215.8	1609.4	1.32	76.557	1412.6	196.8
41	0.0309	5.8	6	1.1	539.1	1101.2	1640.3	1.49	77.353	1370.8	269.6
42	0.0338	6.5	6	1.2	609.5	912.3	1521.8	1.67	78.665	1217.1	304.7
43	0.0364	6.9	7	1.3	650.4	903.3	1553.7	1.72	78.727	1228.5	325.2
44	0.0393	7.3	7	1.4	682.3	853.2	1535.6	1.80	79.075	1194.4	341.2
45	0.0423	7.5	7	1.5	703.7	808.9	1512.6	1.87	79.383	1160.8	351.8
46	0.0446	7.8	8	1.6	725.8	761.4	1487.2	1.95	79.713	1124.3	362.9

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
47	0.0477	7.9	8	1.7	740.8	737.6	1478.4	2.00	79.877	1108.0	370.4
48	0.0507	8.1	8	1.8	757.2	701.8	1458.9	2.08	80.126	1080.4	378.6
49	0.0529	8.3	8	1.9	774.5	680.2	1454.7	2.14	80.276	1067.4	387.2
50	0.0560	8.4	8	2.0	781.7	665.8	1447.5	2.17	80.376	1056.6	390.8
51	0.0578	8.5	8	2.1	794.3	597.1	1391.4	2.33	80.853	994.3	397.1
52	0.0621	8.6	8	2.3	801.0	599.9	1400.9	2.34	80.834	1000.4	400.5
53	0.0640	8.5	8	2.3	795.1	584.5	1379.6	2.36	80.941	982.1	397.6
54	0.0668	8.7	8	2.4	806.3	567.8	1374.1	2.42	81.057	971.0	403.2
55	0.0699	8.7	8	2.5	806.6	561.0	1367.6	2.44	81.104	964.3	403.3
56	0.0728	8.8	9	2.7	814.7	545.0	1359.7	2.50	81.216	952.3	407.4
57	0.0755	8.9	9	2.8	822.6	543.3	1366.0	2.51	81.227	954.6	411.3
58	0.0781	9.1	9	2.8	842.2	385.6	1227.8	3.18	82.322	806.7	421.1
59	0.0807	9.0	9	2.9	832.5	491.0	1323.5	2.70	81.590	907.3	416.3
60	0.0838	9.0	9	3.1	830.4	497.5	1327.8	2.67	81.545	912.6	415.2
61	0.0868	9.0	9	3.2	835.1	483.1	1318.3	2.73	81.645	900.7	417.6
62	0.0889	9.1	9	3.2	839.5	486.4	1326.0	2.73	81.622	906.2	419.8
63	0.0921	9.1	9	3.4	843.8	480.5	1324.3	2.76	81.663	902.4	421.9
64	0.0948	9.2	9	3.5	850.5	475.1	1325.6	2.79	81.701	900.4	425.3
65	0.0985	9.3	9	3.6	856.2	480.9	1337.1	2.78	81.660	909.0	428.1
66	0.1004	9.4	9	3.7	866.1	385.7	1251.8	3.25	82.321	818.7	433.0
67	0.1036	9.4	9	3.8	861.4	439.2	1300.7	2.96	81.950	869.9	430.7
68	0.1063	9.4	9	3.9	864.1	439.2	1303.3	2.97	81.950	871.2	432.1
69	0.1091	9.4	9	4.0	866.9	436.8	1303.7	2.98	81.967	870.2	433.5
70	0.1122	9.4	9	4.1	864.4	443.8	1308.1	2.95	81.918	876.0	432.2
71	0.1144	9.5	9	4.2	866.7	434.7	1301.4	2.99	81.981	868.0	433.4
72	0.1175	9.5	9	4.3	872.3	440.0	1312.3	2.98	81.944	876.2	436.2
73	0.1205	9.5	9	4.4	870.4	439.3	1309.7	2.98	81.949	874.5	435.2
74	0.1233	9.6	9	4.5	875.2	378.5	1253.7	3.31	82.371	816.1	437.6
75	0.1261	9.5	9	4.6	864.9	413.0	1277.9	3.09	82.132	845.4	432.4
76	0.1285	9.5	9	4.7	867.7	408.6	1276.3	3.12	82.163	842.4	433.8
77	0.1315	9.5	9	4.8	869.1	414.6	1283.8	3.10	82.121	849.2	434.6
78	0.1342	9.6	9	4.9	870.5	416.6	1287.1	3.09	82.107	851.8	435.3
79	0.1369	9.6	9	5.0	874.0	411.6	1285.5	3.12	82.142	848.5	437.0
80	0.1399	9.6	9	5.1	874.5	421.2	1295.8	3.08	82.075	858.5	437.3
81	0.1464	9.7	10	5.3	882.9	388.0	1271.0	3.28	82.305	829.5	441.5
82	0.1542	9.8	10	5.6	886.0	402.7	1288.7	3.20	82.203	845.7	443.0
83	0.1613	9.9	10	5.9	889.1	406.0	1295.1	3.19	82.181	850.5	444.6
84	0.1681	9.9	10	6.1	890.1	327.1	1217.2	3.72	82.728	772.1	445.0
85	0.1751	9.9	10	6.4	884.7	388.2	1273.0	3.28	82.304	830.6	442.4
86	0.1823	10.0	10	6.6	891.0	396.0	1287.0	3.25	82.250	841.5	445.5
87	0.1896	10.0	10	6.9	895.7	403.2	1298.9	3.22	82.200	851.1	447.9
88	0.1962	10.0	10	7.2	893.9	378.1	1272.1	3.36	82.374	825.1	447.0
89	0.2036	10.1	10	7.4	900.7	388.8	1289.4	3.32	82.300	839.1	450.3
90	0.2101	10.2	10	7.7	902.3	394.5	1296.8	3.29	82.261	845.6	451.1
91	0.2177	10.3	10	7.9	913.3	365.1	1278.4	3.50	82.464	821.8	456.6
92	0.2243	10.5	10	8.2	925.4	381.0	1306.4	3.43	82.354	843.7	462.7
93	0.2316	10.6	10	8.4	932.9	390.0	1322.9	3.39	82.292	856.5	466.4

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
94	0.2380	10.8	11	8.7	945.3	285.1	1230.5	4.32	83.020	757.8	472.7
95	0.2446	10.8	11	8.9	940.2	373.4	1313.6	3.52	82.407	843.5	470.1
96	0.2520	10.9	11	9.2	951.9	383.6	1335.4	3.48	82.336	859.5	475.9
97	0.2588	10.9	11	9.4	951.2	390.3	1341.6	3.44	82.289	865.9	475.6
98	0.2656	11.1	11	9.7	962.7	365.8	1328.5	3.63	82.460	847.2	481.4
99	0.2725	11.1	11	9.9	961.3	379.8	1341.1	3.53	82.363	860.4	480.6
100	0.2795	11.3	11	10.2	973.6	388.3	1361.9	3.51	82.303	875.1	486.8
101	0.2866	11.3	11	10.5	975.6	398.1	1373.7	3.45	82.235	885.9	487.8
102	0.2943	11.4	11	10.7	974.7	414.2	1388.8	3.35	82.124	901.5	487.3
103	0.3010	11.3	11	11.0	970.6	466.2	1436.8	3.08	81.762	951.5	485.3
104	0.3081	11.1	11	11.2	944.1	918.0	1862.1	2.03	78.625	1390.0	472.1
105	0.3153	10.7	10	11.5	908.3	1456.9	2365.2	1.62	74.883	1911.1	454.2
106	0.3227	10.3	10	11.8	874.9	1972.0	2846.9	1.44	71.306	2409.4	437.4
107	0.3295	8.7	8	12.0	731.3	3813.4	4544.7	1.19	58.518	4179.0	365.6
108	0.3358	8.4	8	12.3	699.8	4508.7	5208.5	1.16	53.689	4858.6	349.9
109	0.3433	8.0	8	12.5	670.4	4903.1	5573.5	1.14	50.951	5238.3	335.2
110	0.3503	7.8	8	12.8	647.5	5284.4	5931.9	1.12	48.303	5608.1	323.8
111	0.3570	7.6	7	13.0	628.1	5648.5	6276.6	1.11	45.774	5962.6	314.1
112	0.3637	7.4	7	13.3	609.9	5994.4	6604.3	1.10	43.372	6299.4	305.0
113	0.3714	7.1	7	13.5	582.4	6361.1	6943.5	1.09	40.826	6652.3	291.2
114	0.3781	6.8	7	13.8	557.6	6705.0	7262.6	1.08	38.437	6983.8	278.8
115	0.3857	6.6	6	14.1	533.5	7022.9	7556.4	1.08	36.230	7289.7	266.8
116	0.3919	6.4	6	14.3	520.0	7322.8	7842.7	1.07	34.148	7582.7	260.0
117	0.3992	6.2	6	14.6	498.4	7610.1	8108.4	1.07	32.152	7859.3	249.2
118	0.4066	6.0	6	14.8	481.2	7880.4	8361.6	1.06	30.275	8121.0	240.6
119	0.4135	5.8	6	15.1	466.0	8120.2	8586.2	1.06	28.609	8353.2	233.0
120	0.4205	5.6	5	15.3	446.4	8343.3	8789.6	1.05	27.061	8566.4	223.2
121	0.4205	5.6	5	15.3	445.5	8347.0	8792.5	1.05	27.035	8569.7	222.8

Parameters for Specimen No. 2

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	130.810			187.390
Moisture content: Dry soil+tare, gms.	112.860			162.150
Moisture content: Tare, gms.	37.960			62.480
Moisture, %	24.0	33.4	29.1	25.3
Moist specimen weight, gms.	125.00			
Diameter, in.	1.391	1.391	1.361	
Area, in. ²	1.519	1.519	1.455	
Height, in.	2.800	2.800	2.741	
Net decrease in height, in.		0.000	0.059	
Wet density, pcf	112.0	120.5	124.3	
Dry density, pcf	90.3	90.3	96.3	
Void ratio	0.9348	0.9348	0.8150	
Saturation, %	71.8	100.0	100.0	

Test Readings for Specimen No. 2

Consolidation cell pressure = 54.930 psi (7909.9 psf)

Consolidation back pressure = 40.000 psi (5760.0 psf)

Consolidation effective confining stress = 2149.9 psf

Strain rate, in./min. = 0.017

Fail. Stress = 1535.1 psf at reading no. 121

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	0.7	0	0.0	0.0	2006.8	2006.8	1.00	40.994	2006.8	0.0
1	0.0008	1.1	0	0.0	39.9	2008.4	2048.3	1.02	40.982	2028.4	19.9
2	0.0014	1.4	1	0.1	66.7	2007.5	2074.2	1.03	40.989	2040.8	33.3
3	0.0019	1.4	1	0.1	63.7	2009.4	2073.1	1.03	40.976	2041.2	31.8
4	0.0028	1.3	1	0.1	61.2	2008.6	2069.8	1.03	40.982	2039.2	30.6
5	0.0038	1.4	1	0.1	67.6	2008.3	2075.9	1.03	40.984	2042.1	33.8
6	0.0039	1.3	1	0.1	62.0	2010.7	2072.7	1.03	40.967	2041.7	31.0
7	0.0044	1.4	1	0.2	66.8	2005.1	2071.9	1.03	41.006	2038.5	33.4
8	0.0054	1.4	1	0.2	68.3	2005.4	2073.8	1.03	41.003	2039.6	34.2
9	0.0066	1.4	1	0.2	66.0	2006.3	2072.3	1.03	40.997	2039.3	33.0
10	0.0075	1.4	1	0.3	63.1	2003.8	2067.0	1.03	41.015	2035.4	31.6
11	0.0079	1.4	1	0.3	67.1	2004.1	2071.2	1.03	41.013	2037.6	33.5
12	0.0088	1.4	1	0.3	68.8	2005.9	2074.7	1.03	41.000	2040.3	34.4
13	0.0095	1.4	1	0.3	65.2	2004.9	2070.1	1.03	41.007	2037.5	32.6
14	0.0101	1.4	1	0.4	66.7	2005.1	2071.7	1.03	41.006	2038.4	33.3
15	0.0106	1.4	1	0.4	63.3	2008.4	2071.7	1.03	40.983	2040.0	31.7
16	0.0111	1.4	1	0.4	66.0	2005.4	2071.4	1.03	41.003	2038.4	33.0
17	0.0119	1.4	1	0.4	66.6	2008.2	2074.8	1.03	40.984	2041.5	33.3
18	0.0127	1.4	1	0.5	65.1	2011.5	2076.6	1.03	40.961	2044.0	32.5
19	0.0131	1.3	1	0.5	60.8	2012.1	2072.9	1.03	40.957	2042.5	30.4
20	0.0141	1.4	1	0.5	67.7	2012.2	2079.9	1.03	40.957	2046.0	33.8
21	0.0149	1.4	1	0.5	67.0	2015.4	2082.4	1.03	40.934	2048.9	33.5
22	0.0155	1.4	1	0.6	65.7	2013.5	2079.2	1.03	40.948	2046.3	32.8
23	0.0161	1.4	1	0.6	66.3	2013.4	2079.7	1.03	40.948	2046.5	33.2
24	0.0170	1.4	1	0.6	68.3	2016.3	2084.6	1.03	40.928	2050.5	34.2
25	0.0180	1.4	1	0.7	68.2	2015.2	2083.4	1.03	40.936	2049.3	34.1
26	0.0185	1.4	1	0.7	67.3	2015.4	2082.8	1.03	40.934	2049.1	33.7

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
27	0.0188	1.4	1	0.7	67.9	2018.2	2086.1	1.03	40.915	2052.1	33.9
28	0.0193	1.4	1	0.7	66.1	2014.8	2080.9	1.03	40.938	2047.9	33.0
29	0.0204	1.4	1	0.7	69.3	2013.9	2083.2	1.03	40.945	2048.5	34.6
30	0.0209	1.4	1	0.8	64.3	2016.1	2080.4	1.03	40.929	2048.3	32.1
31	0.0216	1.4	1	0.8	67.3	2012.0	2079.3	1.03	40.958	2045.7	33.7
32	0.0222	1.4	1	0.8	69.7	2013.3	2083.0	1.03	40.949	2048.1	34.8
33	0.0230	1.4	1	0.8	69.4	2015.6	2085.0	1.03	40.933	2050.3	34.7
34	0.0236	1.4	1	0.9	66.9	2013.2	2080.1	1.03	40.949	2046.7	33.4
35	0.0243	1.4	1	0.9	67.9	2013.8	2081.6	1.03	40.945	2047.7	33.9
36	0.0254	1.4	1	0.9	63.9	2016.1	2080.0	1.03	40.930	2048.0	31.9
37	0.0264	1.4	1	1.0	65.1	2014.9	2079.9	1.03	40.938	2047.4	32.5
38	0.0269	1.4	1	1.0	70.5	2014.2	2084.7	1.04	40.942	2049.5	35.3
39	0.0275	1.4	1	1.0	67.1	2017.6	2084.7	1.03	40.919	2051.2	33.6
40	0.0281	1.4	1	1.0	68.4	2017.5	2085.9	1.03	40.920	2051.7	34.2
41	0.0311	1.4	1	1.1	69.8	2018.5	2088.3	1.03	40.912	2053.4	34.9
42	0.0341	1.4	1	1.2	67.5	2018.3	2085.8	1.03	40.914	2052.0	33.8
43	0.0363	1.4	1	1.3	69.1	2017.3	2086.4	1.03	40.921	2051.9	34.5
44	0.0391	1.4	1	1.4	69.6	2020.4	2090.0	1.03	40.899	2055.2	34.8
45	0.0418	1.4	1	1.5	69.1	2020.4	2089.5	1.03	40.899	2054.9	34.5
46	0.0450	1.4	1	1.6	67.5	2023.0	2090.5	1.03	40.881	2056.8	33.8
47	0.0474	1.4	1	1.7	69.4	2024.3	2093.7	1.03	40.872	2059.0	34.7
48	0.0503	1.4	1	1.8	67.0	2022.8	2089.8	1.03	40.883	2056.3	33.5
49	0.0527	1.4	1	1.9	67.0	2021.4	2088.4	1.03	40.893	2054.9	33.5
50	0.0557	1.4	1	2.0	67.3	2024.0	2091.3	1.03	40.874	2057.6	33.6
51	0.0591	2.0	1	2.2	121.7	2019.4	2141.1	1.06	40.907	2080.2	60.8
52	0.0616	4.7	4	2.2	387.5	1952.0	2339.5	1.20	41.374	2145.8	193.7
53	0.0640	6.9	6	2.3	601.1	1832.3	2433.4	1.33	42.206	2132.8	300.5
54	0.0671	8.3	8	2.4	736.8	1708.6	2445.4	1.43	43.064	2077.0	368.4
55	0.0698	9.5	9	2.5	846.1	1592.2	2438.3	1.53	43.873	2015.2	423.0
56	0.0722	10.3	10	2.6	922.9	1492.8	2415.7	1.62	44.563	1954.2	461.4
57	0.0755	11.0	10	2.8	985.3	1402.4	2387.8	1.70	45.191	1895.1	492.7
58	0.0780	11.5	11	2.8	1035.9	1317.4	2353.3	1.79	45.781	1835.4	517.9
59	0.0806	12.0	11	2.9	1080.3	1249.1	2329.5	1.86	46.256	1789.3	540.2
60	0.0840	12.3	12	3.1	1113.9	1195.1	2309.1	1.93	46.631	1752.1	557.0
61	0.0867	12.7	12	3.2	1145.7	1146.2	2291.9	2.00	46.970	1719.1	572.9
62	0.0895	12.9	12	3.3	1166.4	1105.5	2271.9	2.06	47.253	1688.7	583.2
63	0.0921	13.1	12	3.4	1186.7	1063.3	2250.0	2.12	47.546	1656.7	593.3
64	0.0948	13.4	13	3.5	1209.0	1025.1	2234.1	2.18	47.811	1629.6	604.5
65	0.0979	13.4	13	3.6	1214.5	999.0	2213.5	2.22	47.993	1606.2	607.2
66	0.1005	13.7	13	3.7	1236.9	970.3	2207.3	2.27	48.192	1588.8	618.5
67	0.1034	13.7	13	3.8	1241.4	948.9	2190.2	2.31	48.341	1569.6	620.7
68	0.1064	13.9	13	3.9	1257.5	921.3	2178.8	2.36	48.532	1550.1	628.8
69	0.1085	14.0	13	4.0	1266.5	900.0	2166.5	2.41	48.680	1533.3	633.3
70	0.1115	14.1	13	4.1	1273.1	886.1	2159.1	2.44	48.777	1522.6	636.5
71	0.1137	14.3	14	4.1	1284.1	870.5	2154.5	2.48	48.885	1512.5	642.0
72	0.1178	14.3	14	4.3	1290.7	856.0	2146.7	2.51	48.986	1501.3	645.4
73	0.1196	14.4	14	4.4	1298.3	839.9	2138.2	2.55	49.098	1489.0	649.2

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
74	0.1224	14.5	14	4.5	1306.5	824.8	2131.3	2.58	49.202	1478.0	653.3
75	0.1254	14.6	14	4.6	1311.4	816.9	2128.3	2.61	49.257	1472.6	655.7
76	0.1287	14.7	14	4.7	1318.9	804.6	2123.4	2.64	49.343	1464.0	659.4
77	0.1312	14.8	14	4.8	1323.0	795.5	2118.5	2.66	49.406	1457.0	661.5
78	0.1338	14.8	14	4.9	1327.0	783.1	2110.1	2.69	49.492	1446.6	663.5
79	0.1364	14.9	14	5.0	1331.7	772.8	2104.5	2.72	49.564	1438.6	665.9
80	0.1392	14.9	14	5.1	1334.5	765.9	2100.4	2.74	49.611	1433.2	667.2
81	0.1463	15.1	14	5.3	1344.7	749.4	2094.0	2.79	49.726	1421.7	672.3
82	0.1541	15.2	14	5.6	1348.5	733.7	2082.2	2.84	49.835	1407.9	674.2
83	0.1607	15.3	15	5.9	1355.5	722.3	2077.8	2.88	49.914	1400.0	677.8
84	0.1678	15.4	15	6.1	1367.2	707.8	2075.0	2.93	50.015	1391.4	683.6
85	0.1749	15.5	15	6.4	1372.3	701.2	2073.4	2.96	50.061	1387.3	686.1
86	0.1816	15.6	15	6.6	1375.1	675.9	2050.9	3.03	50.236	1363.4	687.5
87	0.1888	15.7	15	6.9	1382.8	668.0	2050.8	3.07	50.291	1359.4	691.4
88	0.1954	15.8	15	7.1	1386.2	660.2	2046.4	3.10	50.345	1353.3	693.1
89	0.2021	15.9	15	7.4	1395.4	658.6	2054.0	3.12	50.357	1356.3	697.7
90	0.2095	16.0	15	7.6	1397.8	651.8	2049.6	3.14	50.404	1350.7	698.9
91	0.2169	16.1	15	7.9	1405.3	652.6	2057.8	3.15	50.398	1355.2	702.6
92	0.2235	16.2	16	8.2	1410.8	648.0	2058.8	3.18	50.430	1353.4	705.4
93	0.2307	16.3	16	8.4	1414.9	650.6	2065.5	3.17	50.412	1358.1	707.4
94	0.2378	16.4	16	8.7	1421.8	646.2	2068.0	3.20	50.442	1357.1	710.9
95	0.2453	16.6	16	8.9	1429.5	648.1	2077.6	3.21	50.429	1362.9	714.8
96	0.2517	16.7	16	9.2	1433.5	645.7	2079.3	3.22	50.446	1362.5	716.8
97	0.2593	16.7	16	9.5	1430.3	649.2	2079.6	3.20	50.421	1364.4	715.2
98	0.2659	16.8	16	9.7	1439.7	647.6	2087.3	3.22	50.433	1367.4	719.8
99	0.2735	16.9	16	10.0	1440.6	632.2	2072.7	3.28	50.540	1352.4	720.3
100	0.2800	17.0	16	10.2	1447.3	627.5	2074.8	3.31	50.572	1351.2	723.6
101	0.2873	17.1	16	10.5	1449.2	631.7	2080.9	3.29	50.543	1356.3	724.6
102	0.2937	17.2	16	10.7	1456.5	632.2	2088.7	3.30	50.540	1360.5	728.2
103	0.3003	17.3	17	11.0	1458.3	637.3	2095.5	3.29	50.505	1366.4	729.1
104	0.3076	17.3	17	11.2	1460.4	638.7	2099.1	3.29	50.495	1368.9	730.2
105	0.3146	17.5	17	11.5	1469.5	647.5	2117.0	3.27	50.434	1382.2	734.8
106	0.3214	17.5	17	11.7	1467.9	644.5	2112.4	3.28	50.454	1378.5	733.9
107	0.3285	17.6	17	12.0	1470.6	650.4	2121.0	3.26	50.413	1385.7	735.3
108	0.3354	17.8	17	12.2	1483.2	649.0	2132.2	3.29	50.423	1390.6	741.6
109	0.3423	17.8	17	12.5	1480.5	653.1	2133.6	3.27	50.395	1393.3	740.2
110	0.3502	18.0	17	12.8	1490.7	636.4	2127.2	3.34	50.510	1381.8	745.4
111	0.3568	18.0	17	13.0	1490.2	638.4	2128.5	3.33	50.497	1383.4	745.1
112	0.3638	18.2	17	13.3	1497.1	638.6	2135.7	3.34	50.496	1387.1	748.6
113	0.3709	18.3	18	13.5	1503.3	640.6	2143.9	3.35	50.481	1392.3	751.7
114	0.3785	18.4	18	13.8	1509.5	645.9	2155.4	3.34	50.445	1400.6	754.7
115	0.3851	18.5	18	14.0	1513.1	646.5	2159.6	3.34	50.440	1403.1	756.6
116	0.3914	18.5	18	14.3	1512.1	653.8	2165.9	3.31	50.390	1409.9	756.0
117	0.3988	18.6	18	14.5	1515.6	653.5	2169.0	3.32	50.392	1411.3	757.8
118	0.4060	18.8	18	14.8	1523.2	659.5	2182.8	3.31	50.350	1421.2	761.6
119	0.4126	18.9	18	15.1	1529.2	660.1	2189.3	3.32	50.346	1424.7	764.6
120	0.4194	19.0	18	15.3	1534.4	661.6	2196.1	3.32	50.335	1428.9	767.2

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
121	0.4195	19.0	18	15.3	1535.1	663.3	2198.4	3.31	50.323	1430.9	767.5

Parameters for Specimen No. 3

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	210.000			193.610
Moisture content: Dry soil+tare, gms.	176.380			167.670
Moisture content: Tare, gms.	38.250			60.270
Moisture, %	24.3	30.7	26.6	24.2
Moist specimen weight, gms.	135.30			
Diameter, in.	1.416	1.416	1.386	
Area, in. ²	1.575	1.575	1.509	
Height, in.	2.800	2.800	2.741	
Net decrease in height, in.		0.000	0.059	
Wet density, pcf	116.9	122.9	126.9	
Dry density, pcf	94.0	94.0	100.2	
Void ratio	0.8593	0.8593	0.7442	
Saturation, %	79.3	100.0	100.0	

Test Readings for Specimen No. 3

Consolidation cell pressure = 96.000 psi (13824.0 psf)
 Consolidation back pressure = 70.000 psi (10080.0 psf)
 Consolidation effective confining stress = 3744.0 psf
 Strain rate, in./min. = 0.017
 Fail. Stress = 2786.4 psf at reading no. 139

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	1.4	0	0.0	0.0	3861.2	3861.2	1.00	69.186	3861.2	0.0
1	0.0007	1.9	0	0.0	47.1	3860.1	3907.2	1.01	69.194	3883.7	23.6
2	0.0014	2.5	1	0.1	98.4	3862.3	3960.8	1.03	69.178	3911.5	49.2
3	0.0019	2.5	1	0.1	106.0	3863.5	3969.6	1.03	69.170	3916.5	53.0
4	0.0027	3.1	2	0.1	159.3	3856.5	4015.7	1.04	69.219	3936.1	79.6
5	0.0032	4.5	3	0.1	293.8	3829.6	4123.4	1.08	69.405	3976.5	146.9
6	0.0038	5.8	4	0.1	420.4	3794.4	4214.8	1.11	69.650	4004.6	210.2
7	0.0043	7.2	6	0.2	545.5	3751.3	4296.8	1.15	69.949	4024.1	272.8
8	0.0055	8.4	7	0.2	662.6	3706.0	4368.6	1.18	70.264	4037.3	331.3
9	0.0061	9.5	8	0.2	766.5	3659.8	4426.3	1.21	70.585	4043.1	383.3
10	0.0069	10.4	9	0.3	856.1	3611.6	4467.6	1.24	70.920	4039.6	428.0
11	0.0078	11.5	10	0.3	954.2	3346.4	4300.7	1.29	72.761	3823.5	477.1
12	0.0082	12.3	11	0.3	1034.9	3269.8	4304.7	1.32	73.293	3787.3	517.4
13	0.0088	13.0	12	0.3	1100.3	3264.6	4364.8	1.34	73.329	3814.7	550.1
14	0.0096	13.7	12	0.3	1165.8	3222.7	4388.5	1.36	73.620	3805.6	582.9
15	0.0104	14.3	13	0.4	1226.2	3172.2	4398.4	1.39	73.971	3785.3	613.1
16	0.0110	14.9	13	0.4	1282.6	3119.0	4401.7	1.41	74.340	3760.4	641.3
17	0.0117	15.6	14	0.4	1342.6	3065.2	4407.8	1.44	74.714	3736.5	671.3
18	0.0121	16.1	15	0.4	1395.5	3009.5	4405.0	1.46	75.101	3707.2	697.7
19	0.0131	16.7	15	0.5	1447.2	2959.4	4406.6	1.49	75.449	3683.0	723.6
20	0.0139	17.2	16	0.5	1495.0	2907.6	4402.6	1.51	75.808	3655.1	747.5
21	0.0146	17.7	16	0.5	1539.5	2857.4	4396.9	1.54	76.157	3627.2	769.8

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
22	0.0150	18.1	17	0.5	1579.1	2808.1	4387.2	1.56	76.499	3597.7	789.6
23	0.0156	18.5	17	0.6	1616.8	2759.2	4376.0	1.59	76.839	3567.6	808.4
24	0.0161	18.8	17	0.6	1652.1	2711.7	4363.8	1.61	77.169	3537.7	826.0
25	0.0167	19.2	18	0.6	1683.6	2667.7	4351.3	1.63	77.474	3509.5	841.8
26	0.0172	19.5	18	0.6	1713.1	2622.9	4335.9	1.65	77.786	3479.4	856.5
27	0.0181	19.8	18	0.7	1744.2	2582.3	4326.5	1.68	78.067	3454.4	872.1
28	0.0189	20.1	19	0.7	1765.7	2541.1	4306.8	1.69	78.353	3424.0	882.8
29	0.0197	20.3	19	0.7	1789.2	2501.4	4290.5	1.72	78.629	3395.9	894.6
30	0.0204	20.6	19	0.7	1812.9	2464.0	4276.9	1.74	78.889	3370.4	906.5
31	0.0208	20.8	19	0.8	1830.9	2429.4	4260.3	1.75	79.129	3344.9	915.4
32	0.0212	21.0	20	0.8	1853.9	2391.1	4245.1	1.78	79.395	3318.1	927.0
33	0.0220	21.2	20	0.8	1868.9	2356.7	4225.6	1.79	79.634	3291.1	934.4
34	0.0232	21.4	20	0.8	1886.5	2326.6	4213.1	1.81	79.843	3269.8	943.3
35	0.0243	21.6	20	0.9	1906.1	2293.4	4199.4	1.83	80.074	3246.4	953.0
36	0.0251	21.7	20	0.9	1918.9	2264.1	4183.0	1.85	80.277	3223.6	959.4
37	0.0260	21.9	20	0.9	1933.7	2230.6	4164.3	1.87	80.510	3197.4	966.9
38	0.0264	22.0	21	1.0	1945.2	2203.9	4149.1	1.88	80.695	3176.5	972.6
39	0.0269	22.1	21	1.0	1956.5	2177.9	4134.4	1.90	80.875	3156.2	978.2
40	0.0275	22.3	21	1.0	1969.1	2153.3	4122.4	1.91	81.046	3137.9	984.5
41	0.0302	22.8	21	1.1	2013.6	2063.9	4077.5	1.98	81.667	3070.7	1006.8
42	0.0330	23.2	22	1.2	2051.1	1994.6	4045.6	2.03	82.149	3020.1	1025.5
43	0.0360	23.5	22	1.3	2082.0	1934.9	4016.9	2.08	82.563	2975.9	1041.0
44	0.0389	23.8	22	1.4	2106.8	1898.1	4004.9	2.11	82.819	2951.5	1053.4
45	0.0414	24.0	23	1.5	2124.5	1897.0	4021.5	2.12	82.826	2959.3	1062.3
46	0.0436	24.6	23	1.6	2176.0	1491.5	3667.5	2.46	85.643	2579.5	1088.0
47	0.0467	24.8	23	1.7	2187.3	1482.3	3669.6	2.48	85.706	2576.0	1093.6
48	0.0501	24.8	23	1.8	2192.9	1561.9	3754.8	2.40	85.153	2658.4	1096.4
49	0.0521	25.1	24	1.9	2212.1	1549.2	3761.3	2.43	85.242	2655.3	1106.1
50	0.0553	25.2	24	2.0	2223.1	1526.9	3750.0	2.46	85.396	2638.5	1111.5
51	0.0583	25.3	24	2.1	2229.5	1505.8	3735.3	2.48	85.543	2620.6	1114.7
52	0.0612	25.5	24	2.2	2240.8	1490.7	3731.5	2.50	85.648	2611.1	1120.4
53	0.0639	25.6	24	2.3	2249.3	1479.6	3728.9	2.52	85.725	2604.3	1124.7
54	0.0670	25.6	24	2.4	2252.1	1467.9	3720.0	2.53	85.806	2594.0	1126.1
55	0.0694	25.7	24	2.5	2259.6	1483.2	3742.8	2.52	85.700	2613.0	1129.8
56	0.0724	25.8	24	2.6	2266.2	1500.7	3766.9	2.51	85.579	2633.8	1133.1
57	0.0754	26.2	25	2.7	2294.6	1202.3	3496.9	2.91	87.651	2349.6	1147.3
58	0.0778	26.2	25	2.8	2300.5	1213.2	3513.7	2.90	87.575	2363.4	1150.3
59	0.0809	26.3	25	2.9	2299.7	1306.5	3606.2	2.76	86.927	2456.4	1149.9
60	0.0834	26.3	25	3.0	2300.0	1305.4	3605.4	2.76	86.935	2455.4	1150.0
61	0.0861	26.4	25	3.1	2303.4	1305.3	3608.7	2.76	86.935	2457.0	1151.7
62	0.0888	26.5	25	3.2	2310.2	1303.0	3613.1	2.77	86.952	2458.0	1155.1
63	0.0919	26.6	25	3.4	2319.8	1302.4	3622.2	2.78	86.955	2462.3	1159.9
64	0.0946	26.6	25	3.5	2323.2	1294.6	3617.8	2.79	87.010	2456.2	1161.6
65	0.0975	26.7	25	3.6	2322.8	1298.2	3621.0	2.79	86.985	2459.6	1161.4
66	0.1003	26.7	25	3.7	2327.5	1314.5	3642.0	2.77	86.872	2478.2	1163.7
67	0.1029	26.7	25	3.8	2324.3	1462.2	3786.4	2.59	85.846	2624.3	1162.1
68	0.1063	26.8	25	3.9	2327.7	1390.2	3717.9	2.67	86.346	2554.0	1163.8

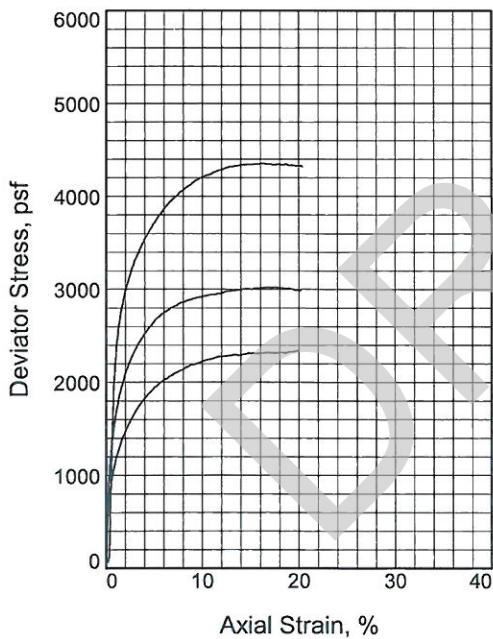
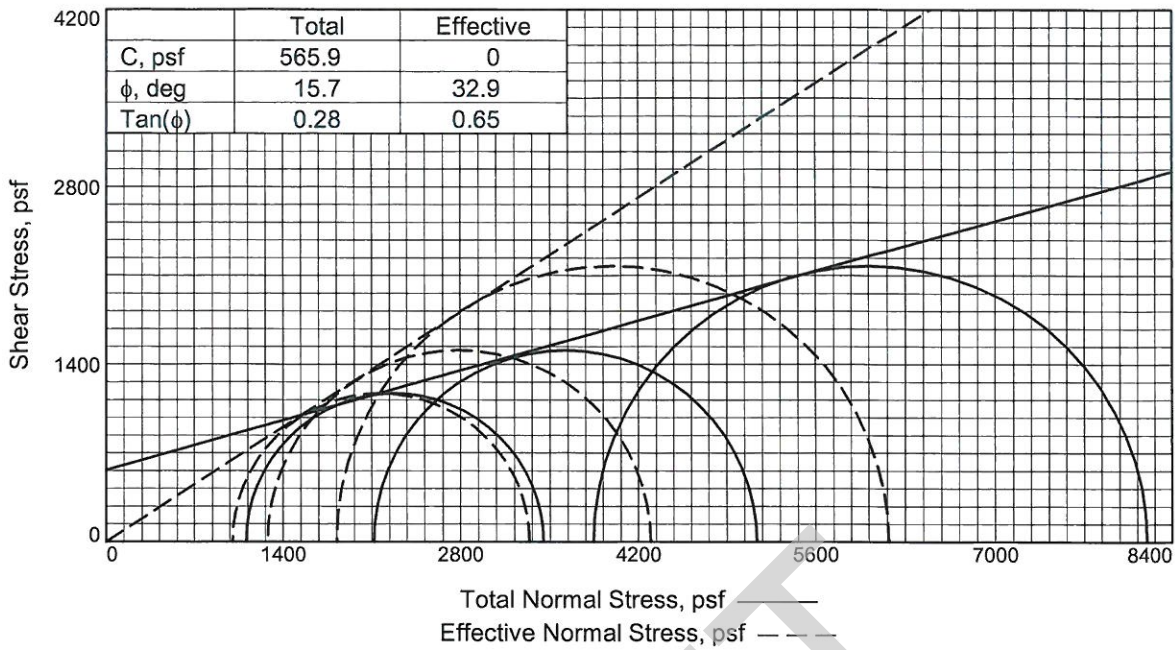
Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
69	0.1089	27.2	26	4.0	2359.5	1047.9	3407.5	3.25	88.723	2227.7	1179.8
70	0.1108	27.2	26	4.0	2359.8	1180.5	3540.4	3.00	87.802	2360.5	1179.9
71	0.1142	27.3	26	4.2	2362.5	1204.0	3566.5	2.96	87.639	2385.2	1181.2
72	0.1168	27.3	26	4.3	2363.1	1204.8	3567.9	2.96	87.633	2386.4	1181.5
73	0.1202	27.4	26	4.4	2372.6	1207.1	3579.6	2.97	87.618	2393.4	1186.3
74	0.1228	27.5	26	4.5	2375.3	1207.0	3582.3	2.97	87.618	2394.7	1187.7
75	0.1257	27.6	26	4.6	2382.5	1211.7	3594.2	2.97	87.585	2403.0	1191.2
76	0.1284	27.6	26	4.7	2379.9	1217.4	3597.3	2.95	87.546	2407.3	1190.0
77	0.1313	27.6	26	4.8	2379.6	1227.1	3606.7	2.94	87.479	2416.9	1189.8
78	0.1347	27.7	26	4.9	2386.6	1250.7	3637.3	2.91	87.315	2444.0	1193.3
79	0.1372	27.7	26	5.0	2381.8	1301.8	3683.6	2.83	86.960	2492.7	1190.9
80	0.1395	27.7	26	5.1	2379.9	1386.4	3766.3	2.72	86.372	2576.4	1190.0
81	0.1468	28.2	27	5.4	2415.7	1154.5	3570.2	3.09	87.983	2362.3	1207.9
82	0.1542	28.3	27	5.6	2420.0	1159.7	3579.8	3.09	87.946	2369.8	1210.0
83	0.1611	28.5	27	5.9	2427.7	1178.4	3606.2	3.06	87.816	2392.3	1213.9
84	0.1680	28.6	27	6.1	2435.1	1232.3	3667.4	2.98	87.442	2449.8	1217.5
85	0.1748	28.9	27	6.4	2456.8	1094.3	3551.1	3.25	88.400	2322.7	1228.4
86	0.1824	29.1	28	6.7	2460.8	1128.8	3589.6	3.18	88.161	2359.2	1230.4
87	0.1895	29.2	28	6.9	2466.7	1145.4	3612.1	3.15	88.046	2378.8	1233.4
88	0.1964	29.4	28	7.2	2476.5	1181.1	3657.6	3.10	87.798	2419.3	1238.2
89	0.2031	29.6	28	7.4	2488.5	1052.7	3541.2	3.36	88.690	2296.9	1244.3
90	0.2090	29.7	28	7.6	2495.5	1129.5	3625.0	3.21	88.156	2377.3	1247.8
91	0.2169	29.9	28	7.9	2504.1	1142.6	3646.7	3.19	88.065	2394.7	1252.0
92	0.2237	30.1	29	8.2	2509.7	1165.4	3675.1	3.15	87.907	2420.3	1254.8
93	0.2305	30.2	29	8.4	2510.4	1232.1	3742.5	3.04	87.444	2487.3	1255.2
94	0.2374	30.5	29	8.7	2532.0	1096.2	3628.1	3.31	88.388	2362.2	1266.0
95	0.2448	30.7	29	8.9	2540.8	1113.9	3654.8	3.28	88.264	2384.4	1270.4
96	0.2516	30.7	29	9.2	2537.9	1138.2	3676.1	3.23	88.096	2407.1	1268.9
97	0.2591	30.8	29	9.5	2540.5	1186.0	3726.5	3.14	87.764	2456.2	1270.3
98	0.2659	31.2	30	9.7	2567.9	961.6	3529.4	3.67	89.322	2245.5	1283.9
99	0.2731	31.3	30	10.0	2565.8	1112.8	3678.6	3.31	88.272	2395.7	1282.9
100	0.2802	31.4	30	10.2	2571.0	1133.2	3704.2	3.27	88.131	2418.7	1285.5
101	0.2875	31.6	30	10.5	2573.9	1192.7	3766.5	3.16	87.717	2479.6	1286.9
102	0.2940	31.7	30	10.7	2580.0	1278.4	3858.4	3.02	87.122	2568.4	1290.0
103	0.3008	32.0	31	11.0	2596.1	1120.7	3716.8	3.32	88.217	2418.8	1298.1
104	0.3083	32.2	31	11.2	2602.5	1139.3	3741.9	3.28	88.088	2440.6	1301.3
105	0.3151	32.3	31	11.5	2604.2	1167.5	3771.6	3.23	87.893	2469.5	1302.1
106	0.3221	32.4	31	11.8	2611.9	1213.5	3825.5	3.15	87.573	2519.5	1306.0
107	0.3285	32.8	31	12.0	2634.5	975.1	3609.6	3.70	89.228	2292.4	1317.3
108	0.3362	32.9	31	12.3	2633.3	1129.8	3763.1	3.33	88.154	2446.5	1316.7
109	0.3433	33.0	32	12.5	2632.4	1154.2	3786.6	3.28	87.985	2470.4	1316.2
110	0.3501	33.2	32	12.8	2640.5	1180.2	3820.7	3.24	87.804	2500.5	1320.2
111	0.3569	33.2	32	13.0	2638.4	1271.5	3909.9	3.07	87.170	2590.7	1319.2
112	0.3644	33.5	32	13.3	2656.0	1115.7	3771.8	3.38	88.252	2443.7	1328.0
113	0.3711	33.7	32	13.5	2659.1	1149.0	3808.1	3.31	88.021	2478.6	1329.5
114	0.3785	33.8	32	13.8	2660.2	1165.2	3825.4	3.28	87.908	2495.3	1330.1
115	0.3849	33.9	32	14.0	2659.4	1215.0	3874.4	3.19	87.562	2544.7	1329.7

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
116	0.3923	34.3	33	14.3	2691.0	979.3	3670.3	3.75	89.199	2324.8	1345.5
117	0.3997	34.3	33	14.6	2678.9	1157.6	3836.5	3.31	87.961	2497.0	1339.5
118	0.4059	34.4	33	14.8	2683.9	1174.5	3858.4	3.29	87.844	2516.5	1341.9
119	0.4128	34.6	33	15.1	2687.9	1203.4	3891.3	3.23	87.643	2547.4	1344.0
120	0.4197	34.7	33	15.3	2686.7	1271.0	3957.6	3.11	87.174	2614.3	1343.3
121	0.4270	34.9	33	15.6	2698.1	1144.5	3842.6	3.36	88.052	2493.6	1349.1
122	0.4335	35.1	34	15.8	2701.9	1178.1	3880.1	3.29	87.818	2529.1	1351.0
123	0.4413	35.2	34	16.1	2705.5	1197.9	3903.4	3.26	87.681	2550.6	1352.7
124	0.4471	35.3	34	16.3	2706.2	1233.8	3940.0	3.19	87.432	2586.9	1353.1
125	0.4551	35.4	34	16.6	2704.4	1360.1	4064.5	2.99	86.555	2712.3	1352.2
126	0.4621	35.7	34	16.9	2718.9	1193.6	3912.6	3.28	87.711	2553.1	1359.5
127	0.4686	35.8	34	17.1	2718.0	1207.9	3925.9	3.25	87.612	2566.9	1359.0
128	0.4759	35.9	34	17.4	2720.1	1234.1	3954.1	3.20	87.430	2594.1	1360.0
129	0.4829	36.1	35	17.6	2723.0	1282.0	4005.0	3.12	87.097	2643.5	1361.5
130	0.4899	36.4	35	17.9	2742.3	998.9	3741.2	3.75	89.063	2370.1	1371.2
131	0.4966	36.4	35	18.1	2734.2	1183.3	3917.5	3.31	87.783	2550.4	1367.1
132	0.5038	36.5	35	18.4	2733.2	1218.1	3951.3	3.24	87.541	2584.7	1366.6
133	0.5112	36.7	35	18.6	2740.7	1251.6	3992.3	3.19	87.308	2622.0	1370.3
134	0.5180	36.8	35	18.9	2737.3	1346.0	4083.3	3.03	86.653	2714.7	1368.6
135	0.5252	37.1	36	19.2	2754.4	1208.5	3962.9	3.28	87.608	2585.7	1377.2
136	0.5321	37.3	36	19.4	2757.1	1226.9	3983.9	3.25	87.480	2605.4	1378.5
137	0.5396	37.4	36	19.7	2758.1	1248.8	4006.9	3.21	87.328	2627.8	1379.1
138	0.5461	37.6	36	19.9	2760.9	1307.9	4068.8	3.11	86.917	2688.3	1380.5
139	0.5535	38.0	37	20.2	2786.4	1069.2	3855.6	3.61	88.575	2462.4	1393.2
140	0.5603	37.9	36	20.4	2767.8	1232.6	4000.4	3.25	87.440	2616.5	1383.9
141	0.5603	37.9	36	20.4	2767.1	1232.8	3999.9	3.24	87.439	2616.3	1383.6

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3
Initial			
Water Content, %	31.9	31.2	32.2
Dry Density, pcf	89.3	90.6	90.2
Saturation, %	97.2	97.9	100.0
Void Ratio	0.8866	0.8608	0.8687
Diameter, in.	1.391	1.394	1.398
Height, in.	2.800	2.800	2.800
At Test			
Water Content, %	32.4	29.9	28.4
Dry Density, pcf	89.9	93.3	95.4
Saturation, %	100.0	100.0	100.0
Void Ratio	0.8759	0.8069	0.7672
Diameter, in.	1.388	1.380	1.372
Height, in.	2.795	2.773	2.749
Strain rate, in./min.	0.017	0.017	0.017
Eff. Cell Pressure, psi	7.700	14.700	26.700
Fail. Stress, psf	2339.0	3020.2	4353.3
Excess Pore Pr., psf	107.7	838.9	2024.5
Strain, %	20.1	17.7	16.1
Ult. Stress, psf			
Excess Pore Pr., psf			
Strain, %			
$\bar{\sigma}_1$ Failure, psf	3340.1	4298.0	6173.6
$\bar{\sigma}_3$ Failure, psf	1001.1	1277.9	1820.3

Type of Test:
CU with Pore Pressures

Sample Type: Undisturbed

Description: M, Gr Lean CLAY (CL6)

Assumed Specific Gravity= 2.70

Remarks: Type Failure:
Bulge

Client: GeoEngineers

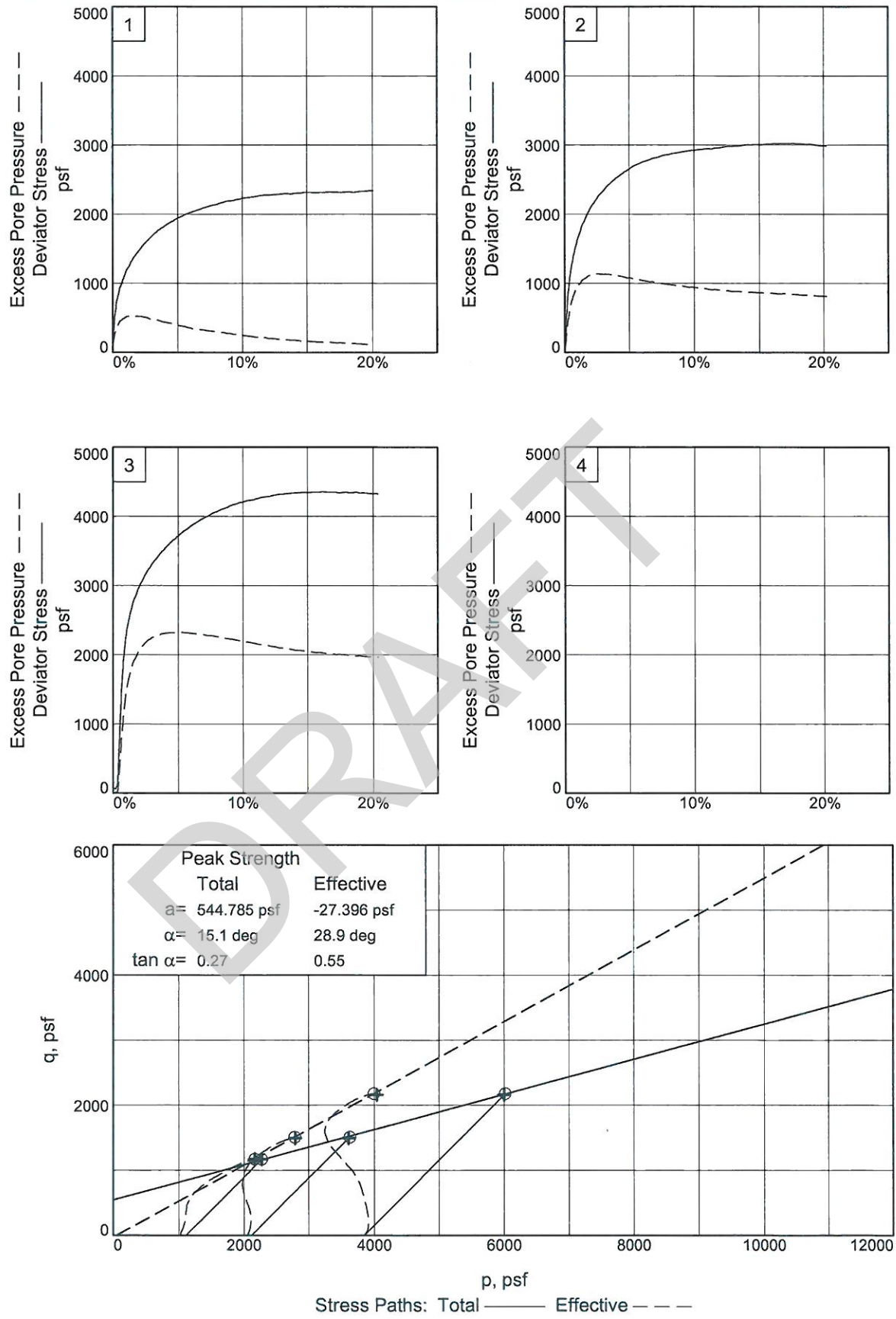
Project: Mid Barataria Diversion

Source of Sample: B-2A **Depth:** 7-8

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: B-2A **Depth:** 7-8

Project No.: B13-018

Figure

Southern Earth Sciences, Inc.

Confidential Information, Privileged & Confidential Work Product

TRIAXIAL COMPRESSION TEST
CU with Pore Pressures

12/9/2013
11:26 AM

Date:
Client: GeoEngineers
Project: Mid Baratara Diversion
Project No.: B13-018
Location: B-2A
Depth: 7-8
Description: M, Gr Lean CLAY (CL6)
Remarks: Type Failure:
Bulge
Type of Sample: Undisturbed
Assumed Specific Gravity=2.70 **LL=** **PL=** **PI=**
Test Method: COE uniform strain

Parameters for Specimen No. 1

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	171.900			168.660
Moisture content: Dry soil+tare, gms.	139.670			137.200
Moisture content: Tare, gms.	38.680			37.860
Moisture, %	31.9	32.8	32.4	31.7
Moist specimen weight, gms.	131.64			
Diameter, in.	1.391	1.391	1.388	
Area, in. ²	1.520	1.520	1.514	
Height, in.	2.800	2.800	2.795	
Net decrease in height, in.		0.000	0.005	
Wet density, pcf	117.9	118.7	119.0	
Dry density, pcf	89.3	89.3	89.9	
Void ratio	0.8866	0.8866	0.8759	
Saturation, %	97.2	100.0	100.0	

Test Readings for Specimen No. 1

Consolidation cell pressure = 77.700 psi (11188.8 psf)
Consolidation back pressure = 70.000 psi (10080.0 psf)
Consolidation effective confining stress = 1108.8 psf
Strain rate, in./min. = 0.017
Fail. Stress = 2339.0 psf at reading no. 140

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	1.0	0	0.0	0.0	1019.8	1019.8	1.00	70.618	1019.8	0.0
1	0.0007	2.0	1	0.0	100.8	989.4	1090.2	1.10	70.829	1039.8	50.4
2	0.0013	3.1	2	0.0	200.7	959.0	1159.7	1.21	71.040	1059.4	100.3
3	0.0021	4.1	3	0.1	295.9	928.6	1224.5	1.32	71.251	1076.6	147.9
4	0.0030	4.9	4	0.1	372.3	901.5	1273.8	1.41	71.439	1087.7	186.2
5	0.0037	5.6	5	0.1	443.6	875.4	1319.0	1.51	71.621	1097.2	221.8
6	0.0045	6.2	5	0.2	497.8	853.0	1350.8	1.58	71.777	1101.9	248.9
7	0.0050	6.7	6	0.2	542.7	834.7	1377.4	1.65	71.903	1106.1	271.4
8	0.0060	7.1	6	0.2	583.9	814.5	1398.4	1.72	72.044	1106.5	291.9
9	0.0069	7.5	7	0.2	617.1	800.3	1417.4	1.77	72.142	1108.9	308.6
10	0.0073	7.8	7	0.3	651.2	786.3	1437.5	1.83	72.240	1111.9	325.6
11	0.0076	8.1	7	0.3	680.1	770.8	1450.8	1.88	72.348	1110.8	340.0
12	0.0081	8.4	7	0.3	706.2	757.5	1463.7	1.93	72.440	1110.6	353.1
13	0.0087	8.7	8	0.3	730.7	746.3	1476.9	1.98	72.517	1111.6	365.3
14	0.0095	9.0	8	0.3	757.9	737.0	1494.9	2.03	72.582	1115.9	378.9
15	0.0107	9.2	8	0.4	780.7	727.2	1507.9	2.07	72.650	1117.5	390.3
16	0.0111	9.4	8	0.4	797.4	720.3	1517.7	2.11	72.698	1119.0	398.7
17	0.0116	9.6	9	0.4	821.3	708.3	1529.6	2.16	72.781	1119.0	410.6
18	0.0124	9.9	9	0.4	841.1	699.2	1540.4	2.20	72.844	1119.8	420.6
19	0.0131	10.1	9	0.5	860.8	692.1	1552.9	2.24	72.893	1122.5	430.4
20	0.0139	10.2	9	0.5	876.8	681.0	1557.9	2.29	72.971	1119.4	438.4
21	0.0145	10.5	9	0.5	897.0	673.6	1570.7	2.33	73.022	1122.1	448.5
22	0.0148	10.6	10	0.5	915.2	669.1	1584.3	2.37	73.054	1126.7	457.6
23	0.0153	10.8	10	0.5	929.9	660.5	1590.4	2.41	73.113	1125.5	465.0
24	0.0163	11.0	10	0.6	947.0	656.5	1603.5	2.44	73.141	1130.0	473.5
25	0.0173	11.1	10	0.6	955.6	652.0	1607.7	2.47	73.172	1129.8	477.8
26	0.0181	11.3	10	0.6	971.9	648.0	1619.9	2.50	73.200	1134.0	486.0
27	0.0188	11.4	10	0.7	986.5	644.9	1631.4	2.53	73.221	1138.2	493.3
28	0.0197	11.6	11	0.7	1004.4	639.9	1644.2	2.57	73.256	1142.1	502.2
29	0.0205	11.7	11	0.7	1013.9	634.4	1648.4	2.60	73.294	1141.4	507.0
30	0.0209	11.9	11	0.7	1029.9	631.0	1660.9	2.63	73.318	1145.9	514.9
31	0.0215	12.0	11	0.8	1044.4	628.6	1673.0	2.66	73.335	1150.8	522.2
32	0.0225	12.2	11	0.8	1060.7	624.3	1685.0	2.70	73.365	1154.7	530.4
33	0.0235	12.3	11	0.8	1069.9	620.4	1690.3	2.72	73.392	1155.4	534.9
34	0.0240	12.5	12	0.9	1085.2	616.4	1701.7	2.76	73.419	1159.1	542.6
35	0.0246	12.6	12	0.9	1098.9	615.3	1714.2	2.79	73.427	1164.7	549.5
36	0.0252	12.7	12	0.9	1106.4	613.0	1719.4	2.80	73.443	1166.2	553.2
37	0.0259	12.8	12	0.9	1116.8	610.0	1726.8	2.83	73.464	1168.4	558.4
38	0.0267	13.0	12	1.0	1131.2	605.0	1736.3	2.87	73.498	1170.7	565.6
39	0.0272	13.1	12	1.0	1143.8	602.9	1746.7	2.90	73.513	1174.8	571.9
40	0.0277	13.2	12	1.0	1153.5	601.2	1754.7	2.92	73.525	1177.9	576.7
41	0.0302	13.7	13	1.1	1194.4	590.6	1785.0	3.02	73.599	1187.8	597.2
42	0.0338	14.0	13	1.2	1227.9	589.2	1817.2	3.08	73.608	1203.2	614.0
43	0.0366	14.4	13	1.3	1262.4	587.0	1849.4	3.15	73.624	1218.2	631.2
44	0.0391	14.8	14	1.4	1299.1	586.5	1885.6	3.22	73.627	1236.0	649.6
45	0.0419	15.2	14	1.5	1332.1	584.3	1916.4	3.28	73.642	1250.4	666.1
46	0.0450	15.6	15	1.6	1366.0	581.7	1947.7	3.35	73.660	1264.7	683.0

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
47	0.0478	15.9	15	1.7	1392.4	585.9	1978.3	3.38	73.631	1282.1	696.2
48	0.0505	16.2	15	1.8	1419.5	587.4	2006.9	3.42	73.621	1297.2	709.8
49	0.0536	16.5	16	1.9	1446.3	587.6	2033.9	3.46	73.619	1310.7	723.1
50	0.0564	16.8	16	2.0	1472.4	590.5	2062.9	3.49	73.599	1326.7	736.2
51	0.0595	17.0	16	2.1	1496.0	587.7	2083.7	3.55	73.619	1335.7	748.0
52	0.0620	17.3	16	2.2	1520.0	592.6	2112.6	3.57	73.585	1352.6	760.0
53	0.0647	17.6	17	2.3	1543.9	596.5	2140.4	3.59	73.557	1368.5	772.0
54	0.0675	17.8	17	2.4	1564.7	602.1	2166.9	3.60	73.519	1384.5	782.4
55	0.0705	18.1	17	2.5	1587.6	602.5	2190.0	3.64	73.516	1396.2	793.8
56	0.0732	18.3	17	2.6	1607.9	605.9	2213.8	3.65	73.493	1409.8	804.0
57	0.0761	18.5	18	2.7	1625.7	613.9	2239.6	3.65	73.437	1426.7	812.8
58	0.0789	18.7	18	2.8	1642.5	622.7	2265.2	3.64	73.376	1443.9	821.3
59	0.0818	19.0	18	2.9	1663.4	626.1	2289.6	3.66	73.352	1457.8	831.7
60	0.0843	19.2	18	3.0	1681.6	625.3	2307.0	3.69	73.357	1466.2	840.8
61	0.0873	19.4	18	3.1	1699.9	626.9	2326.8	3.71	73.347	1476.9	850.0
62	0.0897	19.6	19	3.2	1716.1	633.3	2349.4	3.71	73.302	1491.3	858.0
63	0.0929	19.8	19	3.3	1732.7	641.1	2373.8	3.70	73.248	1507.5	866.3
64	0.0955	20.0	19	3.4	1747.8	643.2	2391.0	3.72	73.233	1517.1	873.9
65	0.0981	20.2	19	3.5	1764.6	645.4	2409.9	3.73	73.218	1527.6	882.3
66	0.1014	20.3	19	3.6	1776.1	650.7	2426.8	3.73	73.181	1538.8	888.0
67	0.1036	20.6	20	3.7	1794.1	658.6	2452.7	3.72	73.126	1555.6	897.0
68	0.1068	20.7	20	3.8	1800.8	666.6	2467.4	3.70	73.071	1567.0	900.4
69	0.1095	20.9	20	3.9	1818.8	669.2	2487.9	3.72	73.053	1578.6	909.4
70	0.1121	21.0	20	4.0	1830.4	672.5	2502.9	3.72	73.030	1587.7	915.2
71	0.1153	21.2	20	4.1	1843.4	677.1	2520.5	3.72	72.998	1598.8	921.7
72	0.1177	21.3	20	4.2	1855.5	681.4	2536.8	3.72	72.968	1609.1	927.7
73	0.1209	21.5	21	4.3	1868.5	687.9	2556.4	3.72	72.923	1622.2	934.3
74	0.1236	21.6	21	4.4	1877.7	687.4	2565.0	3.73	72.927	1626.2	938.8
75	0.1264	21.8	21	4.5	1888.8	691.2	2580.0	3.73	72.900	1635.6	944.4
76	0.1290	21.9	21	4.6	1894.3	697.3	2591.6	3.72	72.858	1644.4	947.2
77	0.1323	22.0	21	4.7	1906.4	704.1	2610.6	3.71	72.810	1657.3	953.2
78	0.1346	22.2	21	4.8	1920.0	709.8	2629.8	3.71	72.771	1669.8	960.0
79	0.1373	22.3	21	4.9	1927.4	711.3	2638.7	3.71	72.761	1675.0	963.7
80	0.1394	22.4	21	5.0	1940.6	714.6	2655.2	3.72	72.737	1684.9	970.3
81	0.1470	22.7	22	5.3	1959.1	729.1	2688.2	3.69	72.637	1708.7	979.6
82	0.1541	23.1	22	5.5	1985.7	733.2	2718.9	3.71	72.608	1726.1	992.9
83	0.1613	23.4	22	5.8	2007.0	749.3	2756.3	3.68	72.497	1752.8	1003.5
84	0.1684	23.6	23	6.0	2024.1	755.7	2779.9	3.68	72.452	1767.8	1012.1
85	0.1752	23.8	23	6.3	2037.6	773.6	2811.2	3.63	72.328	1792.4	1018.8
86	0.1821	24.1	23	6.5	2057.0	772.1	2829.2	3.66	72.338	1800.6	1028.5
87	0.1895	24.4	23	6.8	2073.4	781.8	2855.2	3.65	72.271	1818.5	1036.7
88	0.1960	24.6	24	7.0	2090.6	785.6	2876.1	3.66	72.245	1830.9	1045.3
89	0.2036	24.8	24	7.3	2104.2	796.9	2901.1	3.64	72.166	1849.0	1052.1
90	0.2101	25.0	24	7.5	2117.4	800.4	2917.8	3.65	72.142	1859.1	1058.7
91	0.2172	25.2	24	7.8	2128.3	808.2	2936.6	3.63	72.087	1872.4	1064.2
92	0.2245	25.5	24	8.0	2141.4	810.7	2952.0	3.64	72.070	1881.4	1070.7
93	0.2313	25.7	25	8.3	2158.0	822.2	2980.2	3.62	71.990	1901.2	1079.0

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
94	0.2382	25.9	25	8.5	2167.1	822.0	2989.1	3.64	71.992	1905.5	1083.5
95	0.2455	26.2	25	8.8	2184.5	835.2	3019.7	3.62	71.900	1927.5	1092.2
96	0.2525	26.3	25	9.0	2188.3	835.3	3023.6	3.62	71.899	1929.5	1094.2
97	0.2599	26.4	25	9.3	2194.5	848.2	3042.7	3.59	71.810	1945.4	1097.2
98	0.2663	26.6	26	9.5	2207.7	849.7	3057.4	3.60	71.799	1953.5	1103.9
99	0.2733	26.8	26	9.8	2214.5	860.3	3074.8	3.57	71.726	1967.6	1107.3
100	0.2805	27.0	26	10.0	2226.5	862.8	3089.3	3.58	71.708	1976.1	1113.3
101	0.2874	27.2	26	10.3	2233.8	869.6	3103.4	3.57	71.661	1986.5	1116.9
102	0.2944	27.3	26	10.5	2240.2	875.6	3115.8	3.56	71.619	1995.7	1120.1
103	0.3014	27.5	26	10.8	2247.3	881.0	3128.3	3.55	71.582	2004.6	1123.7
104	0.3089	27.6	27	11.1	2251.6	890.2	3141.9	3.53	71.518	2016.1	1125.8
105	0.3155	27.8	27	11.3	2261.9	889.5	3151.4	3.54	71.523	2020.4	1130.9
106	0.3223	28.0	27	11.5	2271.0	898.0	3168.9	3.53	71.464	2033.5	1135.5
107	0.3284	28.1	27	11.8	2274.7	896.5	3171.1	3.54	71.475	2033.8	1137.3
108	0.3359	28.2	27	12.0	2274.9	907.6	3182.5	3.51	71.397	2045.1	1137.4
109	0.3435	28.3	27	12.3	2277.4	910.4	3187.9	3.50	71.378	2049.1	1138.7
110	0.3498	28.4	27	12.5	2281.3	914.3	3195.6	3.50	71.351	2055.0	1140.6
111	0.3572	28.5	28	12.8	2284.7	919.7	3204.3	3.48	71.313	2062.0	1142.3
112	0.3643	28.6	28	13.0	2289.1	919.5	3208.6	3.49	71.315	2064.0	1144.6
113	0.3712	28.8	28	13.3	2296.3	926.6	3222.9	3.48	71.265	2074.8	1148.1
114	0.3779	28.9	28	13.5	2296.2	927.2	3223.5	3.48	71.261	2075.4	1148.1
115	0.3850	28.9	28	13.8	2289.9	933.1	3222.9	3.45	71.220	2078.0	1144.9
116	0.3928	29.1	28	14.1	2297.6	935.3	3232.9	3.46	71.205	2084.1	1148.8
117	0.3992	29.2	28	14.3	2300.8	937.3	3238.1	3.45	71.191	2087.7	1150.4
118	0.4062	29.3	28	14.5	2302.5	943.6	3246.0	3.44	71.147	2094.8	1151.2
119	0.4128	29.5	29	14.8	2313.4	943.2	3256.5	3.45	71.150	2099.9	1156.7
120	0.4201	29.6	29	15.0	2311.5	949.4	3260.9	3.43	71.107	2105.1	1155.7
121	0.4275	29.7	29	15.3	2312.7	953.2	3265.9	3.43	71.081	2109.6	1156.4
122	0.4343	29.7	29	15.5	2308.0	953.8	3261.8	3.42	71.076	2107.8	1154.0
123	0.4415	29.8	29	15.8	2309.2	960.2	3269.4	3.40	71.032	2114.8	1154.6
124	0.4484	30.0	29	16.0	2314.0	959.8	3273.8	3.41	71.035	2116.8	1157.0
125	0.4555	30.0	29	16.3	2312.0	963.3	3275.3	3.40	71.010	2119.3	1156.0
126	0.4628	30.1	29	16.6	2315.6	966.8	3282.4	3.40	70.986	2124.6	1157.8
127	0.4691	30.3	29	16.8	2318.4	962.8	3281.2	3.41	71.014	2122.0	1159.2
128	0.4763	30.3	29	17.0	2316.2	970.9	3287.1	3.39	70.958	2129.0	1158.1
129	0.4838	30.4	29	17.3	2316.2	973.7	3289.9	3.38	70.938	2131.8	1158.1
130	0.4907	30.5	30	17.6	2314.5	969.8	3284.2	3.39	70.965	2127.0	1157.2
131	0.4982	30.6	30	17.8	2315.8	974.7	3290.5	3.38	70.931	2132.6	1157.9
132	0.5043	30.7	30	18.0	2321.1	978.8	3299.9	3.37	70.903	2139.3	1160.6
133	0.5114	30.8	30	18.3	2318.7	976.8	3295.4	3.37	70.917	2136.1	1159.3
134	0.5189	30.8	30	18.6	2313.8	979.9	3293.7	3.36	70.895	2136.8	1156.9
135	0.5254	31.0	30	18.8	2320.3	987.4	3307.8	3.35	70.843	2147.6	1160.2
136	0.5323	31.2	30	19.0	2325.3	985.1	3310.4	3.36	70.859	2147.8	1162.6
137	0.5390	31.3	30	19.3	2326.0	989.5	3315.5	3.35	70.829	2152.5	1163.0
138	0.5464	31.4	30	19.6	2328.9	994.9	3323.9	3.34	70.791	2159.4	1164.5
139	0.5535	31.6	31	19.8	2337.8	997.3	3335.1	3.34	70.774	2166.2	1168.9
140	0.5605	31.7	31	20.1	2339.0	1001.1	3340.1	3.34	70.748	2170.6	1169.5

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
141	0.5606	31.7	31	20.1	2338.0	1002.5	3340.5	3.33	70.738	2171.5	1169.0

Parameters for Specimen No. 2

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	169.800			169.520
Moisture content: Dry soil+tare, gms.	138.450			138.840
Moisture content: Tare, gms.	37.990			37.980
Moisture, %	31.2	31.9	29.9	30.4
Moist specimen weight, gms.	133.32			
Diameter, in.	1.394	1.394	1.380	
Area, in. ²	1.526	1.526	1.497	
Height, in.	2.800	2.800	2.773	
Net decrease in height, in.		0.000	0.027	
Wet density, pcf	118.9	119.5	121.2	
Dry density, pcf	90.6	90.6	93.3	
Void ratio	0.8608	0.8608	0.8069	
Saturation, %	97.9	100.0	100.0	

Test Readings for Specimen No. 2

Consolidation cell pressure = 79.700 psi (11476.8 psf)

Consolidation back pressure = 65.000 psi (9360.0 psf)

Consolidation effective confining stress = 2116.8 psf

Strain rate, in./min. = 0.017

Fail. Stress = 3020.2 psf at reading no. 130

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	0.6	0	0.0	0.0	2055.2	2055.2	1.00	65.428	2055.2	0.0
1	0.0001	1.0	0	0.0	41.9	2046.4	2088.3	1.02	65.489	2067.3	20.9
2	0.0017	1.9	1	0.1	129.2	2019.6	2148.9	1.06	65.675	2084.2	64.6
3	0.0024	3.0	2	0.1	233.7	1981.7	2215.4	1.12	65.938	2098.6	116.8
4	0.0032	4.1	3	0.1	334.8	1937.0	2271.8	1.17	66.249	2104.4	167.4
5	0.0035	5.0	4	0.1	427.3	1895.9	2323.2	1.23	66.534	2109.6	213.7
6	0.0037	5.8	5	0.1	505.5	1857.1	2362.6	1.27	66.803	2109.9	252.7
7	0.0046	6.6	6	0.2	578.5	1815.2	2393.7	1.32	67.094	2104.5	289.2
8	0.0055	7.4	7	0.2	650.3	1776.5	2426.9	1.37	67.363	2101.7	325.2
9	0.0059	8.1	8	0.2	720.3	1739.6	2459.9	1.41	67.619	2099.8	360.2
10	0.0065	8.8	8	0.2	784.5	1698.3	2482.8	1.46	67.906	2090.5	392.3
11	0.0070	9.4	9	0.3	845.0	1660.0	2505.0	1.51	68.172	2082.5	422.5
12	0.0078	9.9	9	0.3	891.0	1627.4	2518.3	1.55	68.399	2072.8	445.5
13	0.0088	10.4	10	0.3	941.1	1593.2	2534.3	1.59	68.636	2063.7	470.5
14	0.0096	10.9	10	0.3	984.4	1561.6	2546.0	1.63	68.856	2053.8	492.2
15	0.0100	11.3	11	0.4	1025.0	1536.3	2561.2	1.67	69.031	2048.8	512.5
16	0.0106	11.7	11	0.4	1064.2	1508.9	2573.1	1.71	69.221	2041.0	532.1
17	0.0112	12.1	11	0.4	1101.6	1481.4	2583.0	1.74	69.413	2032.2	550.8
18	0.0119	12.4	12	0.4	1132.4	1458.7	2591.1	1.78	69.570	2024.9	566.2
19	0.0128	12.8	12	0.5	1167.5	1436.4	2603.8	1.81	69.725	2020.1	583.7
20	0.0137	13.1	13	0.5	1199.1	1415.0	2614.2	1.85	69.873	2014.6	599.6
21	0.0143	13.4	13	0.5	1229.2	1396.2	2625.4	1.88	70.004	2010.8	614.6

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
22	0.0146	13.7	13	0.5	1259.1	1377.4	2636.5	1.91	70.135	2006.9	629.6
23	0.0158	14.0	13	0.6	1287.2	1359.0	2646.2	1.95	70.262	2002.6	643.6
24	0.0167	14.3	14	0.6	1311.1	1344.3	2655.4	1.98	70.364	1999.9	655.5
25	0.0172	14.6	14	0.6	1340.3	1325.2	2665.5	2.01	70.497	1995.4	670.1
26	0.0180	14.9	14	0.6	1364.0	1311.6	2675.6	2.04	70.591	1993.6	682.0
27	0.0186	15.1	15	0.7	1386.7	1298.9	2685.7	2.07	70.680	1992.3	693.4
28	0.0193	15.3	15	0.7	1408.4	1284.6	2693.0	2.10	70.779	1988.8	704.2
29	0.0202	15.6	15	0.7	1430.2	1270.0	2700.1	2.13	70.881	1985.0	715.1
30	0.0211	15.8	15	0.8	1453.4	1259.1	2712.5	2.15	70.956	1985.8	726.7
31	0.0216	16.0	15	0.8	1471.8	1245.7	2717.5	2.18	71.049	1981.6	735.9
32	0.0220	16.2	16	0.8	1492.9	1234.9	2727.8	2.21	71.124	1981.4	746.5
33	0.0226	16.4	16	0.8	1512.3	1223.1	2735.4	2.24	71.206	1979.2	756.2
34	0.0236	16.6	16	0.9	1531.1	1214.5	2745.7	2.26	71.266	1980.1	765.6
35	0.0244	16.8	16	0.9	1548.4	1203.9	2752.3	2.29	71.340	1978.1	774.2
36	0.0250	17.0	16	0.9	1567.1	1195.0	2762.1	2.31	71.401	1978.5	783.5
37	0.0260	17.2	17	0.9	1584.4	1187.2	2771.7	2.33	71.455	1979.4	792.2
38	0.0265	17.4	17	1.0	1601.6	1177.4	2778.9	2.36	71.524	1978.1	800.8
39	0.0269	17.6	17	1.0	1622.4	1167.8	2790.2	2.39	71.590	1979.0	811.2
40	0.0276	17.8	17	1.0	1641.7	1161.7	2803.4	2.41	71.633	1982.6	820.9
41	0.0307	18.5	18	1.1	1703.0	1131.1	2834.1	2.51	71.845	1982.6	851.5
42	0.0339	19.1	18	1.2	1758.3	1107.8	2866.0	2.59	72.007	1986.9	879.1
43	0.0357	19.7	19	1.3	1812.7	1083.7	2896.4	2.67	72.174	1990.1	906.4
44	0.0387	20.2	20	1.4	1860.1	1067.9	2928.0	2.74	72.284	1997.9	930.1
45	0.0416	20.6	20	1.5	1897.6	1053.6	2951.2	2.80	72.383	2002.4	948.8
46	0.0443	21.1	20	1.6	1938.4	1041.8	2980.2	2.86	72.465	2011.0	969.2
47	0.0476	21.6	21	1.7	1987.0	1026.4	3013.4	2.94	72.572	2019.9	993.5
48	0.0504	22.0	21	1.8	2024.5	1015.2	3039.8	2.99	72.650	2027.5	1012.3
49	0.0528	22.4	22	1.9	2055.3	1008.1	3063.4	3.04	72.699	2035.8	1027.6
50	0.0554	22.8	22	2.0	2092.5	1000.1	3092.6	3.09	72.755	2046.3	1046.2
51	0.0580	23.1	23	2.1	2123.4	994.8	3118.2	3.13	72.792	2056.5	1061.7
52	0.0617	23.5	23	2.2	2154.4	989.5	3143.9	3.18	72.829	2066.7	1077.2
53	0.0643	23.8	23	2.3	2180.6	986.6	3167.2	3.21	72.848	2076.9	1090.3
54	0.0668	24.1	24	2.4	2207.3	984.9	3192.1	3.24	72.861	2088.5	1103.6
55	0.0697	24.4	24	2.5	2233.4	984.1	3217.5	3.27	72.866	2100.8	1116.7
56	0.0724	24.7	24	2.6	2263.8	982.9	3246.8	3.30	72.874	2114.9	1131.9
57	0.0754	25.0	24	2.7	2283.3	984.4	3267.7	3.32	72.864	2126.1	1141.6
58	0.0788	25.3	25	2.8	2308.6	984.8	3293.4	3.34	72.861	2139.1	1154.3
59	0.0814	25.5	25	2.9	2326.7	987.9	3314.6	3.36	72.840	2151.3	1163.4
60	0.0842	25.8	25	3.0	2349.4	989.2	3338.6	3.38	72.831	2163.9	1174.7
61	0.0873	26.1	25	3.1	2373.3	986.9	3360.2	3.40	72.846	2173.6	1186.6
62	0.0896	26.3	26	3.2	2394.0	988.3	3382.2	3.42	72.837	2185.2	1197.0
63	0.0925	26.5	26	3.3	2414.0	989.7	3403.6	3.44	72.827	2196.6	1207.0
64	0.0951	26.7	26	3.4	2430.1	990.9	3421.0	3.45	72.819	2205.9	1215.0
65	0.0983	27.0	26	3.5	2448.9	991.6	3440.5	3.47	72.814	2216.0	1224.5
66	0.1007	27.2	27	3.6	2468.6	994.2	3462.8	3.48	72.796	2228.5	1234.3
67	0.1037	27.4	27	3.7	2481.9	997.9	3479.8	3.49	72.770	2238.9	1240.9
68	0.1062	27.6	27	3.8	2497.4	999.9	3497.2	3.50	72.756	2248.6	1248.7

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
69	0.1091	27.8	27	3.9	2518.1	1002.6	3520.8	3.51	72.737	2261.7	1259.1
70	0.1124	28.0	27	4.1	2528.5	1007.1	3535.6	3.51	72.706	2271.4	1264.3
71	0.1150	28.1	28	4.1	2541.9	1010.0	3551.9	3.52	72.686	2281.0	1271.0
72	0.1175	28.3	28	4.2	2556.4	1012.7	3569.1	3.52	72.667	2290.9	1278.2
73	0.1205	28.5	28	4.3	2573.1	1016.6	3589.7	3.53	72.640	2303.2	1286.6
74	0.1234	28.7	28	4.5	2586.1	1021.1	3607.2	3.53	72.609	2314.1	1293.0
75	0.1258	28.8	28	4.5	2595.7	1024.9	3620.6	3.53	72.583	2322.7	1297.8
76	0.1287	29.0	28	4.6	2607.8	1030.4	3638.1	3.53	72.545	2334.3	1303.9
77	0.1319	29.2	29	4.8	2620.9	1034.9	3655.8	3.53	72.513	2345.3	1310.5
78	0.1340	29.3	29	4.8	2629.7	1040.8	3670.5	3.53	72.472	2355.7	1314.8
79	0.1374	29.5	29	5.0	2646.5	1038.1	3684.7	3.55	72.491	2361.4	1323.3
80	0.1399	29.7	29	5.0	2659.7	1040.3	3700.0	3.56	72.475	2370.2	1329.8
81	0.1470	30.1	30	5.3	2691.1	1049.2	3740.3	3.56	72.414	2394.7	1345.5
82	0.1536	30.4	30	5.5	2710.2	1056.5	3766.7	3.57	72.363	2411.6	1355.1
83	0.1608	30.8	30	5.8	2734.0	1067.6	3801.6	3.56	72.286	2434.6	1367.0
84	0.1673	31.0	30	6.0	2752.5	1078.5	3830.9	3.55	72.211	2454.7	1376.2
85	0.1746	31.3	31	6.3	2768.8	1083.1	3851.9	3.56	72.179	2467.5	1384.4
86	0.1821	31.6	31	6.6	2784.9	1098.2	3883.0	3.54	72.074	2490.6	1392.4
87	0.1881	31.8	31	6.8	2802.2	1094.4	3896.6	3.56	72.100	2495.5	1401.1
88	0.1957	32.1	31	7.1	2813.8	1106.8	3920.6	3.54	72.014	2513.7	1406.9
89	0.2029	32.3	32	7.3	2825.5	1115.5	3940.9	3.53	71.954	2528.2	1412.7
90	0.2096	32.6	32	7.6	2845.2	1119.3	3964.5	3.54	71.927	2541.9	1422.6
91	0.2171	32.8	32	7.8	2856.9	1129.5	3986.3	3.53	71.856	2557.9	1428.4
92	0.2235	32.9	32	8.1	2859.8	1134.4	3994.1	3.52	71.822	2564.3	1429.9
93	0.2309	33.2	33	8.3	2874.4	1141.5	4015.8	3.52	71.773	2578.7	1437.2
94	0.2379	33.4	33	8.6	2882.1	1146.5	4028.6	3.51	71.738	2587.5	1441.0
95	0.2448	33.5	33	8.8	2889.4	1150.9	4040.3	3.51	71.708	2595.6	1444.7
96	0.2523	33.7	33	9.1	2897.8	1160.3	4058.1	3.50	71.643	2609.2	1448.9
97	0.2589	33.9	33	9.3	2906.5	1166.0	4072.5	3.49	71.603	2619.3	1453.3
98	0.2658	34.1	33	9.6	2914.1	1175.3	4089.4	3.48	71.538	2632.4	1457.1
99	0.2728	34.2	34	9.8	2917.9	1174.0	4091.9	3.49	71.547	2633.0	1458.9
100	0.2803	34.4	34	10.1	2923.4	1181.0	4104.5	3.48	71.498	2642.8	1461.7
101	0.2869	34.5	34	10.3	2929.2	1184.1	4113.3	3.47	71.477	2648.7	1464.6
102	0.2942	34.7	34	10.6	2934.4	1192.6	4127.1	3.46	71.418	2659.9	1467.2
103	0.3004	34.9	34	10.8	2940.2	1195.4	4135.7	3.46	71.398	2665.5	1470.1
104	0.3077	35.0	34	11.1	2943.5	1203.4	4146.9	3.45	71.343	2675.1	1471.8
105	0.3149	35.1	34	11.4	2942.3	1210.1	4152.4	3.43	71.297	2681.2	1471.2
106	0.3221	35.3	35	11.6	2954.6	1209.8	4164.4	3.44	71.298	2687.1	1477.3
107	0.3294	35.4	35	11.9	2955.7	1215.5	4171.2	3.43	71.259	2693.3	1477.8
108	0.3362	35.6	35	12.1	2961.8	1217.4	4179.2	3.43	71.246	2698.3	1480.9
109	0.3427	35.9	35	12.4	2974.1	1226.2	4200.3	3.43	71.185	2713.3	1487.1
110	0.3497	36.0	35	12.6	2978.0	1225.9	4203.9	3.43	71.187	2714.9	1489.0
111	0.3567	36.1	36	12.9	2978.4	1237.1	4215.5	3.41	71.109	2726.3	1489.2
112	0.3636	36.3	36	13.1	2983.8	1235.5	4219.3	3.42	71.120	2727.4	1491.9
113	0.3711	36.4	36	13.4	2984.0	1237.6	4221.5	3.41	71.106	2729.5	1492.0
114	0.3780	36.6	36	13.6	2991.2	1239.5	4230.7	3.41	71.092	2735.1	1495.6
115	0.3845	36.8	36	13.9	2996.9	1242.6	4239.6	3.41	71.071	2741.1	1498.5

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
116	0.3914	36.9	36	14.1	2999.1	1245.3	4244.5	3.41	71.052	2744.9	1499.6
117	0.3986	37.0	36	14.4	3001.7	1247.7	4249.4	3.41	71.035	2748.6	1500.8
118	0.4060	37.2	37	14.6	3005.7	1252.0	4257.7	3.40	71.005	2754.9	1502.8
119	0.4125	37.2	37	14.9	3002.5	1252.6	4255.1	3.40	71.001	2753.9	1501.3
120	0.4199	37.3	37	15.1	3000.2	1253.8	4254.0	3.39	70.993	2753.9	1500.1
121	0.4269	37.5	37	15.4	3007.6	1256.0	4263.6	3.39	70.978	2759.8	1503.8
122	0.4334	37.7	37	15.6	3009.9	1259.3	4269.2	3.39	70.955	2764.3	1504.9
123	0.4405	37.8	37	15.9	3013.1	1262.5	4275.6	3.39	70.932	2769.1	1506.5
124	0.4480	38.0	37	16.2	3016.7	1263.7	4280.4	3.39	70.924	2772.1	1508.3
125	0.4549	38.1	37	16.4	3015.0	1270.1	4285.1	3.37	70.880	2777.6	1507.5
126	0.4621	38.2	38	16.7	3018.5	1269.9	4288.5	3.38	70.881	2779.2	1509.3
127	0.4689	38.3	38	16.9	3018.2	1269.6	4287.8	3.38	70.883	2778.7	1509.1
128	0.4760	38.5	38	17.2	3017.8	1272.7	4290.5	3.37	70.862	2781.6	1508.9
129	0.4833	38.6	38	17.4	3018.6	1276.7	4295.3	3.36	70.834	2786.0	1509.3
130	0.4900	38.7	38	17.7	3020.2	1277.9	4298.0	3.36	70.826	2788.0	1510.1
131	0.4972	38.8	38	17.9	3016.0	1283.7	4299.7	3.35	70.785	2791.7	1508.0
132	0.5043	38.9	38	18.2	3016.1	1286.4	4302.4	3.34	70.767	2794.4	1508.0
133	0.5115	39.0	38	18.4	3012.1	1288.0	4300.1	3.34	70.755	2794.1	1506.1
134	0.5184	39.0	38	18.7	3007.3	1289.1	4296.4	3.33	70.748	2792.8	1503.7
135	0.5253	39.2	39	18.9	3010.5	1292.1	4302.6	3.33	70.727	2797.3	1505.2
136	0.5324	39.2	39	19.2	3003.2	1295.3	4298.5	3.32	70.705	2796.9	1501.6
137	0.5390	39.3	39	19.4	2998.7	1298.1	4296.8	3.31	70.685	2797.5	1499.3
138	0.5465	39.3	39	19.7	2989.3	1301.8	4291.1	3.30	70.660	2796.4	1494.7
139	0.5531	39.4	39	19.9	2988.0	1303.3	4291.3	3.29	70.649	2797.3	1494.0
140	0.5602	39.5	39	20.2	2985.3	1303.5	4288.9	3.29	70.648	2796.2	1492.7
141	0.5603	39.4	39	20.2	2983.5	1305.7	4289.2	3.29	70.633	2797.4	1491.8

Parameters for Specimen No. 3

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	195.520			169.420
Moisture content: Dry soil+tare, gms.	157.240			169.620
Moisture content: Tare, gms.	38.240			38.580
Moisture, %	32.2	32.2	28.4	
Moist specimen weight, gms.	134.50			
Diameter, in.	1.398	1.398	1.372	
Area, in. ²	1.535	1.535	1.479	
Height, in.	2.800	2.800	2.749	
Net decrease in height, in.		0.000	0.051	
Wet density, pcf	119.2	119.2	122.5	
Dry density, pcf	90.2	90.2	95.4	
Void ratio	0.8687	0.8687	0.7672	
Saturation, %	100.0	100.0	100.0	

Test Readings for Specimen No. 3

Consolidation cell pressure = 91.700 psi (13204.8 psf)

Consolidation back pressure = 65.000 psi (9360.0 psf)

Consolidation effective confining stress = 3844.8 psf

Strain rate, in./min. = 0.017

Fail. Stress = 4353.3 psf at reading no. 125

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	0.8	0	0.0	0.0	3839.8	3839.8	1.00	65.035	3839.8	0.0
1	0.0008	1.3	1	0.0	51.2	3838.1	3889.3	1.01	65.046	3863.7	25.6
2	0.0014	1.5	1	0.1	71.1	3836.7	3907.8	1.02	65.056	3872.3	35.5
3	0.0020	1.4	1	0.1	67.3	3837.6	3905.0	1.02	65.050	3871.3	33.7
4	0.0027	1.5	1	0.1	68.3	3836.0	3904.3	1.02	65.061	3870.2	34.1
5	0.0034	1.5	1	0.1	68.2	3835.5	3903.7	1.02	65.064	3869.6	34.1
6	0.0040	1.4	1	0.1	65.6	3838.2	3903.7	1.02	65.046	3870.9	32.8
7	0.0051	1.4	1	0.2	65.4	3833.9	3899.3	1.02	65.075	3866.6	32.7
8	0.0058	1.4	1	0.2	64.4	3834.4	3898.7	1.02	65.073	3866.5	32.2
9	0.0058	1.4	1	0.2	61.7	3835.2	3896.9	1.02	65.067	3866.1	30.8
10	0.0093	2.0	1	0.3	121.8	3825.9	3947.7	1.03	65.131	3886.8	60.9
11	0.0103	2.9	2	0.4	207.9	3798.4	4006.3	1.05	65.322	3902.3	103.9
12	0.0106	3.8	3	0.4	298.9	3761.8	4060.7	1.08	65.577	3911.2	149.5
13	0.0112	4.8	4	0.4	387.7	3717.4	4105.1	1.10	65.885	3911.2	193.9
14	0.0116	5.8	5	0.4	487.1	3666.5	4153.6	1.13	66.238	3910.0	243.5
15	0.0123	6.8	6	0.4	589.1	3610.0	4199.1	1.16	66.631	3904.5	294.6
16	0.0132	7.9	7	0.5	689.6	3551.2	4240.8	1.19	67.039	3896.0	344.8
17	0.0139	9.0	8	0.5	796.7	3488.9	4285.6	1.23	67.471	3887.2	398.3
18	0.0145	10.1	9	0.5	906.3	3421.9	4328.3	1.26	67.937	3875.1	453.2
19	0.0152	11.2	10	0.6	1014.6	3355.1	4369.7	1.30	68.401	3862.4	507.3
20	0.0158	12.3	12	0.6	1117.2	3288.9	4406.2	1.34	68.860	3847.6	558.6
21	0.0165	13.4	13	0.6	1227.5	3220.6	4448.1	1.38	69.335	3834.3	613.7
22	0.0168	14.5	14	0.6	1331.7	3154.7	4486.3	1.42	69.793	3820.5	665.8
23	0.0173	15.5	15	0.6	1429.6	3090.2	4519.8	1.46	70.240	3805.0	714.8
24	0.0183	16.5	16	0.7	1527.0	3026.9	4553.9	1.50	70.680	3790.4	763.5
25	0.0190	17.4	17	0.7	1610.6	2967.2	4577.8	1.54	71.094	3772.5	805.3
26	0.0197	18.2	17	0.7	1686.1	2910.1	4596.1	1.58	71.491	3753.1	843.0

Test Readings for Specimen No. 3

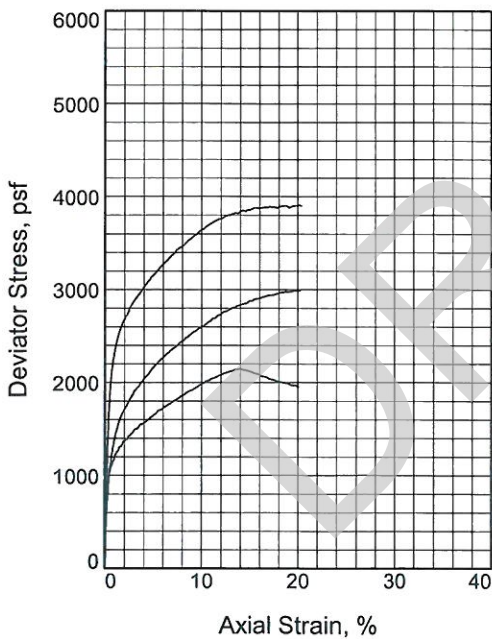
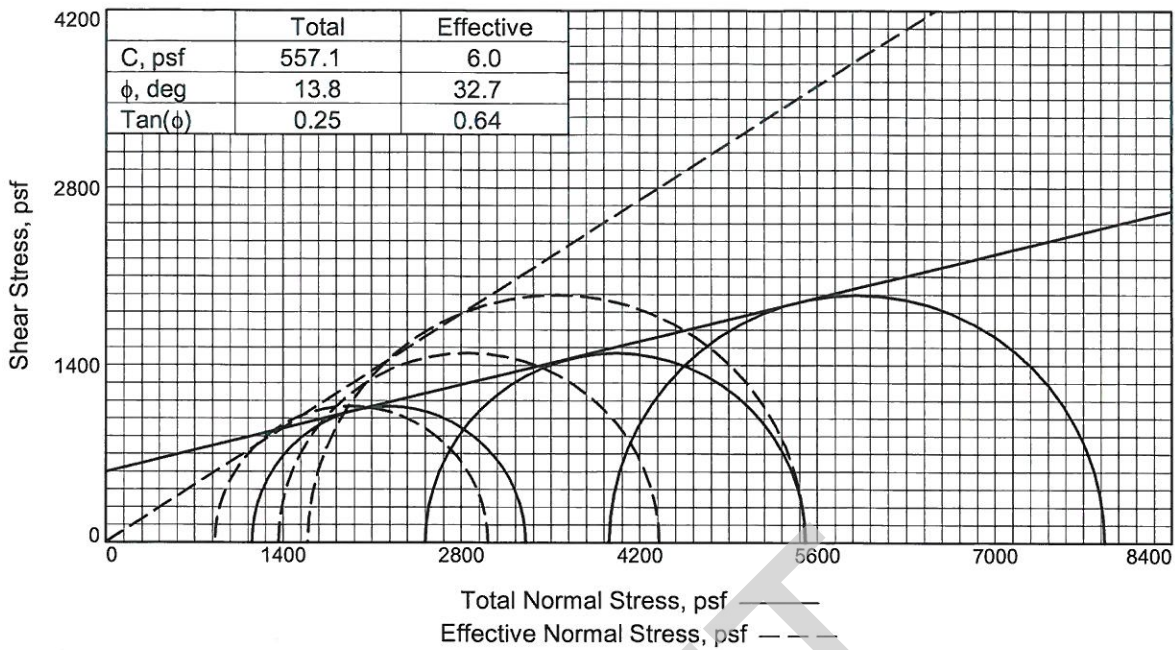
No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
27	0.0206	19.0	18	0.8	1759.3	2855.0	4614.3	1.62	71.874	3734.6	879.7
28	0.0211	19.6	19	0.8	1824.3	2803.3	4627.7	1.65	72.233	3715.5	912.2
29	0.0214	20.3	19	0.8	1884.0	2753.5	4637.5	1.68	72.578	3695.5	942.0
30	0.0224	20.9	20	0.8	1942.5	2707.1	4649.6	1.72	72.901	3678.4	971.3
31	0.0232	21.4	21	0.8	1995.6	2662.6	4658.2	1.75	73.210	3660.4	997.8
32	0.0240	21.9	21	0.9	2043.7	2619.7	4663.3	1.78	73.508	3641.5	1021.8
33	0.0245	22.4	22	0.9	2089.0	2570.9	4659.9	1.81	73.847	3615.4	1044.5
34	0.0253	22.9	22	0.9	2132.8	2530.2	4663.0	1.84	74.129	3596.6	1066.4
35	0.0257	23.3	23	0.9	2173.2	2490.7	4663.9	1.87	74.403	3577.3	1086.6
36	0.0264	23.7	23	1.0	2215.6	2455.0	4670.6	1.90	74.651	3562.8	1107.8
37	0.0270	24.1	23	1.0	2248.0	2421.8	4669.8	1.93	74.882	3545.8	1124.0
38	0.0279	24.4	24	1.0	2283.0	2389.0	4672.0	1.96	75.110	3530.5	1141.5
39	0.0286	24.8	24	1.0	2315.3	2359.3	4674.6	1.98	75.316	3517.0	1157.7
40	0.0290	25.1	24	1.1	2344.0	2331.5	4675.5	2.01	75.509	3503.5	1172.0
41	0.0294	25.4	25	1.1	2373.8	2301.9	4675.7	2.03	75.714	3488.8	1186.9
42	0.0305	25.7	25	1.1	2404.9	2276.5	4681.4	2.06	75.891	3479.0	1202.5
43	0.0334	26.8	26	1.2	2503.0	2183.6	4686.6	2.15	76.536	3435.1	1251.5
44	0.0361	27.8	27	1.3	2594.2	2103.5	4697.7	2.23	77.092	3400.6	1297.1
45	0.0392	28.5	28	1.4	2663.6	2037.2	4700.8	2.31	77.553	3369.0	1331.8
46	0.0413	29.2	28	1.5	2731.7	1975.6	4707.4	2.38	77.980	3341.5	1365.9
47	0.0445	30.0	29	1.6	2803.7	1923.8	4727.5	2.46	78.341	3325.6	1401.9
48	0.0481	30.6	30	1.8	2853.6	1880.6	4734.2	2.52	78.640	3307.4	1426.8
49	0.0506	31.1	30	1.8	2901.8	1843.7	4745.5	2.57	78.896	3294.6	1450.9
50	0.0528	31.6	31	1.9	2949.4	1807.3	4756.7	2.63	79.149	3282.0	1474.7
51	0.0558	32.1	31	2.0	2993.7	1779.0	4772.7	2.68	79.346	3275.9	1496.8
52	0.0587	32.6	32	2.1	3031.5	1753.5	4785.0	2.73	79.523	3269.2	1515.8
53	0.0619	33.1	32	2.3	3074.2	1721.6	4795.8	2.79	79.744	3258.7	1537.1
54	0.0645	33.5	33	2.3	3109.9	1698.8	4808.6	2.83	79.903	3253.7	1554.9
55	0.0673	33.9	33	2.4	3146.0	1676.4	4822.4	2.88	80.059	3249.4	1573.0
56	0.0700	34.2	33	2.5	3177.9	1659.4	4837.3	2.92	80.177	3248.3	1589.0
57	0.0726	34.6	34	2.6	3211.3	1643.5	4854.7	2.95	80.287	3249.1	1605.6
58	0.0758	35.0	34	2.8	3242.1	1630.0	4872.1	2.99	80.381	3251.0	1621.1
59	0.0789	35.3	35	2.9	3265.0	1616.8	4881.9	3.02	80.472	3249.4	1632.5
60	0.0807	35.6	35	2.9	3297.1	1604.7	4901.8	3.05	80.556	3253.3	1648.5
61	0.0835	35.9	35	3.0	3321.7	1595.9	4917.5	3.08	80.618	3256.7	1660.8
62	0.0866	36.3	36	3.2	3350.3	1587.5	4937.8	3.11	80.676	3262.6	1675.2
63	0.0895	36.6	36	3.3	3374.7	1580.5	4955.2	3.14	80.724	3267.9	1687.3
64	0.0926	36.9	36	3.4	3396.5	1571.8	4968.3	3.16	80.785	3270.0	1698.3
65	0.0951	37.2	36	3.5	3423.6	1566.5	4990.1	3.19	80.821	3278.3	1711.8
66	0.0978	37.5	37	3.6	3446.5	1566.4	5012.9	3.20	80.822	3289.6	1723.2
67	0.1004	37.7	37	3.7	3468.2	1548.8	5017.0	3.24	80.945	3282.9	1734.1
68	0.1031	38.0	37	3.7	3494.4	1544.8	5039.2	3.26	80.972	3292.0	1747.2
69	0.1064	38.2	37	3.9	3507.2	1540.8	5048.0	3.28	81.000	3294.4	1753.6
70	0.1090	38.6	38	4.0	3535.0	1535.1	5070.1	3.30	81.039	3302.6	1767.5
71	0.1116	38.8	38	4.1	3556.4	1533.2	5089.6	3.32	81.053	3311.4	1778.2
72	0.1147	39.1	38	4.2	3573.8	1532.2	5106.0	3.33	81.059	3319.1	1786.9
73	0.1174	39.3	39	4.3	3594.0	1530.6	5124.6	3.35	81.071	3327.6	1797.0

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
74	0.1203	39.6	39	4.4	3612.8	1527.3	5140.1	3.37	81.094	3333.7	1806.4
75	0.1233	39.8	39	4.5	3632.5	1525.0	5157.5	3.38	81.110	3341.3	1816.3
76	0.1263	40.0	39	4.6	3650.4	1527.5	5177.9	3.39	81.093	3352.7	1825.2
77	0.1294	40.3	40	4.7	3667.4	1527.5	5194.9	3.40	81.093	3361.2	1833.7
78	0.1325	40.5	40	4.8	3680.7	1530.2	5210.8	3.41	81.074	3370.5	1840.3
79	0.1347	40.7	40	4.9	3700.8	1524.3	5225.1	3.43	81.114	3374.7	1850.4
80	0.1375	40.9	40	5.0	3715.8	1521.5	5237.3	3.44	81.134	3379.4	1857.9
81	0.1403	41.2	40	5.1	3733.2	1522.4	5255.6	3.45	81.128	3389.0	1866.6
82	0.1434	41.4	41	5.2	3750.5	1522.3	5272.8	3.46	81.128	3397.5	1875.2
83	0.1502	41.9	41	5.5	3788.2	1525.2	5313.4	3.48	81.108	3419.3	1894.1
84	0.1576	42.4	42	5.7	3822.4	1531.1	5353.5	3.50	81.067	3442.3	1911.2
85	0.1639	42.9	42	6.0	3856.8	1536.6	5393.4	3.51	81.029	3465.0	1928.4
86	0.1708	43.3	43	6.2	3889.9	1540.1	5430.0	3.53	81.005	3485.1	1945.0
87	0.1784	43.8	43	6.5	3920.9	1543.3	5464.1	3.54	80.983	3503.7	1960.4
88	0.1853	44.3	44	6.7	3952.4	1548.6	5501.0	3.55	80.946	3524.8	1976.2
89	0.1922	44.7	44	7.0	3977.8	1558.2	5535.9	3.55	80.879	3547.1	1988.9
90	0.1991	45.0	44	7.2	3997.9	1567.6	5565.5	3.55	80.814	3566.5	1998.9
91	0.2061	45.4	45	7.5	4025.5	1568.5	5594.0	3.57	80.808	3581.2	2012.8
92	0.2122	45.8	45	7.7	4050.6	1575.3	5625.9	3.57	80.760	3600.6	2025.3
93	0.2201	46.2	45	8.0	4068.7	1585.7	5654.5	3.57	80.688	3620.1	2034.4
94	0.2271	46.6	46	8.3	4091.5	1594.2	5685.7	3.57	80.629	3640.0	2045.7
95	0.2338	46.9	46	8.5	4110.1	1605.4	5715.4	3.56	80.552	3660.4	2055.0
96	0.2409	47.2	46	8.8	4126.3	1609.2	5735.5	3.56	80.525	3672.3	2063.1
97	0.2482	47.6	47	9.0	4151.3	1618.2	5769.5	3.57	80.462	3693.9	2075.6
98	0.2547	47.9	47	9.3	4168.3	1626.7	5795.0	3.56	80.403	3710.9	2084.1
99	0.2622	48.2	47	9.5	4181.9	1635.8	5817.7	3.56	80.340	3726.7	2091.0
100	0.2688	48.5	48	9.8	4198.4	1646.8	5845.2	3.55	80.264	3746.0	2099.2
101	0.2761	48.8	48	10.0	4205.4	1660.1	5865.6	3.53	80.171	3762.9	2102.7
102	0.2828	49.1	48	10.3	4222.7	1659.7	5882.4	3.54	80.174	3771.0	2111.4
103	0.2901	49.3	49	10.6	4230.5	1668.0	5898.5	3.54	80.117	3783.2	2115.2
104	0.2977	49.6	49	10.8	4237.4	1678.1	5915.5	3.53	80.047	3796.8	2118.7
105	0.3043	49.9	49	11.1	4252.0	1687.6	5939.6	3.52	79.980	3813.6	2126.0
106	0.3111	50.1	49	11.3	4265.0	1699.5	5964.5	3.51	79.898	3832.0	2132.5
107	0.3183	50.4	50	11.6	4275.0	1702.0	5977.0	3.51	79.881	3839.5	2137.5
108	0.3258	50.6	50	11.9	4282.7	1710.6	5993.3	3.50	79.821	3851.9	2141.3
109	0.3326	50.8	50	12.1	4286.6	1719.6	6006.2	3.49	79.758	3862.9	2143.3
110	0.3396	51.1	50	12.4	4299.7	1729.0	6028.6	3.49	79.693	3878.8	2149.8
111	0.3459	51.4	51	12.6	4307.7	1736.0	6043.7	3.48	79.644	3889.8	2153.8
112	0.3532	51.6	51	12.9	4317.1	1749.2	6066.4	3.47	79.553	3907.8	2158.6
113	0.3603	51.8	51	13.1	4319.7	1747.9	6067.6	3.47	79.562	3907.7	2159.8
114	0.3675	52.0	51	13.4	4324.1	1757.5	6081.6	3.46	79.495	3919.5	2162.1
115	0.3744	52.2	51	13.6	4329.7	1764.2	6093.9	3.45	79.449	3929.1	2164.9
116	0.3817	52.4	52	13.9	4332.2	1772.9	6105.1	3.44	79.388	3939.0	2166.1
117	0.3882	52.6	52	14.1	4337.8	1782.5	6120.3	3.43	79.322	3951.4	2168.9
118	0.3951	52.8	52	14.4	4340.0	1782.1	6122.1	3.44	79.324	3952.1	2170.0
119	0.4015	53.0	52	14.6	4342.2	1788.9	6131.1	3.43	79.277	3960.0	2171.1
120	0.4088	53.1	52	14.9	4342.7	1795.1	6137.8	3.42	79.234	3966.5	2171.3

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
121	0.4166	53.3	53	15.2	4342.2	1800.7	6142.9	3.41	79.195	3971.8	2171.1
122	0.4233	53.5	53	15.4	4346.5	1808.0	6154.5	3.40	79.145	3981.2	2173.3
123	0.4299	53.7	53	15.6	4346.4	1815.1	6161.5	3.39	79.095	3988.3	2173.2
124	0.4369	53.8	53	15.9	4346.5	1813.1	6159.6	3.40	79.109	3986.4	2173.2
125	0.4438	54.1	53	16.1	4353.3	1820.3	6173.6	3.39	79.059	3996.9	2176.7
126	0.4511	54.2	53	16.4	4352.0	1825.3	6177.3	3.38	79.024	4001.3	2176.0
127	0.4577	54.3	54	16.7	4347.2	1832.7	6179.9	3.37	78.973	4006.3	2173.6
128	0.4654	54.5	54	16.9	4346.2	1836.4	6182.6	3.37	78.947	4009.5	2173.1
129	0.4723	54.6	54	17.2	4345.6	1843.5	6189.1	3.36	78.898	4016.3	2172.8
130	0.4787	54.7	54	17.4	4337.1	1840.6	6177.6	3.36	78.918	4009.1	2168.5
131	0.4858	54.9	54	17.7	4343.8	1845.1	6188.9	3.35	78.886	4017.0	2171.9
132	0.4931	55.1	54	17.9	4346.4	1847.8	6194.2	3.35	78.868	4021.0	2173.2
133	0.5003	55.2	54	18.2	4339.4	1853.9	6193.3	3.34	78.826	4023.6	2169.7
134	0.5072	55.4	55	18.5	4339.9	1858.4	6198.3	3.34	78.794	4028.3	2169.9
135	0.5143	55.7	55	18.7	4349.9	1865.7	6215.5	3.33	78.744	4040.6	2174.9
136	0.5214	55.7	55	19.0	4334.0	1861.5	6195.6	3.33	78.773	4028.5	2167.0
137	0.5285	55.9	55	19.2	4334.9	1867.2	6202.0	3.32	78.733	4034.6	2167.4
138	0.5354	56.0	55	19.5	4333.2	1871.0	6204.2	3.32	78.707	4037.6	2166.6
139	0.5421	56.1	55	19.7	4330.2	1875.5	6205.8	3.31	78.676	4040.6	2165.1
140	0.5496	56.3	56	20.0	4327.6	1878.4	6206.0	3.30	78.656	4042.2	2163.8
141	0.5569	56.5	56	20.3	4328.3	1877.7	6206.0	3.31	78.660	4041.9	2164.1
142	0.5602	56.5	56	20.4	4321.7	1880.0	6201.7	3.30	78.644	4040.8	2160.8



Sample No.	1	2	3	
Initial	Water Content, %	32.0	33.2	32.8
	Dry Density, pcf	89.5	88.6	89.3
	Saturation, %	93.9	95.6	96.1
	Void Ratio	0.9530	0.9723	0.9571
	Diameter, in.	1.394	1.402	1.389
	Height, in.	2.800	2.800	2.800
At Test	Water Content, %	32.9	31.7	29.8
	Dry Density, pcf	91.0	92.6	95.3
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.9201	0.8882	0.8334
	Diameter, in.	1.386	1.382	1.359
	Height, in.	2.784	2.760	2.740
Strain rate, in./min.	0.017	0.017	0.017	
Eff. Cell Pressure, psi	8.000	17.500	27.500	
Fail. Stress, psf	2149.5	2989.4	3909.8	
Excess Pore Pr., psf	291.6	1157.0	2366.3	
Strain, %	14.0	20.2	20.1	
Ult. Stress, psf				
Excess Pore Pr., psf				
Strain, %				
$\bar{\sigma}_1$ Failure, psf	3009.9	4352.4	5503.6	
$\bar{\sigma}_3$ Failure, psf	860.4	1363.0	1593.7	

Type of Test:
CU with Pore Pressures

Sample Type: Undisturbed

Description: Gray Fat CLAY with sandy silt pockets (CH)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:
Bulge

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: B-2A **Depth:** 9-10

Proj. No.: B13-018 **Date Sampled:**

TRIAxIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.

TRIAxIAL COMPRESSION TEST
CU with Pore Pressures

12/30/2013
9:11 AM

Date:
Client: GeoEngineers
Project: Mid Baratara Diversion
Project No.: B13-018
Location: B-2A
Depth: 9-10
Description: Gray Fat CLAY with sandy silt pockets (CH)
Remarks: Type Failure:
Bulge
Type of Sample: Undisturbed
Assumed Specific Gravity=2.80 **LL=** **PL=** **PI=**
Test Method: COE uniform strain

Parameters for Specimen No. 1

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	168.070			168.890
Moisture content: Dry soil+tare, gms.	136.600			138.690
Moisture content: Tare, gms.	38.120			38.470
Moisture, %	32.0	34.0	32.9	30.1
Moist specimen weight, gms.	132.48			
Diameter, in.	1.394	1.394	1.386	
Area, in. ²	1.526	1.526	1.509	
Height, in.	2.800	2.800	2.784	
Net decrease in height, in.		0.000	0.016	
Wet density, pcf	118.1	120.0	121.0	
Dry density, pcf	89.5	89.5	91.0	
Void ratio	0.9530	0.9530	0.9201	
Saturation, %	93.9	100.0	100.0	

Test Readings for Specimen No. 1

Consolidation cell pressure = 83.000 psi (11952.0 psf)
Consolidation back pressure = 75.000 psi (10800.0 psf)
Consolidation effective confining stress = 1152.0 psf
Strain rate, in./min. = 0.017
Fail. Stress = 2149.5 psf at reading no. 116

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	1.1	0	0.0	0.0	1002.0	1002.0	1.00	76.042	1002.0	0.0
1	0.0008	2.6	1	0.0	140.7	979.4	1120.1	1.14	76.199	1049.7	70.3
2	0.0014	4.0	3	0.1	283.1	962.8	1245.9	1.29	76.314	1104.3	141.5
3	0.0022	5.3	4	0.1	401.7	950.7	1352.4	1.42	76.398	1151.5	200.9
4	0.0028	6.2	5	0.1	484.4	958.5	1442.9	1.51	76.344	1200.7	242.2
5	0.0036	7.2	6	0.1	584.5	631.9	1216.5	1.93	78.612	924.2	292.3
6	0.0039	8.0	7	0.1	655.0	616.3	1271.4	2.06	78.720	943.8	327.5
7	0.0042	8.6	7	0.2	714.3	635.8	1350.0	2.12	78.585	992.9	357.1
8	0.0054	9.1	8	0.2	760.4	699.4	1459.8	2.09	78.143	1079.6	380.2
9	0.0061	9.5	8	0.2	800.1	746.2	1546.2	2.07	77.818	1146.2	400.0
10	0.0068	9.8	9	0.2	833.5	749.0	1582.4	2.11	77.799	1165.7	416.7
11	0.0075	10.2	9	0.3	867.7	739.3	1607.0	2.17	77.866	1173.1	433.9
12	0.0079	10.5	9	0.3	892.8	729.6	1622.4	2.22	77.933	1176.0	446.4
13	0.0082	10.7	10	0.3	914.8	725.2	1640.0	2.26	77.964	1182.6	457.4
14	0.0090	10.9	10	0.3	933.2	716.8	1650.0	2.30	78.022	1183.4	466.6
15	0.0098	11.1	10	0.4	950.2	710.6	1660.9	2.34	78.065	1185.7	475.1
16	0.0107	11.3	10	0.4	967.2	707.7	1674.9	2.37	78.085	1191.3	483.6
17	0.0114	11.4	10	0.4	979.0	706.6	1685.5	2.39	78.093	1196.1	489.5
18	0.0120	11.5	10	0.4	993.4	705.8	1699.2	2.41	78.099	1202.5	496.7
19	0.0125	11.6	11	0.4	1001.4	709.5	1710.9	2.41	78.073	1210.2	500.7
20	0.0132	11.8	11	0.5	1015.9	714.1	1730.0	2.42	78.041	1222.0	507.9
21	0.0141	11.9	11	0.5	1029.0	730.9	1760.0	2.41	77.924	1245.5	514.5
22	0.0151	12.2	11	0.5	1054.1	440.6	1494.7	3.39	79.940	967.6	527.0
23	0.0159	12.3	11	0.6	1068.2	430.2	1498.4	3.48	80.013	964.3	534.1
24	0.0163	12.5	11	0.6	1080.0	428.0	1508.0	3.52	80.028	968.0	540.0
25	0.0168	12.5	11	0.6	1085.0	497.0	1582.1	3.18	79.548	1039.5	542.5
26	0.0178	12.6	11	0.6	1088.9	564.6	1653.5	2.93	79.079	1109.1	544.4
27	0.0184	12.6	12	0.7	1095.7	597.6	1693.2	2.83	78.850	1145.4	547.8
28	0.0190	12.7	12	0.7	1101.7	607.1	1708.8	2.81	78.784	1158.0	550.9
29	0.0198	12.8	12	0.7	1111.5	606.0	1717.5	2.83	78.792	1161.7	555.7
30	0.0211	12.9	12	0.8	1119.0	607.7	1726.6	2.84	78.780	1167.1	559.5
31	0.0217	13.0	12	0.8	1127.0	609.9	1736.9	2.85	78.765	1173.4	563.5
32	0.0220	13.1	12	0.8	1135.5	610.2	1745.7	2.86	78.763	1177.9	567.7
33	0.0227	13.2	12	0.8	1142.6	610.8	1753.4	2.87	78.759	1182.1	571.3
34	0.0233	13.2	12	0.8	1150.5	610.9	1761.4	2.88	78.758	1186.2	575.2
35	0.0241	13.3	12	0.9	1159.3	614.8	1774.1	2.89	78.730	1194.5	579.7
36	0.0249	13.4	12	0.9	1165.6	618.7	1784.4	2.88	78.703	1201.5	582.8
37	0.0259	13.5	12	0.9	1171.0	623.7	1794.6	2.88	78.669	1209.2	585.5
38	0.0264	13.6	12	0.9	1178.9	634.2	1813.1	2.86	78.596	1223.6	589.4
39	0.0272	13.6	13	1.0	1181.7	653.3	1835.0	2.81	78.463	1244.2	590.9
40	0.0274	13.9	13	1.0	1207.1	356.3	1563.4	4.39	80.526	959.8	603.5
41	0.0305	14.1	13	1.1	1227.8	505.3	1733.1	3.43	79.491	1119.2	613.9
42	0.0338	14.3	13	1.2	1245.1	549.6	1794.8	3.27	79.183	1172.2	622.6
43	0.0359	14.5	13	1.3	1262.8	555.7	1818.5	3.27	79.141	1187.1	631.4
44	0.0385	14.6	14	1.4	1272.0	580.4	1852.4	3.19	78.969	1216.4	636.0
45	0.0418	15.0	14	1.5	1306.2	312.6	1618.8	5.18	80.829	965.7	653.1
46	0.0442	15.0	14	1.6	1306.0	506.8	1812.8	3.58	79.481	1159.8	653.0

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
47	0.0471	15.1	14	1.7	1319.2	527.3	1846.5	3.50	79.339	1186.9	659.6
48	0.0504	15.3	14	1.8	1333.8	543.5	1877.4	3.45	79.225	1210.5	666.9
49	0.0531	15.7	15	1.9	1367.8	289.2	1657.0	5.73	80.992	973.1	683.9
50	0.0552	15.7	15	2.0	1367.3	476.9	1844.2	3.87	79.688	1160.6	683.6
51	0.0588	15.9	15	2.1	1382.6	484.2	1866.8	3.86	79.638	1175.5	691.3
52	0.0614	16.0	15	2.2	1390.7	495.3	1885.9	3.81	79.561	1190.6	695.3
53	0.0641	15.9	15	2.3	1386.2	237.1	1623.3	6.85	81.353	930.2	693.1
54	0.0668	16.3	15	2.4	1418.7	492.0	1910.7	3.88	79.583	1201.3	709.3
55	0.0696	16.4	15	2.5	1428.2	539.4	1967.6	3.65	79.254	1253.5	714.1
56	0.0724	16.4	15	2.6	1425.5	653.4	2078.9	3.18	78.463	1366.1	712.7
57	0.0745	16.7	16	2.7	1449.4	466.8	1916.2	4.11	79.758	1191.5	724.7
58	0.0779	16.7	16	2.8	1450.4	482.7	1933.0	4.01	79.648	1207.8	725.2
59	0.0804	16.9	16	2.9	1468.7	491.0	1959.6	3.99	79.591	1225.3	734.3
60	0.0833	17.1	16	3.0	1481.5	507.8	1989.2	3.92	79.474	1248.5	740.7
61	0.0859	17.3	16	3.1	1496.4	520.3	2016.7	3.88	79.387	1268.5	748.2
62	0.0888	17.3	16	3.2	1502.1	545.1	2047.3	3.76	79.214	1296.2	751.1
63	0.0915	17.4	16	3.3	1501.8	646.5	2148.3	3.32	78.510	1397.4	750.9
64	0.0945	17.5	16	3.4	1517.5	517.7	2035.2	3.93	79.405	1276.4	758.7
65	0.0969	17.7	17	3.5	1529.9	574.9	2104.8	3.66	79.008	1339.9	765.0
66	0.0999	17.9	17	3.6	1549.4	482.7	2032.1	4.21	79.648	1257.4	774.7
67	0.1026	18.0	17	3.7	1551.7	489.0	2040.7	4.17	79.604	1264.8	775.9
68	0.1048	18.0	17	3.8	1549.2	495.0	2044.2	4.13	79.563	1269.6	774.6
69	0.1079	18.1	17	3.9	1558.8	499.7	2058.6	4.12	79.530	1279.2	779.4
70	0.1117	18.2	17	4.0	1566.9	502.9	2069.8	4.12	79.507	1286.4	783.4
71	0.1141	18.3	17	4.1	1571.7	504.1	2075.8	4.12	79.499	1290.0	785.8
72	0.1170	18.3	17	4.2	1578.5	508.2	2086.8	4.11	79.470	1297.5	789.3
73	0.1198	18.5	17	4.3	1590.2	511.6	2101.8	4.11	79.447	1306.7	795.1
74	0.1221	18.6	17	4.4	1596.5	517.0	2113.5	4.09	79.410	1315.2	798.2
75	0.1252	18.7	18	4.5	1603.9	523.7	2127.6	4.06	79.363	1325.7	801.9
76	0.1279	18.8	18	4.6	1612.9	532.4	2145.3	4.03	79.303	1338.9	806.4
77	0.1311	18.9	18	4.7	1623.0	536.7	2159.7	4.02	79.273	1348.2	811.5
78	0.1334	19.0	18	4.8	1629.4	542.8	2172.2	4.00	79.231	1357.5	814.7
79	0.1366	19.1	18	4.9	1637.1	549.3	2186.4	3.98	79.186	1367.8	818.6
80	0.1389	19.2	18	5.0	1646.6	554.9	2201.5	3.97	79.146	1378.2	823.3
81	0.1463	19.4	18	5.3	1660.6	580.4	2241.0	3.86	78.969	1410.7	830.3
82	0.1531	19.9	19	5.5	1695.8	345.2	2041.0	5.91	80.603	1193.1	847.9
83	0.1607	20.0	19	5.8	1704.2	529.8	2234.0	4.22	79.321	1381.9	852.1
84	0.1670	20.3	19	6.0	1722.0	543.3	2265.3	4.17	79.227	1404.3	861.0
85	0.1741	20.5	19	6.3	1741.0	550.5	2291.4	4.16	79.177	1421.0	870.5
86	0.1811	20.8	20	6.5	1757.1	567.5	2324.6	4.10	79.059	1446.1	878.5
87	0.1883	21.0	20	6.8	1776.2	579.3	2355.4	4.07	78.977	1467.4	888.1
88	0.1948	21.3	20	7.0	1792.0	588.2	2380.2	4.05	78.915	1484.2	896.0
89	0.2023	21.5	20	7.3	1810.4	607.9	2418.3	3.98	78.779	1513.1	905.2
90	0.2091	21.8	21	7.5	1825.3	636.0	2461.4	3.87	78.583	1548.7	912.7
91	0.2165	22.1	21	7.8	1845.9	570.4	2416.3	4.24	79.039	1493.4	923.0
92	0.2235	22.3	21	8.0	1859.3	580.3	2439.6	4.20	78.970	1510.0	929.7
93	0.2299	22.5	21	8.3	1876.1	596.7	2472.7	4.14	78.857	1534.7	938.0

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
94	0.2370	22.8	22	8.5	1893.4	606.9	2500.3	4.12	78.785	1553.6	946.7
95	0.2441	23.0	22	8.8	1905.4	616.5	2521.9	4.09	78.719	1569.2	952.7
96	0.2516	23.2	22	9.0	1918.1	632.7	2550.8	4.03	78.606	1591.8	959.0
97	0.2583	23.4	22	9.3	1934.6	646.5	2581.1	3.99	78.510	1613.8	967.3
98	0.2650	23.6	23	9.5	1948.6	664.1	2612.7	3.93	78.388	1638.4	974.3
99	0.2721	23.9	23	9.8	1968.3	615.0	2583.3	4.20	78.729	1599.2	984.1
100	0.2787	24.1	23	10.0	1980.2	622.6	2602.8	4.18	78.676	1612.7	990.1
101	0.2860	24.4	23	10.3	1997.9	639.8	2637.7	4.12	78.557	1638.8	998.9
102	0.2924	24.7	24	10.5	2015.9	648.6	2664.5	4.11	78.496	1656.5	1007.9
103	0.2996	24.8	24	10.8	2021.9	662.9	2684.8	4.05	78.397	1673.8	1011.0
104	0.3069	25.1	24	11.0	2040.0	677.2	2717.2	4.01	78.297	1697.2	1020.0
105	0.3139	25.2	24	11.3	2044.5	685.6	2730.0	3.98	78.239	1707.8	1022.2
106	0.3209	25.5	24	11.5	2057.7	706.6	2764.3	3.91	78.093	1735.5	1028.8
107	0.3274	25.7	25	11.8	2072.3	644.6	2716.8	4.22	78.524	1680.7	1036.1
108	0.3347	25.9	25	12.0	2082.3	670.4	2752.7	4.11	78.345	1711.5	1041.2
109	0.3415	26.1	25	12.3	2095.2	679.3	2774.5	4.08	78.283	1726.9	1047.6
110	0.3488	26.3	25	12.5	2102.3	691.9	2794.2	4.04	78.195	1743.0	1051.1
111	0.3562	26.5	25	12.8	2112.9	708.2	2821.2	3.98	78.082	1764.7	1056.5
112	0.3630	26.6	26	13.0	2119.7	716.7	2836.4	3.96	78.023	1776.6	1059.8
113	0.3697	26.8	26	13.3	2130.5	732.5	2863.0	3.91	77.913	1797.7	1065.2
114	0.3762	27.0	26	13.5	2137.1	743.9	2881.0	3.87	77.834	1812.5	1068.6
115	0.3833	27.1	26	13.8	2142.1	774.0	2916.1	3.77	77.625	1845.1	1071.1
116	0.3904	27.3	26	14.0	2149.5	860.4	3009.9	3.50	77.025	1935.1	1074.8
117	0.3971	27.2	26	14.3	2137.8	1063.3	3201.1	3.01	75.616	2132.2	1068.9
118	0.4044	27.2	26	14.5	2129.1	1285.4	3414.5	2.66	74.073	2350.0	1064.5
119	0.4109	27.2	26	14.8	2126.5	1495.7	3622.1	2.42	72.614	2558.9	1063.2
120	0.4182	27.2	26	15.0	2117.8	1715.6	3833.4	2.23	71.086	2774.5	1058.9
121	0.4255	27.2	26	15.3	2111.2	1923.0	4034.2	2.10	69.645	2978.6	1055.6
122	0.4321	27.1	26	15.5	2096.3	2134.2	4230.5	1.98	68.179	3182.3	1048.1
123	0.4394	27.1	26	15.8	2091.1	2354.6	4445.7	1.89	66.649	3400.1	1045.5
124	0.4466	27.1	26	16.0	2083.9	2567.7	4651.6	1.81	65.169	3609.7	1042.0
125	0.4533	26.9	26	16.3	2066.0	2783.5	4849.5	1.74	63.670	3816.5	1033.0
126	0.4607	27.0	26	16.5	2060.5	2990.5	5051.0	1.69	62.232	4020.8	1030.3
127	0.4671	27.0	26	16.8	2054.7	3190.1	5244.8	1.64	60.846	4217.5	1027.3
128	0.4738	26.9	26	17.0	2041.7	3388.5	5430.2	1.60	59.469	4409.3	1020.9
129	0.4818	26.8	26	17.3	2029.2	3577.5	5606.8	1.57	58.156	4592.1	1014.6
130	0.4880	26.8	26	17.5	2026.3	3758.7	5785.0	1.54	56.898	4771.9	1013.1
131	0.4955	26.8	26	17.8	2014.0	3943.1	5957.1	1.51	55.617	4950.1	1007.0
132	0.5025	26.7	26	18.0	2006.8	4122.0	6128.9	1.49	54.375	5125.4	1003.4
133	0.5088	26.8	26	18.3	2001.9	4289.9	6291.8	1.47	53.209	5290.8	1001.0
134	0.5165	26.7	26	18.6	1994.7	4467.9	6462.6	1.45	51.973	5465.2	997.4
135	0.5235	26.8	26	18.8	1994.3	4631.4	6625.7	1.43	50.838	5628.5	997.2
136	0.5306	26.8	26	19.1	1987.0	4787.2	6774.2	1.42	49.756	5780.7	993.5
137	0.5372	26.7	26	19.3	1971.3	4953.8	6925.1	1.40	48.599	5939.4	985.7
138	0.5445	26.7	26	19.6	1968.5	5103.1	7071.7	1.39	47.562	6087.4	984.3
139	0.5515	26.8	26	19.8	1967.3	5251.9	7219.2	1.37	46.529	6235.6	983.7
140	0.5583	26.7	26	20.1	1951.0	5406.2	7357.3	1.36	45.457	6381.8	975.5

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
141	0.5585	26.7	26	20.1	1950.9	5413.8	7364.7	1.36	45.404	6389.2	975.4

Parameters for Specimen No. 2

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	194.470			168.250
Moisture content: Dry soil+tare, gms.	155.380			138.590
Moisture content: Tare, gms.	37.690			38.310
Moisture, %	33.2	34.7	31.7	29.6
Moist specimen weight, gms.	133.96			
Diameter, in.	1.402	1.402	1.382	
Area, in. ²	1.544	1.544	1.499	
Height, in.	2.800	2.800	2.760	
Net decrease in height, in.		0.000	0.040	
Wet density, pcf	118.1	119.4	121.9	
Dry density, pcf	88.6	88.6	92.6	
Void ratio	0.9723	0.9723	0.8882	
Saturation, %	95.6	100.0	100.0	

Test Readings for Specimen No. 2

Consolidation cell pressure = 82.500 psi (11880.0 psf)

Consolidation back pressure = 65.000 psi (9360.0 psf)

Consolidation effective confining stress = 2520.0 psf

Strain rate, in./min. = 0.017

Fail. Stress = 2989.4 psf at reading no. 141

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	0.8	0	0.0	0.0	2392.2	2392.2	1.00	65.887	2392.2	0.0
1	0.0010	1.8	1	0.0	96.4	2326.1	2422.5	1.04	66.347	2374.3	48.2
2	0.0014	3.0	2	0.0	205.2	2260.5	2465.7	1.09	66.802	2363.1	102.6
3	0.0022	4.0	3	0.1	304.2	2196.3	2500.6	1.14	67.248	2348.5	152.1
4	0.0025	4.9	4	0.1	392.0	2131.7	2523.7	1.18	67.697	2327.7	196.0
5	0.0032	5.7	5	0.1	467.0	2073.3	2540.3	1.23	68.102	2306.8	233.5
6	0.0038	6.4	6	0.1	529.6	2020.5	2550.1	1.26	68.469	2285.3	264.8
7	0.0050	6.9	6	0.2	585.4	1970.1	2555.5	1.30	68.819	2262.8	292.7
8	0.0056	7.7	7	0.2	654.0	1921.3	2575.3	1.34	69.157	2248.3	327.0
9	0.0061	8.2	7	0.2	706.0	1877.4	2583.4	1.38	69.462	2230.4	353.0
10	0.0073	8.7	8	0.3	755.9	1835.6	2591.4	1.41	69.753	2213.5	377.9
11	0.0082	9.1	8	0.3	793.9	1799.2	2593.2	1.44	70.006	2196.2	397.0
12	0.0090	9.5	9	0.3	830.6	1765.3	2596.0	1.47	70.241	2180.7	415.3
13	0.0096	9.9	9	0.3	868.5	1751.2	2619.7	1.50	70.339	2185.5	434.2
14	0.0104	10.2	9	0.4	899.1	1755.6	2654.7	1.51	70.309	2205.1	449.5
15	0.0109	10.6	10	0.4	933.4	1672.3	2605.7	1.56	70.887	2139.0	466.7
16	0.0111	10.9	10	0.4	967.4	1641.9	2609.3	1.59	71.098	2125.6	483.7
17	0.0116	11.2	10	0.4	990.7	1615.1	2605.8	1.61	71.284	2110.4	495.4
18	0.0129	11.5	11	0.5	1017.1	1591.0	2608.1	1.64	71.452	2099.5	508.6
19	0.0134	11.8	11	0.5	1046.0	1565.6	2611.6	1.67	71.628	2088.6	523.0
20	0.0139	12.0	11	0.5	1070.5	1540.7	2611.2	1.69	71.801	2075.9	535.3
21	0.0146	12.2	11	0.5	1088.7	1522.7	2611.4	1.71	71.926	2067.1	544.3

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
22	0.0153	12.4	12	0.6	1107.2	1500.3	2607.5	1.74	72.081	2053.9	553.6
23	0.0162	12.7	12	0.6	1131.2	1481.2	2612.5	1.76	72.214	2046.9	565.6
24	0.0171	12.9	12	0.6	1149.0	1467.0	2616.0	1.78	72.313	2041.5	574.5
25	0.0176	13.1	12	0.6	1168.1	1447.0	2615.1	1.81	72.452	2031.0	584.1
26	0.0182	13.3	12	0.7	1186.1	1431.1	2617.1	1.83	72.562	2024.1	593.0
27	0.0187	13.4	13	0.7	1201.5	1417.3	2618.7	1.85	72.658	2018.0	600.7
28	0.0195	13.6	13	0.7	1220.3	1401.1	2621.4	1.87	72.770	2011.3	610.1
29	0.0203	13.8	13	0.7	1239.5	1385.9	2625.4	1.89	72.875	2005.7	619.7
30	0.0214	14.0	13	0.8	1251.9	1373.4	2625.2	1.91	72.963	1999.3	625.9
31	0.0218	14.2	13	0.8	1270.0	1359.1	2629.1	1.93	73.061	1994.1	635.0
32	0.0222	14.4	14	0.8	1288.7	1346.4	2635.1	1.96	73.150	1990.8	644.4
33	0.0231	14.5	14	0.8	1304.0	1333.3	2637.4	1.98	73.241	1985.4	652.0
34	0.0241	14.6	14	0.9	1313.6	1320.9	2634.6	1.99	73.327	1977.7	656.8
35	0.0246	14.8	14	0.9	1332.6	1310.5	2643.0	2.02	73.400	1976.7	666.3
36	0.0255	15.0	14	0.9	1343.3	1298.8	2642.0	2.03	73.481	1970.4	671.6
37	0.0259	15.2	14	0.9	1362.2	1287.2	2649.4	2.06	73.561	1968.3	681.1
38	0.0267	15.3	14	1.0	1377.6	1278.2	2655.8	2.08	73.623	1967.0	688.8
39	0.0276	15.4	15	1.0	1386.5	1269.7	2656.2	2.09	73.683	1962.9	693.3
40	0.0283	15.6	15	1.0	1400.5	1258.8	2659.3	2.11	73.758	1959.1	700.2
41	0.0307	16.1	15	1.1	1448.9	1223.2	2672.1	2.18	74.005	1947.7	724.5
42	0.0337	16.6	16	1.2	1491.3	1191.7	2683.1	2.25	74.224	1937.4	745.7
43	0.0364	17.0	16	1.3	1528.6	1165.4	2694.0	2.31	74.407	1929.7	764.3
44	0.0390	17.3	16	1.4	1560.2	1143.5	2703.8	2.36	74.559	1923.6	780.1
45	0.0417	17.6	17	1.5	1590.2	1121.0	2711.2	2.42	74.715	1916.1	795.1
46	0.0443	18.0	17	1.6	1622.4	1097.7	2720.1	2.48	74.877	1908.9	811.2
47	0.0473	18.3	17	1.7	1647.4	1085.1	2732.4	2.52	74.965	1908.7	823.7
48	0.0497	18.6	18	1.8	1672.5	1069.2	2741.7	2.56	75.075	1905.5	836.3
49	0.0531	18.8	18	1.9	1692.6	1060.0	2752.5	2.60	75.139	1906.3	846.3
50	0.0556	19.1	18	2.0	1717.1	1048.4	2765.5	2.64	75.219	1907.0	858.5
51	0.0584	19.3	18	2.1	1735.1	1039.4	2774.5	2.67	75.282	1907.0	867.5
52	0.0612	19.5	19	2.2	1753.1	1029.9	2782.9	2.70	75.348	1906.4	876.5
53	0.0642	19.7	19	2.3	1773.1	1022.7	2795.8	2.73	75.398	1909.2	886.6
54	0.0669	20.0	19	2.4	1792.1	1019.1	2811.2	2.76	75.423	1915.2	896.0
55	0.0696	20.2	19	2.5	1813.4	1010.0	2823.4	2.80	75.486	1916.7	906.7
56	0.0721	20.4	20	2.6	1832.3	1004.7	2837.0	2.82	75.523	1920.8	916.1
57	0.0752	20.6	20	2.7	1847.8	1000.6	2848.4	2.85	75.552	1924.5	923.9
58	0.0780	20.8	20	2.8	1866.8	996.1	2863.0	2.87	75.582	1929.5	933.4
59	0.0805	21.0	20	2.9	1884.0	991.9	2875.9	2.90	75.612	1933.9	942.0
60	0.0831	21.3	20	3.0	1904.9	985.8	2890.7	2.93	75.654	1938.3	952.5
61	0.0865	21.5	21	3.1	1920.5	982.1	2902.7	2.96	75.680	1942.4	960.3
62	0.0889	21.6	21	3.2	1930.8	977.9	2908.6	2.97	75.709	1943.3	965.4
63	0.0917	21.8	21	3.3	1943.5	975.6	2919.1	2.99	75.725	1947.4	971.8
64	0.0948	21.9	21	3.4	1956.1	975.5	2931.5	3.01	75.726	1953.5	978.0
65	0.0972	22.1	21	3.5	1967.3	975.9	2943.1	3.02	75.723	1959.5	983.6
66	0.1003	22.3	21	3.6	1988.2	977.8	2966.0	3.03	75.710	1971.9	994.1
67	0.1030	22.5	22	3.7	2002.3	976.7	2979.0	3.05	75.717	1977.9	1001.2
68	0.1061	22.7	22	3.8	2018.4	976.2	2994.6	3.07	75.721	1985.4	1009.2

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
69	0.1084	22.9	22	3.9	2031.9	972.0	3003.9	3.09	75.750	1988.0	1016.0
70	0.1116	23.0	22	4.0	2041.6	974.8	3016.4	3.09	75.731	1995.6	1020.8
71	0.1142	23.2	22	4.1	2059.2	978.0	3037.3	3.11	75.708	2007.7	1029.6
72	0.1170	23.4	23	4.2	2071.0	975.5	3046.5	3.12	75.726	2011.0	1035.5
73	0.1203	23.5	23	4.4	2080.2	975.9	3056.0	3.13	75.723	2015.9	1040.1
74	0.1229	23.6	23	4.5	2092.1	977.9	3070.1	3.14	75.709	2024.0	1046.1
75	0.1255	23.8	23	4.5	2102.4	1018.0	3120.4	3.07	75.430	2069.2	1051.2
76	0.1283	24.0	23	4.6	2117.3	982.8	3100.1	3.15	75.675	2041.5	1058.6
77	0.1315	24.2	23	4.8	2134.7	982.8	3117.5	3.17	75.675	2050.2	1067.3
78	0.1336	24.3	24	4.8	2148.1	981.8	3129.9	3.19	75.682	2055.8	1074.1
79	0.1365	24.5	24	4.9	2159.0	983.6	3142.6	3.19	75.669	2063.1	1079.5
80	0.1397	24.6	24	5.1	2167.5	989.0	3156.5	3.19	75.632	2072.7	1083.8
81	0.1463	25.0	24	5.3	2198.0	991.3	3189.3	3.22	75.616	2090.3	1099.0
82	0.1536	25.4	25	5.6	2225.2	1000.2	3225.4	3.22	75.554	2112.8	1112.6
83	0.1605	25.7	25	5.8	2249.8	998.4	3248.2	3.25	75.566	2123.3	1124.9
84	0.1676	26.0	25	6.1	2271.8	1008.1	3280.0	3.25	75.499	2144.1	1135.9
85	0.1737	26.3	26	6.3	2295.4	1009.6	3305.1	3.27	75.489	2157.4	1147.7
86	0.1810	26.7	26	6.6	2321.3	1018.8	3340.1	3.28	75.425	2179.5	1160.7
87	0.1883	27.0	26	6.8	2344.7	1026.7	3371.4	3.28	75.370	2199.0	1172.3
88	0.1952	27.4	27	7.1	2368.8	1031.8	3400.6	3.30	75.335	2216.2	1184.4
89	0.2026	27.6	27	7.3	2384.3	1037.2	3421.4	3.30	75.298	2229.3	1192.1
90	0.2094	28.0	27	7.6	2408.5	1045.7	3454.2	3.30	75.238	2250.0	1204.3
91	0.2165	28.3	28	7.8	2434.3	1053.5	3487.8	3.31	75.184	2270.6	1217.1
92	0.2237	28.6	28	8.1	2446.5	1058.4	3504.8	3.31	75.150	2281.6	1223.2
93	0.2302	29.0	28	8.3	2475.6	1067.2	3542.8	3.32	75.089	2305.0	1237.8
94	0.2375	29.2	28	8.6	2492.8	1072.2	3565.1	3.32	75.054	2318.6	1246.4
95	0.2445	29.6	29	8.9	2514.8	1083.1	3597.9	3.32	74.979	2340.5	1257.4
96	0.2511	29.9	29	9.1	2538.9	1087.5	3626.4	3.33	74.948	2356.9	1269.4
97	0.2589	30.1	29	9.4	2551.2	1110.9	3662.1	3.30	74.785	2386.5	1275.6
98	0.2650	30.5	30	9.6	2574.7	1103.8	3678.5	3.33	74.835	2391.1	1287.3
99	0.2723	30.7	30	9.9	2587.9	1109.7	3697.7	3.33	74.793	2403.7	1294.0
100	0.2798	31.0	30	10.1	2599.3	1113.2	3712.5	3.33	74.770	2412.8	1299.6
101	0.2869	31.3	30	10.4	2623.2	1121.9	3745.1	3.34	74.709	2433.5	1311.6
102	0.2934	31.7	31	10.6	2645.4	1129.3	3774.7	3.34	74.658	2452.0	1322.7
103	0.3007	31.9	31	10.9	2657.8	1140.5	3798.3	3.33	74.580	2469.4	1328.9
104	0.3074	32.3	31	11.1	2685.0	1148.0	3833.0	3.34	74.528	2490.5	1342.5
105	0.3144	32.5	32	11.4	2692.6	1154.0	3846.5	3.33	74.486	2500.3	1346.3
106	0.3212	32.9	32	11.6	2717.7	1165.7	3883.4	3.33	74.405	2524.6	1358.9
107	0.3282	33.1	32	11.9	2726.6	1167.6	3894.2	3.34	74.391	2530.9	1363.3
108	0.3354	33.5	33	12.2	2752.9	1179.3	3932.2	3.33	74.311	2555.7	1376.5
109	0.3426	33.7	33	12.4	2761.0	1182.6	3943.7	3.33	74.287	2563.1	1380.5
110	0.3496	33.9	33	12.7	2772.4	1195.9	3968.3	3.32	74.195	2582.1	1386.2
111	0.3562	34.1	33	12.9	2785.6	1195.9	3981.6	3.33	74.195	2588.8	1392.8
112	0.3626	34.4	34	13.1	2800.8	1207.5	4008.3	3.32	74.115	2607.9	1400.4
113	0.3697	34.6	34	13.4	2805.0	1209.7	4014.8	3.32	74.099	2612.3	1402.5
114	0.3773	34.9	34	13.7	2821.7	1220.1	4041.7	3.31	74.027	2630.9	1410.8
115	0.3838	35.1	34	13.9	2831.7	1222.6	4054.3	3.32	74.010	2638.5	1415.9

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
116	0.3911	35.3	34	14.2	2839.1	1230.7	4069.8	3.31	73.954	2650.2	1419.6
117	0.3980	35.5	35	14.4	2846.1	1234.1	4080.1	3.31	73.930	2657.1	1423.0
118	0.4052	35.7	35	14.7	2854.6	1244.4	4099.0	3.29	73.858	2671.7	1427.3
119	0.4119	36.0	35	14.9	2875.1	1248.1	4123.2	3.30	73.833	2685.7	1437.6
120	0.4190	36.1	35	15.2	2876.3	1257.7	4134.0	3.29	73.766	2695.9	1438.2
121	0.4262	36.5	36	15.4	2896.1	1262.6	4158.8	3.29	73.732	2710.7	1448.1
122	0.4330	36.6	36	15.7	2897.6	1267.7	4165.3	3.29	73.696	2716.5	1448.8
123	0.4402	36.8	36	16.0	2901.3	1276.4	4177.7	3.27	73.636	2727.1	1450.7
124	0.4468	37.0	36	16.2	2913.2	1277.6	4190.8	3.28	73.628	2734.2	1456.6
125	0.4539	37.2	36	16.4	2920.5	1288.6	4209.1	3.27	73.551	2748.9	1460.2
126	0.4611	37.5	37	16.7	2929.3	1289.9	4219.2	3.27	73.542	2754.6	1464.6
127	0.4679	37.7	37	17.0	2936.7	1300.2	4236.9	3.26	73.471	2768.6	1468.4
128	0.4748	37.8	37	17.2	2938.1	1299.7	4237.8	3.26	73.475	2768.7	1469.1
129	0.4814	37.9	37	17.4	2941.6	1309.9	4251.5	3.25	73.403	2780.7	1470.8
130	0.4887	38.2	37	17.7	2949.6	1314.9	4264.5	3.24	73.369	2789.7	1474.8
131	0.4963	38.4	38	18.0	2958.5	1322.6	4281.1	3.24	73.315	2801.9	1479.3
132	0.5025	38.6	38	18.2	2967.5	1325.4	4292.9	3.24	73.296	2809.2	1483.8
133	0.5094	38.7	38	18.5	2966.2	1331.7	4297.9	3.23	73.252	2814.8	1483.1
134	0.5172	39.0	38	18.7	2976.7	1335.9	4312.7	3.23	73.223	2824.3	1488.4
135	0.5238	39.1	38	19.0	2975.1	1340.0	4315.0	3.22	73.195	2827.5	1487.5
136	0.5312	39.2	38	19.2	2977.4	1346.2	4323.7	3.21	73.151	2834.9	1488.7
137	0.5374	39.4	39	19.5	2981.9	1346.6	4328.5	3.21	73.149	2837.5	1490.9
138	0.5450	39.6	39	19.7	2988.8	1354.0	4342.9	3.21	73.097	2848.4	1494.4
139	0.5522	39.7	39	20.0	2987.9	1354.0	4341.9	3.21	73.097	2847.9	1494.0
140	0.5584	39.9	39	20.2	2989.1	1365.4	4354.5	3.19	73.018	2859.9	1494.5
141	0.5585	39.9	39	20.2	2989.4	1363.0	4352.4	3.19	73.035	2857.7	1494.7

Parameters for Specimen No. 3

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	212.000			165.810
Moisture content: Dry soil+tare, gms.	169.050			136.940
Moisture content: Tare, gms.	38.300			38.660
Moisture, %	32.8	34.2	29.8	29.4
Moist specimen weight, gms.	132.15			
Diameter, in.	1.389	1.389	1.359	
Area, in. ²	1.515	1.515	1.451	
Height, in.	2.800	2.800	2.740	
Net decrease in height, in.		0.000	0.060	
Wet density, pcf	118.7	119.8	123.7	
Dry density, pcf	89.3	89.3	95.3	
Void ratio	0.9571	0.9571	0.8334	
Saturation, %	96.1	100.0	100.0	

Test Readings for Specimen No. 3

Consolidation cell pressure = 92.500 psi (13320.0 psf)

Consolidation back pressure = 65.000 psi (9360.0 psf)

Consolidation effective confining stress = 3960.0 psf

Strain rate, in./min. = 0.017

Fail. Stress = 3909.8 psf at reading no. 139

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
0	0.0000	0.7	0	0.0	0.0	3976.1	3976.1	1.00	64.888	3976.1	0.0
1	0.0008	1.5	1	0.0	76.0	3852.0	3928.0	1.02	65.750	3890.0	38.0
2	0.0018	2.3	2	0.1	150.0	3840.2	3990.2	1.04	65.832	3915.2	75.0
3	0.0023	3.1	2	0.1	235.5	3813.2	4048.7	1.06	66.019	3930.9	117.7
4	0.0029	4.5	4	0.1	375.2	3762.9	4138.1	1.10	66.369	3950.5	187.6
5	0.0039	6.1	5	0.1	526.1	3700.2	4226.3	1.14	66.804	3963.3	263.0
6	0.0048	7.7	7	0.2	688.0	3626.1	4314.2	1.19	67.319	3970.1	344.0
7	0.0056	9.2	8	0.2	835.7	3539.5	4375.2	1.24	67.920	3957.4	417.9
8	0.0062	10.5	10	0.2	966.2	3453.9	4420.1	1.28	68.514	3937.0	483.1
9	0.0068	11.7	11	0.2	1081.5	3371.4	4452.8	1.32	69.088	3912.1	540.7
10	0.0076	12.7	12	0.3	1186.5	3290.3	4476.7	1.36	69.651	3883.5	593.2
11	0.0077	13.7	13	0.3	1285.9	3213.5	4499.4	1.40	70.184	3856.4	642.9
12	0.0079	14.6	14	0.3	1373.3	3138.5	4511.8	1.44	70.705	3825.1	686.7
13	0.0090	15.5	15	0.3	1456.6	3066.3	4523.0	1.48	71.206	3794.7	728.3
14	0.0099	16.2	15	0.4	1527.5	2999.4	4527.0	1.51	71.671	3763.2	763.8
15	0.0103	16.8	16	0.4	1592.1	2935.0	4527.0	1.54	72.118	3731.0	796.0
16	0.0109	17.5	17	0.4	1657.2	2871.9	4529.1	1.58	72.556	3700.5	828.6
17	0.0116	18.0	17	0.4	1709.7	2812.9	4522.7	1.61	72.966	3667.8	854.9
18	0.0126	18.6	18	0.5	1761.4	2758.7	4520.1	1.64	73.342	3639.4	880.7
19	0.0135	19.1	18	0.5	1808.1	2704.0	4512.1	1.67	73.722	3608.0	904.1
20	0.0141	19.5	19	0.5	1849.4	2650.3	4499.7	1.70	74.095	3575.0	924.7
21	0.0146	19.9	19	0.5	1887.6	2606.9	4494.6	1.72	74.396	3550.8	943.8
22	0.0152	20.3	20	0.6	1926.2	2559.7	4485.9	1.75	74.724	3522.8	963.1
23	0.0159	20.6	20	0.6	1959.0	2515.9	4474.9	1.78	75.028	3495.4	979.5
24	0.0167	21.0	20	0.6	1994.8	2473.2	4468.0	1.81	75.325	3470.6	997.4
25	0.0177	21.3	21	0.6	2026.2	2431.9	4458.1	1.83	75.612	3445.0	1013.1
26	0.0183	21.6	21	0.7	2058.0	2392.7	4450.7	1.86	75.884	3421.7	1029.0

Test Readings for Specimen No. 3

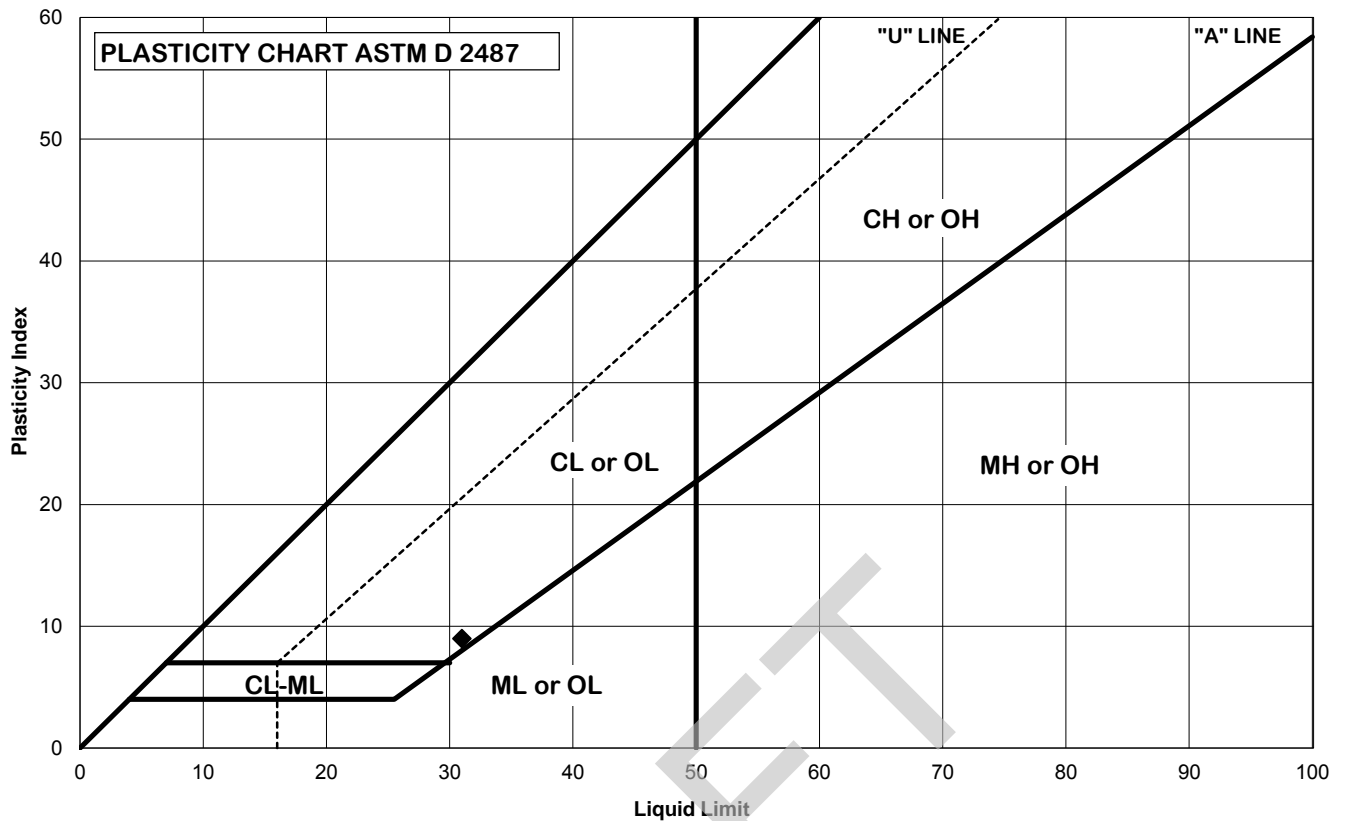
No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
27	0.0187	21.9	21	0.7	2084.0	2356.2	4440.3	1.88	76.137	3398.3	1042.0
28	0.0194	22.2	21	0.7	2111.3	2319.7	4431.0	1.91	76.391	3375.4	1055.6
29	0.0203	22.4	22	0.7	2136.4	2285.0	4421.5	1.93	76.632	3353.2	1068.2
30	0.0210	22.7	22	0.8	2160.2	2257.8	4418.0	1.96	76.821	3337.9	1080.1
31	0.0216	22.9	22	0.8	2179.9	2226.4	4406.3	1.98	77.039	3316.4	1089.9
32	0.0224	23.1	22	0.8	2203.2	2202.6	4405.8	2.00	77.204	3304.2	1101.6
33	0.0231	23.3	23	0.8	2219.1	2180.5	4399.6	2.02	77.358	3290.0	1109.5
34	0.0238	23.5	23	0.9	2241.2	2157.9	4399.0	2.04	77.515	3278.4	1120.6
35	0.0247	23.7	23	0.9	2259.2	2139.2	4398.3	2.06	77.645	3268.8	1129.6
36	0.0254	23.9	23	0.9	2272.4	2123.7	4396.1	2.07	77.752	3259.9	1136.2
37	0.0261	24.0	23	1.0	2288.9	2105.7	4394.6	2.09	77.877	3250.2	1144.4
38	0.0266	24.2	23	1.0	2307.2	2091.6	4398.7	2.10	77.975	3245.1	1153.6
39	0.0270	24.4	24	1.0	2321.3	2079.4	4400.7	2.12	78.060	3240.0	1160.6
40	0.0281	24.5	24	1.0	2337.1	2064.6	4401.7	2.13	78.163	3233.1	1168.6
41	0.0308	25.1	24	1.1	2389.4	2036.6	4426.0	2.17	78.357	3231.3	1194.7
42	0.0335	25.6	25	1.2	2441.5	1845.9	4287.4	2.32	79.681	3066.7	1220.8
43	0.0361	26.1	25	1.3	2479.3	1786.0	4265.3	2.39	80.097	3025.7	1239.6
44	0.0388	26.5	26	1.4	2520.3	1736.3	4256.5	2.45	80.443	2996.4	1260.1
45	0.0419	26.9	26	1.5	2554.5	1691.9	4246.5	2.51	80.751	2969.2	1277.3
46	0.0450	27.2	26	1.6	2581.7	1652.0	4233.7	2.56	81.028	2942.9	1290.9
47	0.0471	27.5	27	1.7	2612.7	1615.6	4228.2	2.62	81.281	2921.9	1306.3
48	0.0503	27.8	27	1.8	2640.2	1602.0	4242.2	2.65	81.375	2922.1	1320.1
49	0.0527	28.1	27	1.9	2664.9	1569.1	4234.0	2.70	81.603	2901.6	1332.4
50	0.0558	28.3	28	2.0	2681.3	1550.1	4231.4	2.73	81.735	2890.7	1340.6
51	0.0586	28.6	28	2.1	2709.3	1542.6	4251.9	2.76	81.787	2897.3	1354.6
52	0.0617	28.8	28	2.3	2725.1	1544.7	4269.8	2.76	81.773	2907.3	1362.5
53	0.0645	29.1	28	2.4	2748.5	1561.3	4309.8	2.76	81.658	2935.5	1374.3
54	0.0674	29.3	29	2.5	2765.8	1539.6	4305.4	2.80	81.809	2922.5	1382.9
55	0.0696	29.6	29	2.5	2795.0	1439.6	4234.6	2.94	82.503	2837.1	1397.5
56	0.0724	29.9	29	2.6	2814.8	1423.8	4238.6	2.98	82.613	2831.2	1407.4
57	0.0753	30.1	29	2.7	2834.2	1412.8	4247.0	3.01	82.689	2829.9	1417.1
58	0.0777	30.3	30	2.8	2850.0	1400.6	4250.6	3.03	82.774	2825.6	1425.0
59	0.0807	30.5	30	2.9	2870.9	1391.4	4262.3	3.06	82.837	2826.9	1435.4
60	0.0840	30.7	30	3.1	2887.2	1380.2	4267.3	3.09	82.915	2823.8	1443.6
61	0.0863	30.9	30	3.1	2900.8	1365.6	4266.5	3.12	83.017	2816.0	1450.4
62	0.0891	31.1	30	3.3	2917.4	1357.8	4275.2	3.15	83.071	2816.5	1458.7
63	0.0918	31.3	31	3.4	2933.6	1352.5	4286.1	3.17	83.108	2819.3	1466.8
64	0.0944	31.5	31	3.4	2948.8	1352.6	4301.4	3.18	83.107	2827.0	1474.4
65	0.0975	31.6	31	3.6	2958.3	1361.4	4319.7	3.17	83.046	2840.6	1479.1
66	0.1001	31.9	31	3.7	2978.1	1375.7	4353.8	3.16	82.947	2864.7	1489.0
67	0.1030	32.0	31	3.8	2989.3	1402.6	4391.9	3.13	82.760	2897.3	1494.7
68	0.1053	32.2	31	3.8	3005.3	1306.0	4311.3	3.30	83.430	2808.7	1502.6
69	0.1087	32.4	32	4.0	3022.4	1305.3	4327.8	3.32	83.435	2816.5	1511.2
70	0.1112	32.6	32	4.1	3034.6	1305.5	4340.1	3.32	83.434	2822.8	1517.3
71	0.1140	32.8	32	4.2	3053.8	1300.6	4354.5	3.35	83.468	2827.6	1526.9
72	0.1171	33.0	32	4.3	3063.9	1292.0	4356.0	3.37	83.527	2824.0	1532.0
73	0.1196	33.1	32	4.4	3075.2	1287.2	4362.5	3.39	83.561	2824.9	1537.6

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
74	0.1223	33.3	33	4.5	3087.7	1290.2	4377.8	3.39	83.541	2834.0	1543.8
75	0.1252	33.5	33	4.6	3100.5	1287.6	4388.1	3.41	83.559	2837.8	1550.3
76	0.1285	33.7	33	4.7	3118.0	1285.9	4403.9	3.42	83.570	2844.9	1559.0
77	0.1306	33.9	33	4.8	3131.7	1286.5	4418.2	3.43	83.566	2852.4	1565.9
78	0.1332	34.0	33	4.9	3140.6	1288.5	4429.1	3.44	83.552	2858.8	1570.3
79	0.1366	34.2	33	5.0	3151.0	1305.6	4456.6	3.41	83.434	2881.1	1575.5
80	0.1388	34.3	34	5.1	3160.3	1330.1	4490.4	3.38	83.263	2910.3	1580.1
81	0.1464	34.7	34	5.3	3193.5	1265.5	4459.0	3.52	83.712	2862.2	1596.7
82	0.1530	35.1	34	5.6	3220.6	1268.8	4489.4	3.54	83.689	2879.1	1610.3
83	0.1603	35.5	35	5.8	3252.8	1271.3	4524.1	3.56	83.672	2897.7	1626.4
84	0.1667	35.9	35	6.1	3279.3	1272.7	4551.9	3.58	83.662	2912.3	1639.6
85	0.1746	36.3	36	6.4	3307.0	1286.4	4593.4	3.57	83.567	2939.9	1653.5
86	0.1810	36.7	36	6.6	3331.5	1345.0	4676.5	3.48	83.160	3010.7	1665.7
87	0.1884	37.1	36	6.9	3362.9	1273.4	4636.3	3.64	83.657	2954.8	1681.4
88	0.1954	37.5	37	7.1	3386.1	1273.1	4659.1	3.66	83.659	2966.1	1693.0
89	0.2017	38.0	37	7.4	3421.5	1282.5	4704.0	3.67	83.594	2993.2	1710.7
90	0.2088	38.3	38	7.6	3440.4	1282.4	4722.8	3.68	83.594	3002.6	1720.2
91	0.2162	38.6	38	7.9	3456.8	1307.0	4763.8	3.64	83.424	3035.4	1728.4
92	0.2237	38.9	38	8.2	3477.4	1378.1	4855.5	3.52	82.930	3116.8	1738.7
93	0.2303	39.3	39	8.4	3503.1	1297.3	4800.4	3.70	83.491	3048.8	1751.5
94	0.2369	39.7	39	8.6	3529.8	1304.2	4834.0	3.71	83.443	3069.1	1764.9
95	0.2438	39.9	39	8.9	3544.8	1308.8	4853.6	3.71	83.411	3081.2	1772.4
96	0.2511	40.4	40	9.2	3574.6	1321.9	4896.5	3.70	83.320	3109.2	1787.3
97	0.2581	40.7	40	9.4	3591.1	1352.9	4944.0	3.65	83.105	3148.5	1795.5
98	0.2648	41.1	40	9.7	3615.7	1326.3	4942.0	3.73	83.290	3134.2	1807.9
99	0.2719	41.5	41	9.9	3640.8	1330.7	4971.4	3.74	83.259	3151.1	1820.4
100	0.2792	41.7	41	10.2	3650.5	1339.9	4990.4	3.72	83.195	3165.2	1825.3
101	0.2862	42.1	41	10.4	3675.9	1346.0	5021.9	3.73	83.153	3183.9	1838.0
102	0.2931	42.4	42	10.7	3693.3	1365.9	5059.1	3.70	83.015	3212.5	1846.6
103	0.2995	42.7	42	10.9	3708.6	1442.7	5151.3	3.57	82.482	3297.0	1854.3
104	0.3068	43.0	42	11.2	3726.4	1367.2	5093.6	3.73	83.006	3230.4	1863.2
105	0.3143	43.3	43	11.5	3739.7	1378.6	5118.2	3.71	82.927	3248.4	1869.8
106	0.3209	43.6	43	11.7	3754.6	1382.4	5137.0	3.72	82.900	3259.7	1877.3
107	0.3285	43.8	43	12.0	3761.3	1394.5	5155.8	3.70	82.816	3275.1	1880.6
108	0.3352	44.1	43	12.2	3773.8	1442.3	5216.1	3.62	82.484	3329.2	1886.9
109	0.3416	44.4	44	12.5	3791.0	1396.7	5187.8	3.71	82.800	3292.3	1895.5
110	0.3488	44.6	44	12.7	3797.4	1406.9	5204.4	3.70	82.730	3305.6	1898.7
111	0.3552	44.8	44	13.0	3802.5	1411.2	5213.7	3.69	82.700	3312.5	1901.3
112	0.3625	45.0	44	13.2	3814.0	1424.9	5238.8	3.68	82.605	3331.8	1907.0
113	0.3693	45.2	44	13.5	3821.3	1454.7	5276.0	3.63	82.398	3365.4	1910.7
114	0.3765	45.3	45	13.7	3819.0	1551.3	5370.3	3.46	81.727	3460.8	1909.5
115	0.3832	45.7	45	14.0	3841.4	1439.7	5281.1	3.67	82.502	3360.4	1920.7
116	0.3901	46.0	45	14.2	3851.4	1443.4	5294.8	3.67	82.476	3369.1	1925.7
117	0.3976	46.0	45	14.5	3844.2	1456.6	5300.9	3.64	82.384	3378.8	1922.1
118	0.4045	46.3	46	14.8	3856.6	1479.2	5335.8	3.61	82.228	3407.5	1928.3
119	0.4113	46.5	46	15.0	3857.4	1549.6	5407.0	3.49	81.739	3478.3	1928.7
120	0.4187	46.8	46	15.3	3869.1	1472.7	5341.8	3.63	82.273	3407.3	1934.6

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress psf	Minor Eff. Stress psf	Major Eff. Stress psf	1:3 Ratio	Pore Press. psi	P psf	Q psf
121	0.4255	47.0	46	15.5	3880.6	1479.2	5359.7	3.62	82.228	3419.4	1940.3
122	0.4330	47.1	46	15.8	3878.0	1485.2	5363.2	3.61	82.186	3424.2	1939.0
123	0.4394	47.3	47	16.0	3877.5	1497.3	5374.8	3.59	82.102	3436.1	1938.8
124	0.4463	47.4	47	16.3	3880.7	1552.6	5433.3	3.50	81.718	3492.9	1940.4
125	0.4541	47.6	47	16.6	3883.7	1495.3	5378.9	3.60	82.116	3437.1	1941.8
126	0.4607	47.8	47	16.8	3885.2	1505.9	5391.0	3.58	82.043	3448.4	1942.6
127	0.4677	48.0	47	17.1	3889.6	1508.2	5397.8	3.58	82.026	3453.0	1944.8
128	0.4748	48.1	47	17.3	3889.0	1523.8	5412.8	3.55	81.918	3468.3	1944.5
129	0.4812	48.2	48	17.6	3887.6	1571.8	5459.4	3.47	81.584	3515.6	1943.8
130	0.4890	48.3	48	17.8	3878.3	1728.4	5606.7	3.24	80.497	3667.5	1939.1
131	0.4960	48.6	48	18.1	3891.5	1530.4	5421.9	3.54	81.872	3476.1	1945.8
132	0.5028	48.8	48	18.3	3896.8	1532.2	5429.0	3.54	81.860	3480.6	1948.4
133	0.5095	49.0	48	18.6	3902.6	1544.5	5447.1	3.53	81.775	3495.8	1951.3
134	0.5167	49.2	48	18.9	3901.2	1586.9	5488.1	3.46	81.480	3537.5	1950.6
135	0.5237	49.1	48	19.1	3880.3	1708.3	5588.6	3.27	80.637	3648.5	1940.2
136	0.5303	49.4	49	19.4	3896.5	1548.2	5444.6	3.52	81.749	3496.4	1948.2
137	0.5379	49.7	49	19.6	3903.2	1554.7	5457.9	3.51	81.703	3506.3	1951.6
138	0.5440	49.8	49	19.9	3903.2	1556.8	5460.0	3.51	81.689	3508.4	1951.6
139	0.5513	50.1	49	20.1	3909.8	1593.7	5503.6	3.45	81.432	3548.7	1954.9
140	0.5582	50.1	49	20.4	3903.3	1695.5	5598.9	3.30	80.725	3647.2	1951.7
141	0.5583	50.1	49	20.4	3901.3	1696.3	5597.6	3.30	80.720	3646.9	1950.7



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-4A	Natural WC:	#DIV/0!
Depth, ft.	6.1 - 7	Preparation:	Wet (as-received)
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very stiff brown and gray clay with sand lenses, pockets and seams (CL4)		

Classification (fraction passing No. 40 sieve)
CL

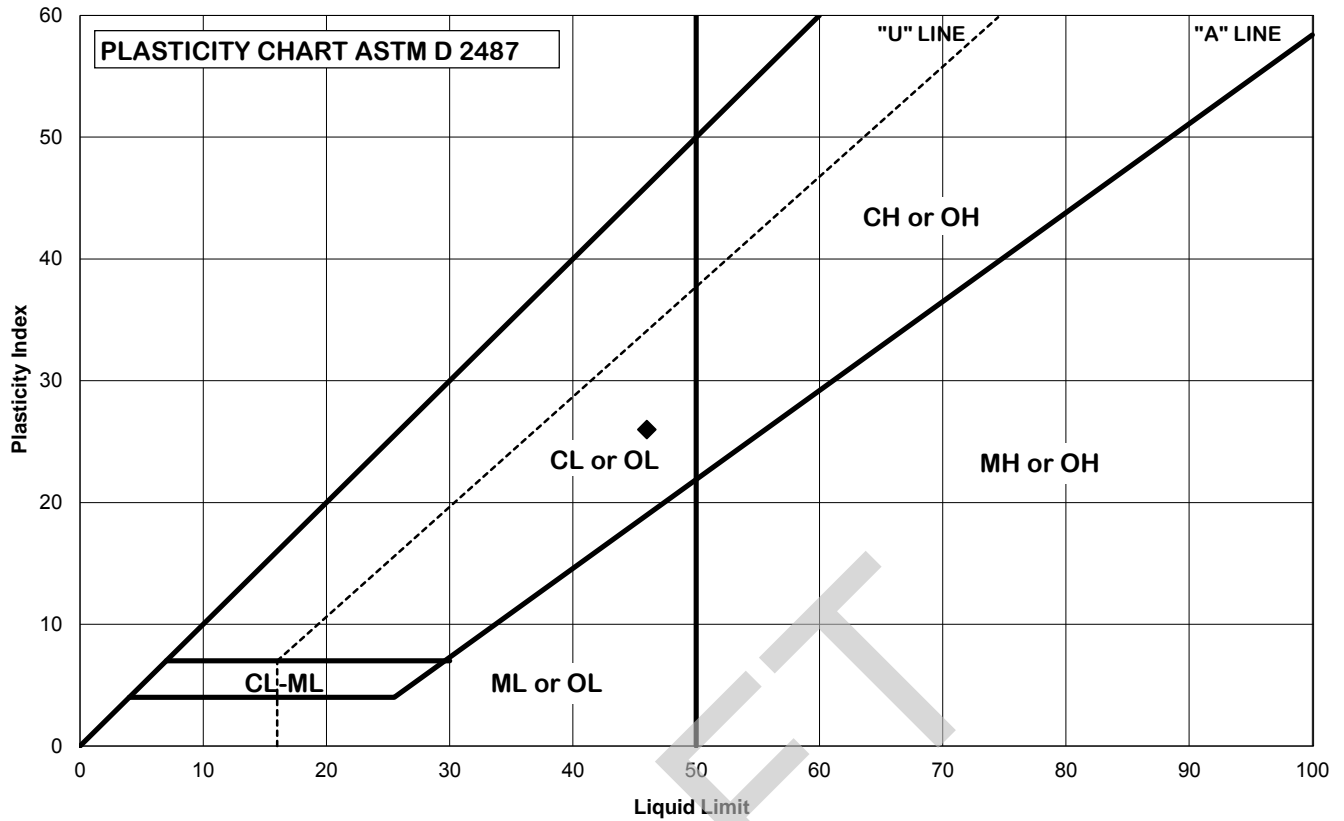
Liquid Limit =	31
Plastic Limit =	22
Plasticity Index =	9

Date:	10/1/2013
Tested By:	SLB
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-4A	Natural WC:	#DIV/0!
Depth, ft.	7 - 8	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff brown and gray clay with 3" laminated silt and clay layers and sand lenses, pockets and seams (CL6)		

Classification (fraction passing No. 40 sieve)
CL

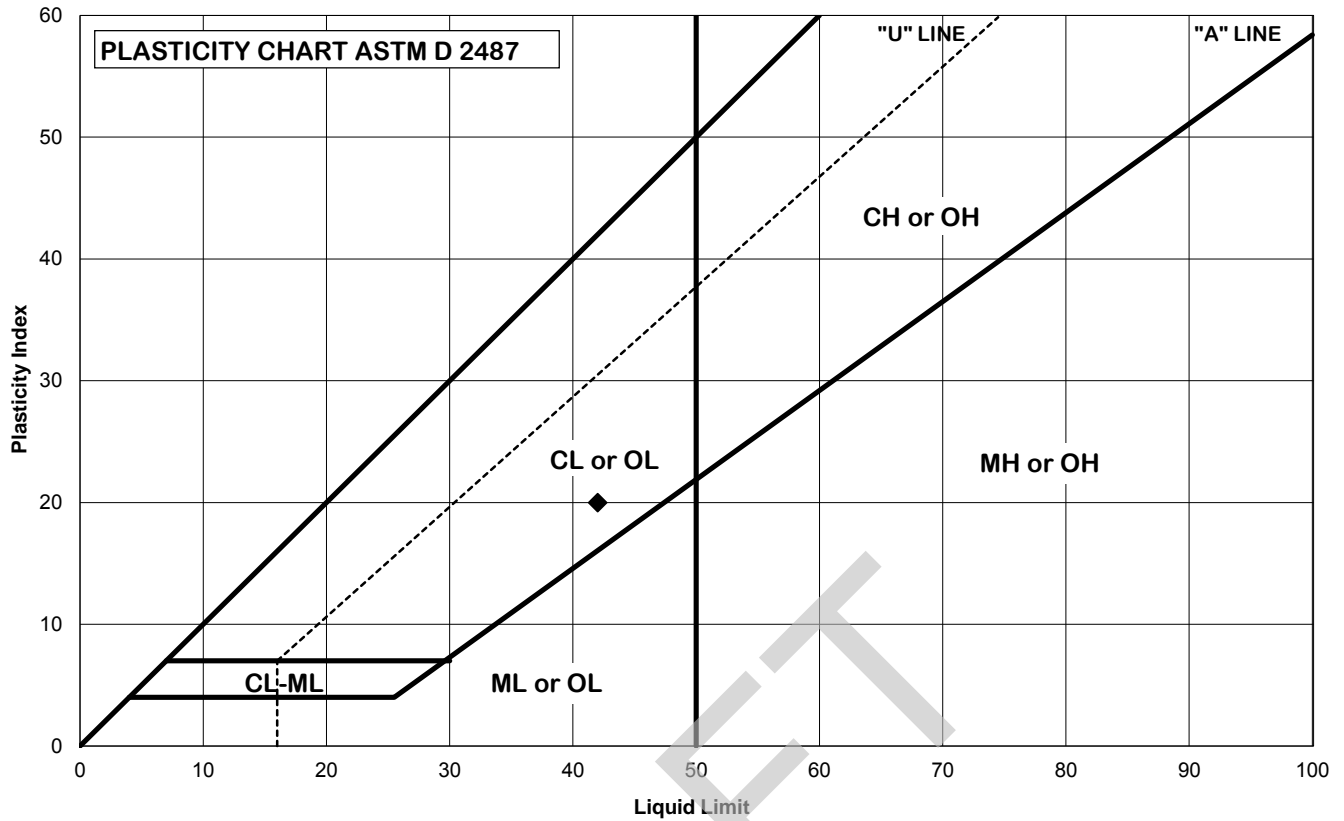
Liquid Limit =	46
Plastic Limit =	20
Plasticity Index =	26

Date:	9/30/2013
Tested By:	BH
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-4A	Natural WC:	#DIV/0!
Depth, ft.	10 - 11	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff gray clay with sand lenses, pockets and seams and 2" silt layer (CL4)		


Classification (fraction passing No. 40 sieve)
CL

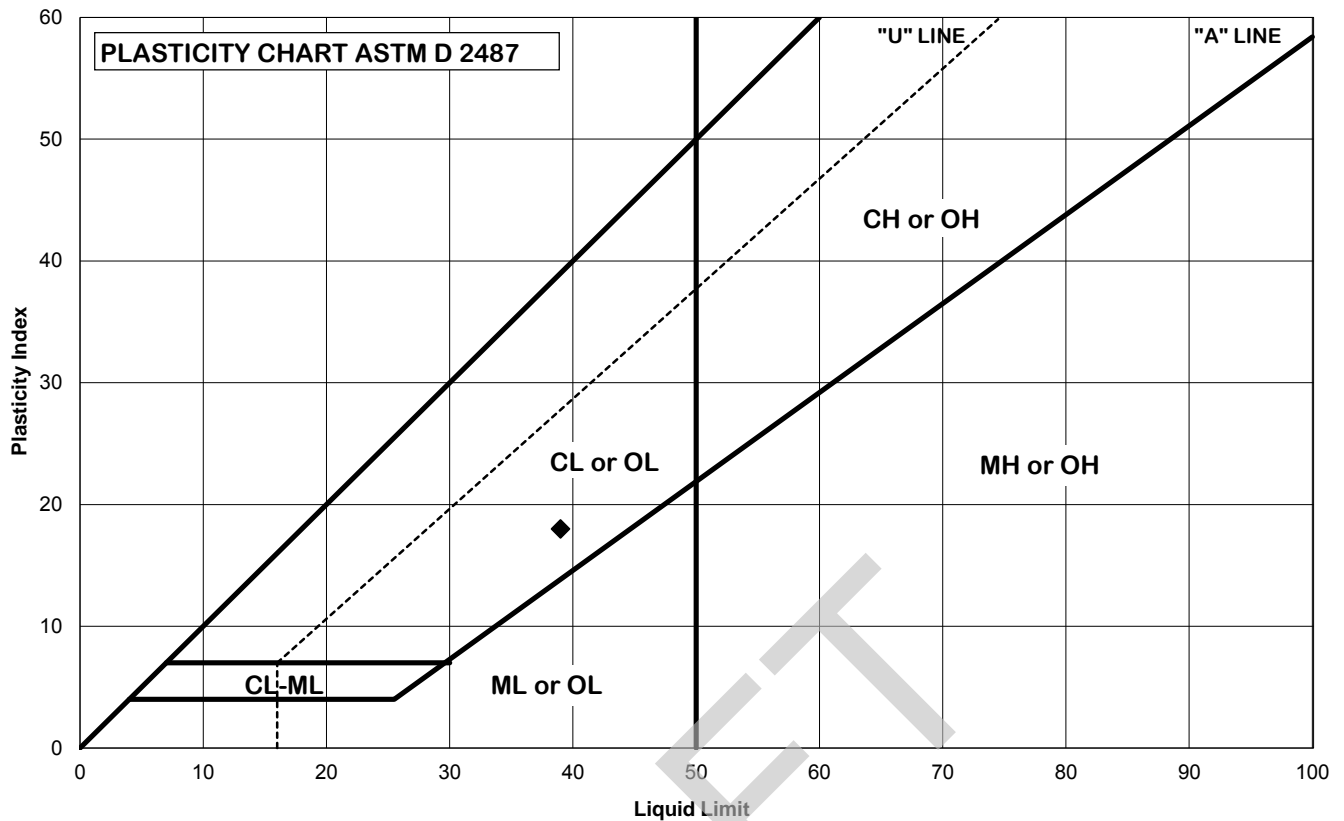
Liquid Limit =	42
Plastic Limit =	22
Plasticity Index =	20

Date:	10/3/2013
Tested By:	BH
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-4A	Natural WC:	#DIV/0!
Depth, ft.	15 - 16	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay with sand lenses and 2x 2 1/2" clayey silt layers (CL4)		

Classification (fraction passing No. 40 sieve)
CL

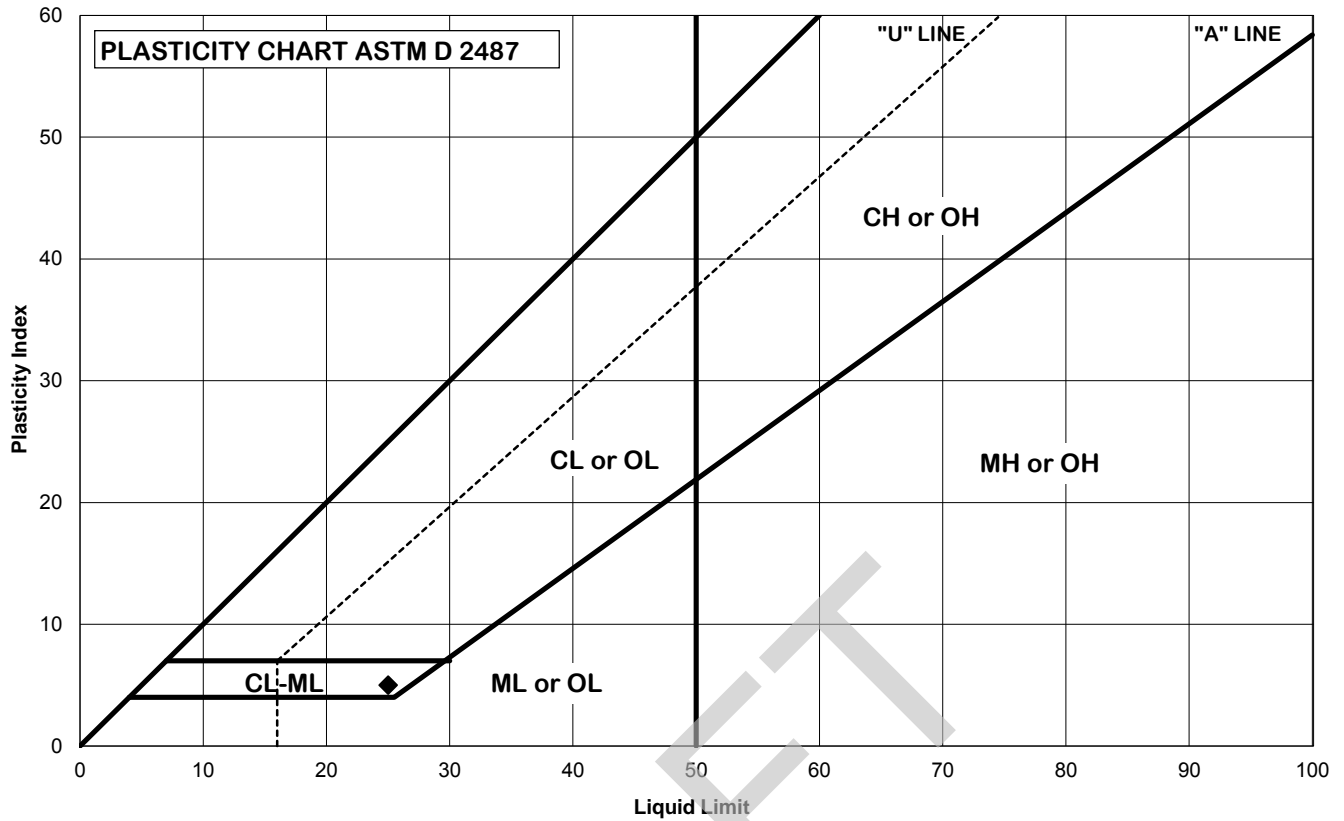
Liquid Limit =	39
Plastic Limit =	21
Plasticity Index =	18

Date:	10/2/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-4A	Natural WC:	#DIV/0!
Depth, ft.	45 - 46	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium dense gray clayey silt (ML)		

Classification (fraction passing No. 40 sieve)
CL-ML

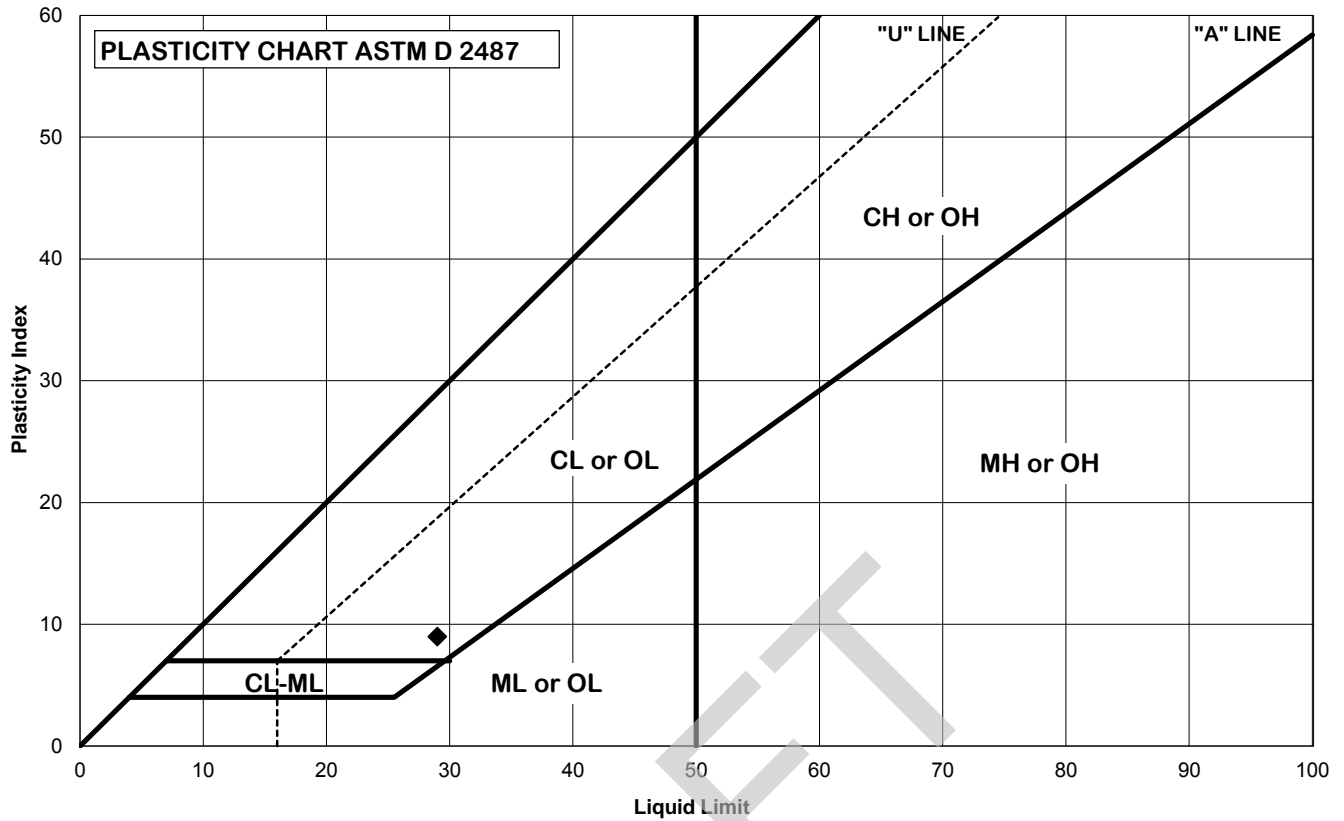
Liquid Limit =	25
Plastic Limit =	20
Plasticity Index =	5

Date:	10/2/2013
Tested By:	MSM
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	B-4A	Natural WC:	#DIV/0!
Depth, ft.	50 - 51	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium gray clay (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	29
Plastic Limit =	20
Plasticity Index =	9

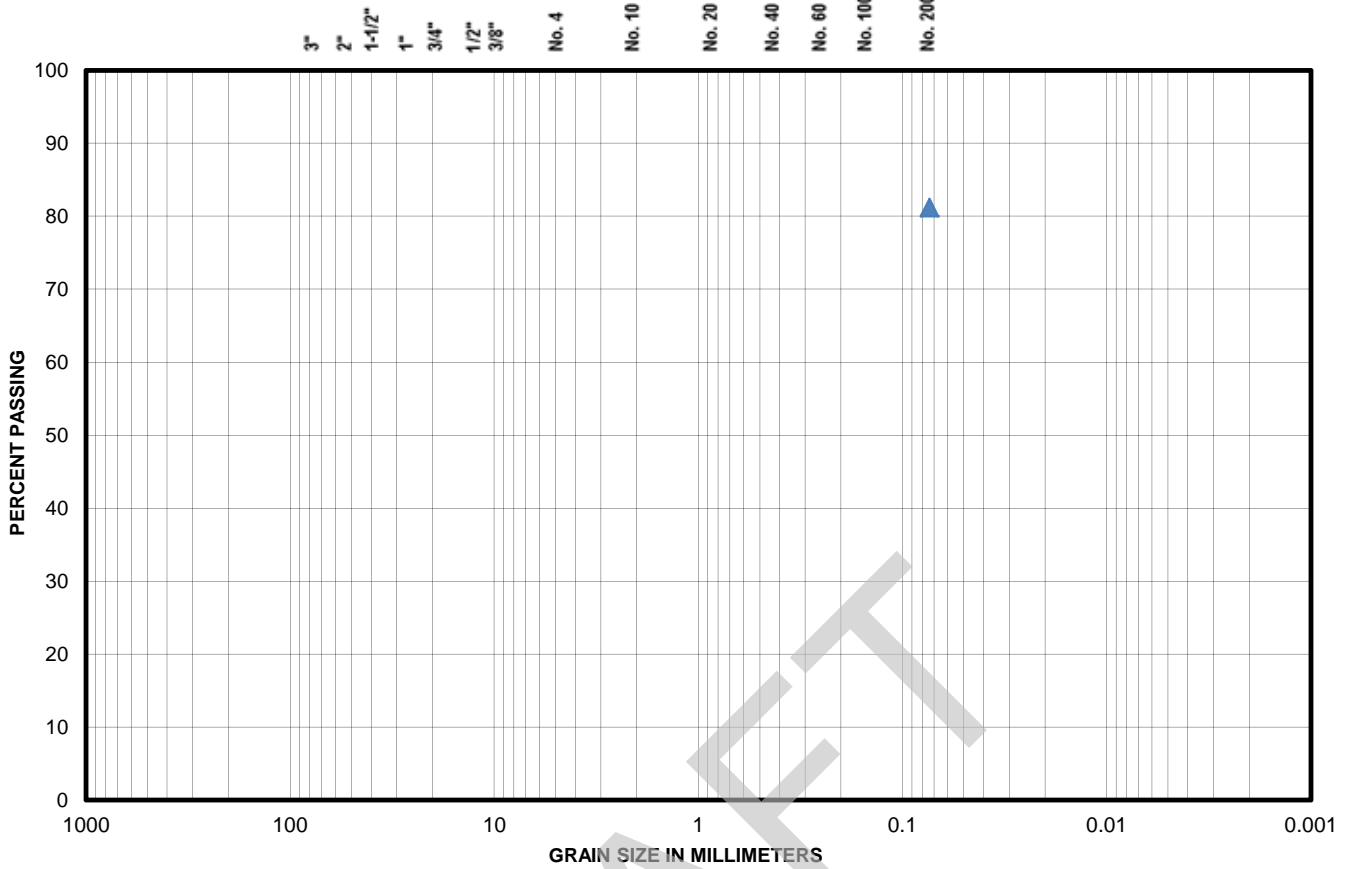
Date:	10/2/2013
Tested By:	MSM
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	18.8	Fines (Silt & Clay) %	81.2
--------	------	-----------------------	------

USC Classification	CL4	C _u	na	C _c	na
Description (D 2488)	Soft gray clay with 3 inch clayey silt layer (CL4)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	81.2

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	Date Tested	10/8/2013
Project No.	18274-001-00	Tested By	TRC
Boring No.	B-4A	Checked By	TRC
Source/Depth (feet)	51 - 52	Sieve Type	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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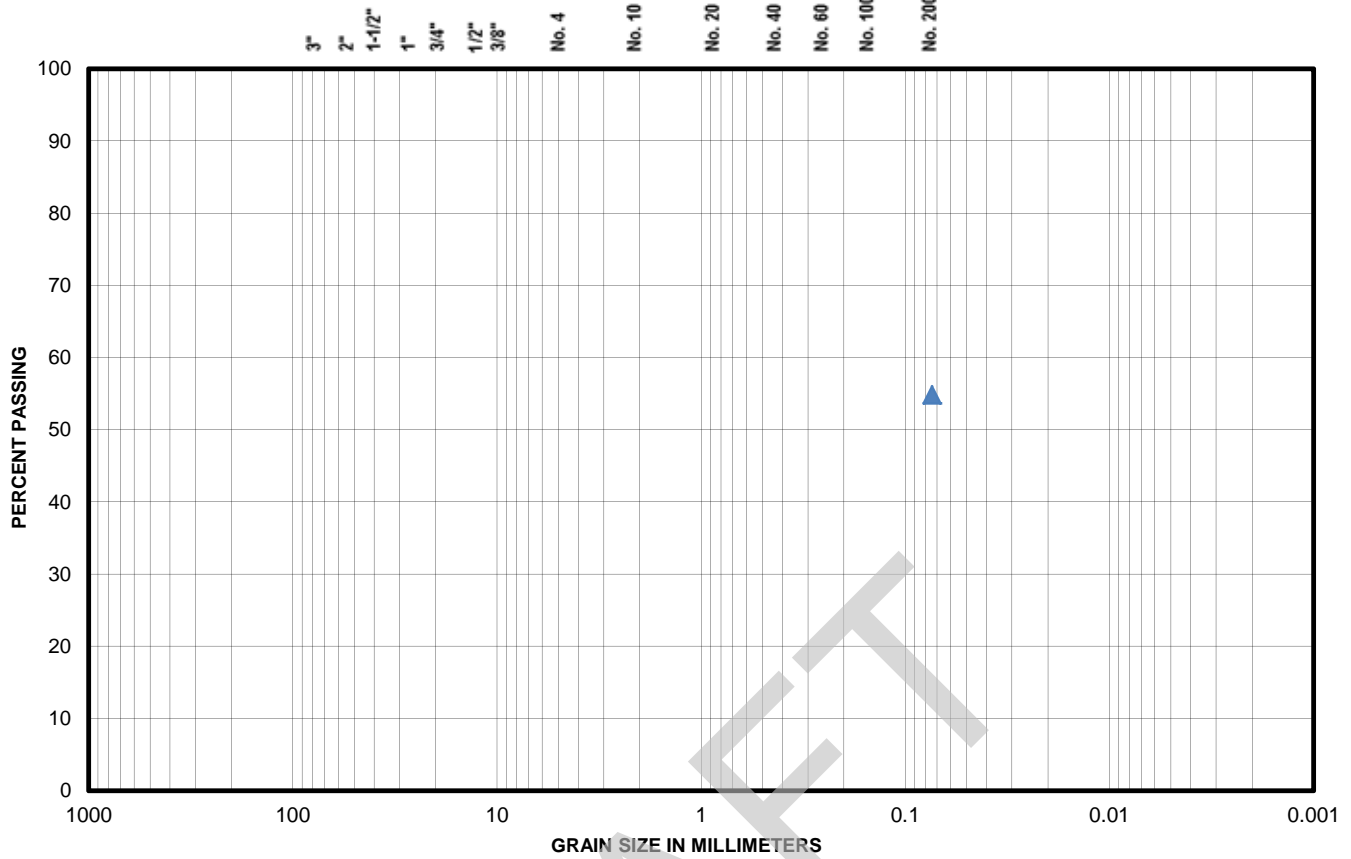
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

"Confidential Information; Privileged & Confidential Work Product"

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL	SAND		SILT	CLAY
		COARSE	FINE		

Sand %	45.2	Fines (Silt & Clay) %	54.8
--------	------	-----------------------	------

USC Classification	ML	C _u	na	C _c	na
Description	Medium dense gray sandy silt (ML)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	54.8

Project	LA CPRA - Mid-Barataria Diversion (BA-	Date Tested	10/8/2013
Project No.	18274-001-00	Tested By	TRC
Boring No.	B-4A	Checked By	TRC
Source/Depth (feet)	55 - 56	Sieve Type	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



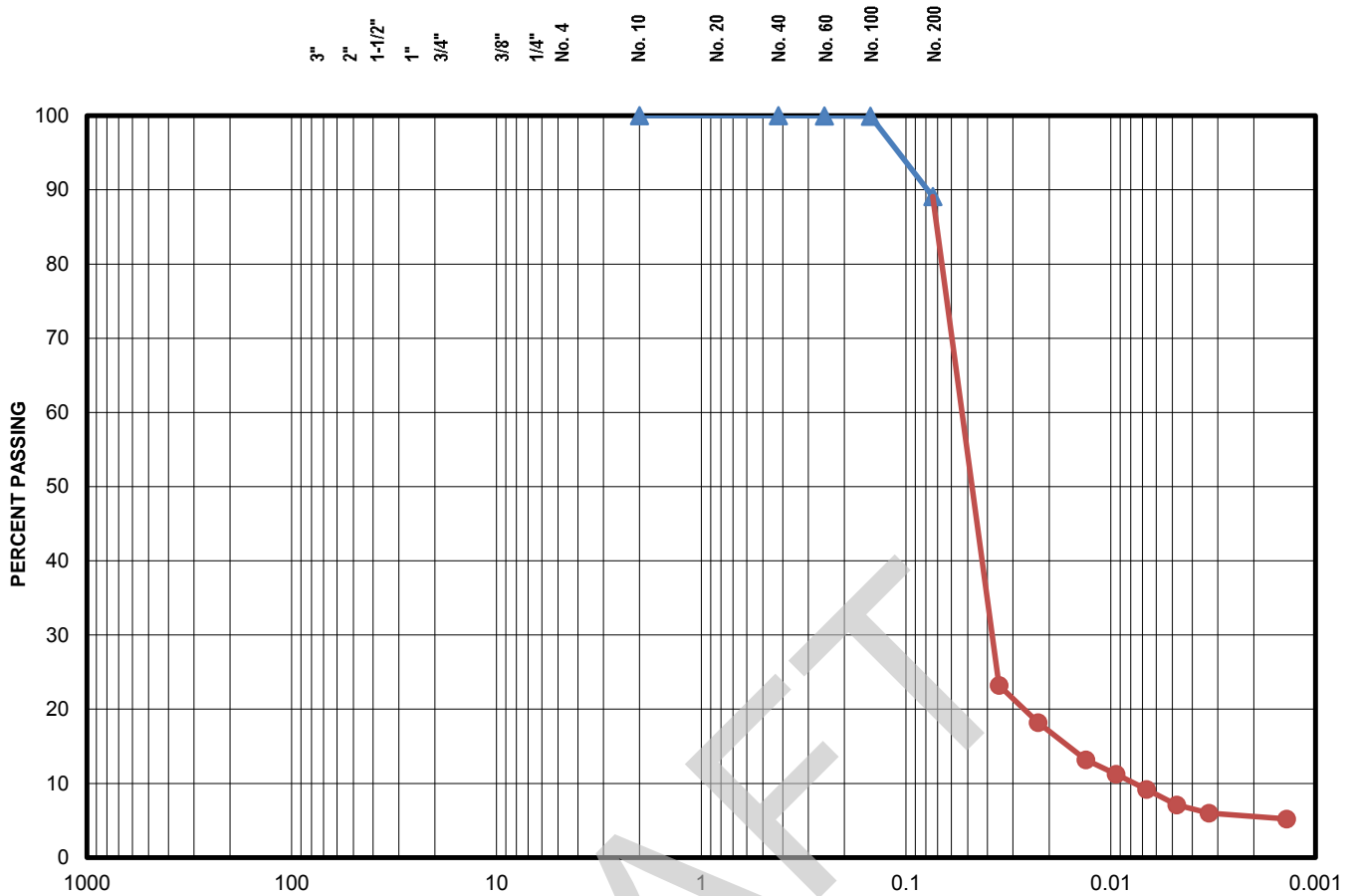
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AASHTO T 11 (No. 200) SIEVE ANALYSIS OF FINE AGGREGATES

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray sandy silt with 1 1/2" clay layer (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.9
1/4"	100.0	No. 200	89.1

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/11/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-4A	Checked By	SEF
Source/Depth (feet)	13 - 14		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



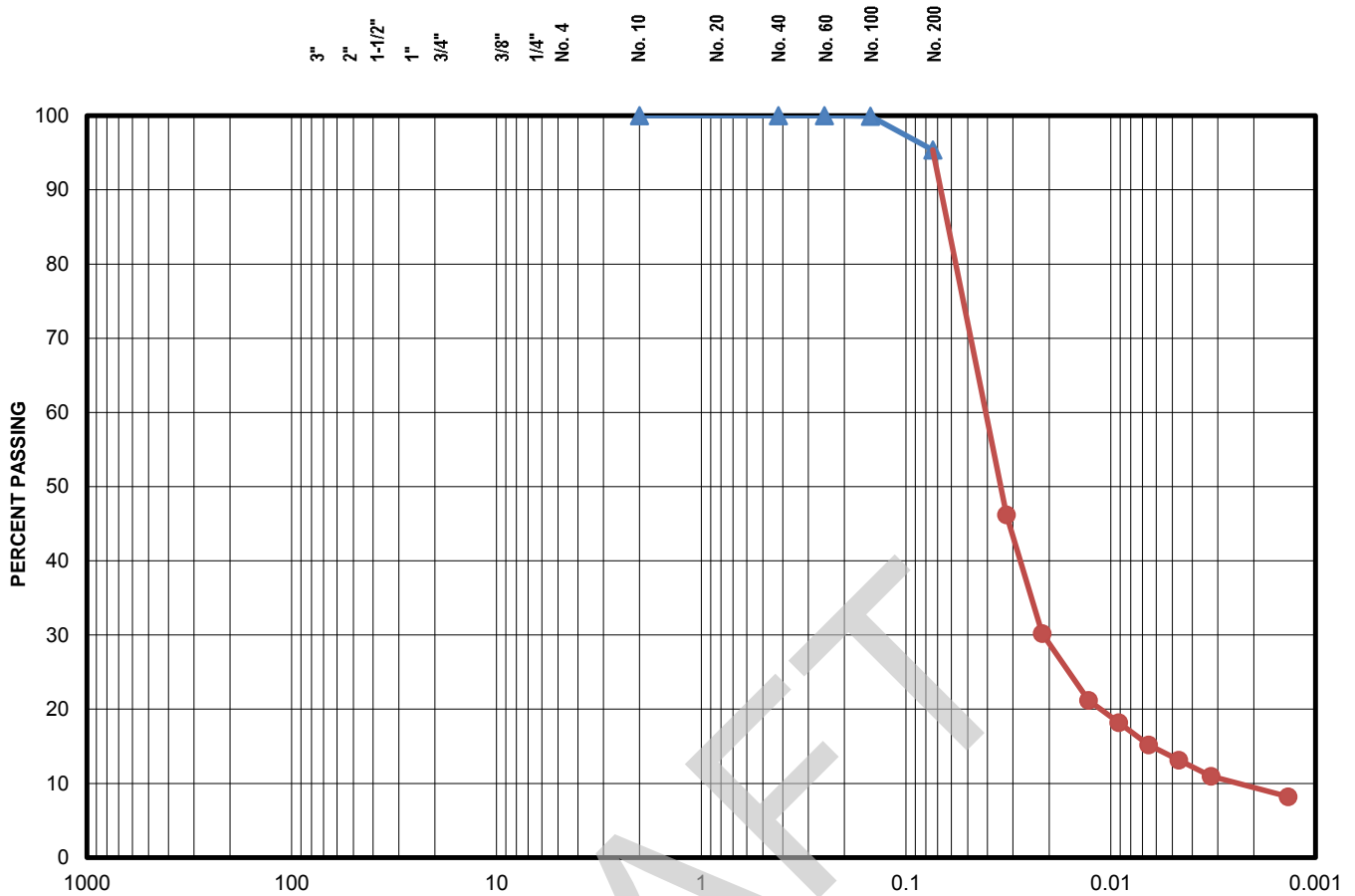
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Loose gray clayey silt (ML)
-----------------------------	-----------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.9
1/4"	100.0	No. 200	95.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/11/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-4A	Checked By	SEF
Source/Depth (feet)	17 - 18		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



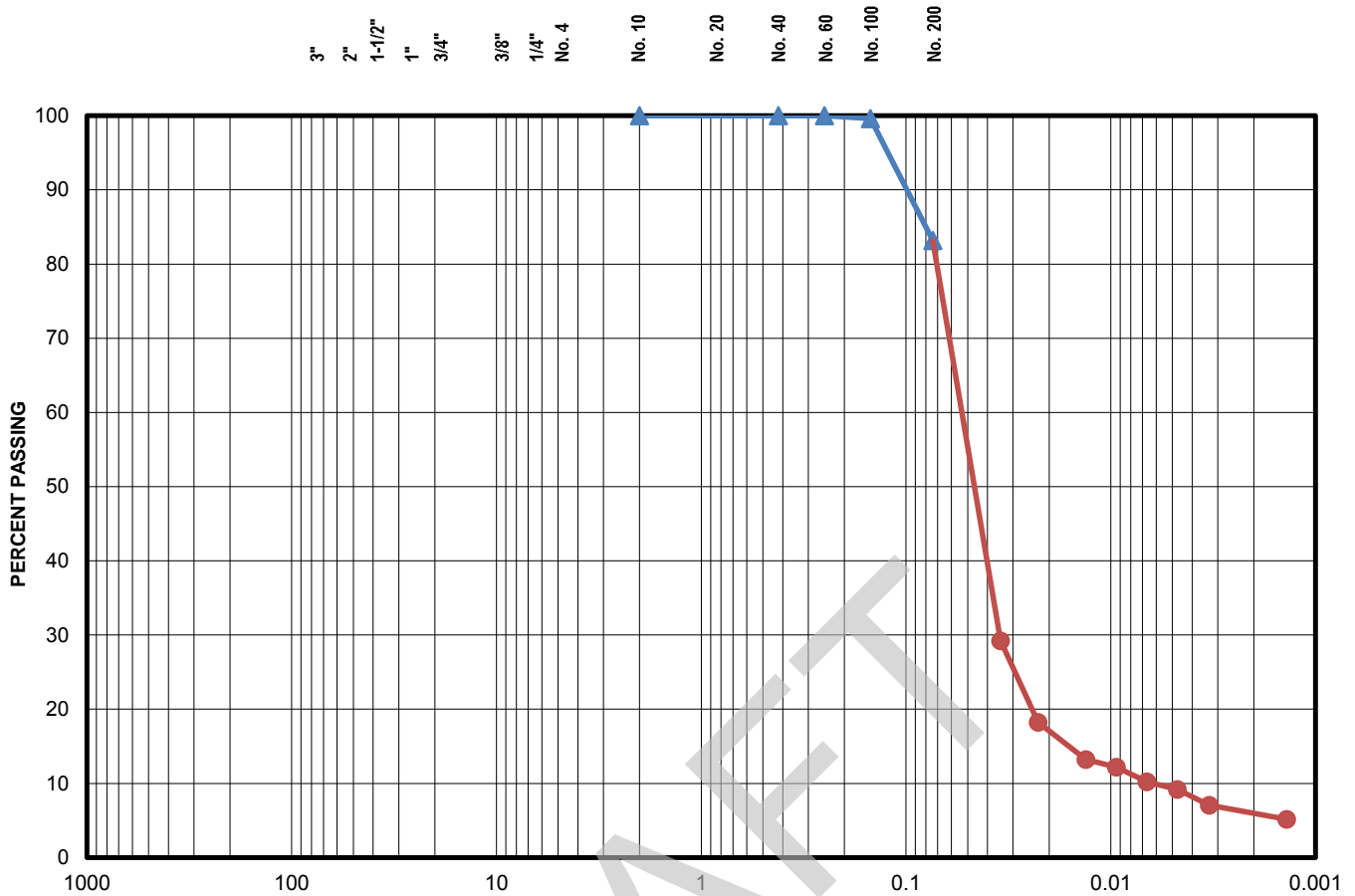
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.6
1/4"	100.0	No. 200	83.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	1354

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/10/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-4A	Checked By	SLC
Source/Depth (feet)	21 - 22		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



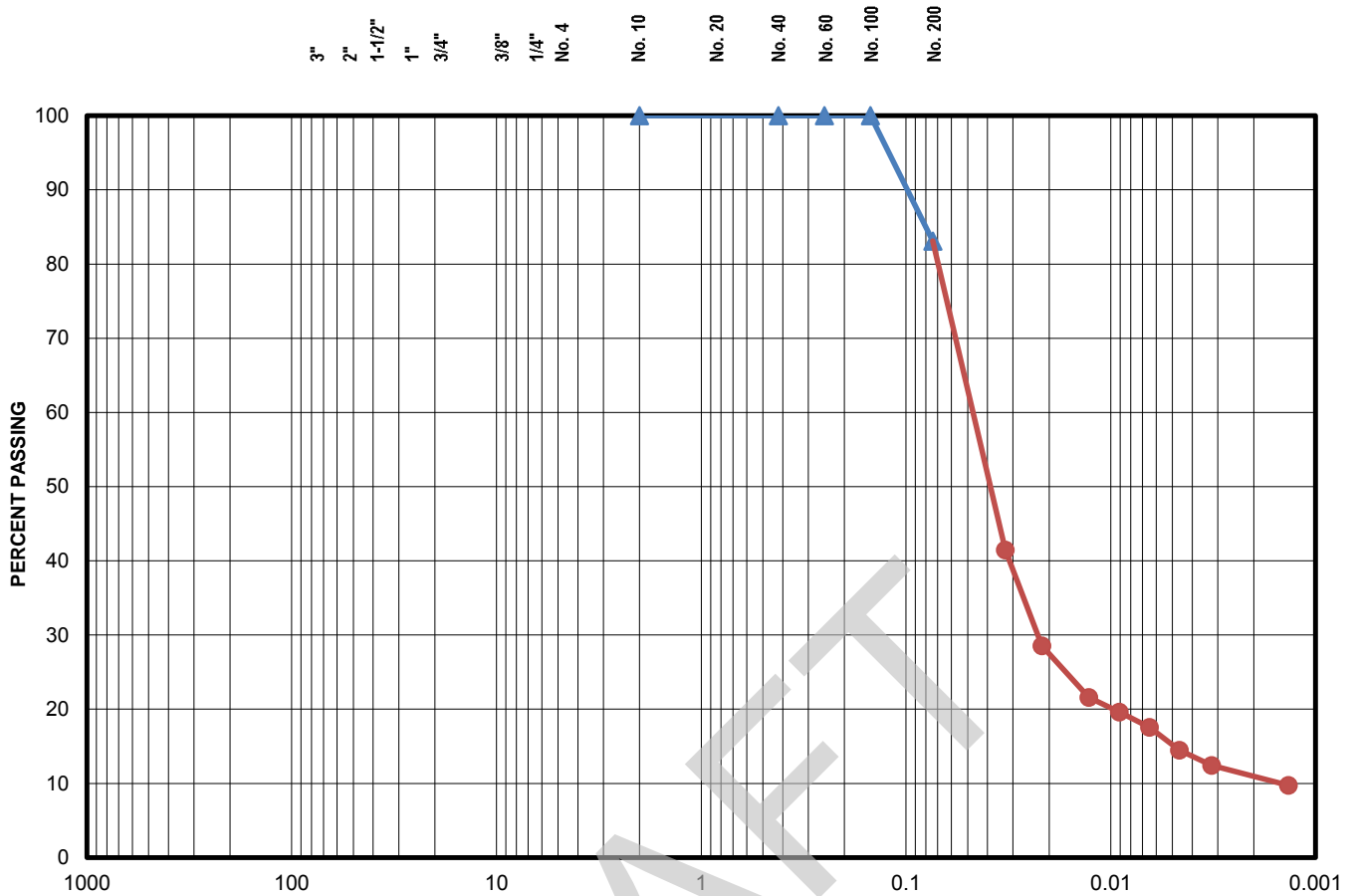
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	83.1

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1150

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/3/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-4A	Checked By	SLC
Source/Depth (feet)	38 - 39.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



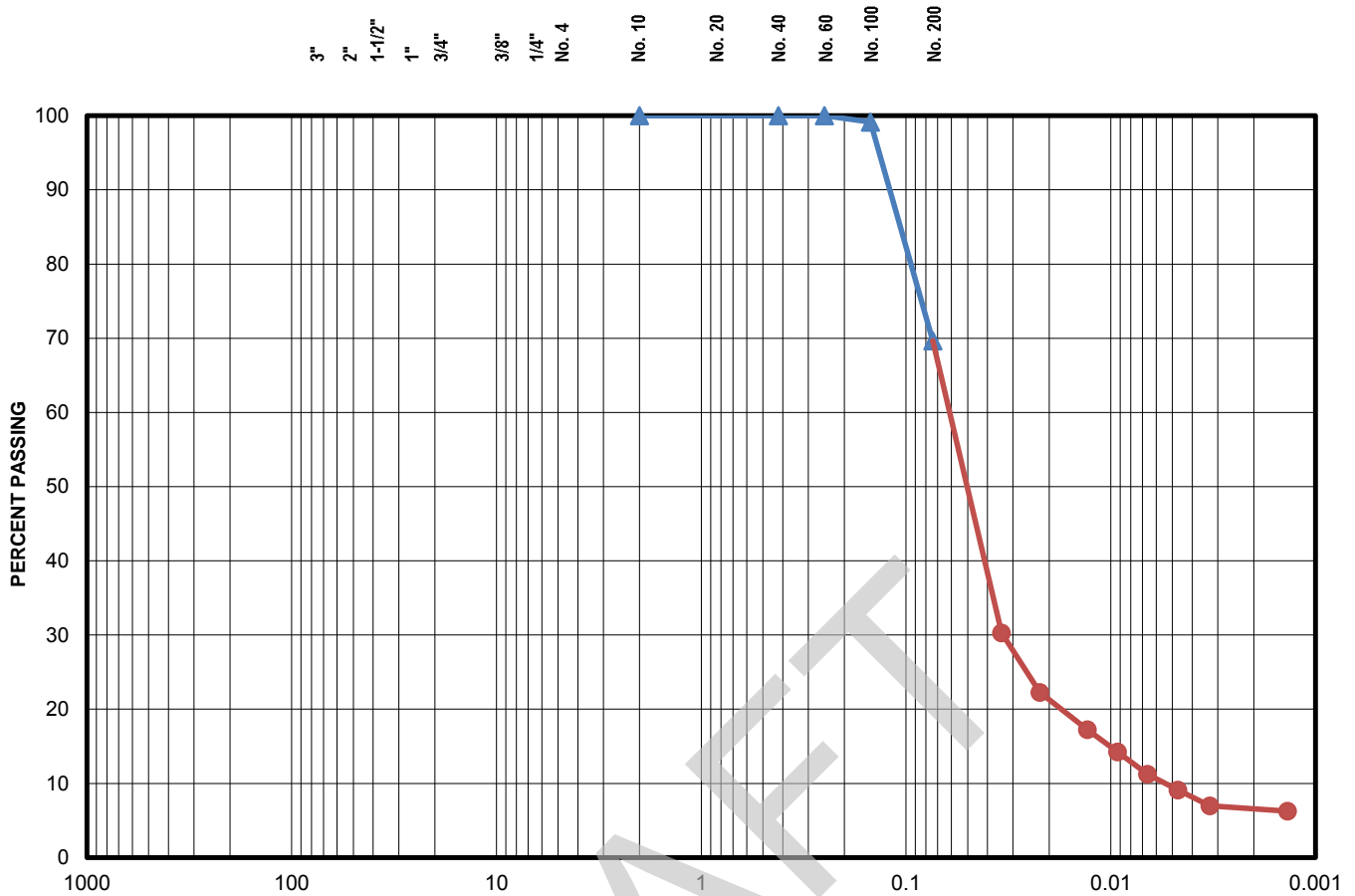
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.2
1/4"	100.0	No. 200	69.7

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1143
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/11/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-4A	Checked By	SEF
Source/Depth (feet)	53 - 54		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



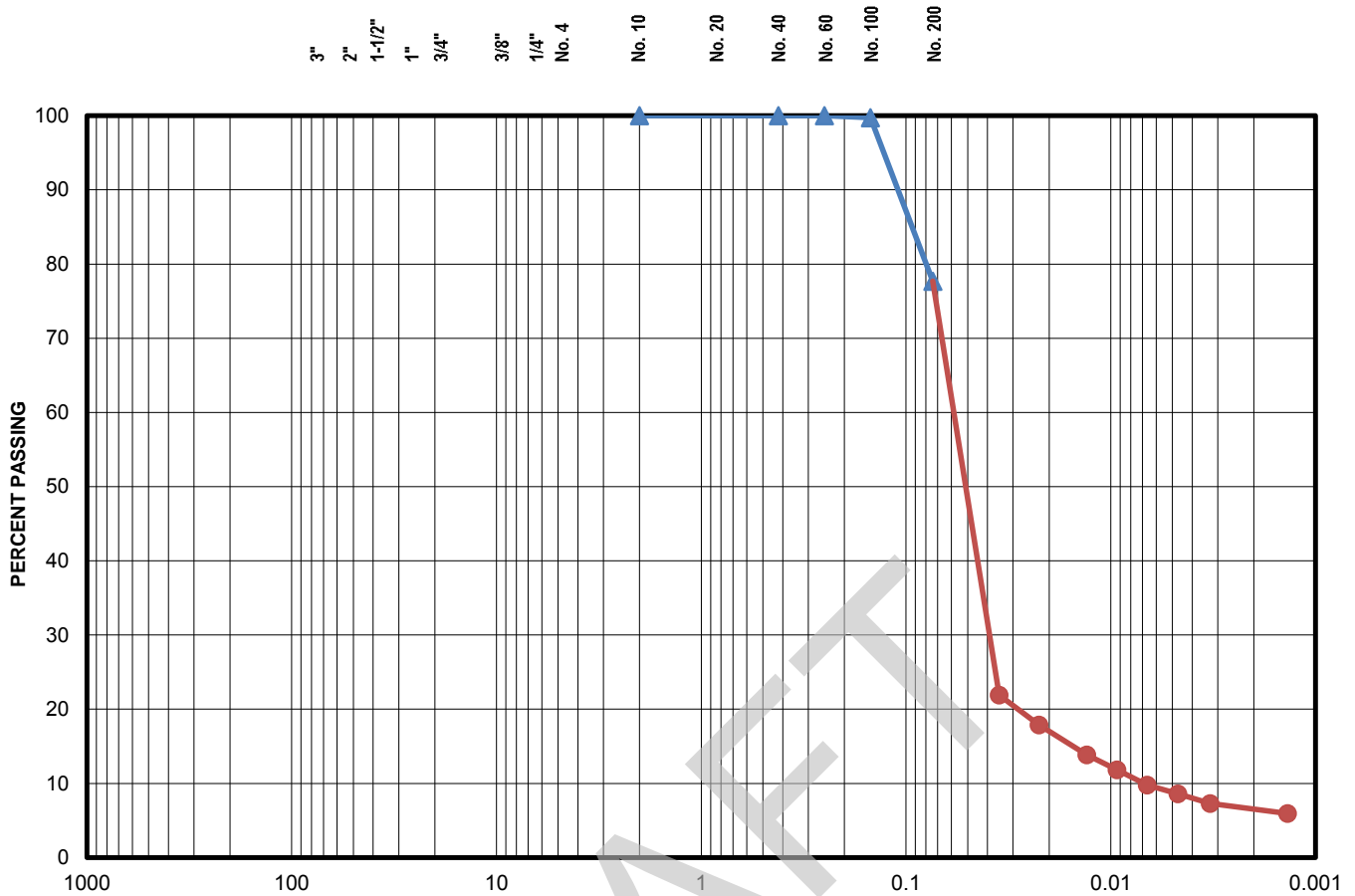
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium dense gray sandy silt (ML)
-----------------------------	-----------------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.7
1/4"	100.0	No. 200	77.7

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/11/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-4A	Checked By	SEF
Source/Depth (feet)	57 - 58		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



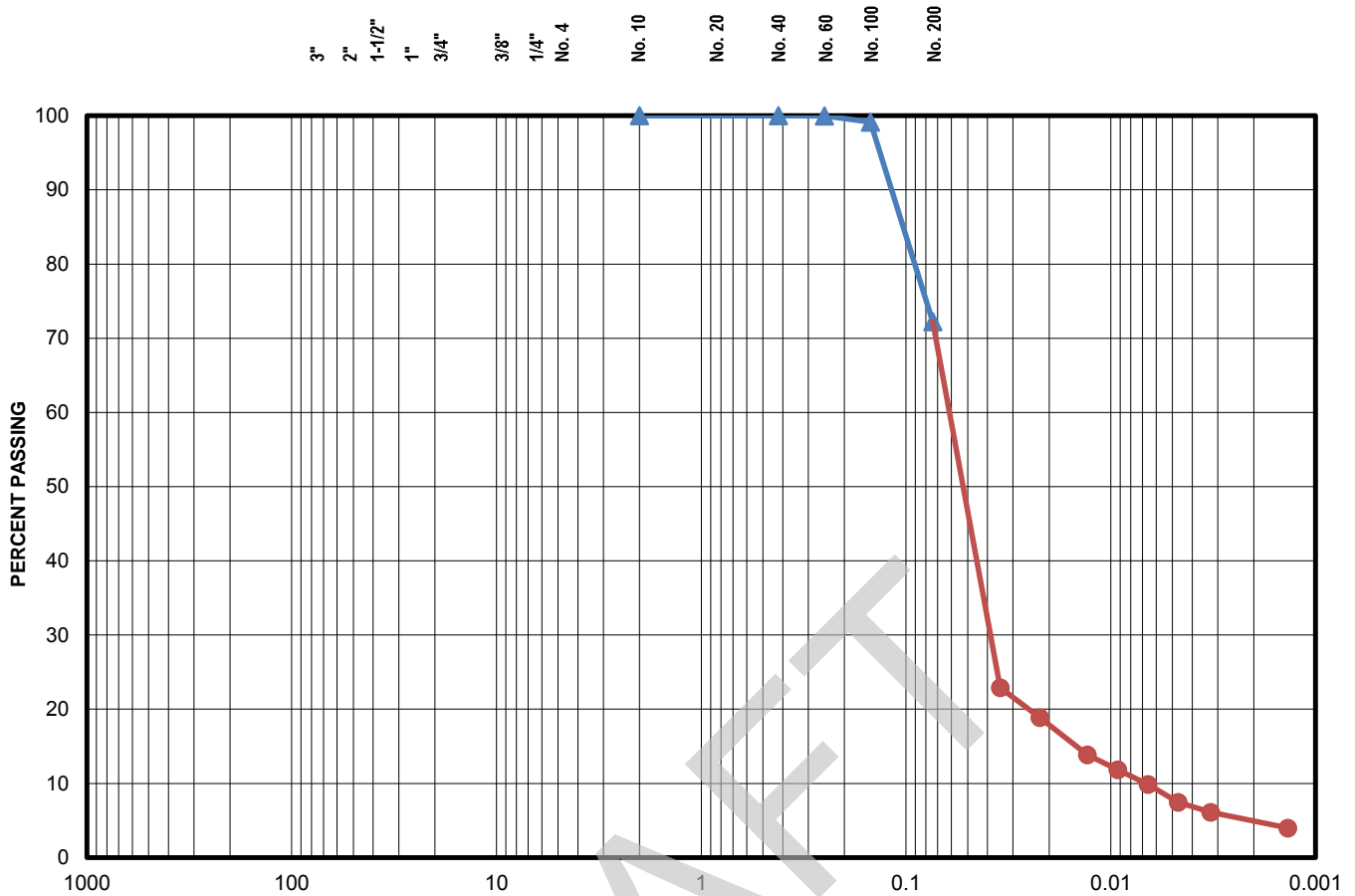
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.2
1/4"	100.0	No. 200	72.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/11/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-4A	Checked By	SEF
Source/Depth (feet)	61 - 62		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



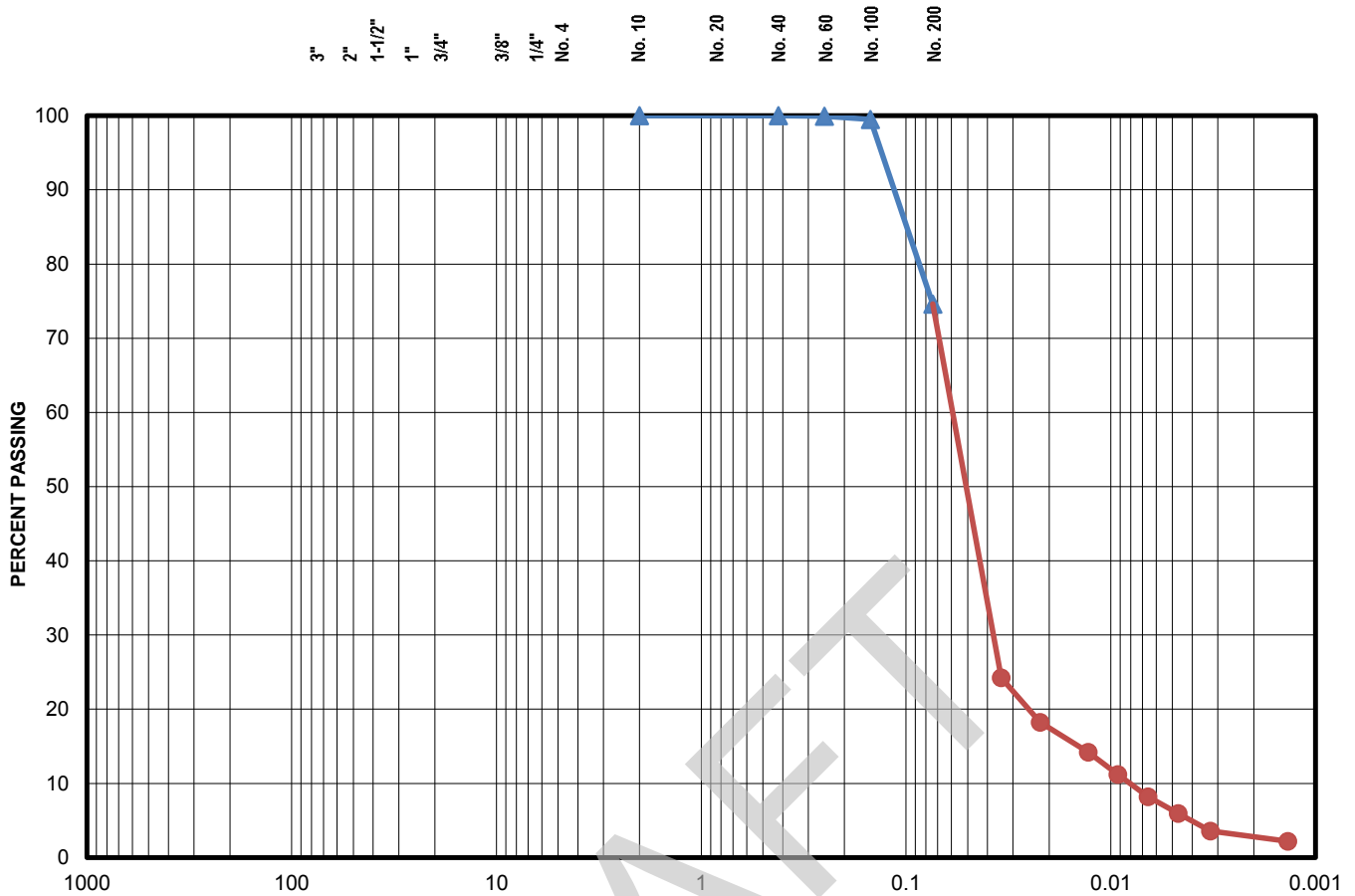
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	99.5
1/4"	100.0	No. 200	74.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/11/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-4A	Checked By	SEF
Source/Depth (feet)	67 - 68		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



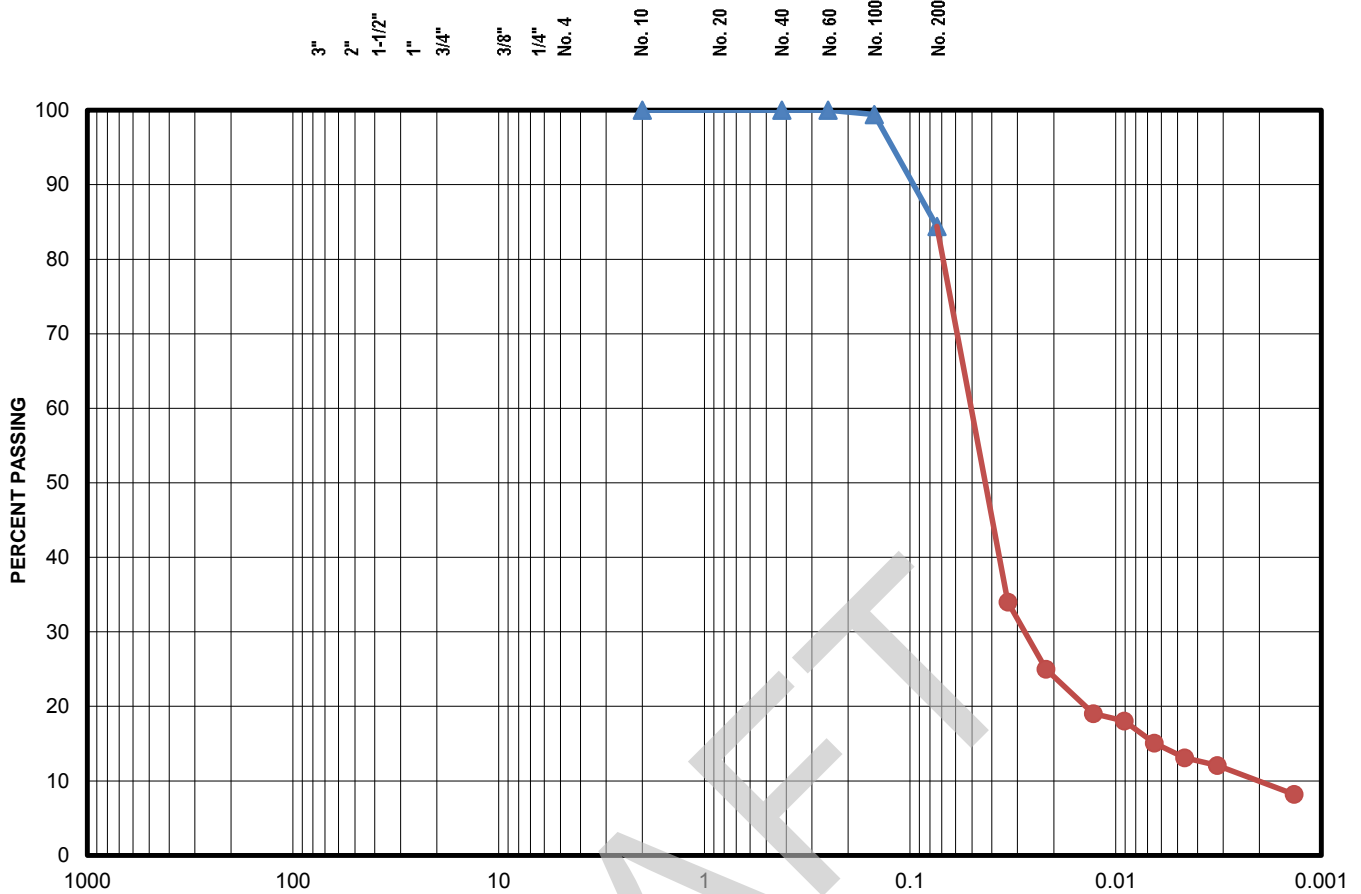
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Loose gray clayey sandy silt (ML)
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Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.4
1/4"	100.0	No. 200	84.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	1156

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/3/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-4A	Checked By	SLC
Source/Depth (feet)	70.5 - 72		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



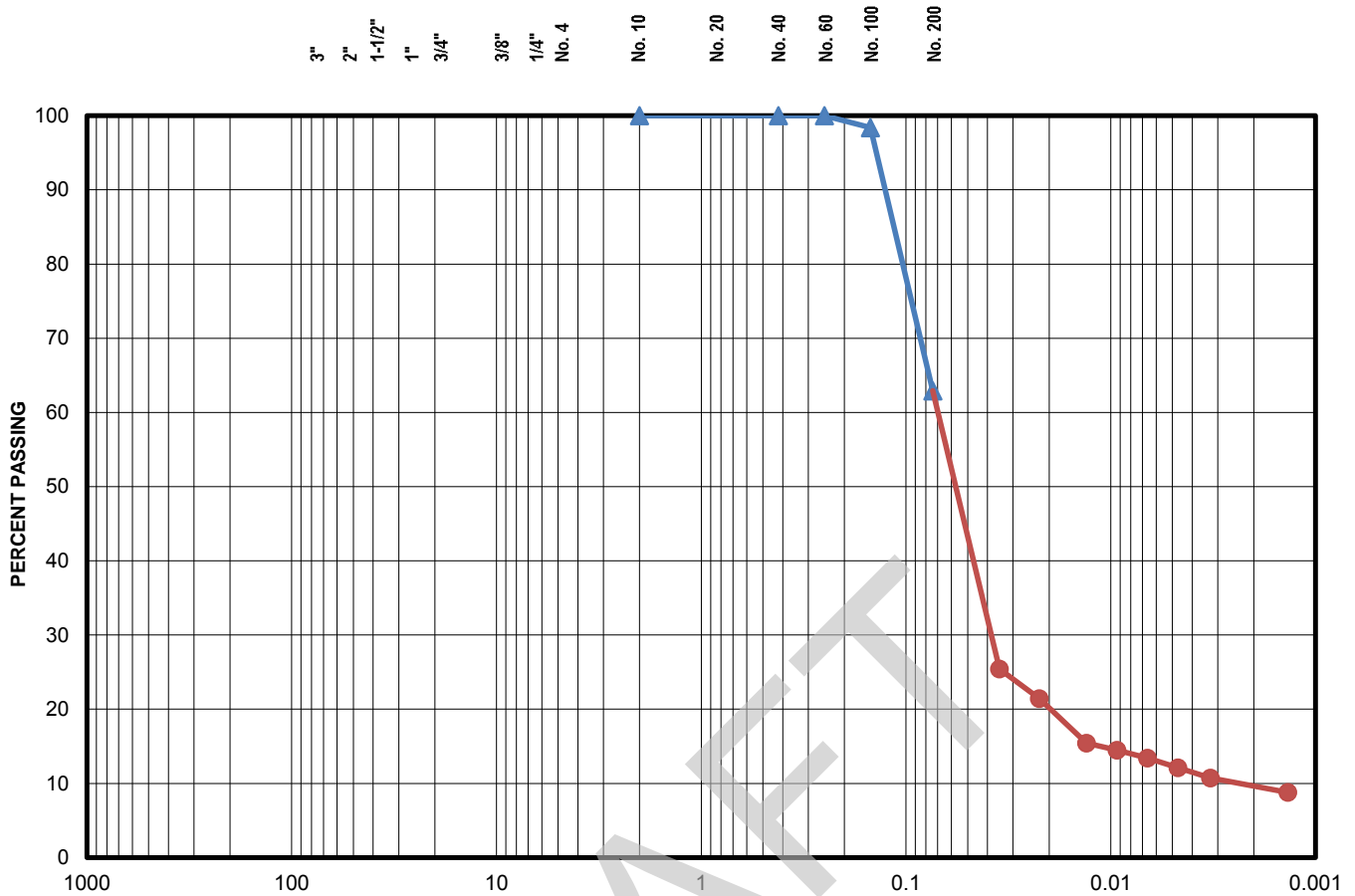
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium gray clayey sandy silt (ML)
-----------------------------	------------------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	98.4
1/4"	100.0	No. 200	62.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1147
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/10/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-4A	Checked By	SEF
Source/Depth (feet)	80.5 - 82		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



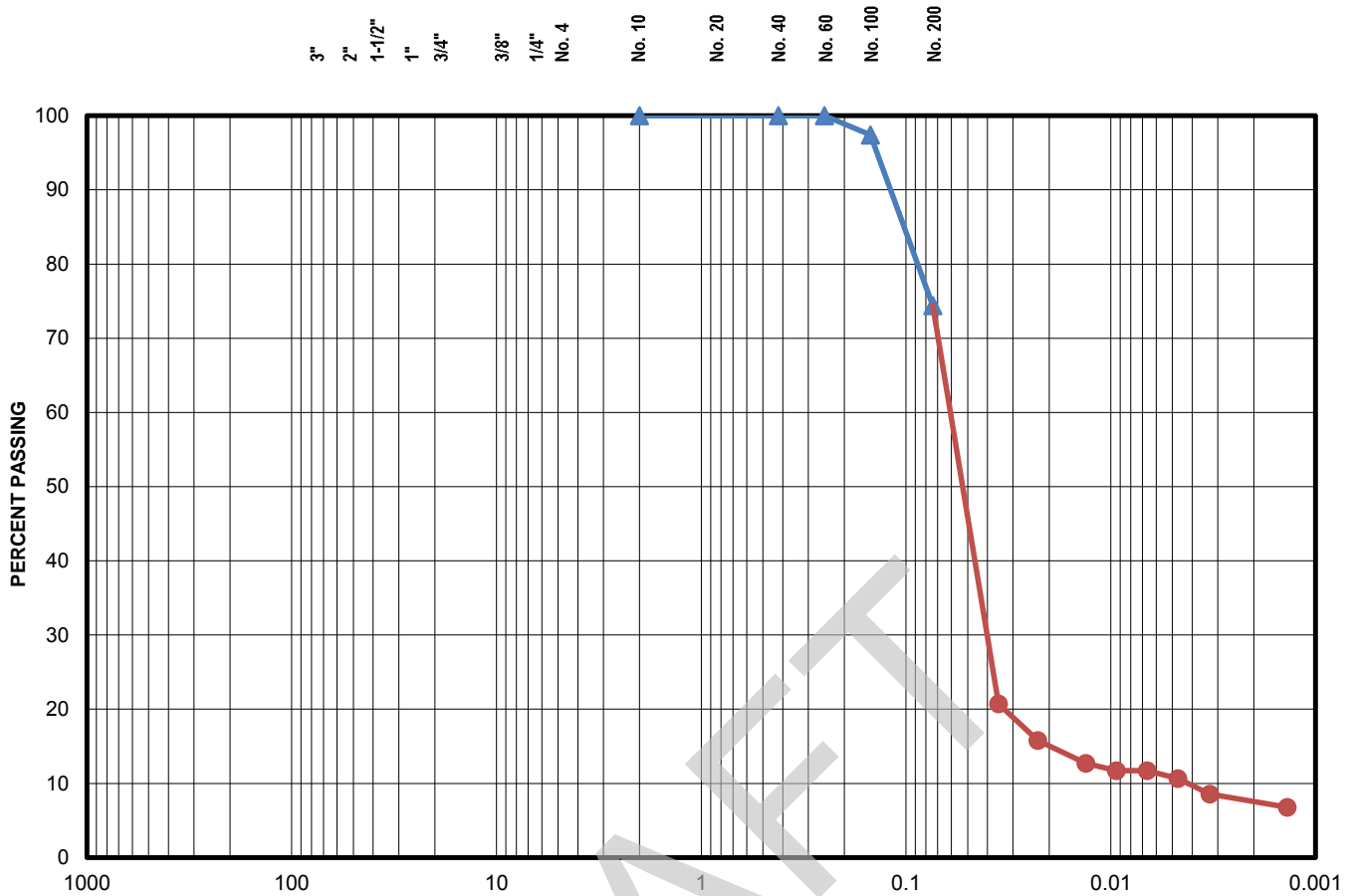
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Loose gray clayey sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	97.4
1/4"	100.0	No. 200	74.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1146
Hydro jar ID:	1156

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/3/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	B-4A	Checked By	SLC
Source/Depth (feet)	85.5 - 87		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



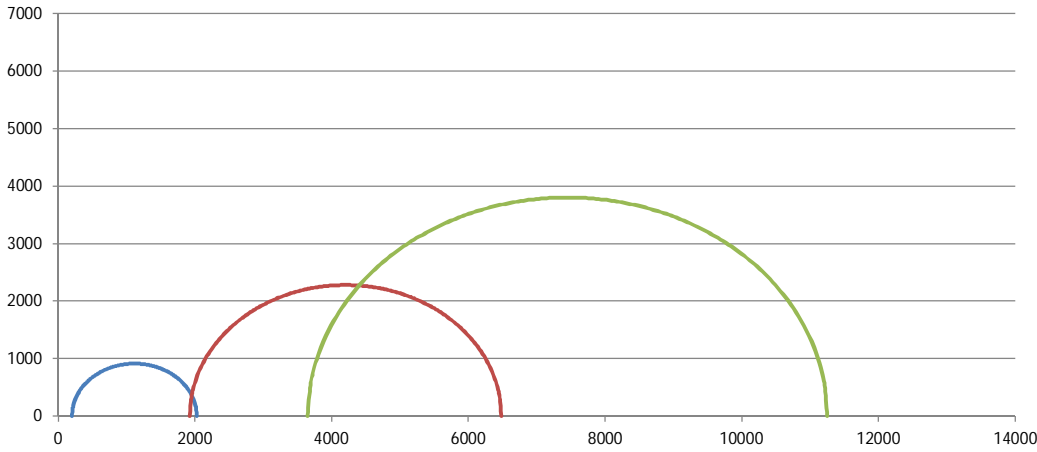
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

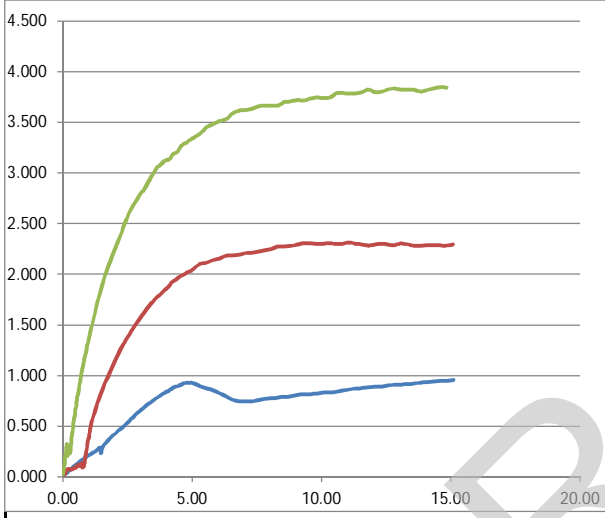
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	2279
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Yield
Sample 4 Failure	#N/A



Specimen No.	1	2	3
INITIAL WATER CONTENT %	26.12	26.14	26.15
INITIAL DRY DENSITY, PCF	94.10	95.20	95.69
INITIAL WET DENSITY, PCF	118.69	120.08	120.71
INITIAL SATURATION %	90.43	92.94	94.10
INITIAL VOID RATIO	0.77	0.75	0.74
AT TEST WATER CONTENT %	25.96	25.87	25.54
AT TEST DRY DENSITY, PCF	118.69	120.08	120.71
AT TEST WET DENSITY, PCF	149.49	151.15	151.55
AT TEST SATURATION %	90.13	92.45	92.98
AT TEST VOID RATIO	0.77	0.75	0.73

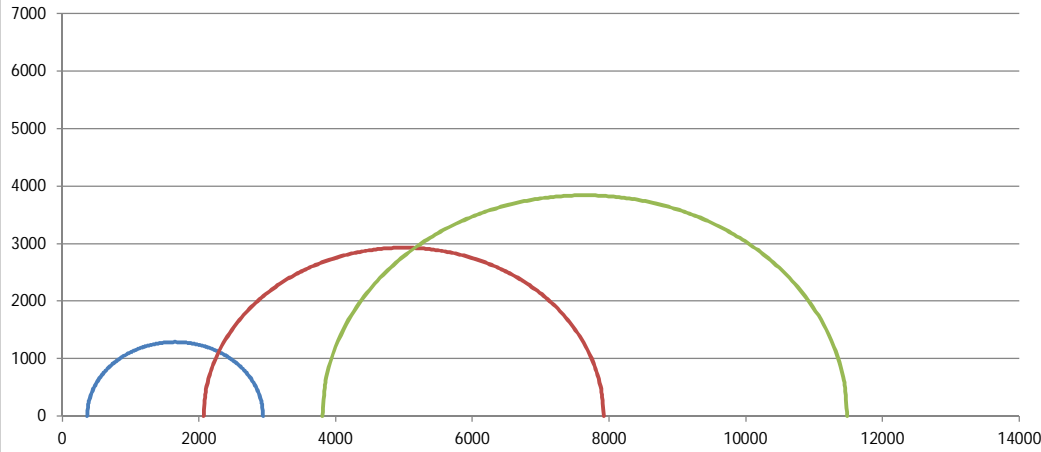
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.05	3.21	3.15
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.41	1.41	1.40
				CELL PRESSURE, PSI	1.30	13.30	25.30
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	912.25	2278.74	3800.37
REMARKS	0			STRAIN, %	4.86	11.07	14.58
				ULTIMATE STRESS, %	0.02	0.04	0.05
				σ_1 FAILURE, PSF	2026.44	6481.50	11250.44
				σ_3 FAILURE, PSF	201.94	1924.01	3649.70

SAMPLE DESCRIPTION: Very stiff brown and gray clay with 2" clayey silt layer (CL4)

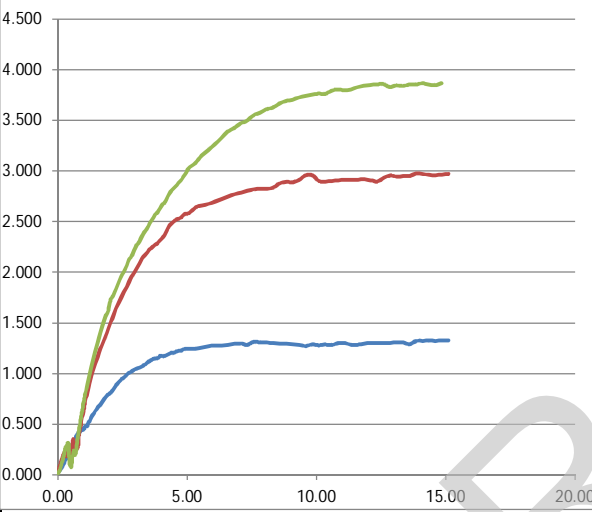
BORING NO.	B-4A	SAMPLE NO.	2	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	9/12/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	3 - 4		
TESTED BY	JRK/MSM/GOM/JRK/MSM/GOM/JRK/MSM/GOM		CHECKED BY	SLC/SLC/SLC/	

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	2926
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Yield
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



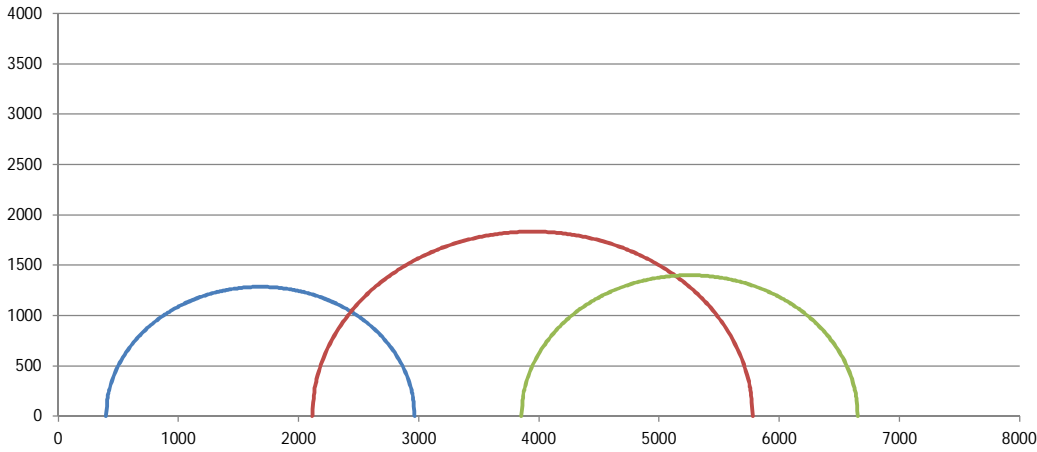
	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	27.61	27.05	26.63
	DRY DENSITY, PCF	97.35	98.77	101.30
	WET DENSITY, PCF	124.24	125.49	128.27
	SATURATION %	103.53	105.03	110.17
	VOID RATIO	0.71	0.69	0.65
AT TEST	WATER CONTENT %	27.65	26.70	26.21
	DRY DENSITY, PCF	124.24	125.49	128.27
	WET DENSITY, PCF	158.59	158.99	161.90
	SATURATION %	103.60	104.39	109.35
	VOID RATIO	0.71	0.68	0.64

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.06	3.01	2.95
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.36	1.37	1.37
				CELL PRESSURE, PSI	2.40	14.40	26.40
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1287.02	2926.29	3839.26
REMARKS	0			STRAIN, %	7.58	13.85	15.08
				ULTIMATE STRESS, %	0.03	0.05	0.05
				σ_1 FAILURE, PSF	2937.83	7920.80	11484.19
				σ_3 FAILURE, PSF	363.80	2068.22	3805.67

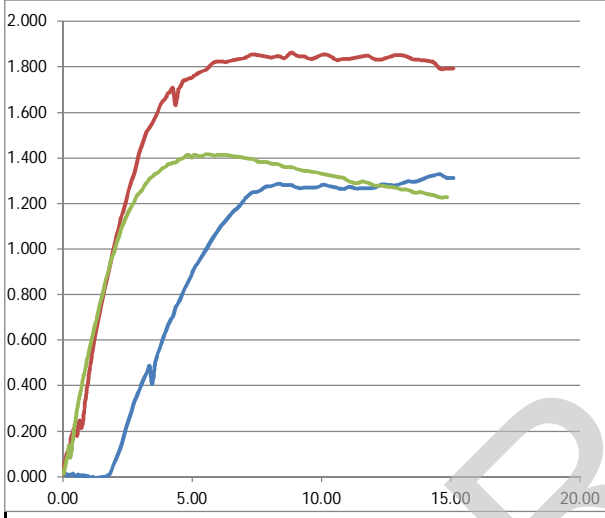
SAMPLE DESCRIPTION: Very stiff brown and gray clay with sand lenses, pockets and seams (CL4)

BORING NO.	B-4A	SAMPLE NO.	3	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	9/12/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	6.1 - 7		
TESTED BY	jrk/jrk/jrk	CHECKED BY	clp/clp/clp/CLP		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	1400
Sample 1 Failure	Yield
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



Specimen No.	1	2	3
WATER CONTENT %	28.32	27.58	28.34
DRY DENSITY, PCF	93.77	94.31	93.99
WET DENSITY, PCF	120.33	120.31	120.62
SATURATION %	97.25	95.94	97.82
VOID RATIO	0.78	0.77	0.77
WATER CONTENT %	28.60	28.42	30.02
DRY DENSITY, PCF	120.33	120.31	120.62
WET DENSITY, PCF	154.73	154.50	156.83
SATURATION %	97.71	97.39	100.60
VOID RATIO	0.78	0.78	0.80

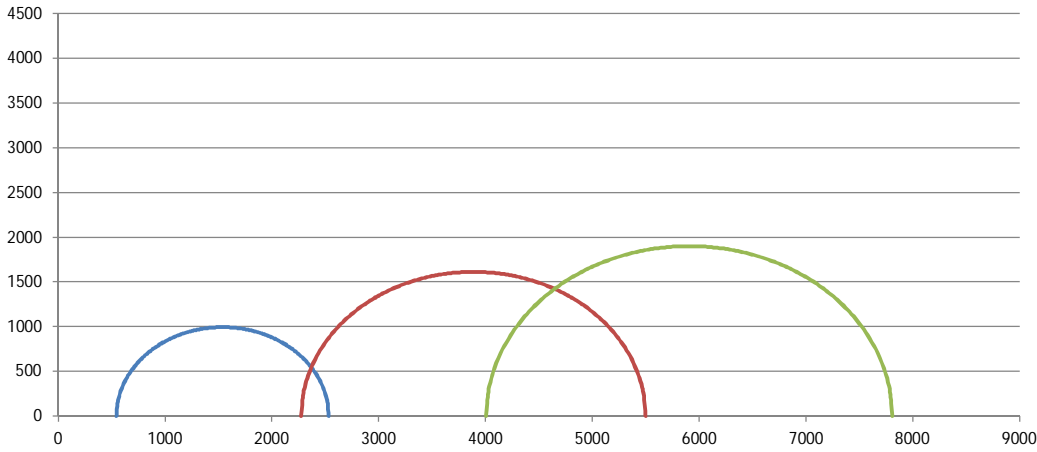
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.00	3.03	3.08
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.46	1.47	1.47
				CELL PRESSURE, PSI	2.70	14.70	26.70
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1283.78	1832.53	1399.64
REMARKS	0			STRAIN, %	14.60	8.83	5.57
				ULTIMATE STRESS, %	0.04	0.03	0.02
				σ_1 FAILURE, PSF	2965.33	5778.81	6653.39
				σ_3 FAILURE, PSF	397.78	2113.74	3854.10

SAMPLE DESCRIPTION: Stiff brown and gray clay with 3" laminated silt and clay layers and sand lenses, pockets and seams (CL6)

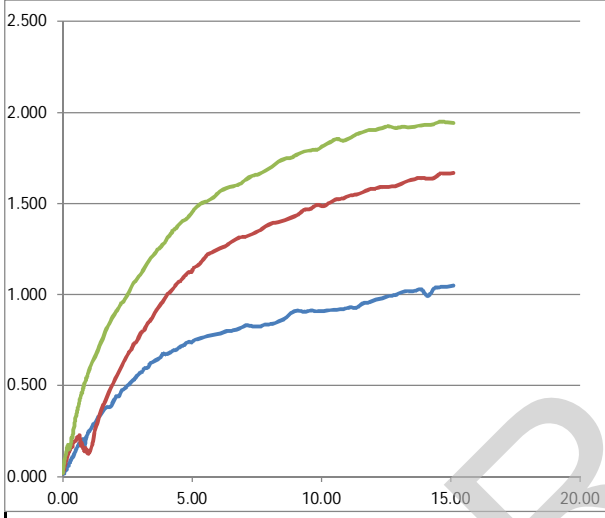
BORING NO.	B-4A	SAMPLE NO.	3	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	9/11/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	7 - 8		
TESTED BY	JRK/JRK/JRK	CHECKED BY	CLP/CLP/CLP/		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	1612
Sample 1 Failure	Yield
Sample 2 Failure	Yield
Sample 3 Failure	Yield
Sample 4 Failure	#N/A



Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	29.81	27.94	28.28
	DRY DENSITY, PCF	98.39	97.11	93.60
	WET DENSITY, PCF	127.72	124.24	120.07
	SATURATION %	114.66	104.12	96.70
	VOID RATIO	0.69	0.72	0.78
AT TEST	WATER CONTENT %	28.17	27.24	26.63
	DRY DENSITY, PCF	127.72	124.24	120.07
	WET DENSITY, PCF	163.69	158.08	152.04
	SATURATION %	111.80	102.86	93.81
	VOID RATIO	0.67	0.71	0.76

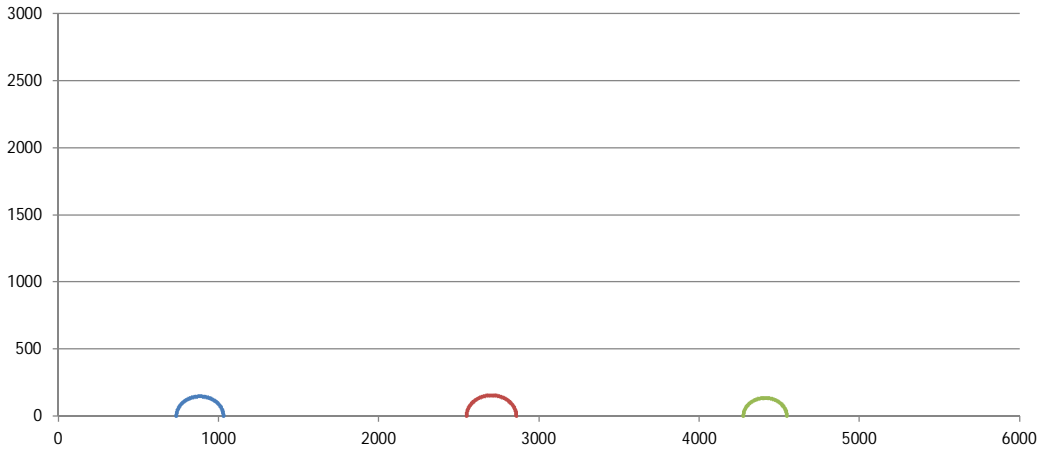
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	2.97	3.18	3.03
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.38	1.42	1.45
				CELL PRESSURE, PSI	3.80	15.80	15.80
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	993.58	1612.01	1899.65
REMARKS	0			STRAIN, %	15.11	15.11	14.61
				ULTIMATE STRESS, %	0.06	0.06	0.05
				σ_1 FAILURE, PSF	2532.23	5498.74	7806.39
				σ_3 FAILURE, PSF	545.08	2274.73	4007.09

SAMPLE DESCRIPTION: Stiff gray clay with sand lenses, pockets and seams and 2" silt layer (CL4)

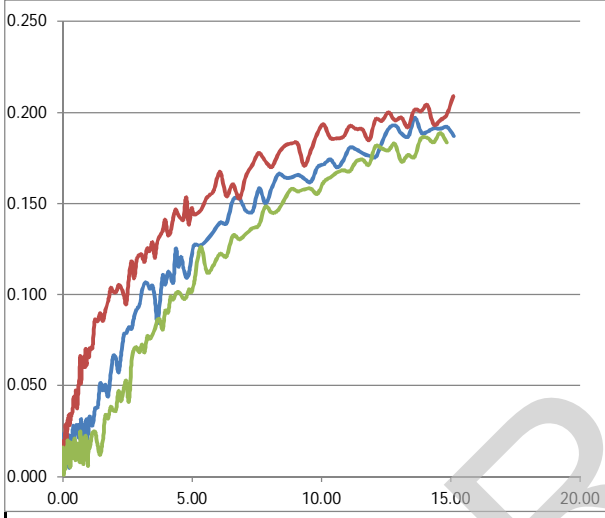
BORING NO.	B-4A	SAMPLE NO.	4	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	9/12/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	10 - 11		
TESTED BY	JRK/JRK/JRK	CHECKED BY	CLP/CLP/CLP/CLP		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	147
Sample 1 Failure	Bulge
Sample 2 Failure	Bulge
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



Specimen No.	1	2	3
INITIAL WATER CONTENT %	38.72	38.25	37.75
INITIAL DRY DENSITY, PCF	85.05	89.27	87.61
INITIAL WET DENSITY, PCF	117.98	123.41	120.68
INITIAL SATURATION %	107.70	117.76	111.66
INITIAL VOID RATIO	0.96	0.87	0.90
AT TEST WATER CONTENT %	39.15	39.10	37.29
AT TEST DRY DENSITY, PCF	117.98	123.41	120.68
AT TEST WET DENSITY, PCF	164.16	171.67	165.68
AT TEST SATURATION %	108.21	118.81	111.09
AT TEST VOID RATIO	0.97	0.88	0.90

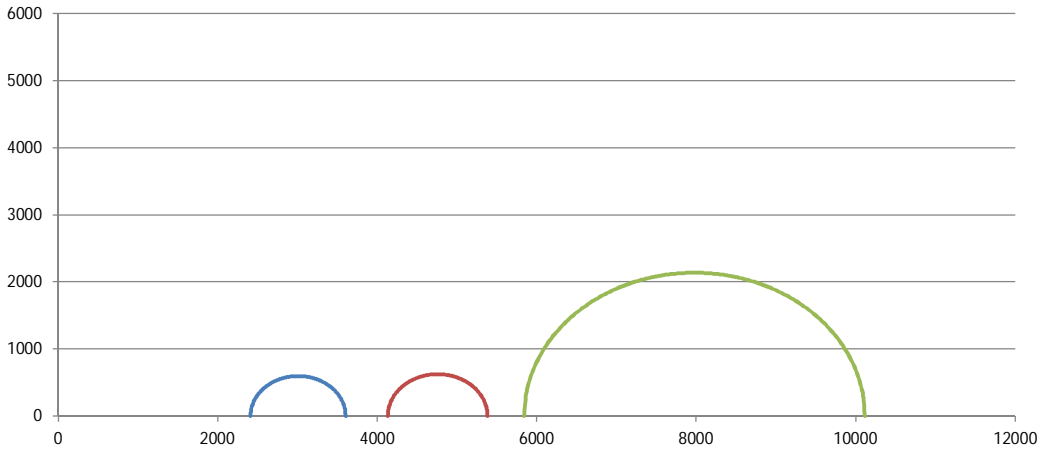
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.13	3.26	3.31
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.43	1.39	1.43
				CELL PRESSURE, PSI	5.70	17.70	29.70
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	146.77	155.36	135.37
REMARKS 0				STRAIN, %	13.61	10.08	12.08
				ULTIMATE STRESS, %	0.05	0.04	0.05
				σ_1 FAILURE, PSF	1031.06	2859.23	4547.09
				σ_3 FAILURE, PSF	737.53	2548.51	4276.34

SAMPLE DESCRIPTION: Very soft gray clay with sand lenses and 2x 2 1/2" clayey silt layers (CL4)

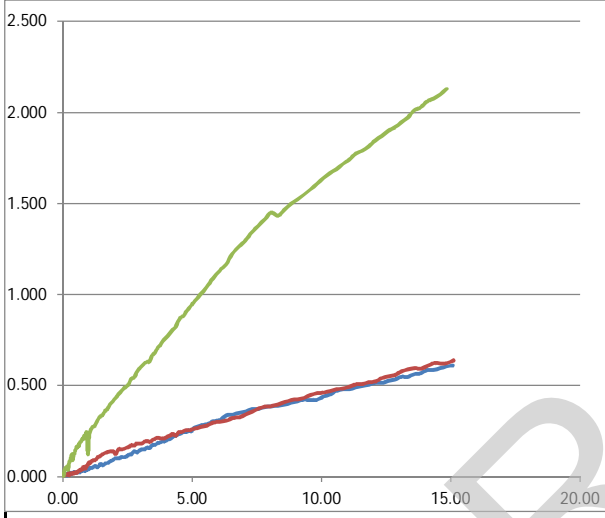
BORING NO.	B-4A	SAMPLE NO.	5	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	9/12/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	15 - 16		
TESTED BY	JRK/MSM/JRK/MSM/JRK/MSM	CHECKED BY	SLC/SLC/SLC/		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	625
Sample 1 Failure	Yield
Sample 2 Failure	Yield
Sample 3 Failure	Yield
Sample 4 Failure	#N/A



Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	27.43	31.15	32.83
	DRY DENSITY, PCF	99.66	96.55	94.50
	WET DENSITY, PCF	127.01	126.63	125.52
	SATURATION %	108.93	114.50	114.76
	VOID RATIO	0.67	0.73	0.76
AT TEST	WATER CONTENT %	26.90	28.01	26.40
	DRY DENSITY, PCF	127.01	126.63	125.52
	WET DENSITY, PCF	161.17	162.10	158.67
	SATURATION %	107.93	109.17	103.90
	VOID RATIO	0.67	0.69	0.68

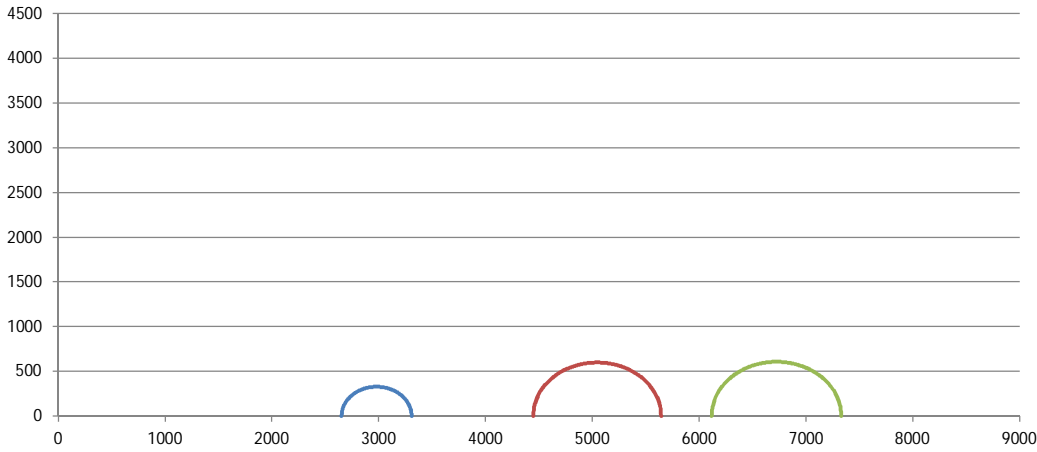
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.15	3.26	3.14
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.49	1.49	1.41
				CELL PRESSURE, PSI	16.60	28.60	40.60
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	597.00	625.00	2136.00
REMARKS	0			STRAIN, %	15.08	15.11	15.09
				ULTIMATE STRESS, %	0.01	0.01	0.01
				σ_1 FAILURE, PSF	3604.56	5382.80	10114.08
				σ_3 FAILURE, PSF	2410.56	4132.80	5842.08

SAMPLE DESCRIPTION: Medium dense gray clayey silt (ML)

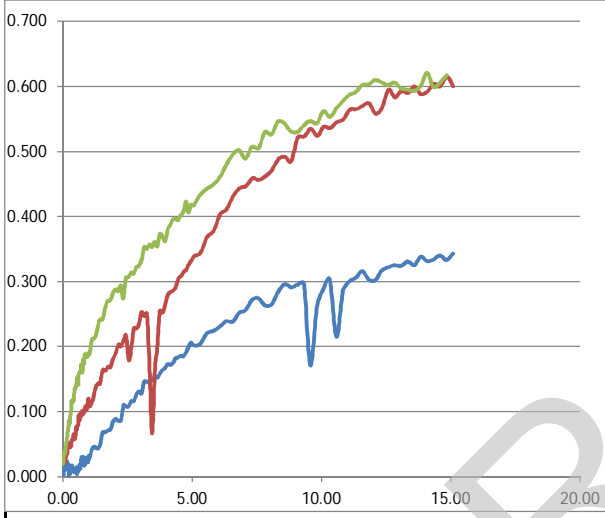
BORING NO.	B-4A	SAMPLE NO.	15	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	9/12/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	45 - 46		
TESTED BY	JRK/MSM/JRK/MSM/JRK/MSM	CHECKED BY	SLC/SLC/SLC/		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	599
Sample 1 Failure	Yield
Sample 2 Failure	Yield
Sample 3 Failure	Bulge
Sample 4 Failure	#N/A



Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	31.02	30.73	30.49
	DRY DENSITY, PCF	96.52	96.96	95.15
	WET DENSITY, PCF	126.46	126.76	124.16
	SATURATION %	113.94	114.11	108.28
	VOID RATIO	0.73	0.72	0.75
AT TEST	WATER CONTENT %	31.01	31.16	30.60
	DRY DENSITY, PCF	126.46	126.76	124.16
	WET DENSITY, PCF	165.67	166.26	162.16
	SATURATION %	113.91	114.81	108.46
	VOID RATIO	0.73	0.72	0.75

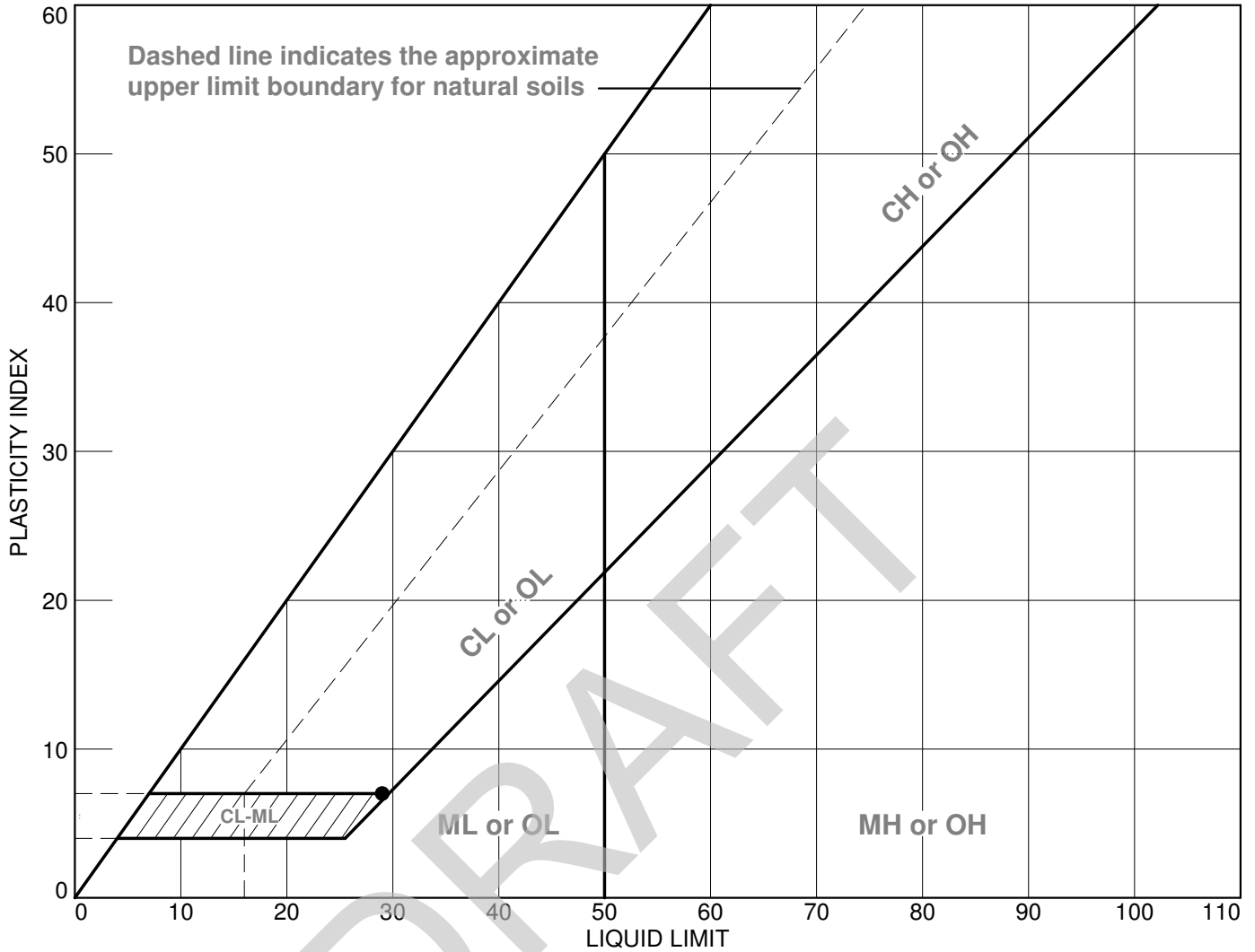
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.09	3.07	3.06
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.38	1.36	1.35
				CELL PRESSURE, PSI	18.40	30.80	42.40
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	328.00	599.00	607.00
REMARKS 0				STRAIN, %	15.09	14.85	14.08
				ULTIMATE STRESS, %	0.02	0.02	0.01
				σ_1 FAILURE, PSF	3308.48	5644.72	7331.12
				σ_3 FAILURE, PSF	2652.48	4446.72	6117.12

SAMPLE DESCRIPTION Medium gray clay (CL4)

BORING NO.	B-4A	SAMPLE NO.	16	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	9/12/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	50 - 51		
TESTED BY	JRK/MSM/JRK/MSM/JRK/MSM		CHECKED BY	SLC/SLC/SLC/	

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LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-4A	16	49		22	29	7	ML

Fugro Consultants, Inc.

Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No.: 04.55124092

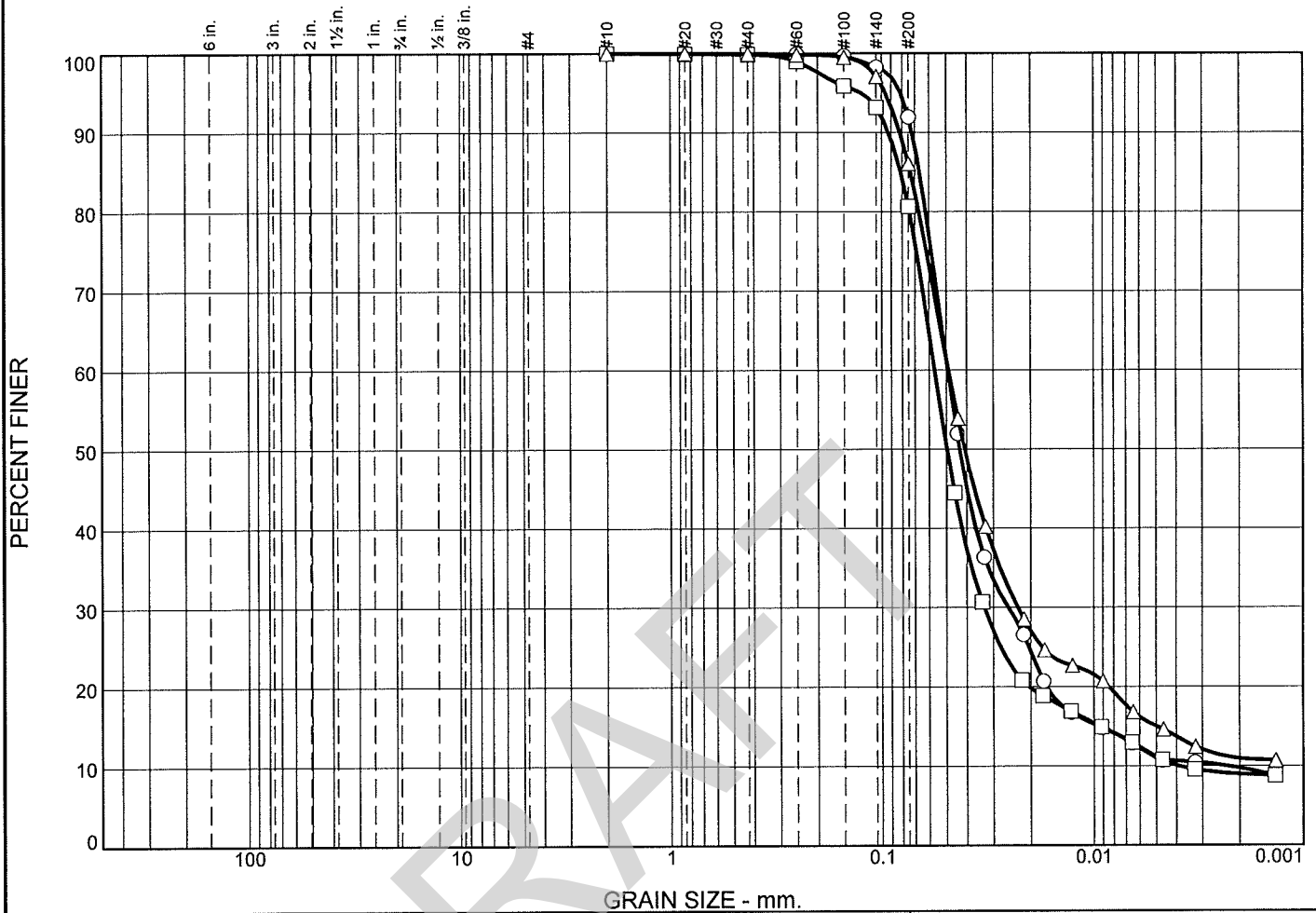
Figure

Tested By: SS

Checked By: DB

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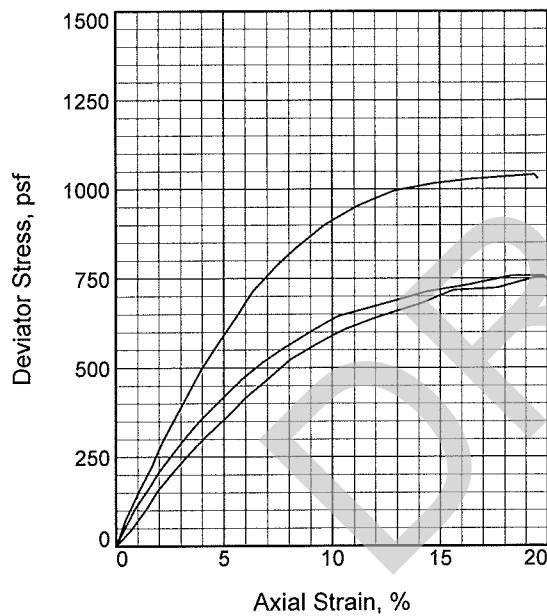
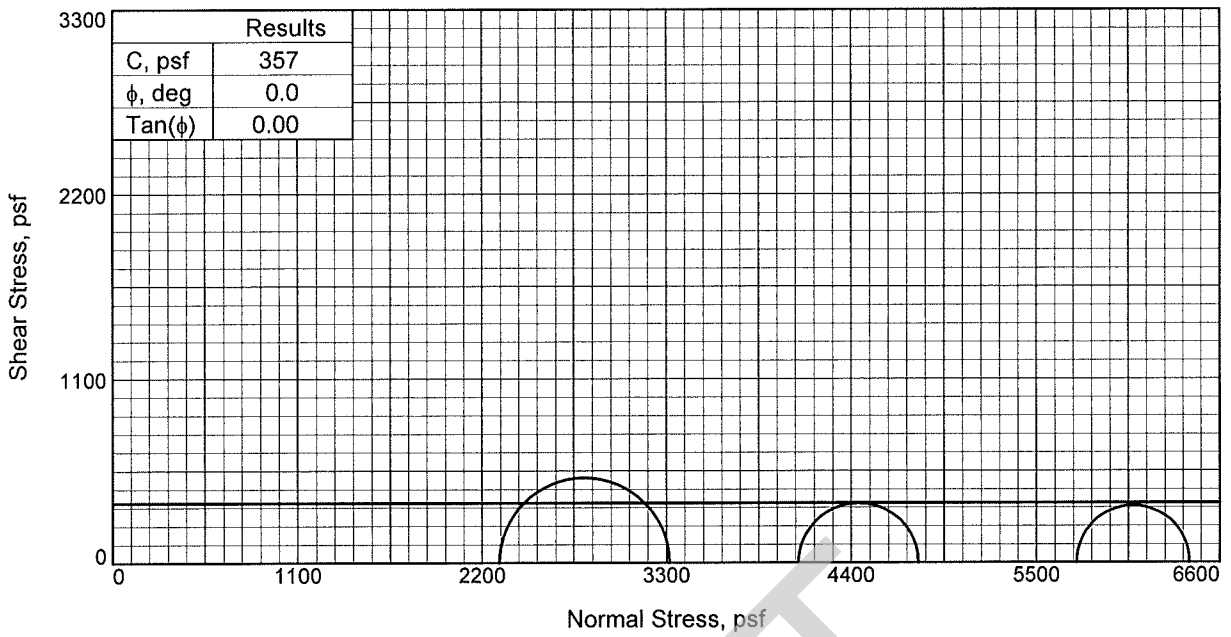
Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	8	81	11		
□	0	0	0	0	0	19	70	11		
△	0	0	0	0	0	14	71	15		
×	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			0.0666	0.0492	0.0432	0.0256	0.0095	0.0023	5.81	21.52
□			0.0814	0.0566	0.0496	0.0332	0.0093	0.0039	5.03	14.62
△	29	22	0.0734	0.0489	0.0410	0.0231	0.0050			

Material Description	USCS	AASHTO
○ SO GR CL	CL	
□ SO GR CL W/ ARS SP	CL	
△ SO GR CL W/ ARS SP	CL	A-4(5)

<p>Project No. 04.55124092 Client: GeoEngineers</p> <p>Project: Mid Baratara Diversion</p> <p>○ Source of Sample: B-4A Depth: 27 Sample Number: 8</p> <p>□ Source of Sample: B-4A Depth: 42 Sample Number: 14</p> <p>△ Source of Sample: B-4A Depth: 49 Sample Number: 16</p> <p style="text-align: center;">Fugro Consultants, Inc.</p> <p style="text-align: center;">Baton Rouge, LA</p>	<p>Remarks:</p> <p style="text-align: right;">Figure</p>
--	--



Sample No.	1	2	3	
Initial	Water Content, %	31.2	32.5	31.8
	Dry Density, pcf	89.2	89.2	89.6
	Saturation, %	95.3	99.6	98.2
	Void Ratio	0.8761	0.8758	0.8676
	Diameter, in.	1.42	1.42	1.48
	Height, in.	2.88	2.77	2.82
At Test	Water Content, %	31.2	32.5	31.8
	Dry Density, pcf	89.2	89.2	89.6
	Saturation, %	95.3	99.6	98.2
	Void Ratio	0.8761	0.8758	0.8676
	Diameter, in.	1.42	1.42	1.48
	Height, in.	2.88	2.77	2.82
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	15.99	28.38	39.85	
Fail. Stress, psf	1016	712	680	
Strain, %	14.6	14.3	14.1	
Ult. Stress, psf	1016	712	680	
Strain, %	14.6	14.3	14.1	
σ_1 Failure, psf	3318	4799	6418	
σ_3 Failure, psf	2303	4087	5738	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO GR CL W/ ARS SP

LL= 29 PL= 22 PI= 7

Assumed Specific Gravity= 2.68

Remarks:

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: B-4A **Depth:** 49

Sample Number: 16

Proj. No.: 04.55124092

Date Sampled: 10/8/13

TRIAxIAL SHEAR TEST REPORT

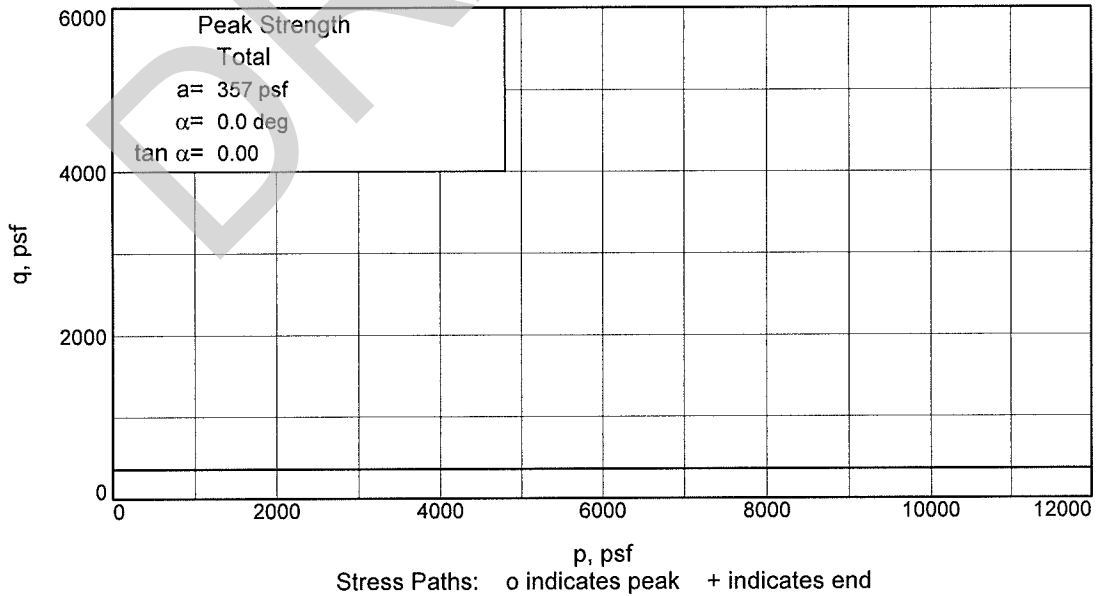
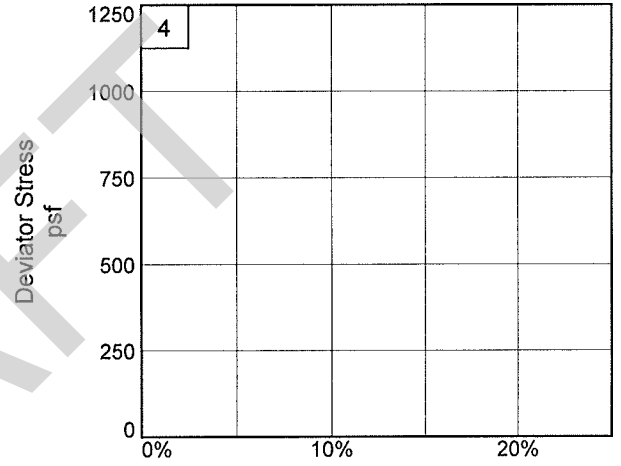
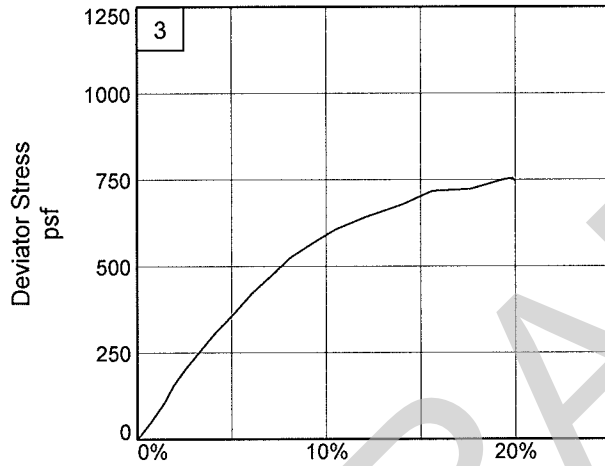
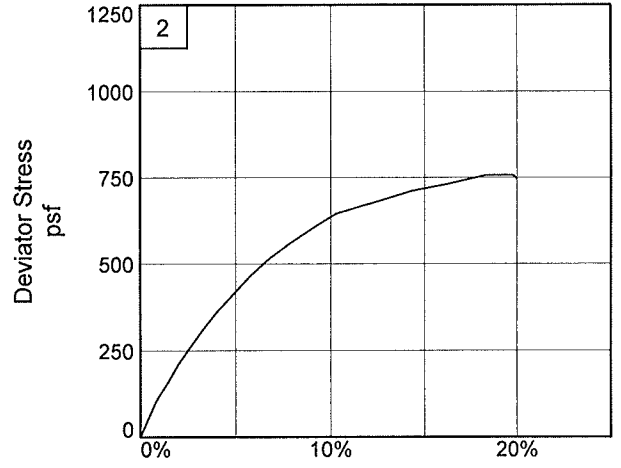
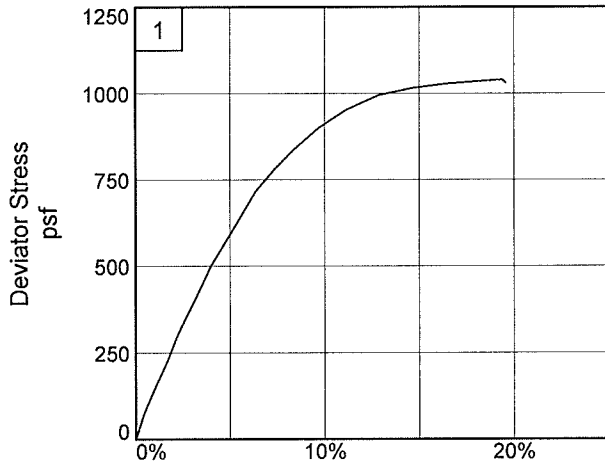
Fugro Consultants, Inc.

Baton Rouge, LA

Tested By: IK

Checked By: DB

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Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: B-4A

Depth: 49

Sample Number: 16

Project No.: 04.55124092

Figure _____

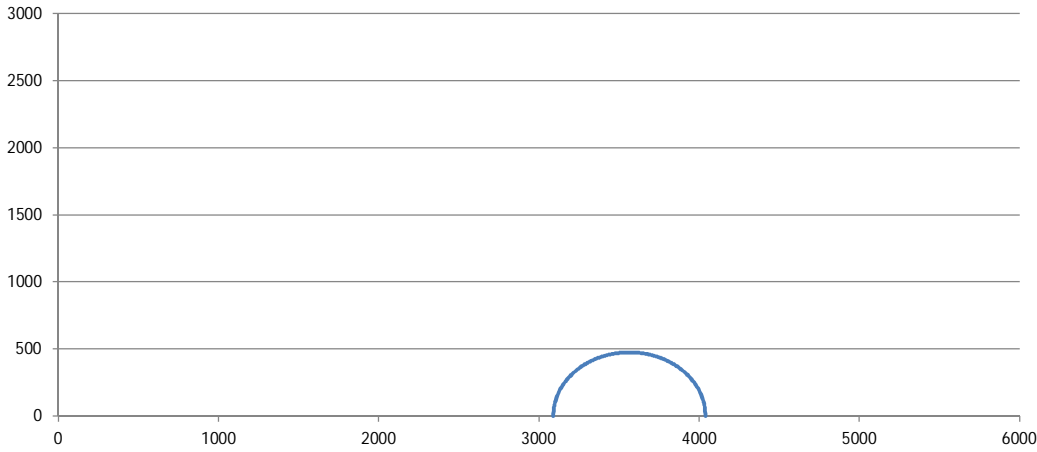
Fugro Consultants, Inc.

Tested By: IK

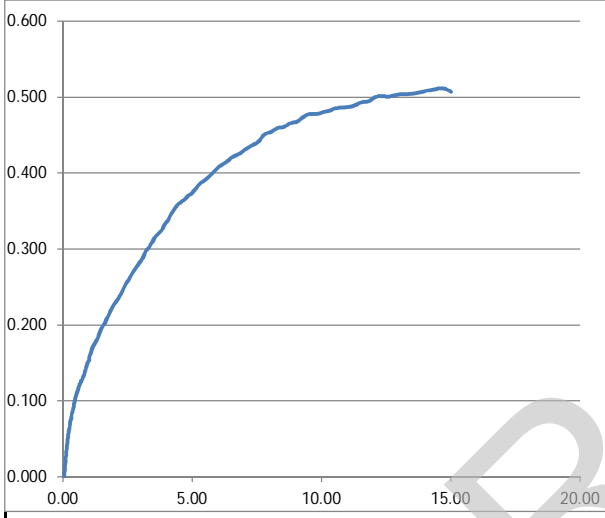
Checked By: DB

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	475
Sample 1 Failure	Multiple Shear
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A

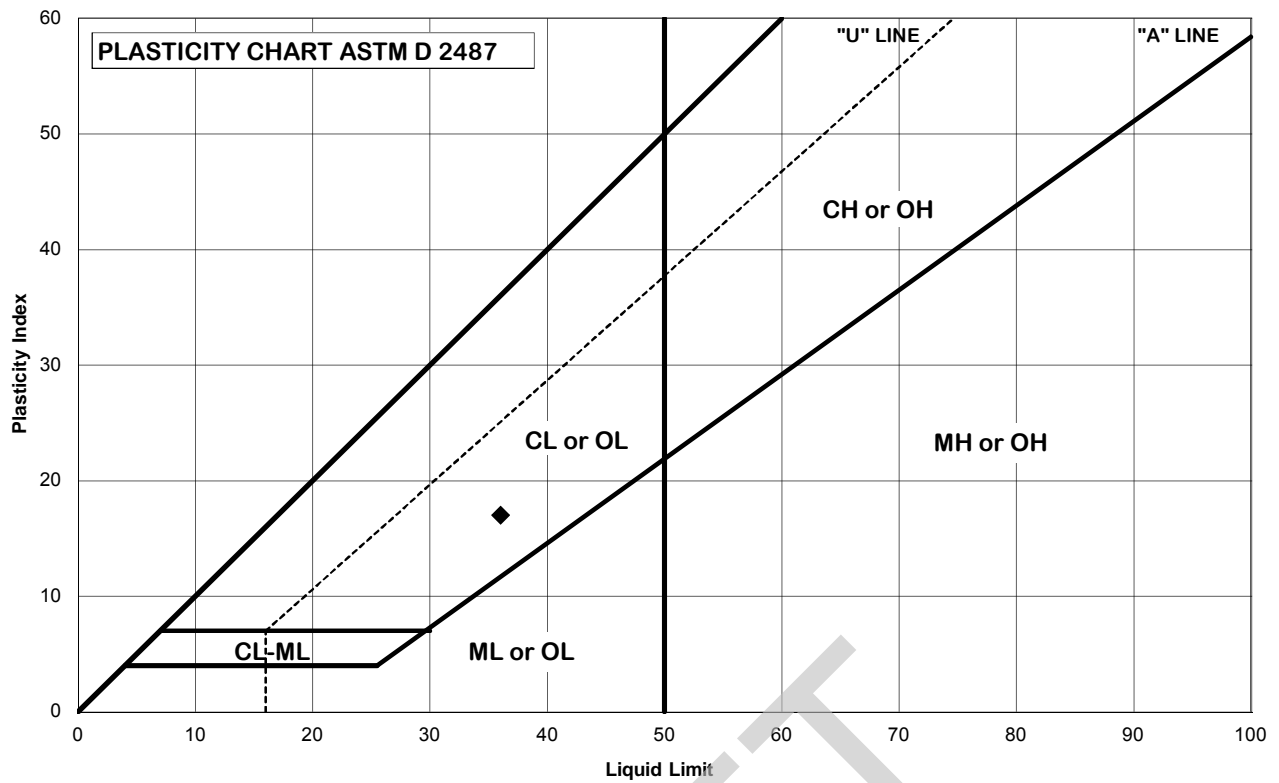


	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	39.53		
	DRY DENSITY, PCF	84.23		
	WET DENSITY, PCF	117.52		
	SATURATION %	107.81		
	VOID RATIO	0.98		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.01		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.75		
				CELL PRESSURE, PSI	21.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	950.16		
REMARKS 0				STRAIN, %	14.58		
				ULTIMATE STRESS, %	0.04		
				σ_1 FAILURE, PSF	4039.83		
				σ_3 FAILURE, PSF	3089.67		

SAMPLE DESCRIPTION	Soft gray clay (CH3)						
BORING NO.	FV-3	SAMPLE NO.		TEST TYPE	UU		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	6/24/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	53 - 55				
TESTED BY	tc//	CHECKED BY	sc//				

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ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-1A	Natural WC:	#DIV/0!
Depth, ft.	2.3 - 3	Preparation:	Wet (as-received)
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very stiff tan and gray clay with sand pockets and sand seams (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	36
Plastic Limit =	19
Plasticity Index =	17

Date:	7/1/2013
Tested By:	BH
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

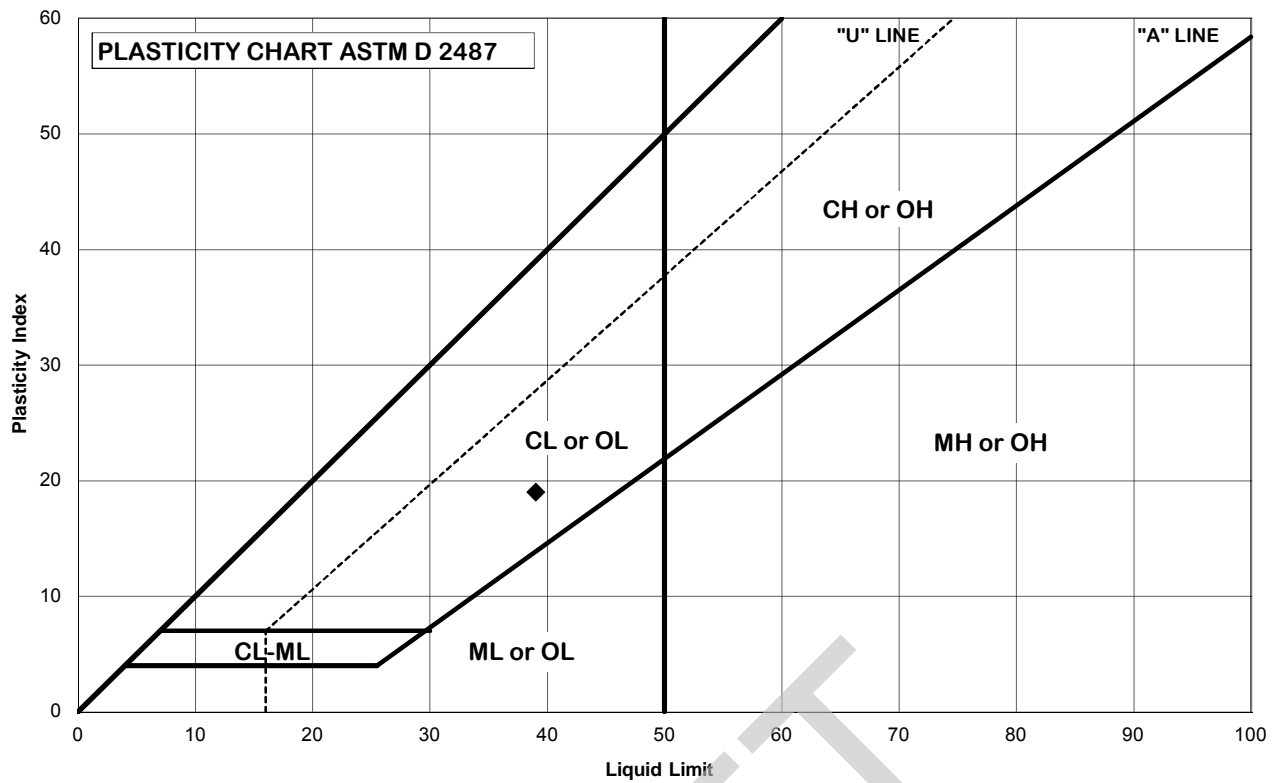


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-1A	Natural WC:	#DIV/0!
Depth, ft.	7 - 8	Preparation:	Wet (as-received)
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay with sand pockets and seams (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	39
Plastic Limit =	20
Plasticity Index =	19

Date:	6/30/2013
Tested By:	BH
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

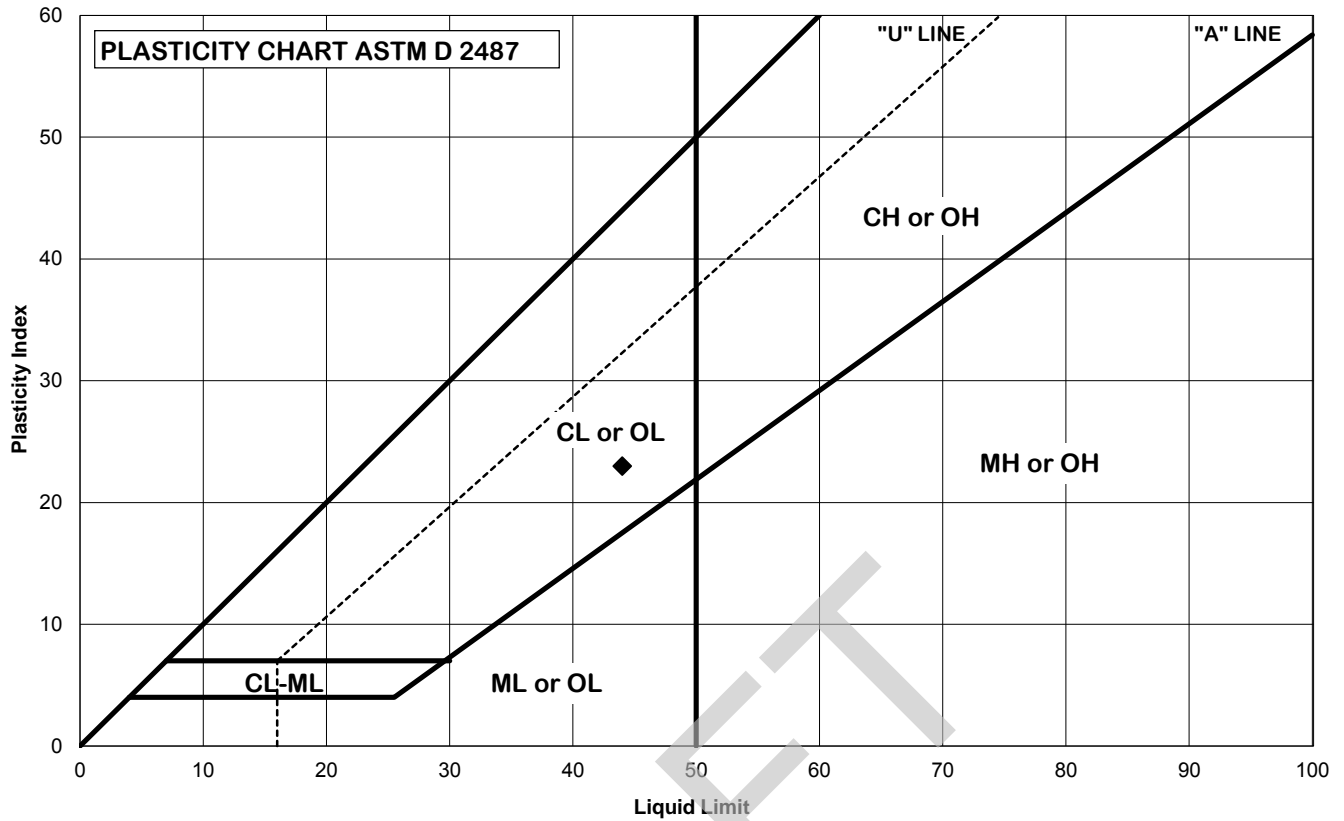


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project			
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.			
18274-001-00			
Boring No.		Natural WC:	#DIV/0!
IS-1A		Preparation:	Air Dried
Depth, ft.		No. Points:	
9 - 10			
Cup No.			
1077			
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:			
Soft gray clay with organic material (CL6)			

Classification (fraction passing No. 40 sieve)
CL

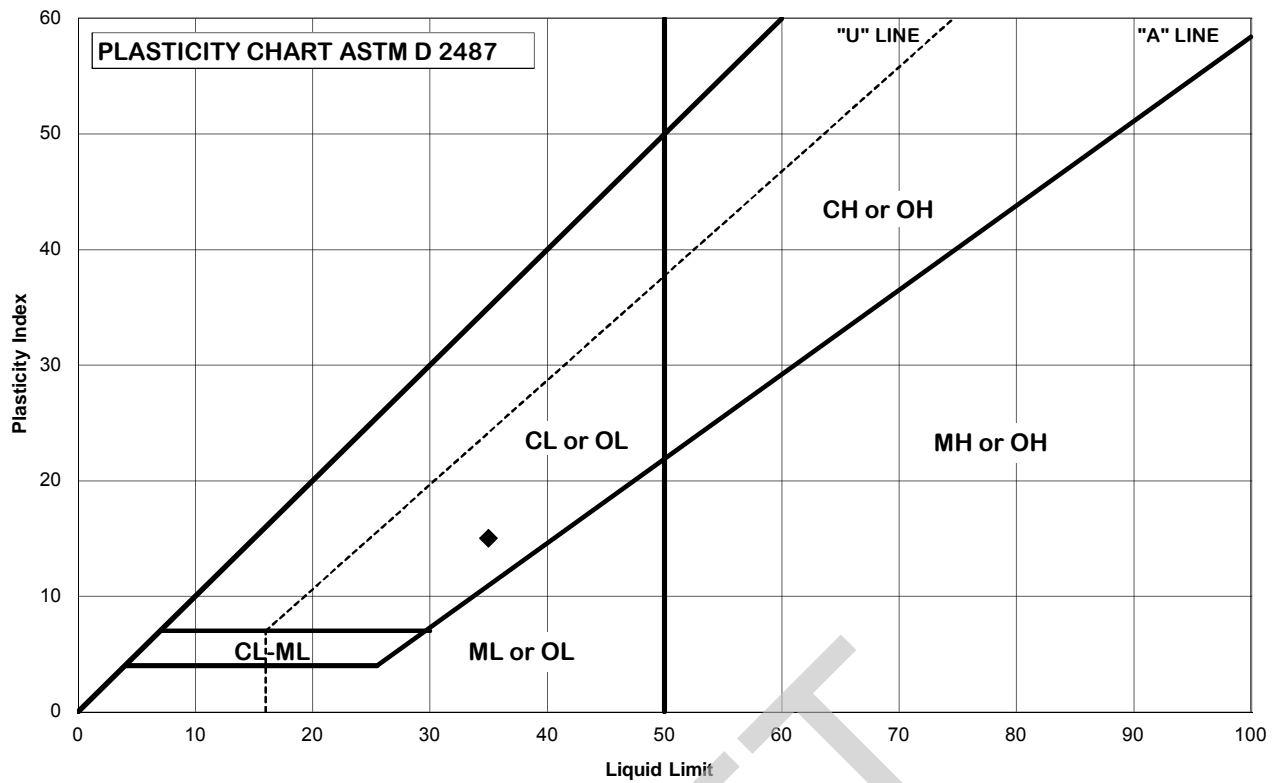
Liquid Limit =	44
Plastic Limit =	21
Plasticity Index =	23

Date:	7/2/2013
Tested By:	BH
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-1A	Natural WC:	#DIV/0!
Depth, ft.	17.5 - 18.5	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	35
Plastic Limit =	20
Plasticity Index =	15

Date:	7/1/2013
Tested By:	BH
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

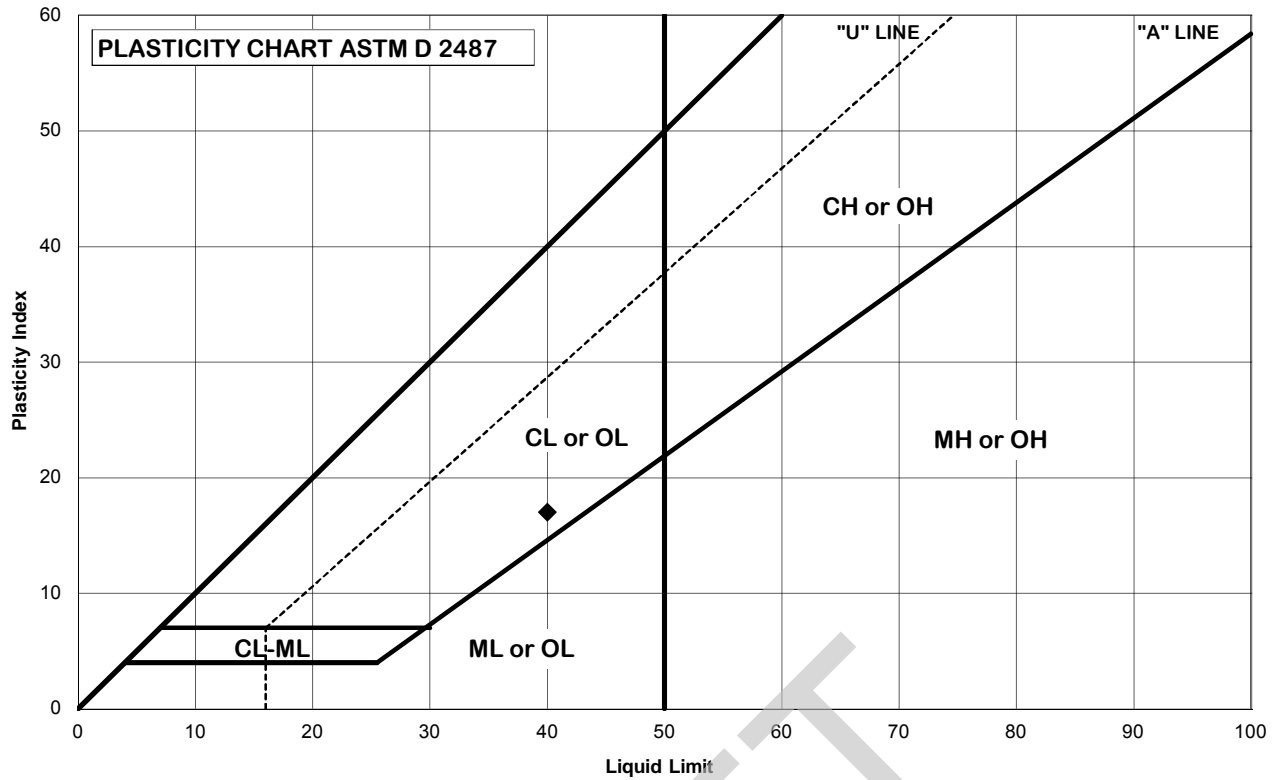


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-1A	Natural WC:	#DIV/0!
Depth, ft.	30 - 31	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay with sand pockets, seams silt lenses, and two sand layers (1/2" and 1") (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	40
Plastic Limit =	23
Plasticity Index =	17

Date:	7/3/2013
Tested By:	BH
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

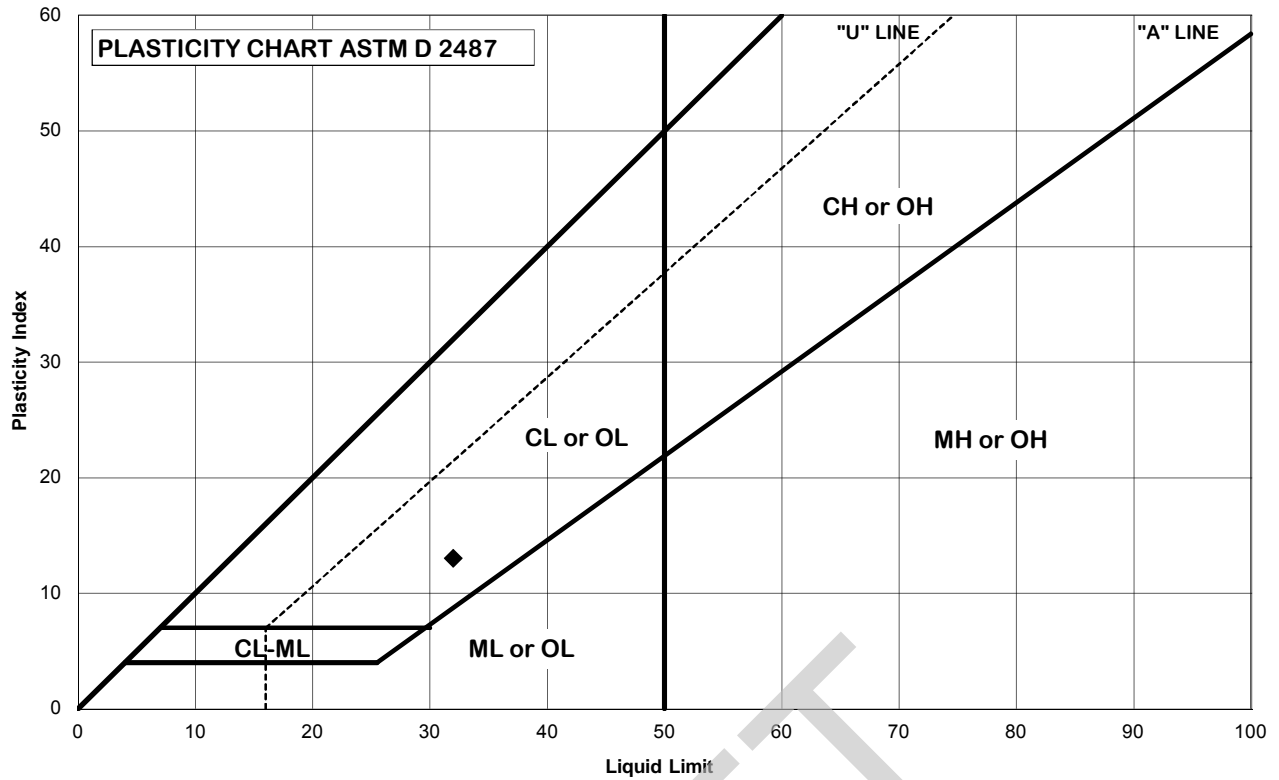


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-1A	Natural WC:	#DIV/0!
Depth, ft.	40 - 41.5	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	32
Plastic Limit =	19
Plasticity Index =	13

Date:	7/8/2013
Tested By:	BH
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

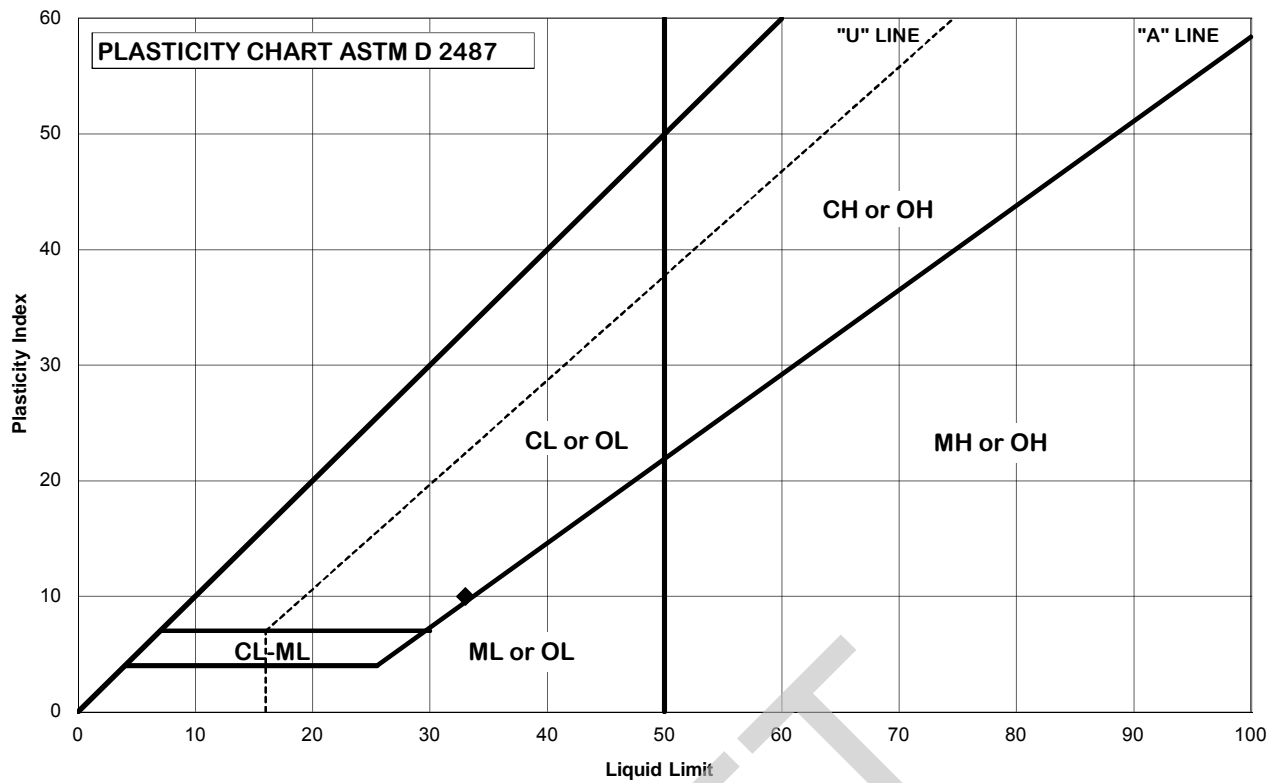


11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460

ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-1A	Natural WC:	#DIV/0!
Depth, ft.	48 - 49.5	Preparation:	Air Dried
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium gray clay (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	33
Plastic Limit =	23
Plasticity Index =	10

Date:	6/3/2013
Tested By:	SLC
Checked By:	Os

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

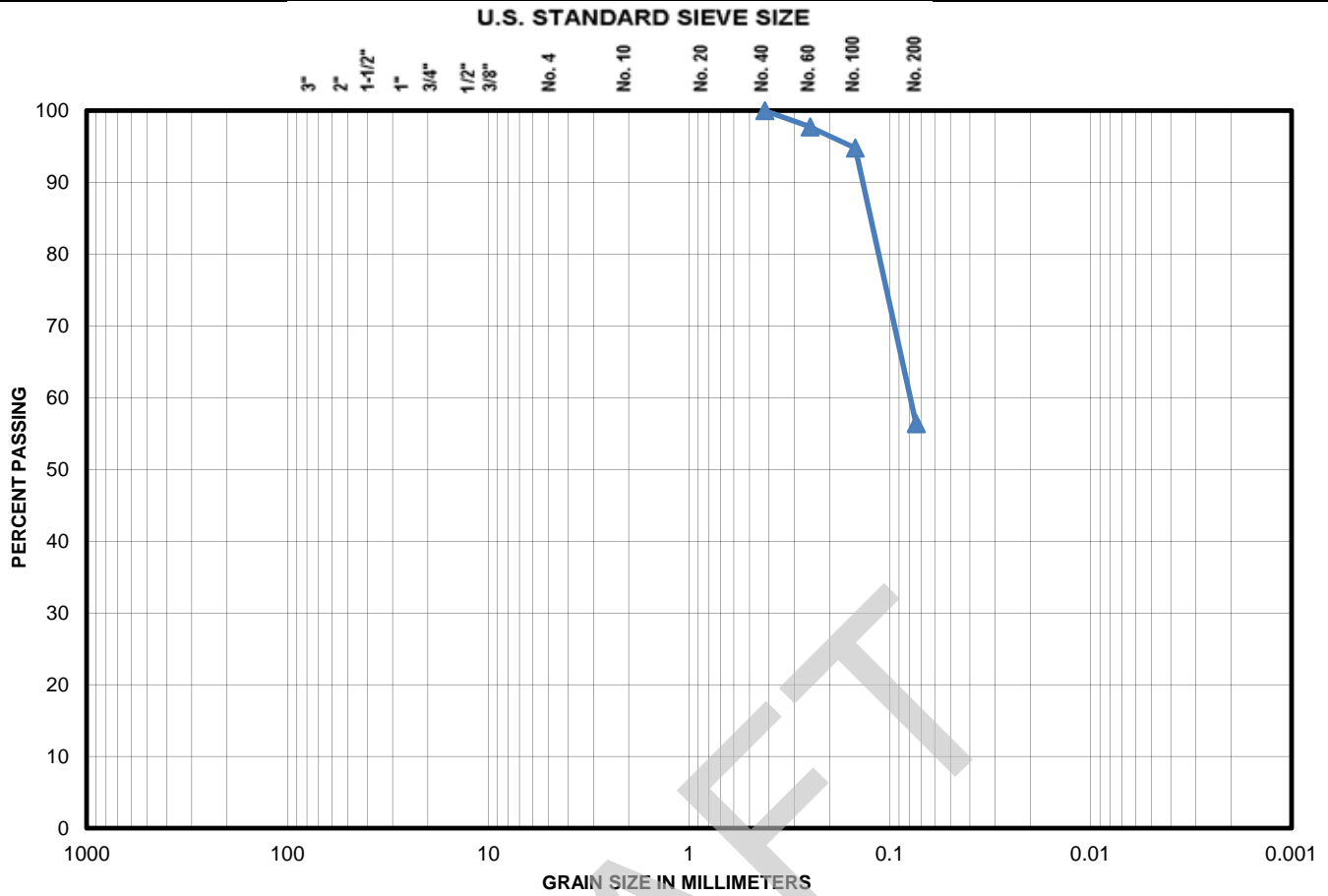


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	43.6
Coarse Sand %	0.0	Fines (Silt & Clay) %	56.4
USC Classification	x	C _u	na
Description (D 2488)	Loose gray sandy silt with 3" and 1 1/2" clayey silt layers (ML)		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	97.7
1/2"	#N/A	No. 100	94.8
3/8"	#N/A	No. 200	56.4

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	7/10/2013
Project No.	18274-001-00	Tested By	JK
Boring No.	IS-1A	Checked By	SC
Source/Depth (feet)	35 - 36	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

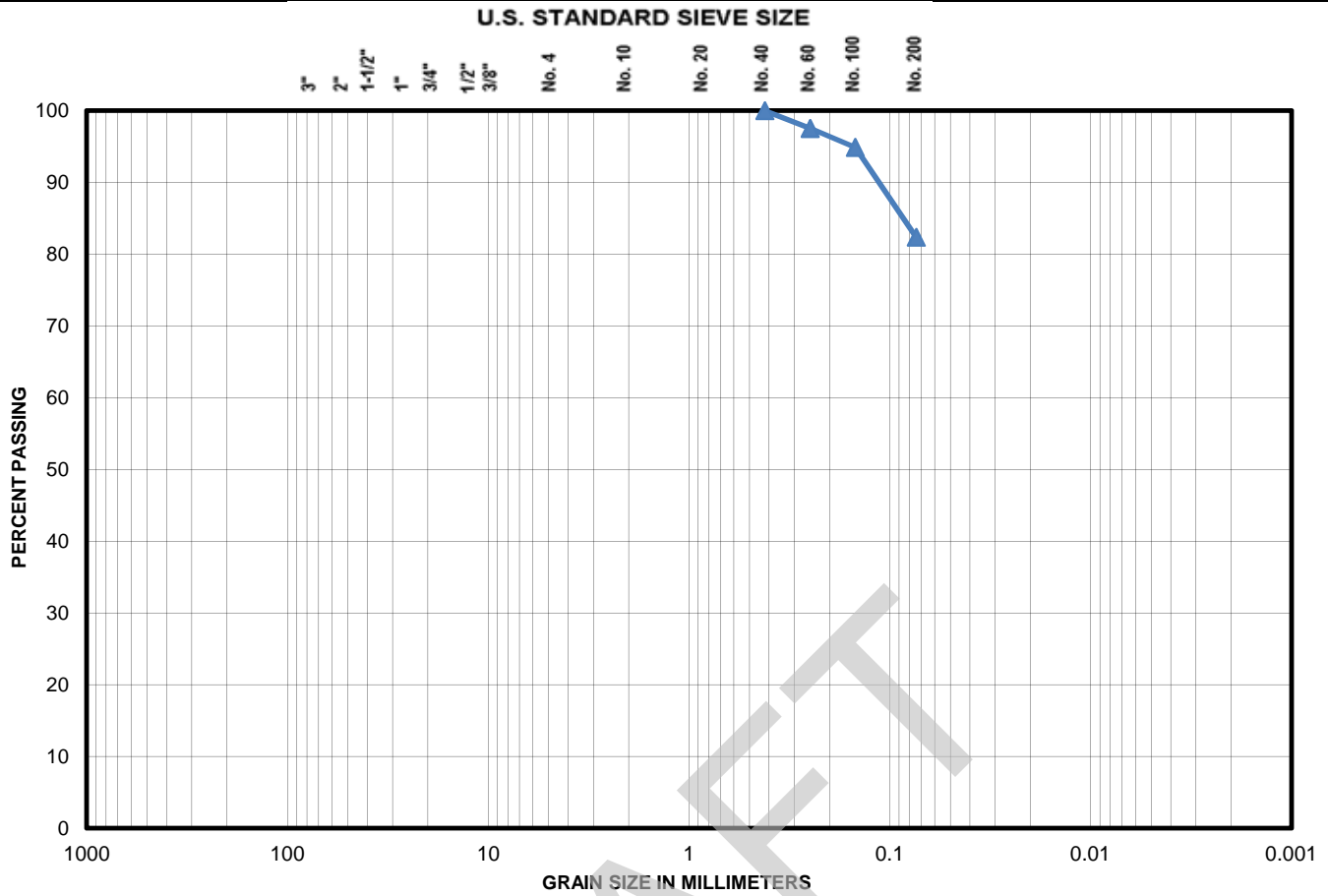


11955 Lakeland Park Blvd. Suite 100 Baton Rouge, La 70809

ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	17.6
Coarse Sand %	0.0	Fines (Silt & Clay) %	82.4
USC Classification	ML	C _u	na
		C _c	na
Description (D 2488)	Loose gray sandy silt with 4" clay layer (ML)		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	97.5
1/2"	#N/A	No. 100	94.9
3/8"	#N/A	No. 200	82.4

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	7/10/2013
Project No.	18274-001-00	Tested By	JK
Boring No.	IS-1A	Checked By	SC
Source/Depth (feet)	45 - 46	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

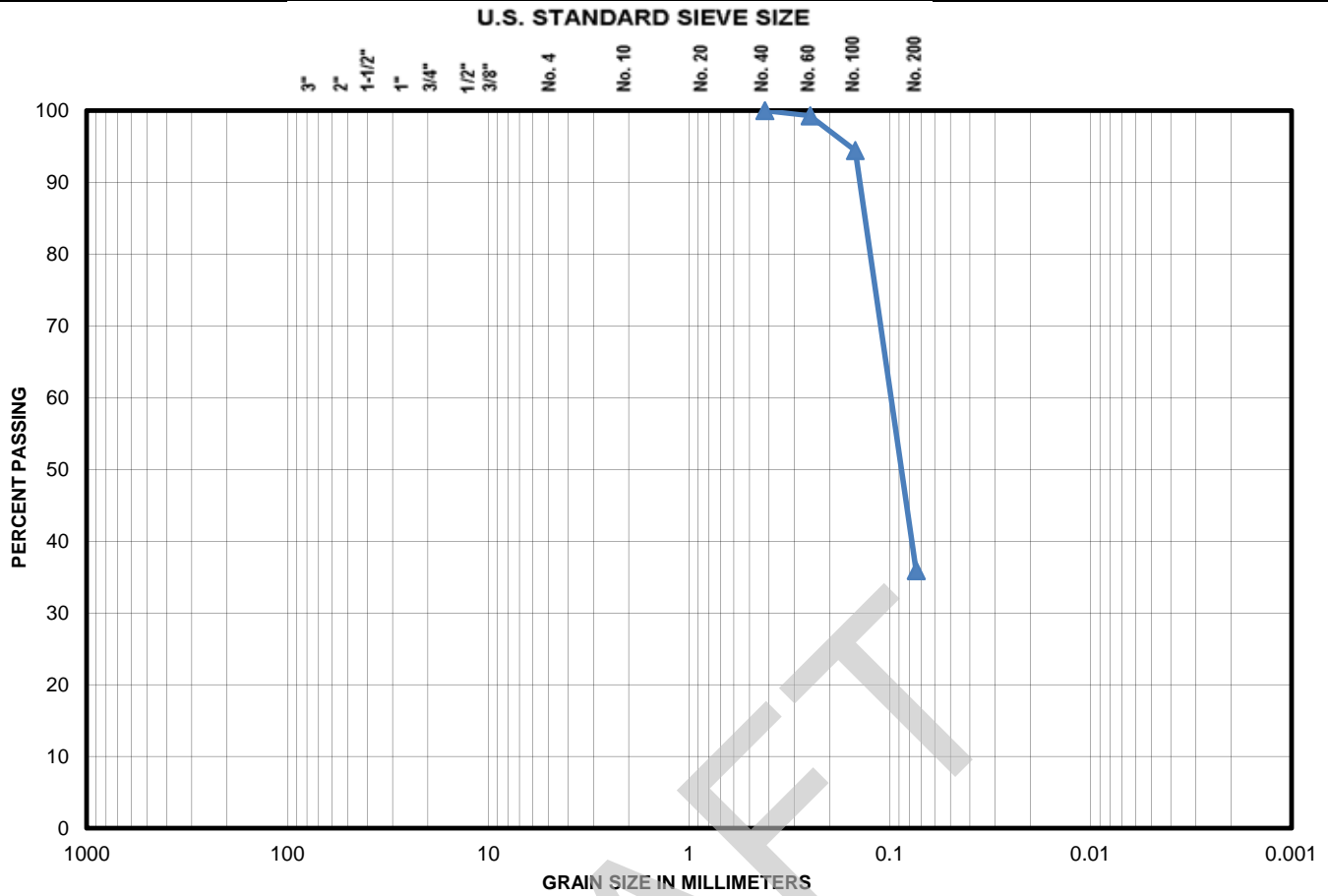


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	64.1
Coarse Sand %	0.0	Fines (Silt & Clay) %	35.9
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	99.3
1/2"	#N/A	No. 100	94.4
3/8"	#N/A	No. 200	35.9

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	7/10/2013
Project No.	18274-001-00	Tested By	JK
Boring No.	IS-1A	Checked By	SC
Source/Depth (feet)	64 - 65.5	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

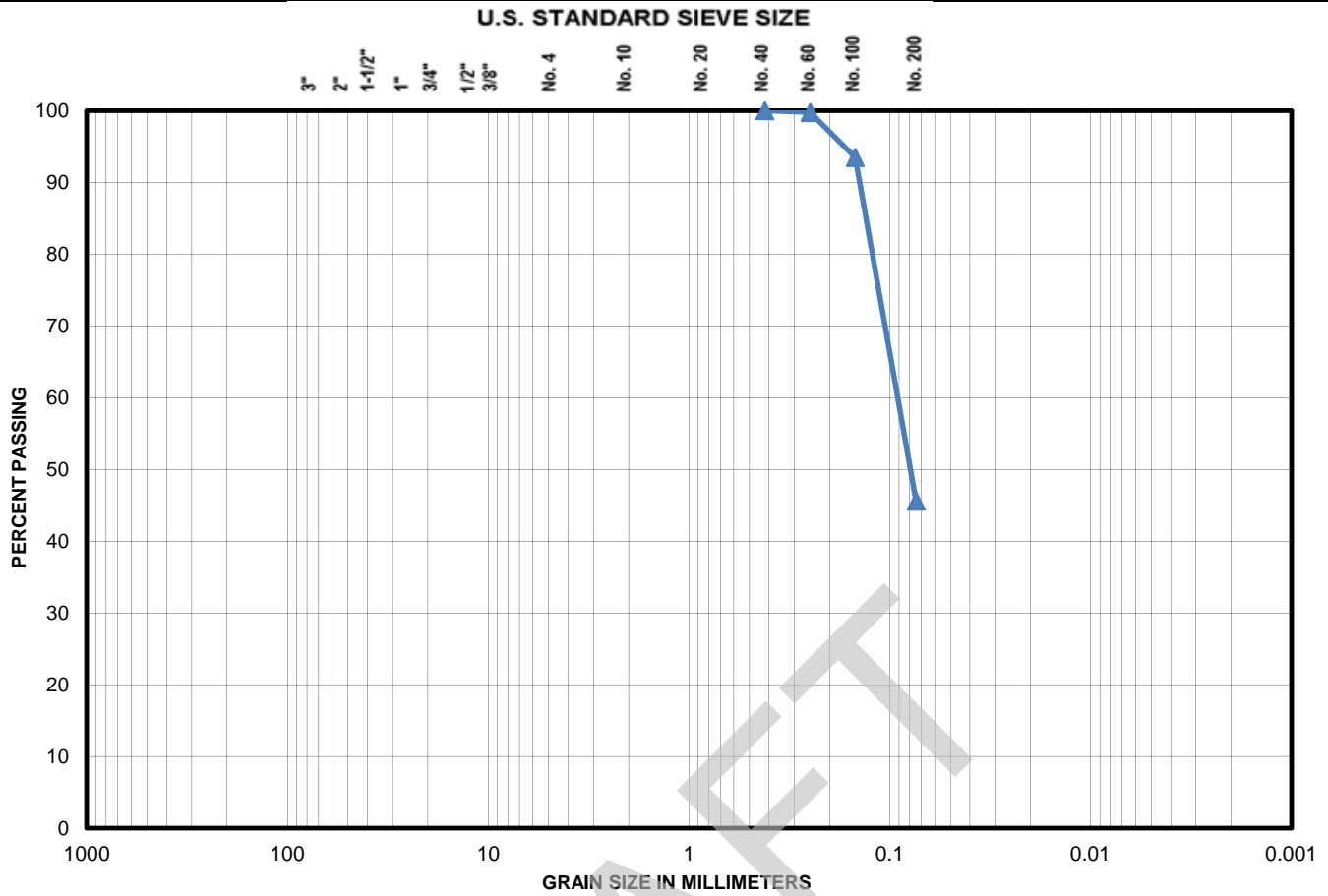


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	54.4
Coarse Sand %	0.0	Fines (Silt & Clay) %	45.6
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	99.8
1/2"	#N/A	No. 100	93.5
3/8"	#N/A	No. 200	45.6

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	7/10/2013
Project No.	18274-001-00	Tested By	JK
Boring No.	IS-1A	Checked By	SC
Source/Depth (feet)	79 - 80.5	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

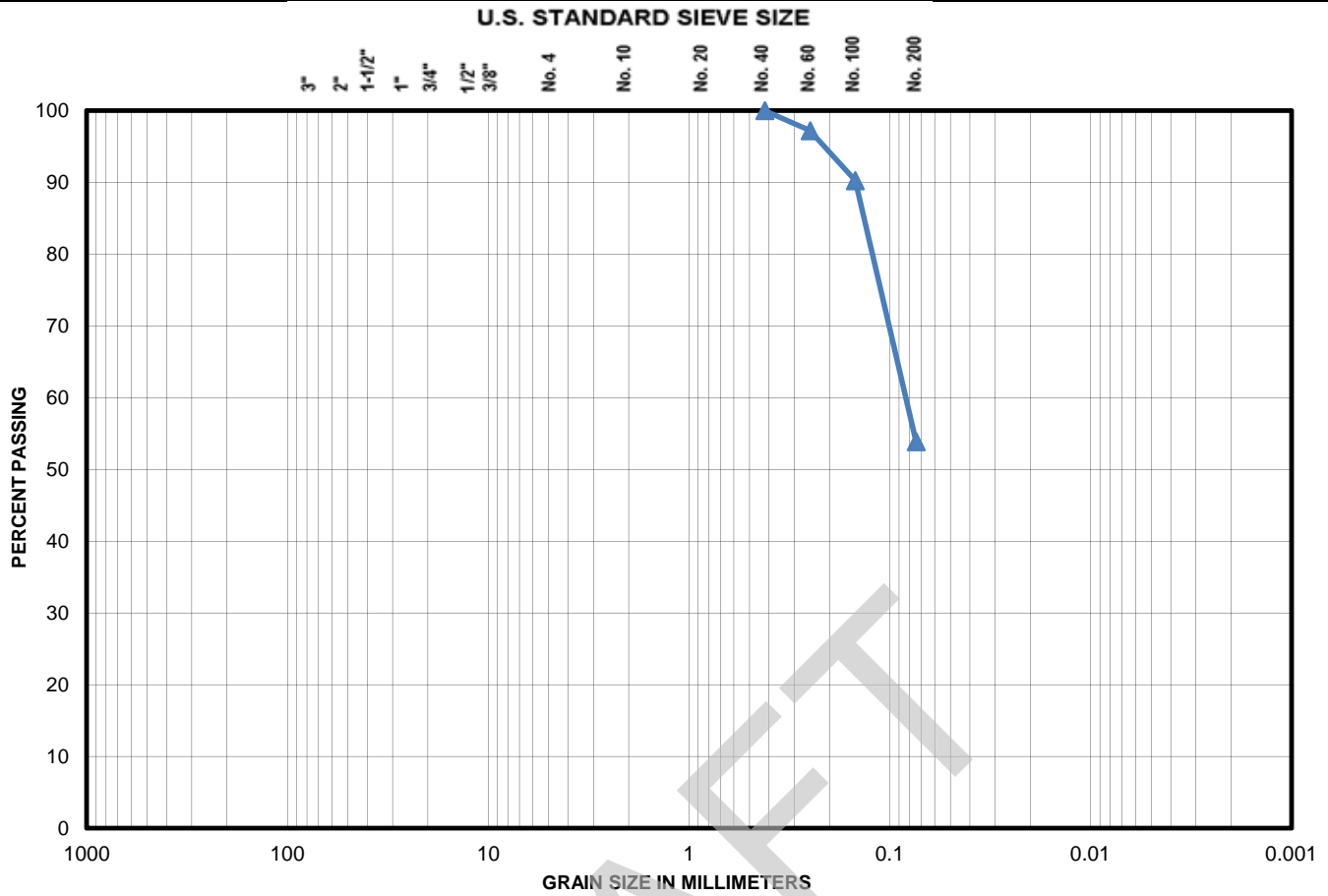


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	46.1
Coarse Sand %	0.0	Fines (Silt & Clay) %	53.9
USC Classification	ML	C _u	na
Description (D 2488)	Medium dense gray sandy silt (ML)		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	97.2
1/2"	#N/A	No. 100	90.3
3/8"	#N/A	No. 200	53.9

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	7/10/2013
Project No.	18274-001-00	Tested By	JK
Boring No.	IS-1A	Checked By	SC
Source/Depth (feet)	91.5 - 93	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



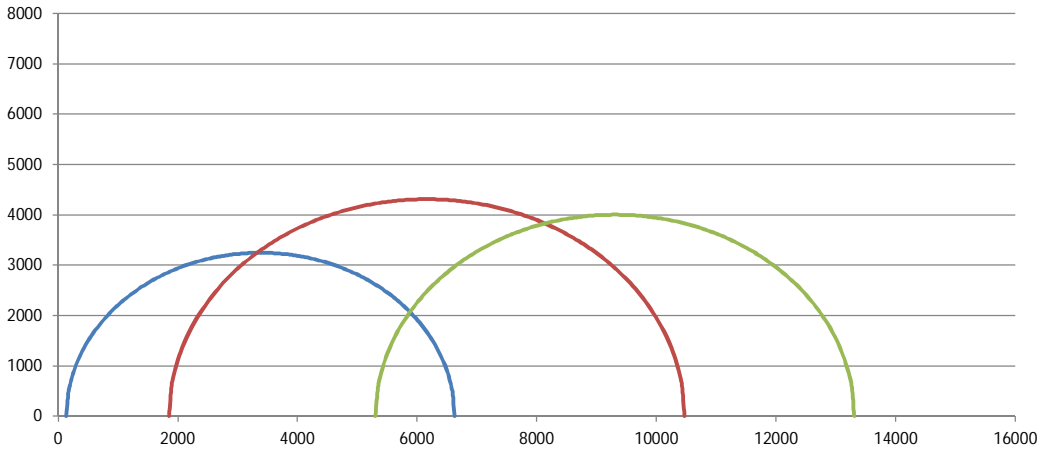
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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

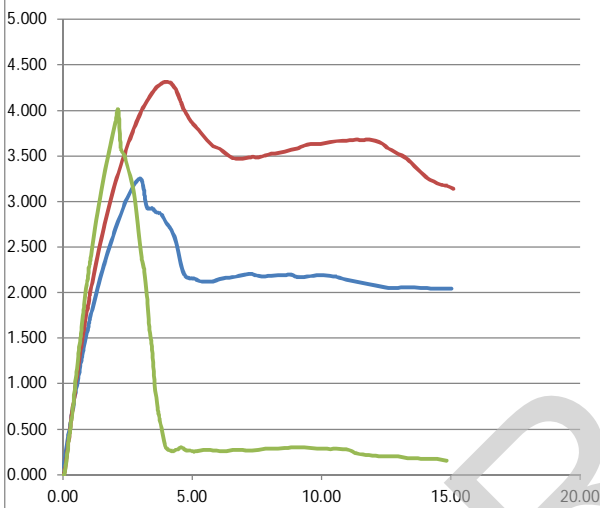
18274-001-00

Data Entry Sheet For Compression - 2010 Version



RESULTS

C, PSF	4002
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



Specimen No.		1	2	3
INITIAL	WATER CONTENT %	20.00	19.89	20.77
	DRY DENSITY, PCF	107.35	107.05	104.84
	WET DENSITY, PCF	128.82	128.35	126.62
	SATURATION %	96.63	95.35	94.02
AT TEST	VOID RATIO	0.55	0.56	0.59
	WATER CONTENT %	17.27	22.36	21.40
	DRY DENSITY, PCF	128.82	128.35	126.62
	WET DENSITY, PCF	151.07	157.05	153.72
	SATURATION %	89.13	101.35	95.54
	VOID RATIO	0.52	0.59	0.60

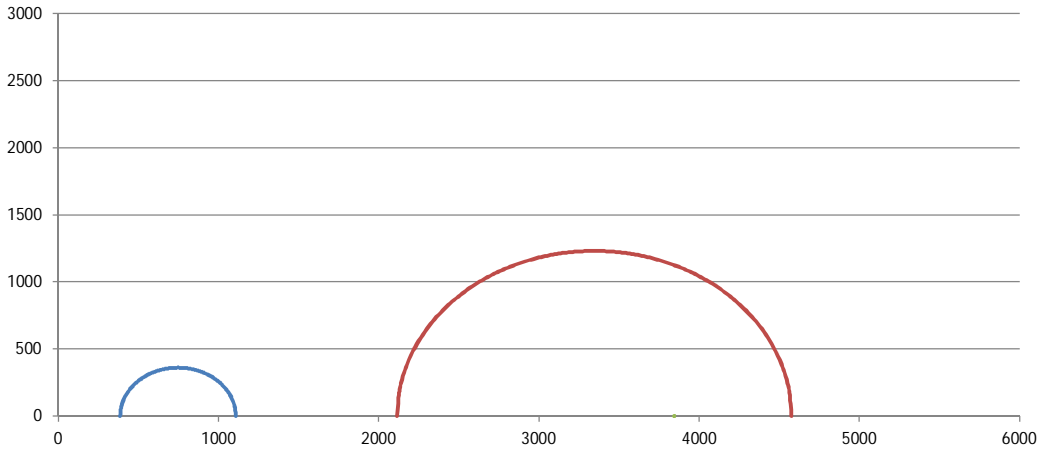
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	2.89	3.11	2.66
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.37	1.40	1.30
				CELL PRESSURE, PSI	0.90	12.90	36.90
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	6490.00	8618.00	8004.00
REMARKS 0				STRAIN, %	2.95	3.95	2.14
				ULTIMATE STRESS, %	0.00	0.00	4.00
				σ_1 FAILURE, PSF	6626.80	10469.84	13308.96
				σ_3 FAILURE, PSF	136.80	1851.84	5304.96

SAMPLE DESCRIPTION: Very stiff tan and gray clay with sand pockets and sand seams (CL4)

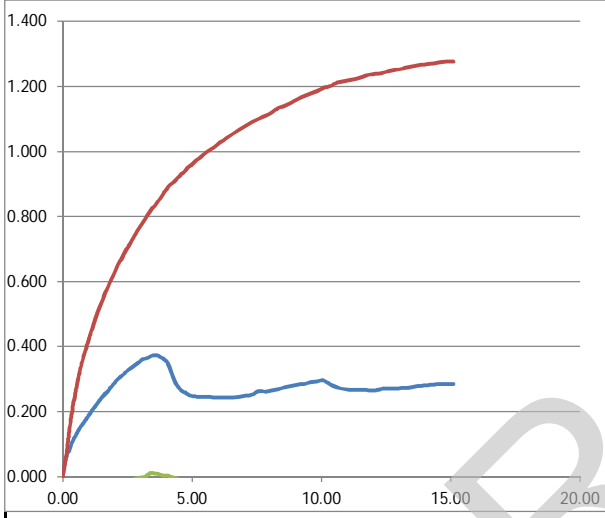
BORING NO.	IS-1A	SAMPLE NO.	1	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/3/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	2.3 - 3		
TESTED BY	JK/JK/JK	CHECKED BY	SC/SC/SC/		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	361
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Yield
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	27.11	28.58	28.77
	DRY DENSITY, PCF	91.14	91.46	92.51
	WET DENSITY, PCF	115.85	117.60	119.12
	SATURATION %	87.33	92.78	95.81
	VOID RATIO	0.83	0.82	0.80
AT TEST	WATER CONTENT %	28.84	28.92	29.23
	DRY DENSITY, PCF	115.85	117.60	119.12
	WET DENSITY, PCF	149.26	151.61	153.94
	SATURATION %	90.20	93.34	96.56
	VOID RATIO	0.85	0.83	0.81

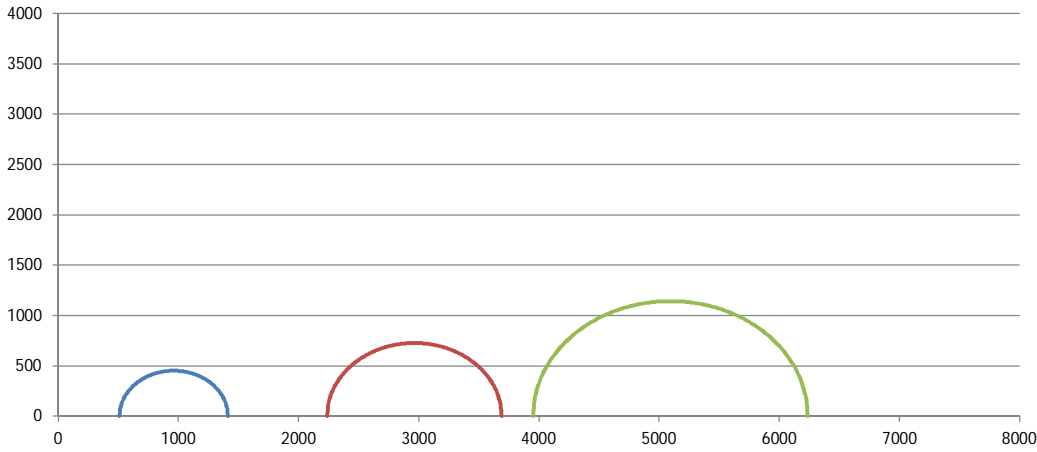
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.14	2.86	3.15
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.41	1.37	1.39
				CELL PRESSURE, PSI	2.70	14.70	26.70
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	721.62	2461.44	-0.73
REMARKS	0			STRAIN, %	3.55	14.85	3.46
				ULTIMATE STRESS, %	0.01	0.05	-0.18
				σ_1 FAILURE, PSF	1108.21	4576.34	3844.32
				σ_3 FAILURE, PSF	386.59	2114.91	3845.05

SAMPLE DESCRIPTION: Soft gray clay with sand pockets and seams (CL4)

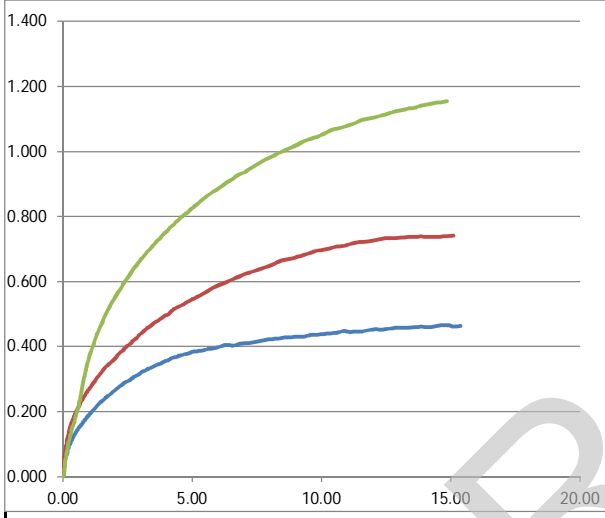
BORING NO.	IS-1A	SAMPLE NO.	2	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/2/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	7 - 8		
TESTED BY	JK/JK/JK	CHECKED BY	SC/SC/SC/		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	726
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Yield
Sample 4 Failure	#N/A



Specimen No.	1	2	3
INITIAL WATER CONTENT %	31.32	31.80	32.08
INITIAL DRY DENSITY, PCF	87.62	88.70	88.36
INITIAL WET DENSITY, PCF	115.07	116.90	116.71
INITIAL SATURATION %	92.68	96.55	96.64
INITIAL VOID RATIO	0.90	0.88	0.89
AT TEST WATER CONTENT %	32.42	31.51	29.96
AT TEST DRY DENSITY, PCF	115.07	116.90	116.71
AT TEST WET DENSITY, PCF	152.37	153.72	151.68
AT TEST SATURATION %	94.27	96.12	93.45
AT TEST VOID RATIO	0.92	0.88	0.86

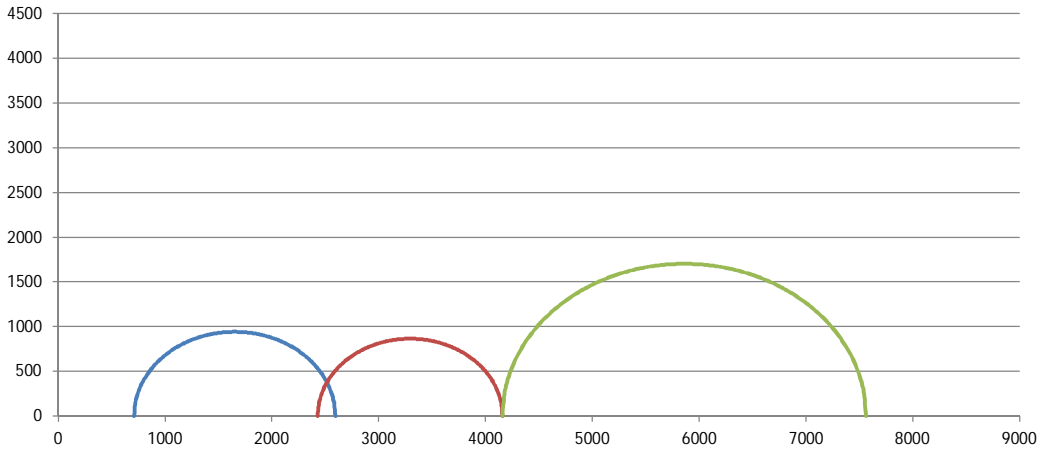
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.07	3.11	3.18
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.41	1.43	1.41
				CELL PRESSURE, PSI	15.50	15.50	27.50
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	902.00	1452.00	2284.00
REMARKS	0			STRAIN, %	14.62	14.85	15.10
				ULTIMATE STRESS, %	0.01	0.01	0.01
				σ_1 FAILURE, PSF	1411.76	3689.76	6236.80
				σ_3 FAILURE, PSF	509.76	2237.76	3952.80

SAMPLE DESCRIPTION: Soft gray clay with organic material (CL6)

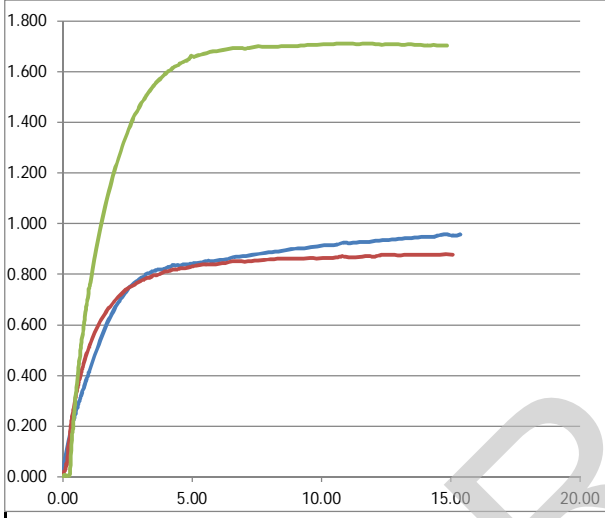
BORING NO.	IS-1A	SAMPLE NO.	3	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/3/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	9 - 10		
TESTED BY	JK/RW/BH/JK/RW/BH/JK/RW/BH		CHECKED BY	SC/SC/SC/	

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	942
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	31.58	32.63	32.08
	DRY DENSITY, PCF	93.59	83.92	89.80
	WET DENSITY, PCF	123.15	111.29	118.61
	SATURATION %	107.97	88.32	100.06
	VOID RATIO	0.78	0.99	0.86
AT TEST	WATER CONTENT %	29.23	31.73	28.90
	DRY DENSITY, PCF	123.15	111.29	118.61
	WET DENSITY, PCF	159.15	146.60	152.89
	SATURATION %	104.19	87.07	95.10
	VOID RATIO	0.75	0.97	0.81

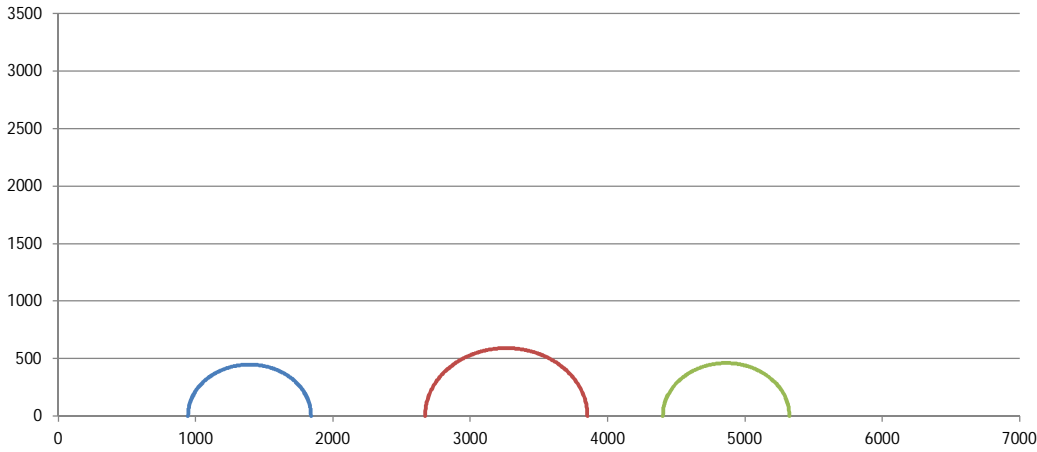
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.11	2.99	3.01
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.38	1.44	1.45
				CELL PRESSURE, PSI	4.90	16.90	28.90
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1884.00	1730.00	3404.00
REMARKS 0				STRAIN, %	14.87	12.31	11.84
				ULTIMATE STRESS, %	0.02	0.01	0.01
				σ_1 FAILURE, PSF	2593.92	4159.28	7562.72
				σ_3 FAILURE, PSF	709.92	2429.28	4158.72

SAMPLE DESCRIPTION Medium gray clay (CL4)

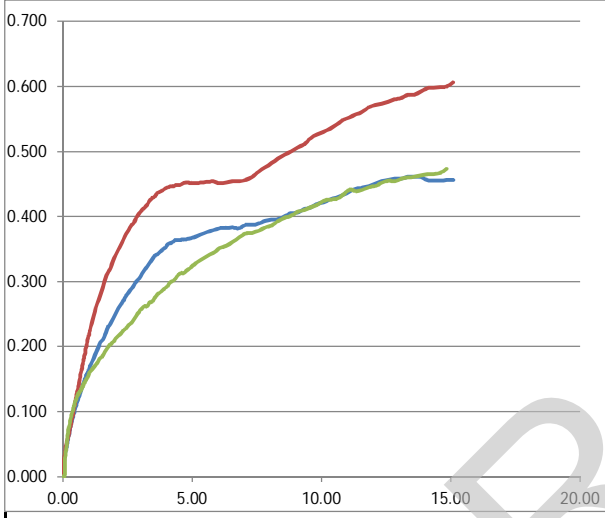
BORING NO.	IS-1A	SAMPLE NO.	0	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/2/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	13.3 - 14		
TESTED BY	JK/BH/TC/BH/JK/BH		CHECKED BY	SC/SC/SC/	

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	461
Sample 1 Failure	Bulge
Sample 2 Failure	Yield
Sample 3 Failure	Bulge
Sample 4 Failure	#N/A



Specimen No.	1	2	3
INITIAL WATER CONTENT %	30.27	30.49	52.04
INITIAL DRY DENSITY, PCF	90.77	91.34	80.31
INITIAL WET DENSITY, PCF	118.24	119.19	122.11
INITIAL SATURATION %	96.62	98.68	129.20
INITIAL VOID RATIO	0.84	0.82	1.08
AT TEST WATER CONTENT %	31.31	32.25	33.39
AT TEST DRY DENSITY, PCF	118.24	119.19	122.11
AT TEST WET DENSITY, PCF	155.26	157.62	162.88
AT TEST SATURATION %	98.22	101.35	108.61
AT TEST VOID RATIO	0.85	0.85	0.82

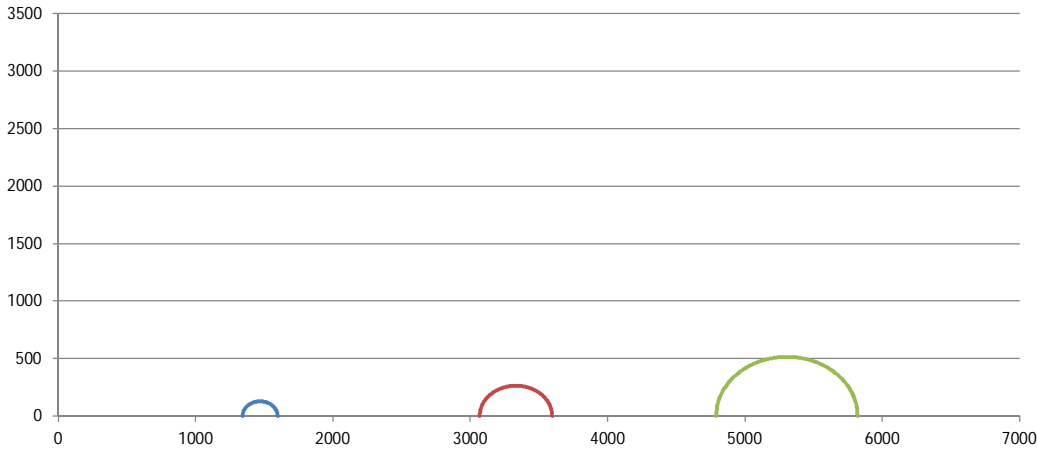
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.02	2.97	3.13
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.38	1.38	1.37
				CELL PRESSURE, PSI	30.60	18.60	30.60
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	896.00	1182.00	922.00
REMARKS	0			STRAIN, %	13.33	15.09	15.09
				ULTIMATE STRESS, %	0.01	0.02	0.02
				σ_1 FAILURE, PSF	1840.64	3853.20	5324.08
				σ_3 FAILURE, PSF	944.64	2671.20	4402.08

SAMPLE DESCRIPTION Soft gray clay (CL4)

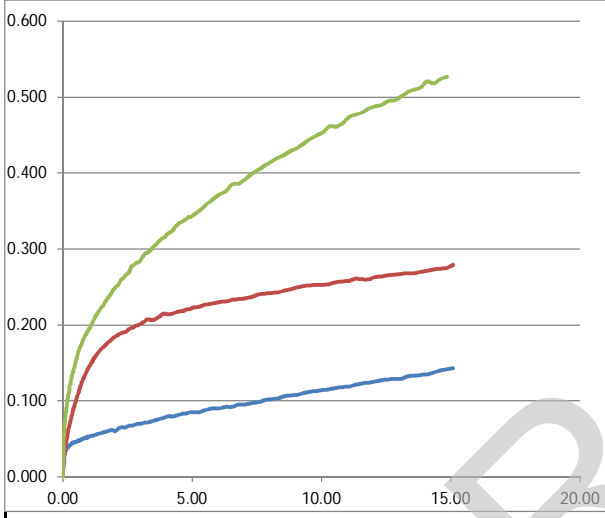
BORING NO.	IS-1A	SAMPLE NO.	4	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/2/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	17.5 - 18.5		
TESTED BY	JK/JK/JK/TC	CHECKED BY	SC/SC/SC/		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	264
Sample 1 Failure	Yield
Sample 2 Failure	Yield
Sample 3 Failure	Yield
Sample 4 Failure	#N/A



Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	41.07	36.88	34.27
	DRY DENSITY, PCF	79.32	82.32	88.32
	WET DENSITY, PCF	111.90	112.68	118.58
	SATURATION %	99.57	96.08	103.11
	VOID RATIO	1.10	1.02	0.89
AT TEST	WATER CONTENT %	38.99	37.61	31.89
	DRY DENSITY, PCF	111.90	112.68	118.58
	WET DENSITY, PCF	155.53	155.06	156.39
	SATURATION %	97.26	96.97	99.70
	VOID RATIO	1.07	1.04	0.85

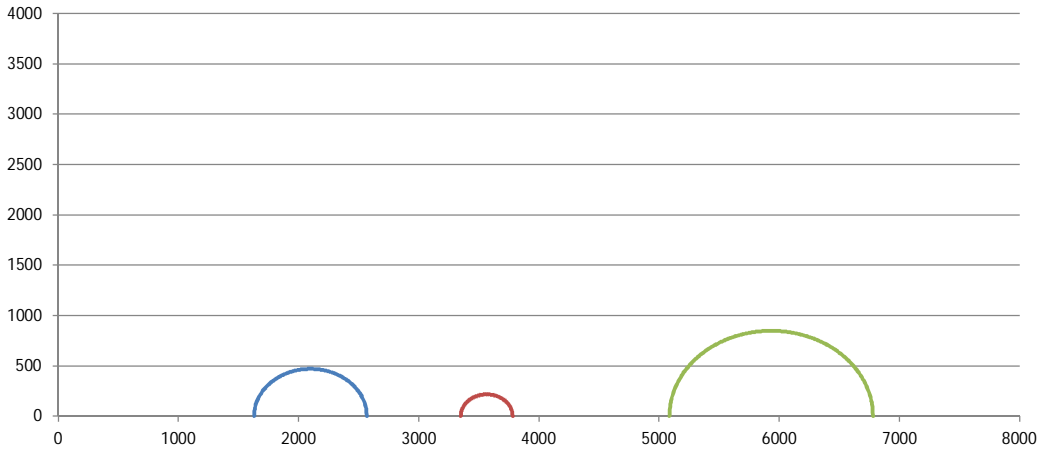
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.32	3.36	3.30
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.42	1.42	1.39
				CELL PRESSURE, PSI	21.30	21.30	33.30
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	256.00	528.00	1030.00
REMARKS	0			STRAIN, %	15.09	15.09	15.10
				ULTIMATE STRESS, %	0.01	0.01	0.02
				σ_1 FAILURE, PSF	1598.08	3596.64	5820.88
				σ_3 FAILURE, PSF	1342.08	3068.64	4790.88

SAMPLE DESCRIPTION: Loose gray clayey silt (ML)

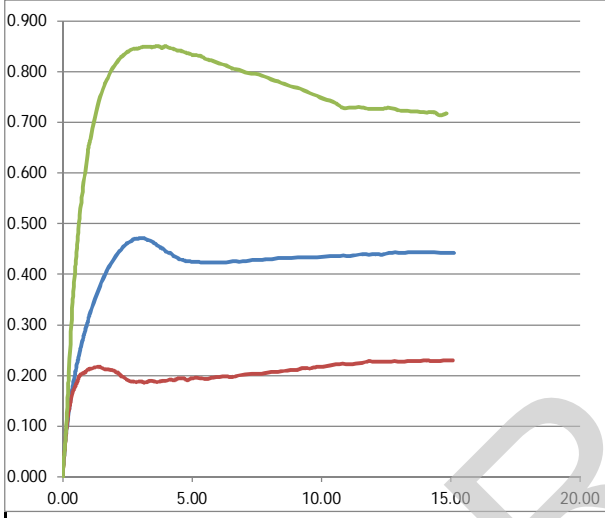
BORING NO.	IS-1A	SAMPLE NO.	6	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/3/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	25.5 - 26		
TESTED BY	rw/rw/rw	CHECKED BY	clp/clp/clp/		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	469
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



Specimen No.	1	2	3
INITIAL WATER CONTENT %	44.44	40.32	38.03
INITIAL DRY DENSITY, PCF	75.28	79.46	84.05
INITIAL WET DENSITY, PCF	108.74	111.50	116.02
INITIAL SATURATION %	97.73	98.07	103.29
INITIAL VOID RATIO	1.21	1.10	0.98
AT TEST WATER CONTENT %	43.13	45.36	41.66
AT TEST DRY DENSITY, PCF	108.74	111.50	116.02
AT TEST WET DENSITY, PCF	155.63	162.07	164.35
AT TEST SATURATION %	96.44	103.24	107.44
AT TEST VOID RATIO	1.19	1.17	1.04

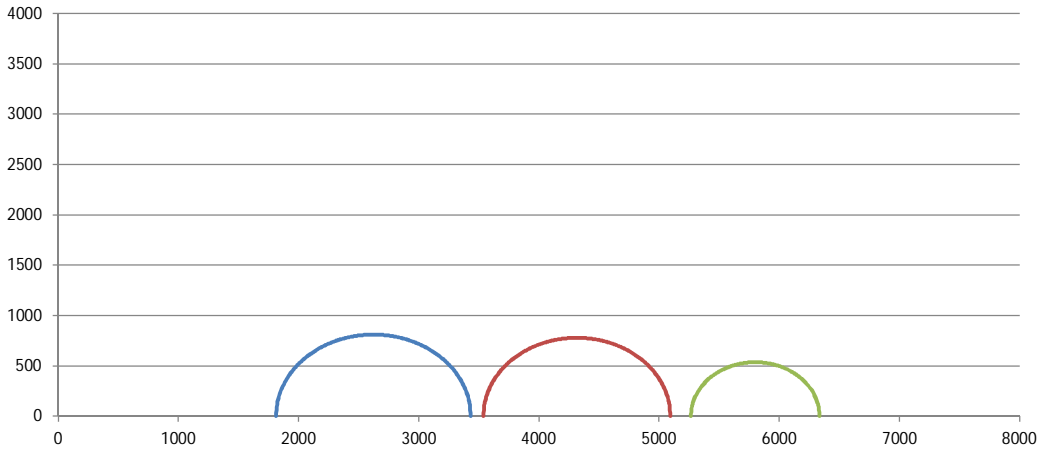
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.08	2.45	3.36
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.43	1.30	1.38
				CELL PRESSURE, PSI	11.30	23.30	35.30
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	938.00	432.00	1694.00
REMARKS	0			STRAIN, %	2.95	1.34	3.15
				ULTIMATE STRESS, %	0.00	0.00	0.00
				σ_1 FAILURE, PSF	2568.08	3781.44	6780.08
				σ_3 FAILURE, PSF	1630.08	3349.44	5086.08

SAMPLE DESCRIPTION: Soft gray clay with sand pockets, seams silt lenses, and two sand layers (1/2" and 1") (CL4)

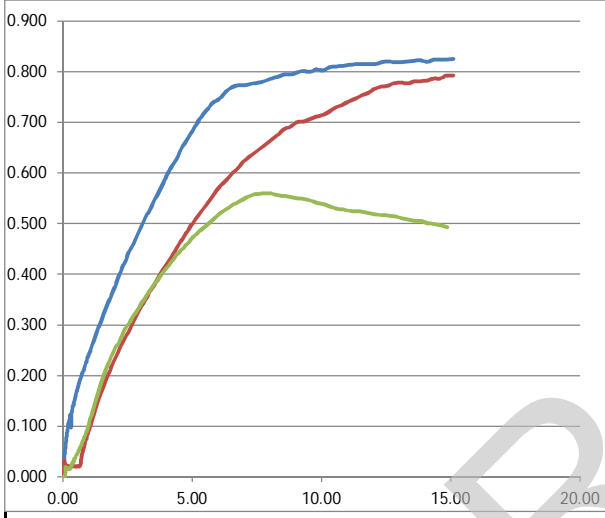
BORING NO.	IS-1A	SAMPLE NO.	7	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	5/29/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	30 - 31		
TESTED BY	JK/TC/TC	CHECKED BY	SC/SC/SC/		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	778
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



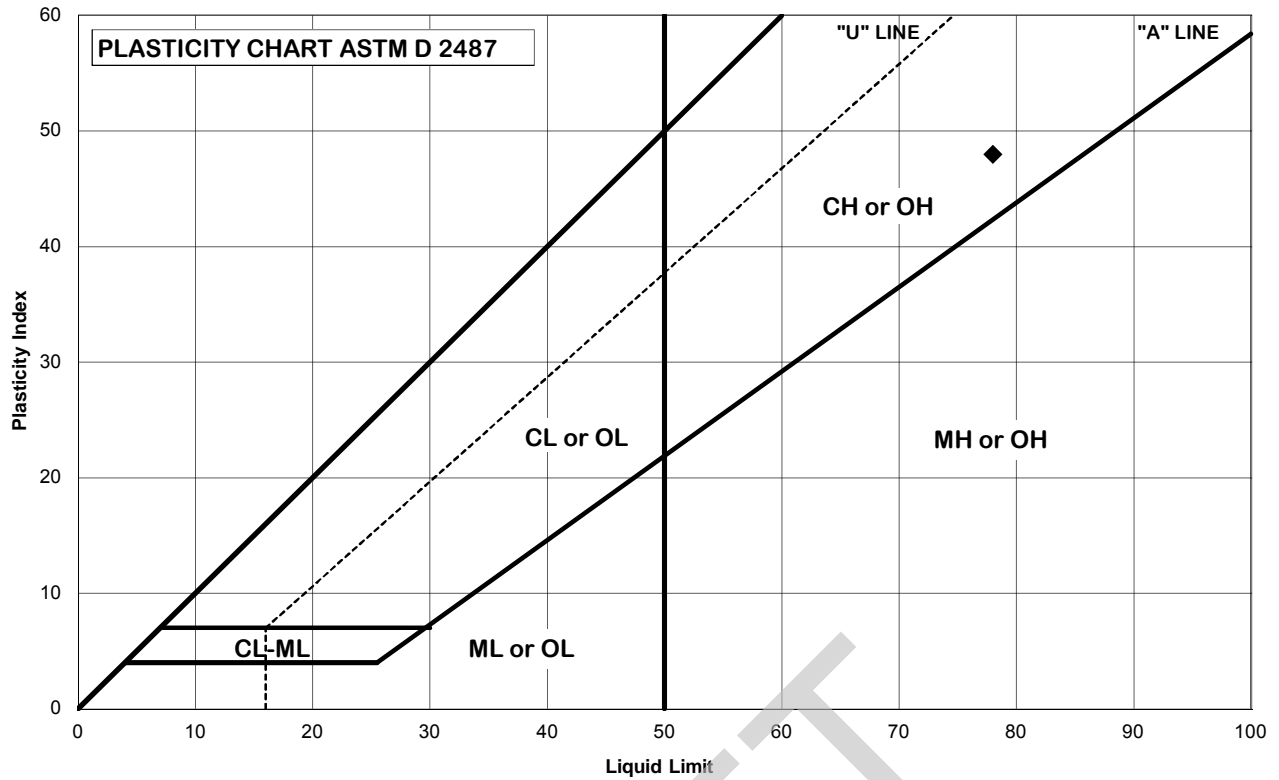
Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	31.37	30.07	32.04
	DRY DENSITY, PCF	97.91	98.11	89.53
	WET DENSITY, PCF	128.63	127.61	118.22
	SATURATION %	119.26	114.87	99.28
	VOID RATIO	0.70	0.70	0.86
AT TEST	WATER CONTENT %	31.22	31.98	32.67
	DRY DENSITY, PCF	128.63	127.61	118.22
	WET DENSITY, PCF	168.78	168.41	156.84
	SATURATION %	119.01	117.95	100.19
	VOID RATIO	0.70	0.72	0.87

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.12	3.09	3.04
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.36	1.31	1.39
				CELL PRESSURE, PSI	12.60	24.60	36.60
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1620.00	1556.00	1070.46
REMARKS	0			STRAIN, %	14.59	15.09	7.58
				ULTIMATE STRESS, %	0.02	0.02	0.02
				σ_1 FAILURE, PSF	3432.96	5094.08	6335.44
				σ_3 FAILURE, PSF	1812.96	3538.08	5264.98

SAMPLE DESCRIPTION Medium dense gray silty sand (SM)

BORING NO.	IS-1A	SAMPLE NO.	8	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/3/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	34 - 35		
TESTED BY	TC/TC/JK	CHECKED BY	SC/SC/SC/		

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ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-3A	Natural WC:	#DIV/0!
Depth, ft.	71 - 72.5	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium tan and gray clay with 6" sand layer (CH4)		

Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	78
Plastic Limit =	30
Plasticity Index =	48

Date:	7/1/2013
Tested By:	BH
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil.

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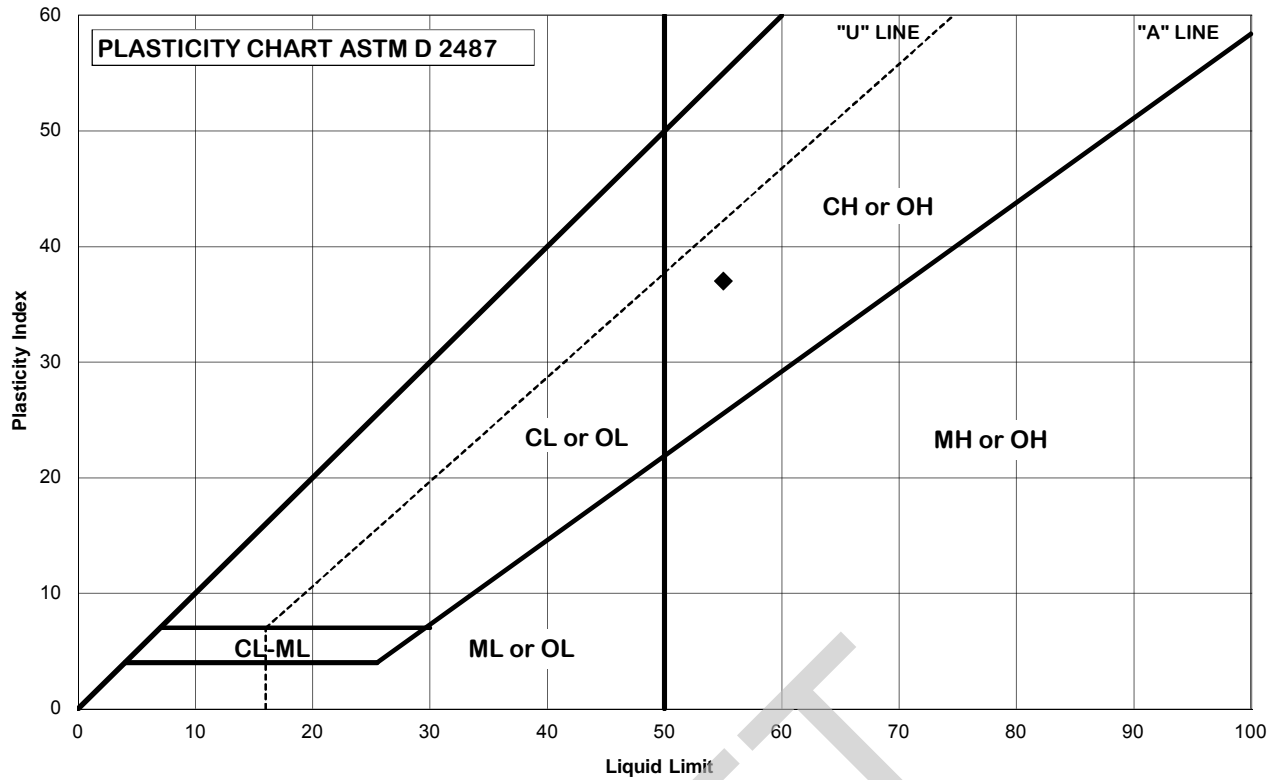


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-3A	Natural WC:	#DIV/0!
Depth, ft.	91 - 92.5	Preparation:	Air Dried
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff tan and gray clay with sand pockets (CH2)		

Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	55
Plastic Limit =	18
Plasticity Index =	37

Date:	7/1/2013
Tested By:	SC
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

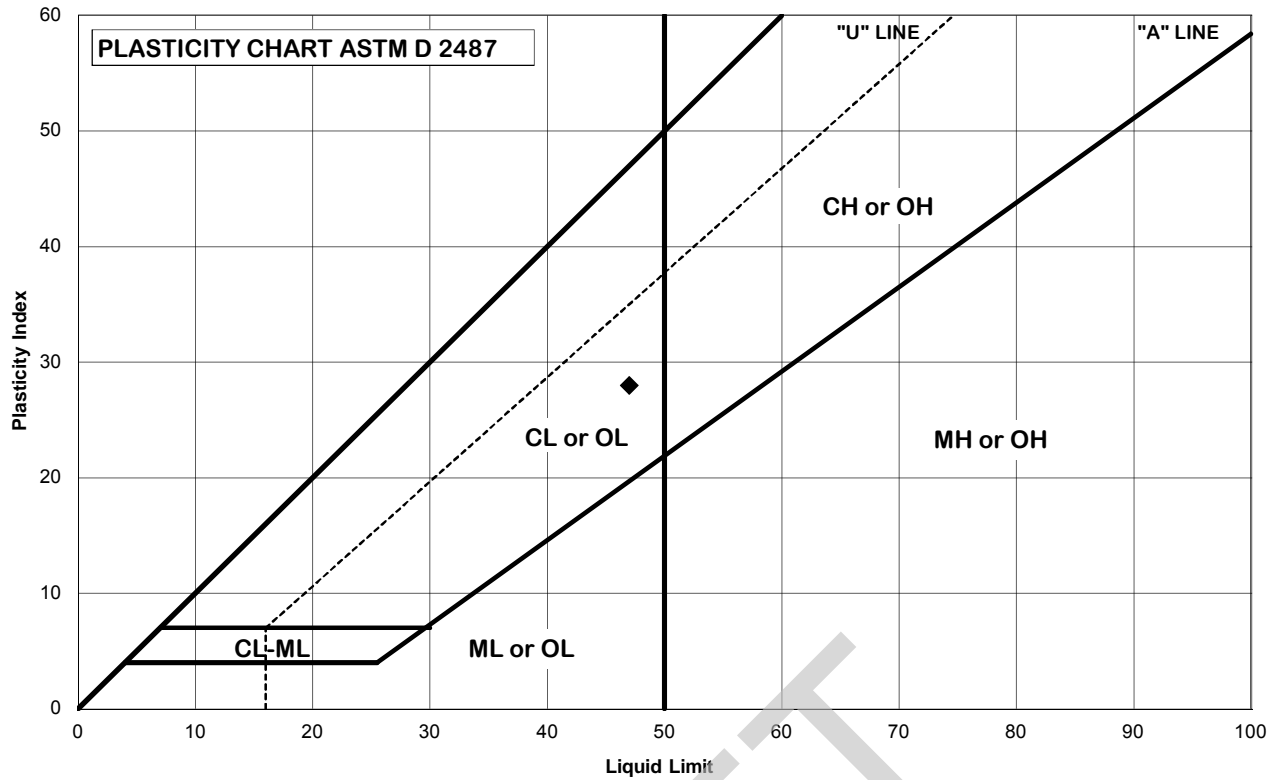


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-3A	Natural WC:	#DIV/0!
Depth, ft.	96 - 97.5	Preparation:	Air Dried
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very stiff gray clay with sand pockets (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	47
Plastic Limit =	19
Plasticity Index =	28

Date:	7/2/2013
Tested By:	SC
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil.

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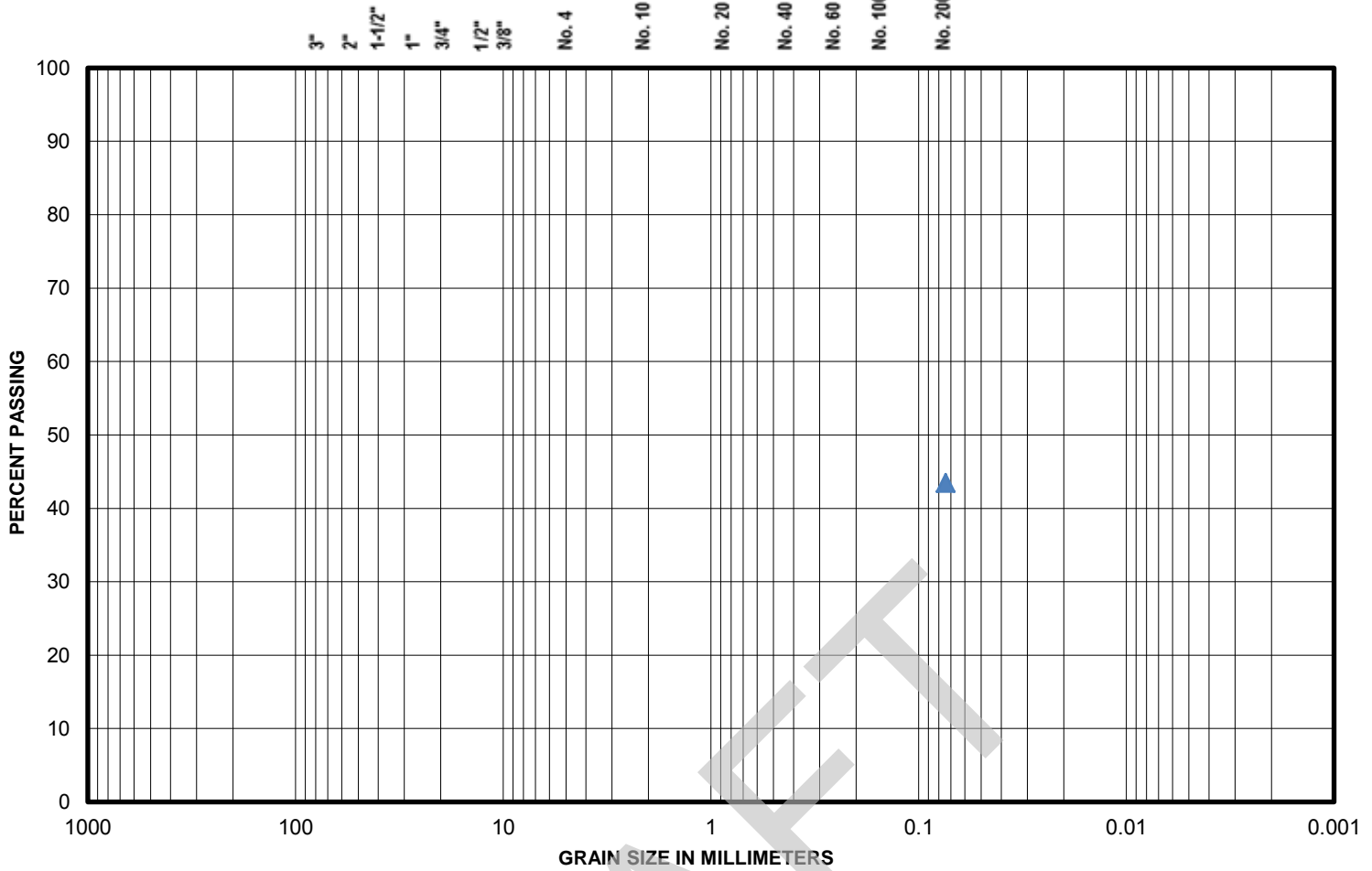
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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL	SAND		SILT	CLAY
		COARSE	FINE		

Sand %	56.6	Fines (Silt & Clay) %	43.4
---------------	------	----------------------------------	------

USC Classification	SC-SM	C_u	na	C_c	na
Description	Silty, clayey sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	43.4

Project	LA CPRA - Mid-Barataria Diversion	Date Tested	7/3/2013
Project No.	18274-001-00	Tested By	TC
Boring No.	IS-3A	Checked By	SC
Source/Depth (feet)	36 - 37.5	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



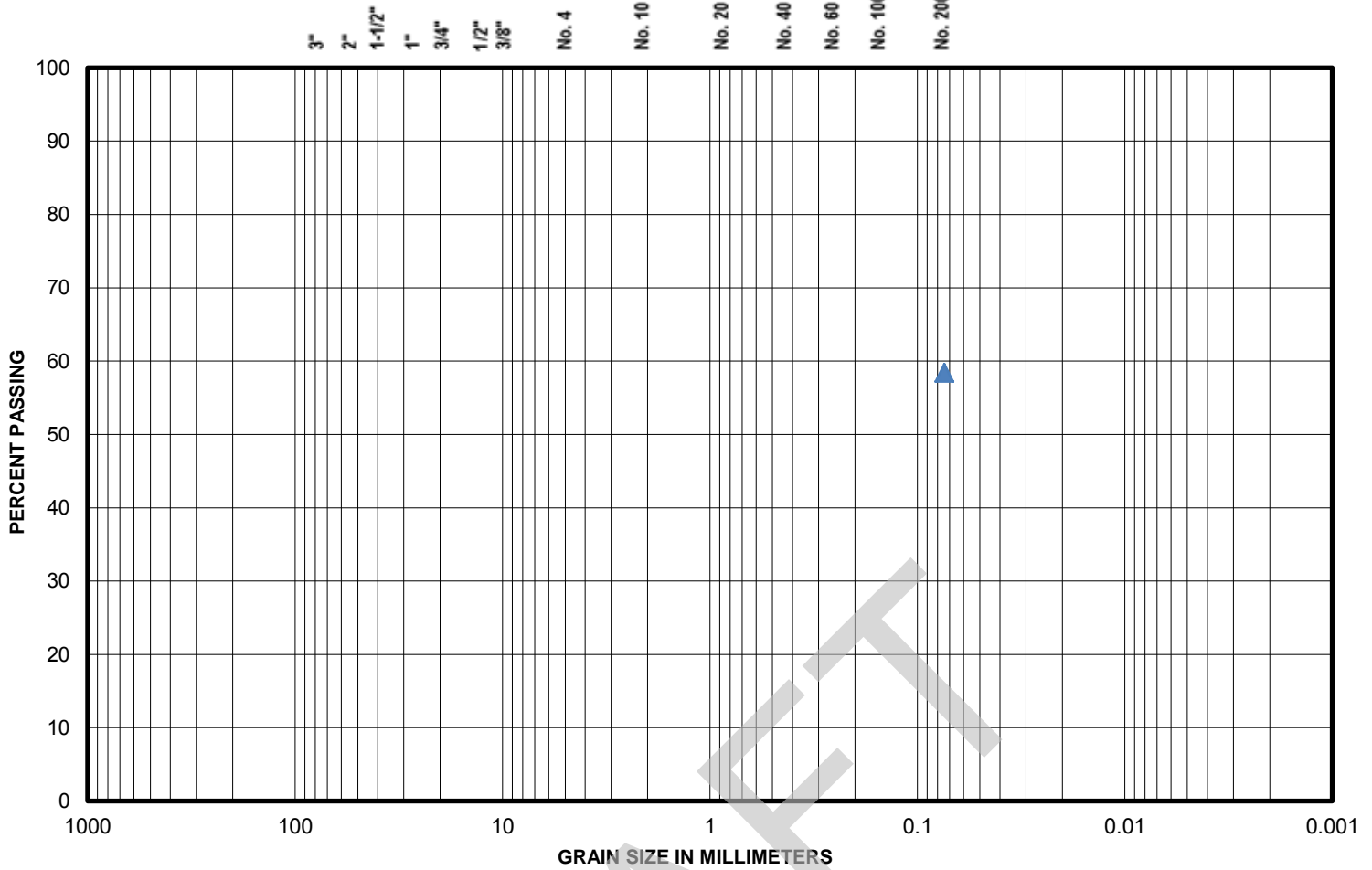
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AASHTO T 11 (No. 200) SIEVE ANALYSIS OF FINE AGGREGATES

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL	SAND		SILT	CLAY
		COARSE	FINE		

Sand %	41.6	Fines (Silt & Clay) %	58.4
--------	------	-----------------------	------

USC Classification	X	C _u	na	C _c	na
Description	Loose gray sandy silt (ML)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	58.4

Project	LA CPRA - Mid-Barataria Diversion	Date Tested	7/3/2013
Project No.	18274-001-00	Tested By	GOM
Boring No.	IS-3A	Checked By	JB
Source/Depth (feet)	53.5 - 55	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

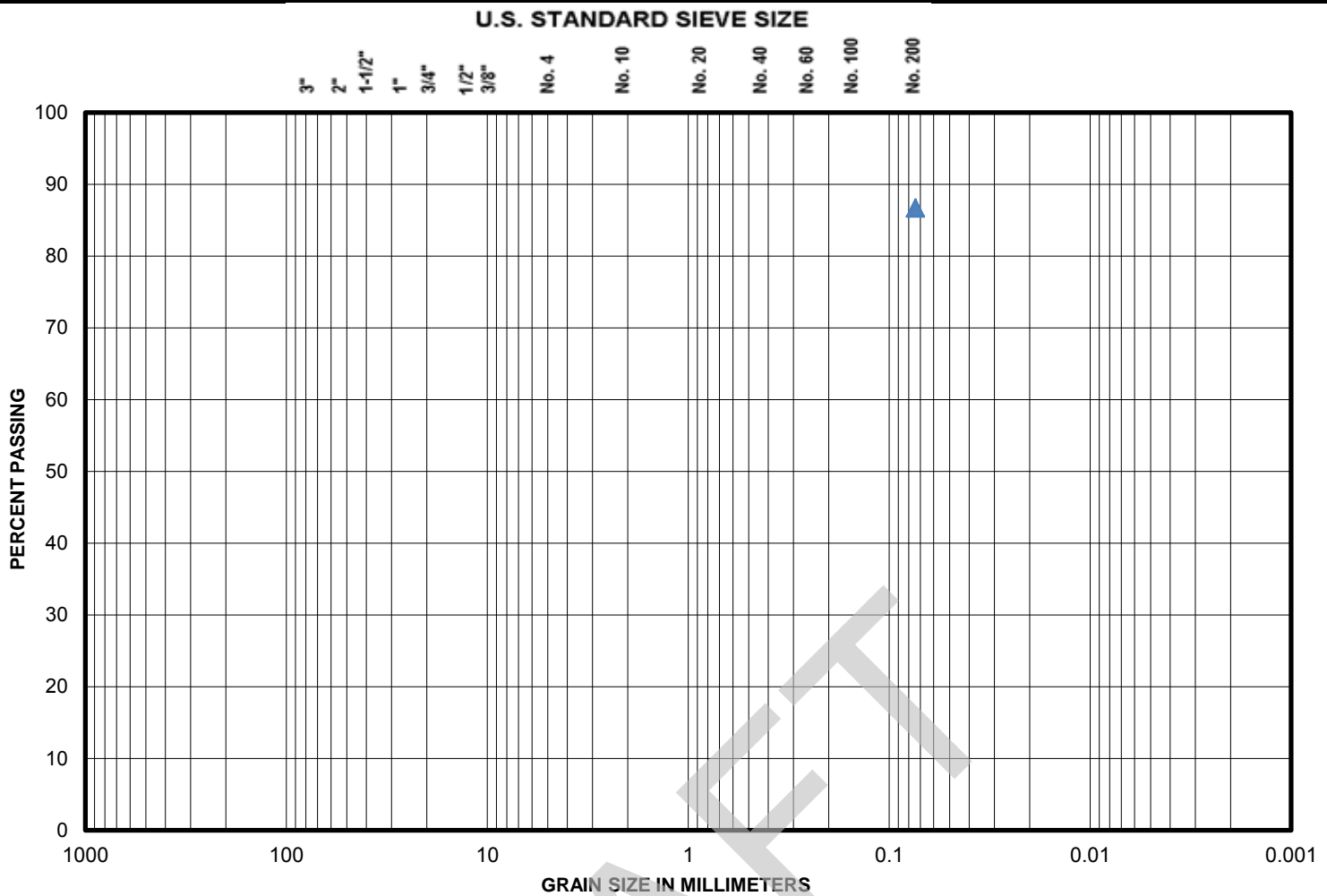


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AASHTO T 11 (No. 200) SIEVE ANALYSIS OF FINE AGGREGATES

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	13.3
Coarse Sand %	0.0	Fines (Silt & Clay) %	86.7
USC Classification	x	C _u	na
		C _c	na
Description (D 2488)	Medium dense gray sandy silt with 5" clay layer (ML)		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	86.7

Project	LA CPRA - Mid-Barataria Diversion (BA-153), PI	Date Tested	6/4/2013
Project No.	18274-001-00	Tested By	GM
Boring No.	IS-3A	Checked By	sc
Source/Depth (feet)	56 - 57.5	Sieve Type	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

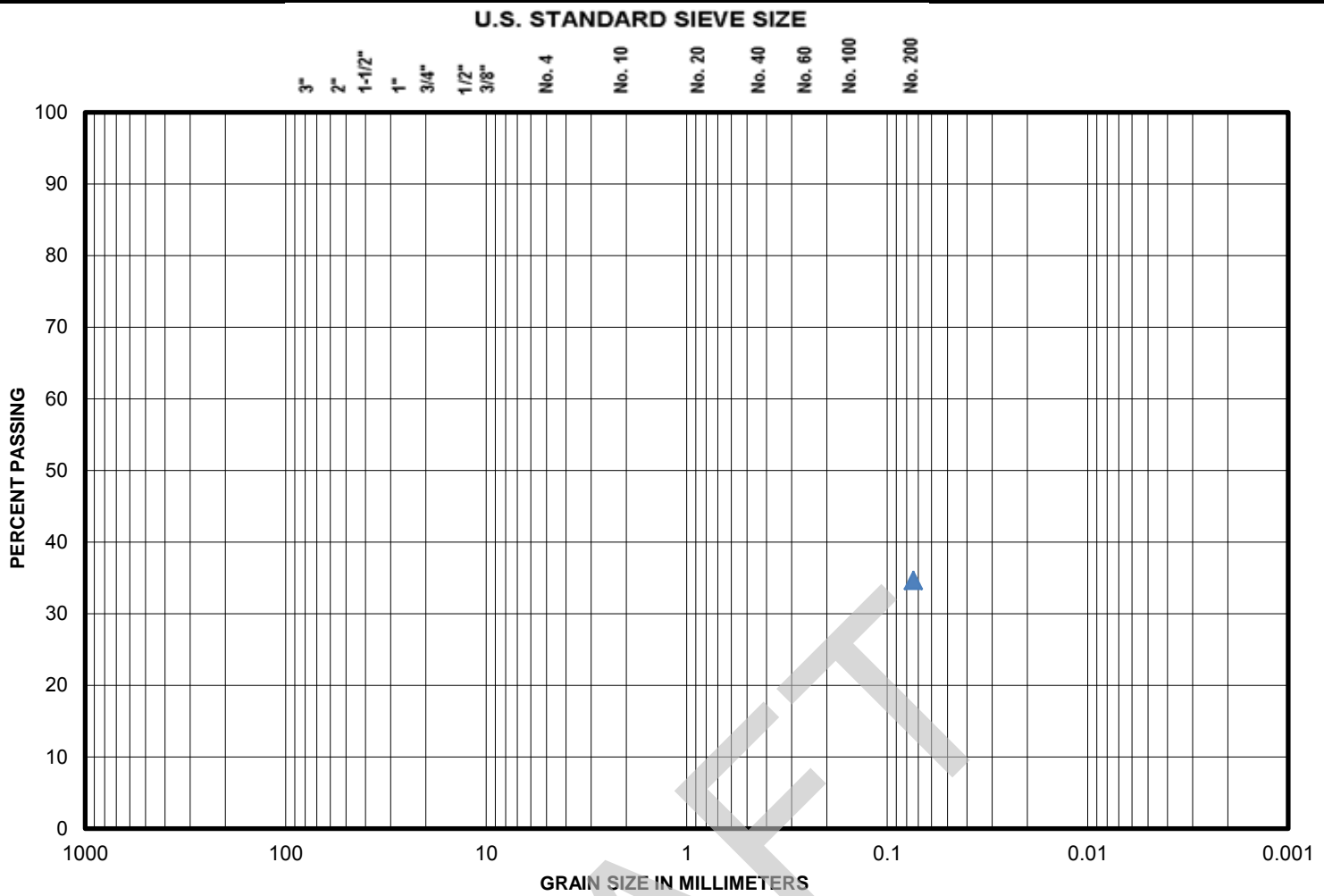


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	65.3	Fines (Silt & Clay) %	34.7
--------	------	-----------------------	------

USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	34.7

Project	LA CPRA - Mid-Barataria Diversion (BA-153), PI	Date Tested	7/3/2013
Project No.	18274-001-00	Tested By	gom
Boring No.	IS-3A	Checked By	JB
Source/Depth (feet)	98.5 - 100	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

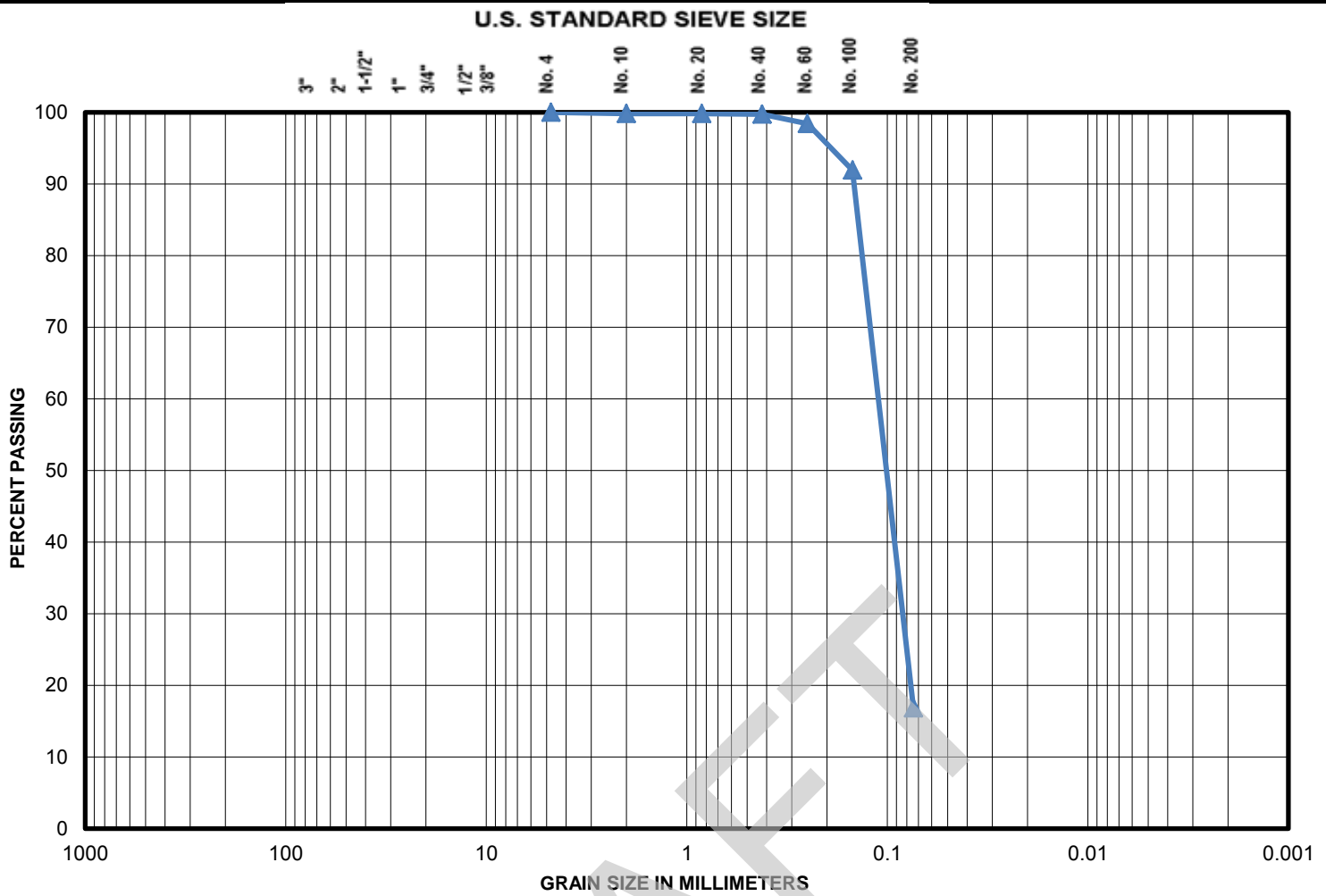


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.1		
Fine Gravel %	0.0	Fine Sand %	82.9		
Coarse Sand %	0.2	Fines (Silt & Clay) %	16.8		
USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	100.0
2"	#N/A	No. 10	99.8
1 1/2"	#N/A	No. 20	99.8
1"	#N/A	No. 40	99.7
3/4"	#N/A	No. 60	98.4
1/2"	#N/A	No. 100	91.9
3/8"	#N/A	No. 200	16.8

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Pl.	Date Tested	7/3/2013
Project No.	18274-001-00	Tested By	tc
Boring No.	IS-3A	Checked By	jb
Source/Depth (feet)	46 - 47.5	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

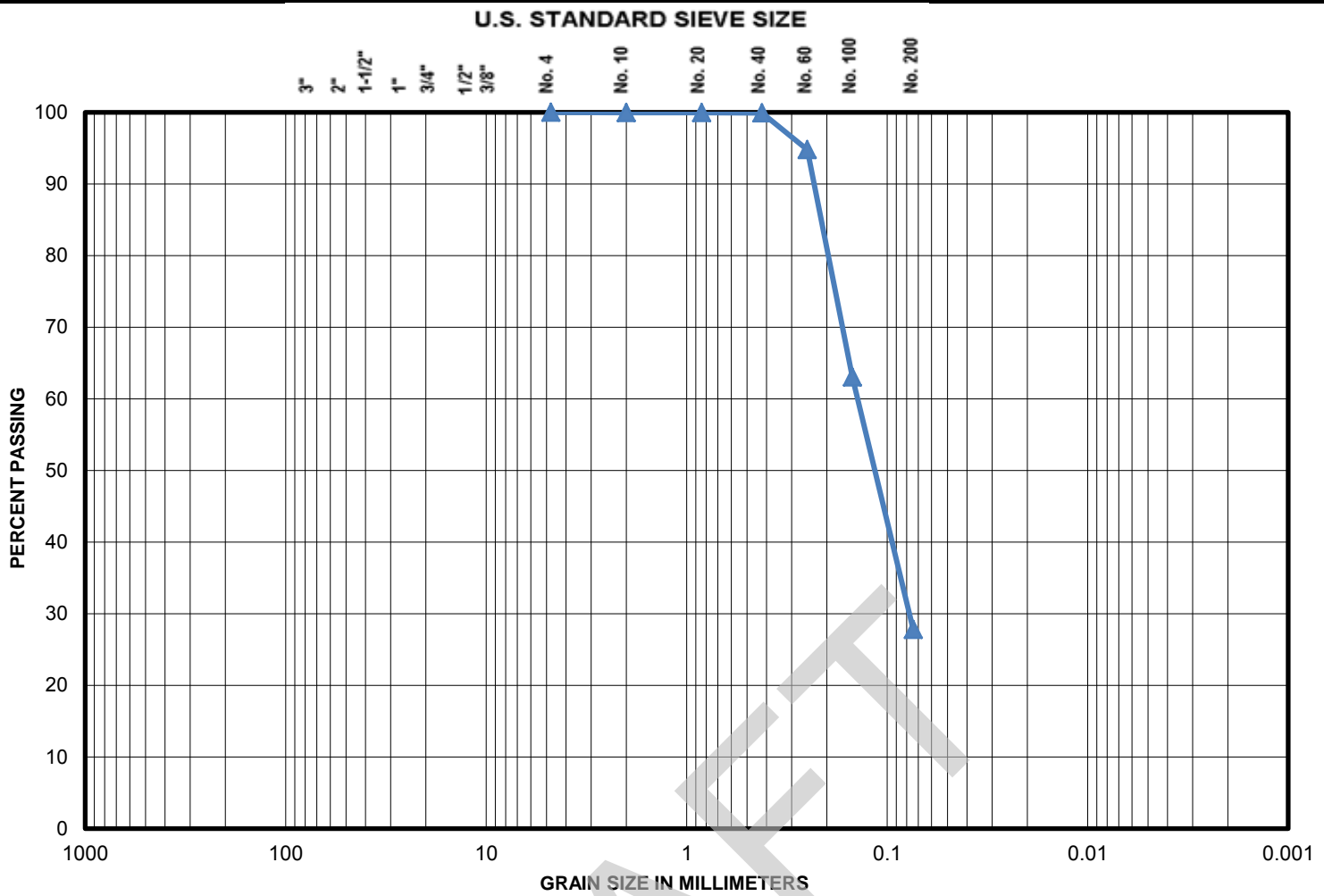


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0		
Fine Gravel %	0.0	Fine Sand %	72.1		
Coarse Sand %	0.0	Fines (Silt & Clay) %	27.8		
USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	100.0
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	100.0
1"	#N/A	No. 40	99.9
3/4"	#N/A	No. 60	94.8
1/2"	#N/A	No. 100	63.1
3/8"	#N/A	No. 200	27.8

Project	LA CPRA - Mid-Barataria Diversion (BA-153), PL	Date Tested	7/3/2013
Project No.	18274-001-00	Tested By	gom
Boring No.	IS-3A	Checked By	JB
Source/Depth (feet)	58.5 - 60	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

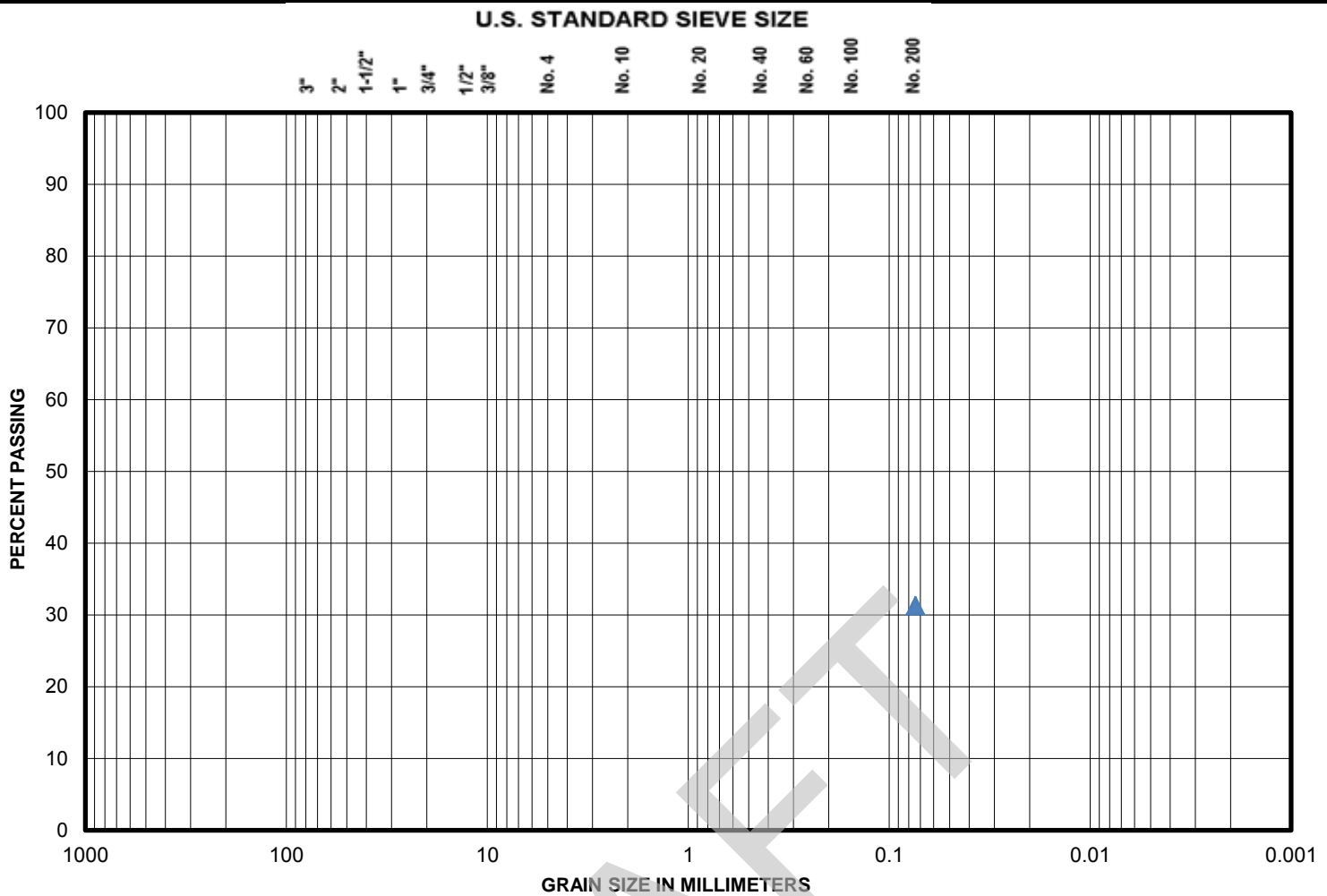


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	68.7	Fines (Silt & Clay) %	31.3
--------	------	-----------------------	------

USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	31.3

Project	LA CPRA - Mid-Barataria Diversion (BA-153), PI	Date Tested	7/3/2013
Project No.	18274-001-00	Tested By	gom
Boring No.	IS-3A	Checked By	JB
Source/Depth (feet)	66 - 67.5	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

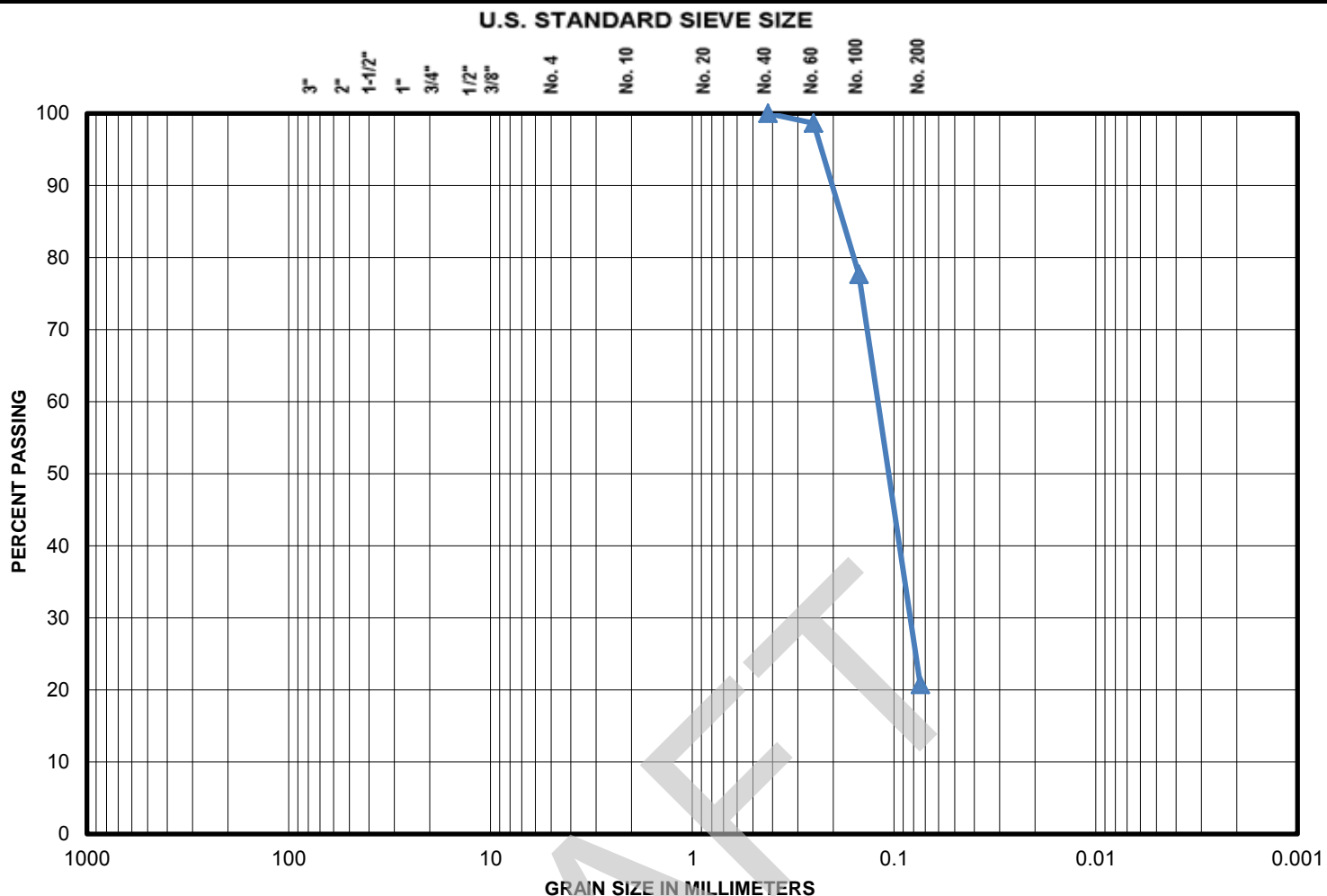


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	79.3
Coarse Sand %	0.0	Fines (Silt & Clay) %	20.7
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	98.6
1/2"	#N/A	No. 100	77.7
3/8"	#N/A	No. 200	20.7

Project	LA CPRA - Mid-Barataria Diversion (BA-153), PI	Date Tested	7/10/2013
Project No.	18274-001-00	Tested By	JK
Boring No.	IS-3A	Checked By	SC
Source/Depth (feet)	78.5 - 80	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



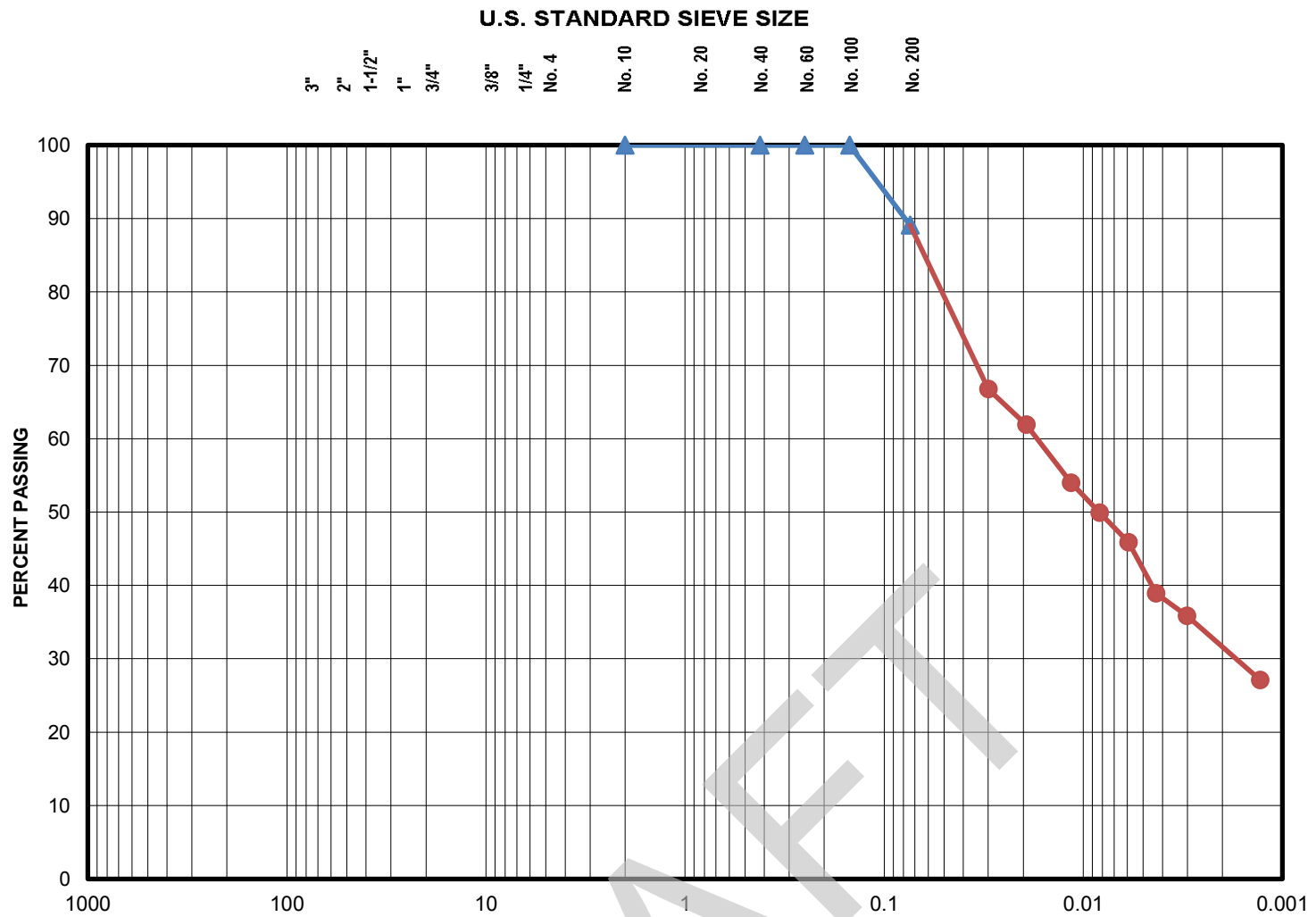
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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

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Description (D 2488)	Medium dense gray clayey silt with sand and 6" clay layer (ML)
-----------------------------	--

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	89.1

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1149
Hydro jar ID:	1354

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (B)	Date Tested	7/29/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	IS-3A	Checked By	RW
Source/Depth (feet)	61 - 62.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

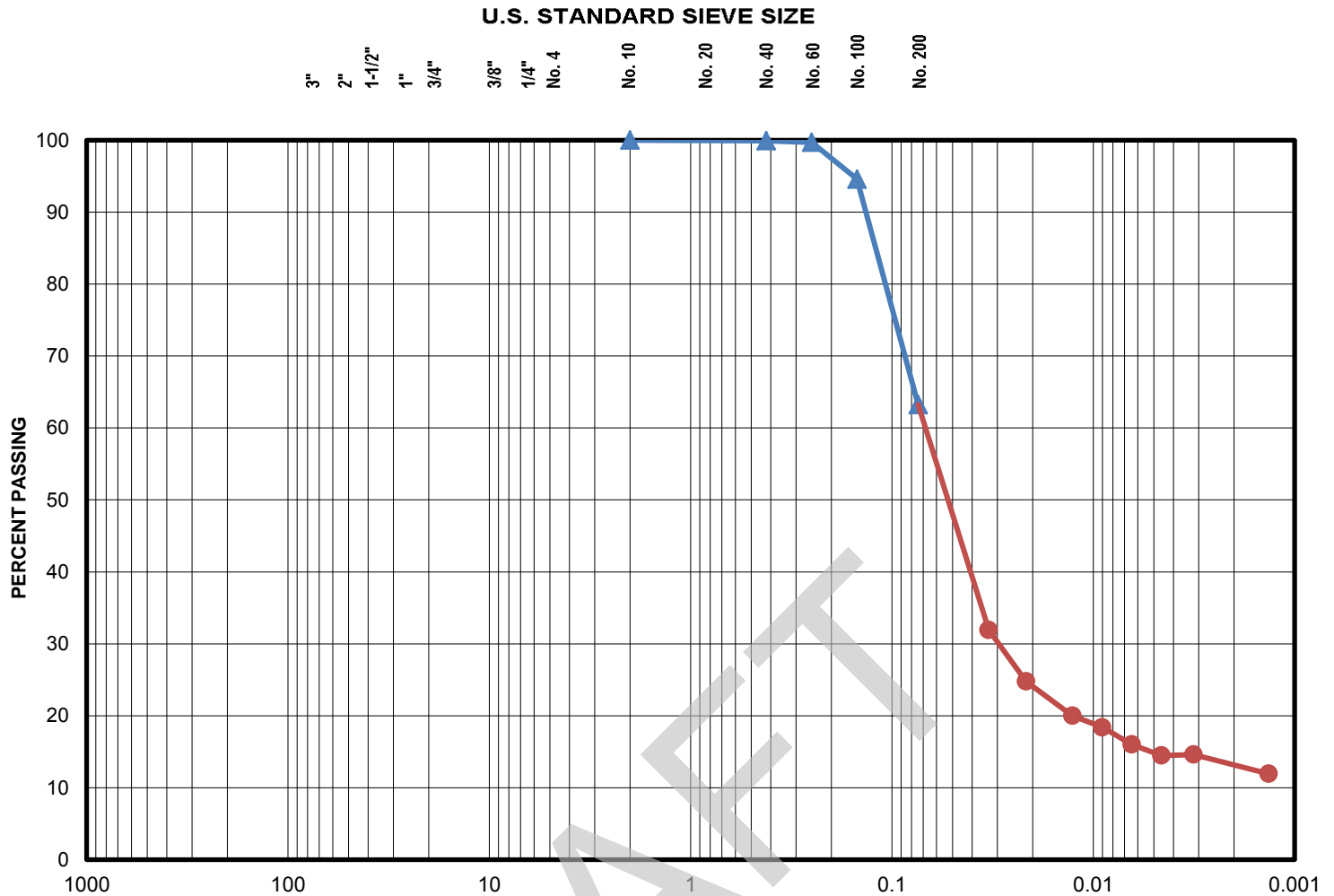


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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488) Medium dense sandy silt with clay, organic matter, and 3" silty clay layer (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	99.9
3/4"	100.0	No. 60	99.7
3/8"	100.0	No. 100	94.6
1/4"	100.0	No. 200	63.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1147
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-153)	Date Tested	8/8/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	IS-3A	Checked By	RW
Source/Depth (feet)	76 - 77.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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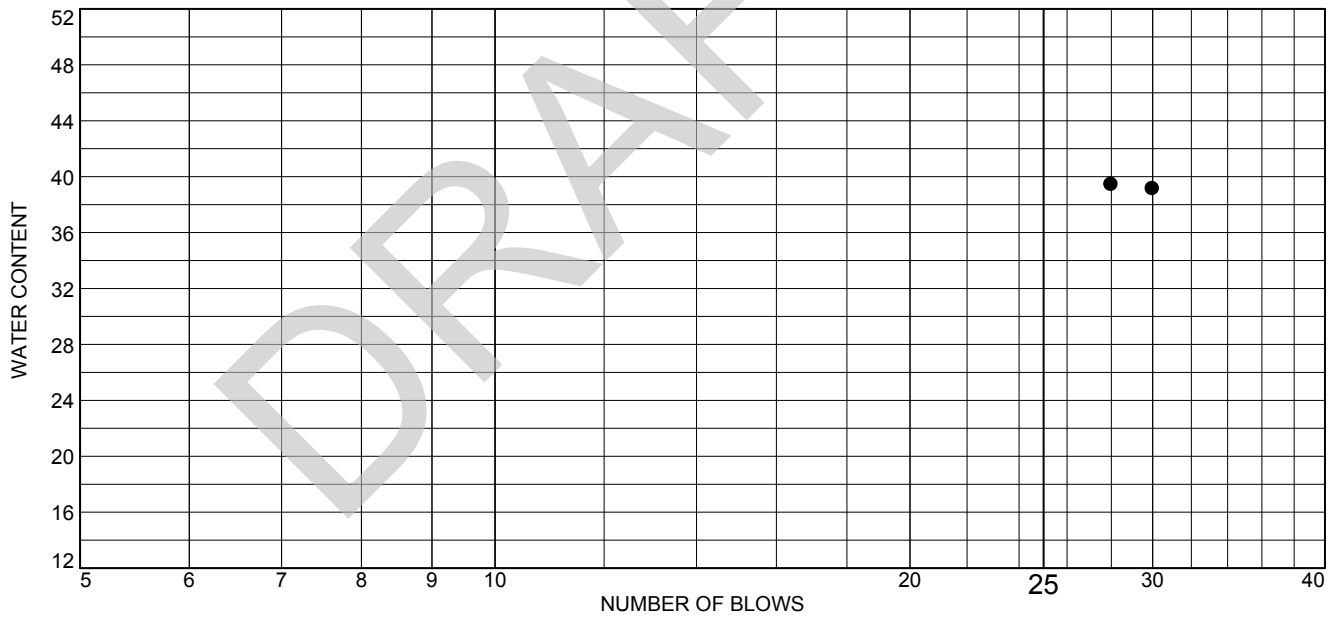
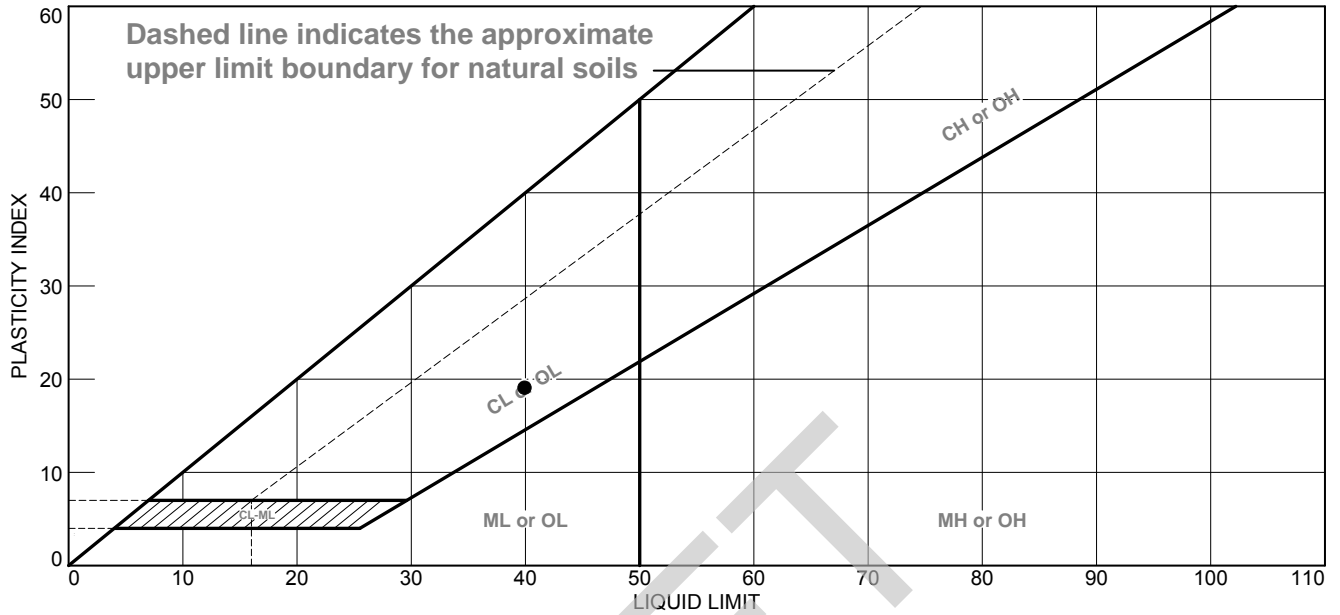
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

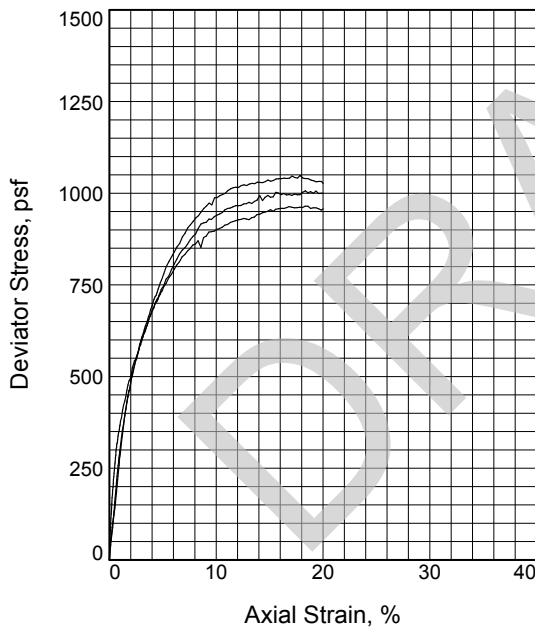
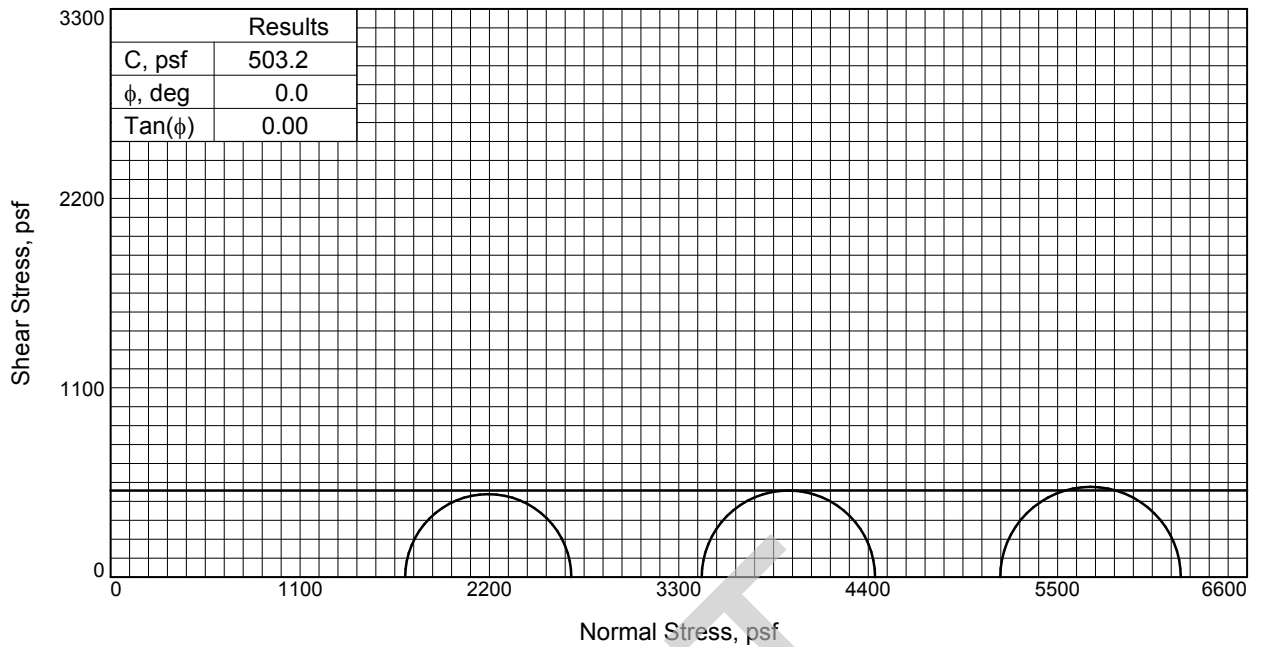
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LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Stiff to Very Stiff, Tan Lean CLAY with Clay Pockets and Shell Fragments	40	21	19			(CL4)

Project No. B13-018 Client: GeoEngineers Project: Mid Barataria Diversion Source of Sample: IS-3A Depth: 2.4-3	Remarks: <div style="text-align: right; margin-top: 20px;">Figure</div>
Southern Earth Sciences, Inc. Baton Rouge, LA	



	Sample No.	1	2	3
Initial	Water Content, %	48.6	45.9	46.9
	Dry Density, pcf	74.6	77.4	76.2
	Saturation, %	102.5	103.7	103.0
	Void Ratio	1.3024	1.2179	1.2527
	Diameter, in.	1.392	1.394	1.393
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	47.4	44.3	45.6
	Dry Density, pcf	74.6	77.4	76.2
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.3024	1.2179	1.2527
	Diameter, in.	1.392	1.394	1.393
	Height, in.	2.800	2.800	2.800
	Strain rate, in./min.	1.000	1.000	0.999
	Back Pressure, psi	0.000	0.000	0.000
	Cell Pressure, psi	11.880	23.840	35.880
Fail. Stress, psf		964.6	1006.5	1048.4
	Strain, %	18.3	18.3	17.9
Ult. Stress, psf				
	Strain, %			
σ_1 Failure, psf		2675.3	4439.4	6215.2
σ_3 Failure, psf		1710.7	3433.0	5166.7

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: Medium, Gray Fat CLAY with Silt and Sandy Silt Lenses and Layers (CH2)

LL= 60 PL= 25 PI= 35

Assumed Specific Gravity= 2.75

Remarks: Type Failure:

Multi Shear

Figure _____

Client: GeoEngineers

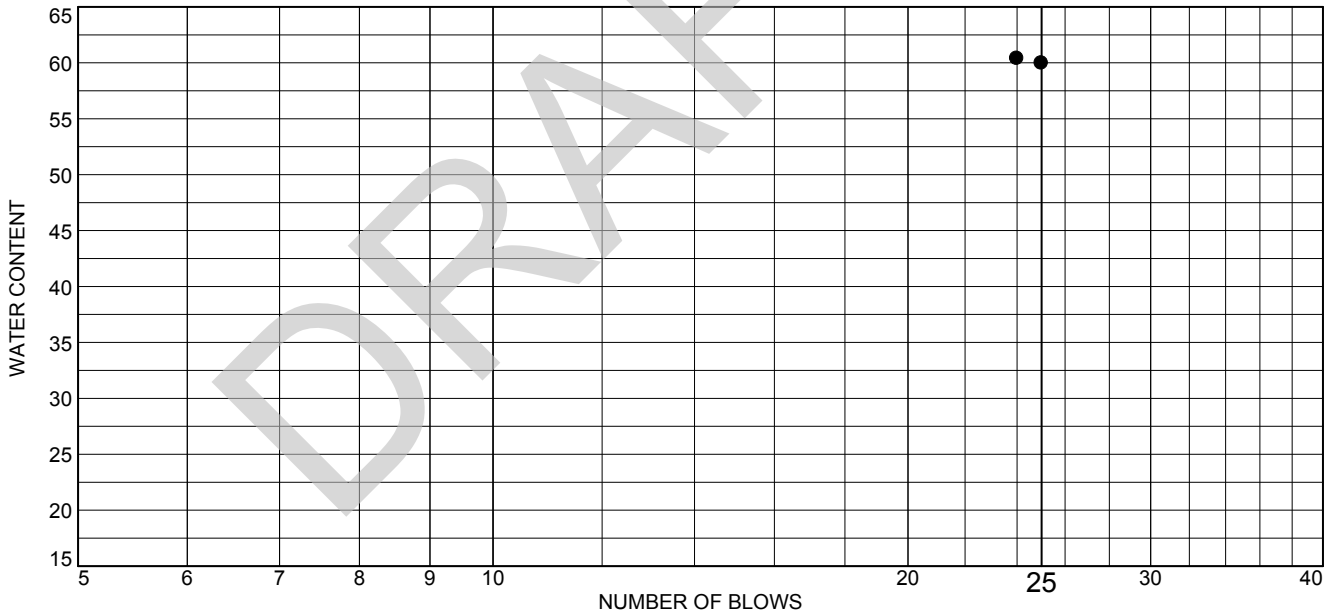
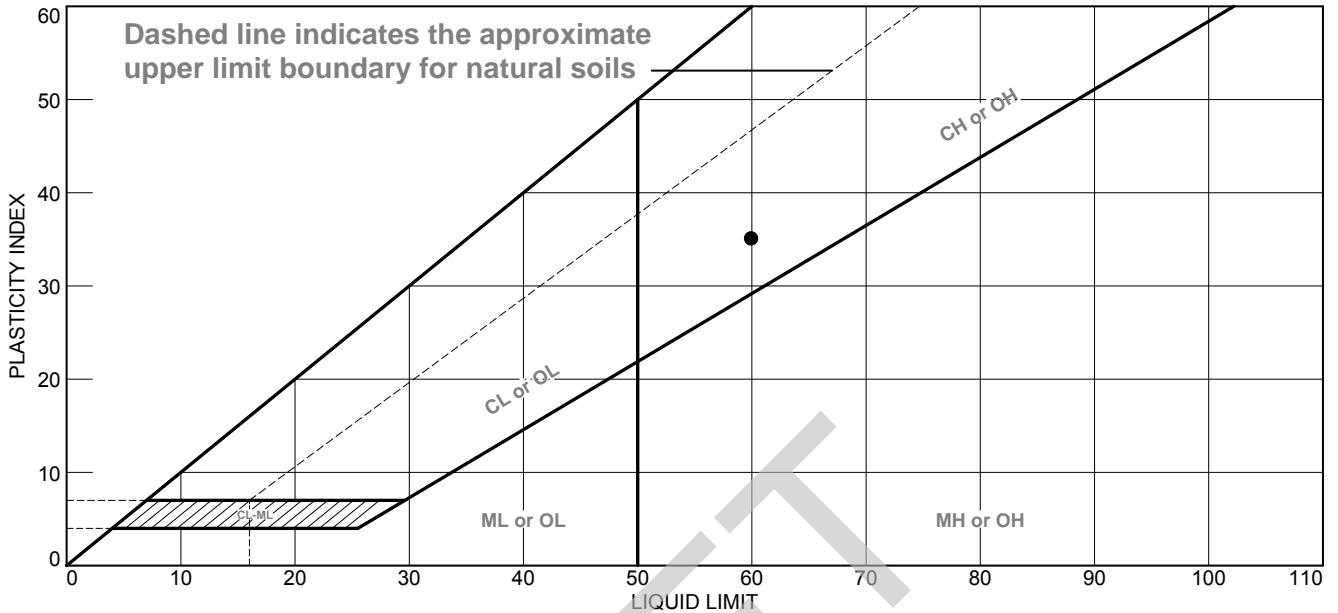
Project: Mid Barataria Diversion

Source of Sample: IS-3A **Depth:** 32.4-33

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

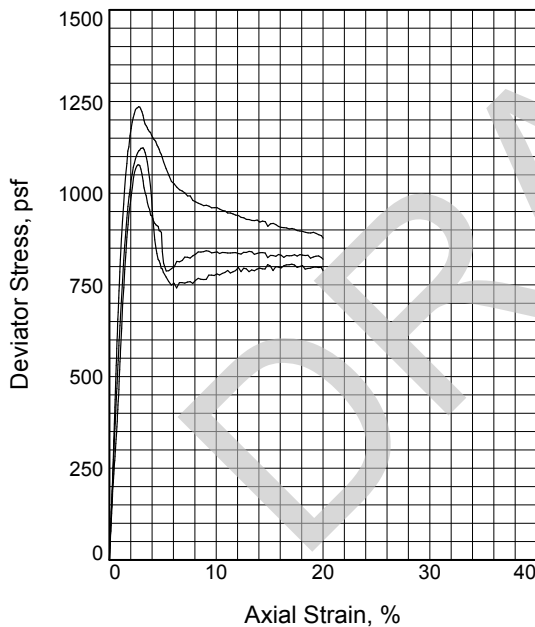
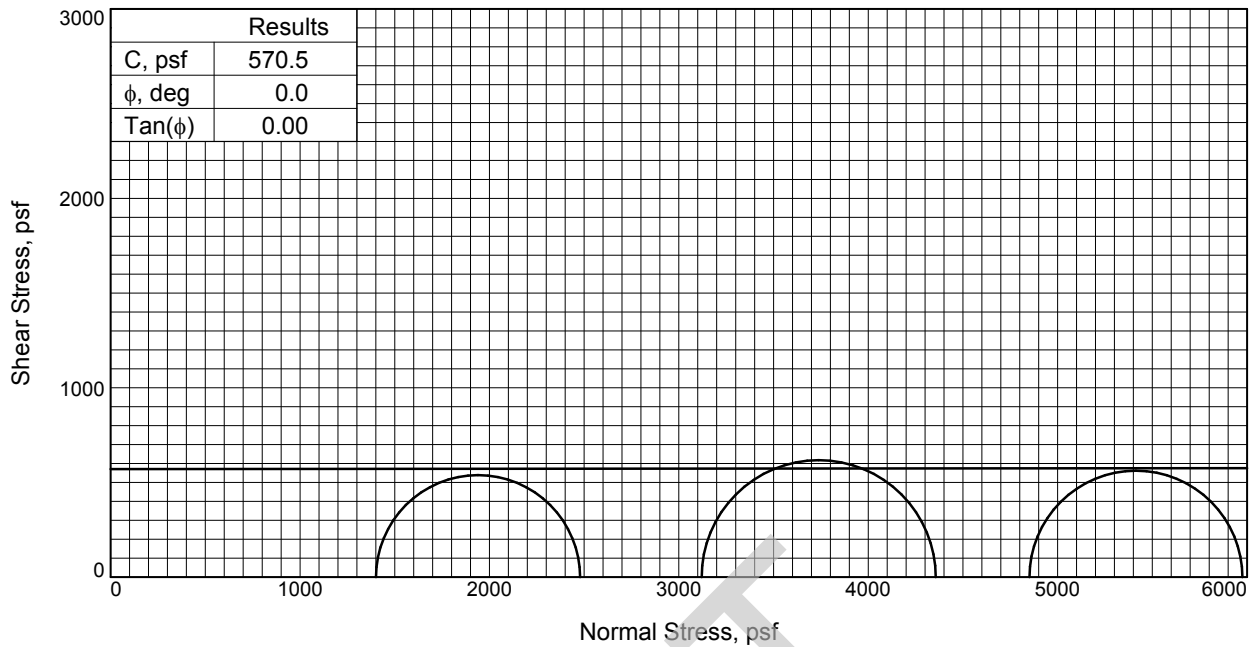
LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Medium, Gray Fat CLAY with Silt and Sandy Silt Lenses and Layers	60	25	35			(CH2)

Project No. B13-018 Client: GeoEngineers Project: Mid Barataria Diversion Source of Sample: IS-3A Depth: 32.4-33	Remarks:
Southern Earth Sciences, Inc. Baton Rouge, LA	

Figure



Sample No.	1	2	3
Initial			
Water Content, %	61.0	61.7	61.0
Dry Density, pcf	64.6	64.6	64.2
Saturation, %	100.3	101.4	99.2
Void Ratio	1.7043	1.7042	1.7207
Diameter, in.	1.402	1.403	1.397
Height, in.	2.800	2.800	2.800
At Test			
Water Content, %	60.9	60.9	61.5
Dry Density, pcf	64.6	64.6	64.2
Saturation, %	100.0	100.0	100.0
Void Ratio	1.7043	1.7042	1.7207
Diameter, in.	1.402	1.403	1.397
Height, in.	2.800	2.800	2.800
Strain rate, in./min.	1.000	1.000	1.000
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	9.730	21.670	33.690
Fail. Stress, psf	1077.3	1235.8	1124.0
Strain, %	2.8	2.7	3.1
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	2478.5	4356.3	5975.3
σ_3 Failure, psf	1401.1	3120.5	4851.4

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Medium, Fat CLAY with Silt and Sandy Silt Lenses and Layers (CH2)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:
45 Degree Shear
slicken Sided

Client: GeoEngineers

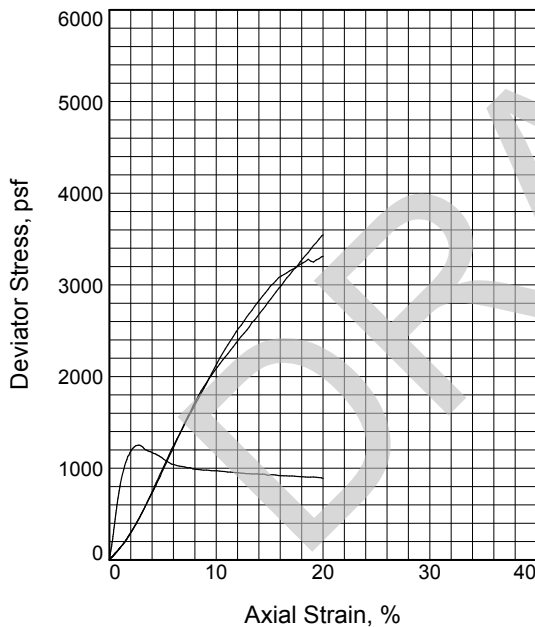
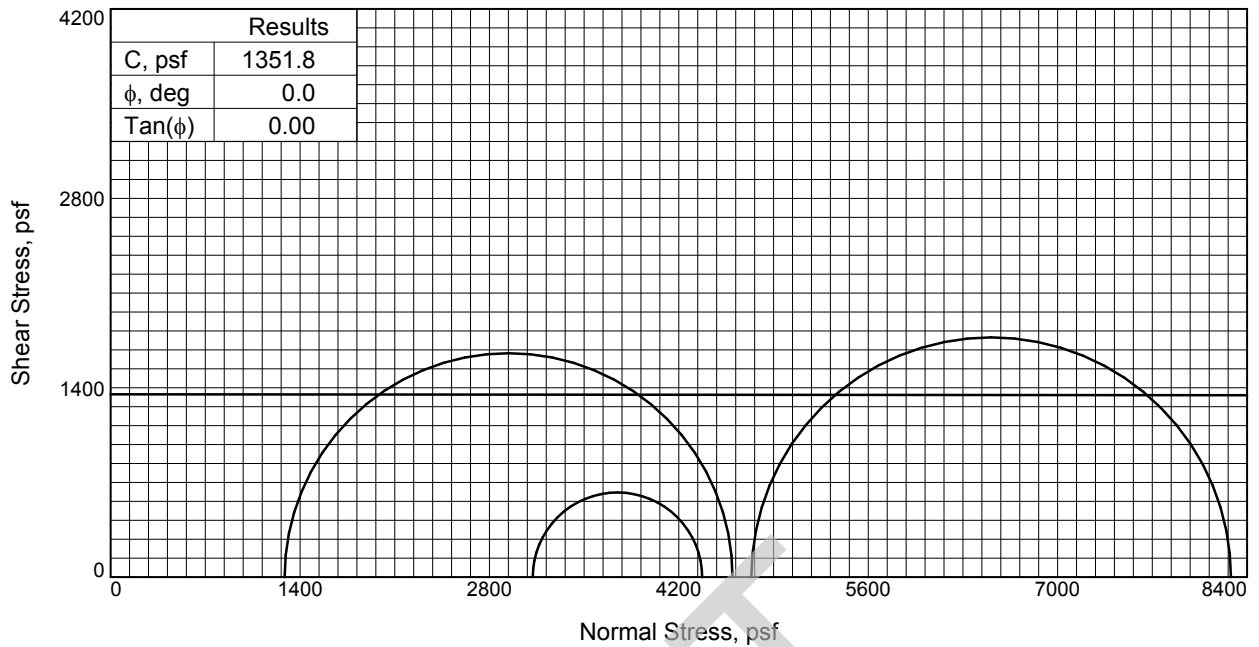
Project: Mid Baratavia Diversion

Source of Sample: IS-3A **Depth:** 26-27

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Figure _____



Sample No.	1	2	3	
Initial	Water Content, %	31.5	34.4	33.8
	Dry Density, pcf	93.4	88.3	94.3
	Saturation, %	108.2	104.4	118.8
	Void Ratio	0.7717	0.8745	0.7534
	Diameter, in.	1.378	1.394	1.363
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	29.1	33.0	28.4
	Dry Density, pcf	93.4	88.3	94.3
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.7717	0.8745	0.7534
2	Diameter, in.	1.378	1.394	1.363
	Height, in.	2.800	2.800	2.800
	Strain rate, in./min.	1.000	1.000	0.999
	Back Pressure, psi	0.000	0.000	0.000
	Cell Pressure, psi	8.930	21.670	32.890
Fail. Stress, psf		3311.1	1251.8	3544.8
	Strain, %	20.0	2.7	20.0
Ult. Stress, psf				
	Strain, %			
σ_1 Failure, psf	4597.0	4372.3	8281.0	
σ_3 Failure, psf	1285.9	3120.5	4736.2	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Loose, Gray Silt with Clay and Fine Sand (ML)

Assumed Specific Gravity= 2.65

Remarks: Type Failure:
Bulge
Slumping under own weight / Dilating

Figure _____

Client: GeoEngineers

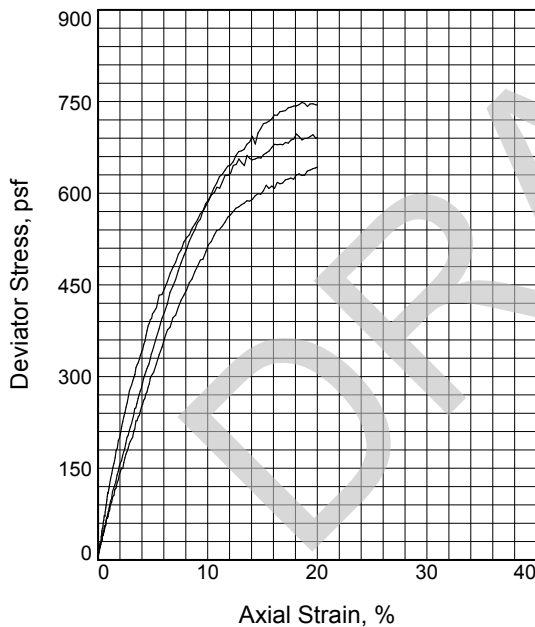
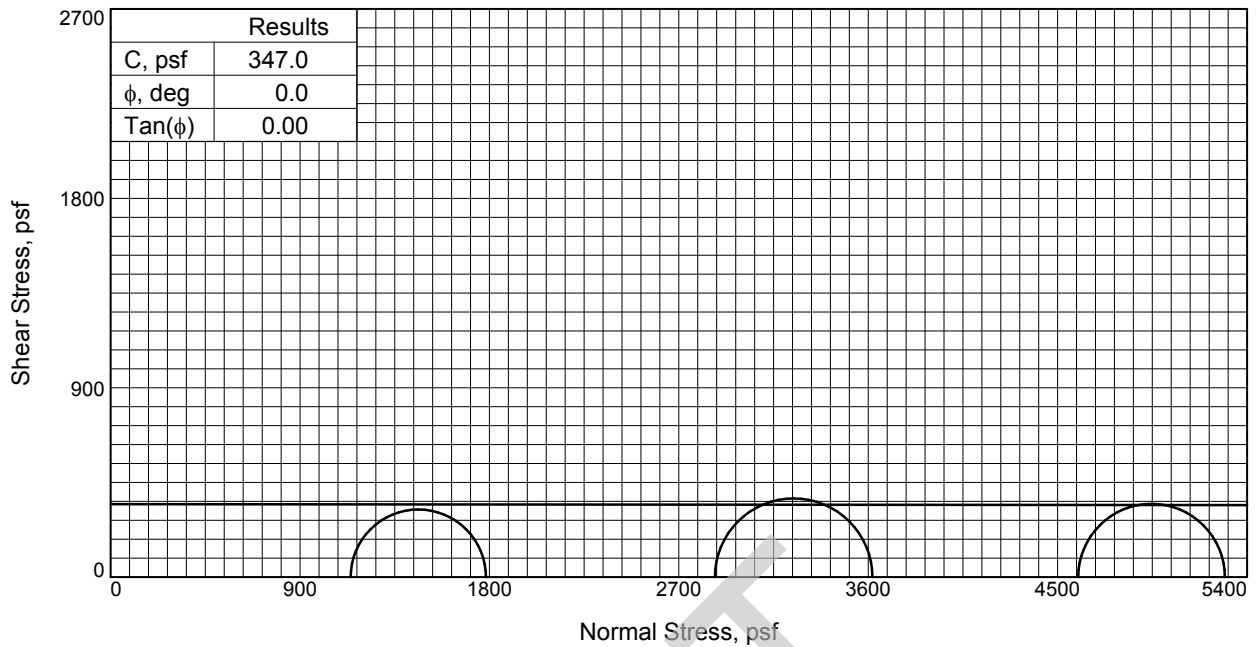
Project: Mid Barataria Diversion

Source of Sample: IS-3A **Depth:** 24.5-25

Proj. No.: B13-018 **Date Sampled:**

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Southern Earth Sciences, Inc.
Baton Rouge, LA

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Sample No.	1	2	3	
Initial	Water Content, %	36.9	35.3	34.8
	Dry Density, pcf	92.3	89.5	93.8
	Saturation, %	120.7	108.0	118.1
	Void Ratio	0.8256	0.8837	0.7963
	Diameter, in.	1.348	1.372	1.347
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	30.6	32.7	29.5
	Dry Density, pcf	92.3	89.5	93.8
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.8256	0.8837	0.7963
Failure	Diameter, in.	1.348	1.372	1.347
	Height, in.	2.800	2.800	2.800
	Strain rate, in./min.	1.001	1.000	1.000
	Back Pressure, psi	0.000	0.000	0.000
	Cell Pressure, psi	7.920	19.940	31.930
Fail. Stress, psf	Fail. Stress, psf	643.0	748.4	696.8
	Strain, %	20.0	18.6	18.1
Ult. Stress, psf	Ult. Stress, psf			
	Strain, %			
Failure	σ_1 Failure, psf	1783.5	3619.8	5294.7
	σ_3 Failure, psf	1140.5	2871.4	4597.9

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Loose Gray SILT with Clay (ML)

LL= 36 PL= 27 PI= 9

Assumed Specific Gravity= 2.70

Remarks: Slumping under own weight

Client: GeoEngineers

Project: Mid Barataria Diversion

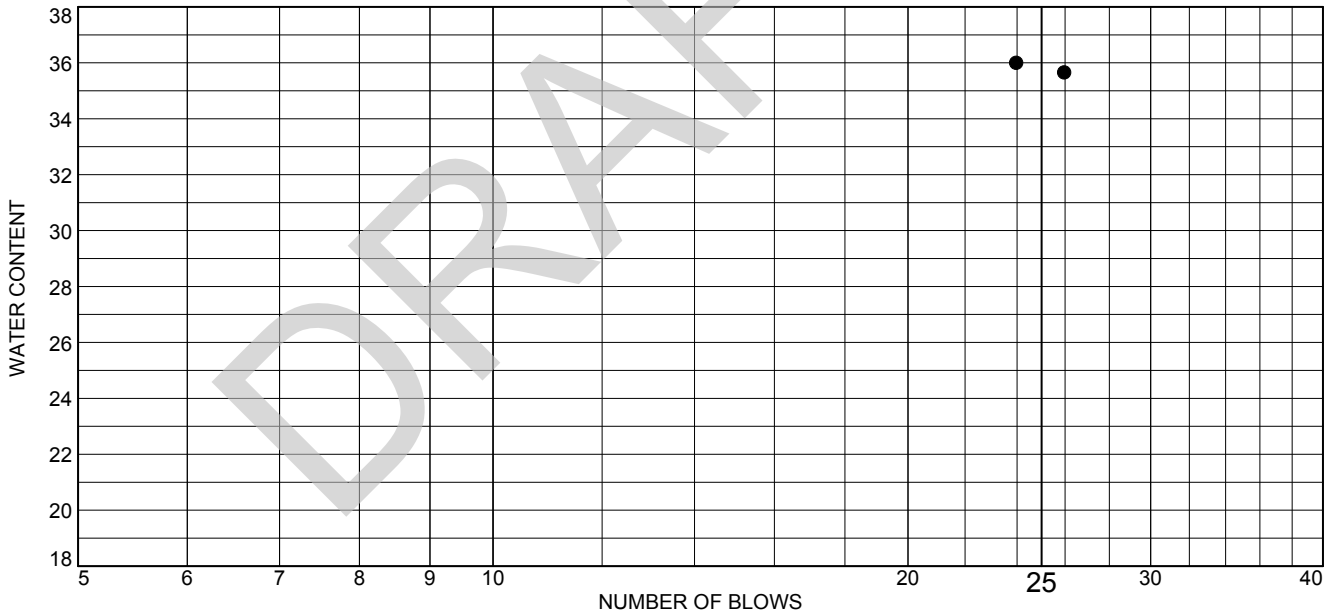
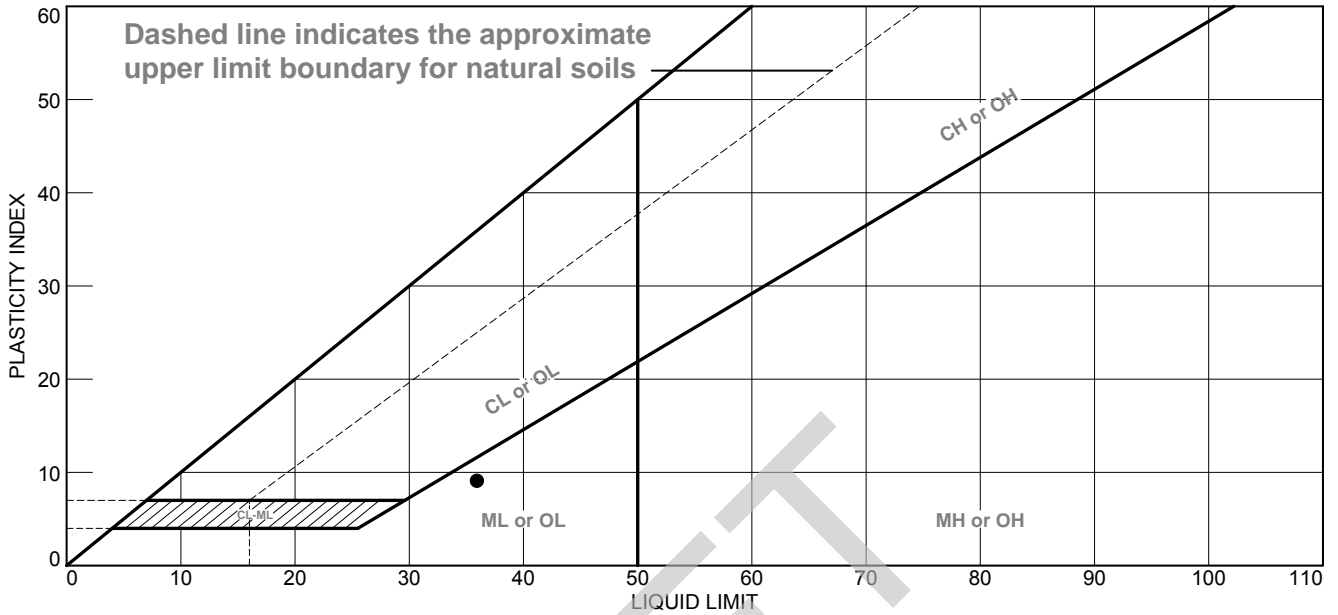
Source of Sample: IS-3A **Depth:** 21-22

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Loose Gray SILT with Clay	36	27	9			(ML)

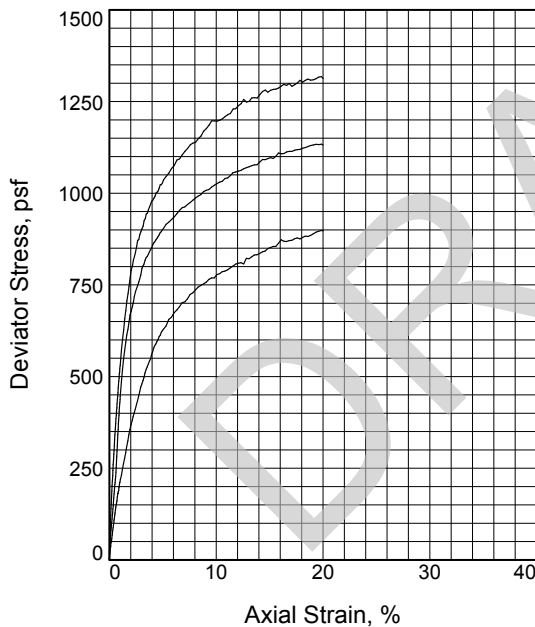
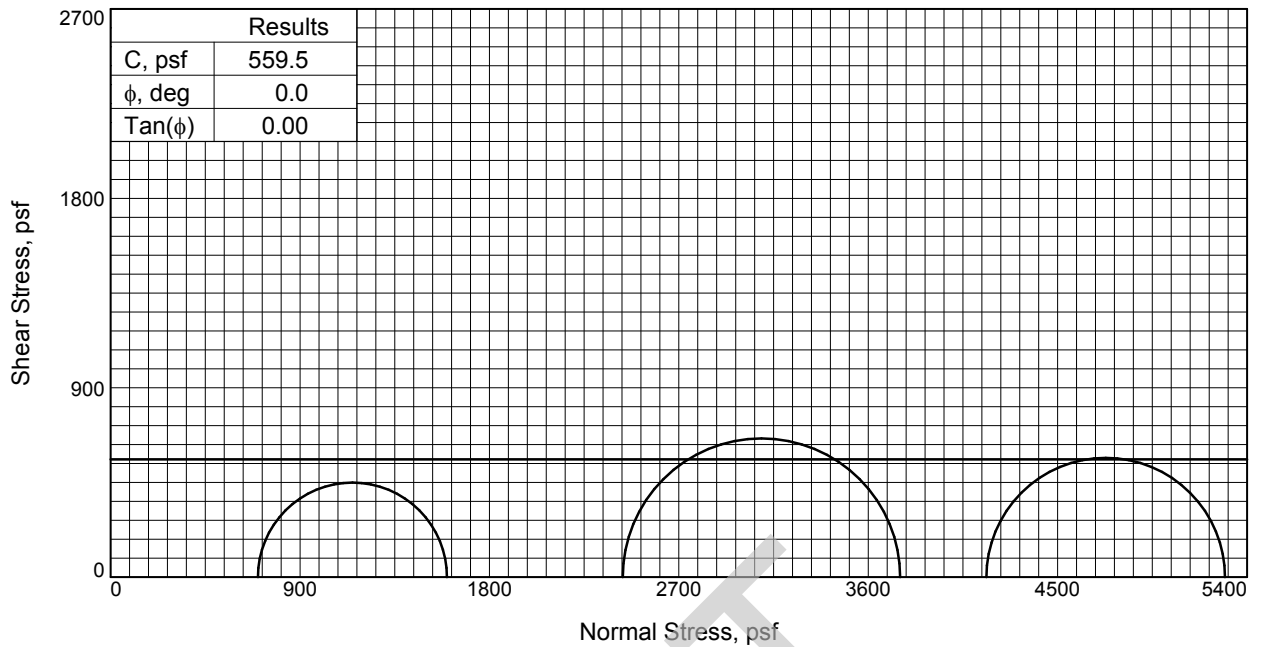
Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-3A **Depth:** 21-22

Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	33.1	32.5	34.8
	Dry Density, pcf	85.7	87.2	82.1
	Saturation, %	92.6	93.9	89.2
	Void Ratio	0.9658	0.9331	1.0537
	Diameter, in.	1.374	1.384	1.386
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	35.8	34.6	39.0
	Dry Density, pcf	85.7	87.2	82.1
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.9658	0.9331	1.0537
Diameter, in.	1.374	1.384	1.386	
Height, in.	2.800	2.800	2.800	
Strain rate, in./min.	1.000	1.000	0.999	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	4.860	16.900	28.900	
Fail. Stress, psf	898.4	1318.2	1133.8	
	Strain, %	19.8	19.9	19.9
Ult. Stress, psf				
	Strain, %			
σ_1 Failure, psf	1598.2	3751.8	5295.4	
σ_3 Failure, psf	699.8	2433.6	4161.6	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Medium, Gray Lean CLAY with Clay Pockets (CL4)

Assumed Specific Gravity= 2.70

Remarks: Type Failure:
Bulge

Client: GeoEngineers

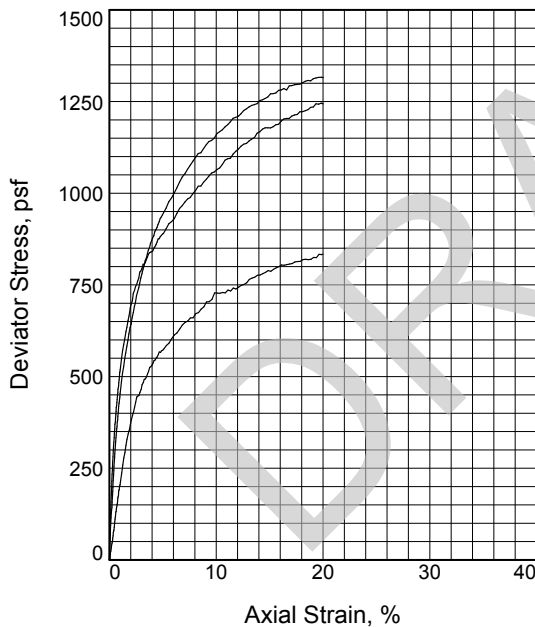
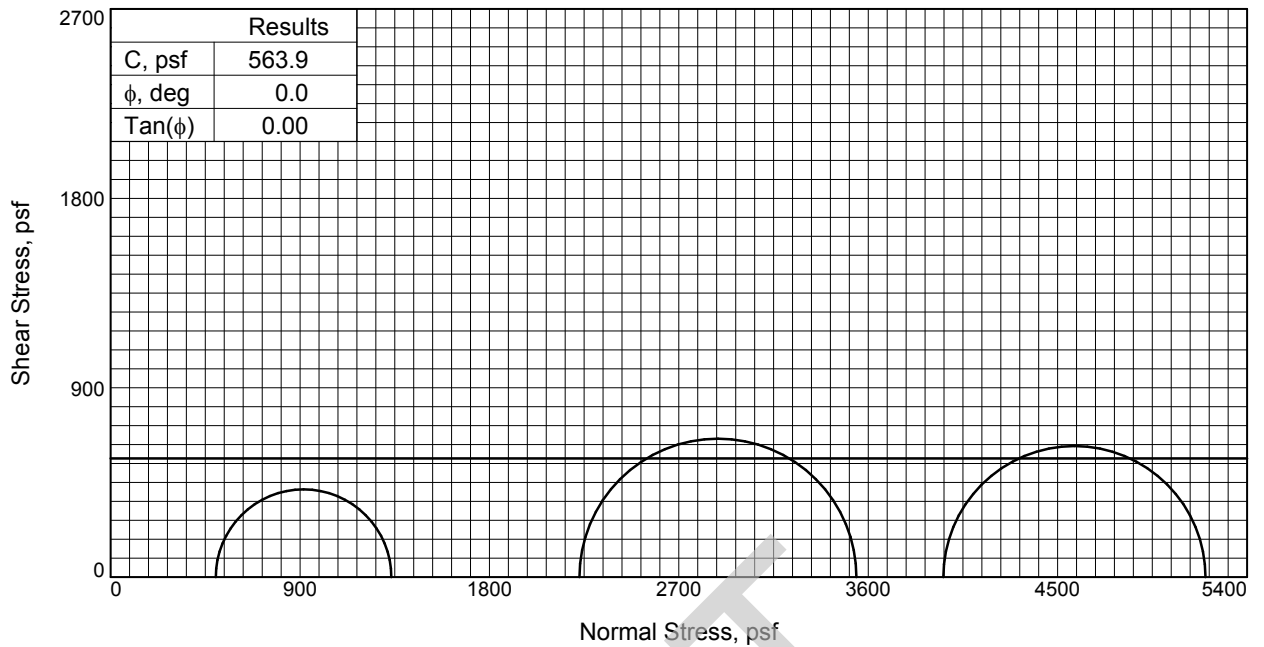
Project: Mid Barataria Diversion

Source of Sample: IS-3A **Depth:** 13-14

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Figure _____



	Sample No.	1	2	3
Initial	Water Content, %	31.7	31.0	31.2
	Dry Density, pcf	82.7	85.0	87.4
	Saturation, %	82.4	85.4	90.8
	Void Ratio	1.0391	0.9821	0.9282
	Diameter, in.	1.372	1.376	1.368
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	38.5	36.4	34.4
	Dry Density, pcf	82.7	85.0	87.4
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.0391	0.9821	0.9282
	Diameter, in.	1.372	1.376	1.368
	Height, in.	2.800	2.800	2.800
	Strain rate, in./min.	1.001	1.000	1.000
	Back Pressure, psi	0.000	0.000	0.000
	Cell Pressure, psi	3.470	15.470	27.480
Fail. Stress, psf		834.2	1316.3	1245.5
	Strain, %	20.0	19.8	19.8
Ult. Stress, psf				
	Strain, %			
σ ₁ Failure, psf		1333.9	3544.0	5202.7
σ ₃ Failure, psf		499.7	2227.7	3957.1

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Soft, Tan Lean CLAY with Trace Fine of Sand (CL4)

LL= 36 PL= 22 PI= 14

Assumed Specific Gravity= 2.70

Remarks: Type Failure:
Bulge

Client: GeoEngineers

Project: Mid Barataria Diversion

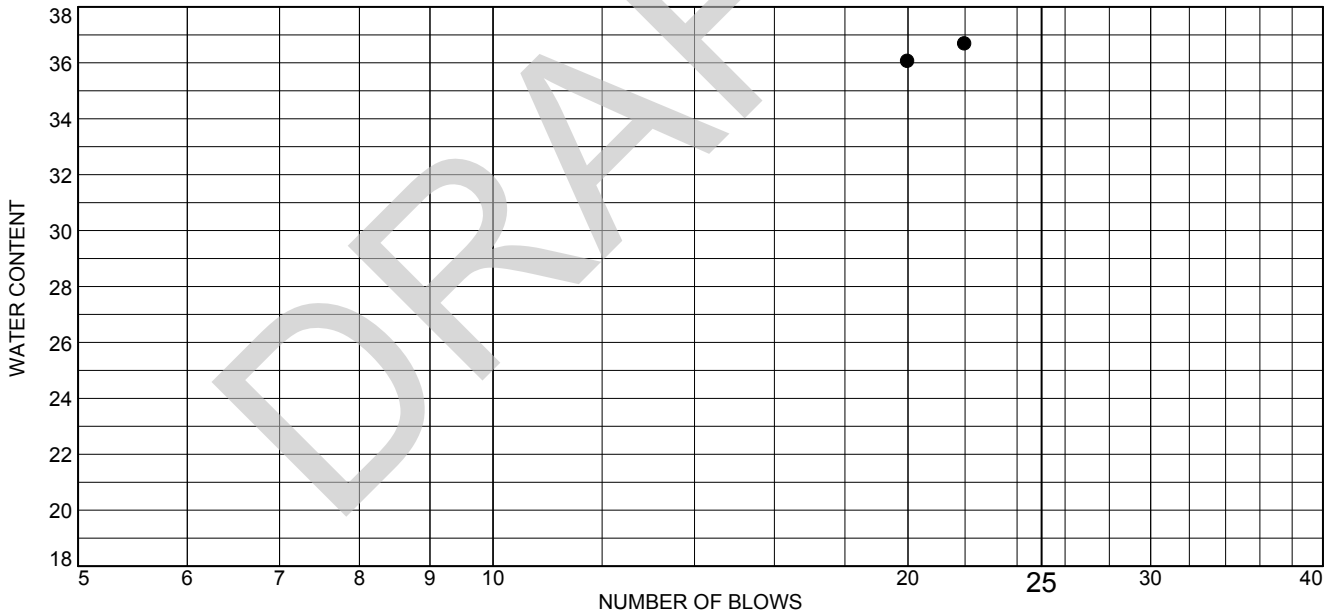
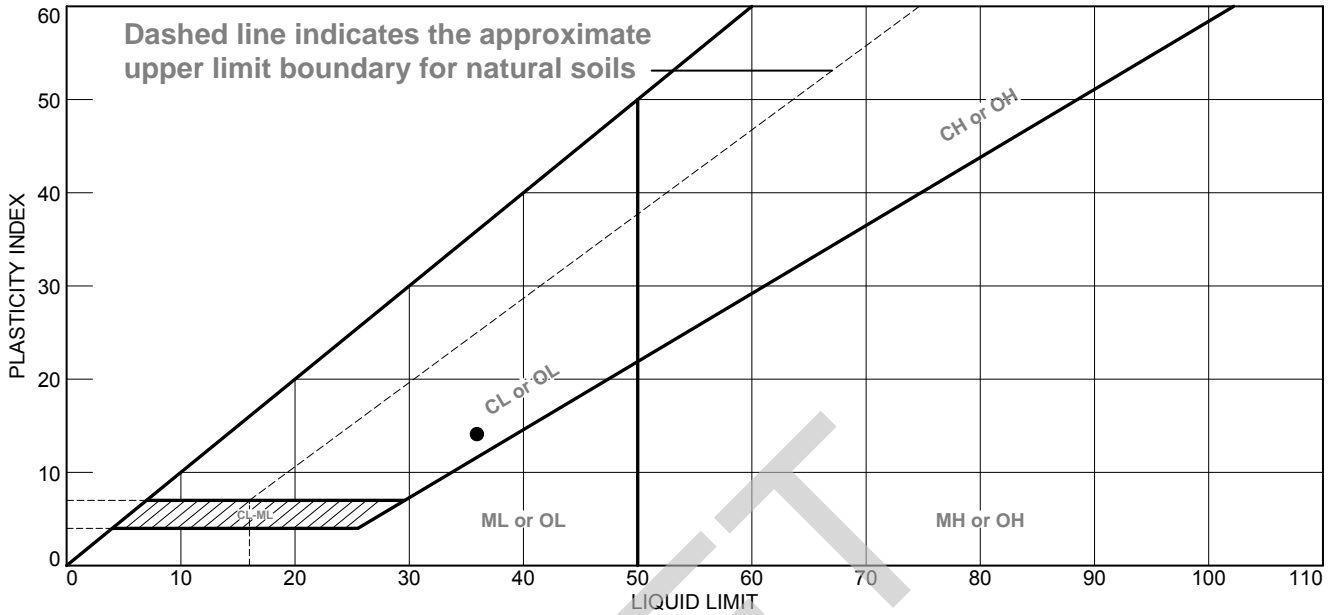
Source of Sample: IS-3A **Depth:** 9-10

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Soft, Tan Lean CLAY with Trace Fine of Sand	36	22	14			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-3A **Depth:** 9-10

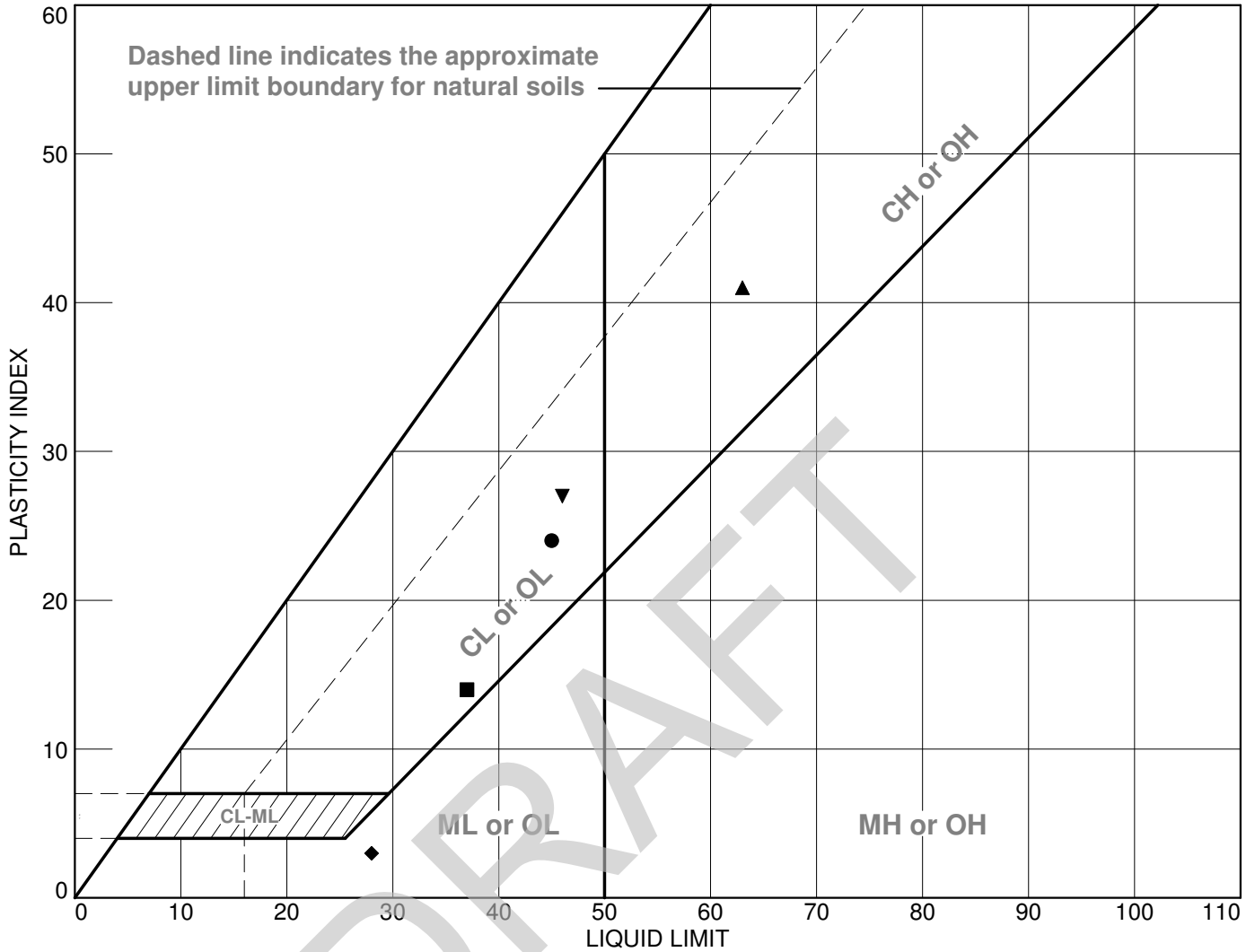
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	IS-7A	N/A	1	28	21	45	24	CL6
■	IS-7A	N/A	3	34	23	37	14	CL4
▲	IS-7A	N/A	6	40	22	63	41	CH3
◆	IS-7A	N/A	49	25	25	28	3	ML
▼	IS-7A	N/A	65.5	19	19	46	27	CL6

Fugro Consultants, Inc.

Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No.: 04.55124092

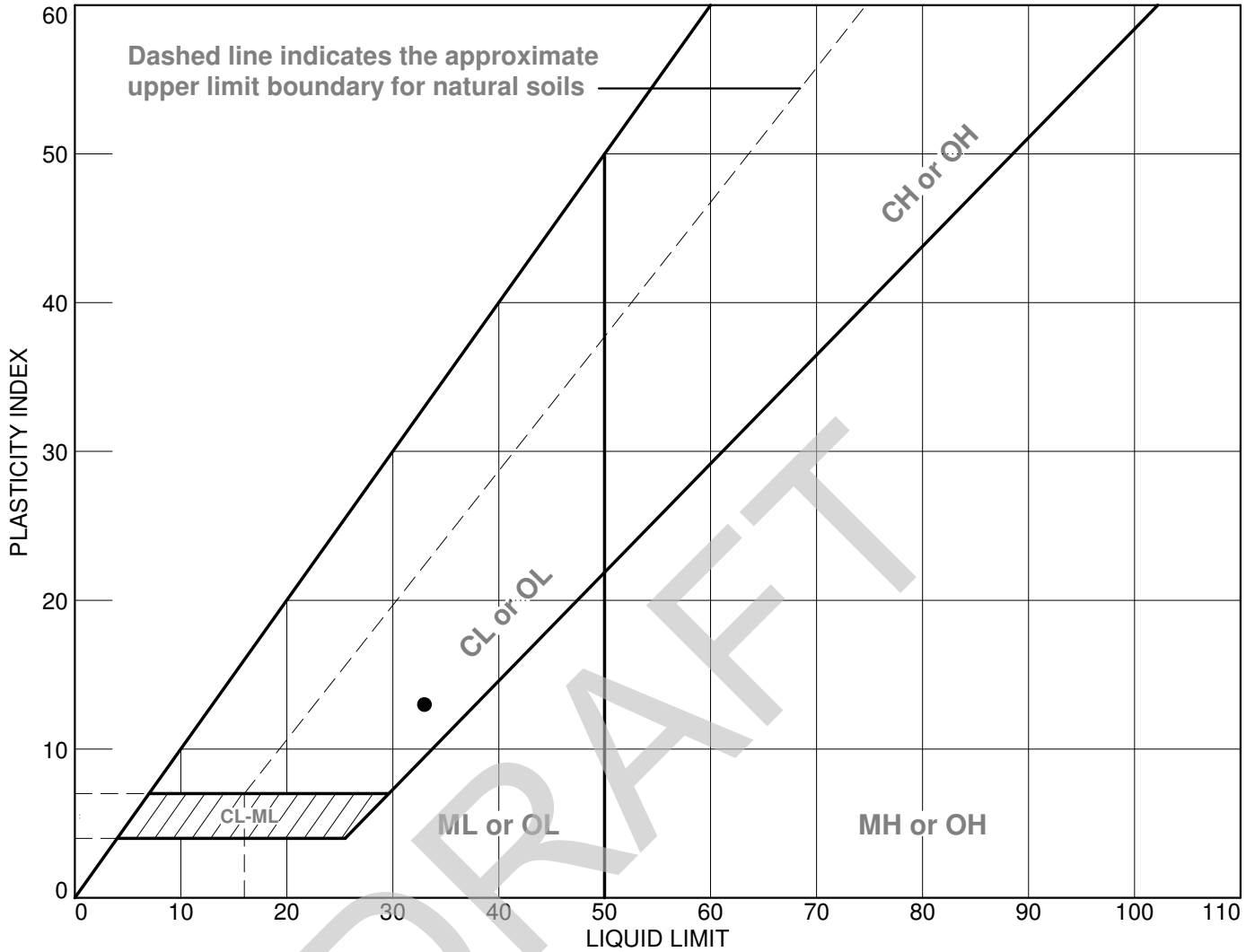
Figure

Tested By: ■ AL ▲ AJ ◆ AJ ▼ AJ

Checked By: KA

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LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	IS-7A	N/A	74		20	33	13	CL4

Fugro Consultants, Inc.

Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

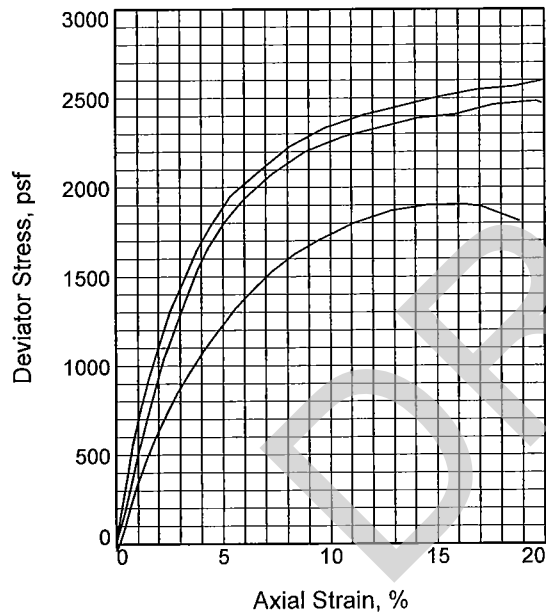
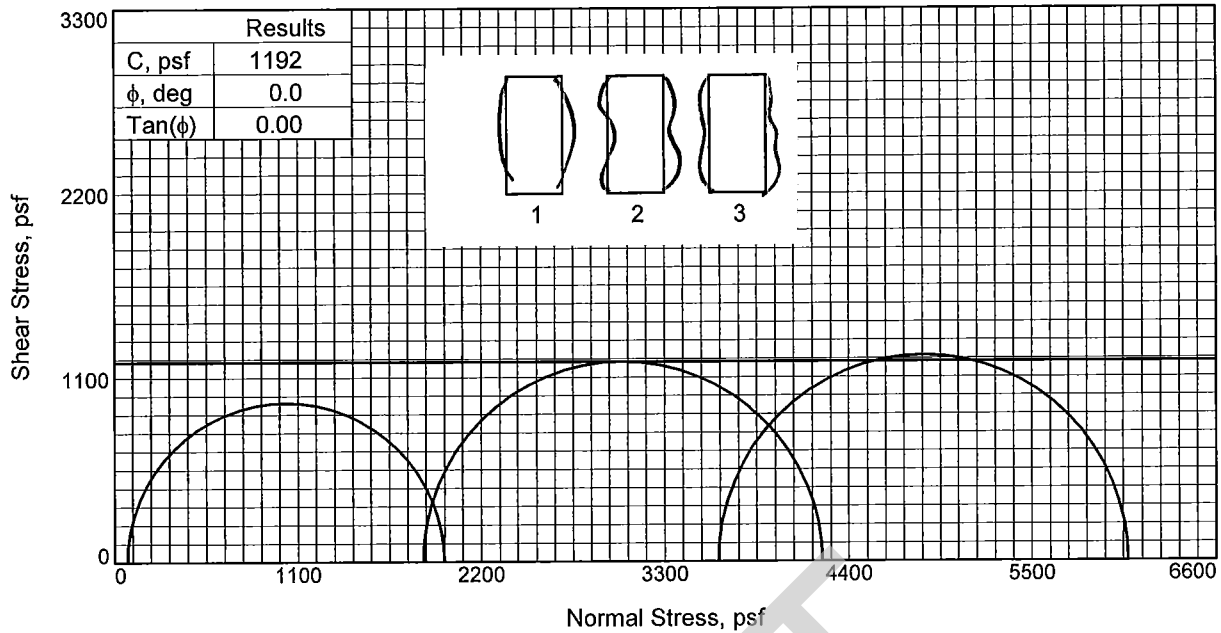
Project No.: 04.55124092

Figure

Tested By: AL

Checked By: KA

~~"Confidential Information, Privileged & Confidential Work Product"~~



Sample No.	1	2	3
Initial			
Water Content, %	28.2	27.5	28.5
Dry Density, pcf	93.8	98.2	96.2
Saturation, %	96.3	104.8	103.3
Void Ratio	0.7840	0.7032	0.7392
Diameter, in.	1.38	1.39	1.40
Height, in.	3.00	3.01	3.01
At Test			
Water Content, %	28.2	27.5	28.5
Dry Density, pcf	93.8	98.2	96.2
Saturation, %	96.3	104.8	103.3
Void Ratio	0.7840	0.7032	0.7392
Diameter, in.	1.38	1.39	1.40
Height, in.	3.00	3.01	3.01
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	0.53	12.85	25.13
Fail. Stress, psf	1902	2388	2459
Strain, %	14.6	14.1	13.3
Ult. Stress, psf	1902	2388	2459
Strain, %	14.6	14.1	13.3
σ_1 Failure, psf	1978	4239	6078
σ_3 Failure, psf	76	1850	3619

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: ST BR CL6 W/ G

LL= 45 PL= 21 PI= 24

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

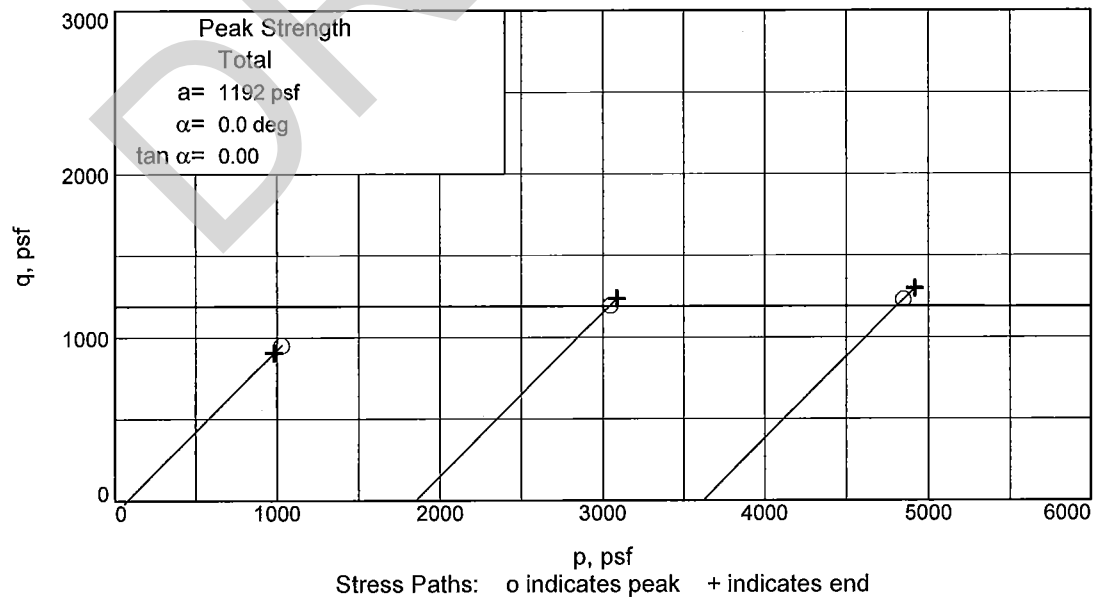
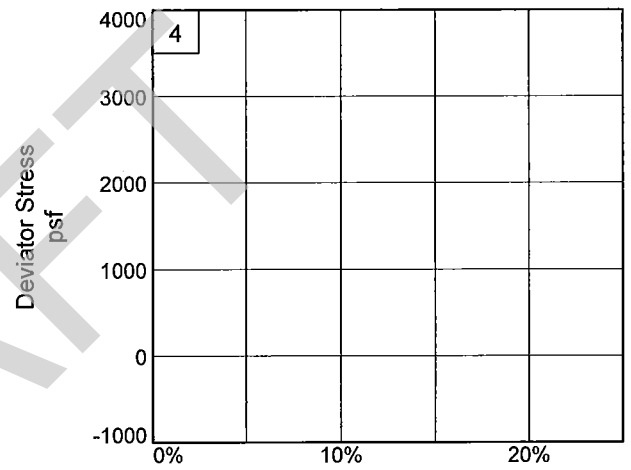
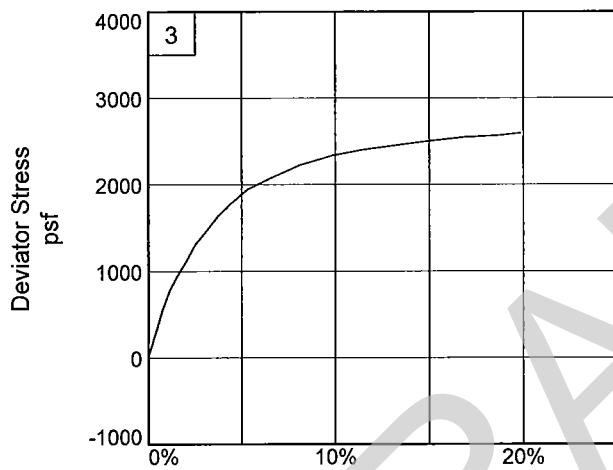
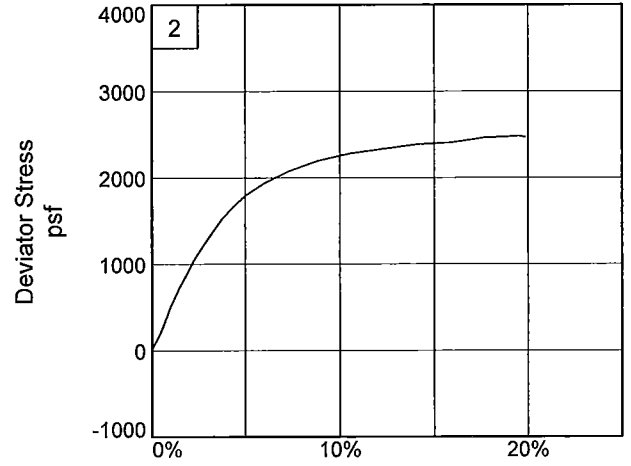
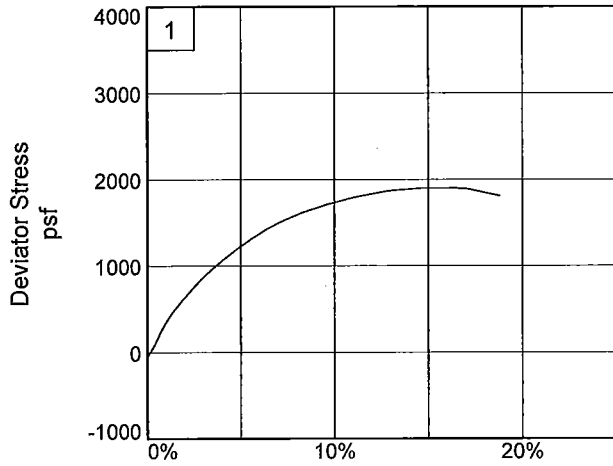
Figure _____

Client: GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-7A Depth: 1
Sample Number: N/A
Proj. No.: 04.55124092 Date Sampled: 8/12/13
TRIAXIAL SHEAR TEST REPORT Fugro Consultants, Inc. Baton Rouge, LA

Tested By: AJ

Checked By: DB

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-7A

Depth: 1

Sample Number: N/A

Project No.: 04.55124092

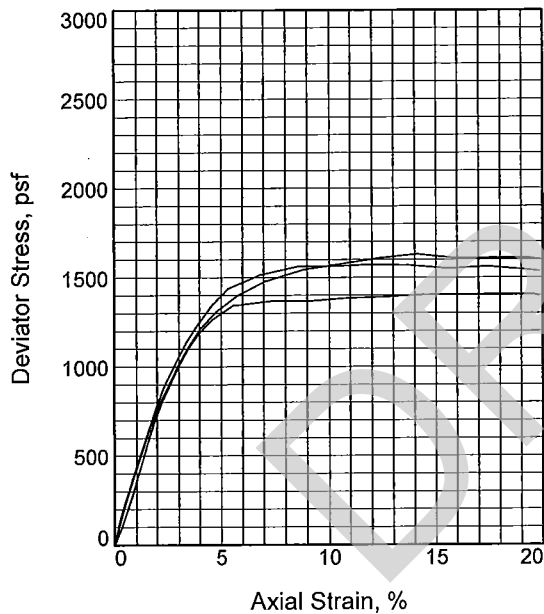
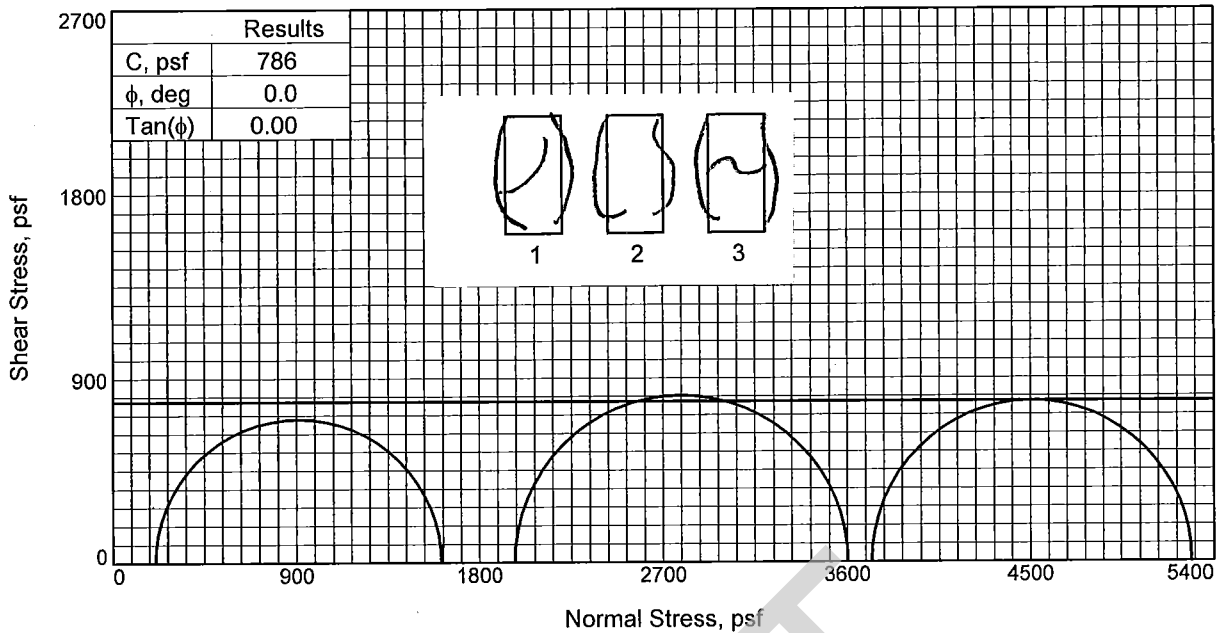
Figure _____

Fugro Consultants, Inc.

Tested By: AJ

Checked By: DB

"Confidential Information; Privileged & Confidential Work Product"



Sample No.	1	2	3
initial			
Water Content, %	33.2	34.0	33.9
Dry Density, pcf	88.6	88.3	88.6
Saturation, %	100.0	101.7	102.4
Void Ratio	0.8890	0.8955	0.8880
Diameter, in.	1.39	1.39	1.39
Height, in.	3.01	3.01	3.01
At Test			
Water Content, %	33.2	34.0	33.9
Dry Density, pcf	88.6	88.3	88.6
Saturation, %	100.0	101.7	102.4
Void Ratio	0.8890	0.8955	0.8880
Diameter, in.	1.39	1.39	1.39
Height, in.	3.01	3.01	3.01
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	1.45	13.69	25.83
Fail. Stress, psf	1403	1631	1574
Strain, %	14.3	14.1	12.1
Ult. Stress, psf	1403	1631	1568
Strain, %	14.3	14.1	13.8
σ_1 Failure, psf	1611	3603	5293
σ_3 Failure, psf	209	1971	3720

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: MBR CL4

LL= 37

PL= 23

PI= 14

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: IS-7A

Depth: 3

Sample Number: N/A

Proj. No.: 04.55124092

Date Sampled: 8/12/13

TRIAXIAL SHEAR TEST REPORT

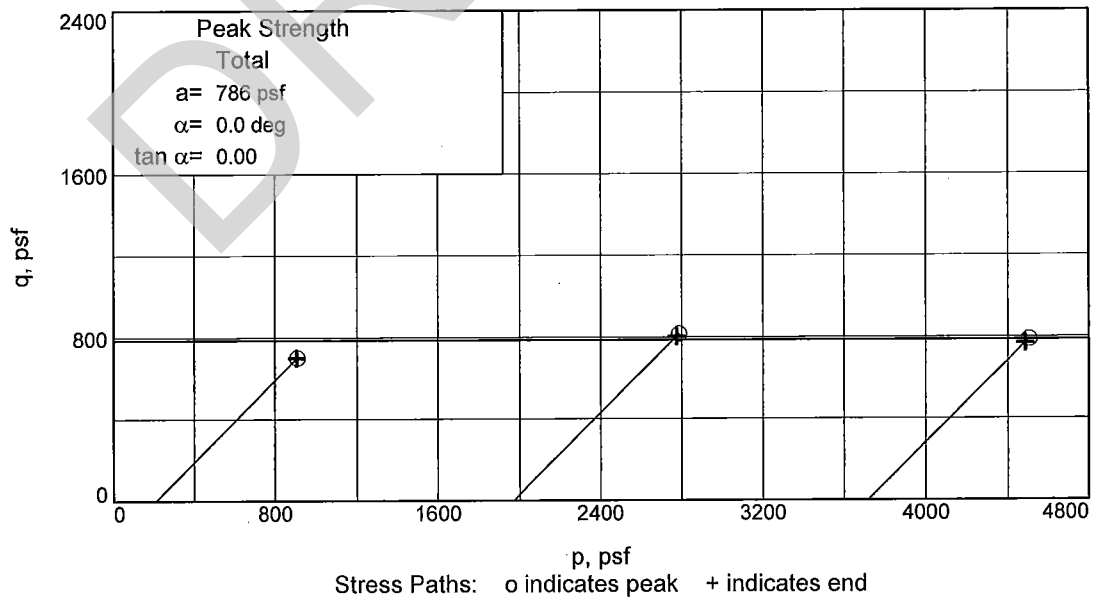
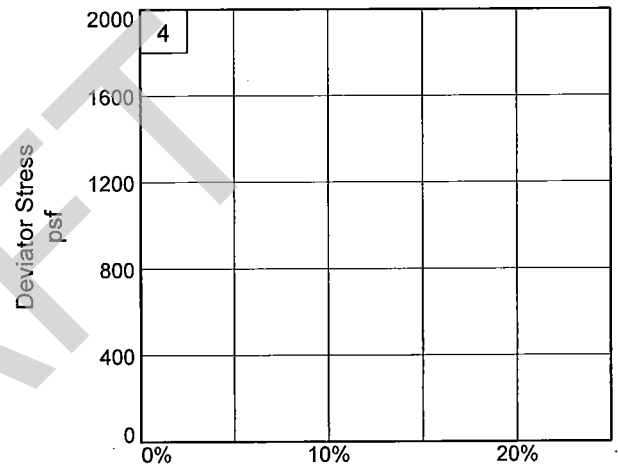
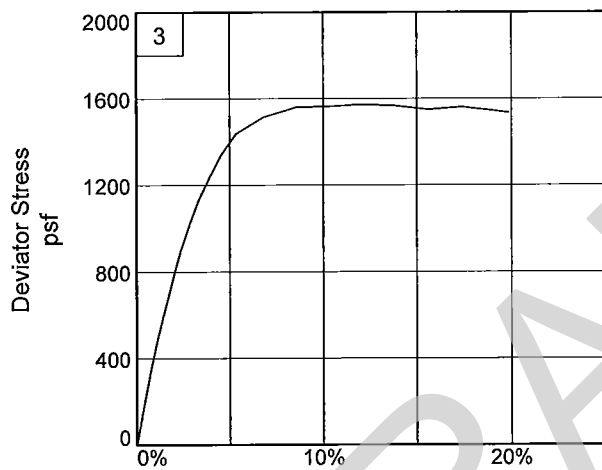
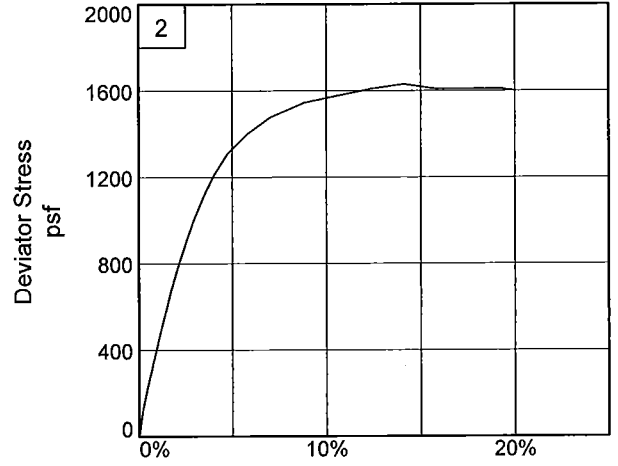
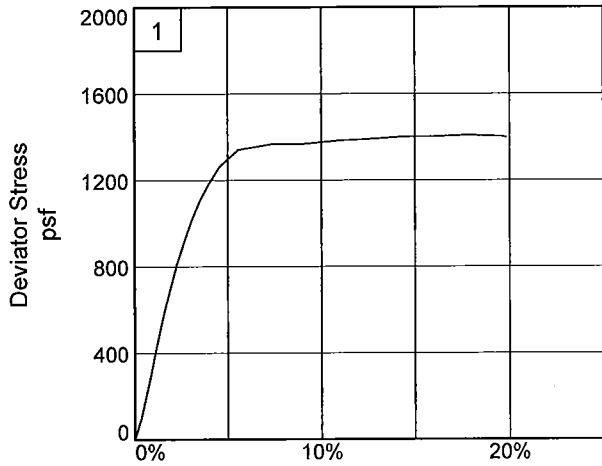
Fugro Consultants, Inc.

Baton Rouge, LA

Tested By: AJ

Checked By: DB

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-7A

Depth: 3

Sample Number: N/A

Project No.: 04.55124092

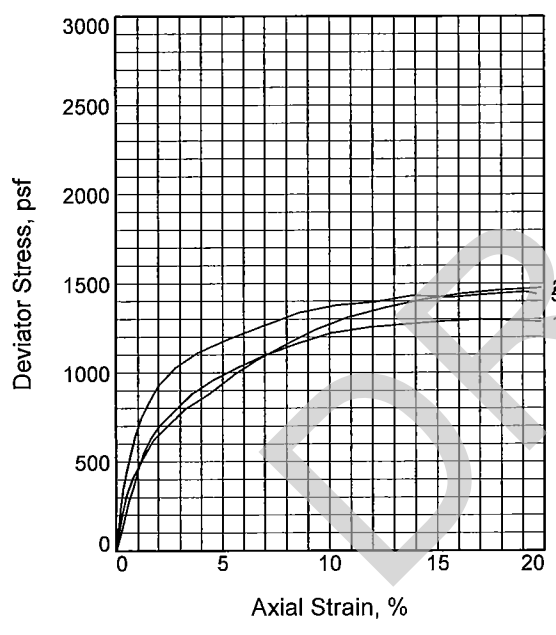
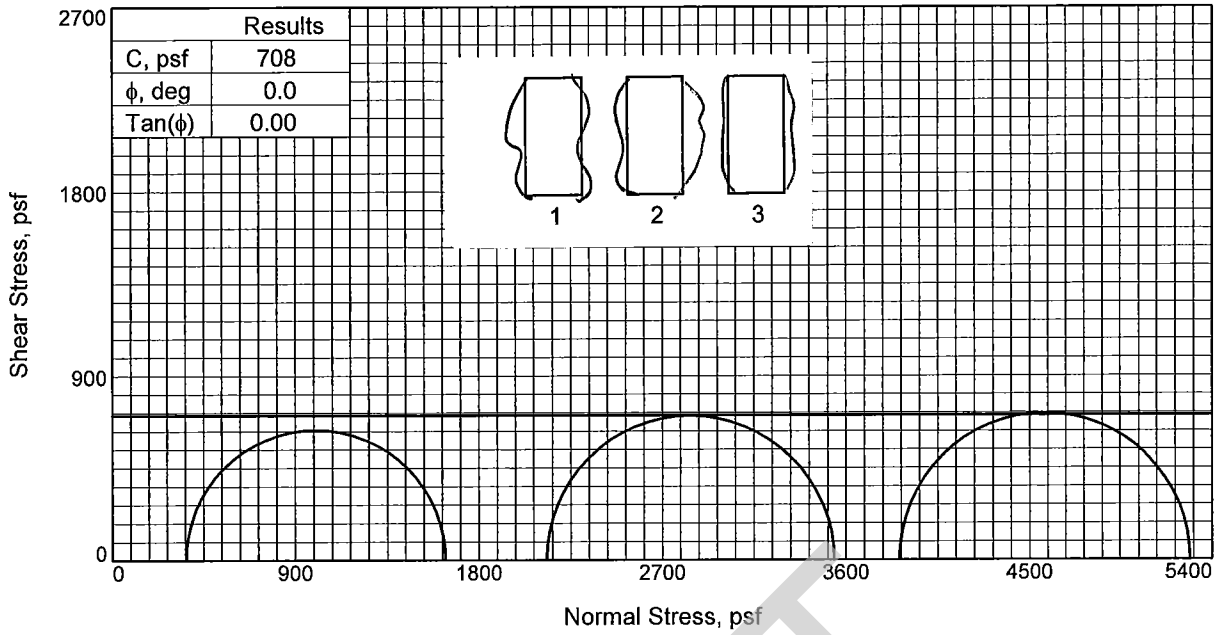
Figure _____

Fugro Consultants, Inc.

Tested By: AJ

Checked By: DB

"Confidential Information; Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	43.5	36.8	39.0
Dry Density, pcf	78.1	85.6	82.6
Saturation, %	101.2	102.4	101.2
Void Ratio	1.1595	0.9700	1.0399
Diameter, in.	1.41	1.40	1.41
Height, in.	3.01	3.01	3.02
At Test			
Water Content, %	43.5	36.8	39.0
Dry Density, pcf	78.1	85.6	82.6
Saturation, %	101.2	102.4	101.2
Void Ratio	1.1595	0.9700	1.0399
Diameter, in.	1.41	1.40	1.41
Height, in.	3.01	3.01	3.02
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	2.52	14.80	26.81
Fail. Stress, psf	1273	1411	1433
Strain, %	13.6	14.4	13.8
Ult. Stress, psf	1273	1411	1433
Strain, %	13.6	14.4	13.8
σ_1 Failure, psf	1635	3542	5294
σ_3 Failure, psf	363	2131	3861

Type of Test:
Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M LGR CH3

LL= 63 PL= 22 PI= 41

Assumed Specific Gravity= 2.70

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barataria Diversion

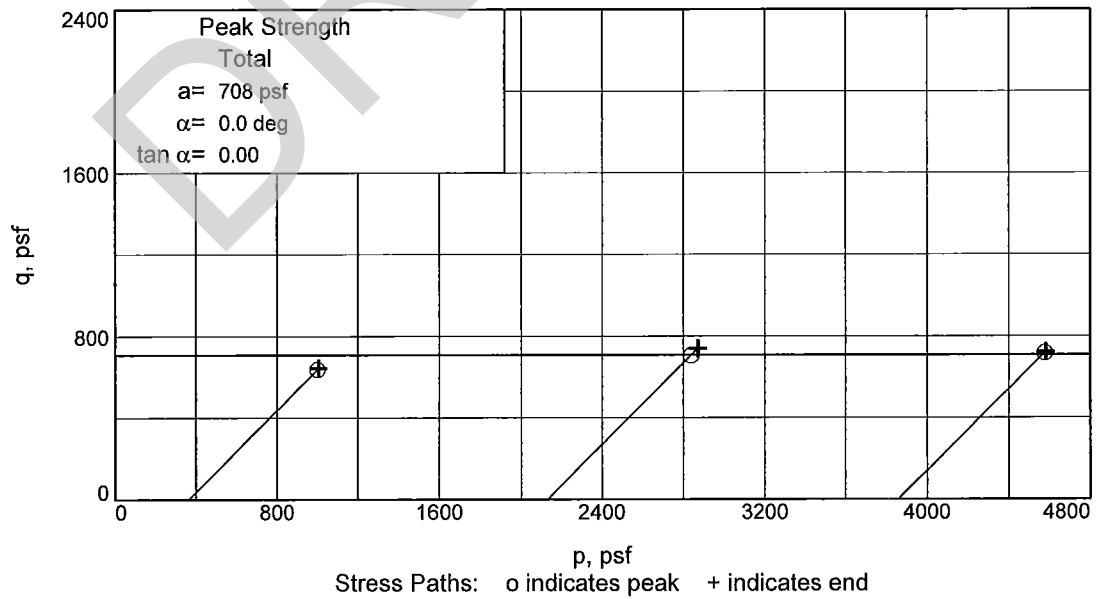
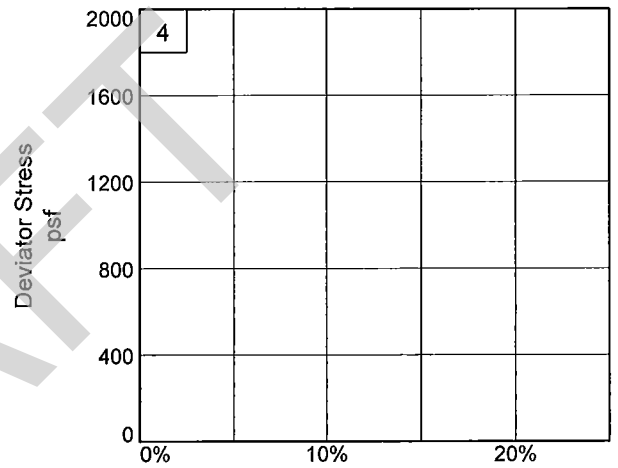
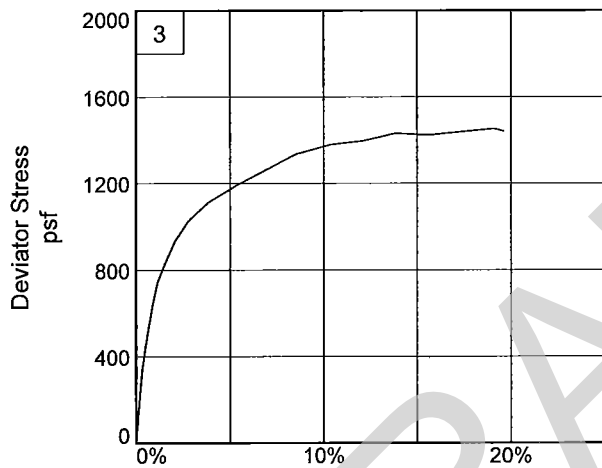
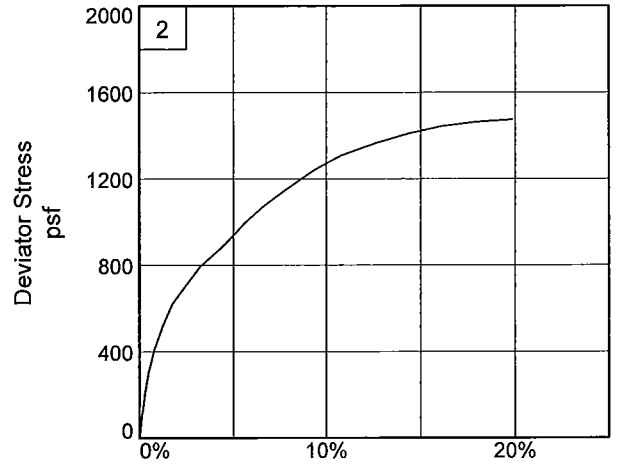
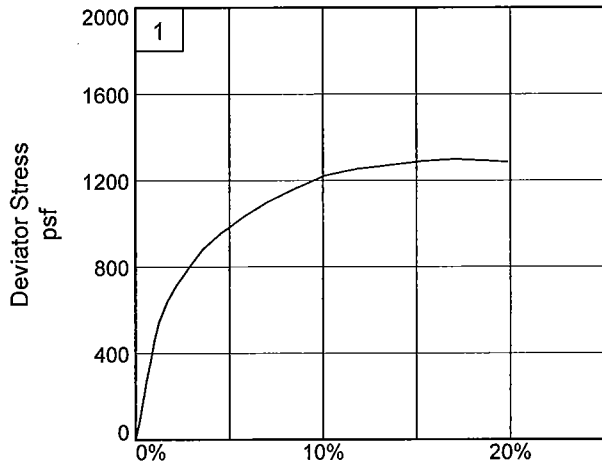
Source of Sample: IS-7A **Depth:** 6

Sample Number: N/A

Proj. No.: 04.55124092 **Date Sampled:** 8/12/13

TRIAXIAL SHEAR TEST REPORT
 Fugro Consultants, Inc.
 Baton Rouge, LA

Figure _____



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-7A

Depth: 6

Sample Number: N/A

Project No.: 04.55124092

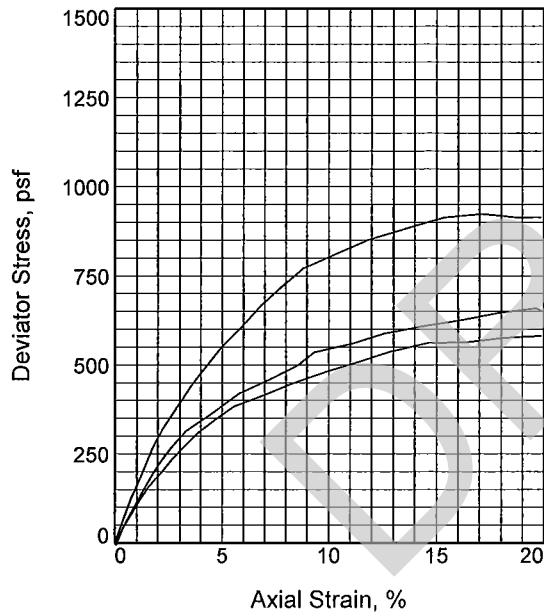
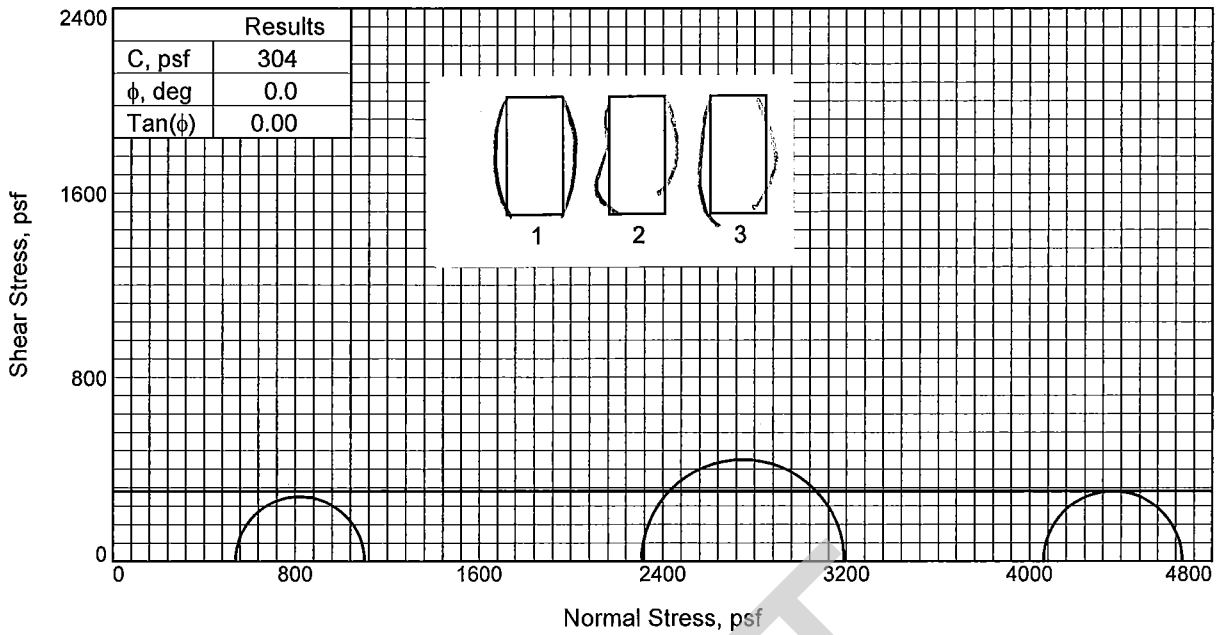
Figure _____

Fugro Consultants, Inc.

Tested By: AS

Checked By: DB

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	34.9	33.5	34.9
Dry Density, pcf	87.7	87.1	84.1
Saturation, %	102.9	97.5	94.7
Void Ratio	0.9080	0.9214	0.9888
Diameter, in.	1.38	1.38	1.41
Height, in.	3.01	3.00	3.01
At Test			
Water Content, %	34.9	33.5	34.9
Dry Density, pcf	87.7	87.1	84.1
Saturation, %	102.9	97.5	94.7
Void Ratio	0.9080	0.9214	0.9888
Diameter, in.	1.38	1.38	1.41
Height, in.	3.01	3.00	3.01
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	3.74	16.02	28.19
Fail. Stress, psf	562	884	609
Strain, %	14.6	13.6	14.4
Ult. Stress, psf	562	884	609
Strain, %	14.6	13.6	14.4
σ_1 Failure, psf	1101	3191	4668
σ_3 Failure, psf	539	2307	4059

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO GR CL6

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-7A

Depth: 9.5

Sample Number: N/A

Proj. No.: 04.55124092

Date Sampled: 8/12/13

TRIAxIAL SHEAR TEST REPORT

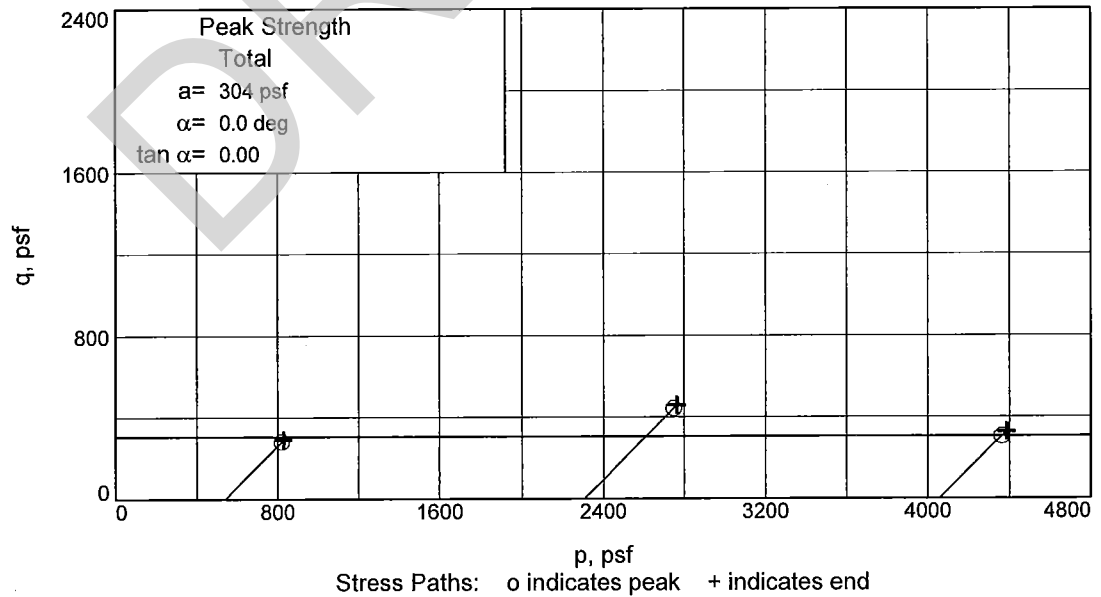
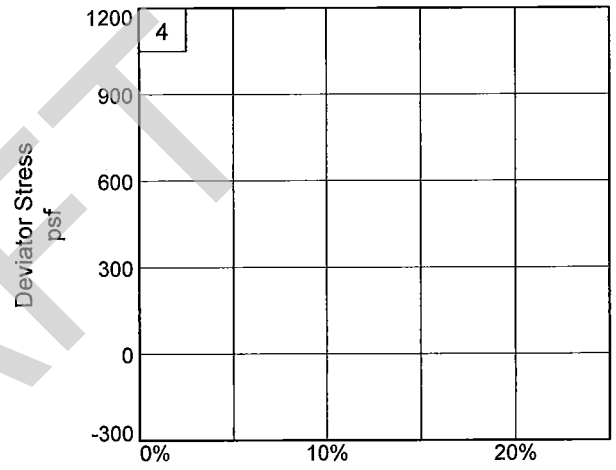
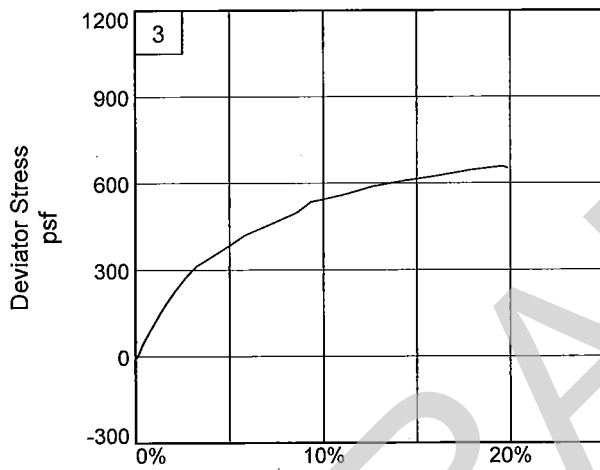
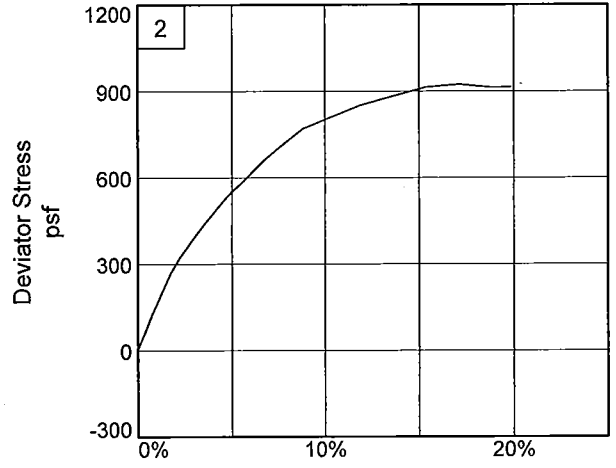
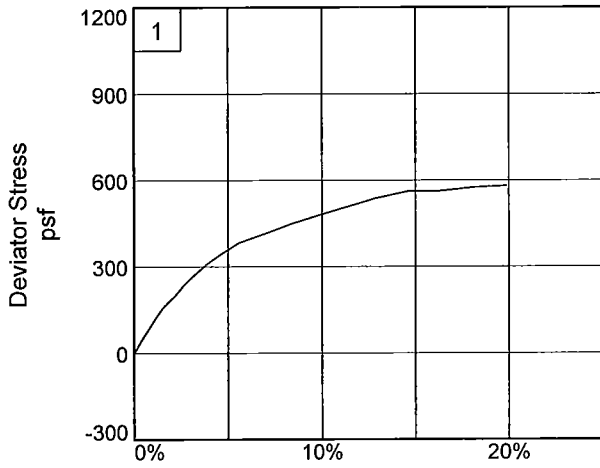
Fugro Consultants, Inc.

Baton Rouge, LA

Tested By: AJ

Checked By: DB

"Confidential Information, Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-7A

Depth: 9.5

Sample Number: N/A

Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

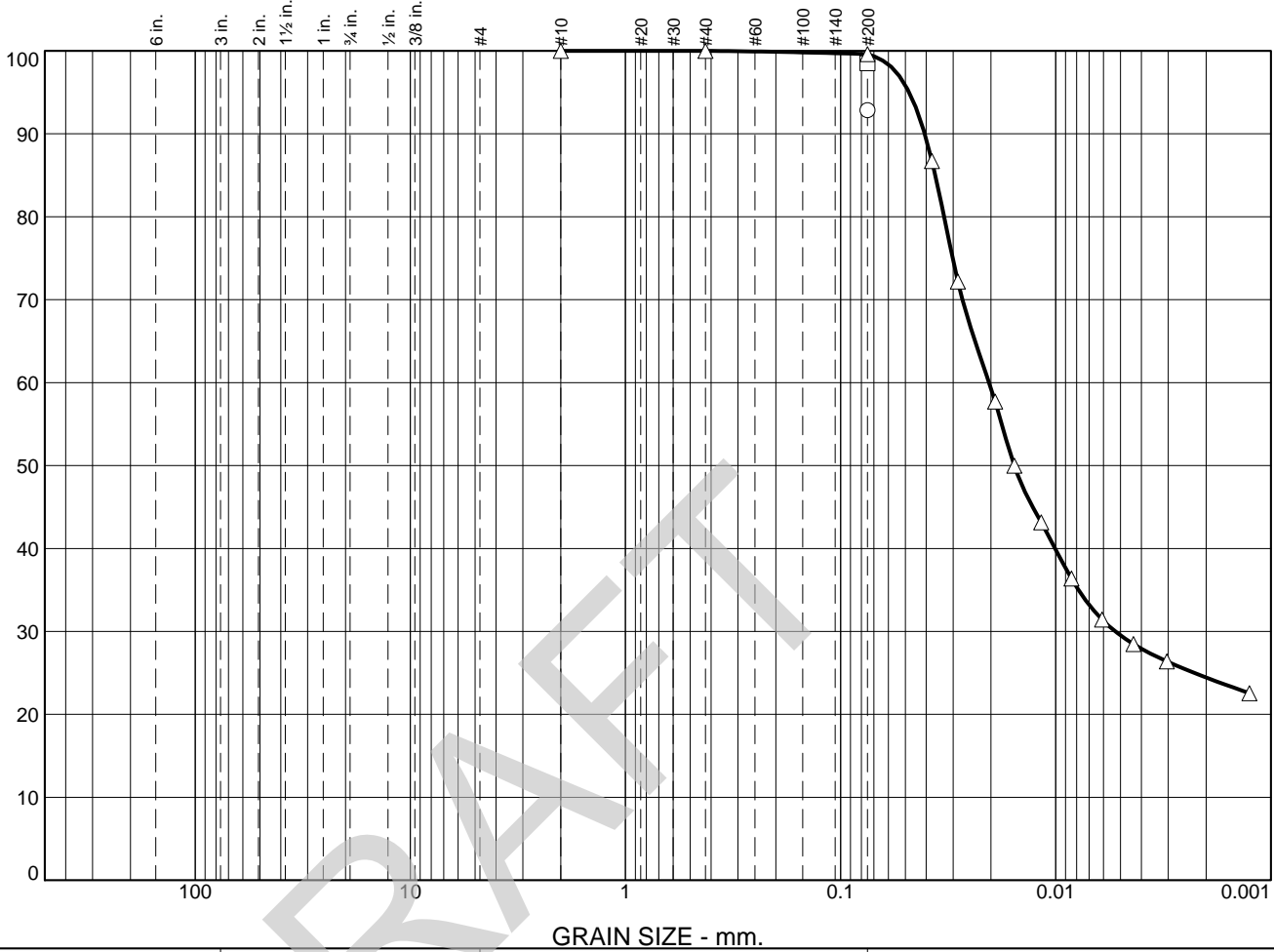
Tested By: AJ

Checked By: DB

"Confidential Information, Privileged & Confidential Work Product"

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	0	70	30		
□							93			
△							99			
×	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			0.0363	0.0204	0.0156	0.0053				
□										
△										

Material Description	USCS	AASHTO
○ M GR CL4	CL4	
□ M GR CL4	CL4	
△ BR ML W/O	ML	

Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Barataria Diversion

○ **Source of Sample:** IS-7A **Depth:** 10 **Sample Number:** N/A
 □ **Source of Sample:** IS-7A **Depth:** 11 **Sample Number:** N/A
 △ **Source of Sample:** IS-7A **Depth:** 14 **Sample Number:** N/A

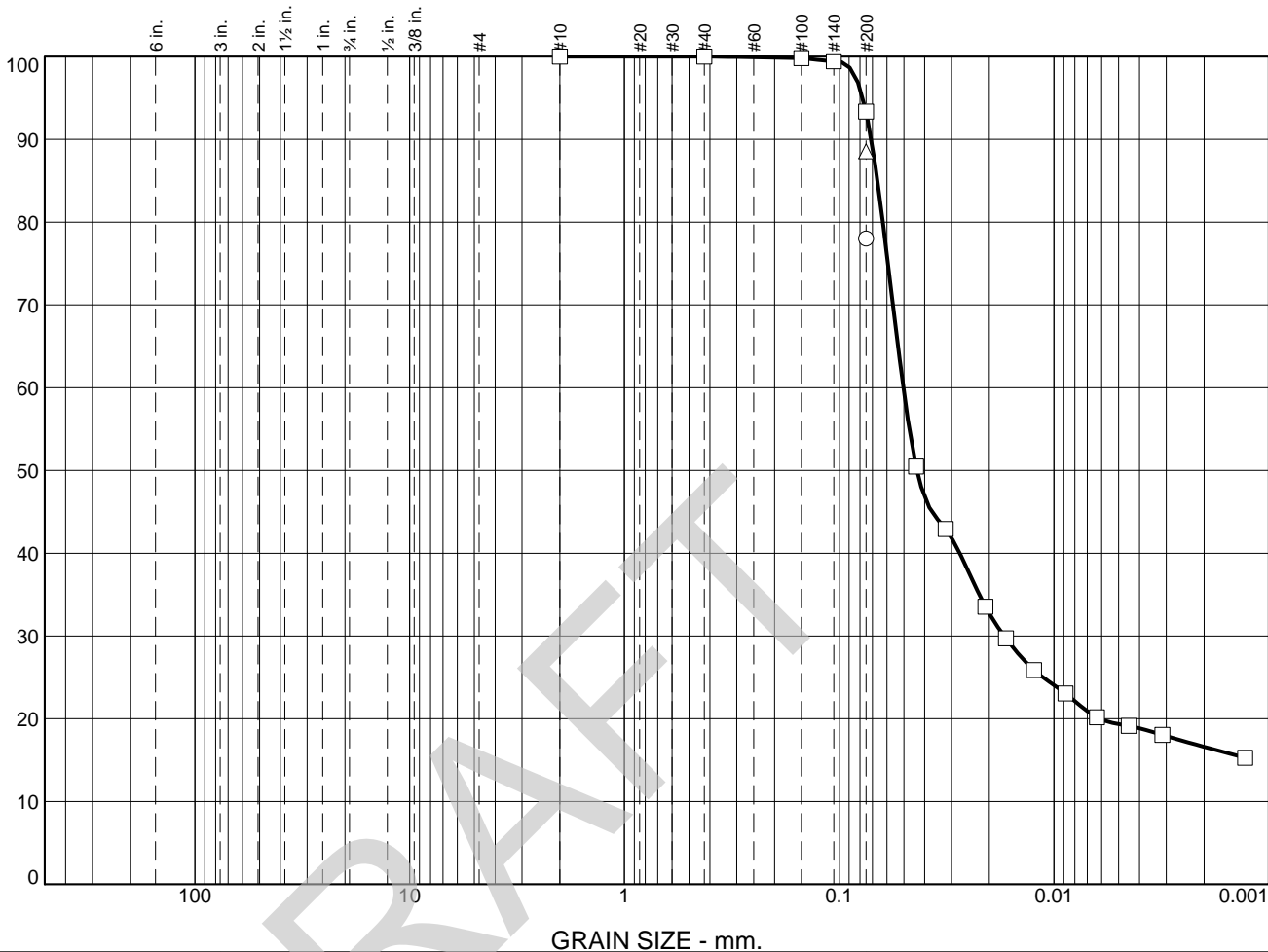
Fugro Consultants, Inc.
Baton Rouge, LA

Remarks:
 ○ "Confidential Information: Privileged & Confidential Work Product"

Figure

Particle Size Distribution Report

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

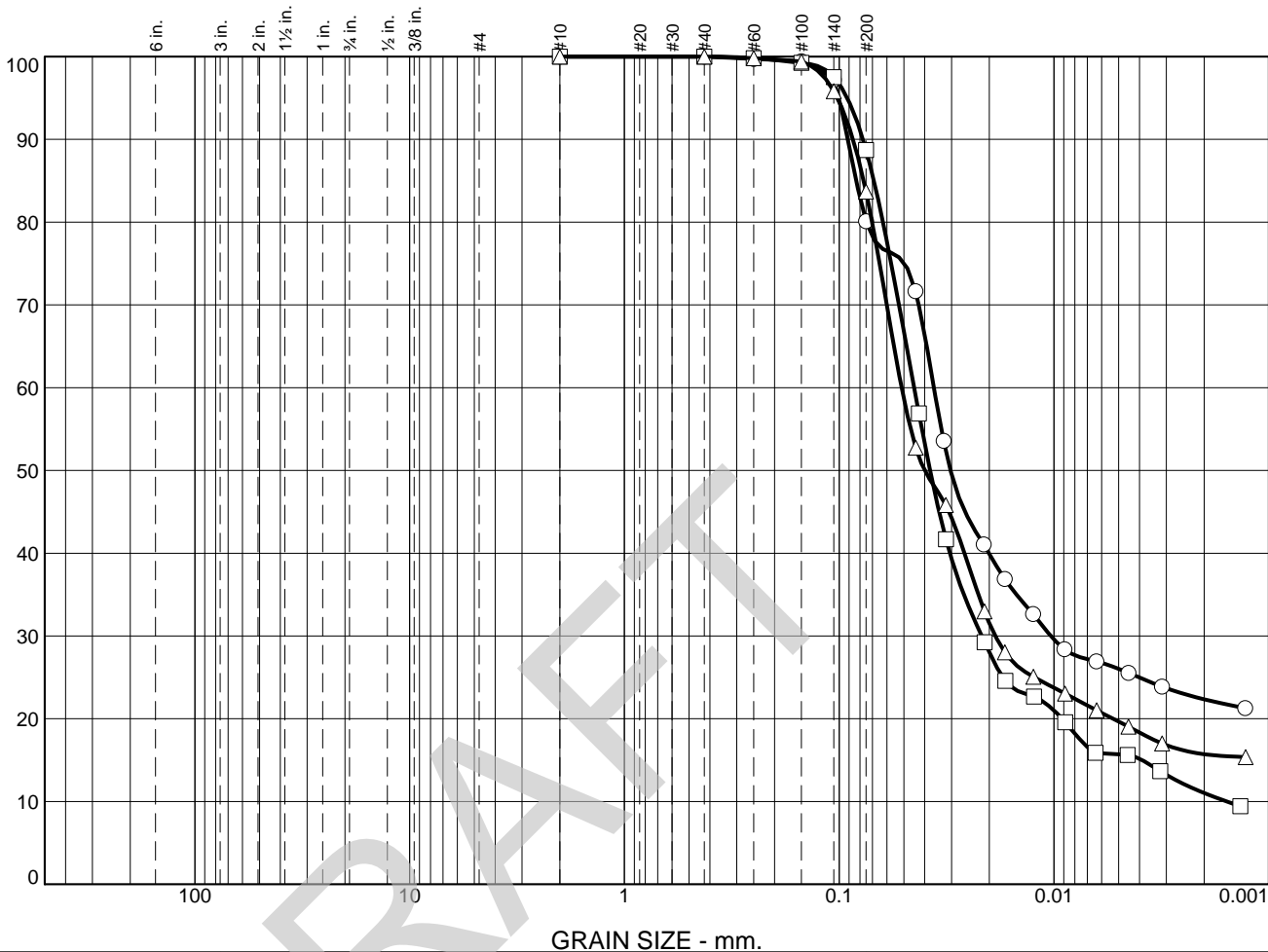


% +3"		% Gravel		% Sand			% Fines		
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
0	0	0	0	0	0	7	74	19	
							89		
LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.0664	0.0503	0.0435	0.0171				

Material Description						USCS	AASHTO
<ul style="list-style-type: none"> <input type="radio"/> GR ML <input type="checkbox"/> BR ML W/ O <input type="triangle-up"/> GR ML W/ ARS CH 						ML	
Project No. 04.55124092 Client: GeoEngineers Project: Mid Barataria Diversion						Remarks: ○ "Confidential Information: Privileged & Confidential Work Product"	
<input type="radio"/> Source of Sample: IS-7A Depth: 15 Sample Number: N/A							
<input type="checkbox"/> Source of Sample: IS-7A Depth: 21.6 Sample Number: N/A							
<input type="triangle-up"/> Source of Sample: IS-7A Depth: 22 Sample Number: N/A							
Fugro Consultants, Inc.							
Baton Rouge, LA						Figure	

Particle Size Distribution Report

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	20	54	26		
□	0	0	0	0	0	11	73	16		
△	0	0	0	0	0	16	64	20		
×	LL	PL	D₈₅	D₆₀	D₅₀	D₃₀	D₁₅	D₁₀	C_c	C_u
○			0.0834	0.0362	0.0303	0.0103				
□			0.0690	0.0448	0.0377	0.0217	0.0039	0.0016	6.70	28.59
△			0.0769	0.0512	0.0400	0.0188				

Material Description						USCS	AASHTO
○ BR ML W/ ARS CH, ARS SP, O						ML	
□ BR ML W/ ARS SP, O						ML	
△ BR ML W/ ARS SP, O						ML	
Project No. 04.55124092 Client: GeoEngineers Project: Mid Barataria Diversion						Remarks: ○ "Confidential Information: Privileged & Confidential Work Product"	
○ Source of Sample: IS-7A		Depth: 24		Sample Number: N/A			
□ Source of Sample: IS-7A		Depth: 27		Sample Number: N/A			
△ Source of Sample: IS-7A		Depth: 35		Sample Number: N/A			
Fugro Consultants, Inc.							
Baton Rouge, LA						Figure	

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	15	65	20		
□							65			
△	0	0	0	0	0	15	66	19		
×	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
○			0.0747	0.0450	0.0380	0.0195				
□										
△			0.0751	0.0561	0.0497	0.0175				

Material Description	USCS	AASHTO
○ BR ML W/ ARS SP, O	ML	
□ GR ML W/ ARS SP	ML	
△ BR ML W/ ARS SP, O	ML	

Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Barataria Diversion

○ **Source of Sample:** IS-7A **Depth:** 40 **Sample Number:** N/A
 □ **Source of Sample:** IS-7A **Depth:** 44 **Sample Number:** N/A
 △ **Source of Sample:** IS-7A **Depth:** 47 **Sample Number:** N/A

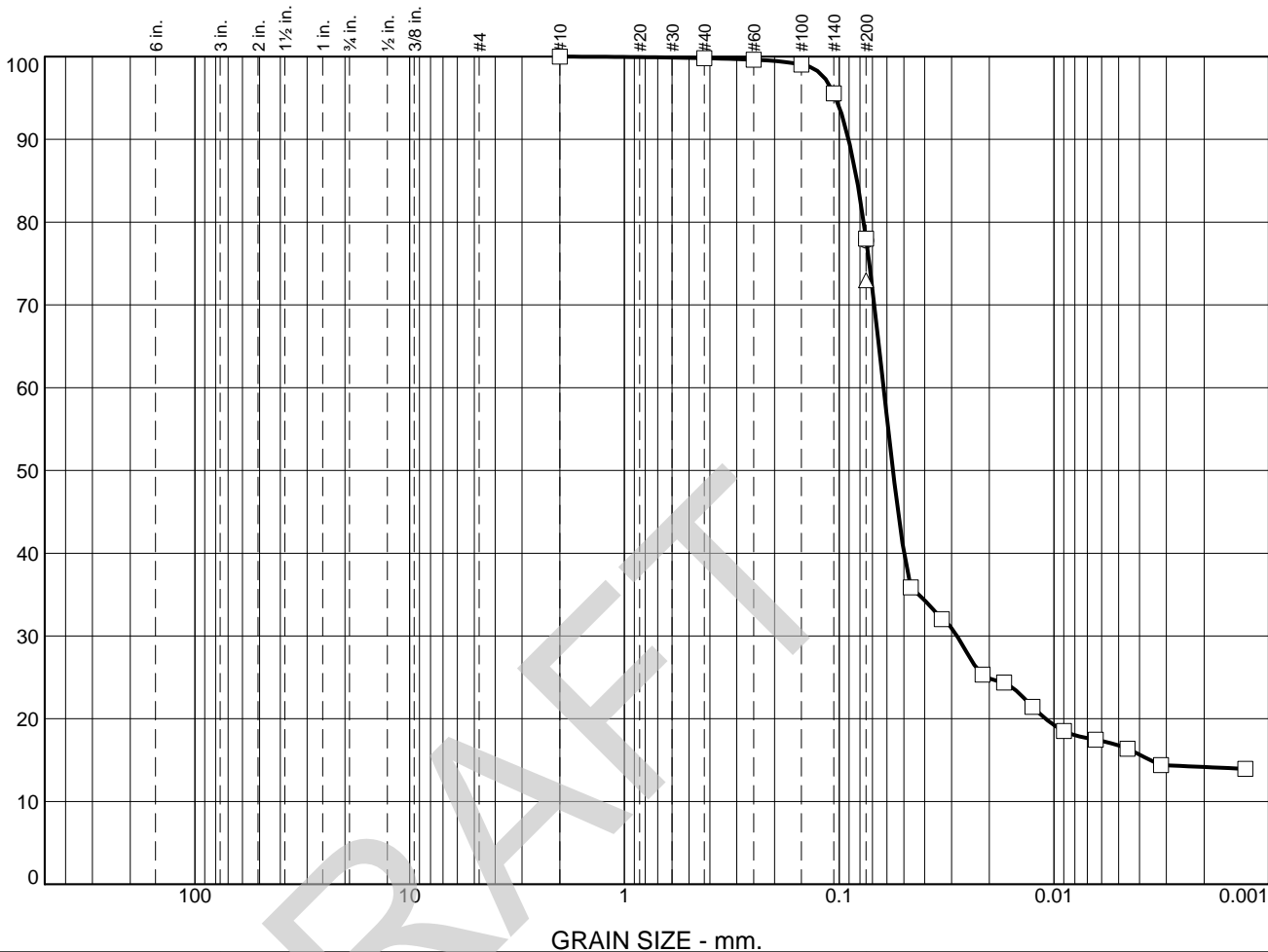
Fugro Consultants, Inc.
Baton Rouge, LA

Remarks:
 ○ "Confidential Information: Privileged & Confidential Work Product"

Figure

Particle Size Distribution Report

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.



% +3"	% Gravel		% Sand			% Fines			
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
0	0	0	0	0	22	61	17		
						78			
						73			
LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
		0.0826	0.0622	0.0562	0.0283	0.0036			

Material Description						USCS	AASHTO
<input type="radio"/> GR ML W/ ARS CH & SP						ML	
<input type="checkbox"/> BR ML W/ ARS SP, O						ML	
<input type="triangle-up"/> GR ML W/ ARS SP						ML	

Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Barataria Diversion

Source of Sample: IS-7A **Depth:** 48 **Sample Number:** N/A
 Source of Sample: IS-7A **Depth:** 52.5 **Sample Number:** N/A
 Source of Sample: IS-7A **Depth:** 54.5 **Sample Number:** N/A

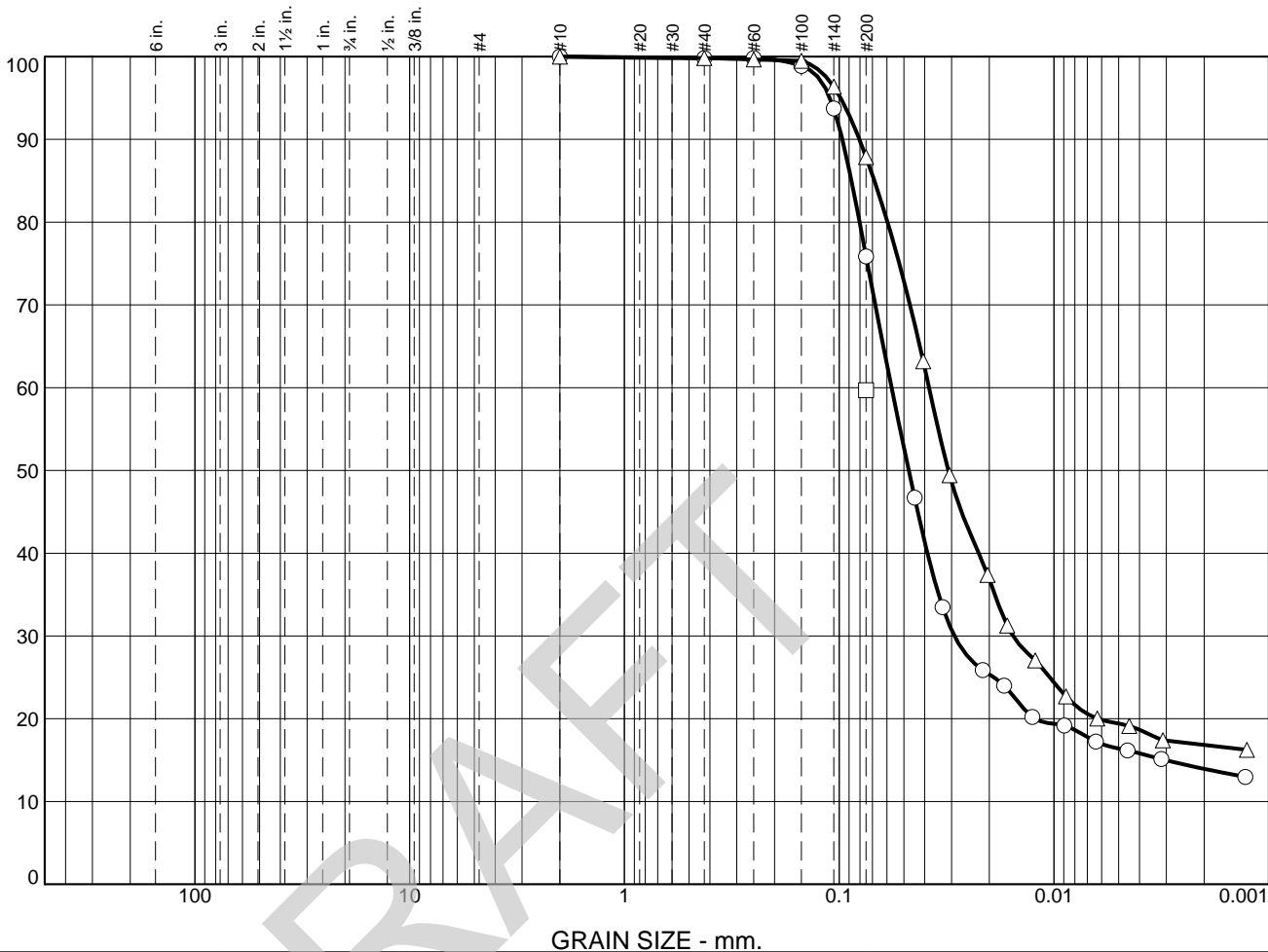
Fugro Consultants, Inc.
Baton Rouge, LA

Remarks:
 "Confidential Information: Privileged & Confidential Work Product"

Figure

Particle Size Distribution Report

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	24	60	16		
□							60			
△	0	0	0	0	0	12	69	19		
○	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			0.0877	0.0570	0.0475	0.0291	0.0030			
□										
△			0.0686	0.0382	0.0311	0.0155				

Material Description	USCS	AASHTO
○ BR ML W/ ARS SP, O	ML	
□ GR ML W/ ARS CH & SP	ML	
△ BR ML W/ ARS SP, O	ML	

Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Barataria Diversion

○ **Source of Sample:** IS-7A **Depth:** 57.5 **Sample Number:** N/A
 □ **Source of Sample:** IS-7A **Depth:** 60.0 **Sample Number:** N/A
 △ **Source of Sample:** IS-7A **Depth:** 62.5 **Sample Number:** N/A

Fugro Consultants, Inc.
Baton Rouge, LA

Remarks:
 ○ "Confidential Information:
 Privileged & Confidential Work
 Product"

Figure

Particle Size Distribution Report

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	88	75			
□							71			
△							12			
	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			0.1981	0.1530	0.1402	0.1168	0.0909			

Material Description	USCS	AASHTO
○ M GR CL4 W/ LNS SP	CL4	
□ GR ML	ML	
△ GR SM	SM	

Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Barataria Diversion

○ Source of Sample: IS-7A	Depth: 66.5	Sample Number: N/A
□ Source of Sample: IS-7A	Depth: 70.5	Sample Number: N/A
△ Source of Sample: IS-7A	Depth: 76.5	Sample Number: N/A

Fugro Consultants, Inc.
Baton Rouge, LA

Remarks:
 △ "Confidential Information: Privileged & Confidential Work Product"

Figure

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
	0	0	0	0	0	32	68			
	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
			0.0999							

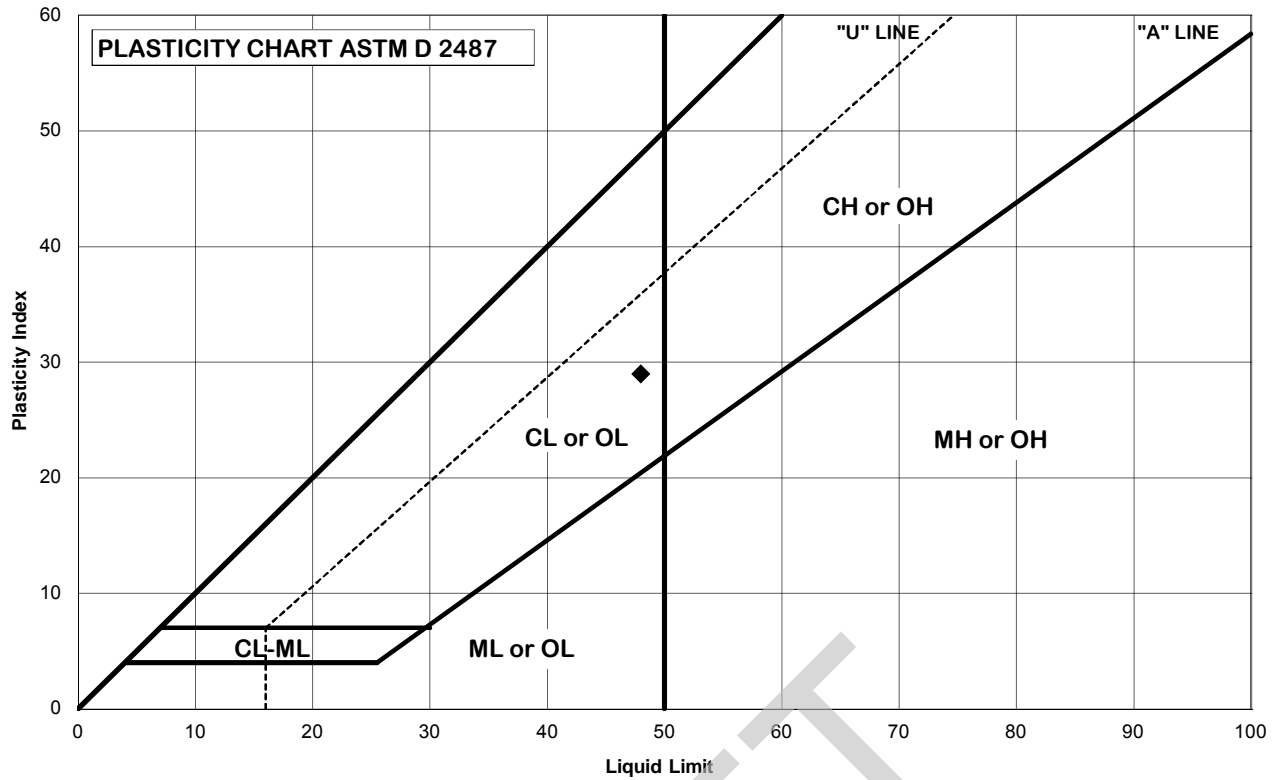
Material Description	USCS	AASHTO
M GR CL W/ ARS SP	CL	

Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-7A **Depth:** 81.5 **Sample Number:** N/A

Fugro Consultants, Inc.
Baton Rouge, LA

Remarks:
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 Product"

Figure



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	1 - 1.8	Preparation:	Air Dried
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff brown and gray clay with silt and shells (CL6)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	48
Plastic Limit =	19
Plasticity Index =	29

Date:	8/6/2013
Tested By:	bh
Checked By:	OS

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

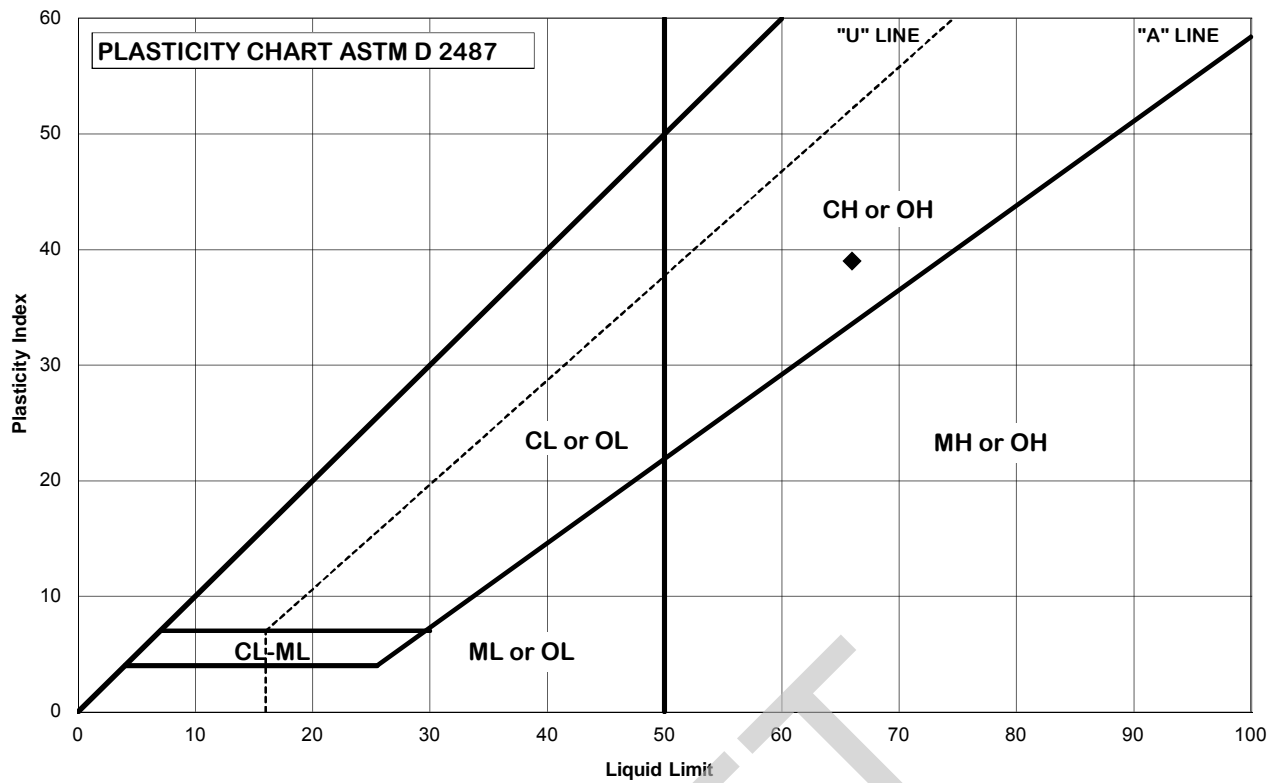


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	2.1 - 3	Preparation:	Wet (as-received)
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium brown and gray clay (CH3)		

Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	66
Plastic Limit =	27
Plasticity Index =	39

Date:	8/6/2013
Tested By:	MM
Checked By:	OS

NOTES:

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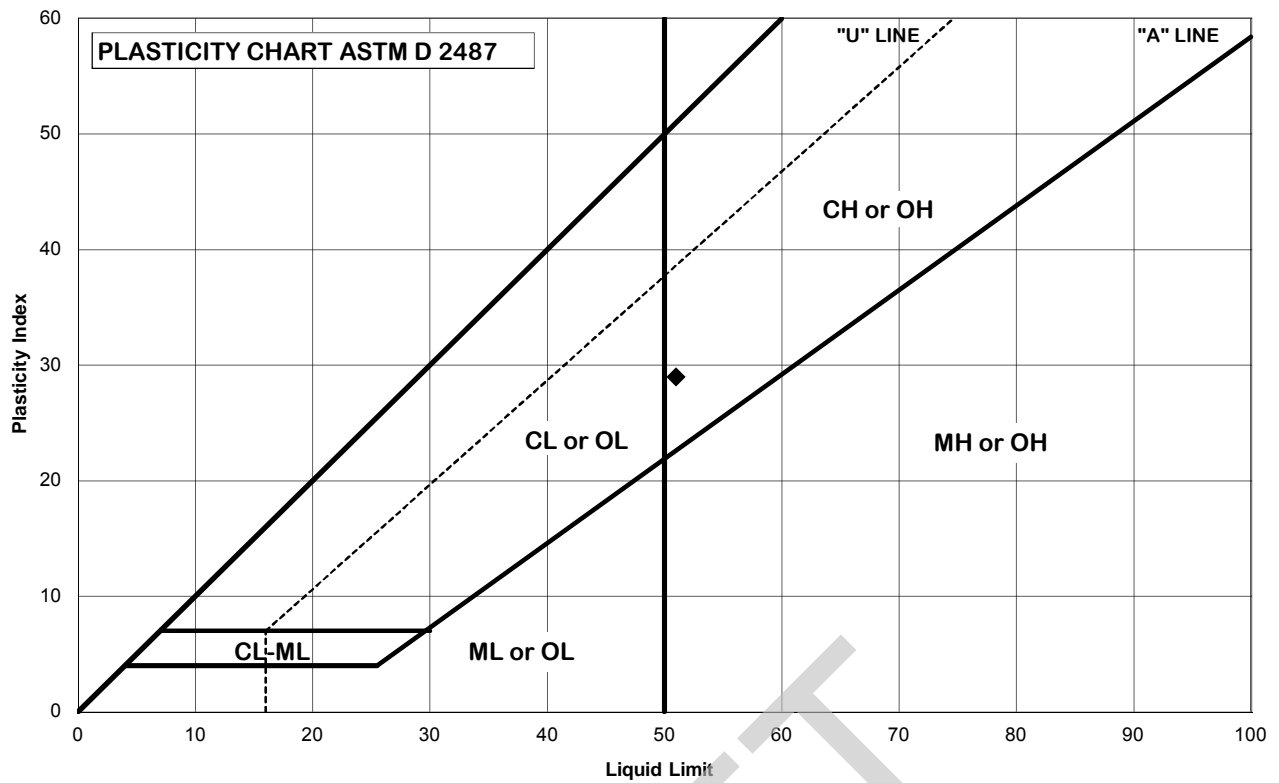


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	6 - 7	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay (CH2)		

Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	51
Plastic Limit =	22
Plasticity Index =	29

Date:	8/20/2013
Tested By:	SC
Checked By:	SC

NOTES:

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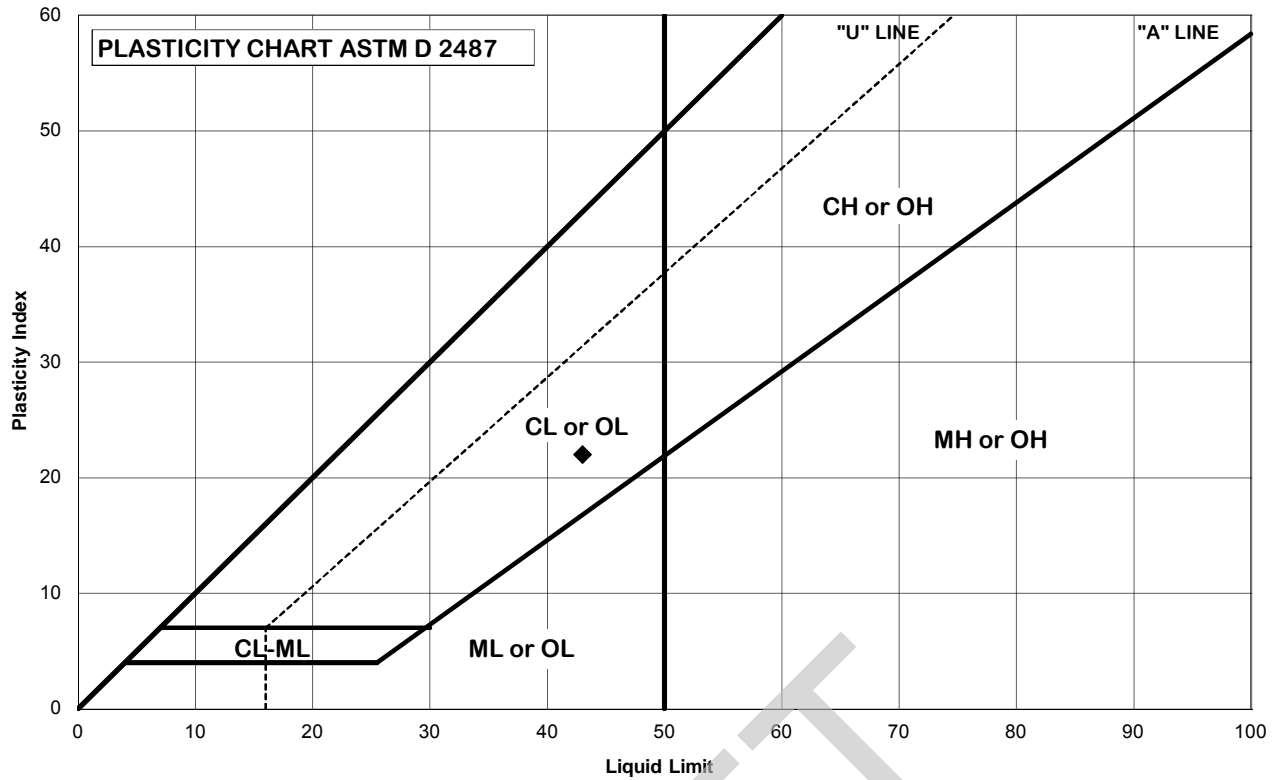


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	11 - 12	Preparation:	Air Dried
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay (CL6)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	43
Plastic Limit =	21
Plasticity Index =	22

Date:	8/8/2013
Tested By:	BH
Checked By:	OS

NOTES:

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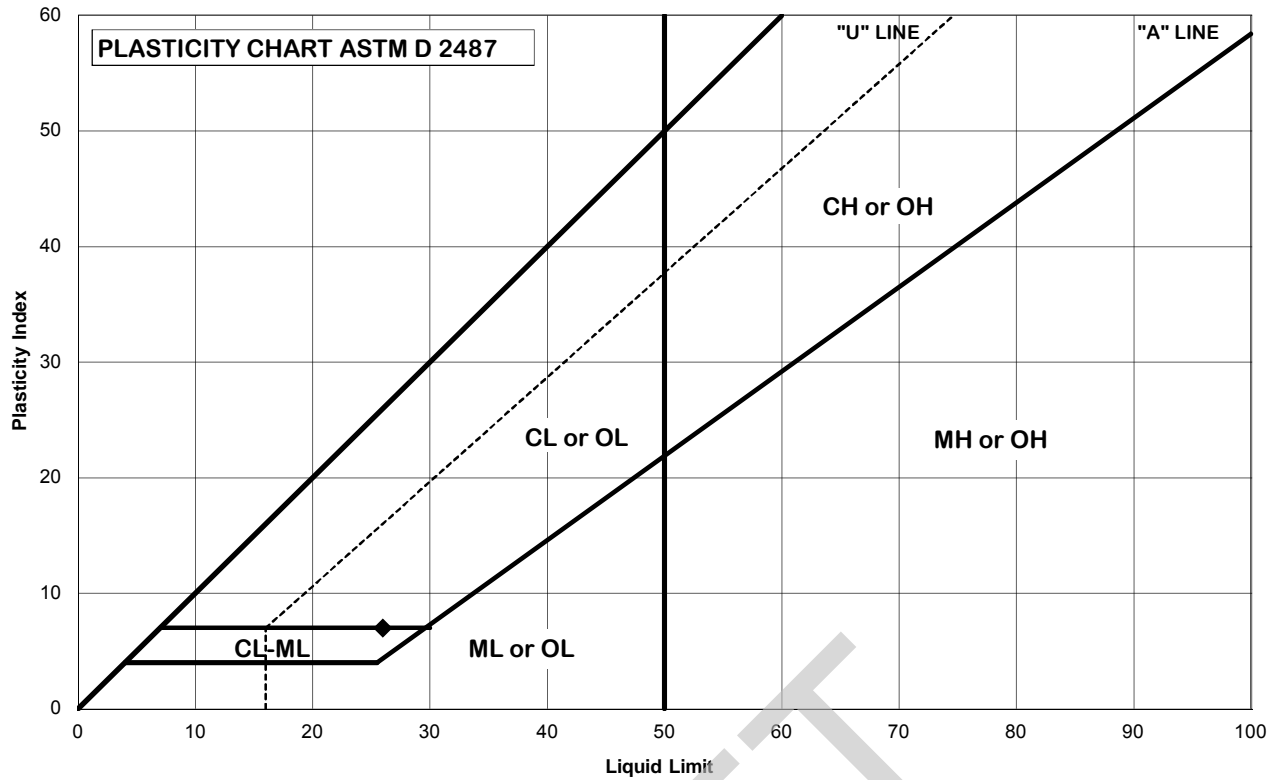


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	15 - 16	Preparation:	Air Dried
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Loose gray clayey silt (ML)		

Classification (fraction passing No. 40 sieve)
CL-ML

Liquid Limit =	26
Plastic Limit =	19
Plasticity Index =	7

Date:	8/8/2013
Tested By:	BH
Checked By:	OS

NOTES:

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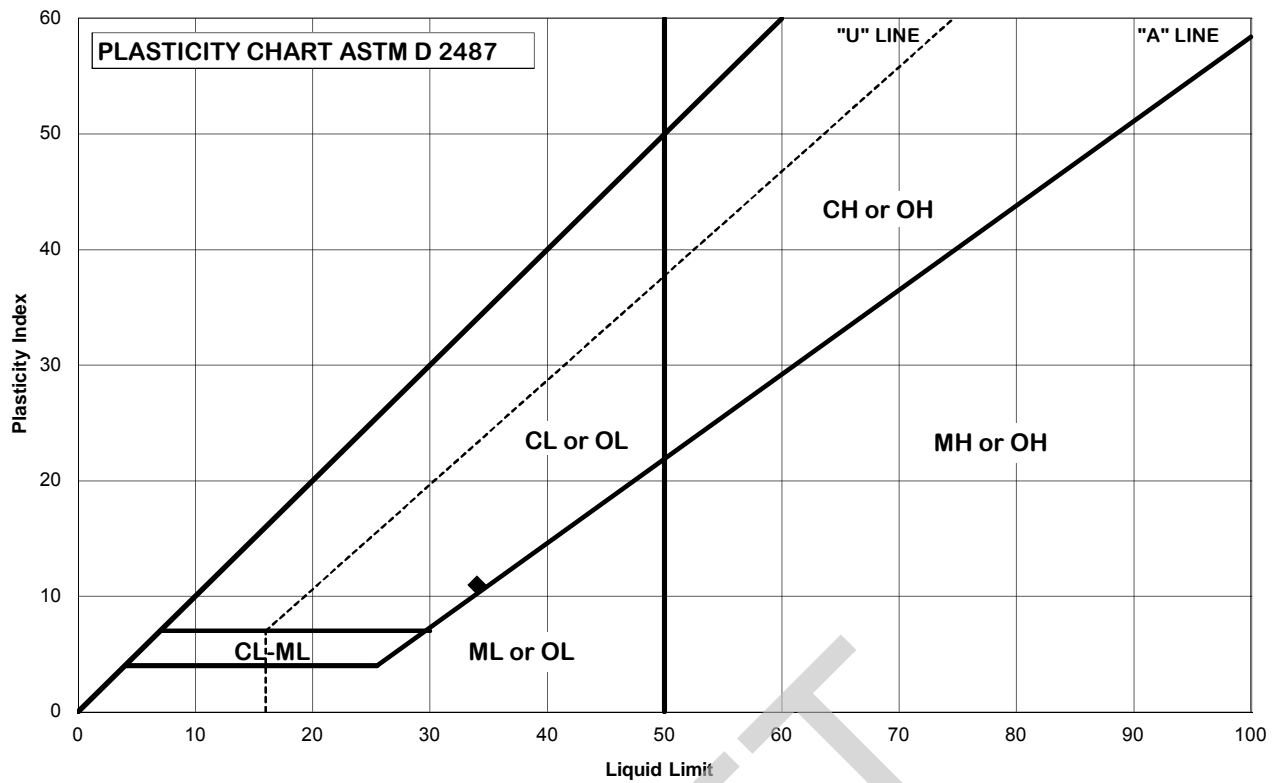


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	17 - 18	Preparation:	Air Dried
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Loose gray sandy silt with clay (ML)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	34
Plastic Limit =	23
Plasticity Index =	11

Date:	8/13/2013
Tested By:	SC
Checked By:	OS

NOTES:

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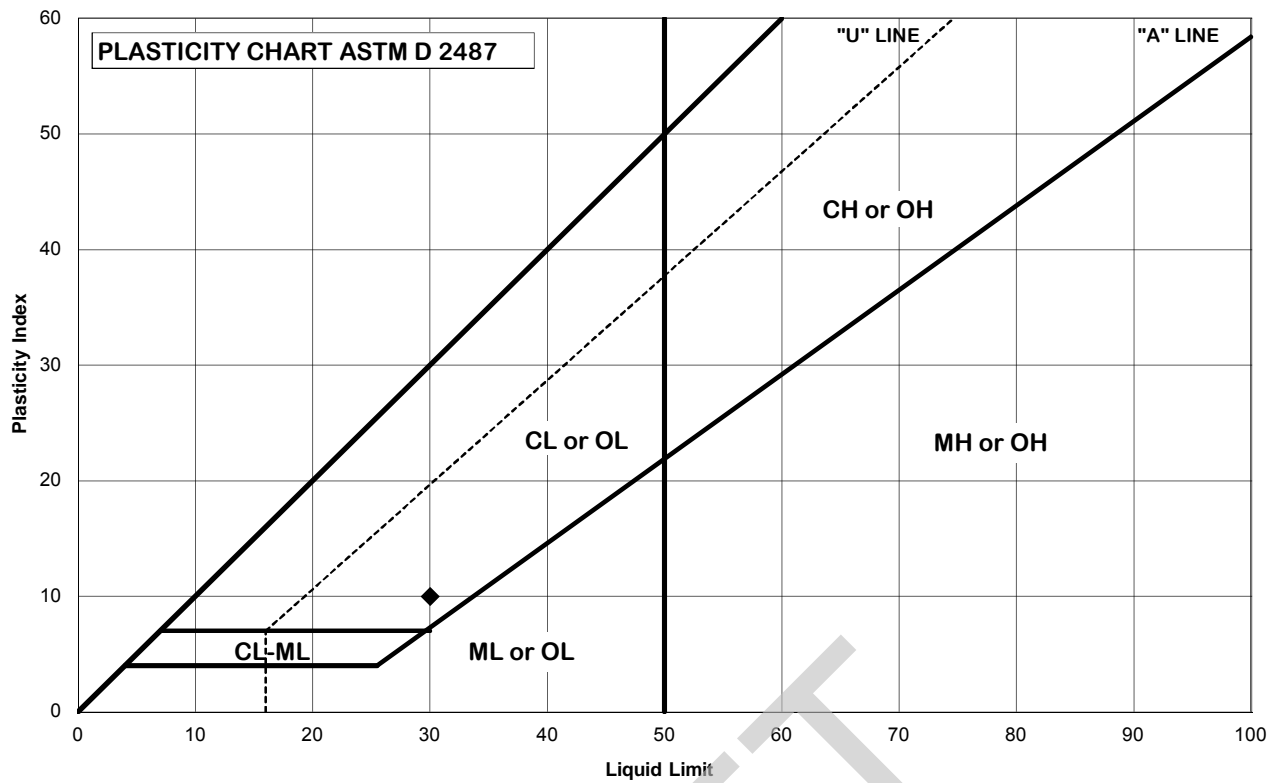


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	38.1 - 39	Preparation:	Air Dried
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay with sand lenses (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	30
Plastic Limit =	20
Plasticity Index =	10

Date:	8/9/2013
Tested By:	BH
Checked By:	OS

NOTES:

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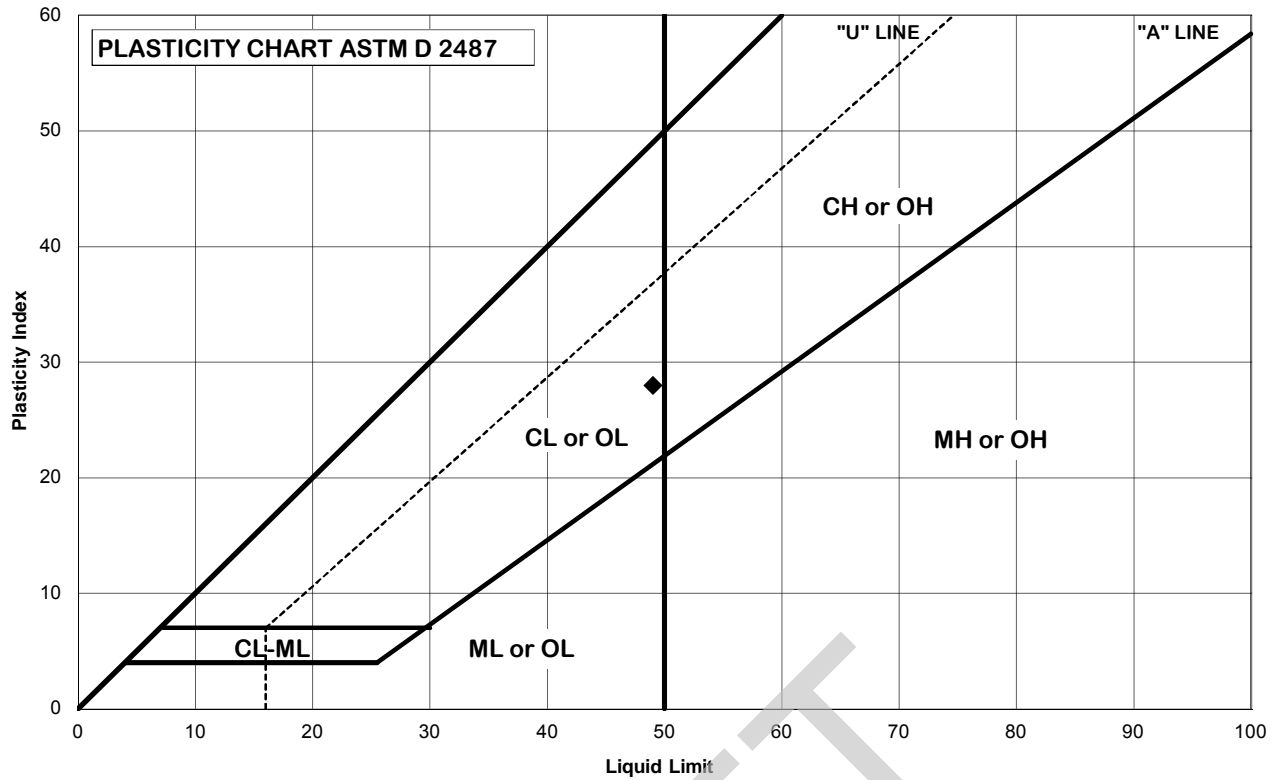


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	41 - 42	Preparation:	Air Dried
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium gray clay (CL6)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	49
Plastic Limit =	21
Plasticity Index =	28

Date:	8/9/2013
Tested By:	BH
Checked By:	OS

NOTES:

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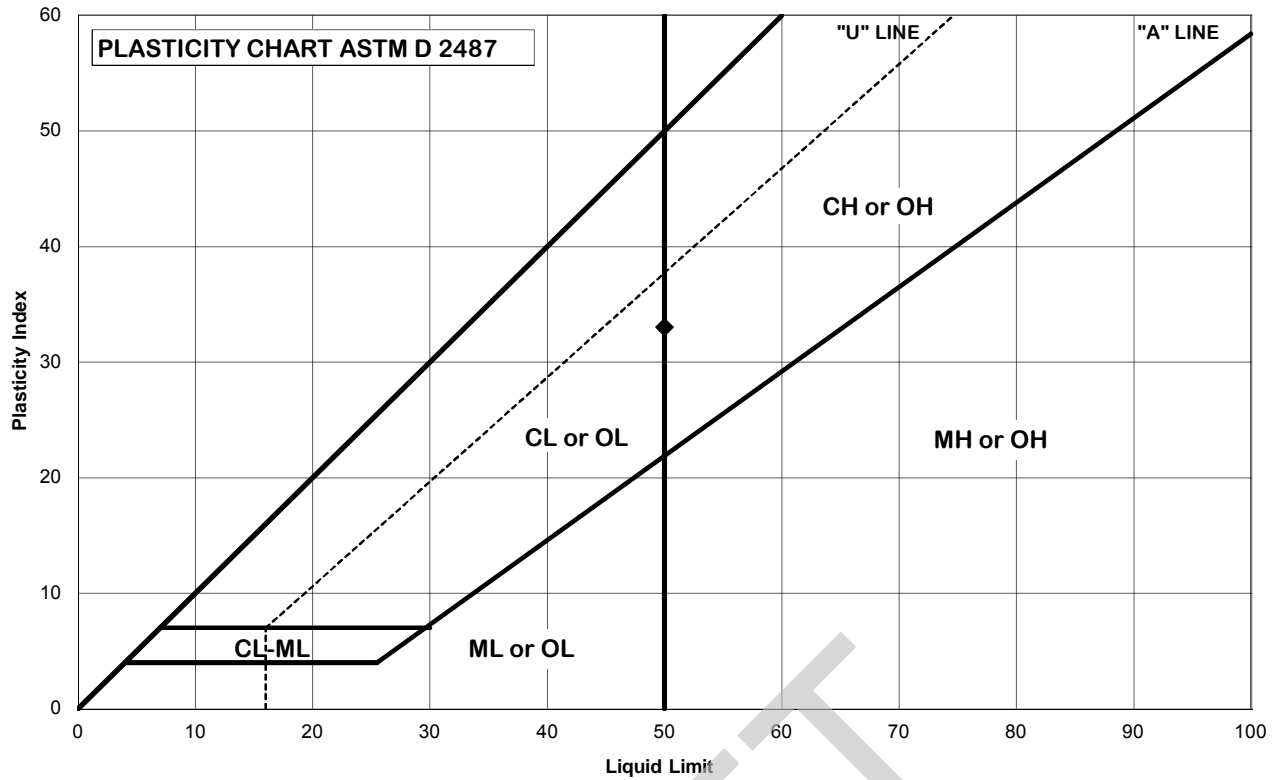


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	42 - 44	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Gray clay (CH2)		

Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	50
Plastic Limit =	17
Plasticity Index =	33

Date:	8/5/2013
Tested By:	gw
Checked By:	sc

NOTES:

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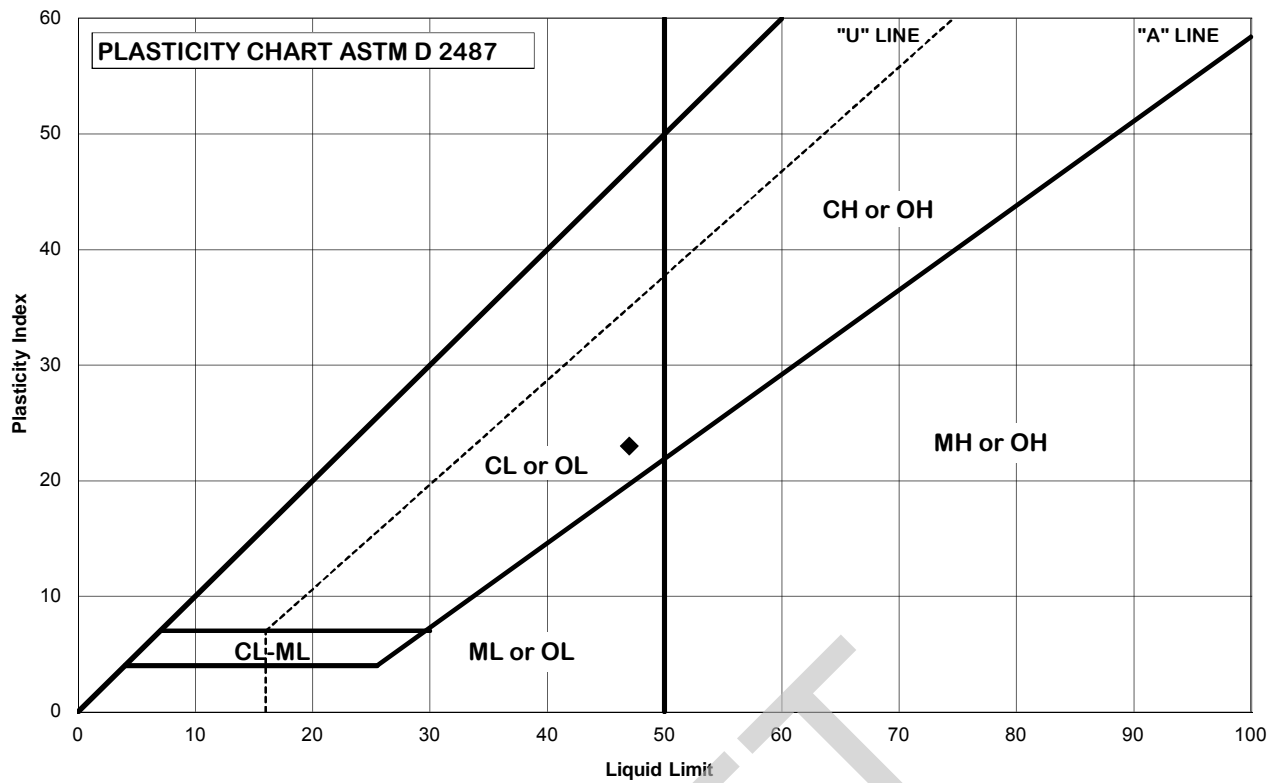


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	49 - 50	Preparation:	Air Dried
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium gray clay with 3 1/2" silty sand layer, sand seams and sand pockets (CL6)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	47
Plastic Limit =	24
Plasticity Index =	23

Date:	8/8/2013
Tested By:	BH
Checked By:	OS

NOTES:

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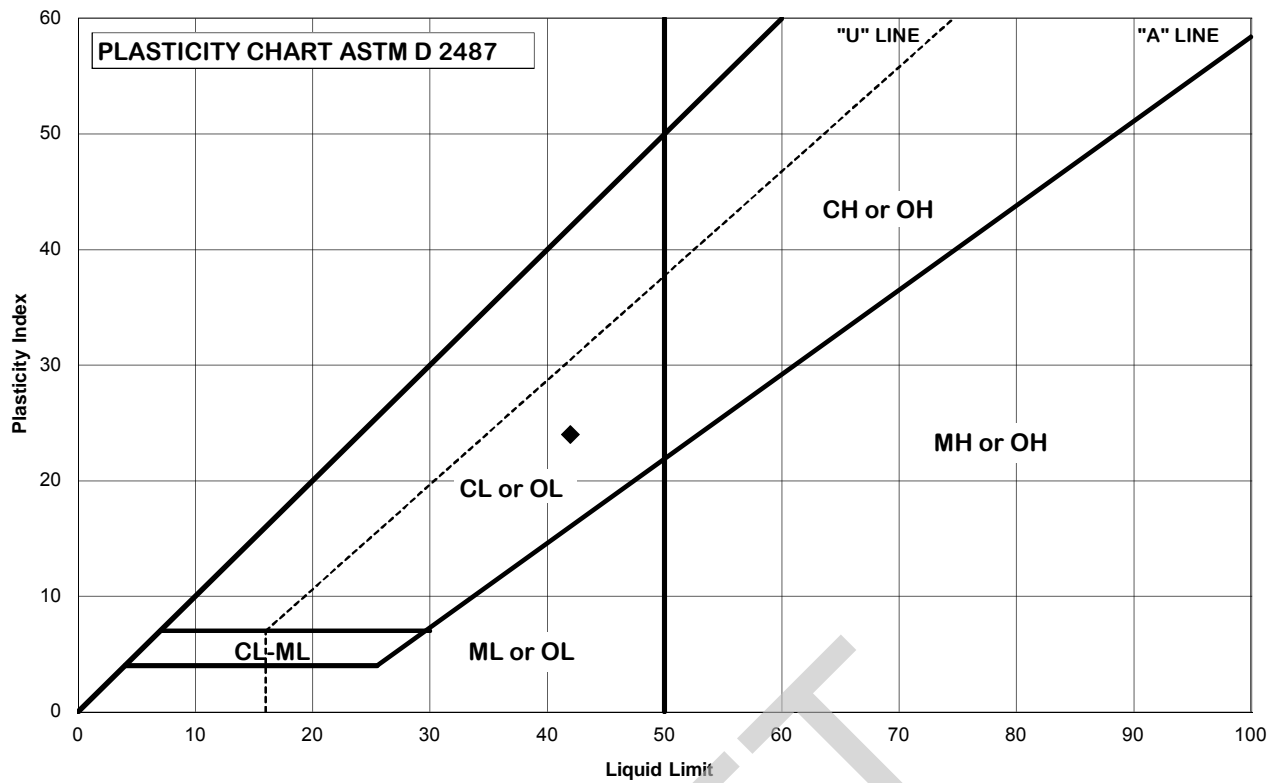


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	93.5 - 95	Preparation:	Wet (as-received)
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium gray sandy clay (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	42
Plastic Limit =	18
Plasticity Index =	24

Date:	8/5/2013
Tested By:	MM
Checked By:	OS

NOTES:

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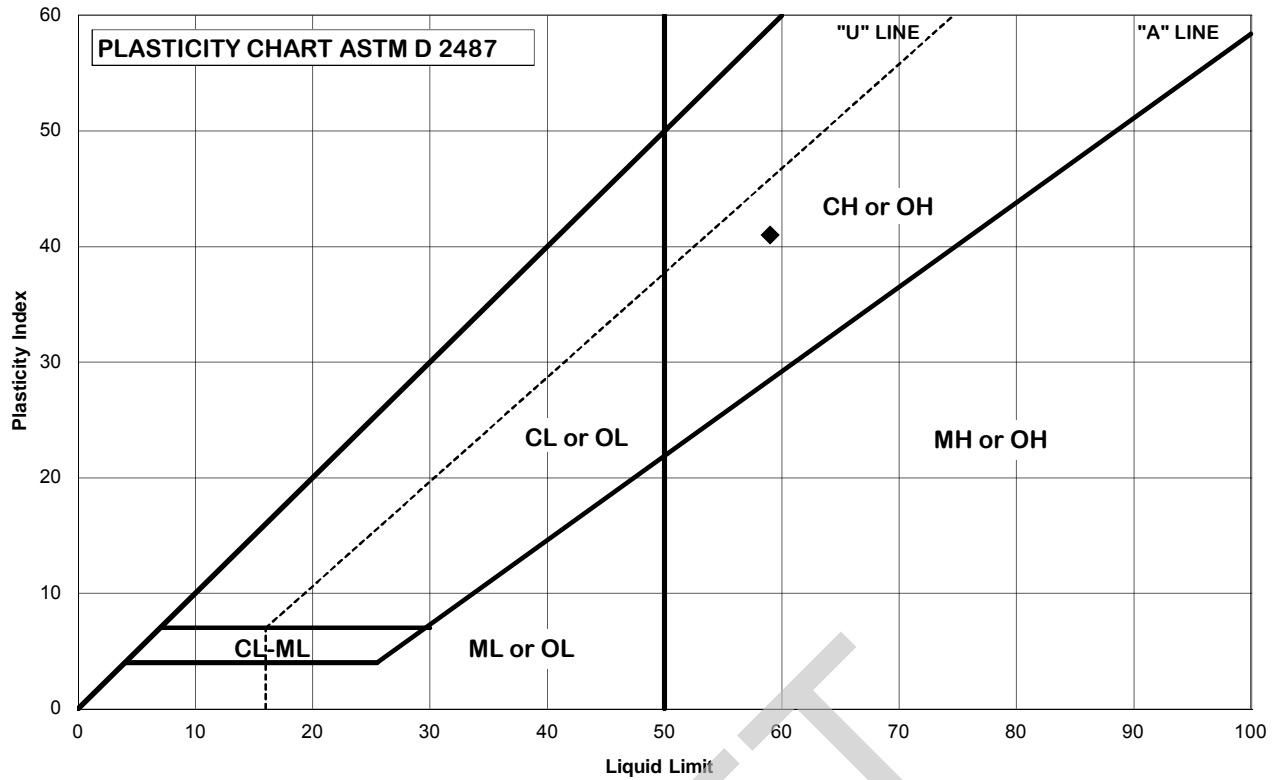


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	106 - 107.5	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very stiff brown and gray clay with sand pockets and seams (CH3)		

Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	59
Plastic Limit =	18
Plasticity Index =	41

Date:	8/7/2013
Tested By:	gw
Checked By:	clp

NOTES:

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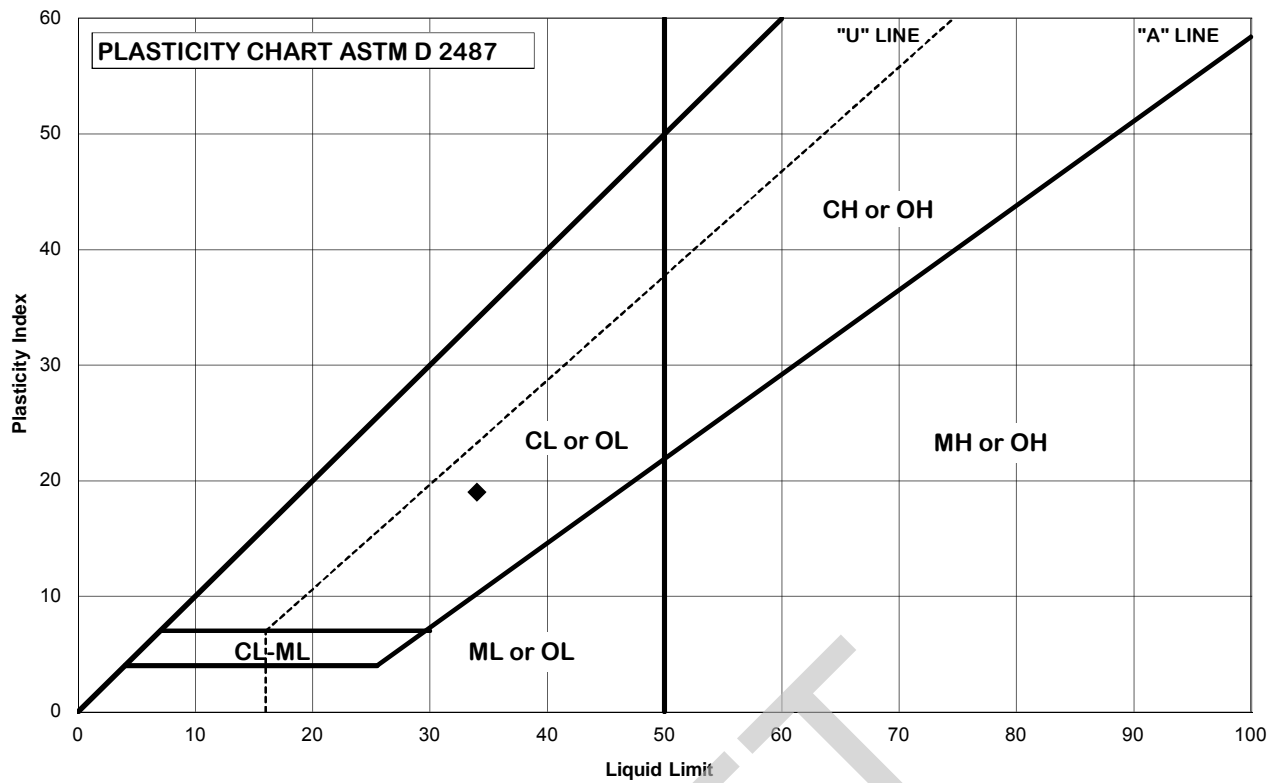


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	136 - 137.5	Preparation:	Air Dried
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Hard light gray clay with 4" clay layer (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	34
Plastic Limit =	15
Plasticity Index =	19

Date:	8/5/2013
Tested By:	SC
Checked By:	OS

NOTES:

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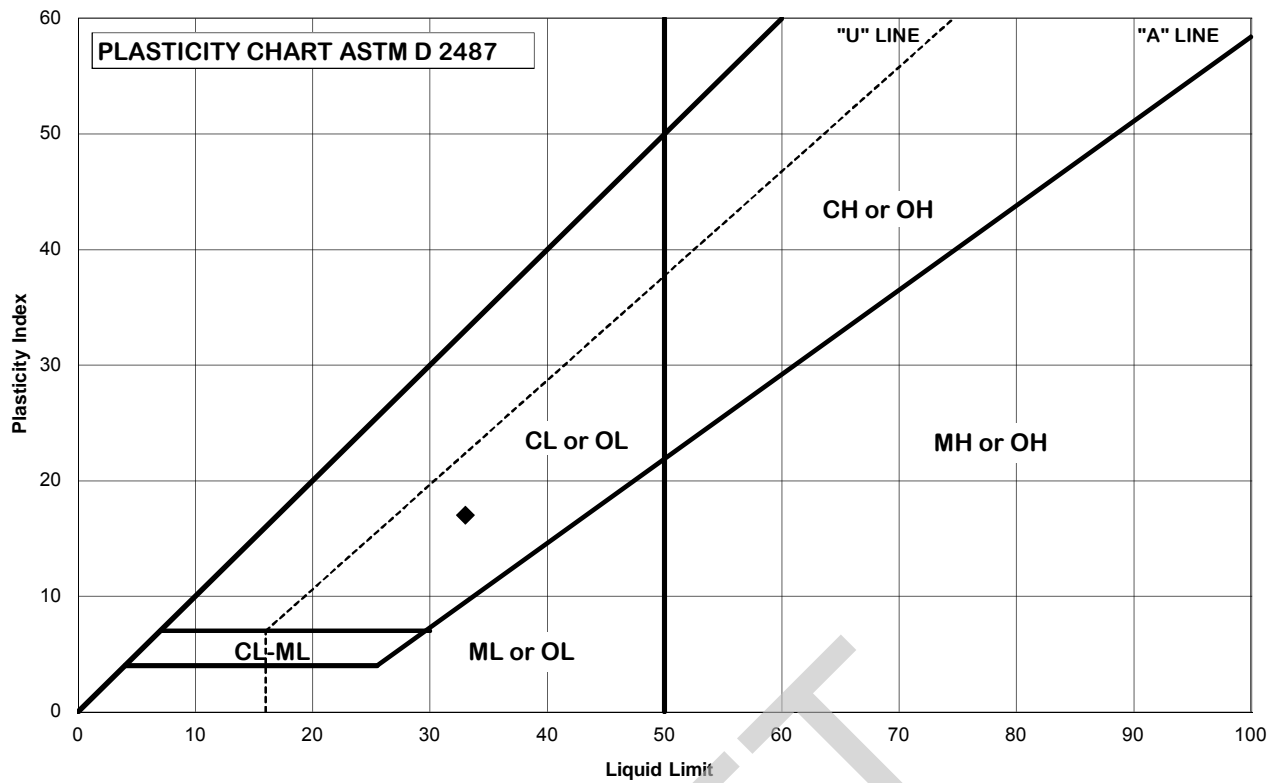


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	IS-8A	Natural WC:	#DIV/0!
Depth, ft.	140.5 - 141.5	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very stiff light gray clay with sand pockets and seams (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	33
Plastic Limit =	16
Plasticity Index =	17

Date:	8/12/2013
Tested By:	SC
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil.

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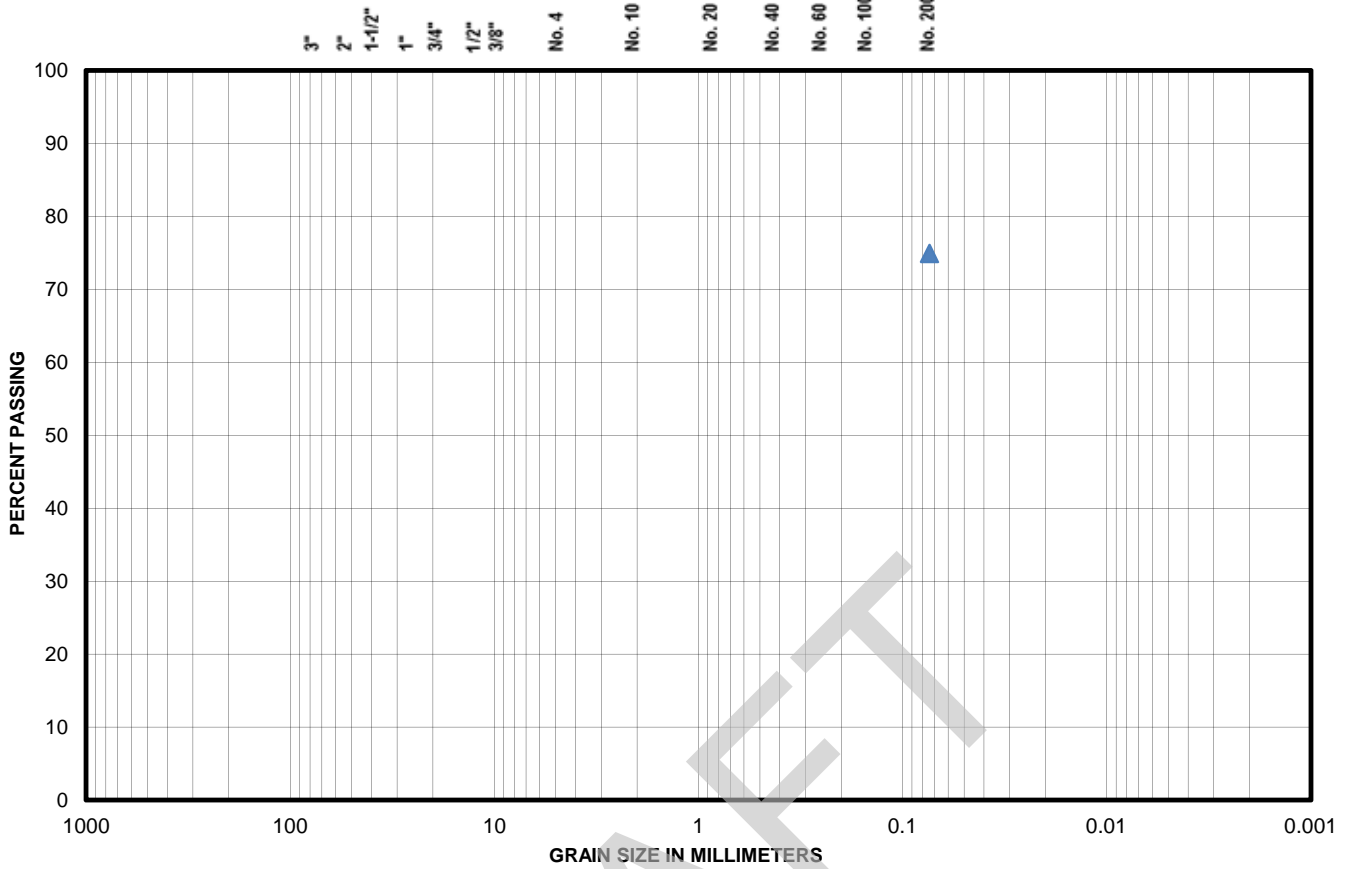
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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	25.1
Coarse Sand %	0.0	Fines (Silt & Clay) %	74.9
USC Classification	x	C _u	na
Description (D 2488)	Loose gray sandy silt (ML)		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	74.9

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	Date Tested	8/8/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	51 - 52	Sieve Type	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



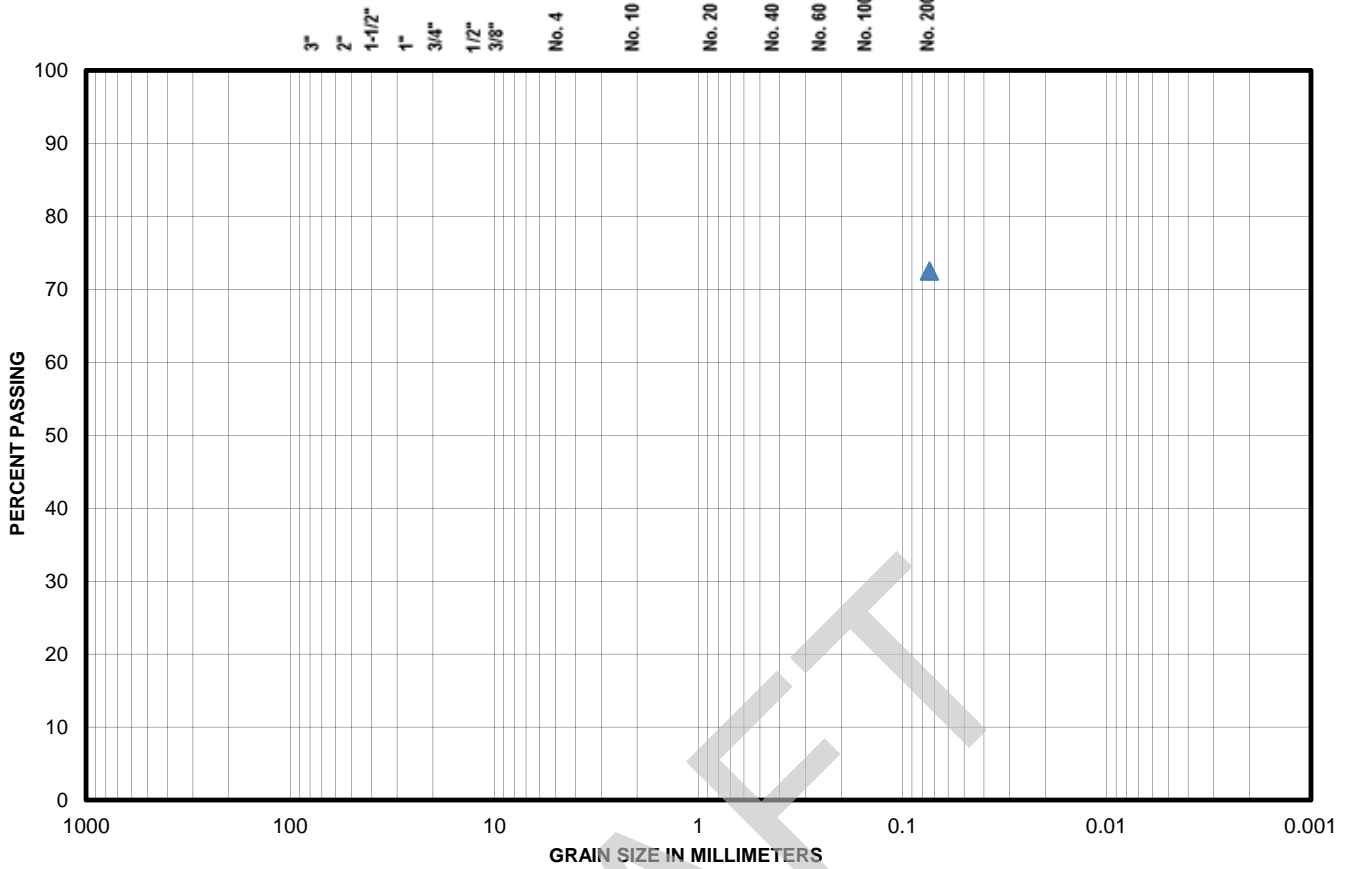
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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	27.5
Coarse Sand %	0.0	Fines (Silt & Clay) %	72.5
USC Classification	x	C _u	na
Description (D 2488)	Loose gray sandy silt with clay (ML)		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	72.5

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	Date Tested	8/8/2013
Project No.	18274-001-00	Tested By	rw
Boring No.	IS-8A	Checked By	rw
Source/Depth (feet)	55 - 56	Sieve Type	200 Wash

Method A was used for the 200 Wash

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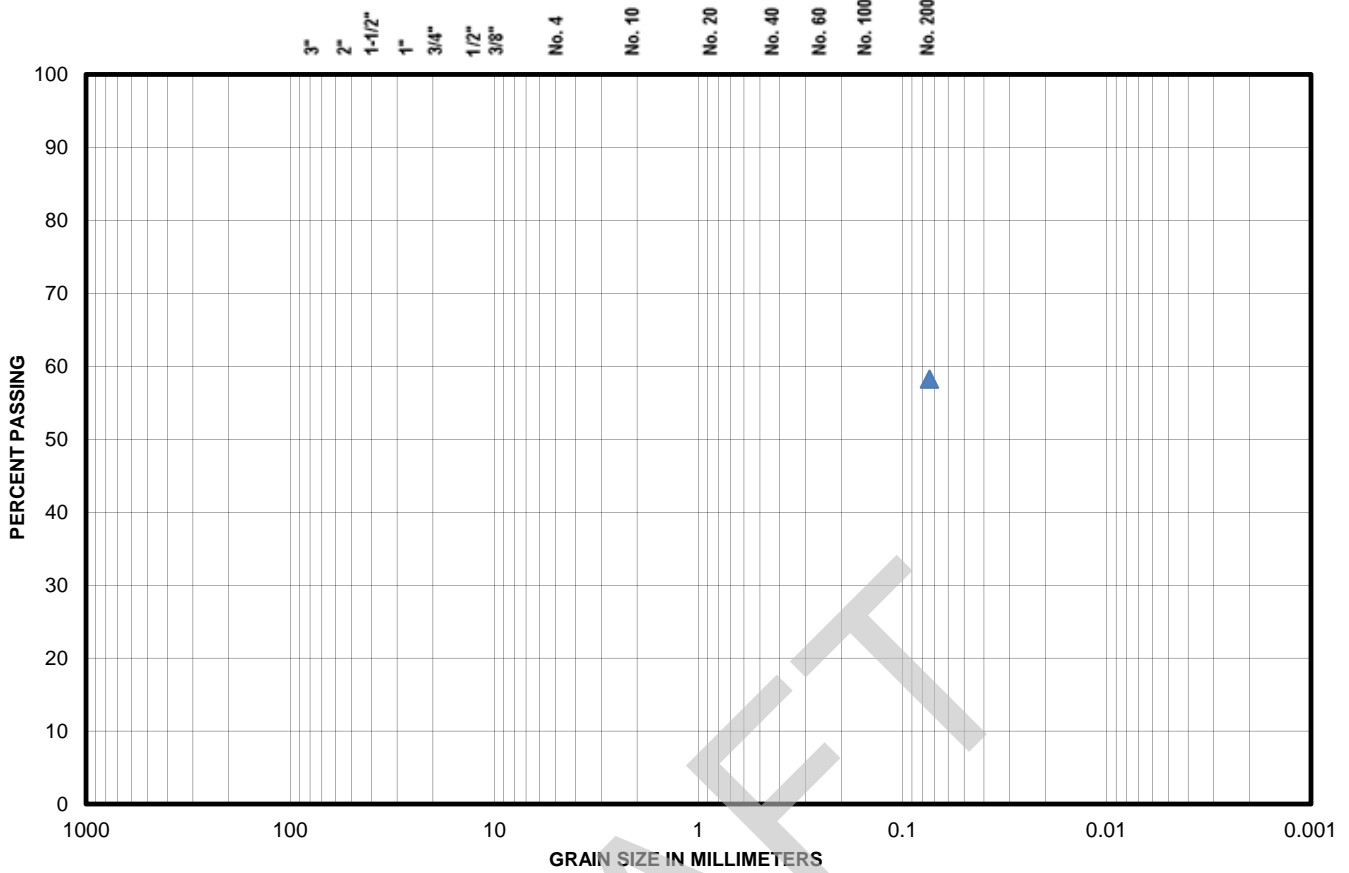
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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	41.7
Coarse Sand %	0.0	Fines (Silt & Clay) %	58.3
USC Classification	x	C _u	na
Description (D 2488)	Loose gray silty sand with clay (ML)		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	58.3

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	8/7/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	66 - 67.5	Sieve Type	200 Wash

Method A was used for the 200 Wash

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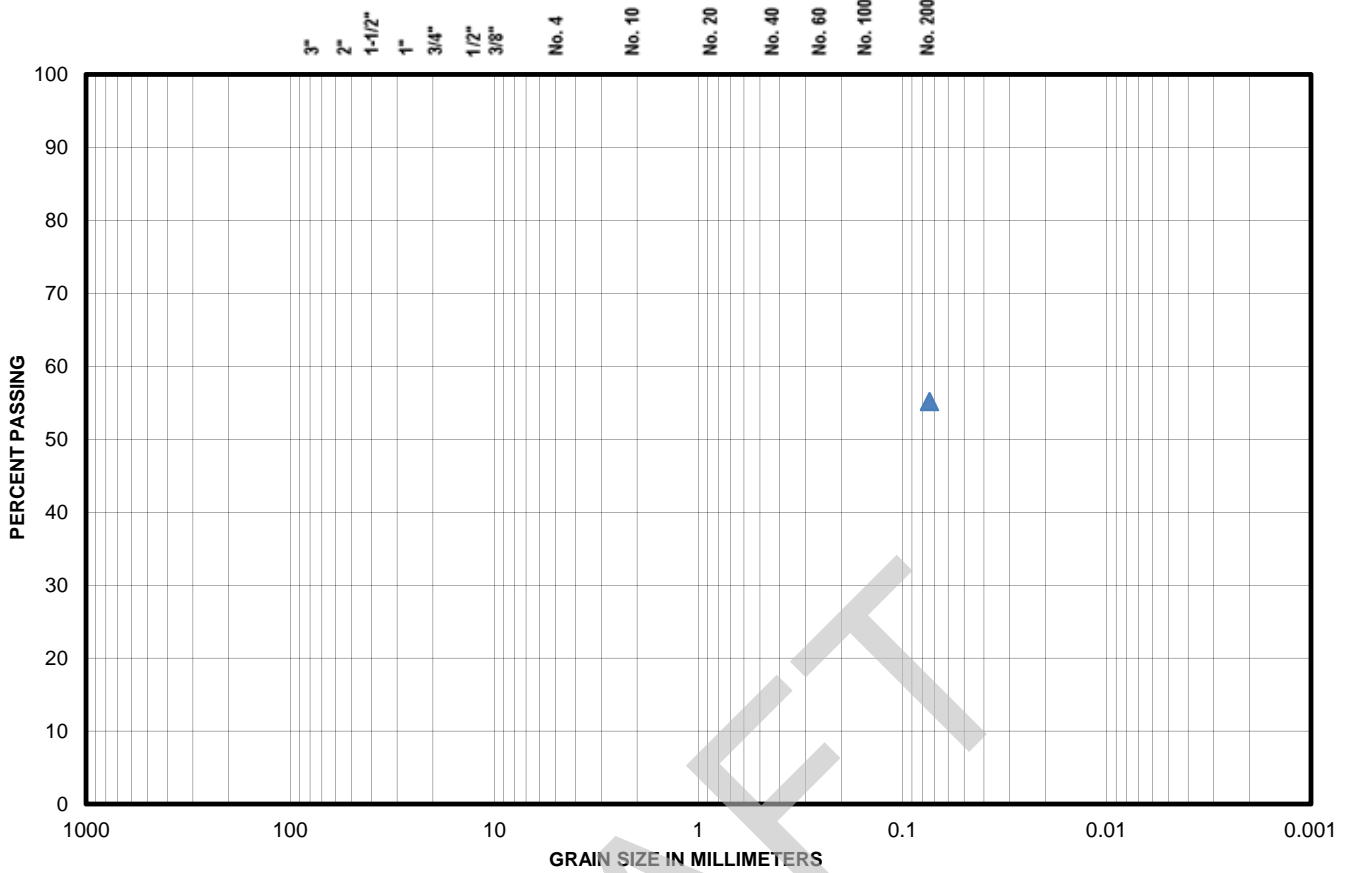
ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

"Confidential Information; Privileged & Confidential Work Product"

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	44.8
Coarse Sand %	0.0	Fines (Silt & Clay) %	55.2
USC Classification	x	C _u	na
Description (D 2488)	Loose gray sandy silt with clay (ML)		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	55.2

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	8/7/2013
Project No.	18274-001-00	Tested By	Rw
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	73.5 - 75	Sieve Type	200 Wash

Method A was used for the 200 Wash

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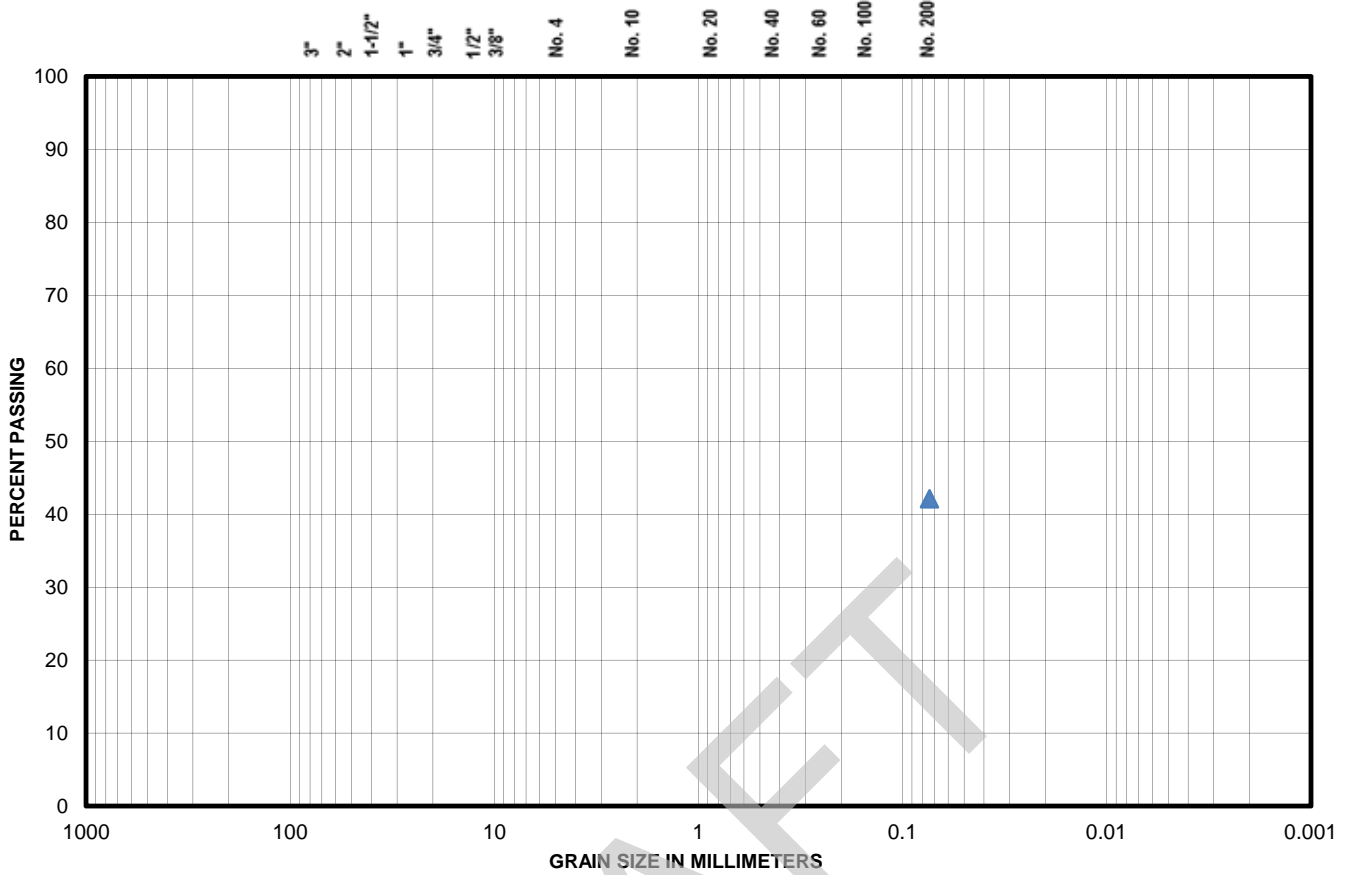
ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

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U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	57.9
Coarse Sand %	0.0	Fines (Silt & Clay) %	42.1
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	42.1

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	8/7/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	78.5 - 80	Sieve Type	200 Wash

Method A was used for the 200 Wash

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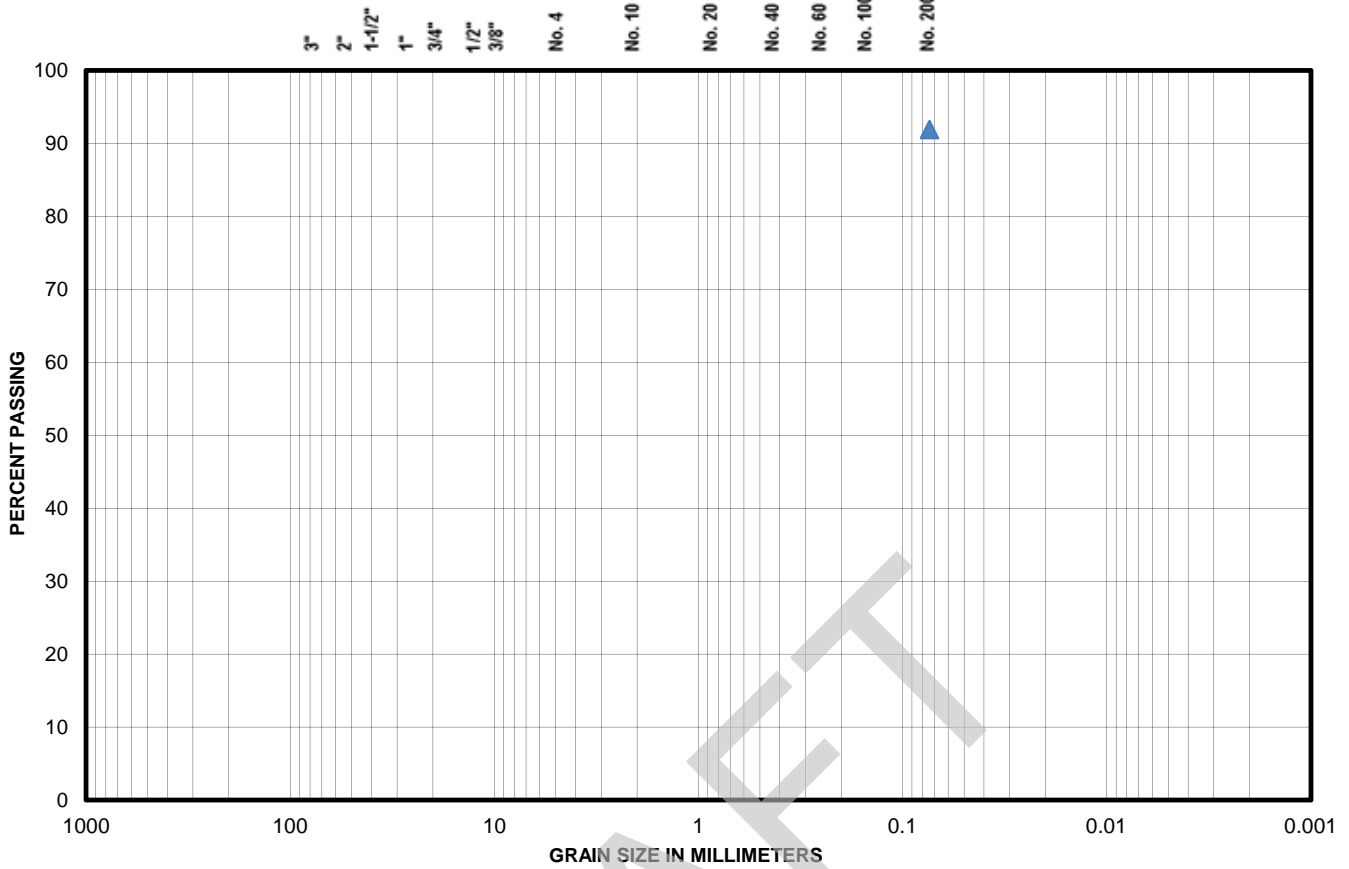
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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	8.1
Coarse Sand %	0.0	Fines (Silt & Clay) %	91.9
USC Classification	x	C _u	na
Description (D 2488)	Loose gray sandy silt with 3" clay layer (ML)		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	91.9

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	8/7/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	86 - 87.5	Sieve Type	200 Wash

Method A was used for the 200 Wash

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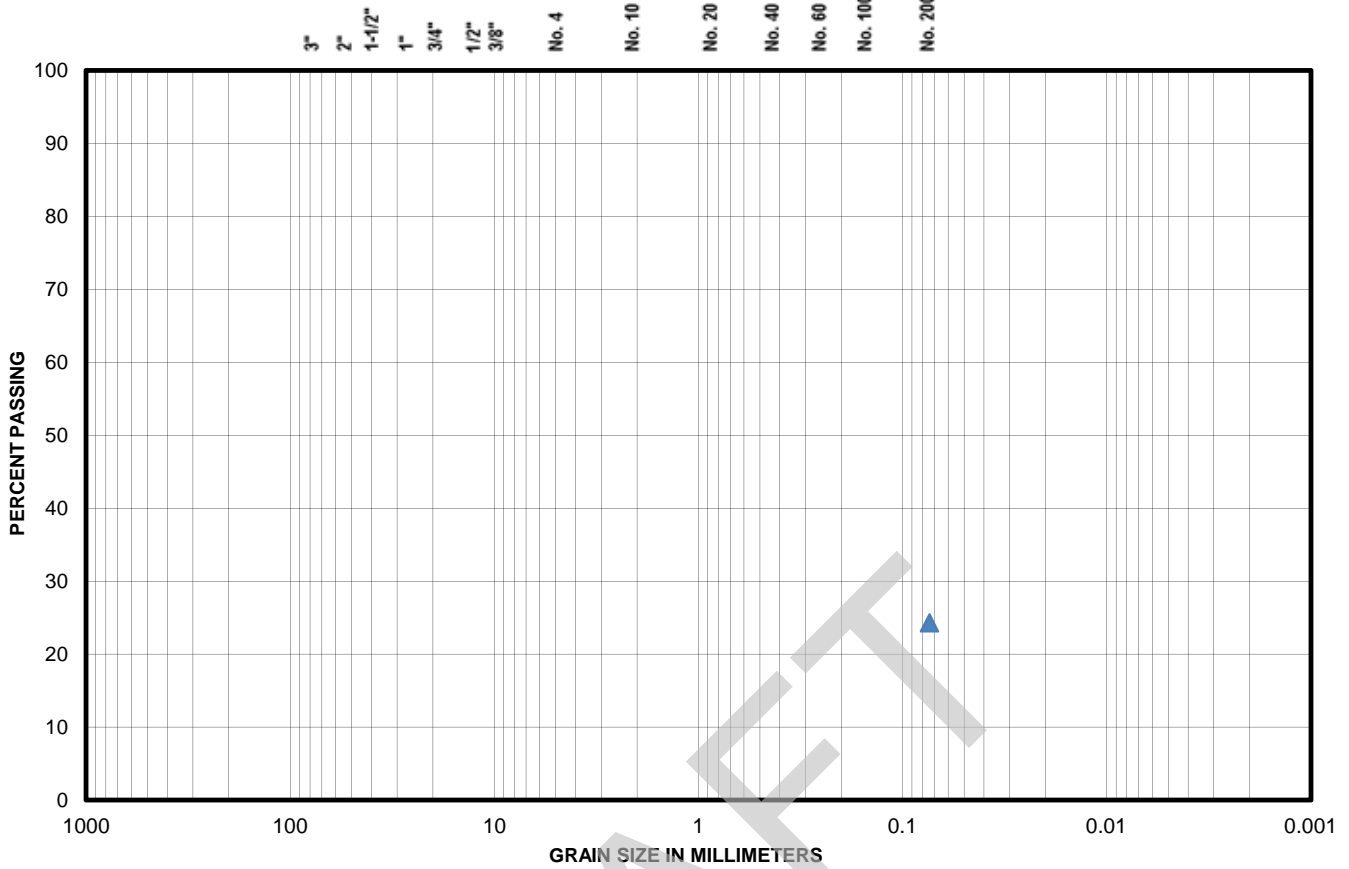
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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	75.7
Coarse Sand %	0.0	Fines (Silt & Clay) %	24.3
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	24.3

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	8/8/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	146.5 - 147.5	Sieve Type	200 Wash

Method A was used for the 200 Wash

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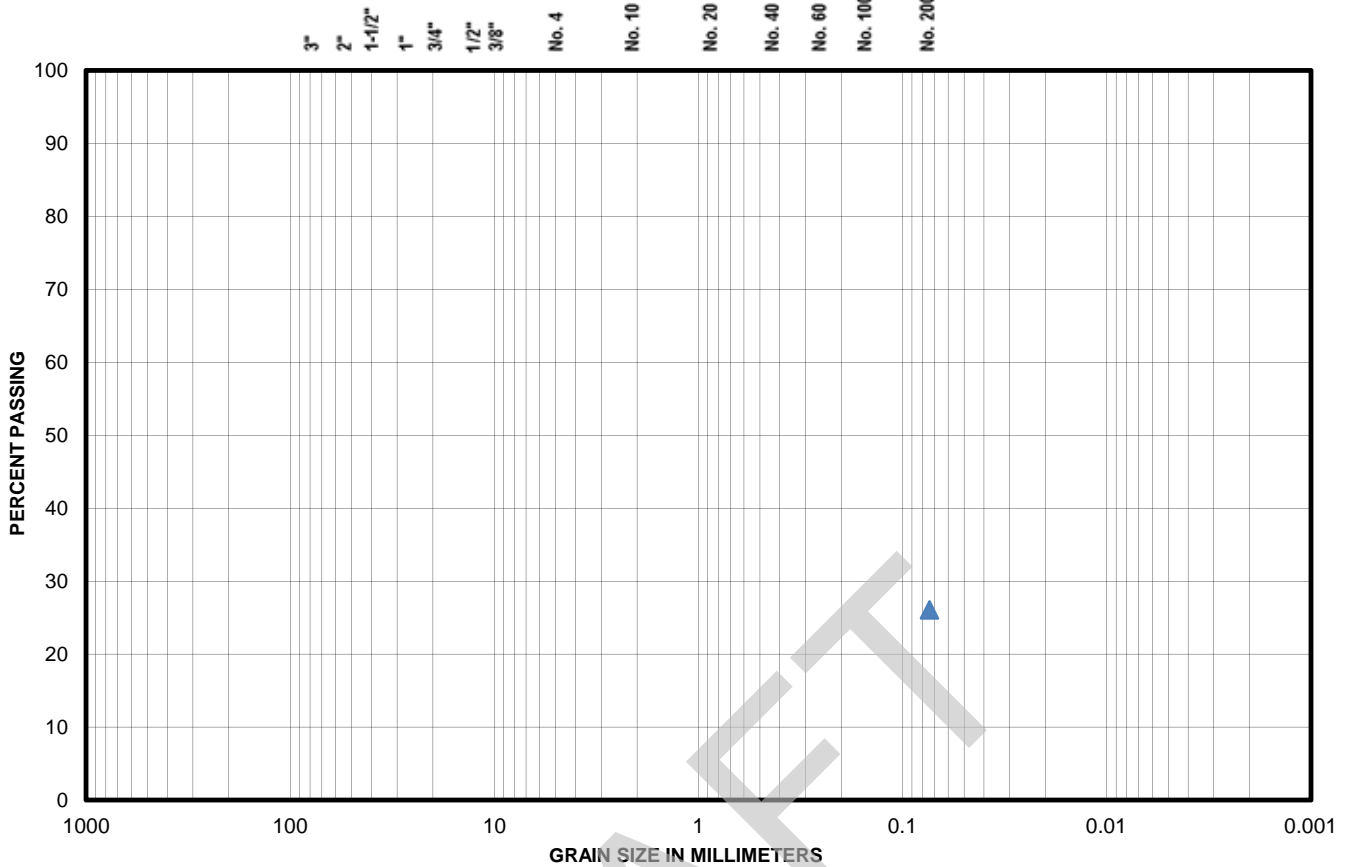
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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	73.9
Coarse Sand %	0.0	Fines (Silt & Clay) %	26.1
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	26.1

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	8/7/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	150 - 151.5	Sieve Type	200 Wash

Method A was used for the 200 Wash

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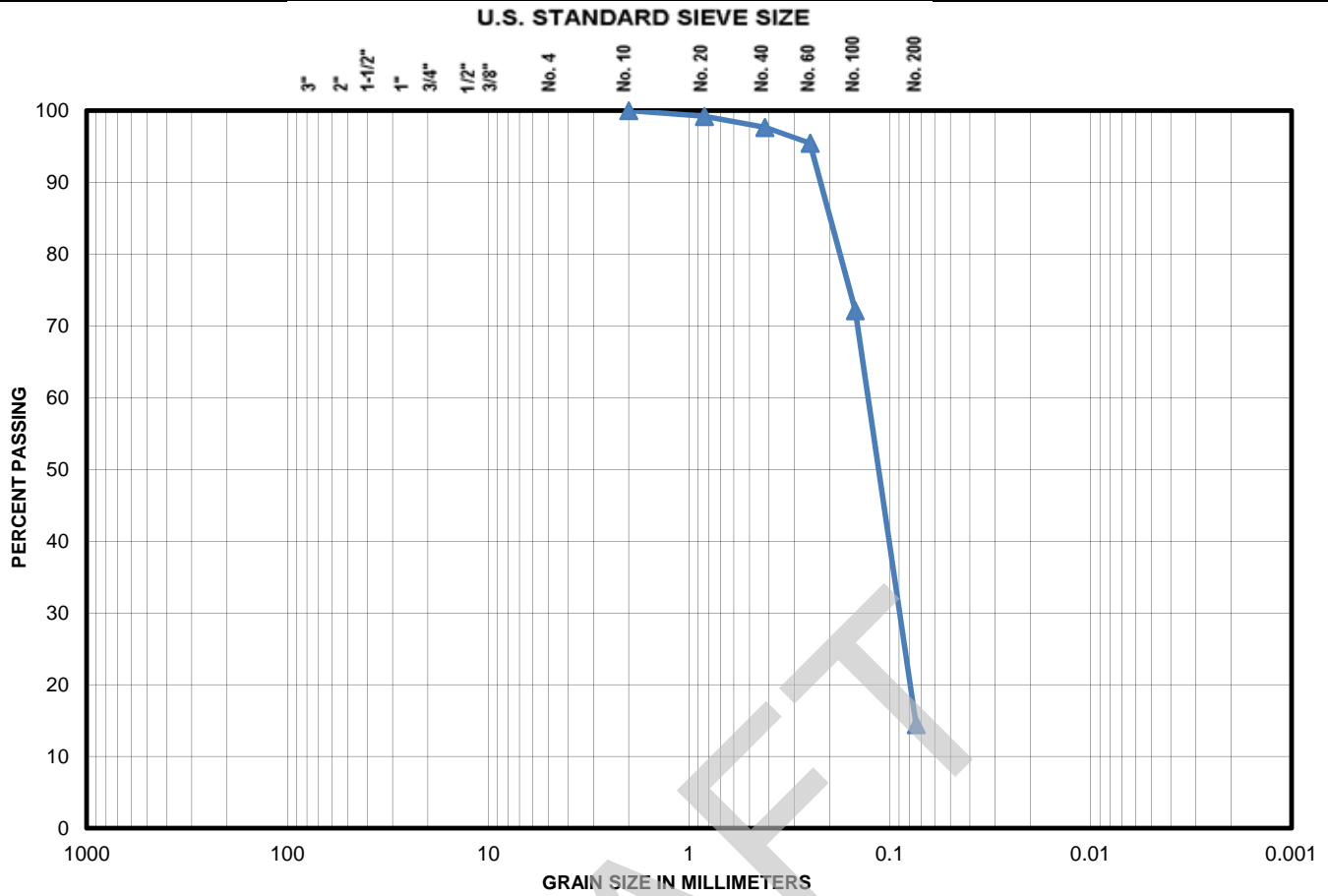
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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

"Confidential Information; Privileged & Confidential Work Product"



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	2.3		
Fine Gravel %	0.0	Fine Sand %	83.2		
Coarse Sand %	0.0	Fines (Silt & Clay) %	14.4		
USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	99.2
1"	#N/A	No. 40	97.7
3/4"	#N/A	No. 60	95.5
1/2"	#N/A	No. 100	72.1
3/8"	#N/A	No. 200	14.4

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	8/7/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	96 - 97.5	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

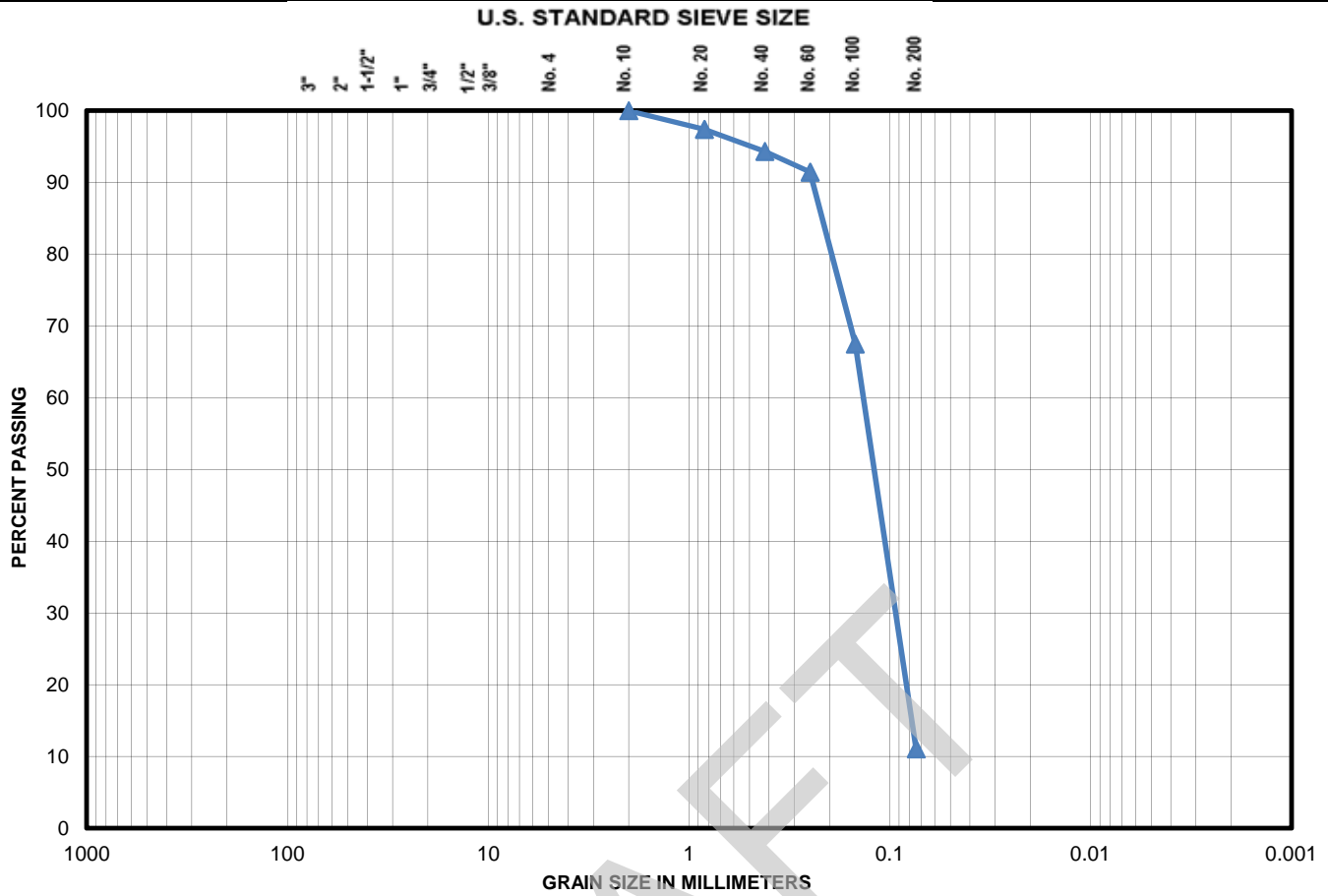


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	5.7		
Fine Gravel %	0.0	Fine Sand %	83.2		
Coarse Sand %	0.0	Fines (Silt & Clay) %	11.1		
USC Classification	x	C _u	na	C _c	na
Description (D 2488)	Medium dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	97.4
1"	#N/A	No. 40	94.3
3/4"	#N/A	No. 60	91.4
1/2"	#N/A	No. 100	67.5
3/8"	#N/A	No. 200	11.1

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	8/6/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	101 - 102.5	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

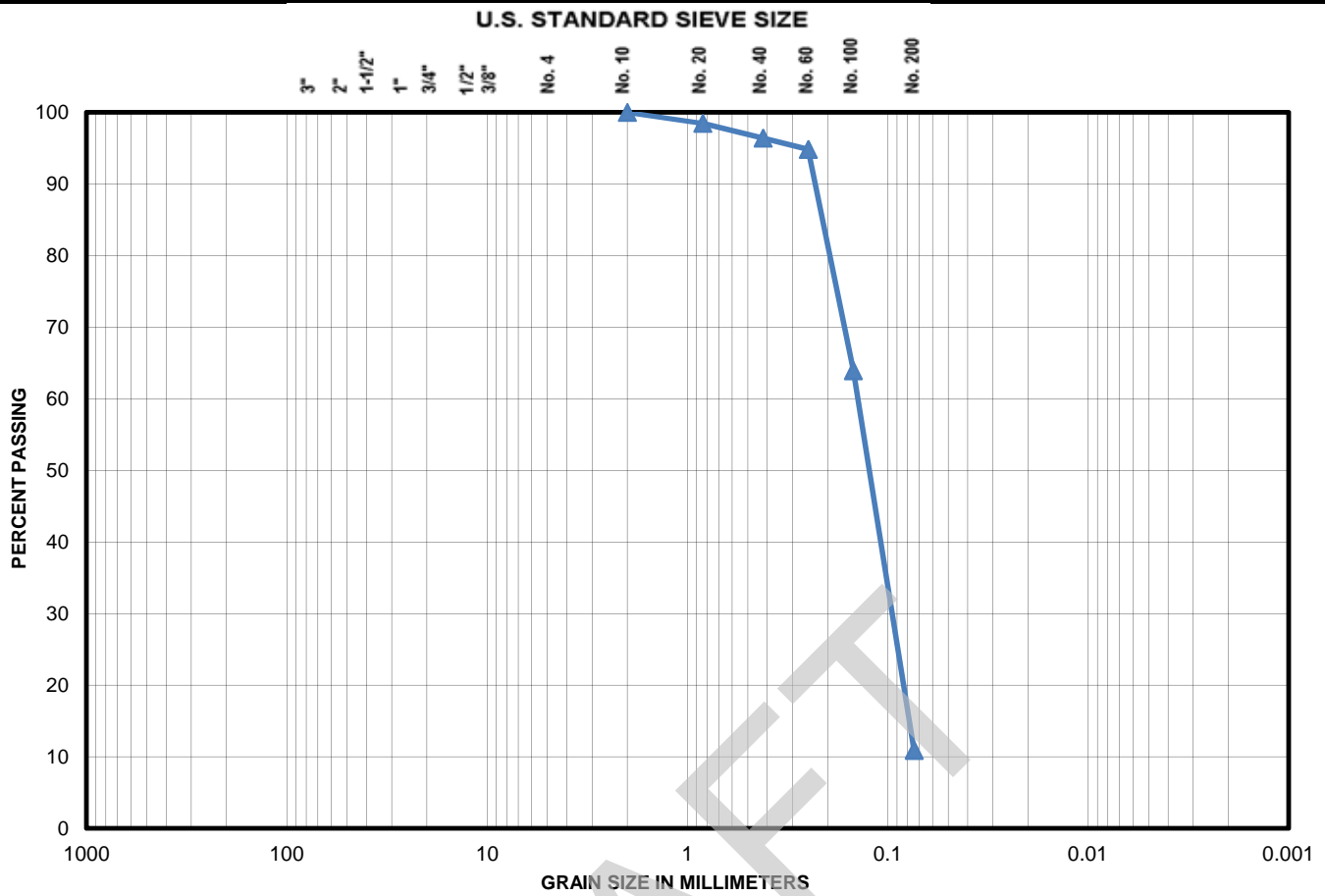


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	3.6		
Fine Gravel %	0.0	Fine Sand %	85.5		
Coarse Sand %	0.0	Fines (Silt & Clay) %	10.9		
USC Classification	SP	C _u	na	C _c	na
Description (D 2488)	Very dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	98.5
1"	#N/A	No. 40	96.4
3/4"	#N/A	No. 60	94.8
1/2"	#N/A	No. 100	63.9
3/8"	#N/A	No. 200	10.9

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	8/6/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	113.5 - 115	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

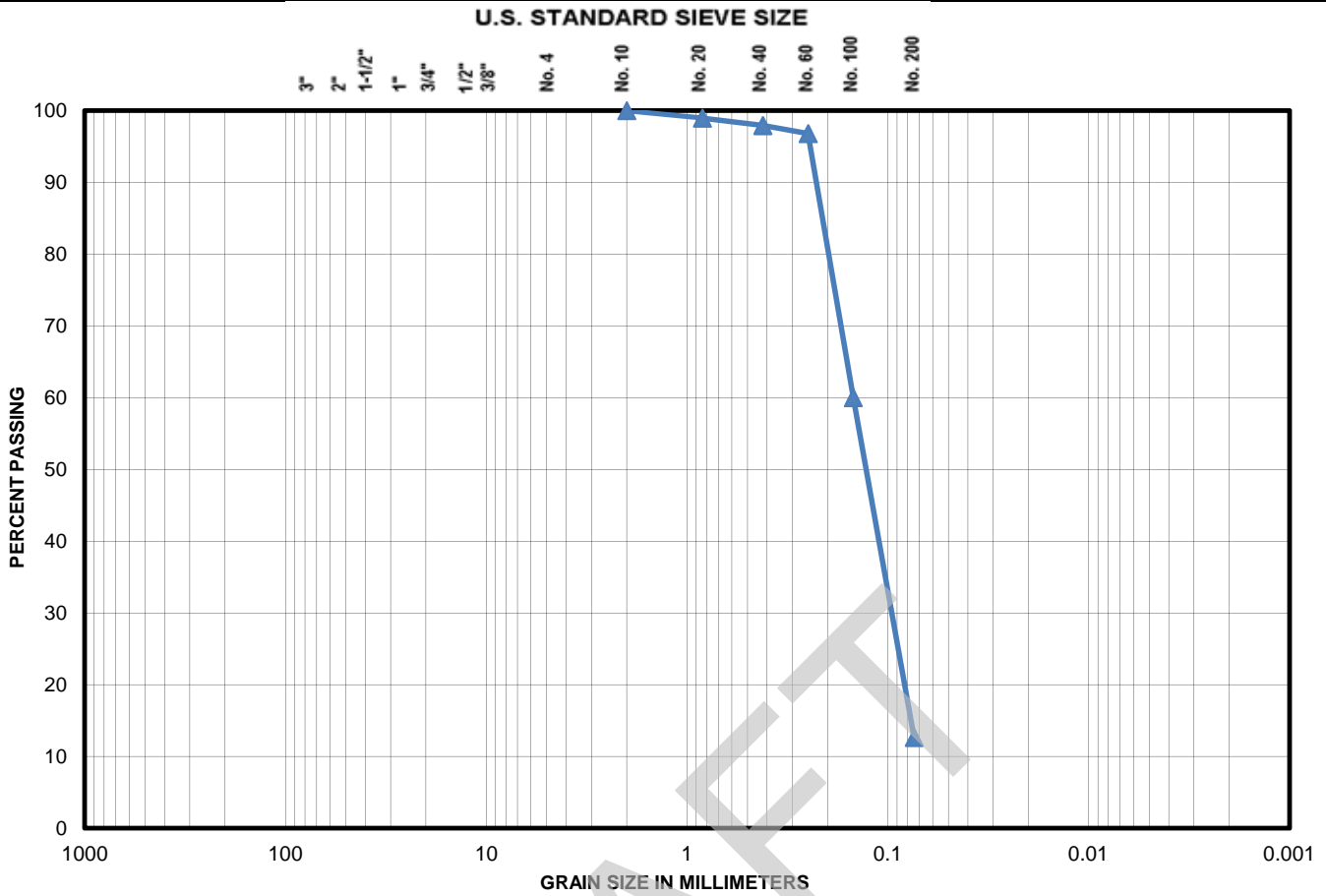


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	2.1
Fine Gravel %	0.0	Fine Sand %	85.3
Coarse Sand %	0.0	Fines (Silt & Clay) %	12.6
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	99.0
1"	#N/A	No. 40	97.9
3/4"	#N/A	No. 60	96.8
1/2"	#N/A	No. 100	60.0
3/8"	#N/A	No. 200	12.6

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	8/6/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	121 - 122.5	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

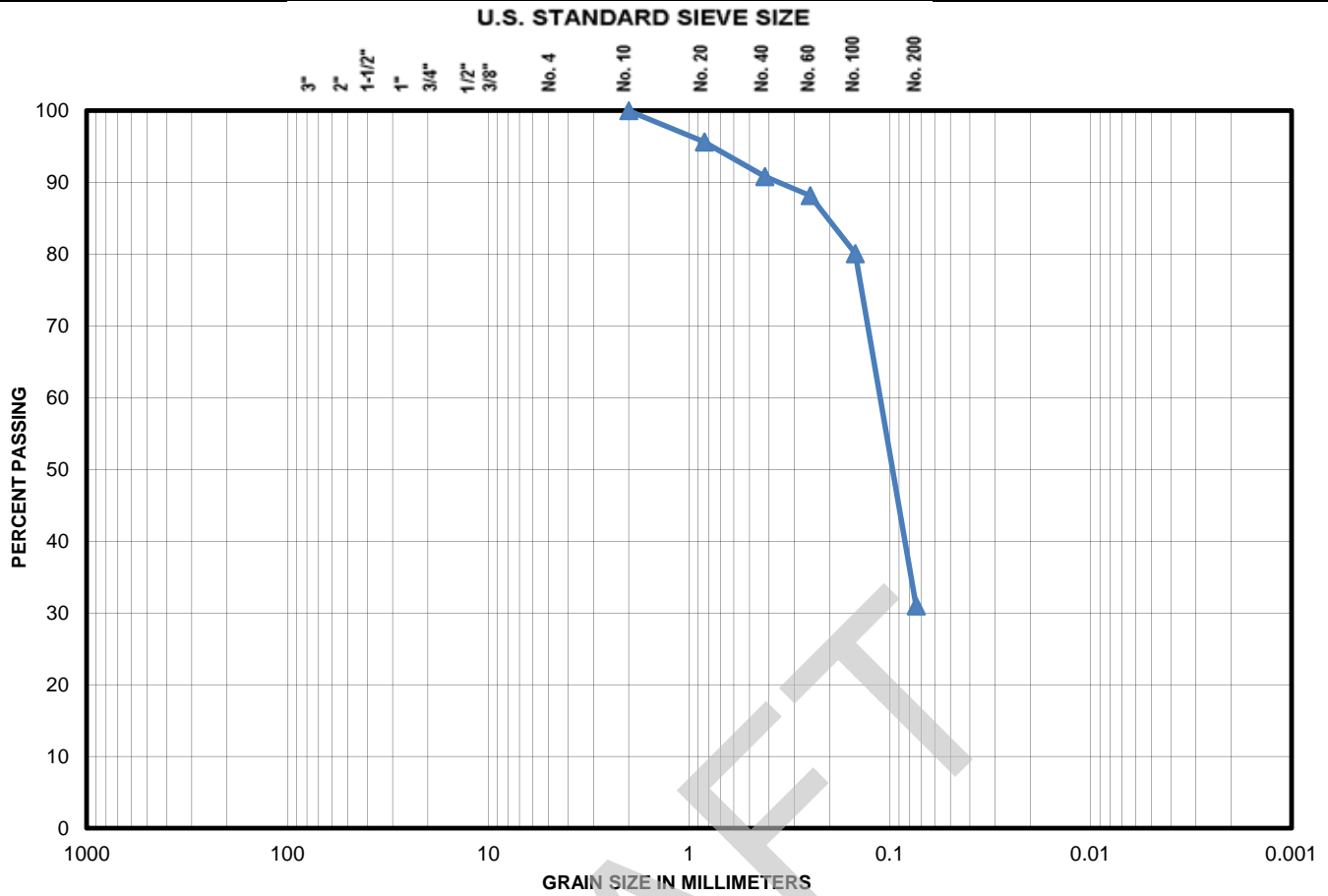


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	9.2		
Fine Gravel %	0.0	Fine Sand %	59.8		
Coarse Sand %	0.0	Fines (Silt & Clay) %	31.0		
USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	95.6
1"	#N/A	No. 40	90.8
3/4"	#N/A	No. 60	88.2
1/2"	#N/A	No. 100	80.1
3/8"	#N/A	No. 200	31.0

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA	Date Tested	8/6/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	IS-8A	Checked By	RW
Source/Depth (feet)	147.5 - 149	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



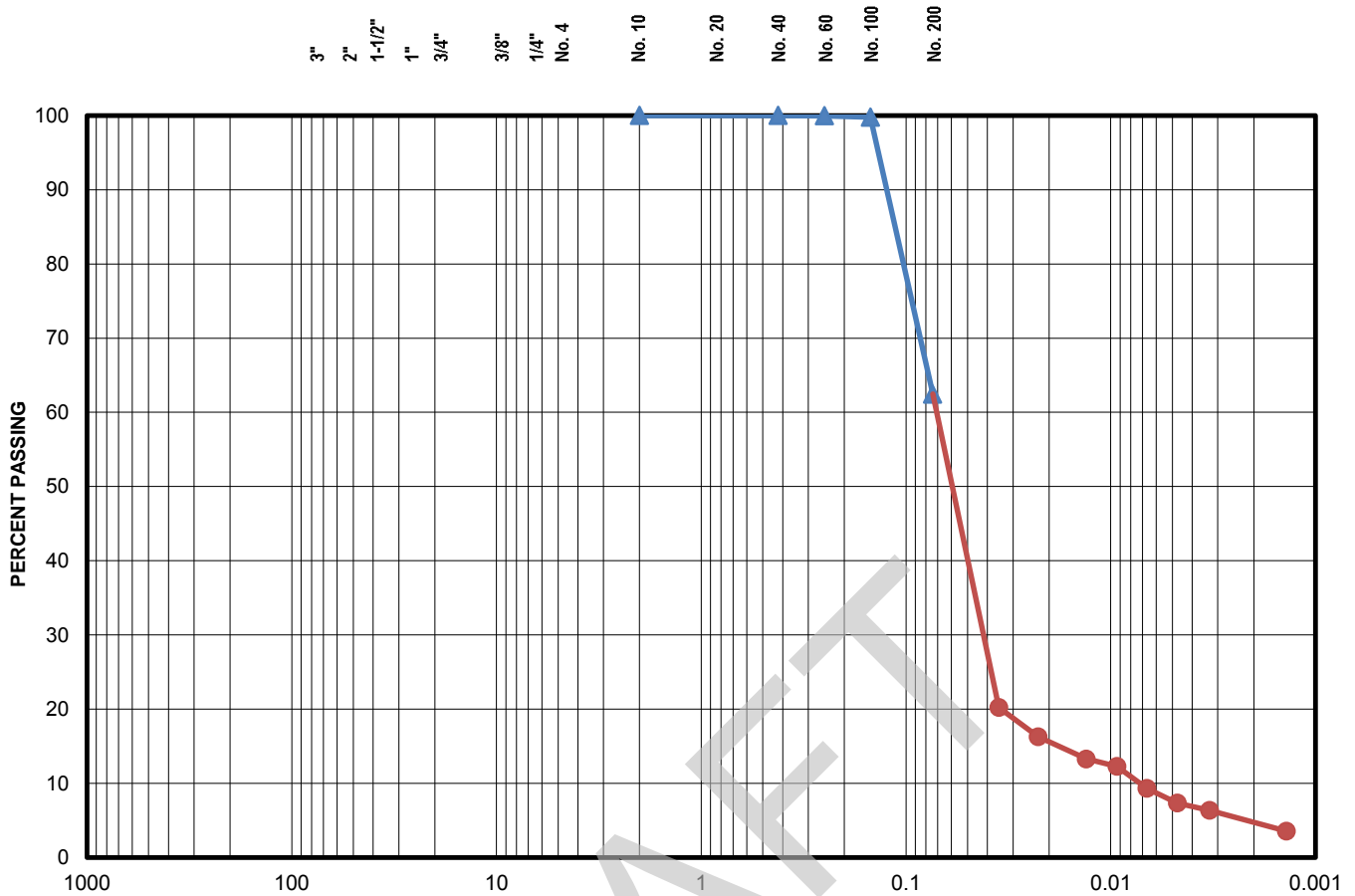
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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium dense gray sandy silt (ML)
-----------------------------	-----------------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.8
1/4"	100.0	No. 200	62.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	39278
Hydro jar ID:	10

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-153)	Date Tested	8/16/2013
Project No.	18274-001-00	Tested By	AB
Sample ID.	IS-8A	Checked By	TC
Source/Depth (feet)	26 - 27		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



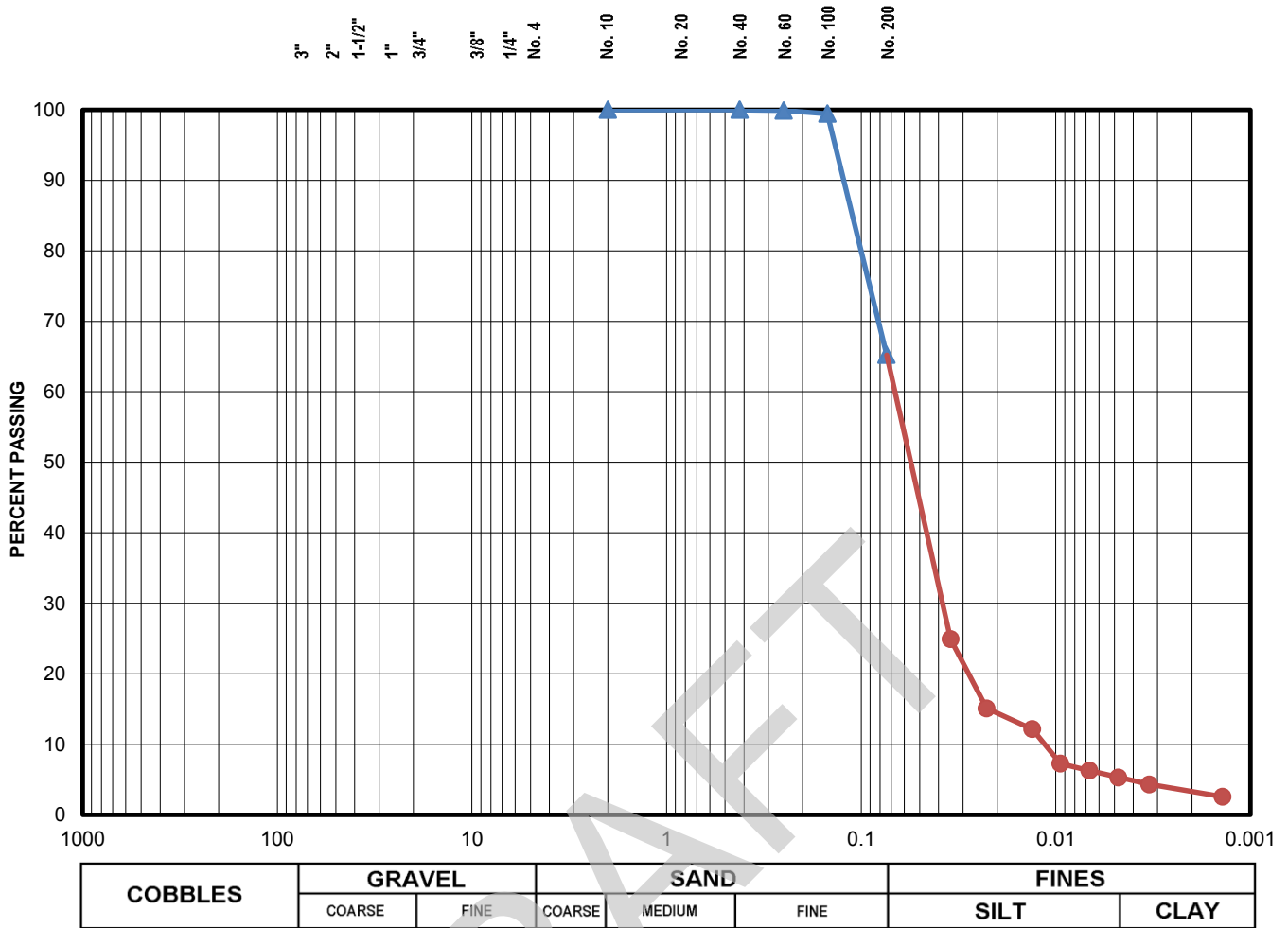
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



Description (D 2488) Loose gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	99.5
1/4"	100.0	No. 200	65.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	3000
Hydro jar ID:	10

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-153)	Date Tested	8/16/2013
Project No.	18274-001-00	Tested By	AB
Sample ID.	IS-8A	Checked By	TC
Source/Depth (feet)	30 - 31		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



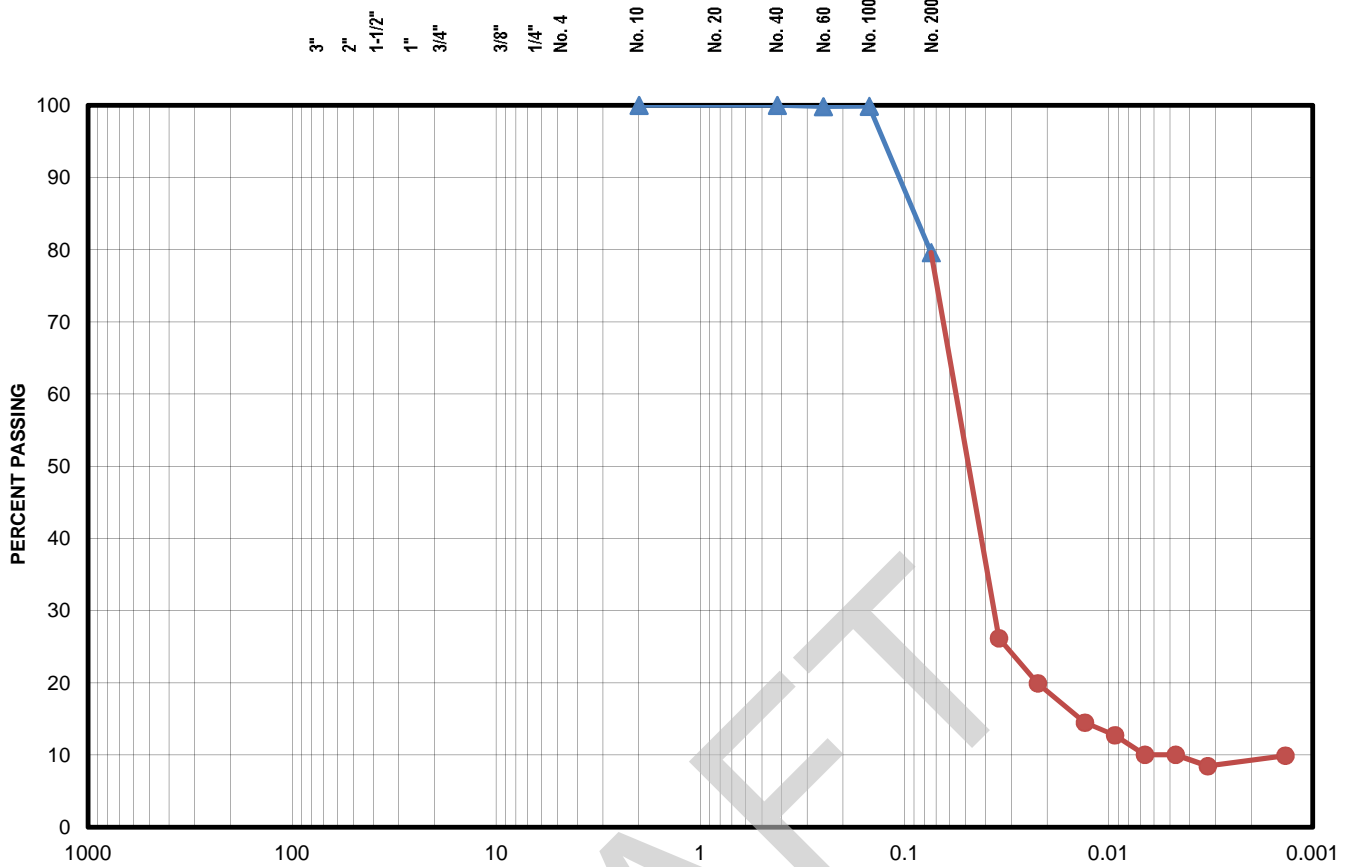
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium dense gray sandy silty with clay (ML)
-----------------------------	--

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.8
3/8"	100.0	No. 100	99.9
1/4"	100.0	No. 200	79.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1159

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	8/15/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	IS-8A	Checked By	SEF
Source/Depth (feet)	54 - 55		

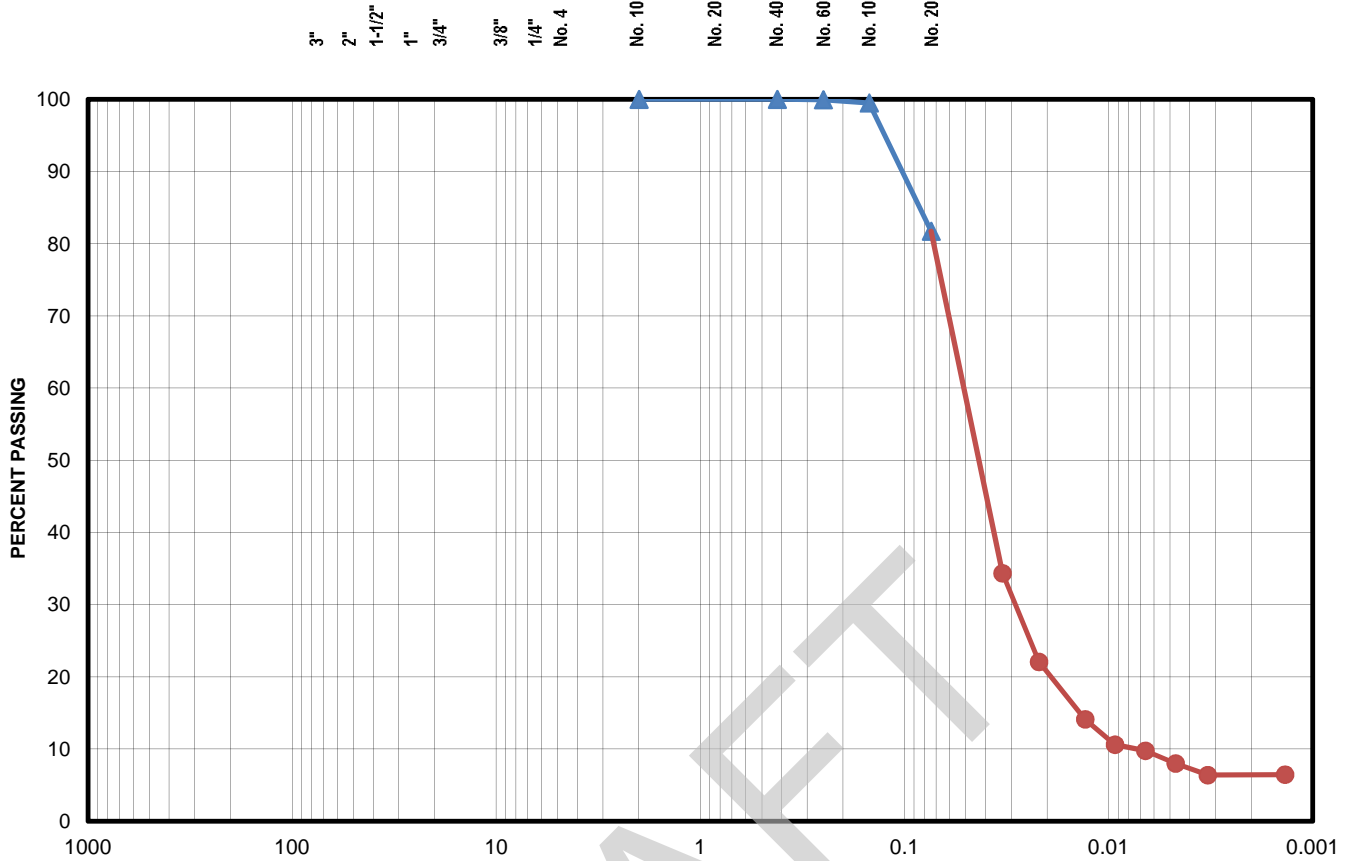
NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Loose gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	99.5
1/4"	100.0	No. 200	81.7

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1165

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	8/14/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	IS-8A	Checked By	SEF
Source/Depth (feet)	59 - 60		

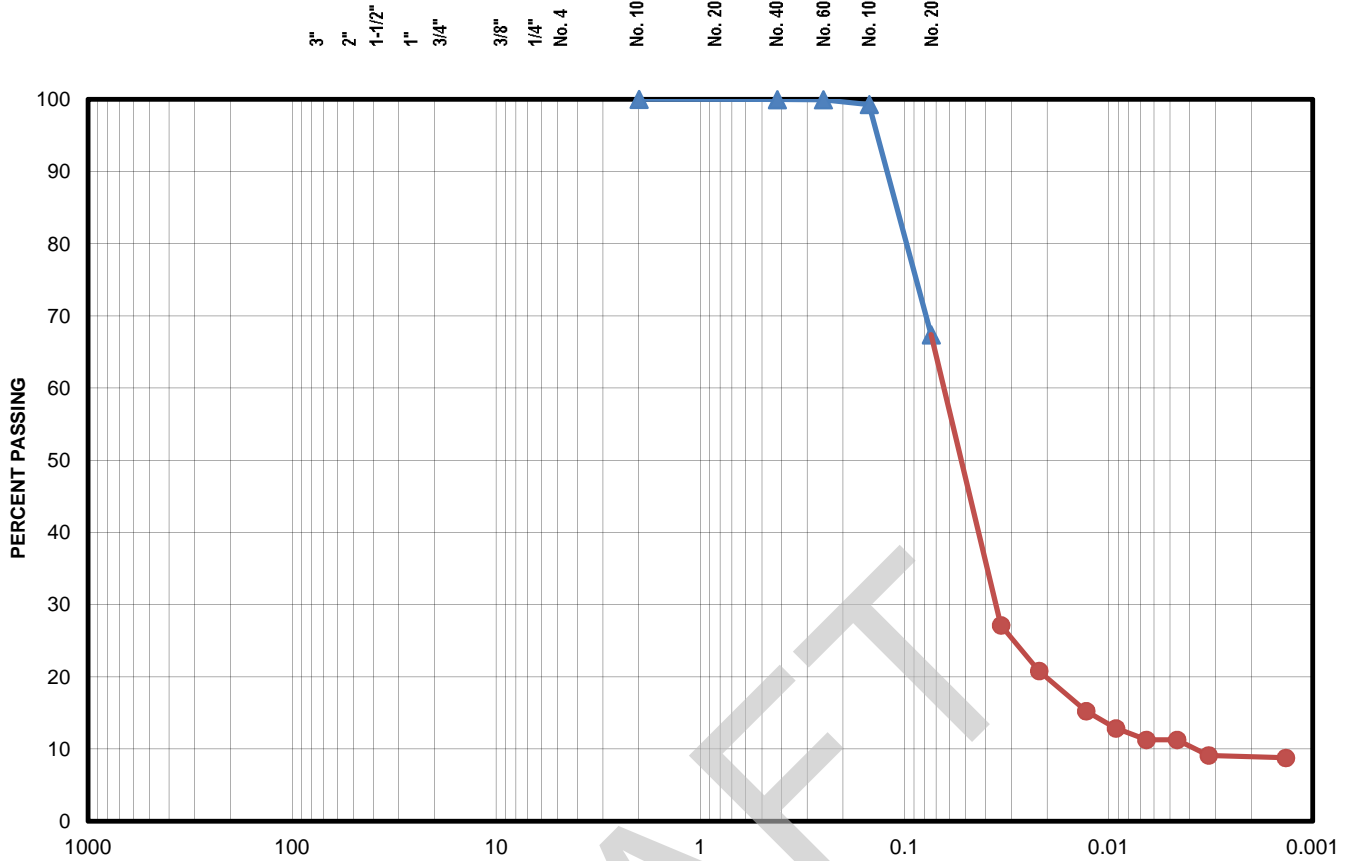
NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	99.3
1/4"	100.0	No. 200	67.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1147
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	8/15/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	IS-8A	Checked By	SEF
Source/Depth (feet)	63.5 - 65		

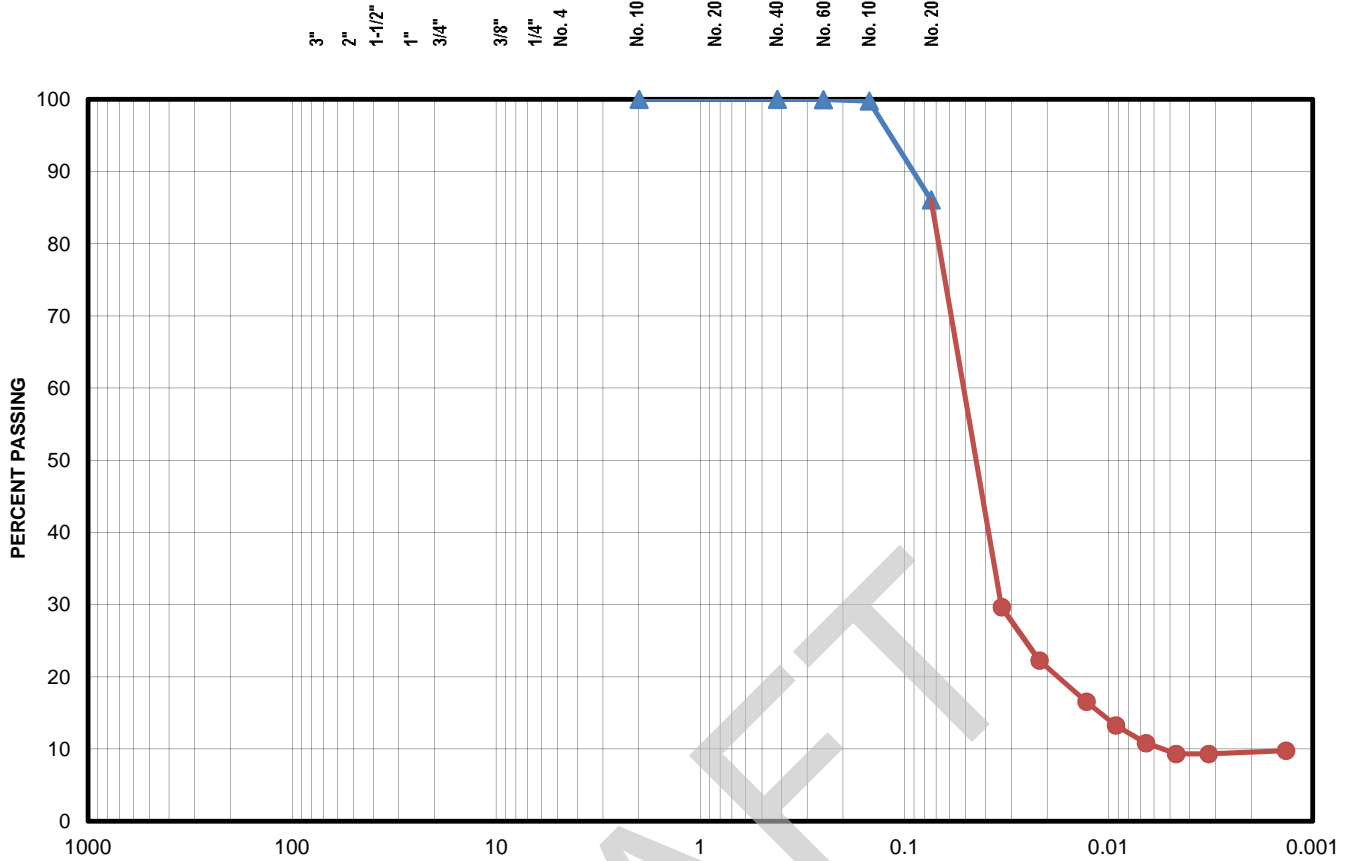
NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.8
1/4"	100.0	No. 200	86.1

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1146
Hydro jar ID:	1156

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	8/15/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	IS-8A	Checked By	SEF
Source/Depth (feet)	68.5 - 70		

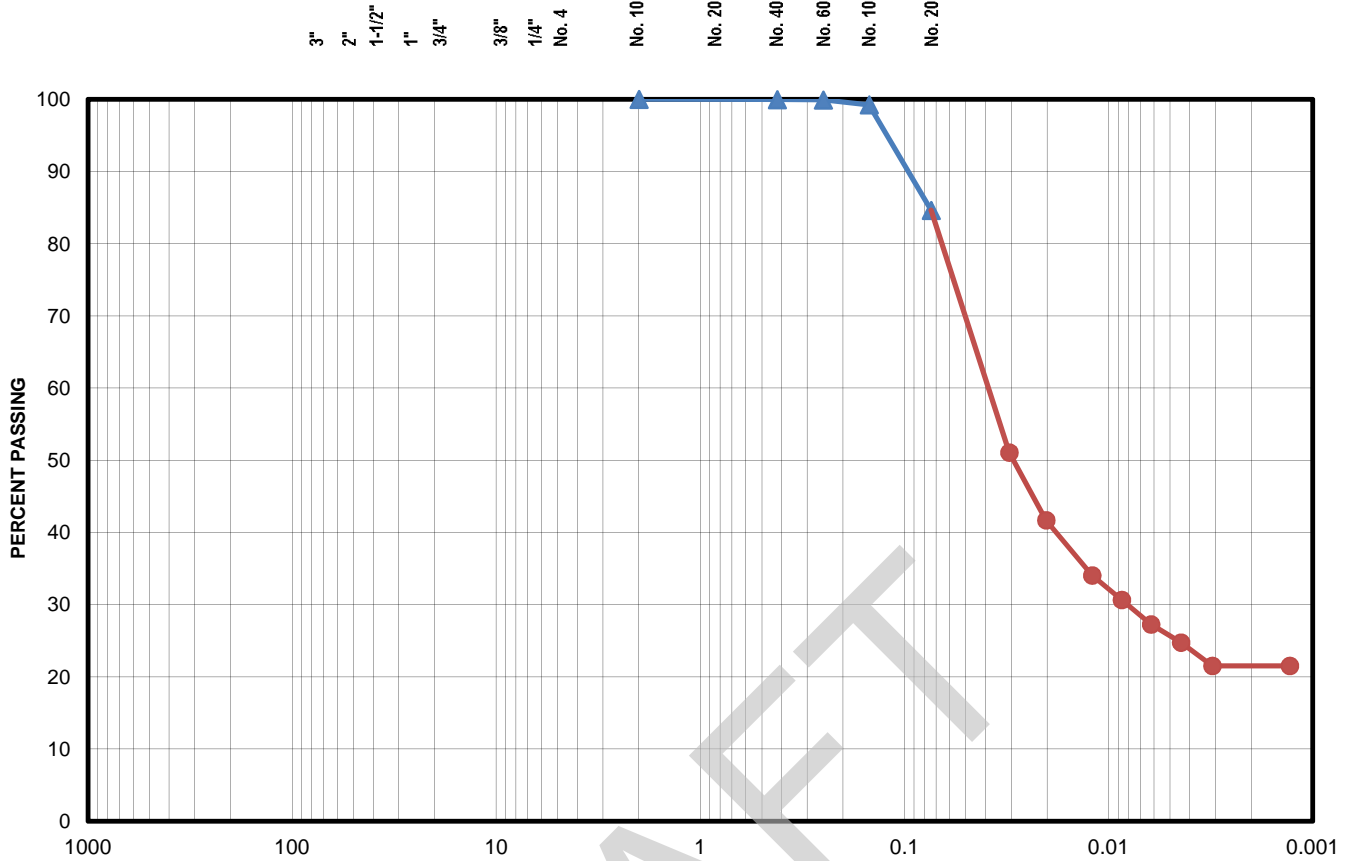
NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Loose gray sandy clayey silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	99.2
1/4"	100.0	No. 200	84.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	1158

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	8/15/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	IS-8A	Checked By	SEF
Source/Depth (feet)	81 - 82.5		

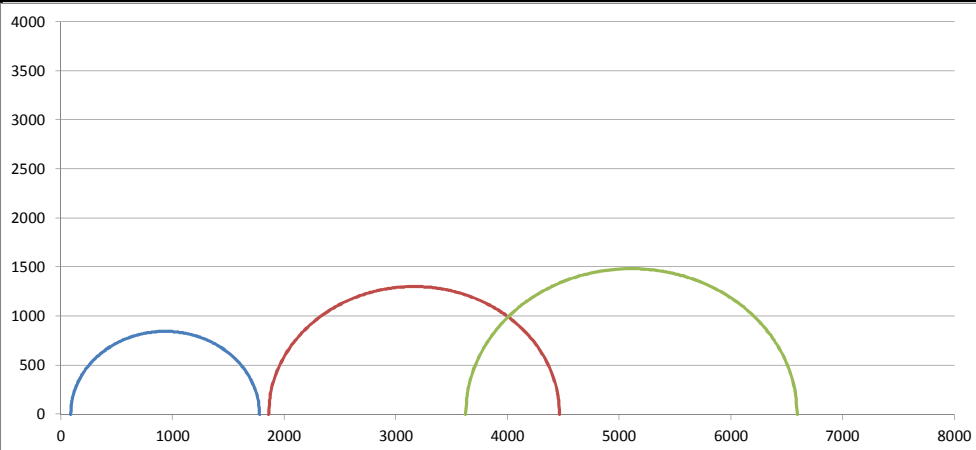
NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



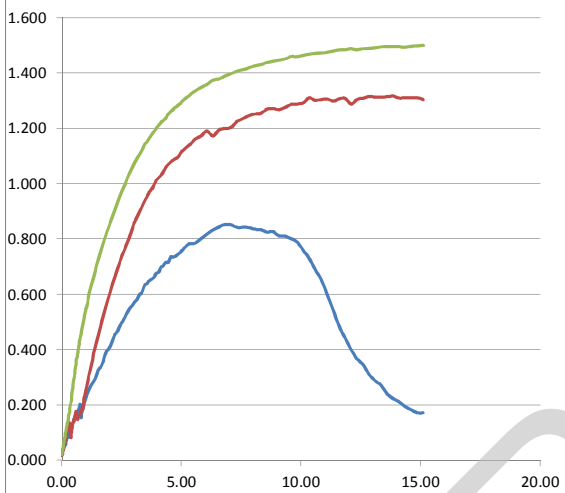
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	1303
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A

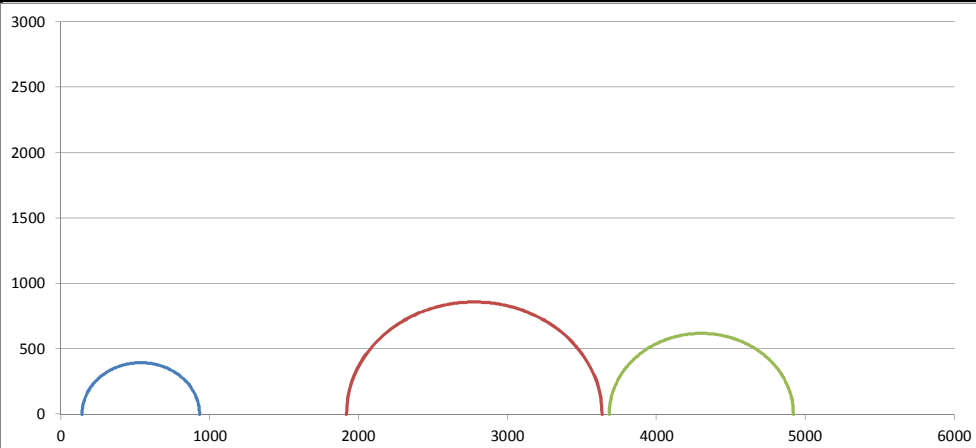


Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	31.63	31.08	30.55
	DRY DENSITY, PCF	89.37	88.60	89.09
	WET DENSITY, PCF	117.64	116.14	116.31
	SATURATION %	97.64	94.17	93.65
	VOID RATIO	0.87	0.88	0.87
AT TEST	WATER CONTENT %	39.33	31.77	30.02
	DRY DENSITY, PCF	117.64	116.14	116.31
	WET DENSITY, PCF	163.91	153.04	151.22
	SATURATION %	107.80	95.19	92.84
	VOID RATIO	0.97	0.89	0.86

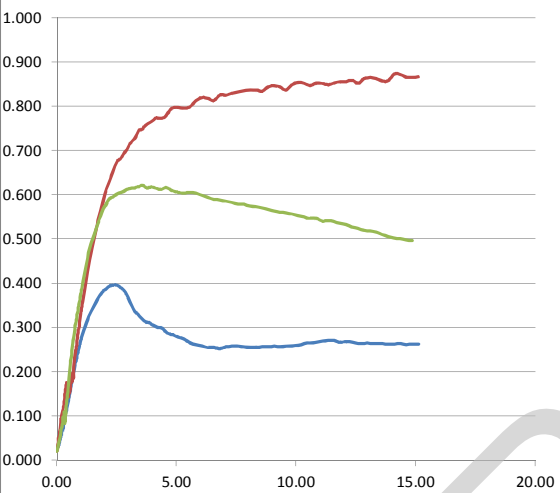
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.06	3.06	3.07
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.35	1.42	1.41
				CELL PRESSURE, PSI	0.30	12.90	25.20
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1692.00	2606.00	2970.00
REMARKS	0			STRAIN, %	6.80	12.84	14.85
				ULTIMATE STRESS, %	0.01	0.01	0.02
				σ_1 FAILURE, PSF	1778.40	4465.04	6593.04
				σ_3 FAILURE, PSF	86.40	1859.04	3623.04

SAMPLE DESCRIPTION		Stiff brown and gray clay with silt and shells (CL6)					
BORING NO.	IS-8A	SAMPLE NO.	1	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	7/11/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	1 - 1.8				
TESTED BY	JK/jk/jk	CHECKED BY	os/os/os/sc				

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	619
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



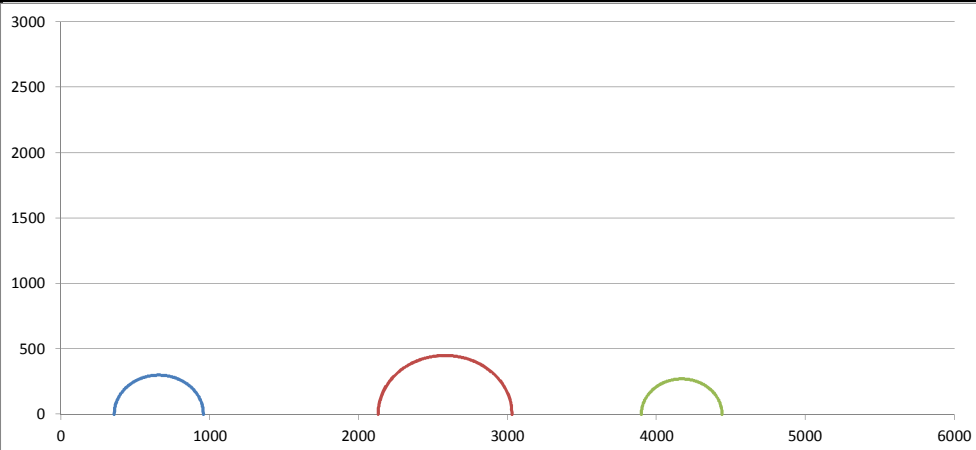
Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	44.66	44.38	41.98
	DRY DENSITY, PCF	75.28	76.02	72.54
	WET DENSITY, PCF	108.89	109.76	102.99
	SATURATION %	98.20	99.35	86.37
	VOID RATIO	1.21	1.19	1.30
AT TEST	WATER CONTENT %	42.64	42.19	47.46
	DRY DENSITY, PCF	108.89	109.76	102.99
	WET DENSITY, PCF	155.32	156.07	151.87
	SATURATION %	96.21	97.17	91.39
	VOID RATIO	1.18	1.16	1.39

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.17	3.07	3.09
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.38	1.36	1.41
				CELL PRESSURE, PSI	1.00	13.30	25.60
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	790.00	1718.00	1238.00
REMARKS	0			STRAIN, %	2.45	14.10	3.55
				ULTIMATE STRESS, %	0.00	0.01	0.00
				σ_1 FAILURE, PSF	931.12	3634.64	4920.08
				σ_3 FAILURE, PSF	141.12	1916.64	3682.08

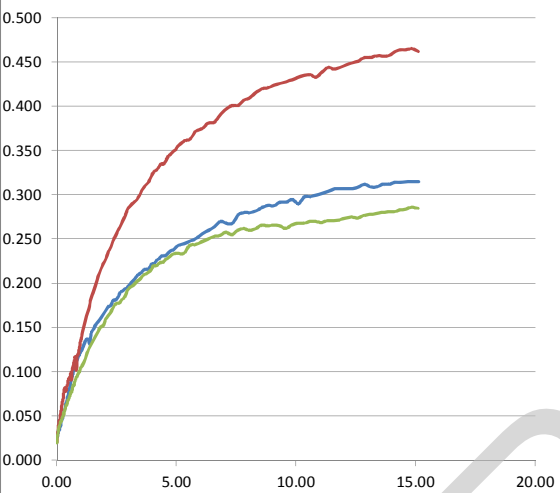
SAMPLE DESCRIPTION		Medium brown and gray clay (CH3)					
BORING NO.	IS-8A	SAMPLE NO.	2	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	7/15/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	2.1 - 3				
TESTED BY	JK/JK/JK	CHECKED BY	OS/OS/OS/os				

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RESULTS	
C, PSF	300
Sample 1 Failure	Bulge
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



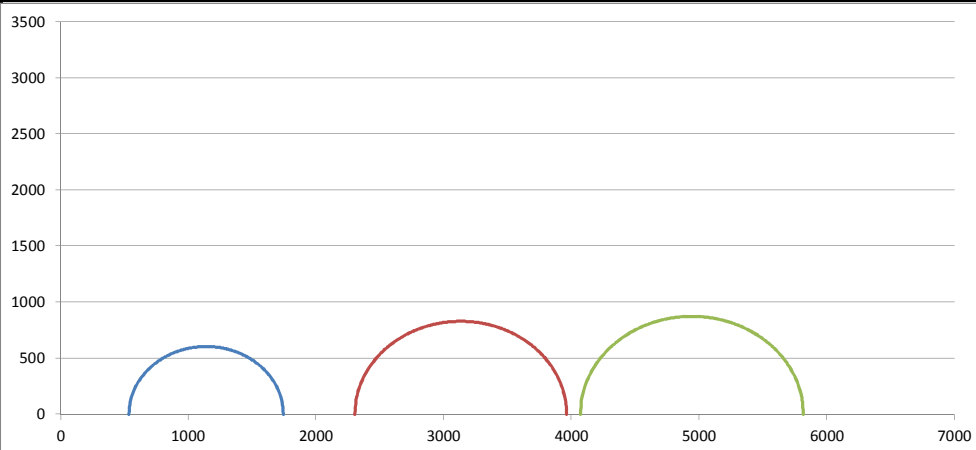
Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	40.61	40.06	42.54
	DRY DENSITY, PCF	83.55	81.62	80.33
	WET DENSITY, PCF	117.48	114.32	114.51
	SATURATION %	108.97	102.64	105.68
	VOID RATIO	1.00	1.04	1.07
AT TEST	WATER CONTENT %	37.74	36.99	40.29
	DRY DENSITY, PCF	117.48	114.32	114.51
	WET DENSITY, PCF	161.82	156.61	160.64
	SATURATION %	105.59	99.02	103.23
	VOID RATIO	0.95	1.00	1.04

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.01	3.00	3.00
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.33	1.39	1.39
				CELL PRESSURE, PSI	2.50	14.80	27.10
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	600.00	900.00	542.00
REMARKS	0			STRAIN, %	14.11	14.59	14.83
				ULTIMATE STRESS, %	0.01	0.01	0.01
				σ_1 FAILURE, PSF	957.12	3029.76	4440.08
				σ_3 FAILURE, PSF	357.12	2129.76	3898.08

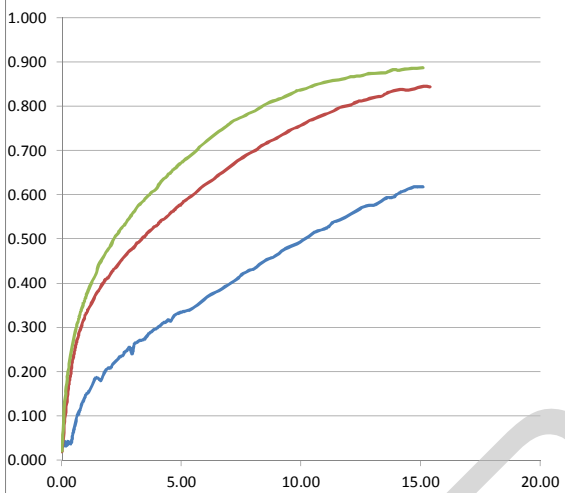
SAMPLE DESCRIPTION	Soft gray clay (CH2)						
BORING NO.	IS-8A	SAMPLE NO.	3	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	7/10/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	6 - 7				
TESTED BY	jk/jk/jk	CHECKED BY	sc/sc/sc/				

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	830
Sample 1 Failure	Yield
Sample 2 Failure	Yield
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



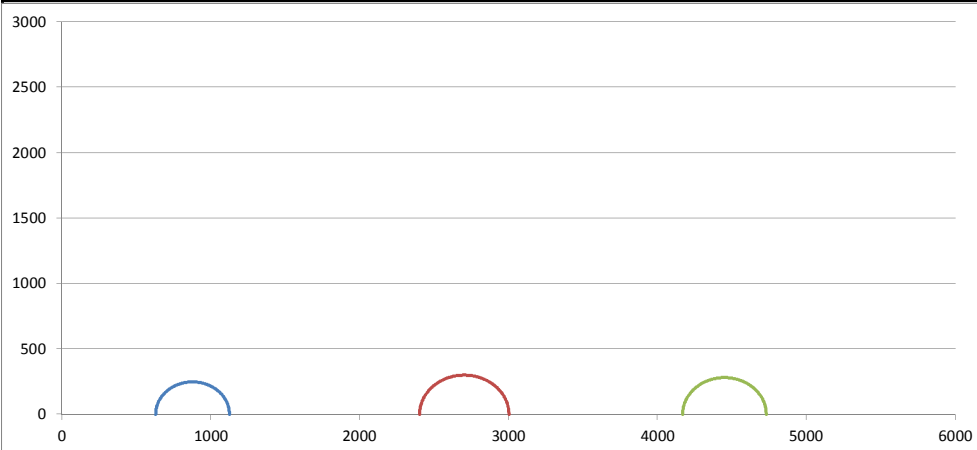
Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	37.99	38.34	38.65
	DRY DENSITY, PCF	83.35	84.97	83.62
	WET DENSITY, PCF	115.01	117.55	115.94
	SATURATION %	101.45	106.47	103.89
	VOID RATIO	1.00	0.96	0.99
AT TEST	WATER CONTENT %	38.29	37.47	38.76
	DRY DENSITY, PCF	116.01	117.55	115.94
	WET DENSITY, PCF	159.05	161.60	160.88
	SATURATION %	101.81	105.39	104.02
	VOID RATIO	1.00	0.95	0.99

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.04	3.07	3.11
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.39	1.40	1.43
				CELL PRESSURE, PSI	3.70	16.00	28.30
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1210.00	1660.00	1748.00
REMARKS	0			STRAIN, %	14.84	15.12	15.34
				ULTIMATE STRESS, %	0.02	0.02	0.01
				σ_1 FAILURE, PSF	1742.80	3962.56	5817.44
				σ_3 FAILURE, PSF	532.80	2302.56	4069.44

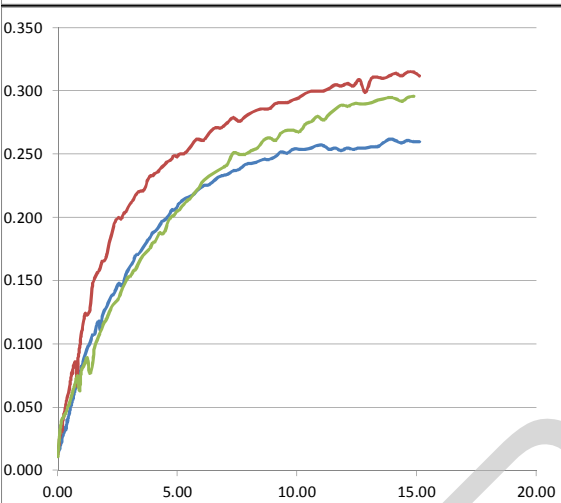
SAMPLE DESCRIPTION		Medium gray clay (CL6)					
BORING NO.	IS-8A	SAMPLE NO.	4	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	7/11/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	9.4 - 10				
TESTED BY	JK/jk/jk	CHECKED BY	os/os/os/				

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	281
Sample 1 Failure	Bulge
Sample 2 Failure	Bulge
Sample 3 Failure	Bulge
Sample 4 Failure	#N/A



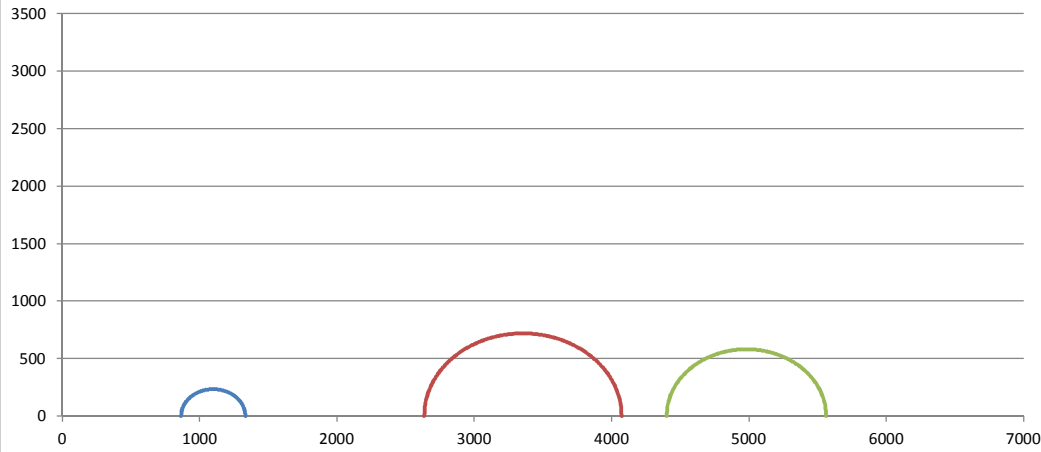
	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	41.01	41.58	40.93
	DRY DENSITY, PCF	82.49	82.29	82.33
	WET DENSITY, PCF	116.32	116.51	116.03
	SATURATION %	107.28	108.27	106.67
	VOID RATIO	1.02	1.03	1.02
AT TEST	WATER CONTENT %	40.45	40.04	39.47
	DRY DENSITY, PCF	116.32	116.51	116.03
	WET DENSITY, PCF	163.37	163.16	161.83
	SATURATION %	106.65	106.54	105.02
	VOID RATIO	1.01	1.00	1.00

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	2.95	3.00	2.95
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.39	1.33	1.38
				CELL PRESSURE, PSI	4.40	16.70	29.00
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	496.00	600.00	562.00
REMARKS	0			STRAIN, %	13.85	14.61	13.61
				ULTIMATE STRESS, %	0.01	0.02	0.01
				σ_1 FAILURE, PSF	1125.28	3001.92	4730.80
				σ_3 FAILURE, PSF	629.28	2401.92	4168.80

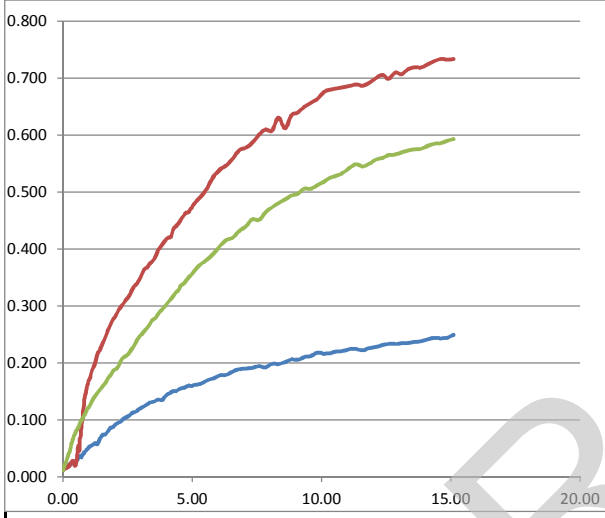
SAMPLE DESCRIPTION	Very soft gray clay (CL6)						
BORING NO.	IS-8A	SAMPLE NO.	4	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	7/11/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	11 - 12				
TESTED BY	jk/jk/jk	CHECKED BY	sc/sc/sc/				

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	581
Sample 1 Failure	Yield
Sample 2 Failure	Yield
Sample 3 Failure	Yield
Sample 4 Failure	#N/A



Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	33.11	33.72	32.64
	DRY DENSITY, PCF	84.58	83.64	84.62
	WET DENSITY, PCF	112.59	111.84	112.24
	SATURATION %	91.08	90.67	89.86
	VOID RATIO	0.97	0.99	0.97
AT TEST	WATER CONTENT %	32.23	29.99	30.59
	DRY DENSITY, PCF	112.59	111.84	112.24
	WET DENSITY, PCF	148.87	145.39	146.57
	SATURATION %	89.86	85.43	86.94
	VOID RATIO	0.96	0.94	0.94

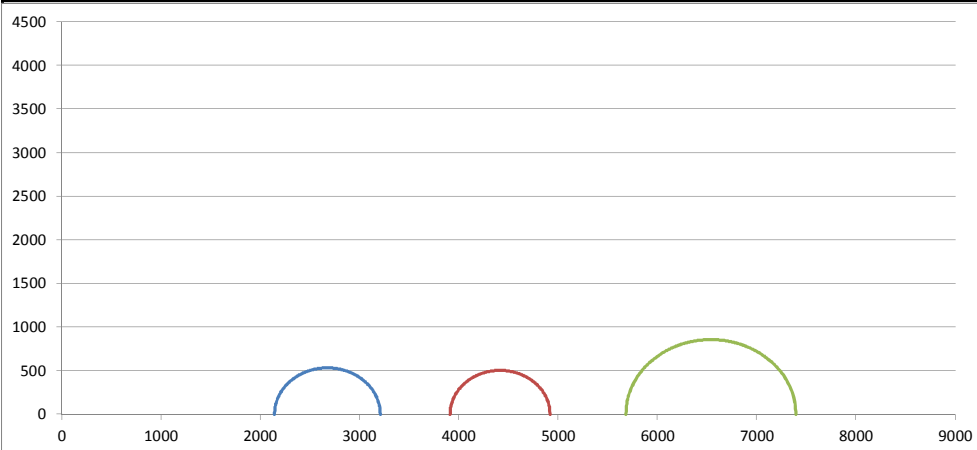
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.24	3.03	3.11
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.41	1.36	1.38
				CELL PRESSURE, PSI	6.00	18.30	30.60
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	468.00	1438.00	1162.00
REMARKS	0			STRAIN, %	15.11	14.61	15.37
				ULTIMATE STRESS, %	0.01	0.02	0.02
				σ_1 FAILURE, PSF	1333.44	4073.20	5562.64
				σ_3 FAILURE, PSF	865.44	2635.20	4400.64

SAMPLE DESCRIPTION: Loose gray clayey silt (ML)

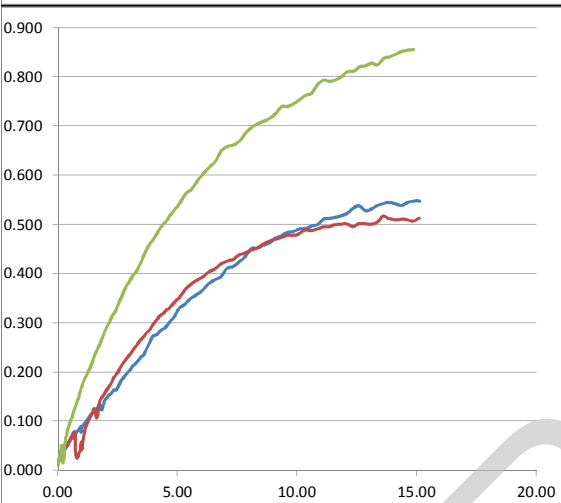
BORING NO.	IS-8A	SAMPLE NO.	5	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	7/11/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	15 - 16		
TESTED BY	jk/jk/jk	CHECKED BY	sc/sc/sc/		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	533
Sample 1 Failure	Yield
Sample 2 Failure	Yield
Sample 3 Failure	Yield
Sample 4 Failure	#N/A



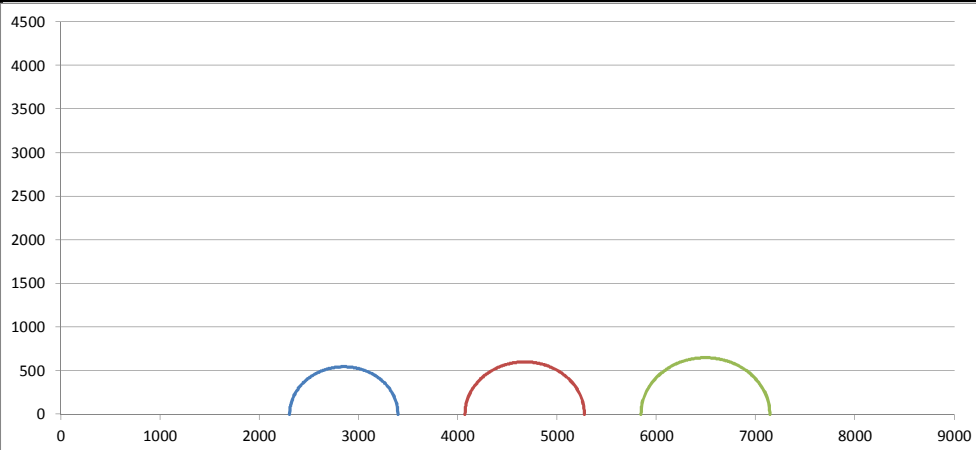
Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	30.40	29.99	30.81
	DRY DENSITY, PCF	100.00	96.13	93.28
	WET DENSITY, PCF	130.40	124.96	122.03
	SATURATION %	121.73	109.11	104.56
	VOID RATIO	0.67	0.73	0.79
AT TEST	WATER CONTENT %	30.75	31.30	30.86
	DRY DENSITY, PCF	130.40	124.96	122.03
	WET DENSITY, PCF	170.51	164.08	159.69
	SATURATION %	122.32	111.23	104.64
	VOID RATIO	0.67	0.75	0.79

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.02	3.04	3.05
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.35	1.41	1.42
				CELL PRESSURE, PSI	14.90	27.20	39.50
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1066.00	1008.00	1714.00
REMARKS	0			STRAIN, %	15.12	13.58	15.12
				ULTIMATE STRESS, %	0.02	0.01	0.01
				σ_1 FAILURE, PSF	3207.28	4917.60	7394.80
				σ_3 FAILURE, PSF	2141.28	3909.60	5680.80

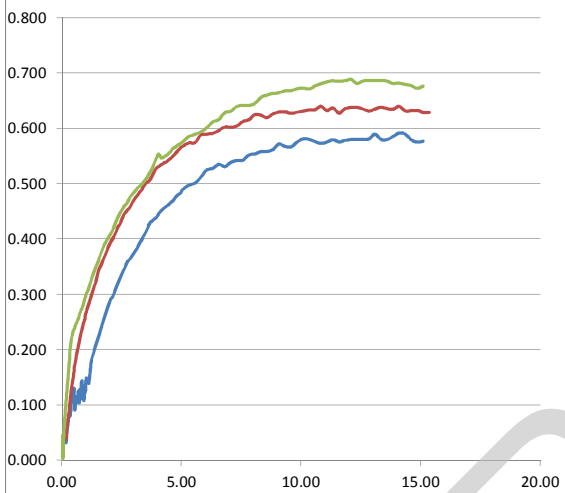
SAMPLE DESCRIPTION		Soft gray clay with sand lenses (CL4)					
BORING NO.	IS-8A	SAMPLE NO.	11	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	7/11/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	38.1 - 39				
TESTED BY	jk/jk/jk	CHECKED BY	sc/sc/sc/clp				

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	602
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Bulge
Sample 3 Failure	Bulge
Sample 4 Failure	#N/A



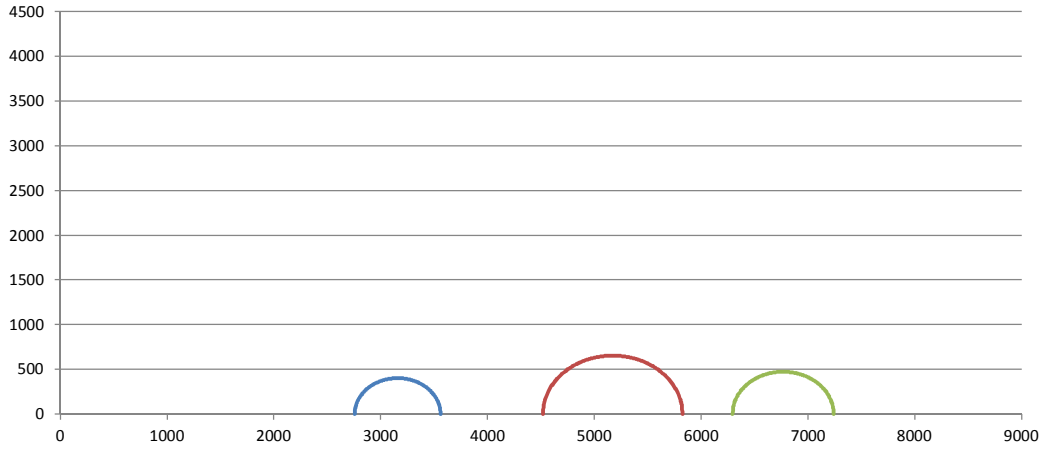
Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	36.84	37.63	37.86
	DRY DENSITY, PCF	84.62	85.00	84.21
	WET DENSITY, PCF	115.79	116.98	116.09
	SATURATION %	101.42	104.55	103.22
	VOID RATIO	0.97	0.96	0.98
AT TEST	WATER CONTENT %	37.88	38.07	36.44
	DRY DENSITY, PCF	116.79	116.98	116.09
	WET DENSITY, PCF	159.66	161.52	158.39
	SATURATION %	102.71	105.08	101.45
	VOID RATIO	0.98	0.97	0.96

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.08	3.02	2.82
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.41	1.38	1.38
				CELL PRESSURE, PSI	16.00	28.30	40.60
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1091.23	1203.50	1298.76
REMARKS	0			STRAIN, %	10.06	10.82	11.33
				ULTIMATE STRESS, %	0.04	0.04	0.04
				σ_1 FAILURE, PSF	3395.02	5274.07	7141.92
				σ_3 FAILURE, PSF	2303.79	4070.57	5843.16

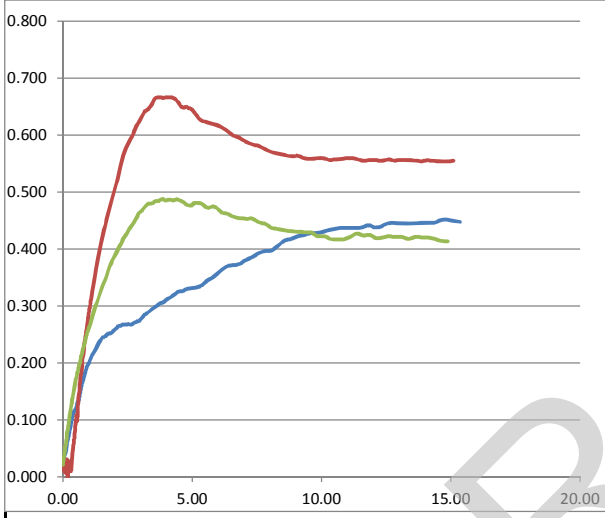
SAMPLE DESCRIPTION	Medium gray clay (CL6)						
BORING NO.	IS-8A	SAMPLE NO.	12	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	7/11/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	41 - 42				
TESTED BY	JK/JK/JK	CHECKED BY	OS/OS/OS/clp				

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	473
Sample 1 Failure	SLS 45°
Sample 2 Failure	SLS
Sample 3 Failure	SLS
Sample 4 Failure	#N/A



Specimen No.	1	2	3
INITIAL WATER CONTENT %	41.10	45.27	48.76
INITIAL DRY DENSITY, PCF	80.98	79.73	74.20
INITIAL WET DENSITY, PCF	114.26	115.83	110.39
INITIAL SATURATION %	103.69	110.84	104.47
INITIAL VOID RATIO	1.06	1.09	1.25
AT TEST WATER CONTENT %	42.82	45.55	49.87
AT TEST DRY DENSITY, PCF	114.26	115.83	110.39
AT TEST WET DENSITY, PCF	163.19	168.59	165.43
AT TEST SATURATION %	105.52	111.12	105.42
AT TEST VOID RATIO	1.08	1.09	1.26

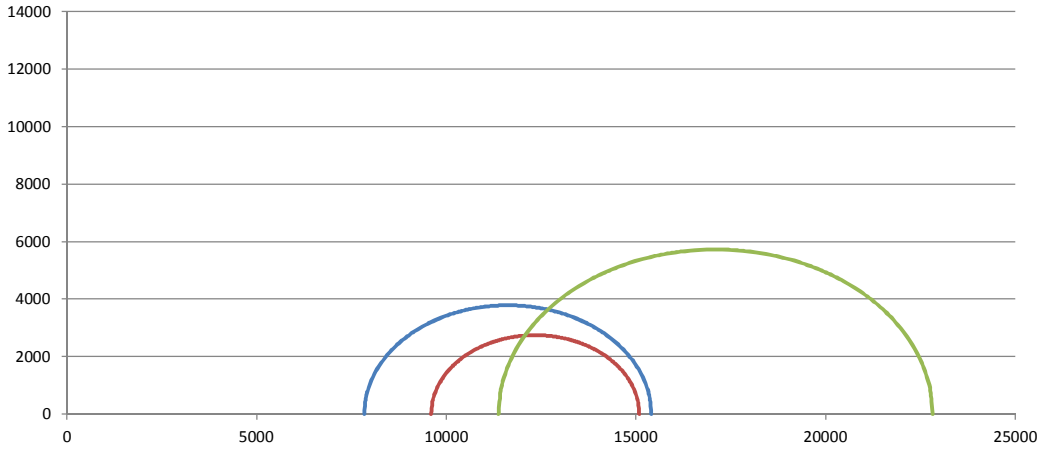
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.04	3.06	3.08
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.40	1.42	1.43
				CELL PRESSURE, PSI	19.10	31.40	43.70
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	803.96	1306.68	946.69
REMARKS 0				STRAIN, %	12.59	3.66	3.87
				ULTIMATE STRESS, %	0.04	0.01	0.01
				σ_1 FAILURE, PSF	3560.45	5825.72	7240.68
				σ_3 FAILURE, PSF	2756.49	4519.04	6293.99

SAMPLE DESCRIPTION Medium gray clay with 3 1/2" silty sand layer, sand seams and sand pockets (CL6)

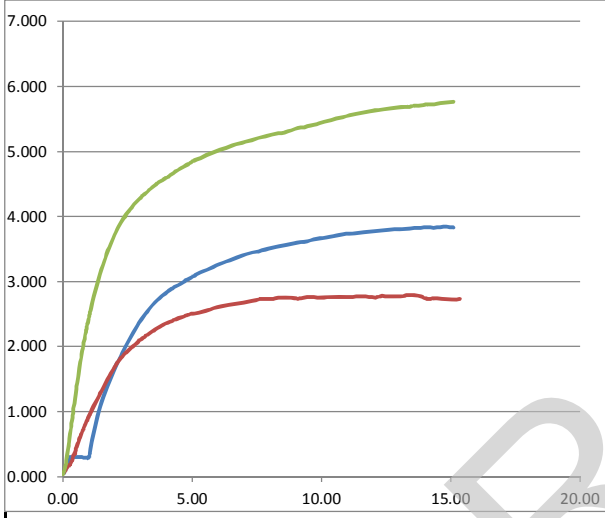
BORING NO.	IS-8A	SAMPLE NO.	15	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	7/11/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	49 - 50		
TESTED BY	jk/mm/rw/jk/mm/jk/mm		CHECKED BY	sc/sc/sc/	

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	3784
Sample 1 Failure	Yield
Sample 2 Failure	Bulge
Sample 3 Failure	Yield
Sample 4 Failure	#N/A



Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	18.36	18.34	18.68
	DRY DENSITY, PCF	110.73	112.24	110.62
	WET DENSITY, PCF	131.06	132.83	131.28
	SATURATION %	96.99	100.97	98.40
	VOID RATIO	0.51	0.49	0.51
AT TEST	WATER CONTENT %	19.61	19.76	19.46
	DRY DENSITY, PCF	131.06	132.83	131.28
	WET DENSITY, PCF	156.76	159.08	156.82
	SATURATION %	100.45	104.93	100.53
	VOID RATIO	0.52	0.50	0.52

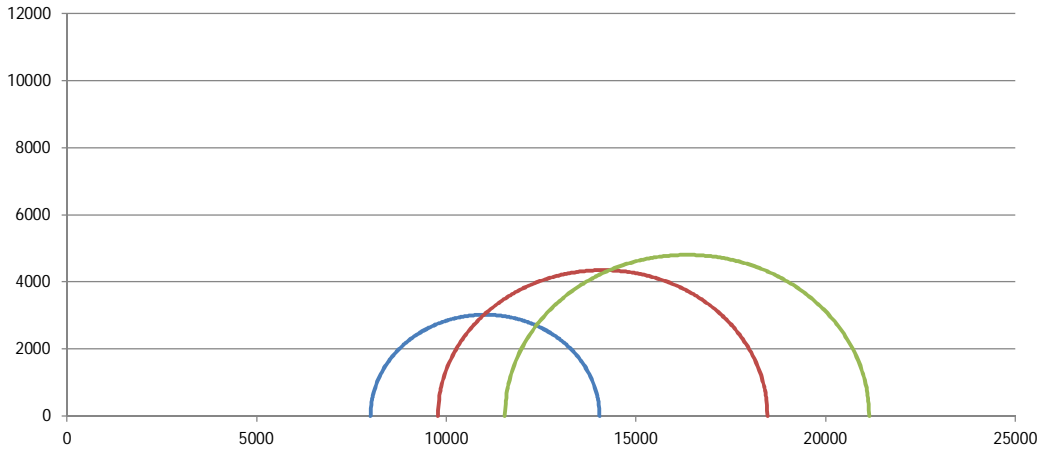
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.39	3.22	3.16
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.38	1.39	1.40
				CELL PRESSURE, PSI	54.40	66.70	79.00
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	7568.21	5486.49	11445.73
REMARKS	0			STRAIN, %	14.84	13.34	15.35
				ULTIMATE STRESS, %	0.06	0.05	0.06
				σ_1 FAILURE, PSF	15405.22	15087.50	22821.42
				σ_3 FAILURE, PSF	7837.01	9601.02	11375.69

SAMPLE DESCRIPTION: Very stiff light gray clay with sand pockets and seams (CL4)

BORING NO.	IS-8A	SAMPLE NO.	49	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	7/13/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	140.5 - 141.5		
TESTED BY	jk/jk/jk	CHECKED BY	sc/sc/sc/		

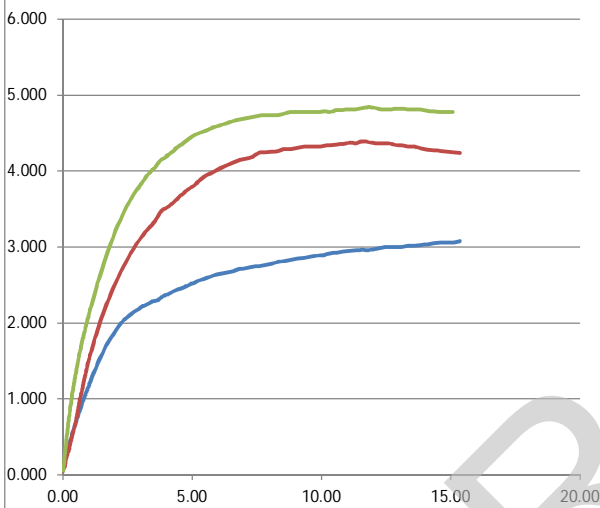
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Data Entry Sheet For Compression - 2010 Version



RESULTS

C, PSF	4348
Sample 1 Failure	Yield
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	22.31	21.78	21.50
	DRY DENSITY, PCF	105.58	105.50	104.34
	WET DENSITY, PCF	129.14	128.47	126.77
	SATURATION %	102.94	100.24	96.07
	VOID RATIO	0.58	0.58	0.60
AT TEST	WATER CONTENT %	23.16	22.49	21.69
	DRY DENSITY, PCF	129.14	128.47	126.77
	WET DENSITY, PCF	159.04	157.36	154.26
	SATURATION %	104.86	101.90	96.51
	VOID RATIO	0.59	0.59	0.60

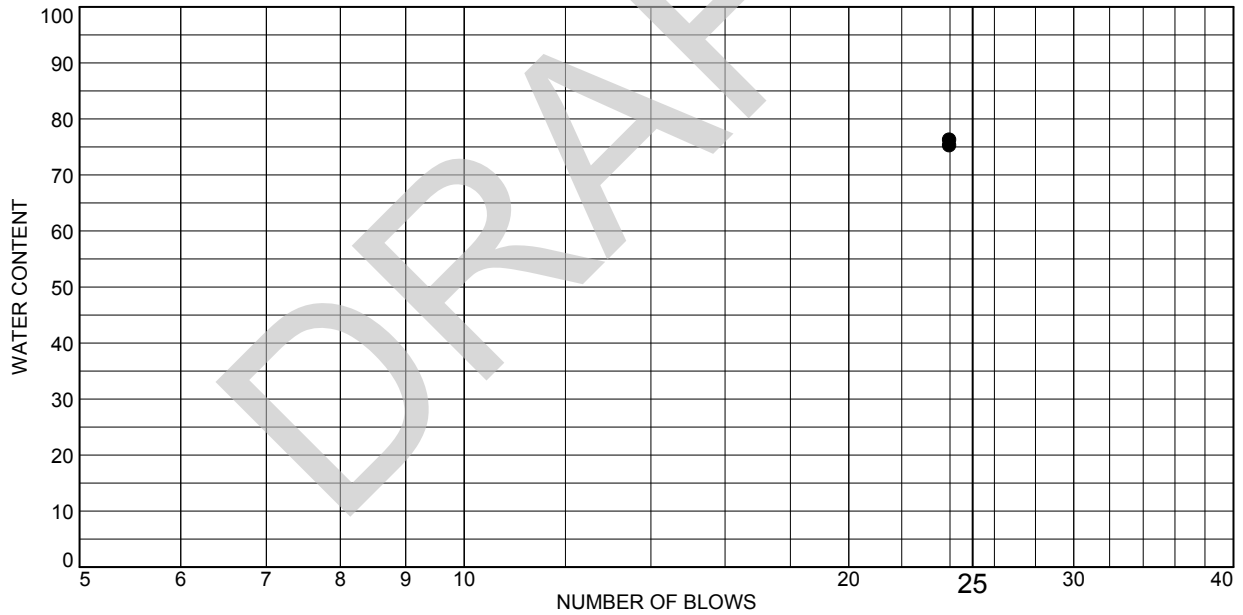
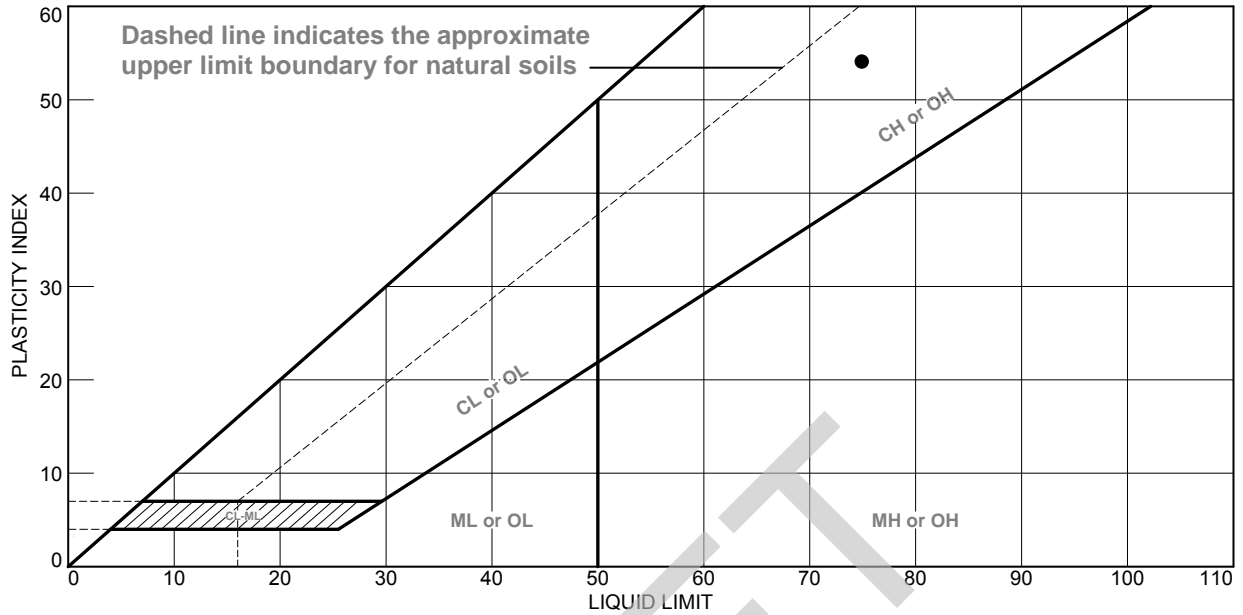
TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.14	3.26	2.94
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.38	1.40	1.43
				CELL PRESSURE, PSI	55.60	67.90	80.20
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	6040.30	8696.54	9610.35
REMARKS	0			STRAIN, %	15.35	11.59	11.82
				ULTIMATE STRESS, %	0.06	0.04	0.04
				σ_1 FAILURE, PSF	14041.17	18472.49	21154.07
				σ_3 FAILURE, PSF	8000.88	9775.95	11543.73

SAMPLE DESCRIPTION: Very stiff light gray clay with sand streaks (CL4)

BORING NO.	IS-8A	SAMPLE NO.	50	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	7/14/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	143.5 - 144.5		
TESTED BY	jk/jk/jk	CHECKED BY	sc/sc/sc/		

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LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Medium, Gray and Brown Fat CLAY with Ferrous Nodules and Trace Shells	75	21	54			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-9A **Depth:** 3-4

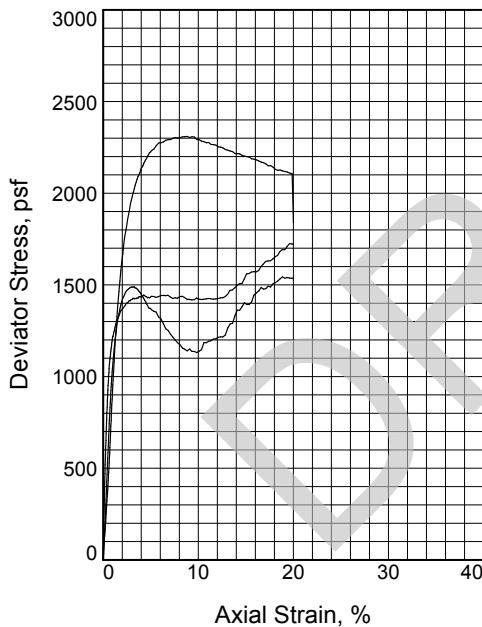
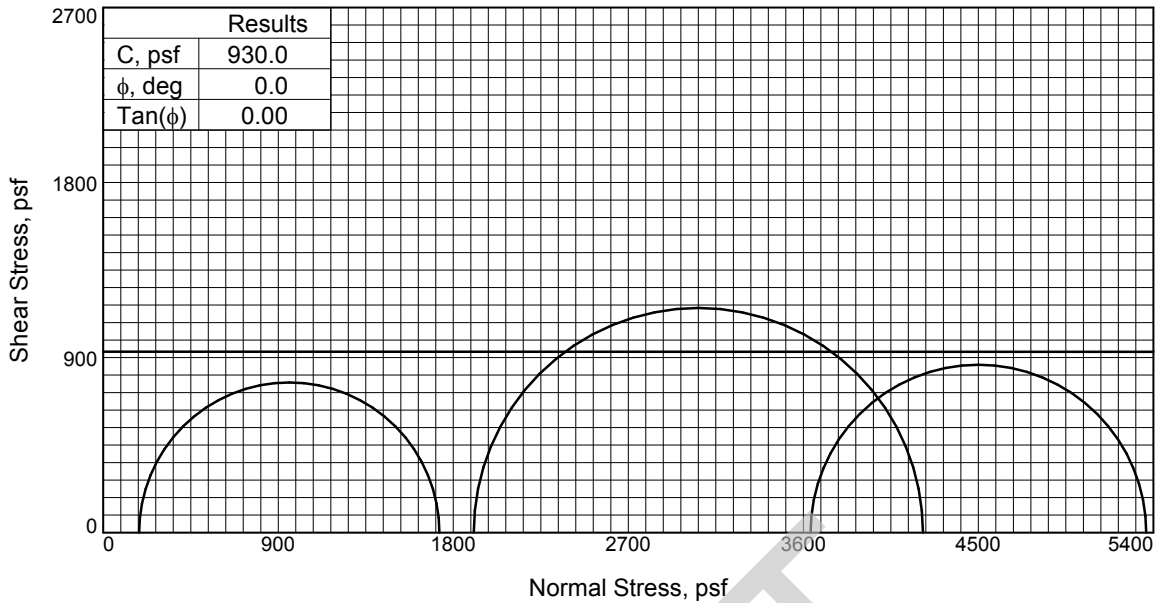
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

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Sample No.	1	2	3	
Initial	Water Content, %	37.2	29.8	37.6
	Dry Density, pcf	84.8	89.7	84.6
	Saturation, %	98.0	88.0	98.7
	Void Ratio	1.0618	0.9496	1.0664
	Diameter, in.	1.406	1.420	1.406
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	37.9	33.9	38.1
	Dry Density, pcf	84.8	89.7	84.6
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.0618	0.9496	1.0664
Diameter, in.	1.406	1.420	1.406	
Height, in.	2.800	2.800	2.800	
Strain rate, in./min.	1.000	1.000	1.001	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	1.280	13.230	25.260	
Fail. Stress, psf	1544.2	2309.9	1725.9	
Strain, %	18.9	8.8	19.6	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	1728.5	4215.1	5363.3	
σ_3 Failure, psf	184.3	1905.1	3637.4	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: Medium, Gray and Brown Fat CLAY w/ Fe. Nodules and Tr. Shells (CH4)

LL= 75 PL= 21 PI= 54

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

45 Degree Shear

Client: GeoEngineers

Project: Mid Barataria Diversion

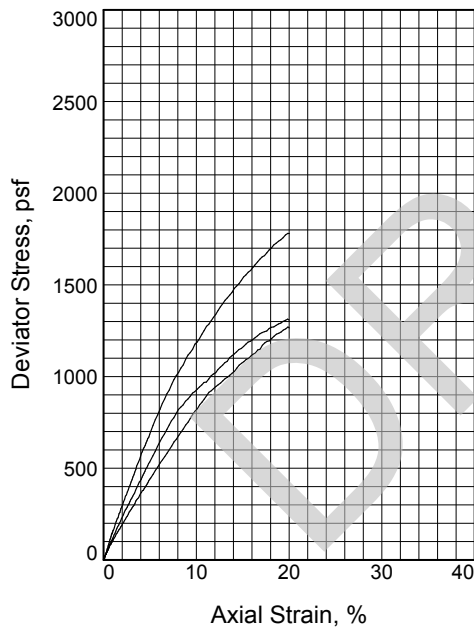
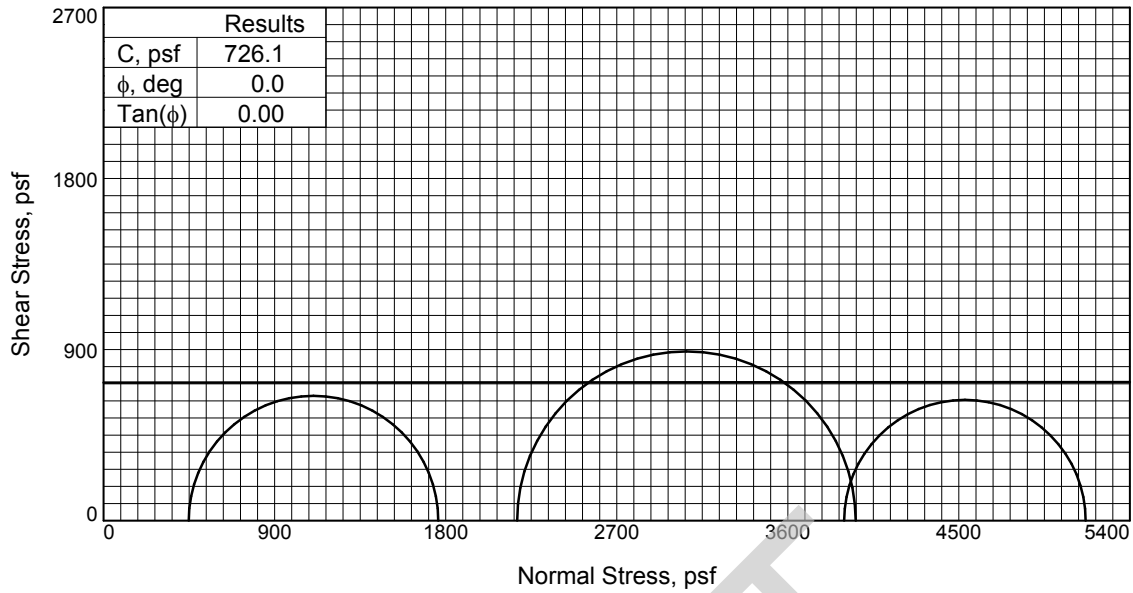
Source of Sample: IS-9A **Depth:** 3-4

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Figure _____

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3
Initial			
Water Content, %	30.5	29.8	31.3
Dry Density, pcf	98.2	97.3	97.9
Saturation, %	115.1	110.0	117.1
Void Ratio	0.7158	0.7321	0.7223
Diameter, in.	1.343	1.361	1.349
Height, in.	2.800	2.800	2.800
At Test			
Water Content, %	26.5	27.1	26.8
Dry Density, pcf	98.2	97.3	97.9
Saturation, %	100.0	100.0	100.0
Void Ratio	0.7158	0.7321	0.7223
Diameter, in.	1.343	1.361	1.349
Height, in.	2.800	2.800	2.800
Strain rate, in./min.	1.000	1.000	1.000
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	3.110	15.110	27.060
Fail. Stress, psf	1313.0	1781.2	1270.6
Strain, %	19.8	19.9	19.9
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	1760.9	3957.0	5167.3
σ_3 Failure, psf	447.8	2175.8	3896.6

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Medium, Tan Lean CLAY with Trace Organics (CL4)

Assumed Specific Gravity= 2.70

Remarks: Type Failure:
Bulge
(Samples 1, 2, 3) Slumping
(Sample 3) Very Disturbed

Figure _____

Client: GeoEngineers

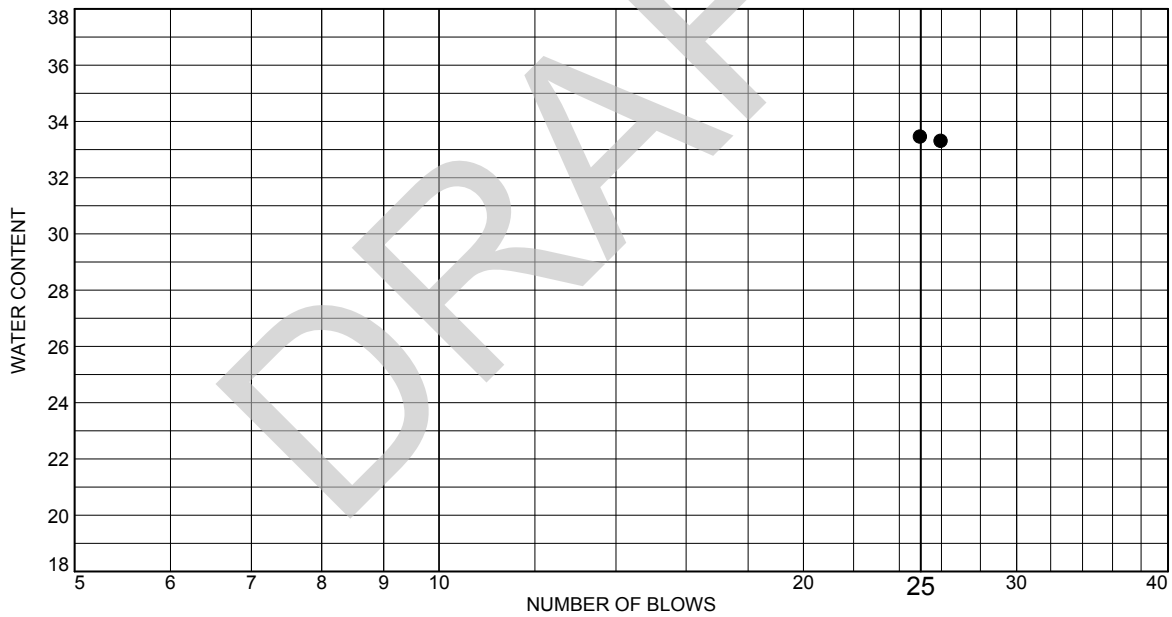
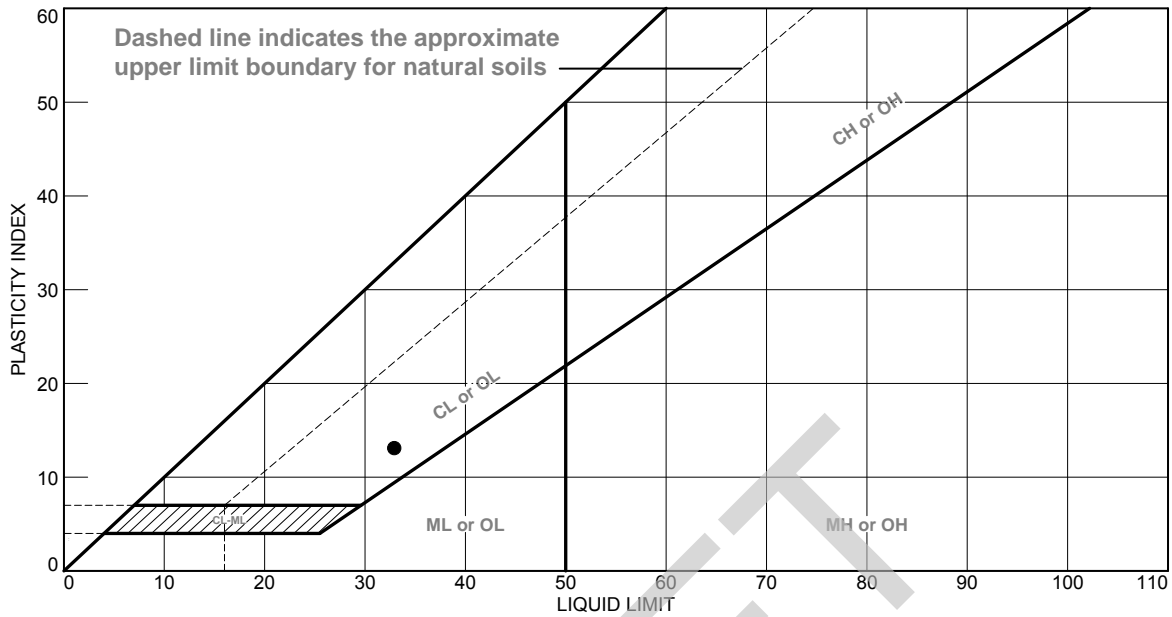
Project: Mid Barataria Diversion

Source of Sample: IS-9A **Depth:** 8.5-9

Proj. No.: B13-018 **Date Sampled:**

TRIAxIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Medium, Brown and Gray Lean CLAY (CL4)	33	20	13			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-9A **Depth:** 10-11

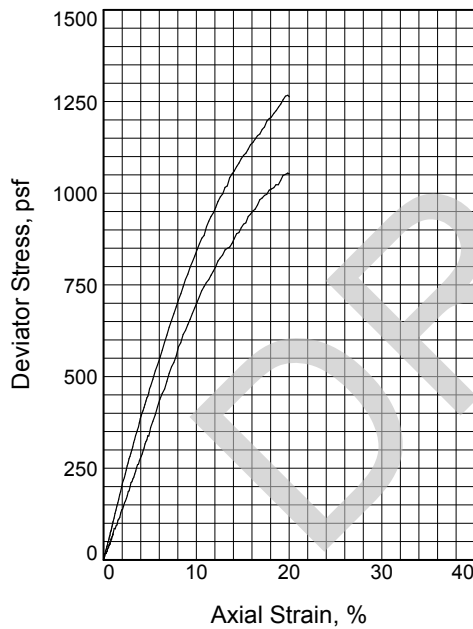
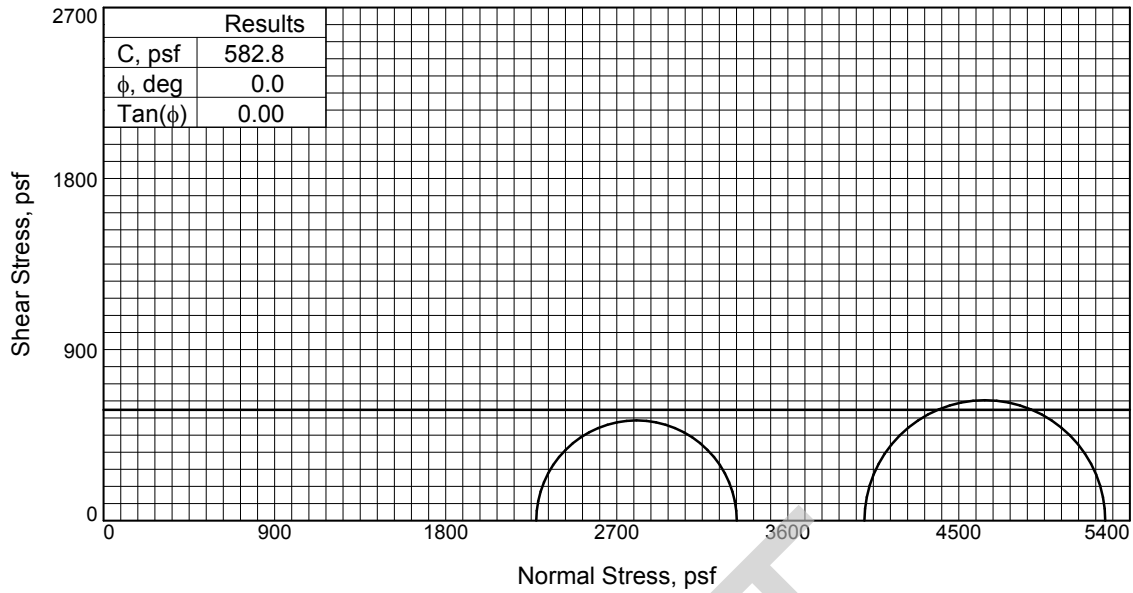
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	
Initial	Water Content, %	28.6	28.2
	Dry Density, pcf	101.3	101.1
	Saturation, %	116.2	114.1
	Void Ratio	0.6641	0.6667
	Diameter, in.	1.340	1.342
	Height, in.	2.800	2.800
At Test	Water Content, %	24.6	24.7
	Dry Density, pcf	101.3	101.1
	Saturation, %	100.0	100.0
	Void Ratio	0.6641	0.6667
	Diameter, in.	1.340	1.342
	Height, in.	2.800	2.800
Strain rate, in./min.	1.000	1.000	
Back Pressure, psi	0.000	0.000	
Cell Pressure, psi	15.810	27.800	
Fail. Stress, psf	1054.6	1267.2	
Strain, %	19.8	19.9	
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	3331.3	5270.4	
σ_3 Failure, psf	2276.6	4003.2	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Medium, Brown and Gray Lean CLAY (CL4)

LL= 33 PL= 20 PI= 13

Assumed Specific Gravity= 2.70

Remarks: Type Failure:
Bulge
Samples 1,2,3) Slumping
(Sample 1) No Test

Figure _____

Client: GeoEngineers

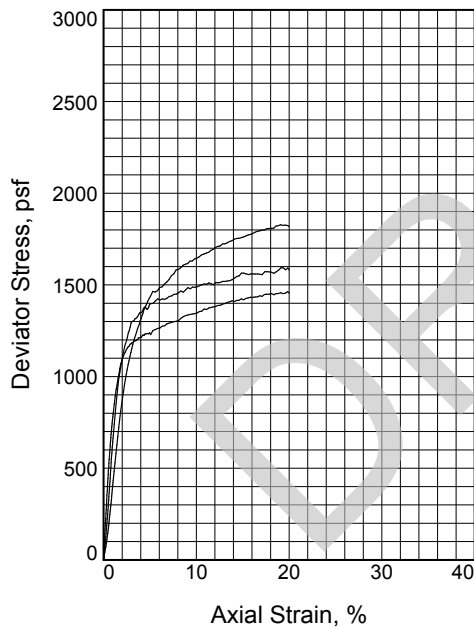
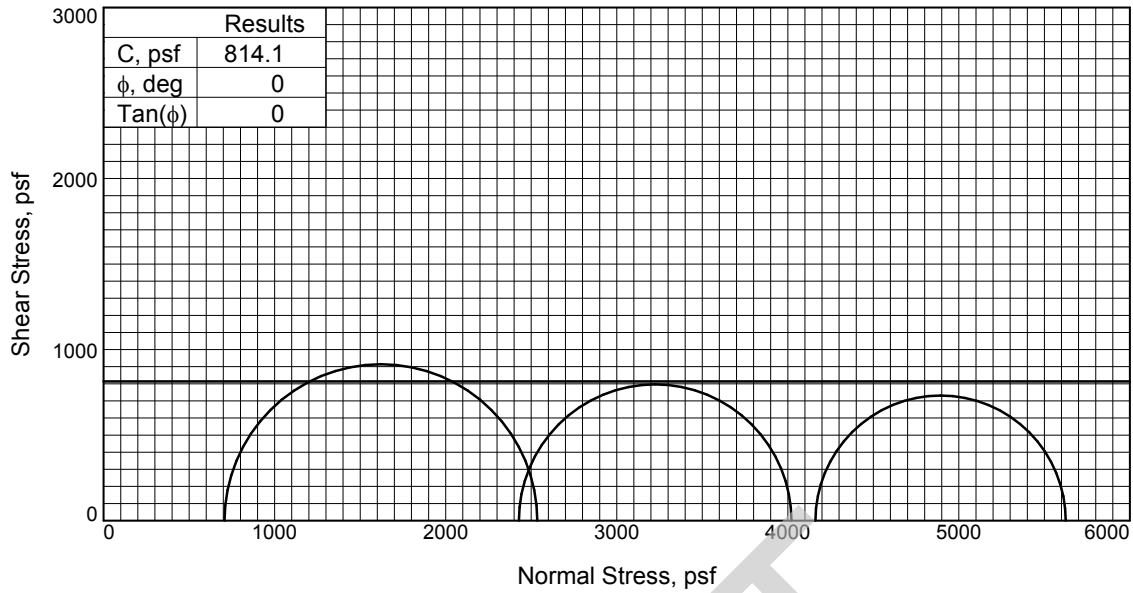
Project: Mid Barataria Diversion

Source of Sample: IS-9A **Depth:** 10-11

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	33.8	33.8	35.0
	Dry Density, pcf	88.8	86.4	86.7
	Saturation, %	97.8	92.5	96.6
	Void Ratio	0.9678	1.0238	1.0153
	Diameter, in.	1.412	1.406	1.401
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	34.6	36.6	36.3
	Dry Density, pcf	88.8	86.4	86.7
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.9678	1.0238	1.0153
Strain rate, in./min.	Diameter, in.	1.412	1.406	1.401
	Height, in.	2.800	2.800	2.800
	Back Pressure, psi	1.000	1.001	1.000
	Cell Pressure, psi	0.000	0.000	0.000
	Fail. Stress, psf	4.910	16.860	28.900
Fail. Stress, psf	Strain, %	1828.4	1593.2	1463.1
	Strain, %	19.1	19.4	19.8
Ult. Stress, psf	Strain, %			
	Strain, %			
σ_1 Failure, psf	2535.4	4021.0	5624.7	
σ_3 Failure, psf	707.0	2427.8	4161.6	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Medium, Gray Fat CLAY with Silt Pockets, Jointed and Brittle (CH3)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:
Bulge
(Sample 1,2,3) Brittle

Figure _____

Client: GeoEngineers

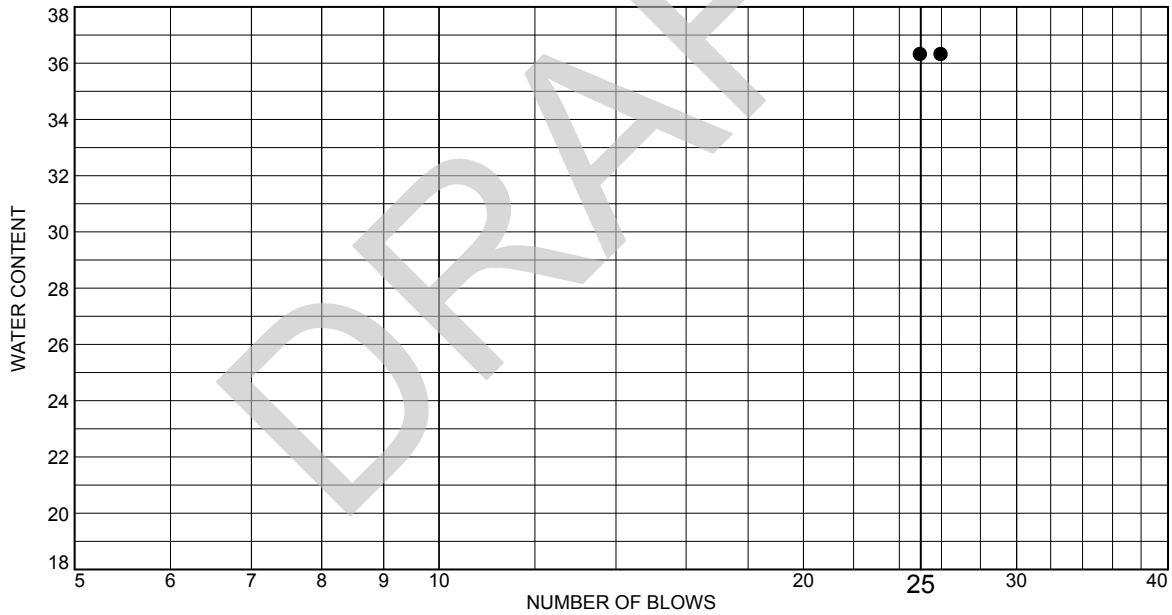
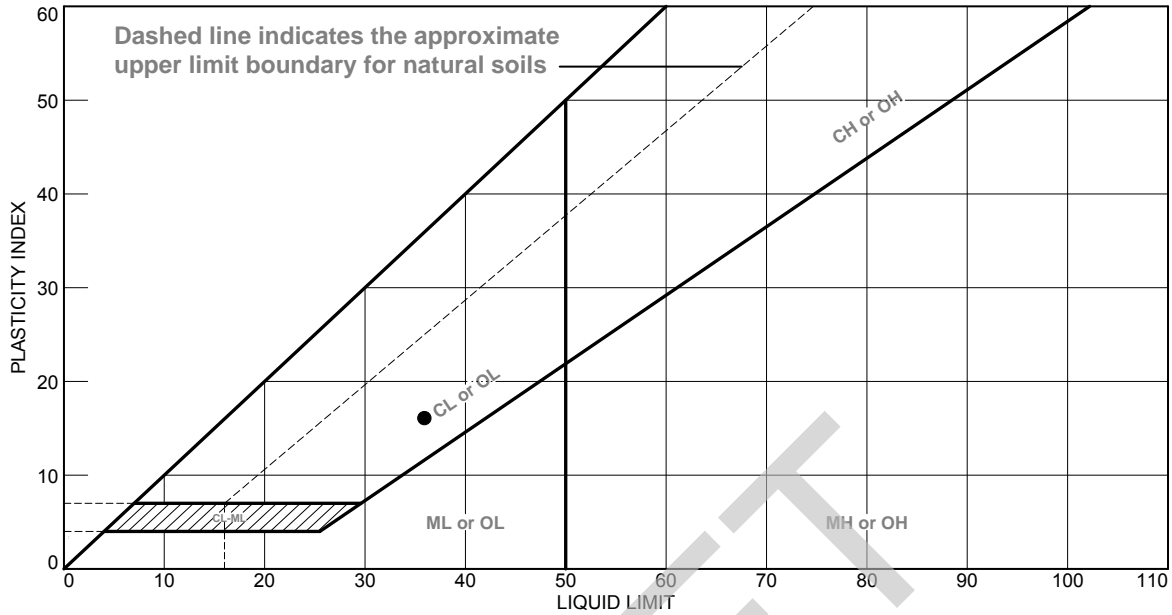
Project: Mid Barataria Diversion

Source of Sample: IS-9A **Depth:** 13-14

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Medium to Stiff, Gray Lean CLAY	36	20	16			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-9A **Depth:** 17-18

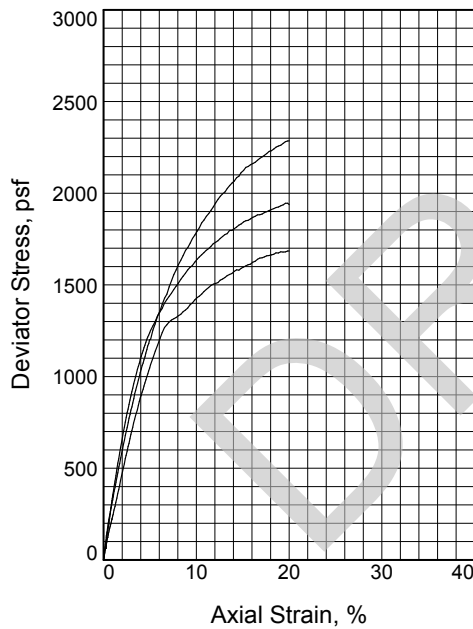
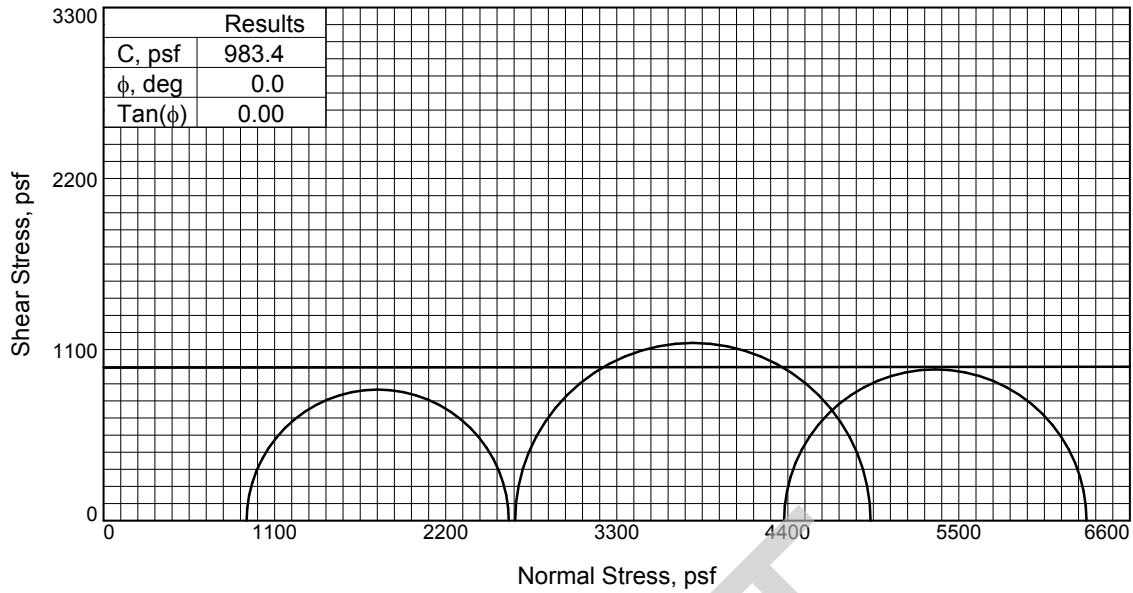
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3
Initial			
Water Content, %	32.5	30.4	31.7
Dry Density, pcf	91.4	95.1	89.6
Saturation, %	104.0	106.4	97.0
Void Ratio	0.8449	0.7715	0.8814
Diameter, in.	1.400	1.388	1.443
Height, in.	2.800	2.800	2.800
At Test			
Water Content, %	31.3	28.6	32.6
Dry Density, pcf	91.4	95.1	89.6
Saturation, %	100.0	100.0	100.0
Void Ratio	0.8449	0.7715	0.8814
Diameter, in.	1.400	1.388	1.443
Height, in.	2.800	2.800	2.800
Strain rate, in./min.	0.999	0.999	0.999
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	6.390	18.380	30.390
Fail. Stress, psf	1685.2	2285.2	1944.9
Strain, %	20.0	20.0	19.6
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	2605.3	4932.0	6321.1
σ_3 Failure, psf	920.2	2646.7	4376.2

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Medium to Stiff, Gray Lean CLAY (CL4)

LL= 36 PL= 20 PI= 16

Assumed Specific Gravity= 2.70

Remarks: Type Failure:
Bulge
(Sample 1,2,3) Slumping

Figure _____

Client: GeoEngineers

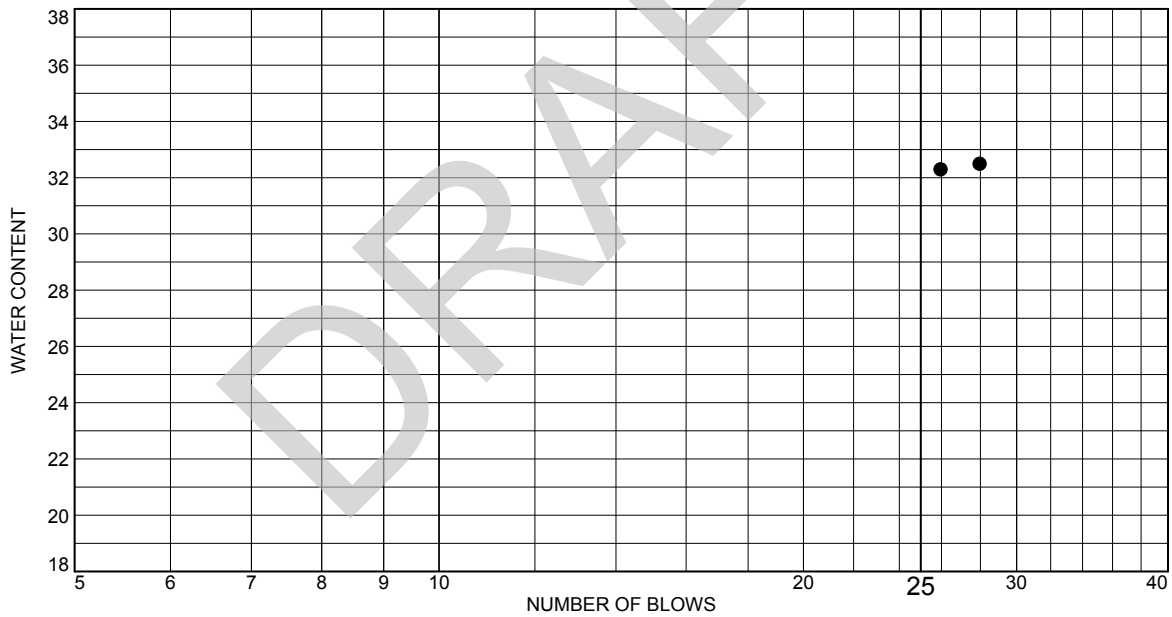
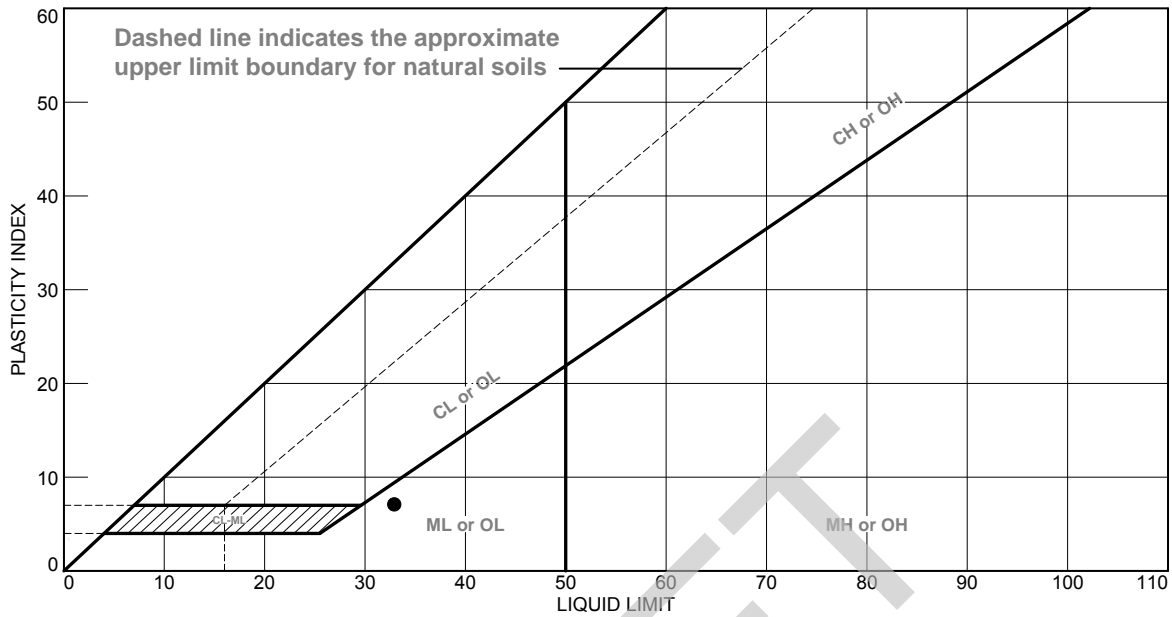
Project: Mid Barataria Diversion

Source of Sample: IS-9A **Depth:** 17-18

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT



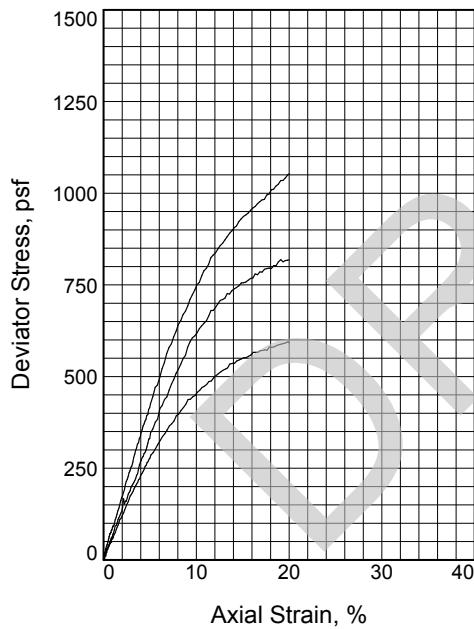
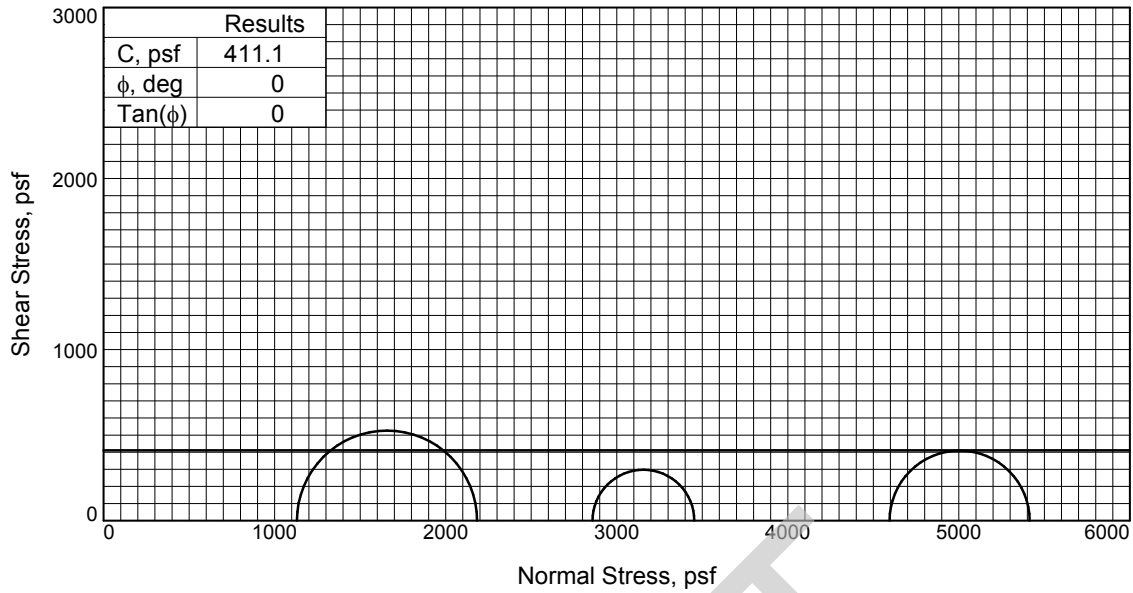
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Soft, Gray SILT with Clay and Trace Fine Sand	33	26	7			(ML)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-9A **Depth:** 21-22
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3
Initial			
Water Content, %	33.3	36.0	34.4
Dry Density, pcf	97.9	92.3	94.6
Saturation, %	127.7	120.3	121.8
Void Ratio	0.6902	0.7932	0.7485
Diameter, in.	1.340	1.352	1.341
Height, in.	2.800	2.800	2.800
At Test			
Water Content, %	26.0	29.9	28.2
Dry Density, pcf	97.9	92.3	94.6
Saturation, %	100.0	100.0	100.0
Void Ratio	0.6902	0.7932	0.7485
Diameter, in.	1.340	1.352	1.341
Height, in.	2.800	2.800	2.800
Strain rate, in./min.	1.000	1.000	1.000
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	7.850	19.850	31.910
Fail. Stress, psf	1052.9	594.8	818.7
Strain, %	20.0	19.9	19.1
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	2183.3	3453.2	5413.8
σ_3 Failure, psf	1130.4	2858.4	4595.0

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: Soft, Gray SILT with Clay and Trace Fine Sand (ML)

LL= 33 PL= 26 PI= 7

Assumed Specific Gravity= 2.65

Remarks: Type Failure:

Bulge

(Sample 1,2,3) Slumping and Bleeding

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-9A

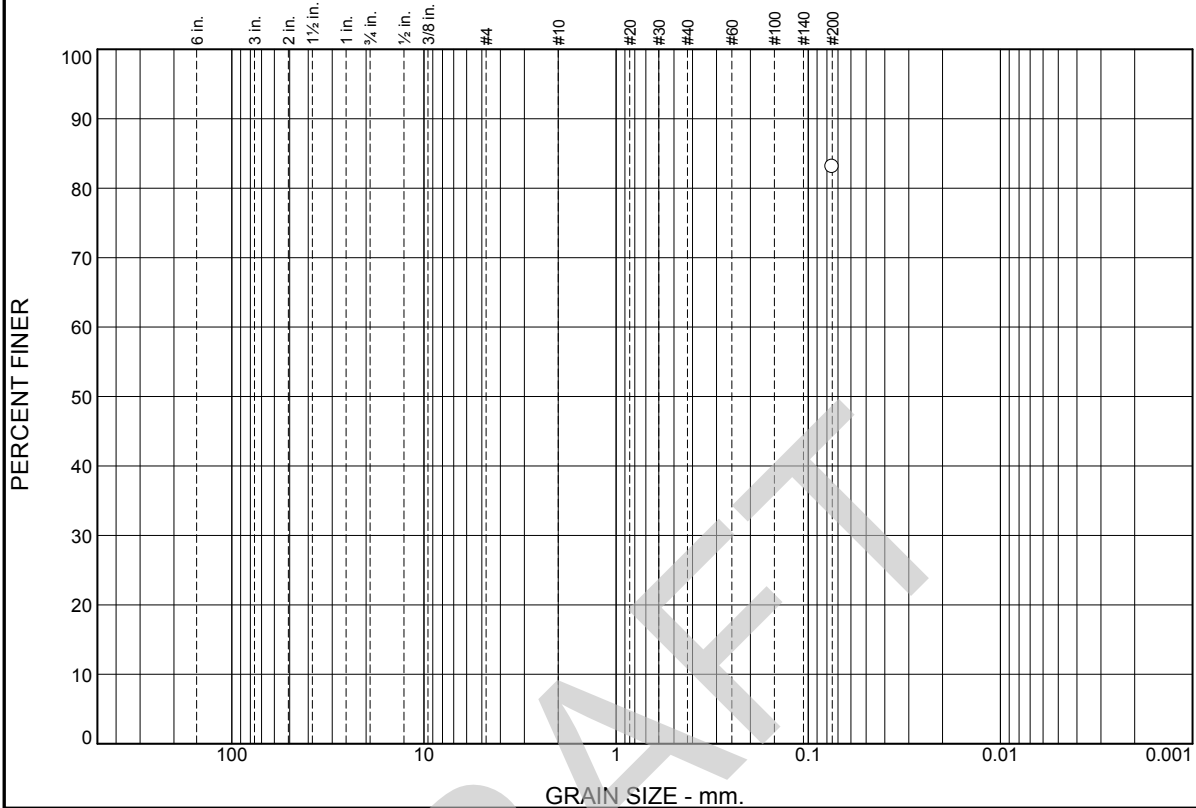
Depth: 21-22

Proj. No.: B13-018

Date Sampled:

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						83.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	83.1		

Material Description
Loose, Gray SILT with Sand and Trace Clay

Atterberg Limits
PL= LL= PI=

Classification
USCS= (ML) AASHTO=

Remarks

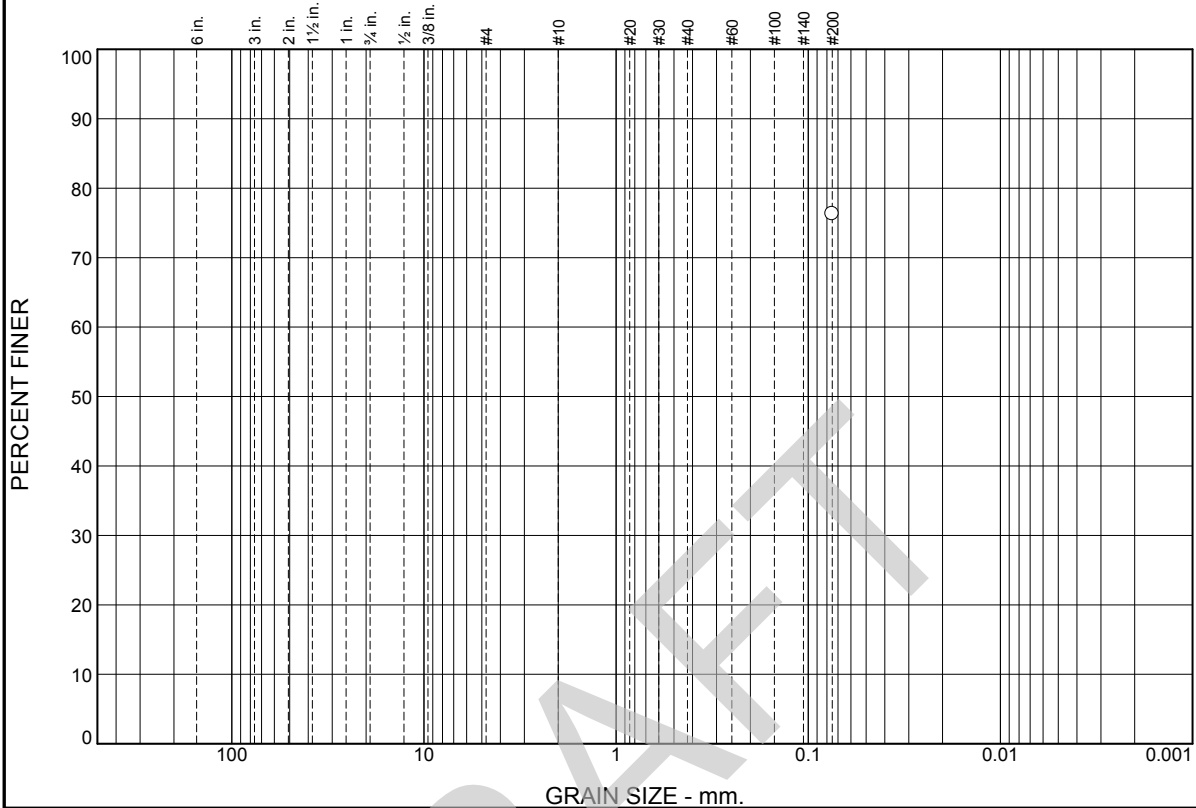
* (no specification provided)

Source of Sample: IS-9A Depth: 27-28

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						76.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	76.3		

Material Description
Loose, Gray SILT with Sand and Trace Clay

Atterberg Limits
PL= LL= PI=

Classification
USCS= (ML) AASHTO=

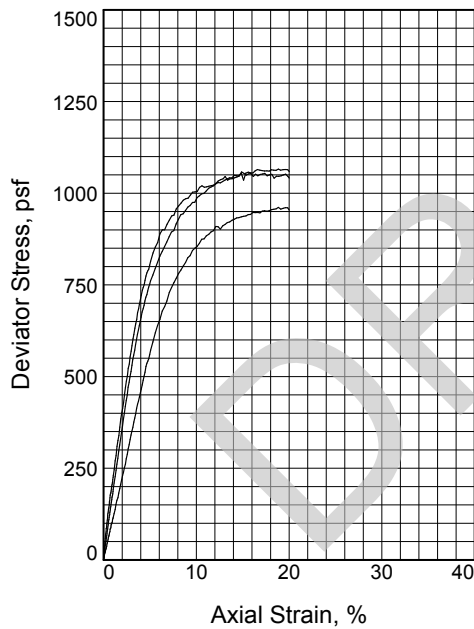
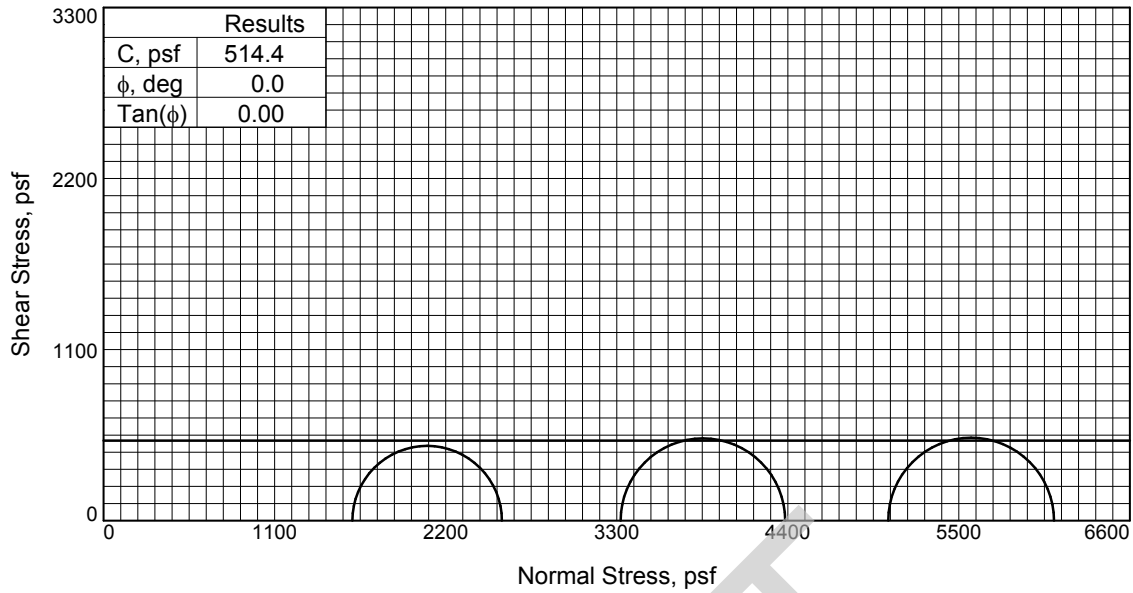
Remarks

* (no specification provided)

Source of Sample: IS-9A Depth: 29-30

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure



	1	2	3	
Sample No.	1	2	3	
Initial	Water Content, %	33.4	36.3	35.3
	Dry Density, pcf	91.5	88.1	90.5
	Saturation, %	106.9	107.2	110.5
	Void Ratio	0.8428	0.9140	0.8620
	Diameter, in.	1.380	1.375	1.382
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	31.2	33.9	31.9
	Dry Density, pcf	91.5	88.1	90.5
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.8428	0.9140	0.8620
Diameter, in.	1.380	1.375	1.382	
Height, in.	2.800	2.800	2.800	
Strain rate, in./min.	1.000	1.001	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	11.110	23.090	35.040	
Fail. Stress, psf		961.4	1058.2	1065.8
	Strain, %	18.8	14.9	18.8
Ult. Stress, psf				
	Strain, %			
σ_1 Failure, psf	2561.3	4383.2	6111.6	
σ_3 Failure, psf	1599.8	3325.0	5045.8	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Soft, Gray Lean CLAY with Trace Fine Sand (CL6)

Assumed Specific Gravity= 2.70

Remarks: Type Failure:
Bulge

Client: GeoEngineers

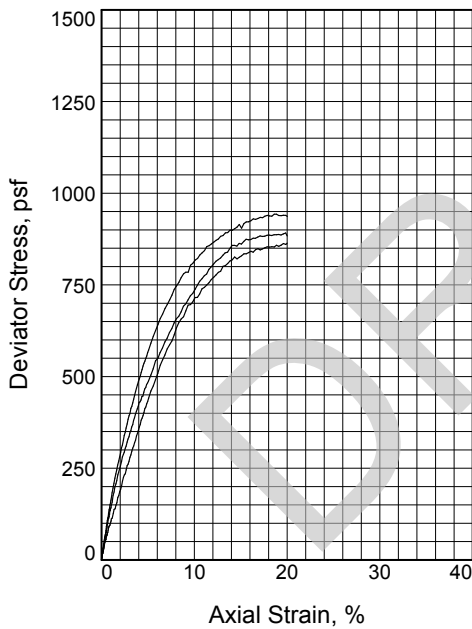
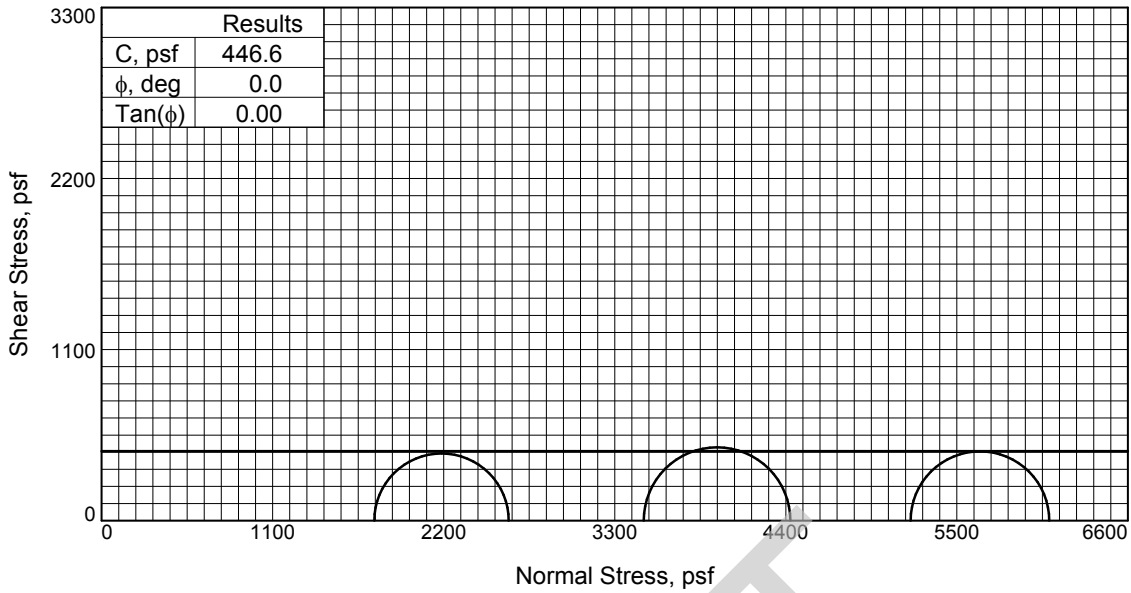
Project: Mid Barataria Diversion

Source of Sample: IS-9A **Depth:** 30-31

Proj. No.: B13-018 **Date Sampled:**

TRIAxIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Figure _____



	1	2	3	
Sample No.	1	2	3	
Initial	Water Content, %	33.9	34.5	34.2
	Dry Density, pcf	92.9	89.0	90.4
	Saturation, %	112.3	104.2	106.6
	Void Ratio	0.8150	0.8939	0.8653
	Diameter, in.	1.376	1.378	1.375
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	30.2	33.1	32.0
	Dry Density, pcf	92.9	89.0	90.4
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.8150	0.8939	0.8653
Diameter, in.	1.376	1.378	1.375	
	Height, in.	2.800	2.800	2.800
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	12.180	24.210	36.130	
Fail. Stress, psf	864.0	943.0	891.5	
	Strain, %	20.0	18.9	19.8
Ult. Stress, psf				
	Strain, %			
σ_1 Failure, psf	2617.9	4429.2	6094.2	
σ_3 Failure, psf	1753.9	3486.2	5202.7	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Soft, Gray Lean CLAY (CL4)

Assumed Specific Gravity= 2.70

Remarks: Type Failure:
Bulge

Client: GeoEngineers

Project: Mid Barataria Diversion

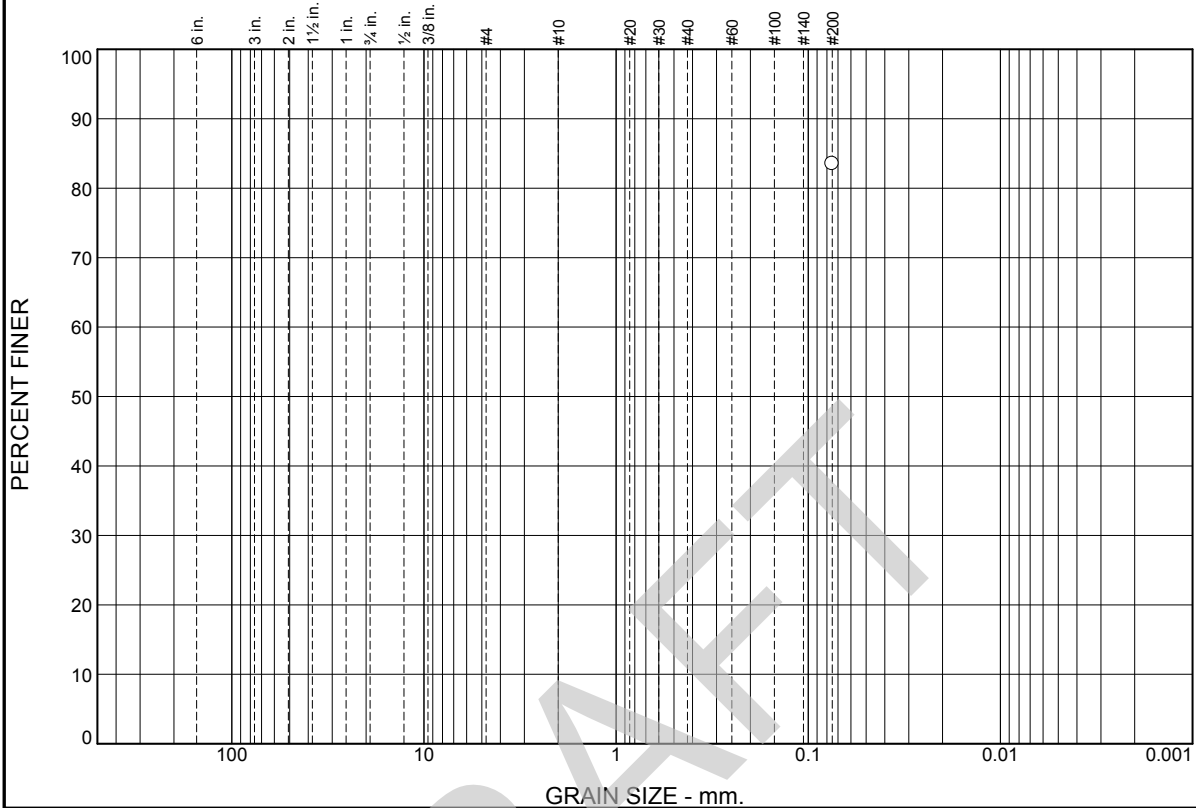
Source of Sample: IS-9A **Depth:** 33-34

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Figure _____

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						83.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	83.5		

Material Description
Gray SILT with Sand and Trace Clay

Atterberg Limits
PL= LL= PI=

Classification
USCS= (ML) AASHTO=

Remarks

* (no specification provided)

Source of Sample: IS-9A Depth: 41-42

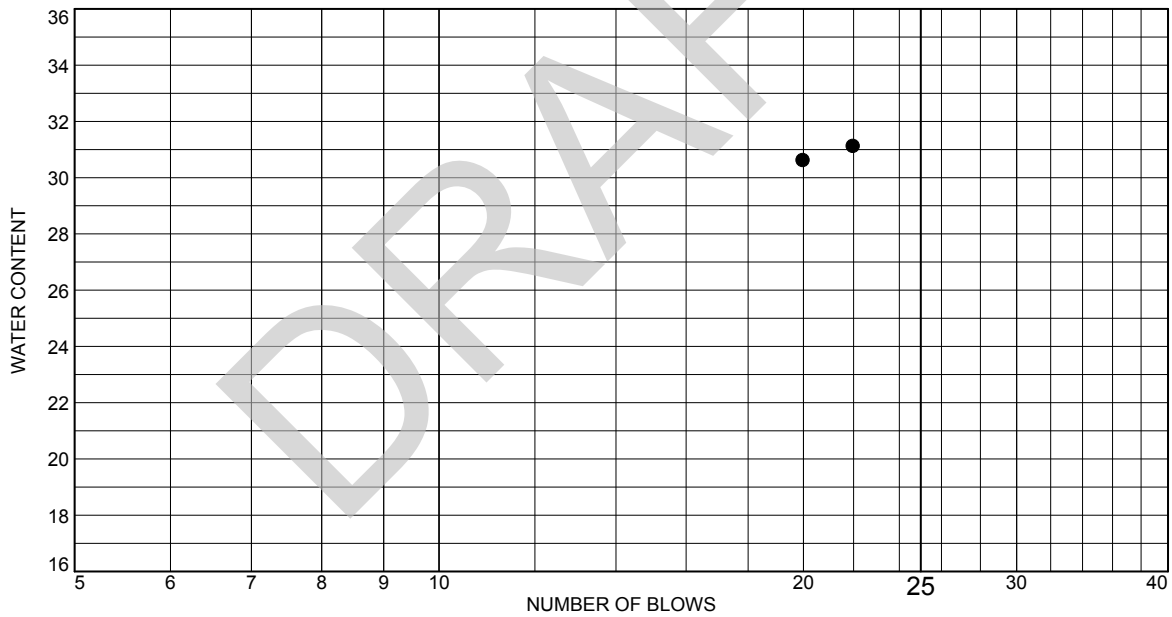
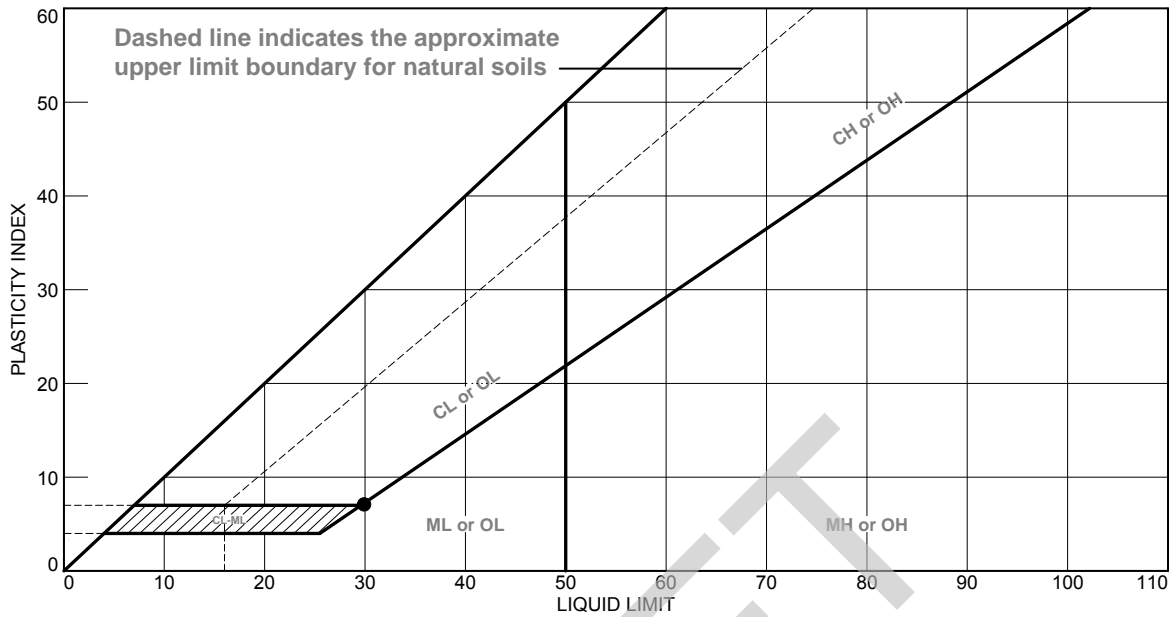
Date:

**Southern Earth
Sciences, Inc.
Baton Rouge, LA**

Client: GeoEngineers
Project: Mid Barataria Diversion
Project No: B13-018

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Gray Silty CLAY with Trace Fine Sand	30	23	7		79.8	(CL-ML)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-9A **Depth:** 45-46

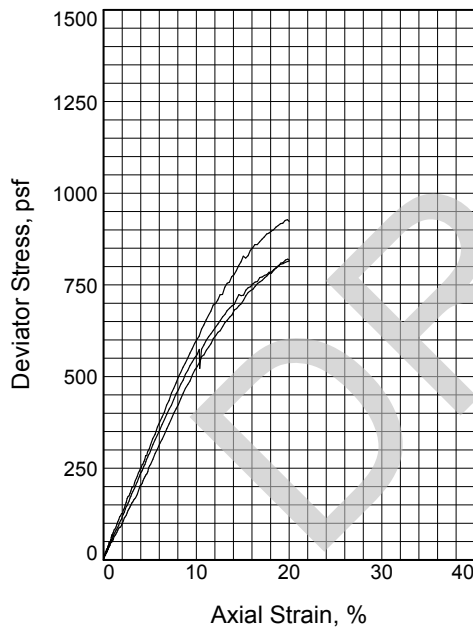
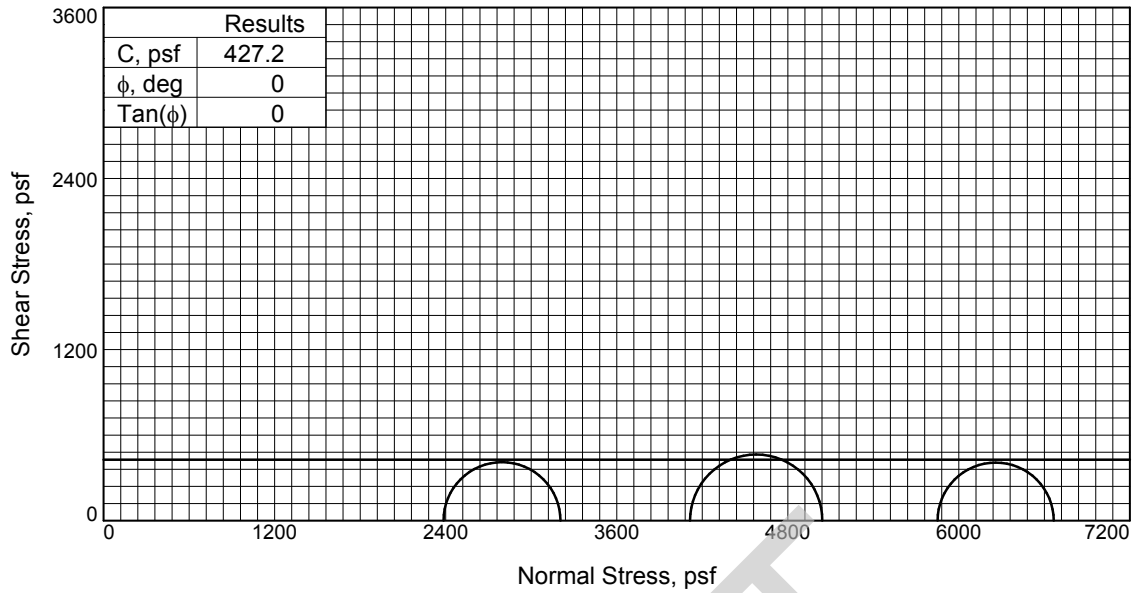
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	31.0	30.0	32.5
	Dry Density, pcf	96.8	98.7	96.4
	Saturation, %	112.9	114.4	117.3
	Void Ratio	0.7409	0.7074	0.7486
	Diameter, in.	1.352	1.348	1.342
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	27.4	26.2	27.7
	Dry Density, pcf	96.8	98.7	96.4
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.7409	0.7074	0.7486
Strain rate, in./min.	Diameter, in.	1.352	1.348	1.342
	Height, in.	2.800	2.800	2.800
	Back Pressure, psi	1.000	1.000	0.999
	Cell Pressure, psi	0.000	0.000	0.000
	Fail. Stress, psf	16.560	28.570	40.630
Strain, %	Fail. Stress, psf	820.4	927.8	814.7
	Strain, %	19.9	19.8	20.0
Ult. Stress, psf	Ult. Stress, psf			
	Strain, %			
σ_1 Failure, psf	σ_1 Failure, psf	3205.1	5041.9	6665.4
	σ_3 Failure, psf	2384.6	4114.1	5850.7

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Gray Silty CLAY with Trace Fine Sand (CL-ML)

LL= 30 PL= 23 PI= 7

Assumed Specific Gravity= 2.70

Remarks: Type Failure:
Bulge (Sample 3)
(Sample 1,2,3) Slumping and Bleeding

Client: GeoEngineers

Project: Mid Barataria Diversion

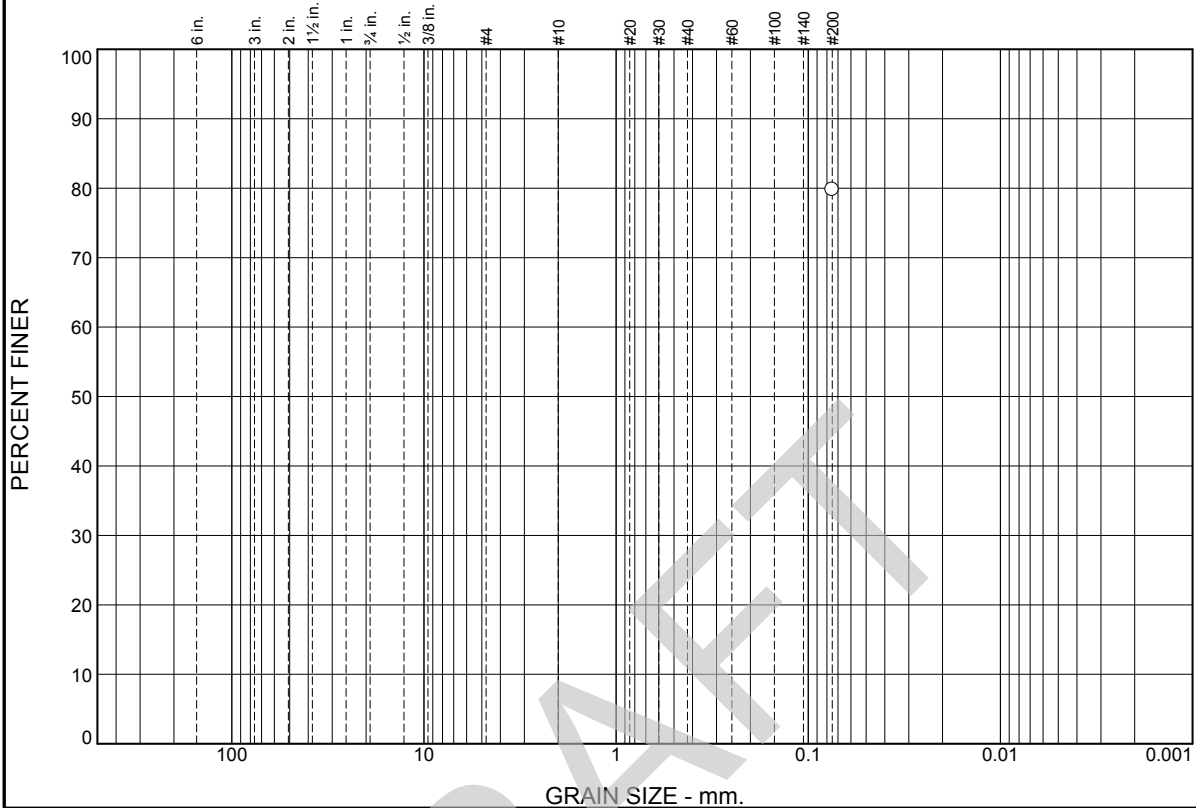
Source of Sample: IS-9A **Depth:** 45-46

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Figure _____

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						79.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	79.8		

Material Description
Gray Silty CLAY with Trace Fine Sand

Atterberg Limits
PL= 23 LL= 30 PI= 7

Classification
USCS= (CL-ML) AASHTO=

Remarks

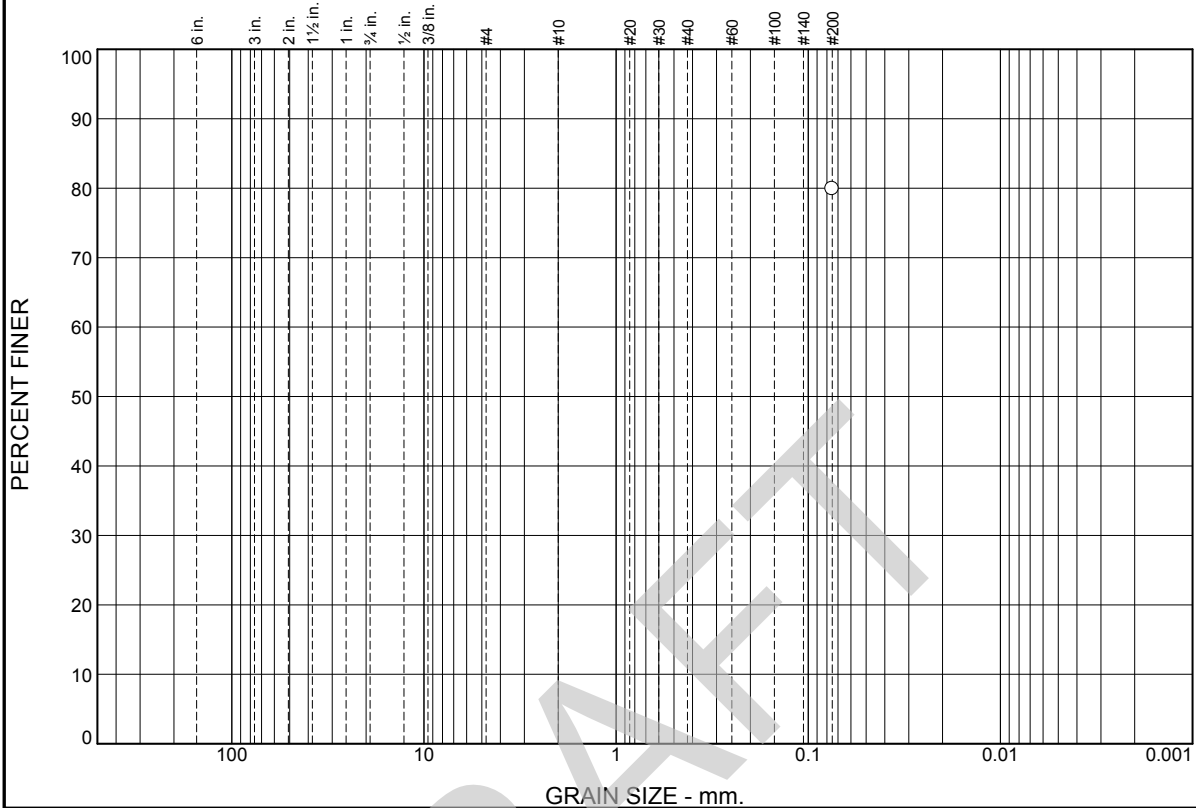
* (no specification provided)

Source of Sample: IS-9A Depth: 45-46

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						79.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	79.9		

Material Description
Gray Sandy SILT with Clay

Atterberg Limits
PL= LL= PI=

Classification
USCS= (ML) AASHTO=

Remarks

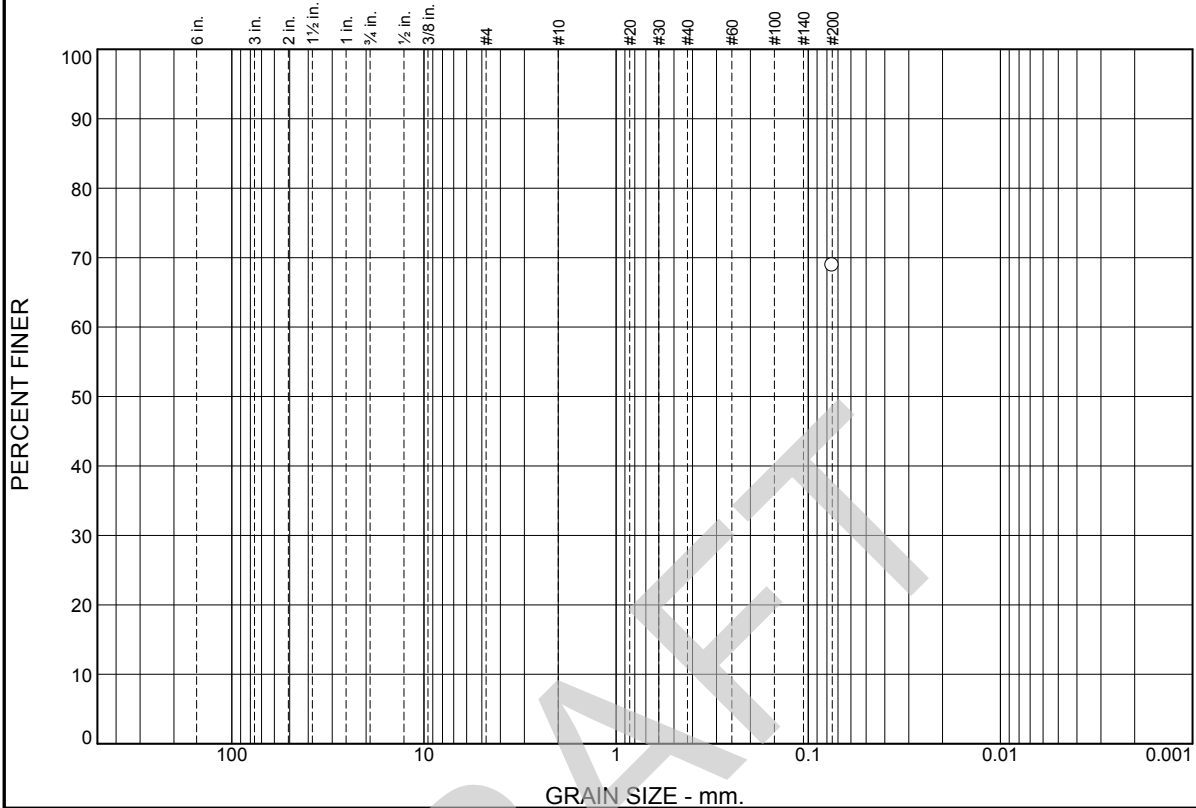
* (no specification provided)

Source of Sample: IS-9A Depth: 47-48

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						68.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	68.9		

Material Description

Gray Sandy SILT with Clay

Atterberg Limits

PL= LL= PI=

Classification

USCS= (ML) AASHTO=

Remarks

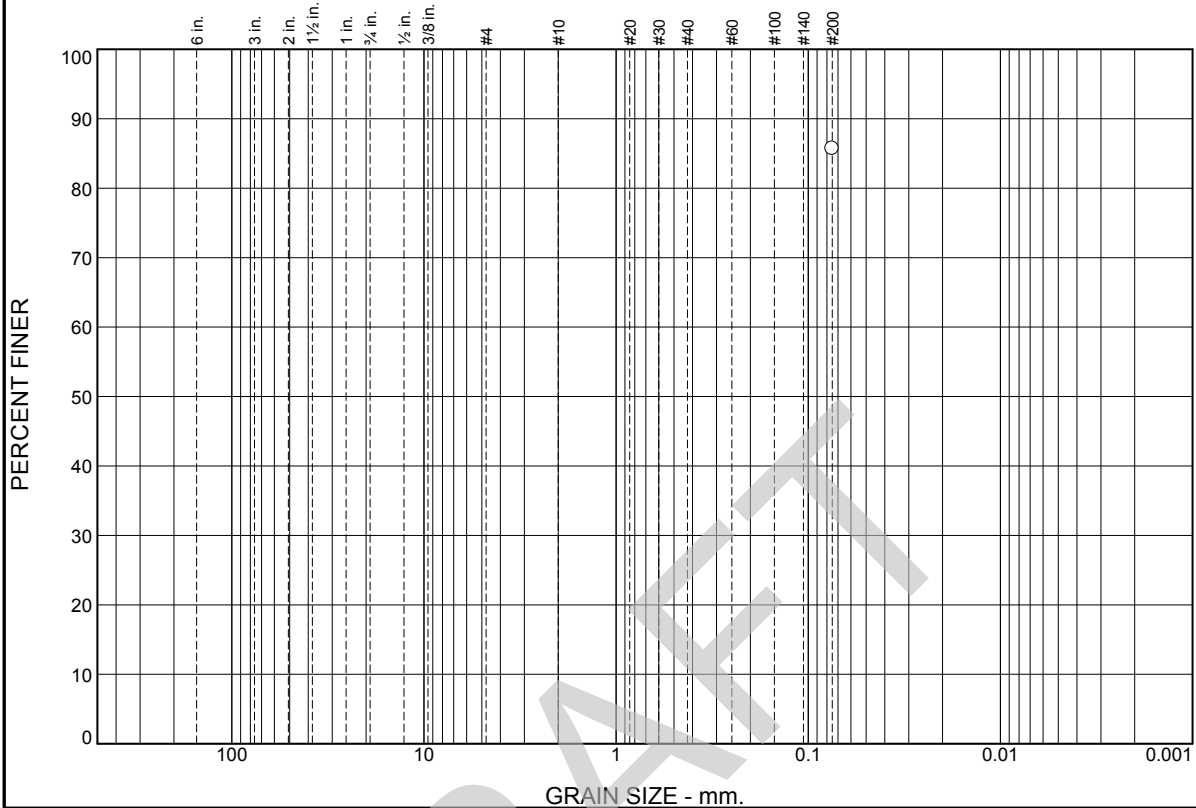
* (no specification provided)

Source of Sample: IS-9A Depth: 49-50

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						85.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	85.7		

Material Description
Gray Lean CLAY with Sandy Silt Layers

Atterberg Limits
PL= LL= PI=

Classification
USCS= (CL4) AASHTO=

Remarks

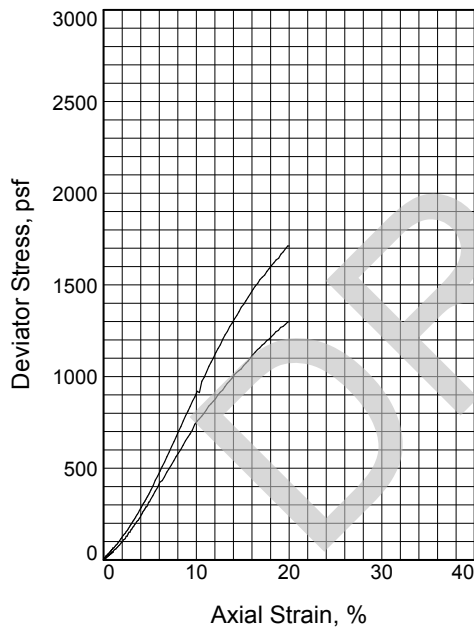
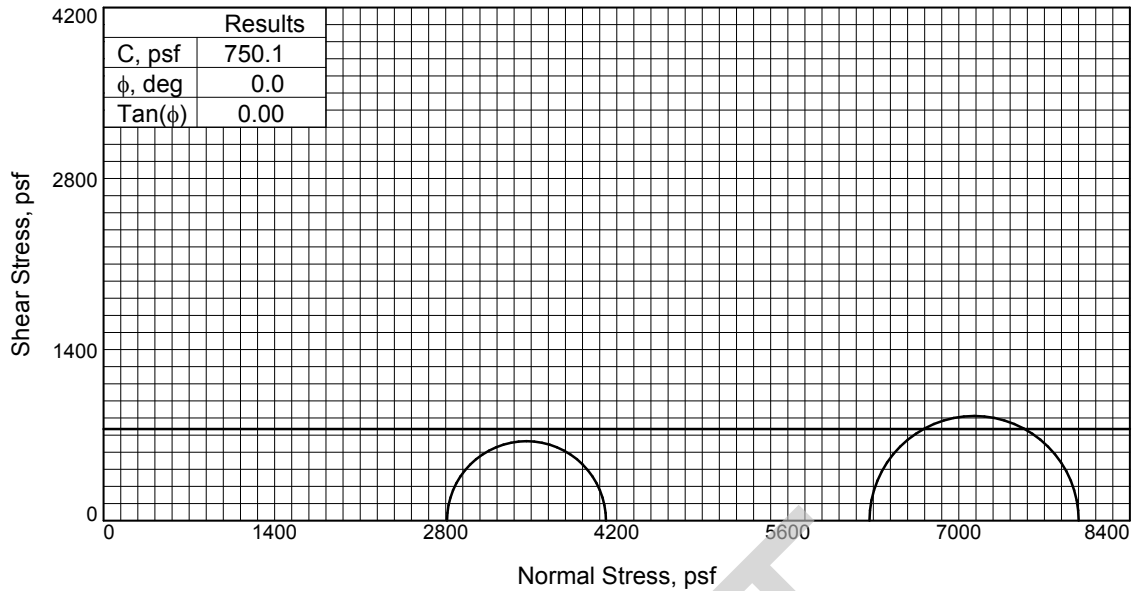
* (no specification provided)

Source of Sample: IS-9A Depth: 51-52

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Confidential Information: Privileged & Confidential Work Product



	1	2	
Sample No.	1	2	
Initial	Water Content, %	28.5	27.3
	Dry Density, pcf	101.3	104.8
	Saturation, %	119.2	125.0
	Void Ratio	0.6337	0.5779
	Diameter, in.	1.346	1.317
	Height, in.	2.800	2.800
At Test	Water Content, %	23.9	21.8
	Dry Density, pcf	101.3	104.8
	Saturation, %	100.0	100.0
	Void Ratio	0.6337	0.5779
	Diameter, in.	1.346	1.317
	Height, in.	2.800	2.800
Strain rate, in./min.	1.000	1.000	
Back Pressure, psi	0.000	0.000	
Cell Pressure, psi	19.520	43.530	
Fail. Stress, psf	1300.5	1712.7	
Strain, %	20.0	19.9	
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	4111.4	7981.0	
σ_3 Failure, psf	2810.9	6268.3	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Medium, Gray SILT with Fine Sand and Clay (ML)

Assumed Specific Gravity= 2.65

Remarks: Type Failure:
Bulge (Sample 1)
(Sample 1,3) Slumping

Figure _____

Client: GeoEngineers

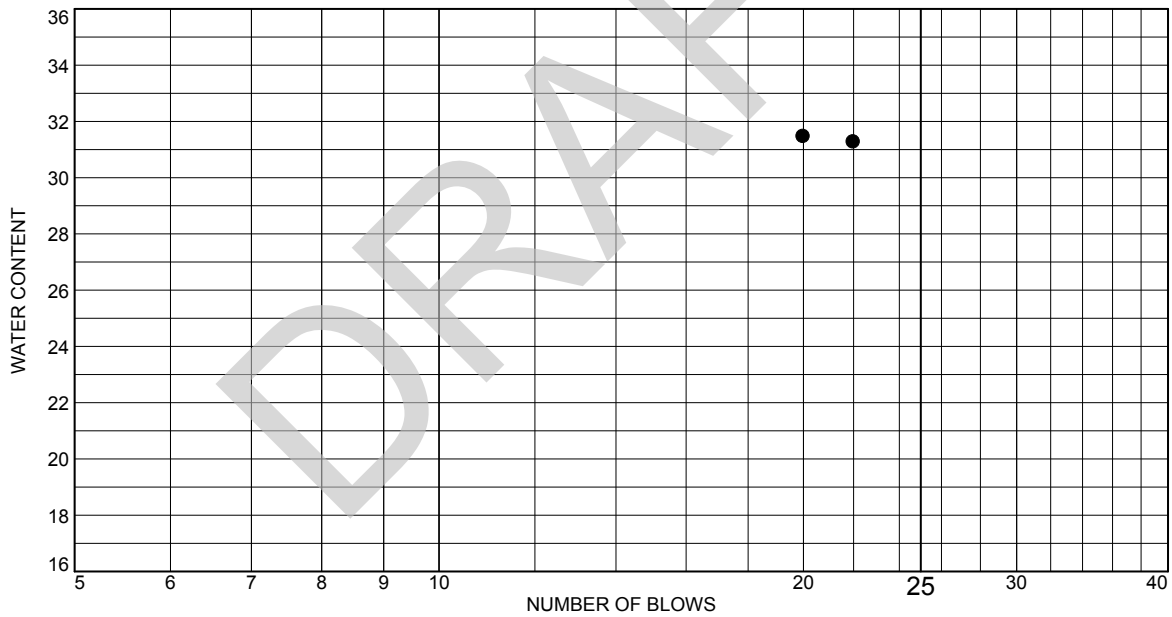
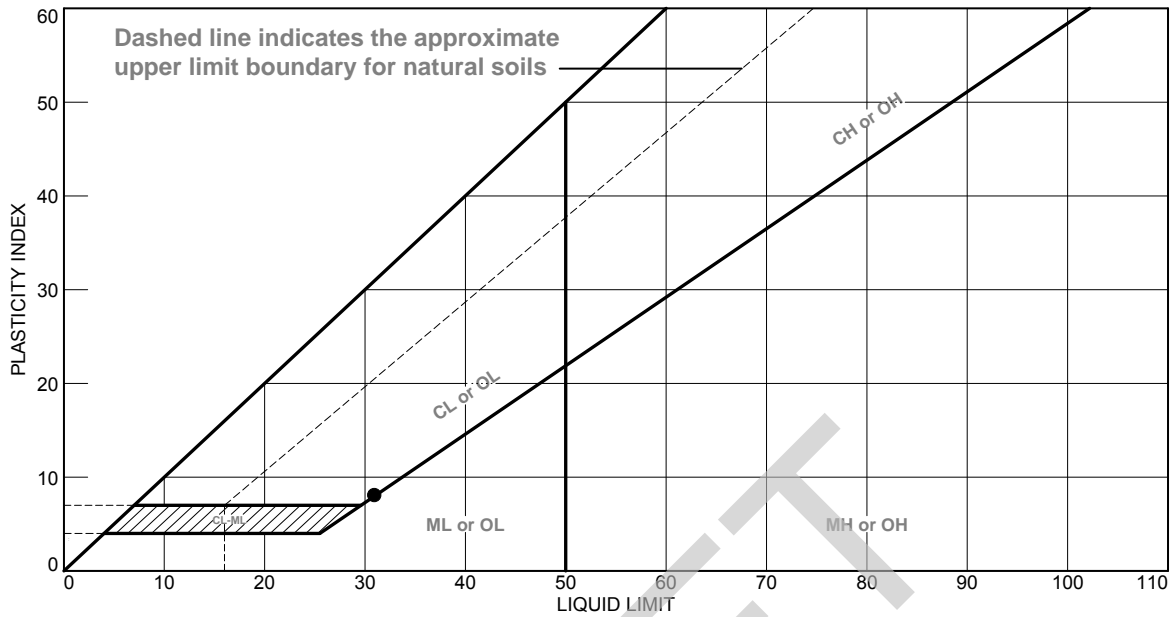
Project: Mid Barataria Diversion

Source of Sample: IS-9A **Depth:** 53-54

Proj. No.: B13-018 **Date Sampled:**

TRIAxIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Gray SILT with Trace Sand and Clay	31	23	8			(ML)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-9A **Depth:** 54-55

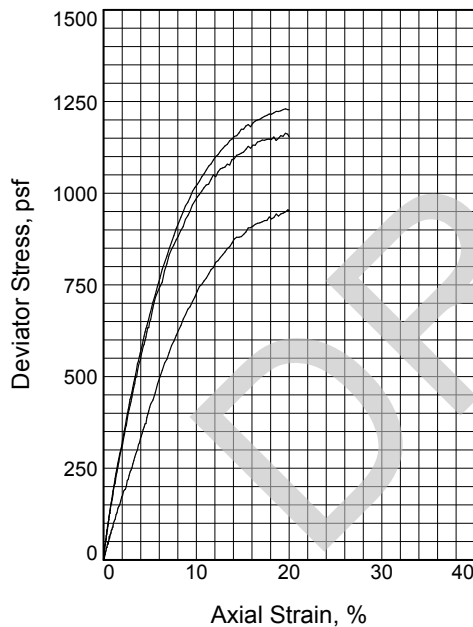
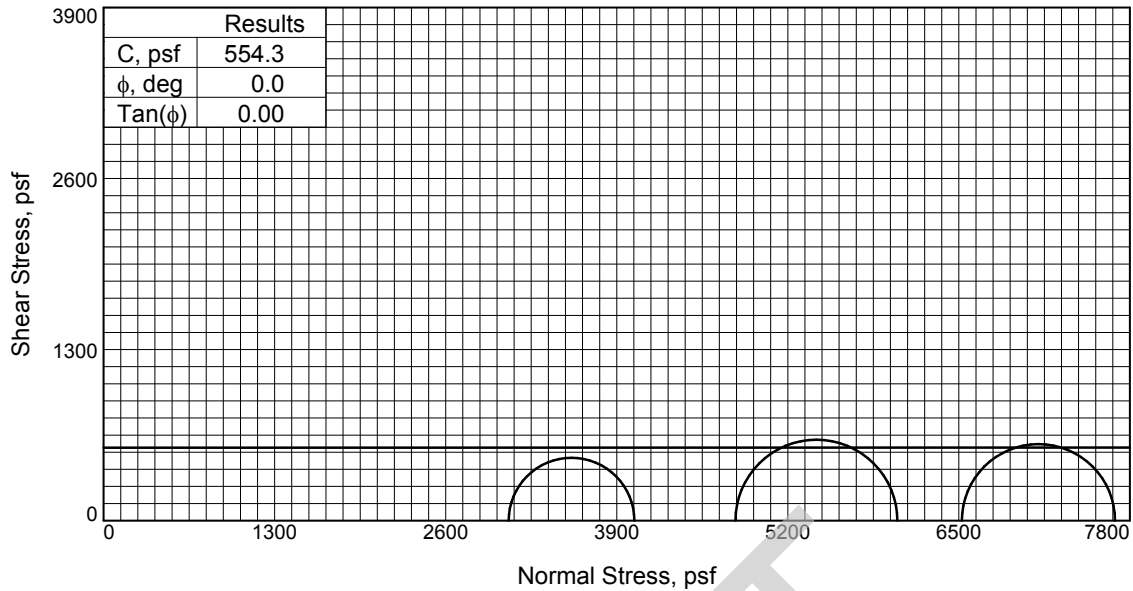
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	34.1	32.6	33.8
	Dry Density, pcf	91.6	91.8	90.8
	Saturation, %	109.6	105.4	106.6
	Void Ratio	0.8409	0.8356	0.8564
	Diameter, in.	1.366	1.376	1.374
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	31.1	30.9	31.7
	Dry Density, pcf	91.6	91.8	90.8
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.8409	0.8356	0.8564
Strain rate, in./min.	Diameter, in.	1.366	1.376	1.374
	Height, in.	2.800	2.800	2.800
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	21.380	33.350	45.300	
Fail. Stress, psf	Strain, %	19.9	19.6	19.6
	Ult. Stress, psf			
Strain, %	σ_1 Failure, psf	4033.7	6032.6	7686.6
	σ_3 Failure, psf	3078.7	4802.4	6523.2

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Soft to Medium, Gray Lean CLAY with Trace Fine Sand (CL4)

Assumed Specific Gravity= 2.70

Remarks: Type Failure:
Bulge (Sample 1,3)
(Sample 1,2,3) Slumping

Figure _____

Client: GeoEngineers

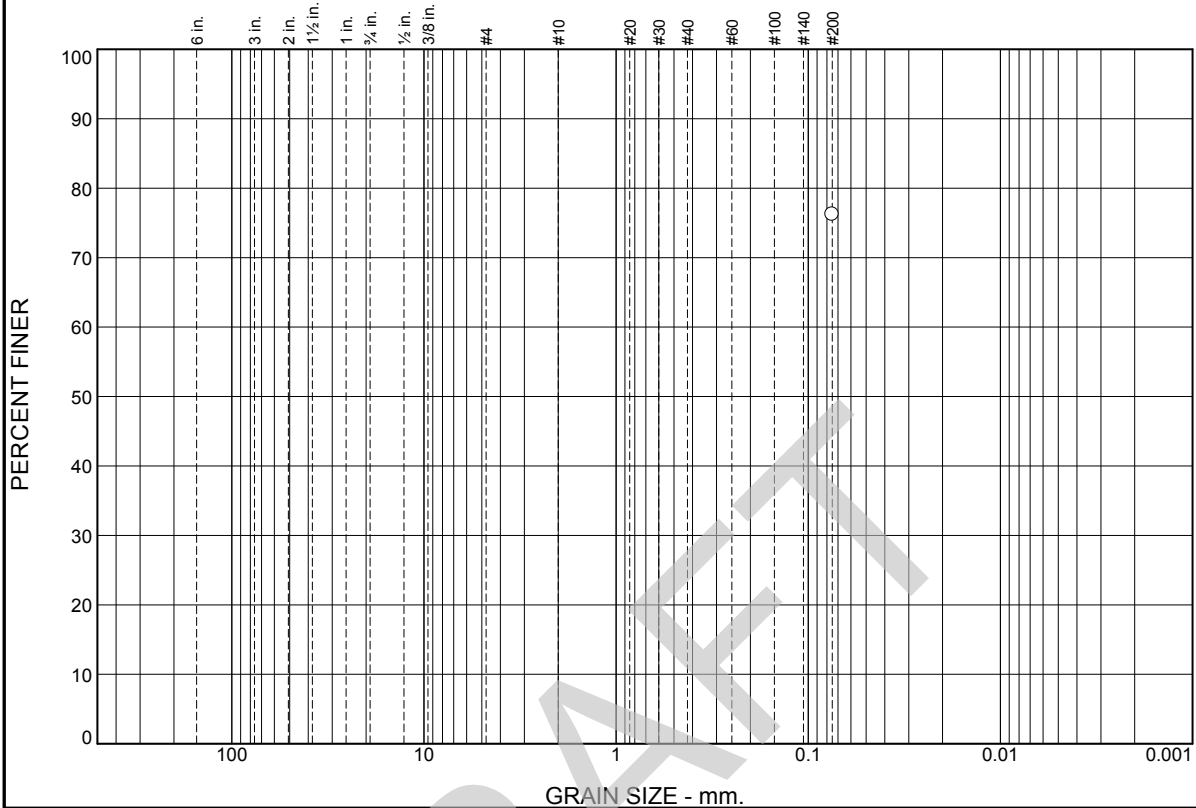
Project: Mid Barataria Diversion

Source of Sample: IS-9A **Depth:** 58-59

Proj. No.: B13-018 **Date Sampled:**

TRIAxIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						76.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	76.2		

Material Description

Gray Sandy SILT with Clay

Atterberg Limits

PL= LL= PI=

Classification

USCS= (ML) AASHTO=

Remarks

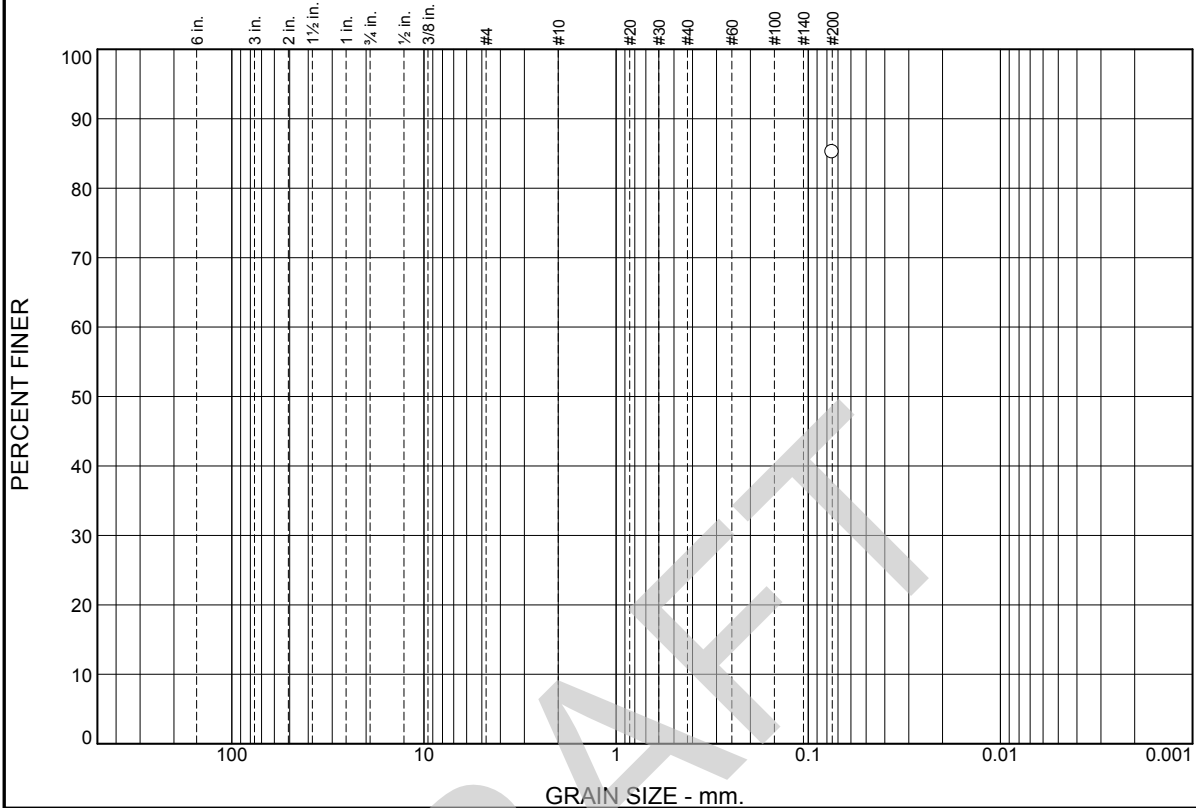
* (no specification provided)

Source of Sample: IS-9A Depth: 61-61.5

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						85.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	85.2		

Material Description
Gray SILT with Clay and Fine Sand

Atterberg Limits
PL= LL= PI=

Classification
USCS= (ML) AASHTO=

Remarks

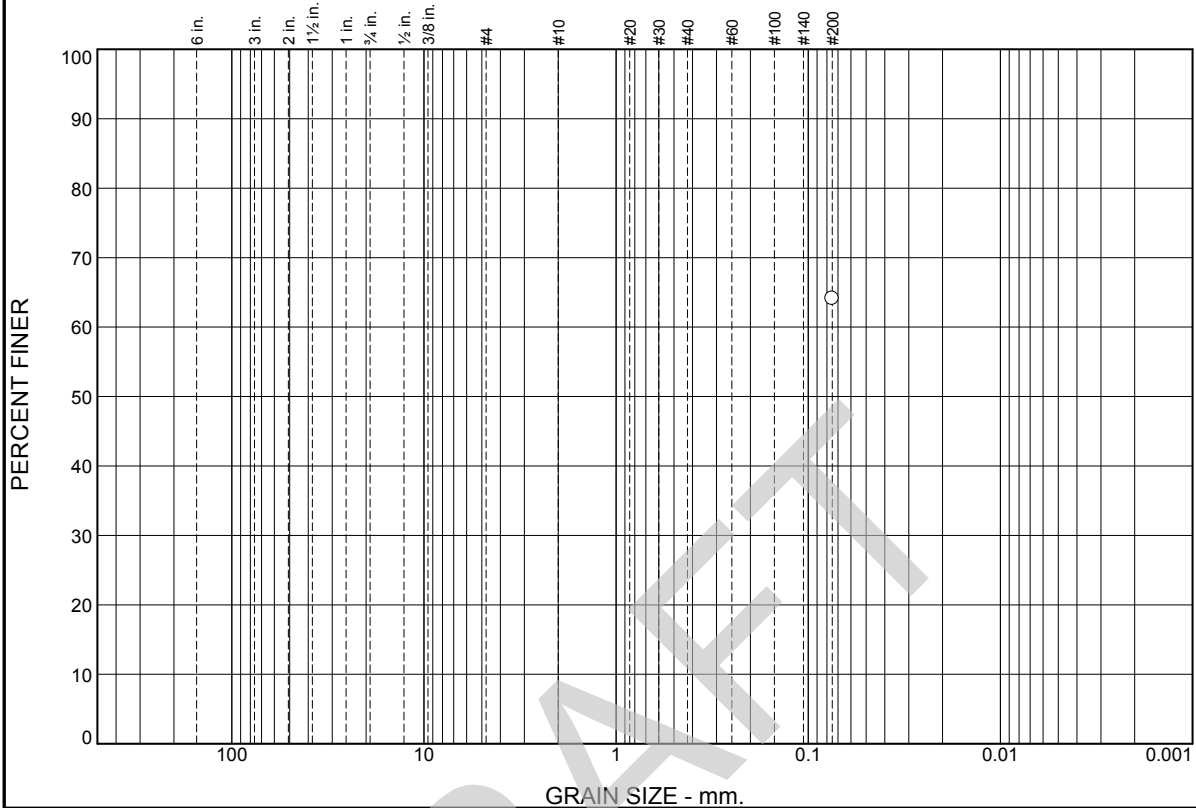
* (no specification provided)

Source of Sample: IS-9A Depth: 65-66

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						64.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	64.1		

Material Description

Gray Sandy SILT with Clay

Atterberg Limits

PL= LL= PI=

Classification

USCS= (ML) AASHTO=

Remarks

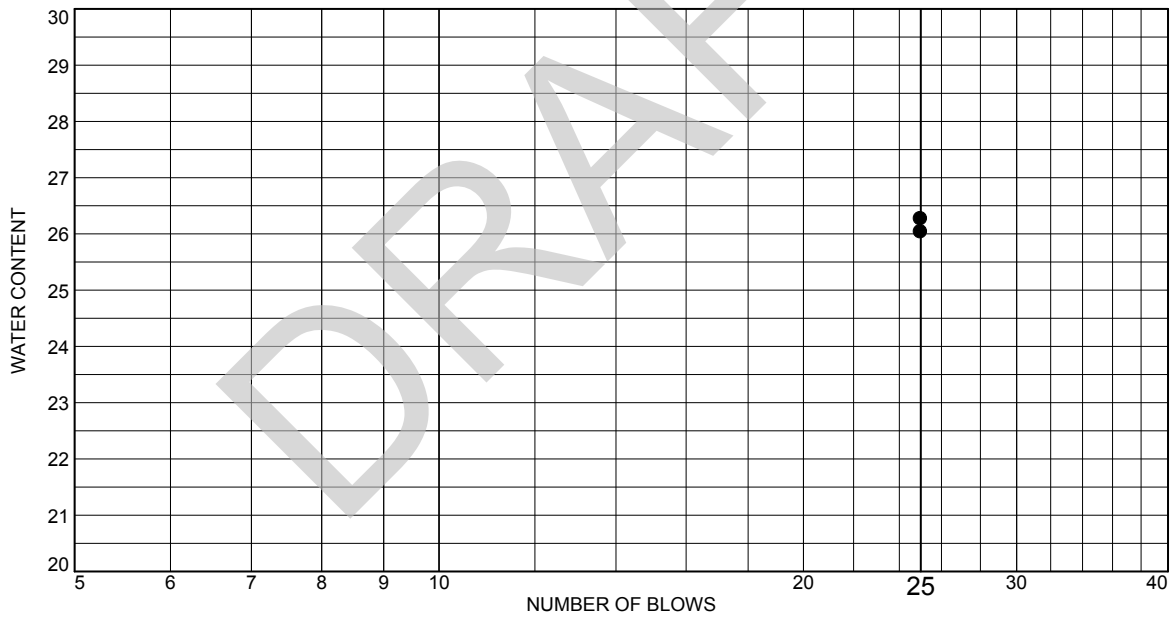
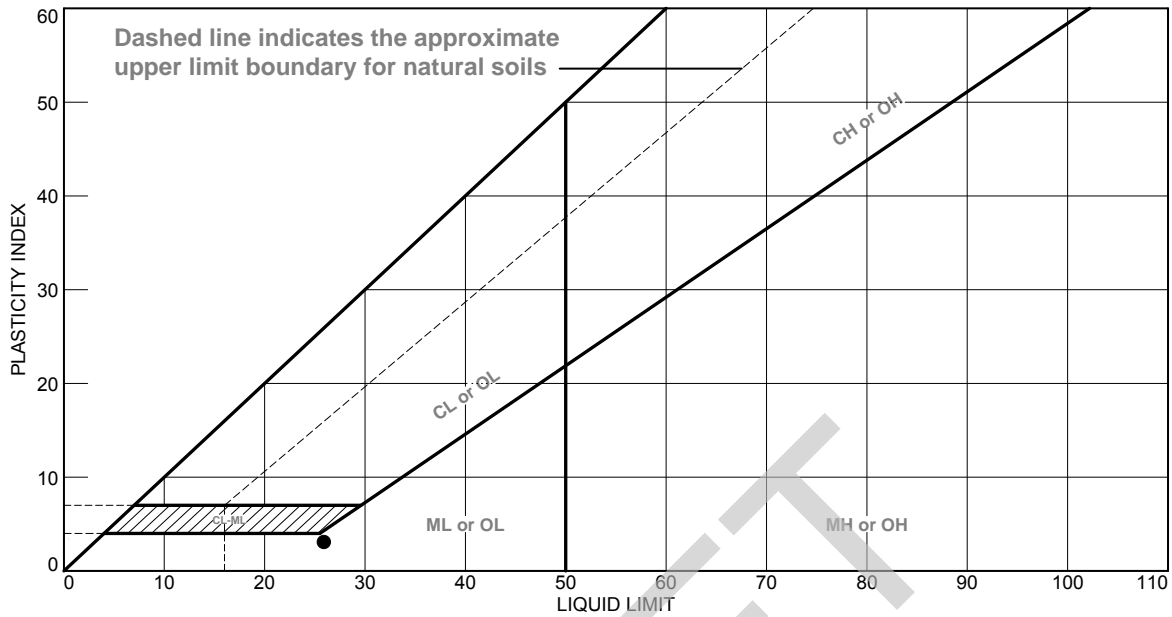
* (no specification provided)

Source of Sample: IS-9A Depth: 74-75.5

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



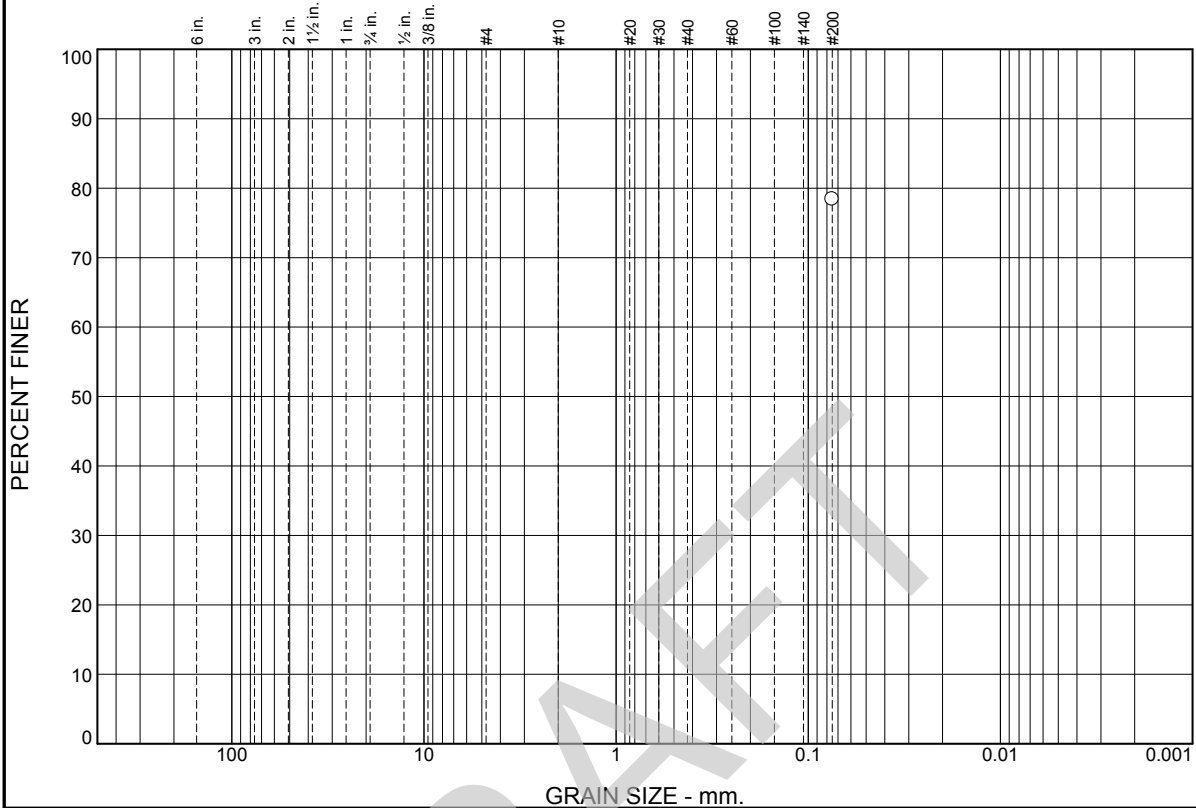
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Gray Sandy SILT with Clay	26	23	3			(ML)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-9A **Depth:** 79-80.5
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						78.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	78.4		

Material Description
Gray SILT with Clay and Sand

Atterberg Limits
PL= LL= PI=

Classification
USCS= (ML) AASHTO=

Remarks

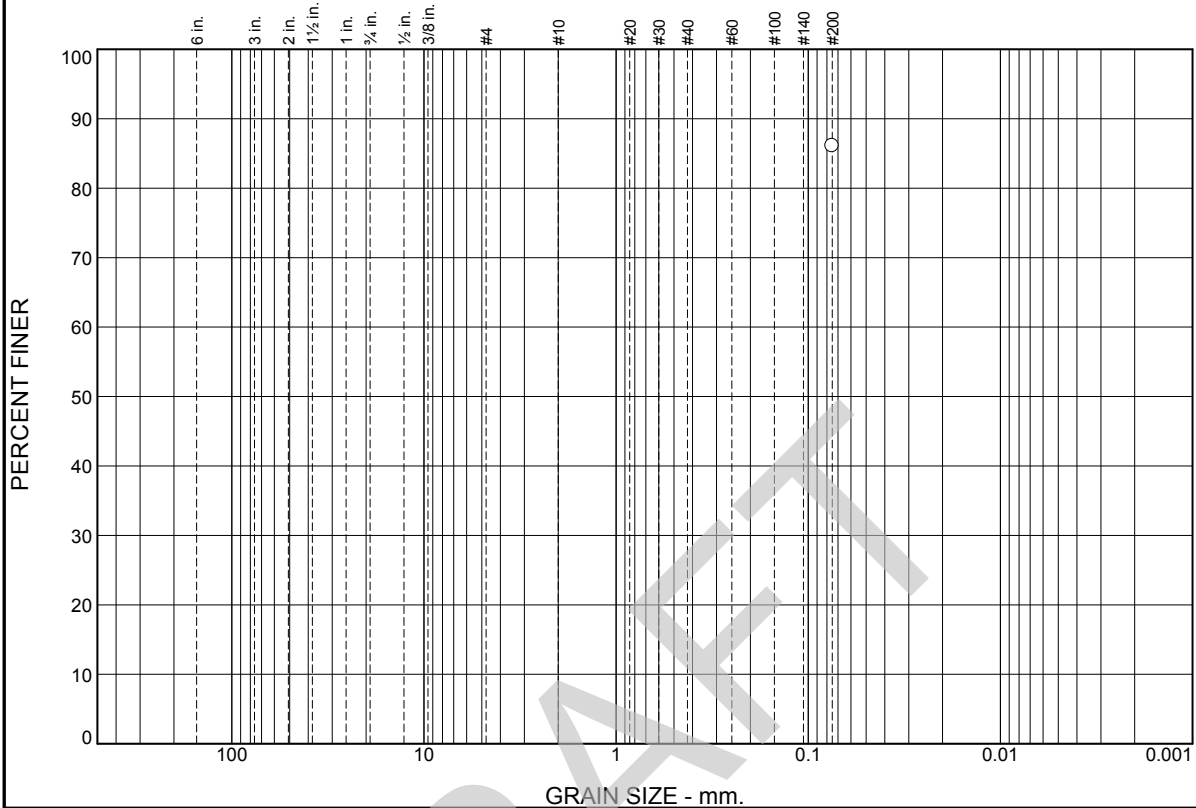
* (no specification provided)

Source of Sample: IS-9A Depth: 89-90.5

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
							86.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	86.1		

Material Description
Tan Lean CLAY with Sand

Atterberg Limits
PL= LL= PI=

Classification
USCS= (CL4) AASHTO=

Remarks

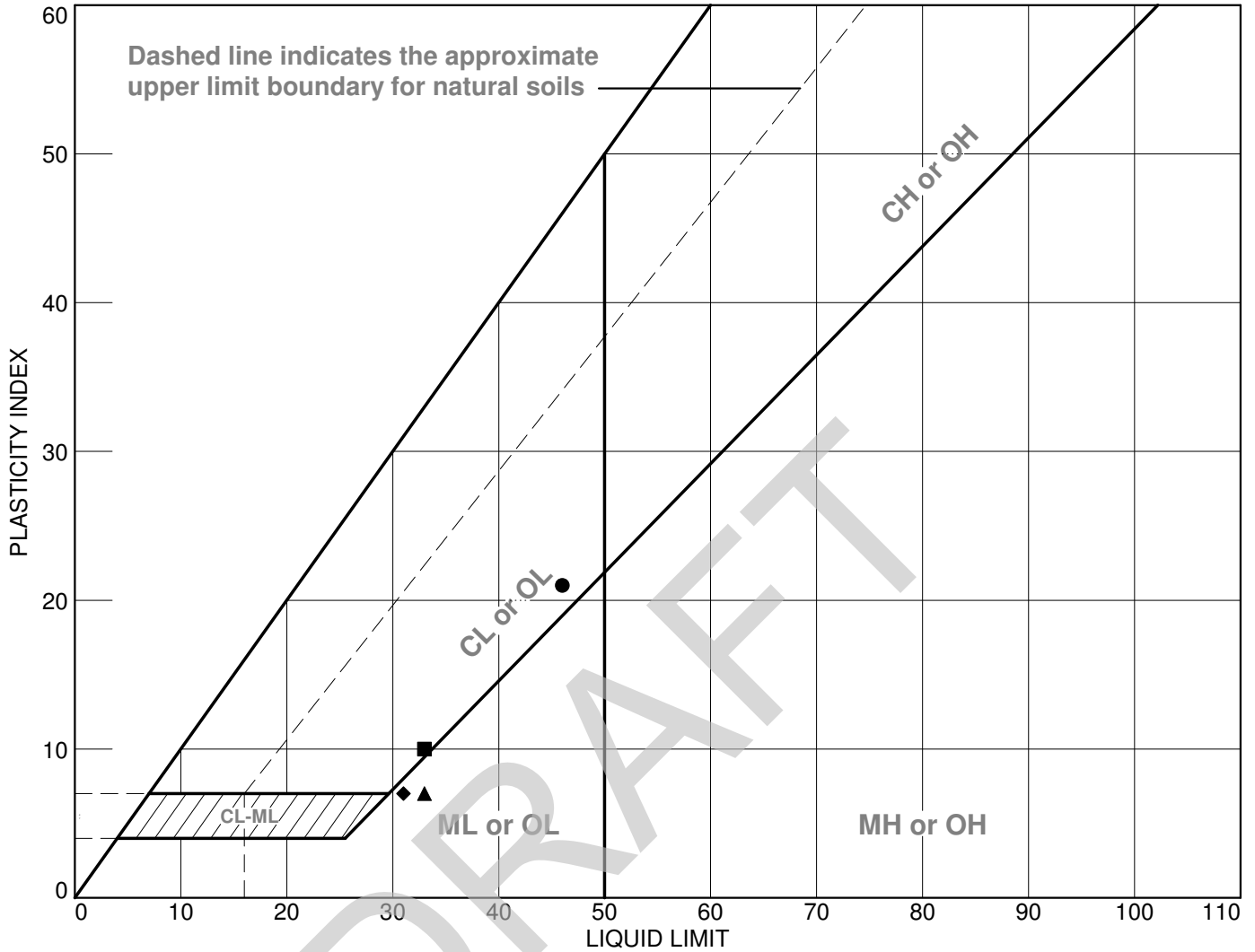
* (no specification provided)

Source of Sample: IS-9A Depth: 99-100.5

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	IS-12A	N/A	3		25	46	21	CL6
■	IS-12A	N/A	9		23	33	10	CL4
▲	IS-12A	N/A	21		26	33	7	ML
◆	IS-12A	N/A	30		24	31	7	ML

Fugro Consultants, Inc.

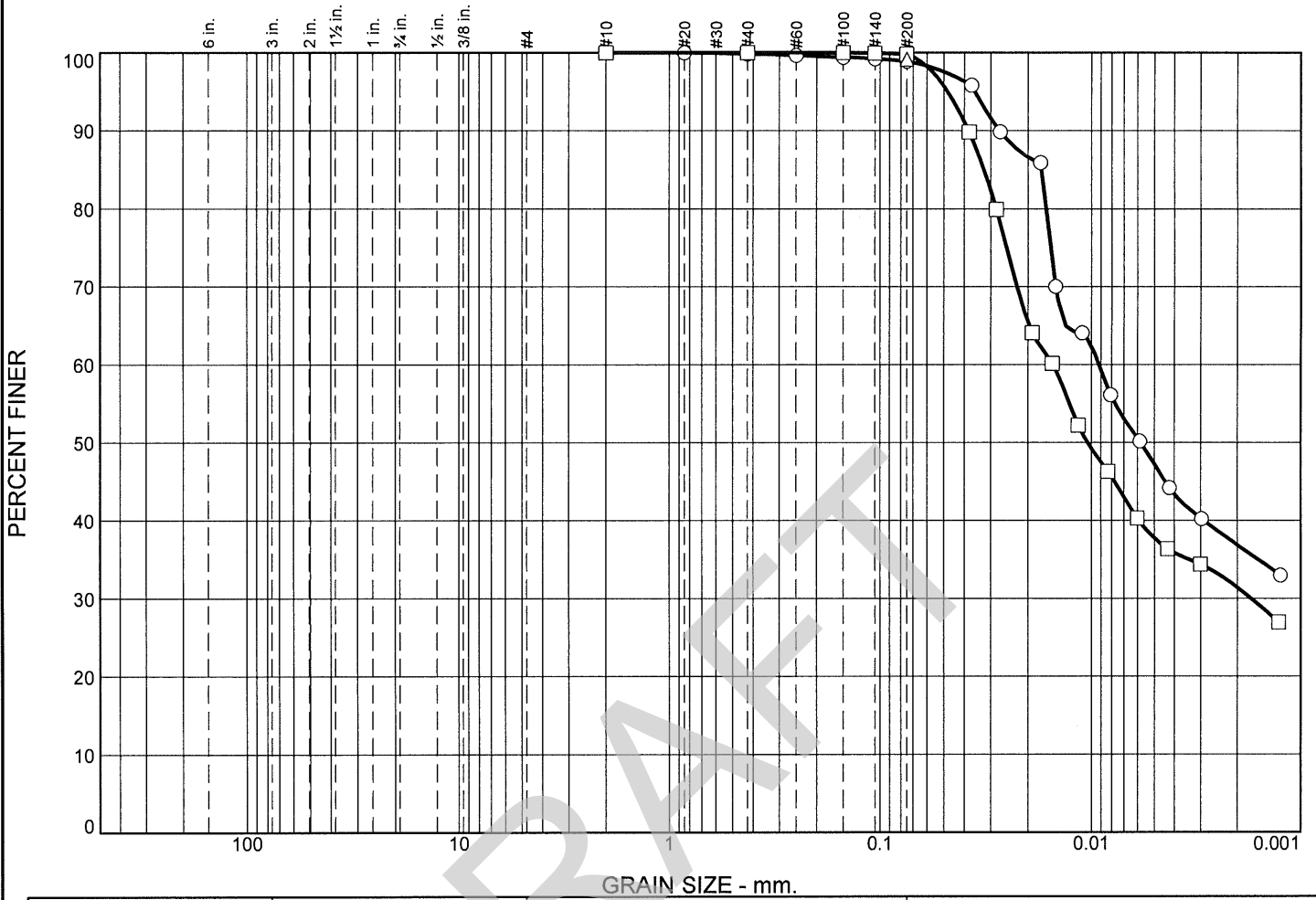
Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No.: 04.55124092

Figure

Particle Size Distribution Report

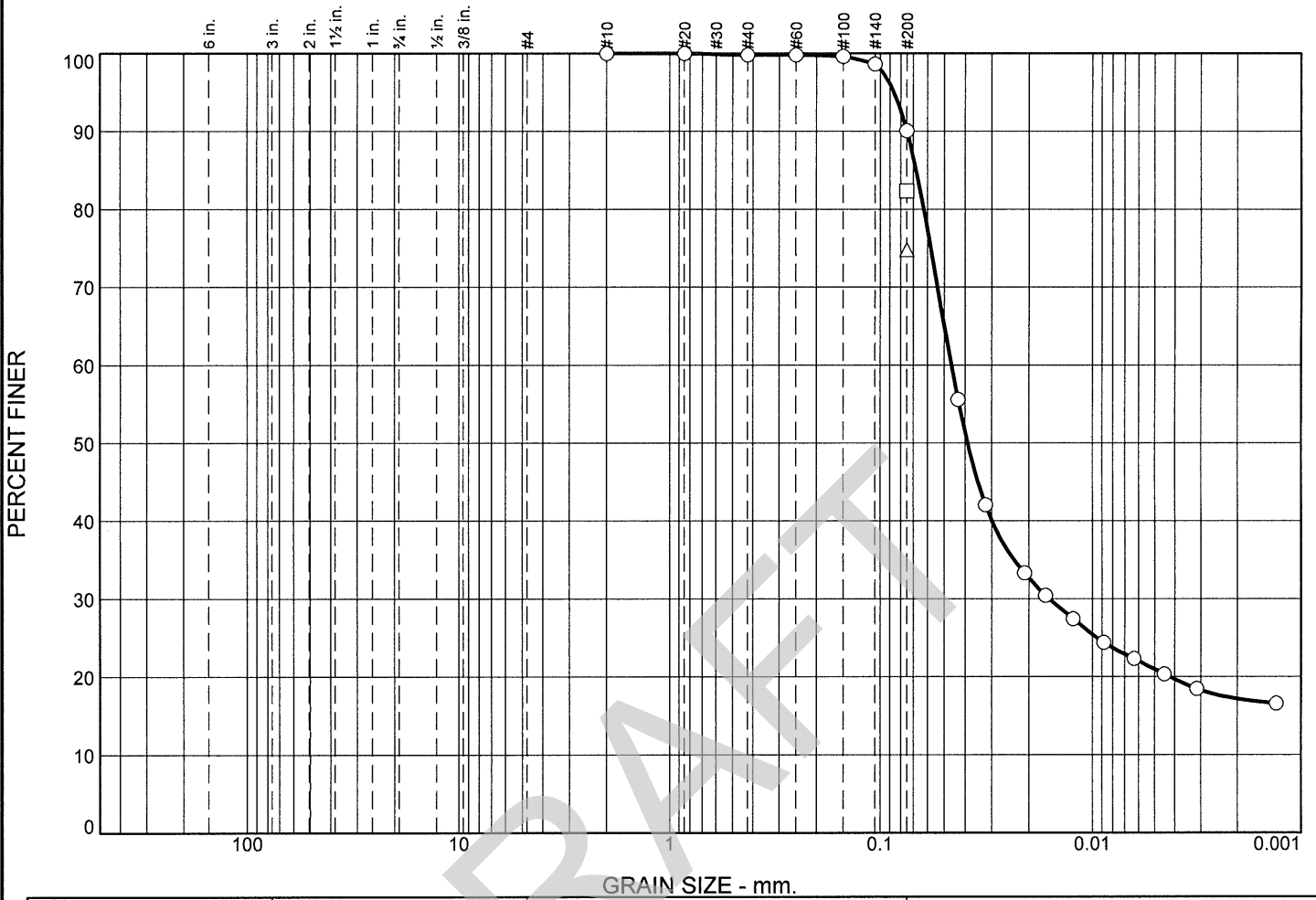


	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	1	52	47		
□	0	0	0	0	0	0	62	38		
△							99			
⊗	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			0.0173	0.0092	0.0058					
□			0.0323	0.0153	0.0104	0.0017				
△										

Material Description	USCS	AASHTO
○ SO GR & BR CL6	CL6	
□ SO GR CL4	CL4	
△ SO BR CL4	CL4	

Project No. 04.55124092 Client: GeoEngineers Project: Mid Barataria Diversion ○ Source of Sample: IS-12A Depth: 5.5 Sample Number: N/A □ Source of Sample: IS-12A Depth: 10 Sample Number: N/A △ Source of Sample: IS-12A Depth: 13 Sample Number: N/A	Remarks: ○ "Confidential Information: Privileged & Confidential Work Product"
Fugro Consultants, Inc. Baton Rouge, LA	
Figure	

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	10	69	21		
□							82			
△							75			
⊗	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			0.0679	0.0464	0.0389	0.0161				
□										
△										

Material Description	USCS	AASHTO
○ BR & GR ML W/ ARS CH, O	ML	
□ GR ML W/ ARS SM	ML	
△ BR & GR ML W/ ARS SM	ML	

Project No. 04.55124092 Client: GeoEngineers Project: Mid Barataria Diversion ○ Source of Sample: IS-12A Depth: 14 Sample Number: N/A □ Source of Sample: IS-12A Depth: 15 Sample Number: N/A △ Source of Sample: IS-12A Depth: 16.3 Sample Number: N/A	Remarks: ○ "Confidential Information: Privileged & Confidential Work Product"
Fugro Consultants, Inc. Baton Rouge, LA	
Figure	

Tested By: MTC

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	7	71	22		
□							64			
△							85			
×	LL	PL	D85	D60	D50	D30	D15	D10	C _c	C _u
○			0.0631	0.0408	0.0333	0.0127				
□										
△										

Material Description	USCS	AASHTO
○ BR & GR ML W/ ARS CH, O	ML	
□ BR & GR ML W/ ARS SM	ML	
△ BR & GR ML	ML	

Project No. 04.55124092 Client: GeoEngineers Project: Mid Barataria Diversion ○ Source of Sample: IS-12A Depth: 19 Sample Number: N/A □ Source of Sample: IS-12A Depth: 25 Sample Number: N/A △ Source of Sample: IS-12A Depth: 27 Sample Number: N/A	Remarks: ○ "Confidential Information: Privileged & Confidential Work Product"
Fugro Consultants, Inc. Baton Rouge, LA	

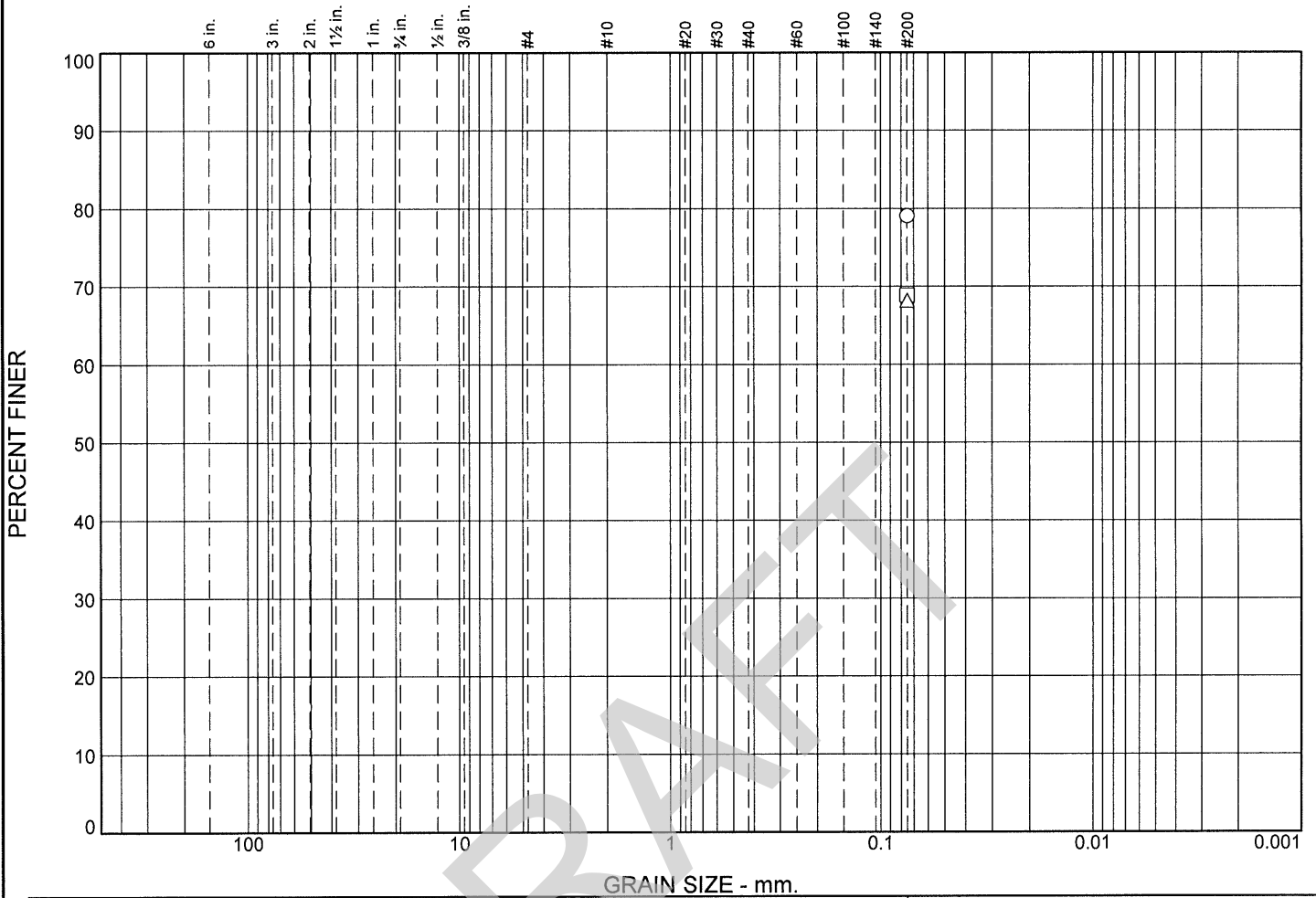
Figure

Tested By: MTC

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines		
			Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
○									79	
□									69	
△									68	
	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○										
□										
△										

Material Description								USCS	AASHTO
○ BR & GR ML W/ ARS SM								ML	
□ BR & GR ML W/ ARS SM								ML	
△ BR & GR ML W/ ARS SM								ML	

Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Barataria Diversion

○ **Source of Sample:** IS-12A **Depth:** 34 **Sample Number:** N/A
 □ **Source of Sample:** IS-12A **Depth:** 37 **Sample Number:** N/A
 △ **Source of Sample:** IS-12A **Depth:** 40.5 **Sample Number:** N/A

Fugro Consultants, Inc.

Baton Rouge, LA

Remarks:
 ○ "Confidential Information: Privileged & Confidential Work Product"

Figure

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines		
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
○	0	0	0	0	0	2	64	34	
□	0	0	0	0	0	22	61	17	
△							85		
LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○		0.0374	0.0178	0.0130	0.0035				
□		0.0849	0.0569	0.0486	0.0199	0.0024			
△									

Material Description	USCS	AASHTO
○ BR & GR ML W/ ARS CH & SM, O	ML	
□ BR & GR ML W/ ARS CH & SP, O	ML	
△ BR & GR ML	ML	

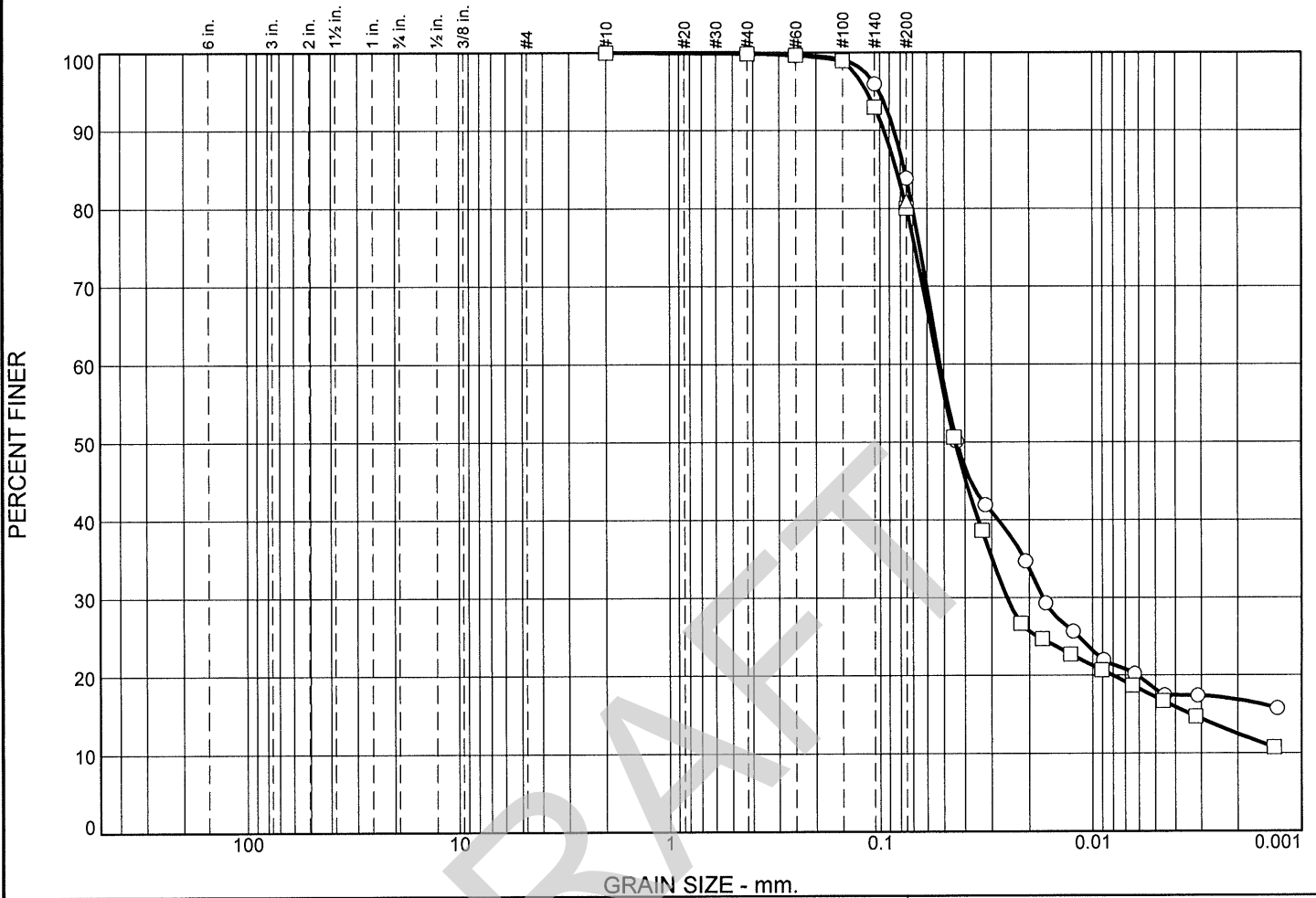
<p>Project No. 04.55124092 Client: GeoEngineers</p> <p>Project: Mid Barataria Diversion</p> <p>○ Source of Sample: IS-12A Depth: 45 Sample Number: N/A</p> <p>□ Source of Sample: IS-12A Depth: 47 Sample Number: N/A</p> <p>△ Source of Sample: IS-12A Depth: 49 Sample Number: N/A</p> <p style="text-align: center;">Fugro Consultants, Inc.</p> <p style="text-align: center;">Baton Rouge, LA</p>	<p>Remarks:</p> <p>○ "Confidential Information: Privileged & Confidential Work Product"</p> <p style="text-align: right;">Figure</p>
---	--

Tested By: MC

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	16	66	18		
□	0	0	0	0	0	20	63	17		
△							81			
⊗	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			0.0766	0.0522	0.0437	0.0173				
□			0.0835	0.0534	0.0445	0.0254	0.0034			
△										

Material Description	USCS	AASHTO
○ BR & GR ML W/ ARS CH & SM, O	ML	
□ GR ML W/ ARS SP, CH	ML	
△ BR & GR ML W/ ARS SM	ML	

Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Barataria Diversion

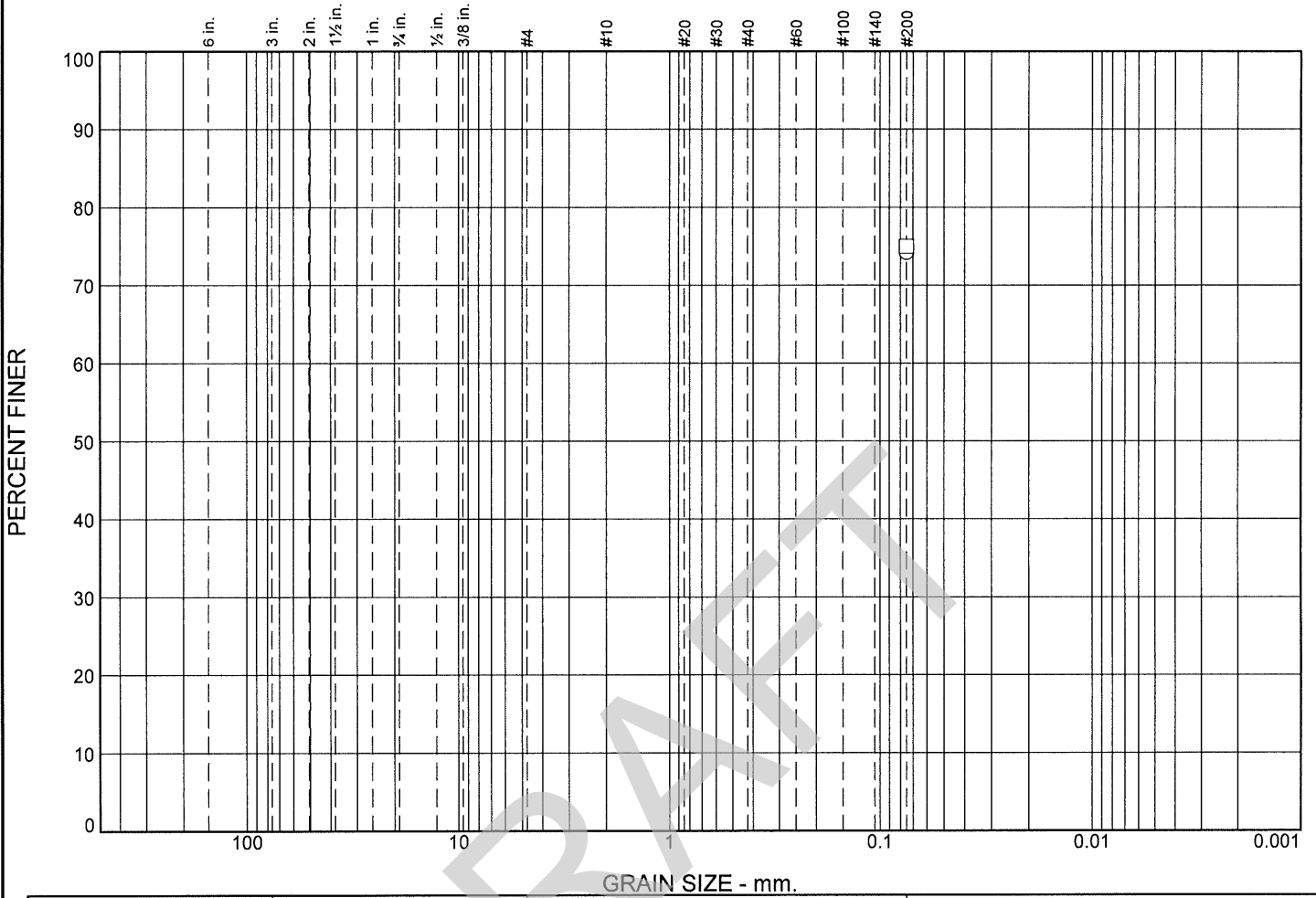
○ **Source of Sample:** IS-12A **Depth:** 53 **Sample Number:** N/A
 □ **Source of Sample:** IS-12A **Depth:** 54 **Sample Number:** N/A
 △ **Source of Sample:** IS-12A **Depth:** 59 **Sample Number:** N/A

Fugro Consultants, Inc.
Baton Rouge, LA

Remarks:
 ○ "Confidential Information: Privileged & Confidential Work Product"

Figure

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
<input type="radio"/>								74		
<input type="checkbox"/>								75		
	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
<input type="radio"/>										
<input type="checkbox"/>										

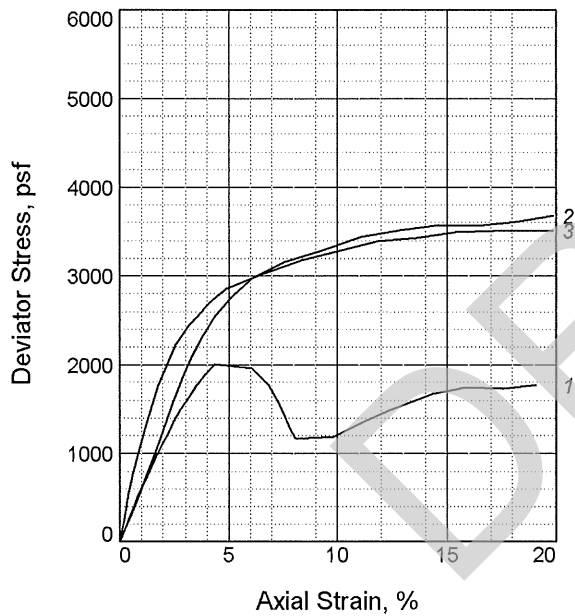
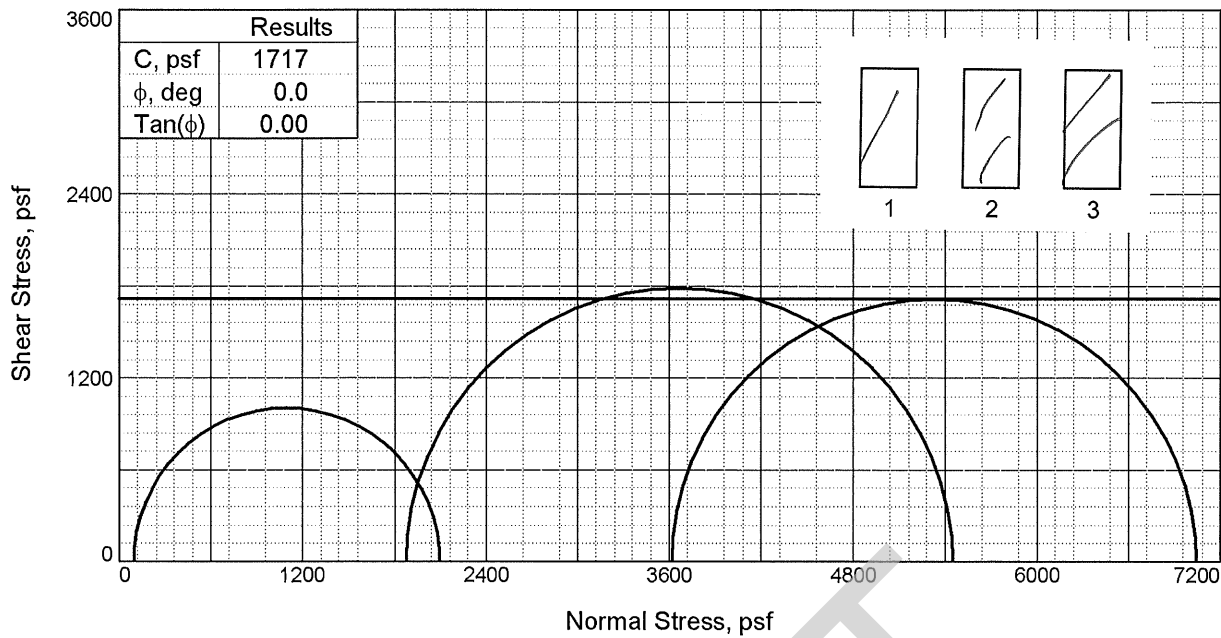
Material Description		USCS	AASHTO
<input type="radio"/>	BR & GR ML W/ ARS SM	ML	
<input type="checkbox"/>	GR ML W/ ARS SM	ML	

<p>Project No. 04.55124092 Client: GeoEngineers</p> <p>Project: Mid Barataria Diversion</p> <p><input type="radio"/> Source of Sample: IS-12A Depth: 78 Sample Number: N/A</p> <p><input type="checkbox"/> Source of Sample: IS-12A Depth: 80 Sample Number: N/A</p>	<p>Remarks:</p> <p><input type="radio"/> "Confidential Information: Privileged & Confidential Work Product"</p>
<p>Fugro Consultants, Inc.</p> <p>Baton Rouge, LA</p>	
<p>Figure</p>	

Tested By: AJ

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	24.1	23.9	25.8
	Dry Density, pcf	97.7	95.4	95.0
	Saturation, %	90.7	85.0	90.6
	Void Ratio	0.7127	0.7536	0.7618
	Diameter, in.	1.37	1.43	1.35
	Height, in.	3.00	3.06	2.98
At Test	Water Content, %	24.1	23.9	25.8
	Dry Density, pcf	97.7	95.4	95.0
	Saturation, %	90.7	85.0	90.6
	Void Ratio	0.7127	0.7536	0.7618
	Diameter, in.	1.37	1.43	1.35
	Height, in.	3.00	3.06	2.98
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	0.62	13.01	25.09	
Fail. Stress, psf		2008	3575	3432
	Strain, %	4.4	14.6	13.6
Ult. Stress, psf		1164	3575	3432
	Strain, %	8.1	14.6	13.6
σ_1 Failure, psf		2097	5448	7044
σ_3 Failure, psf		89	1873	3613

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: ST BR CL6

Assumed Specific Gravity= 2.68

Remarks: Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: IS-12A

Depth: 1

Sample Number: N/A

Proj. No.: 04.55124092

Date Sampled: 8/8/13

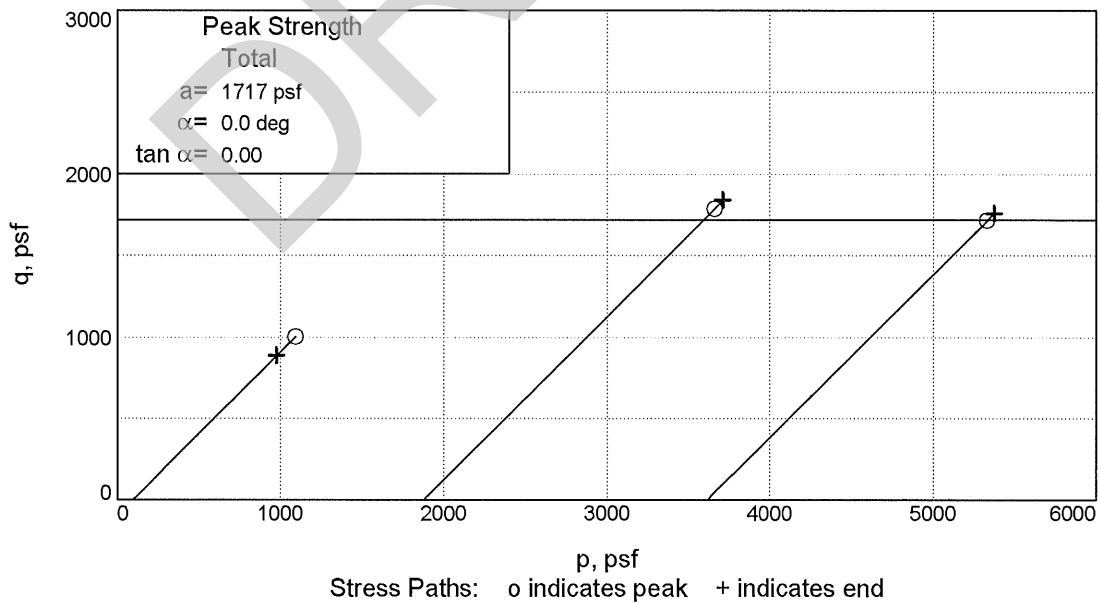
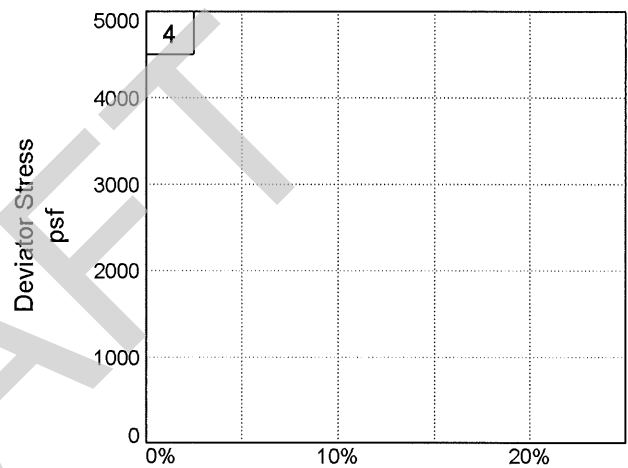
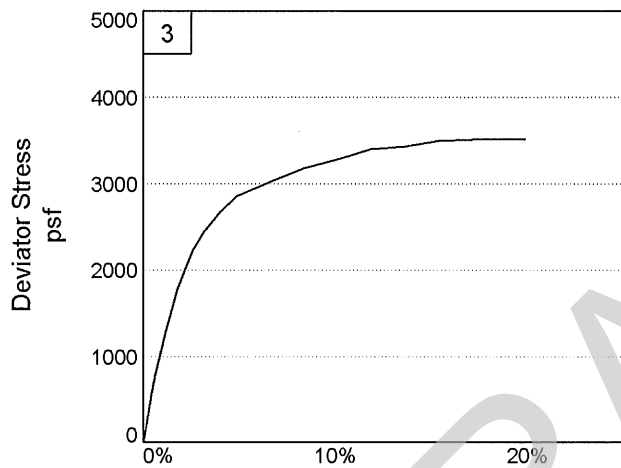
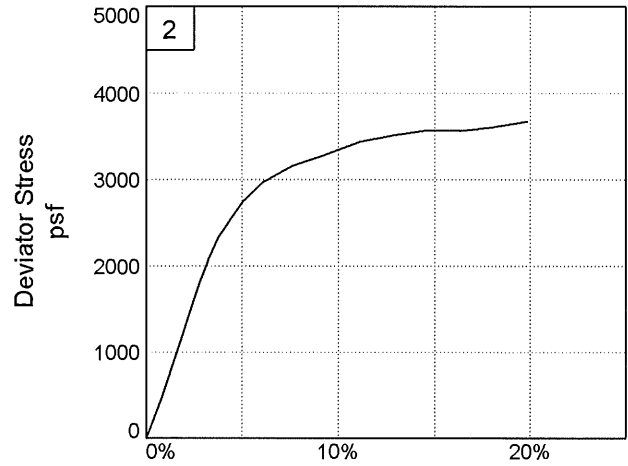
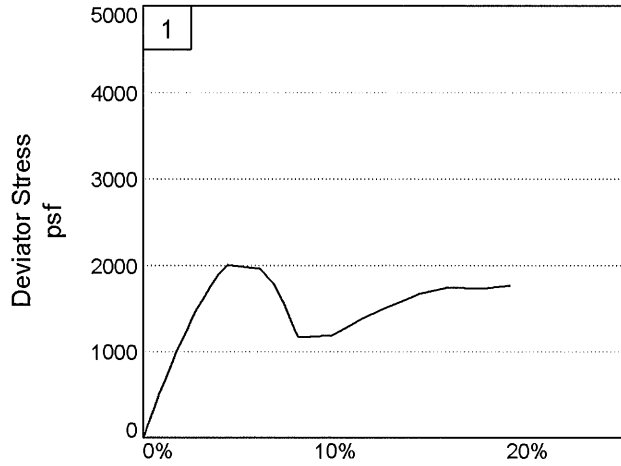
TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.
Baton Rouge, LA

Figure _____

Tested By: AL

Checked By: KA



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-12A

Depth: 1

Sample Number: N/A

Project No.: 04.55124092

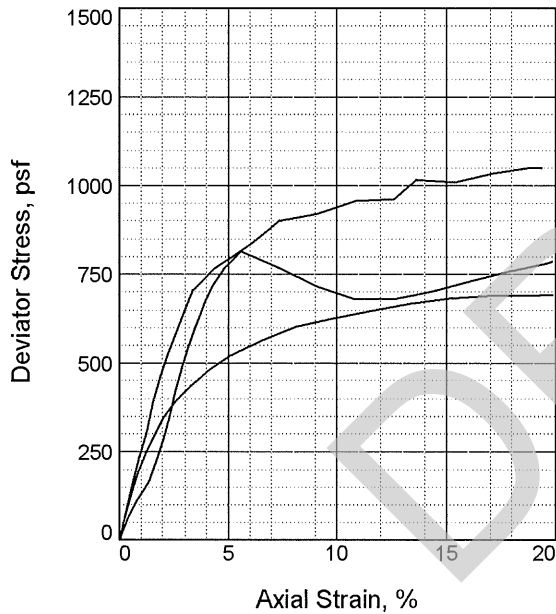
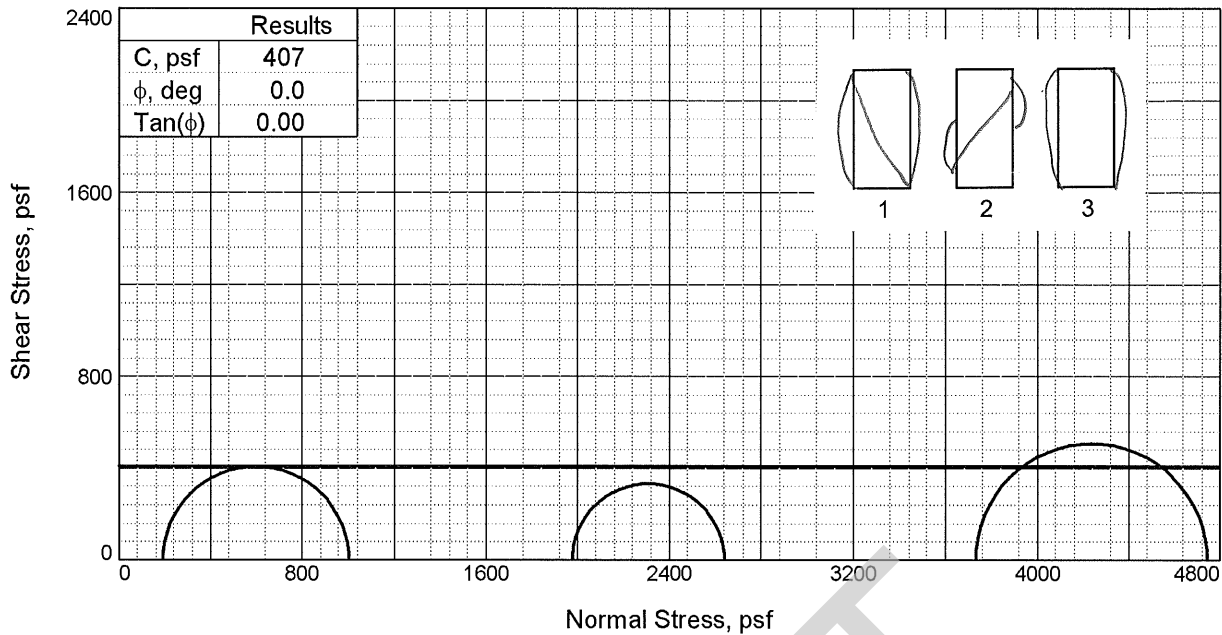
Figure _____

Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	35.8	40.3	37.3
	Dry Density, pcf	82.8	77.1	83.9
	Saturation, %	93.9	92.2	100.6
	Void Ratio	1.0212	1.1712	0.9948
	Diameter, in.	1.35	1.40	1.40
	Height, in.	3.00	3.00	3.02
At Test	Water Content, %	35.8	40.3	37.3
	Dry Density, pcf	82.8	77.1	83.9
	Saturation, %	93.9	92.2	100.6
	Void Ratio	1.0212	1.1712	0.9948
	Diameter, in.	1.35	1.40	1.40
	Height, in.	3.00	3.00	3.02
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	1.32	13.71	25.89	
Fail. Stress, psf	815	667	1017	
Strain, %	5.6	13.3	13.6	
Ult. Stress, psf	680	667	1017	
Strain, %	10.8	13.3	13.6	
σ_1 Failure, psf	1005	2641	4745	
σ_3 Failure, psf	190	1974	3728	

Type of Test:
Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO BR CL6

LL= 46 PL= 25 PI= 21

Assumed Specific Gravity= 2.68

Remarks: Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barataria Diversion

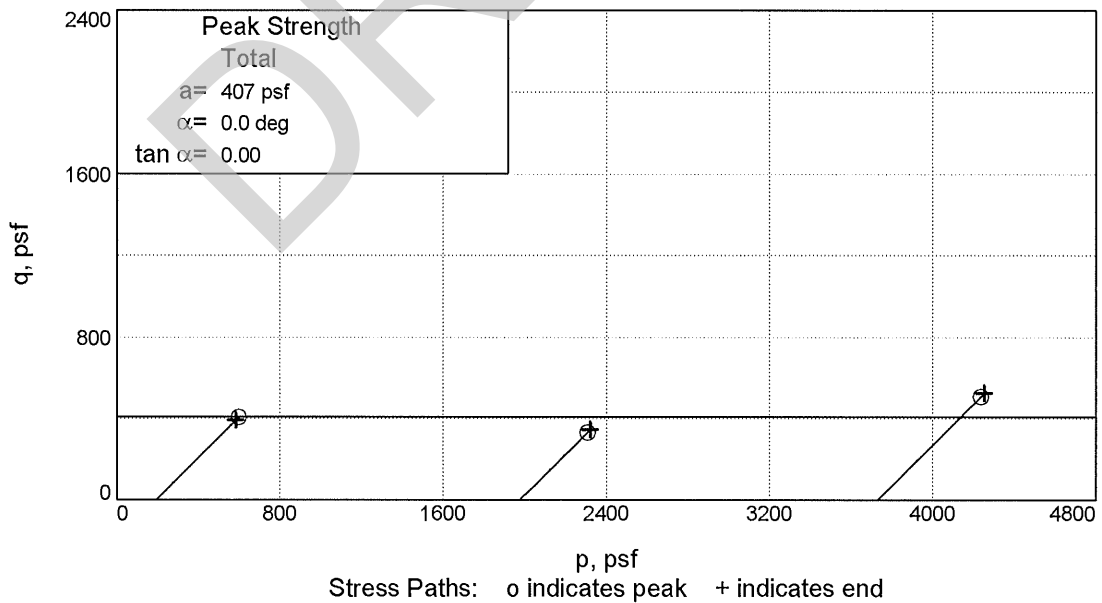
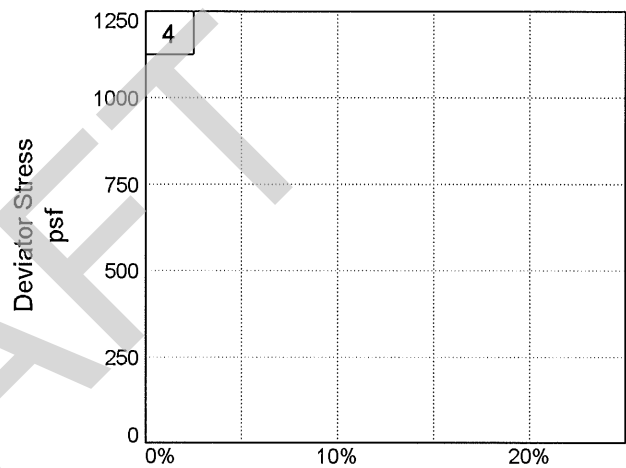
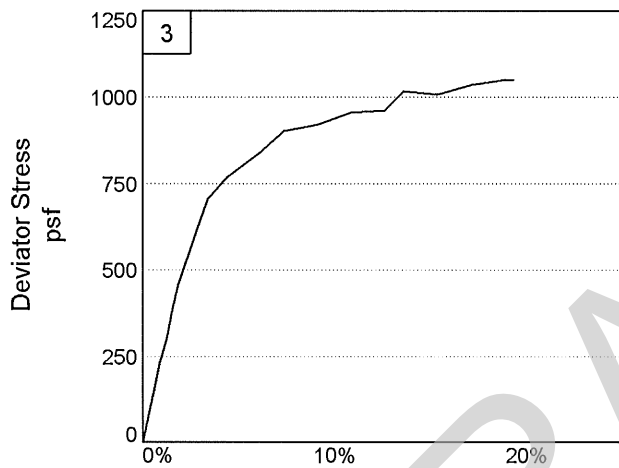
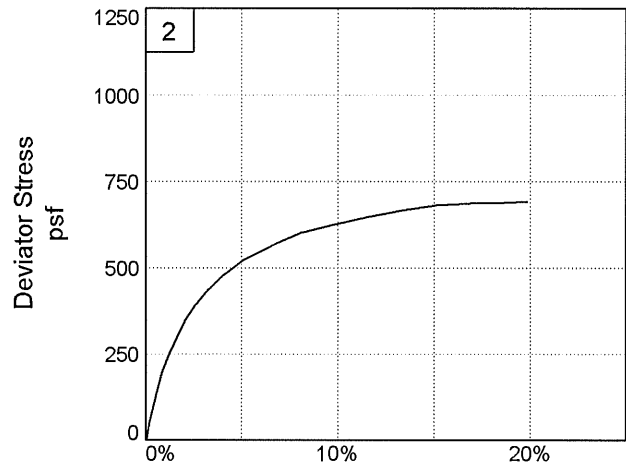
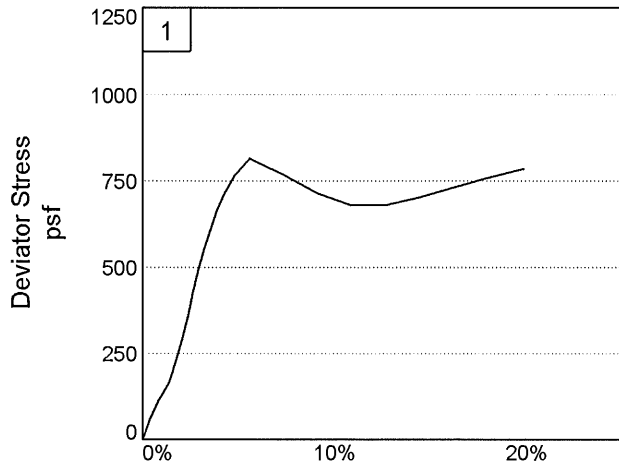
Source of Sample: IS-12A **Depth:** 3

Sample Number: N/A

Proj. No.: 04.55124092 **Date Sampled:** 8/8/13

TRIAXIAL SHEAR TEST REPORT
 Fugro Consultants, Inc.
 Baton Rouge, LA

Figure _____



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-12A

Depth: 3

Sample Number: N/A

Project No.: 04.55124092

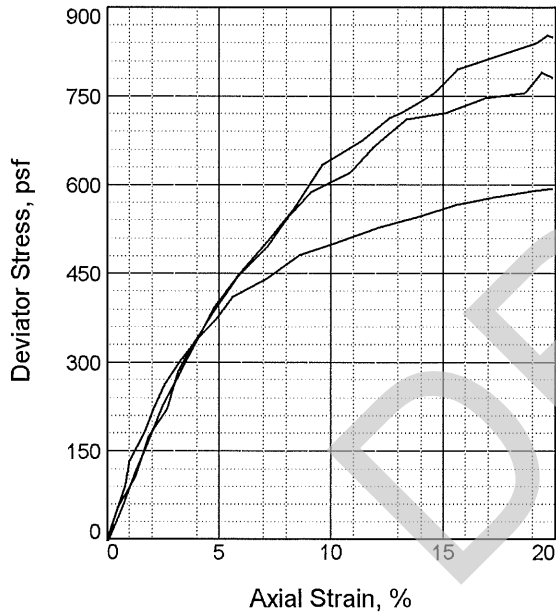
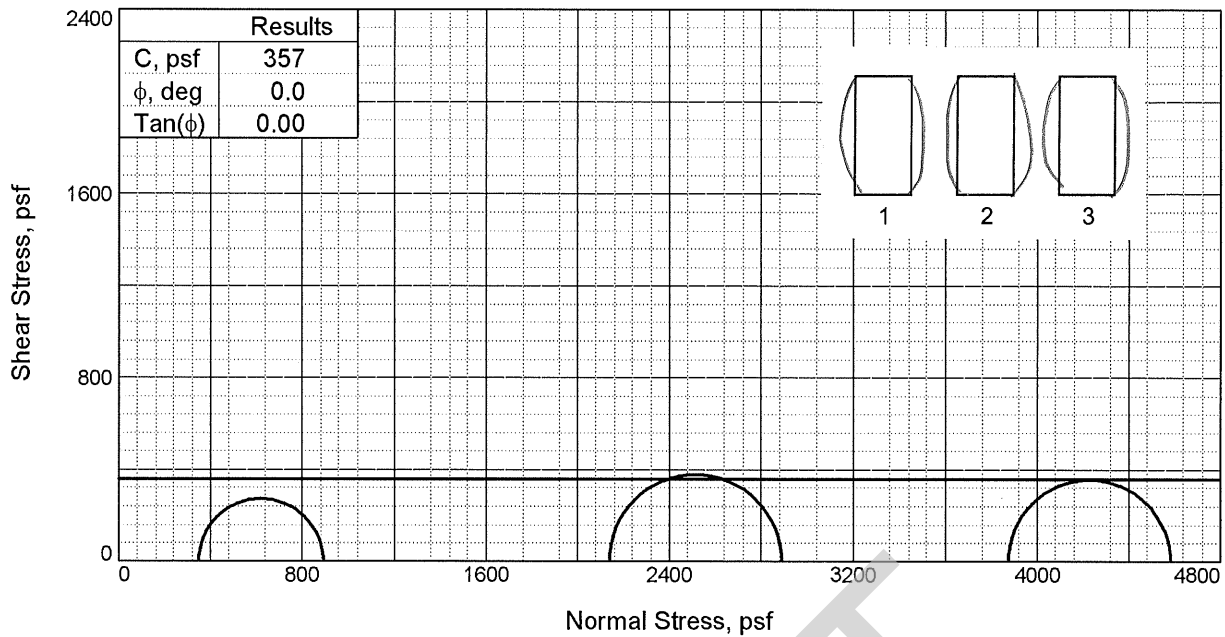
Figure _____

Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	37.2	33.2	33.8
	Dry Density, pcf	84.1	87.0	88.4
	Saturation, %	100.9	96.4	101.5
	Void Ratio	0.9885	0.9227	0.8925
	Diameter, in.	1.38	1.40	1.40
	Height, in.	2.99	3.00	2.97
At Test	Water Content, %	37.2	33.2	33.8
	Dry Density, pcf	84.1	87.0	88.4
	Saturation, %	100.9	96.4	101.5
	Void Ratio	0.9885	0.9227	0.8925
	Diameter, in.	1.38	1.40	1.40
	Height, in.	2.99	3.00	2.97
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	2.41	14.83	26.89	
Fail. Stress, psf	545	756	711	
Strain, %	13.8	14.6	13.3	
Ult. Stress, psf	545	756	711	
Strain, %	13.8	14.6	13.3	
σ_1 Failure, psf	892	2891	4583	
σ_3 Failure, psf	347	2136	3872	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO BR CL4

Assumed Specific Gravity= 2.68

Remarks: Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-12A

Depth: 6

Sample Number: N/A

Proj. No.: 04.55124092

Date Sampled: 8/8/13

TRIAXIAL SHEAR TEST REPORT

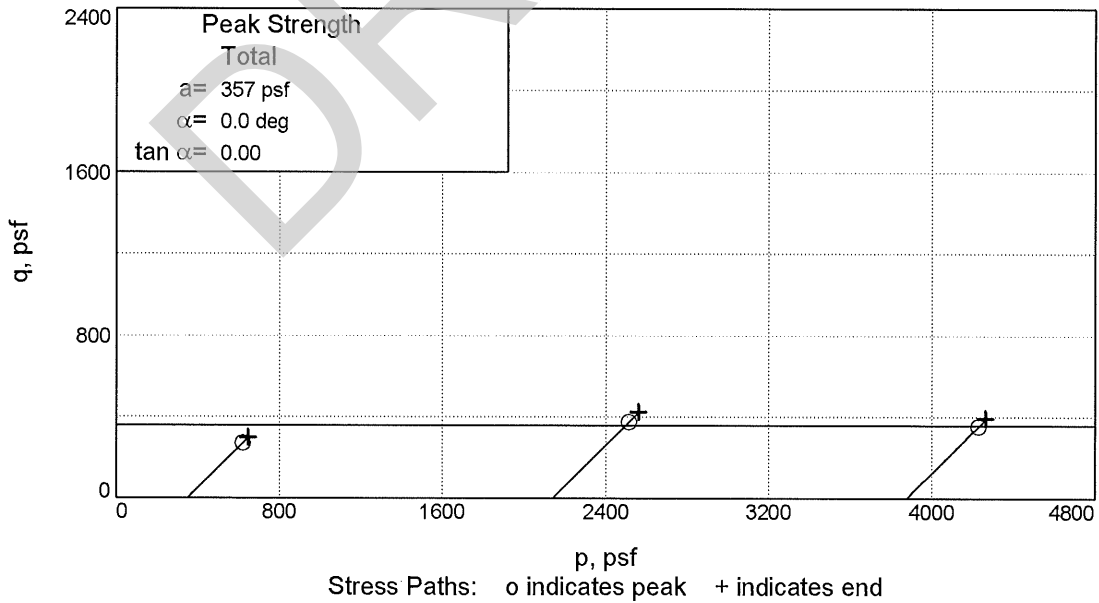
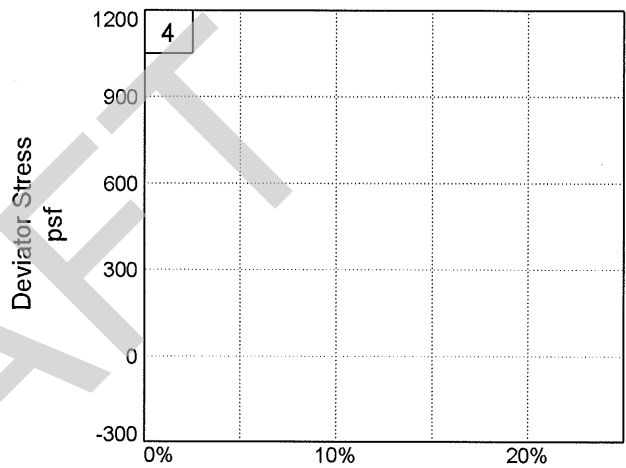
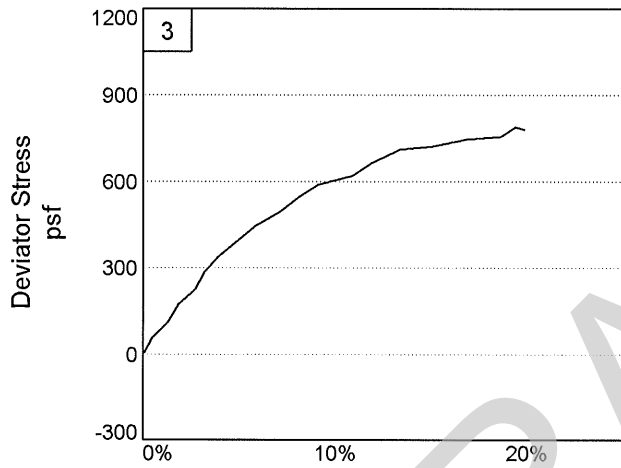
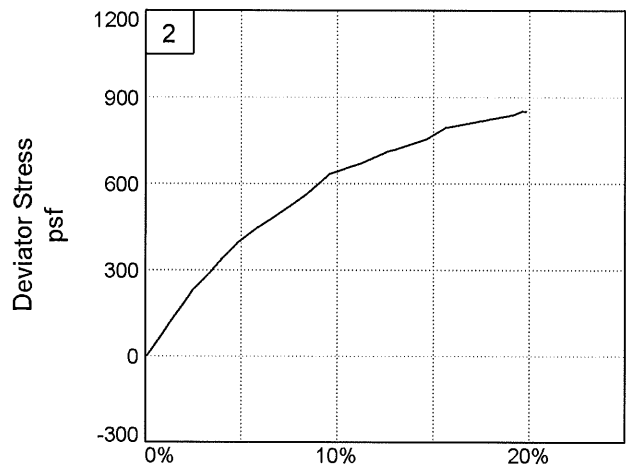
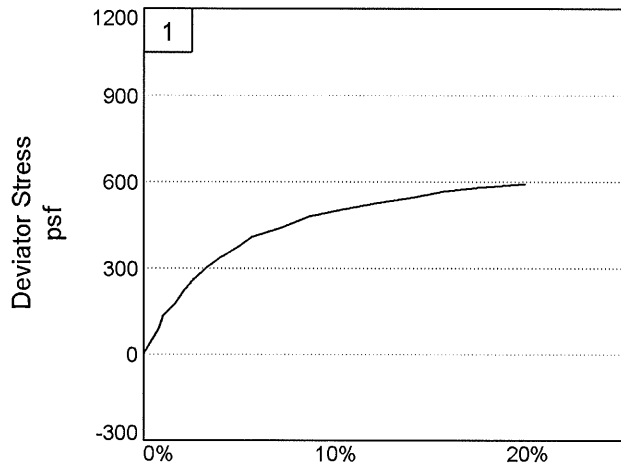
Fugro Consultants, Inc.
Baton Rouge, LA

Figure _____

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-12A

Depth: 6

Sample Number: N/A

Project No.: 04.55124092

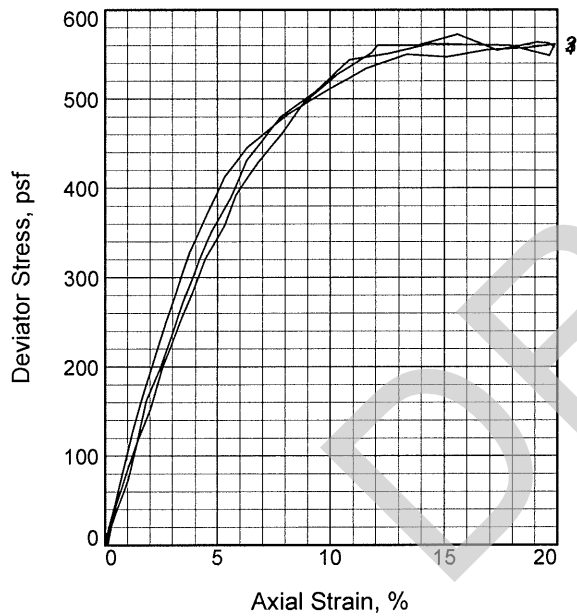
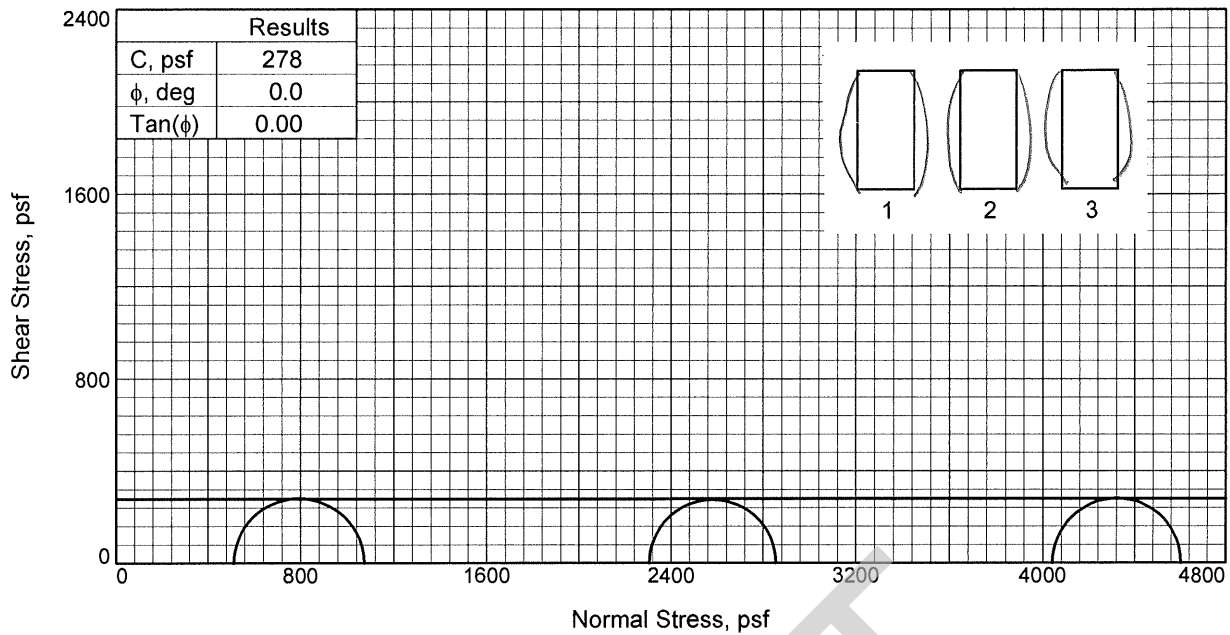
Figure _____

Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	36.4	36.3	36.0
Dry Density, pcf	86.3	83.6	84.6
Saturation, %	103.9	97.4	98.8
Void Ratio	0.9386	1.0006	0.9771
Diameter, in.	1.38	1.40	1.39
Height, in.	3.01	3.00	3.00
At Test			
Water Content, %	36.4	36.3	36.0
Dry Density, pcf	86.3	83.6	84.6
Saturation, %	103.9	97.4	98.8
Void Ratio	0.9386	1.0006	0.9771
Diameter, in.	1.38	1.40	1.39
Height, in.	3.01	3.00	3.00
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	3.56	16.01	28.07
Fail. Stress, psf	560	550	562
Strain, %	13.8	13.4	14.4
Ult. Stress, psf	560	550	562
Strain, %	13.8	13.4	14.4
σ_1 Failure, psf	1073	2855	4604
σ_3 Failure, psf	513	2305	4042

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO BR CL4

LL= 33

PL= 23

PI= 10

Assumed Specific Gravity= 2.68

Remarks: Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: IS-12A

Depth: 9

Sample Number: N/A

Proj. No.: 04.55124092

Date Sampled: 8/18/13

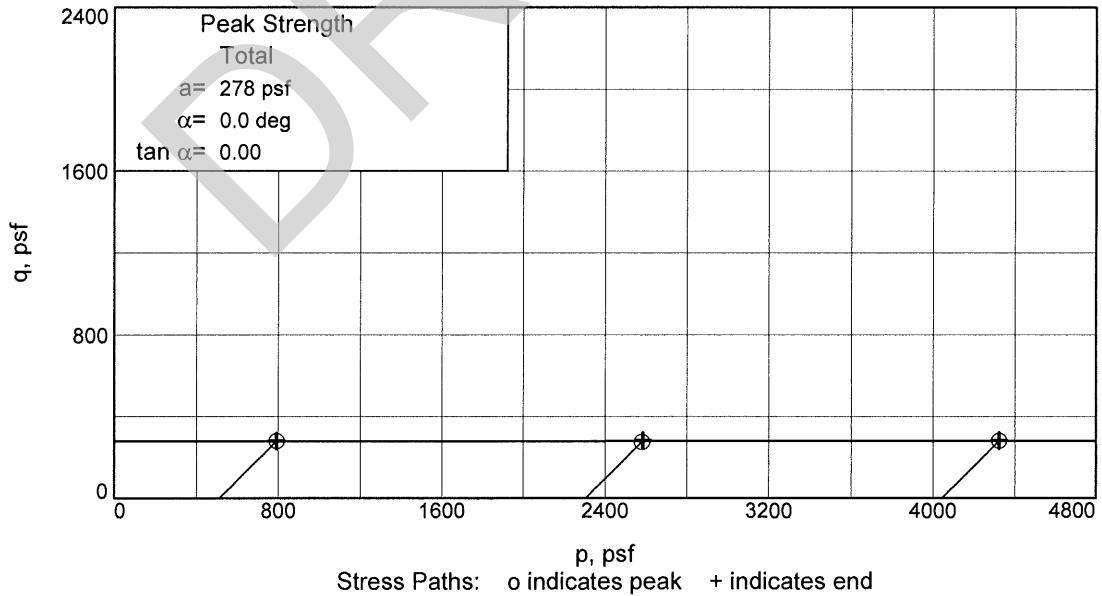
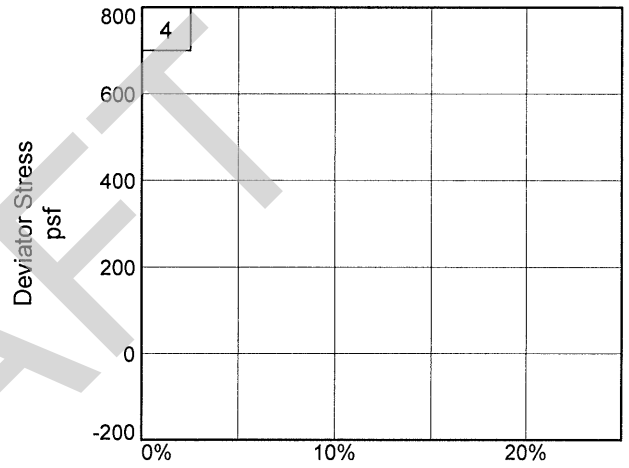
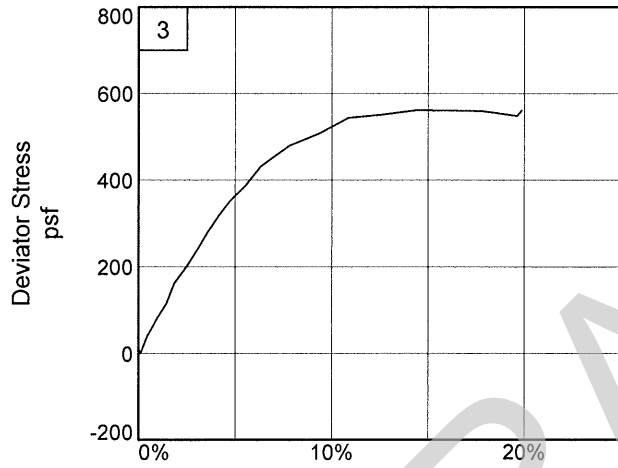
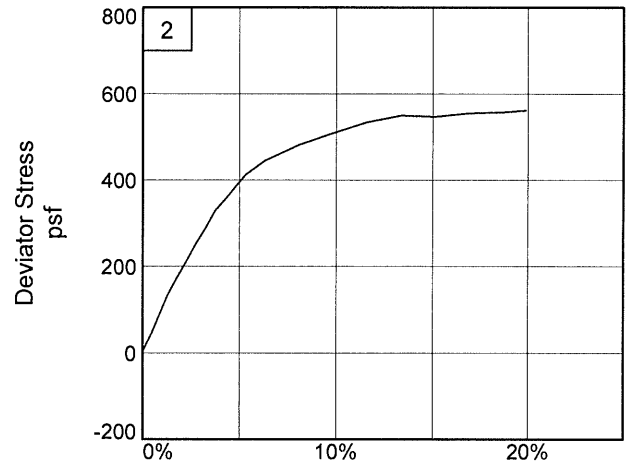
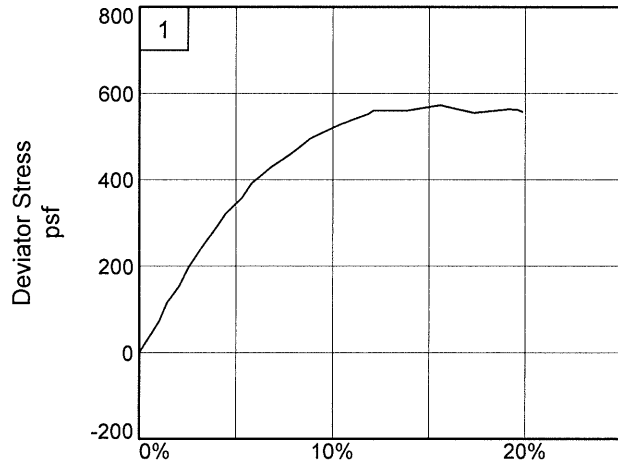
TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.
Baton Rouge, LA

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-12A

Depth: 9

Sample Number: N/A

Project No.: 04.55124092

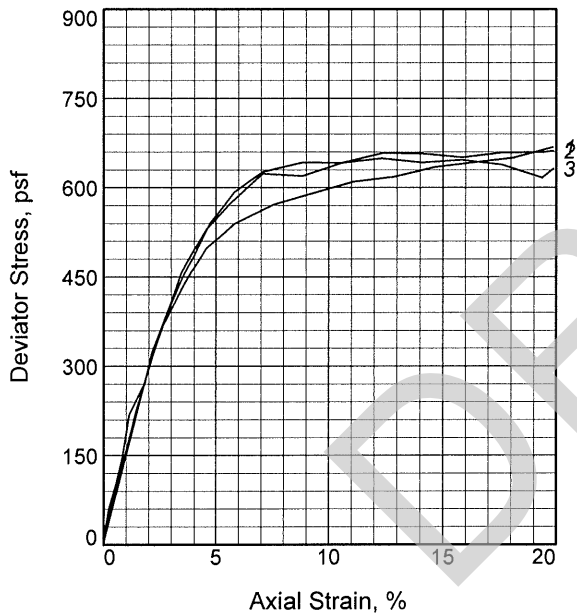
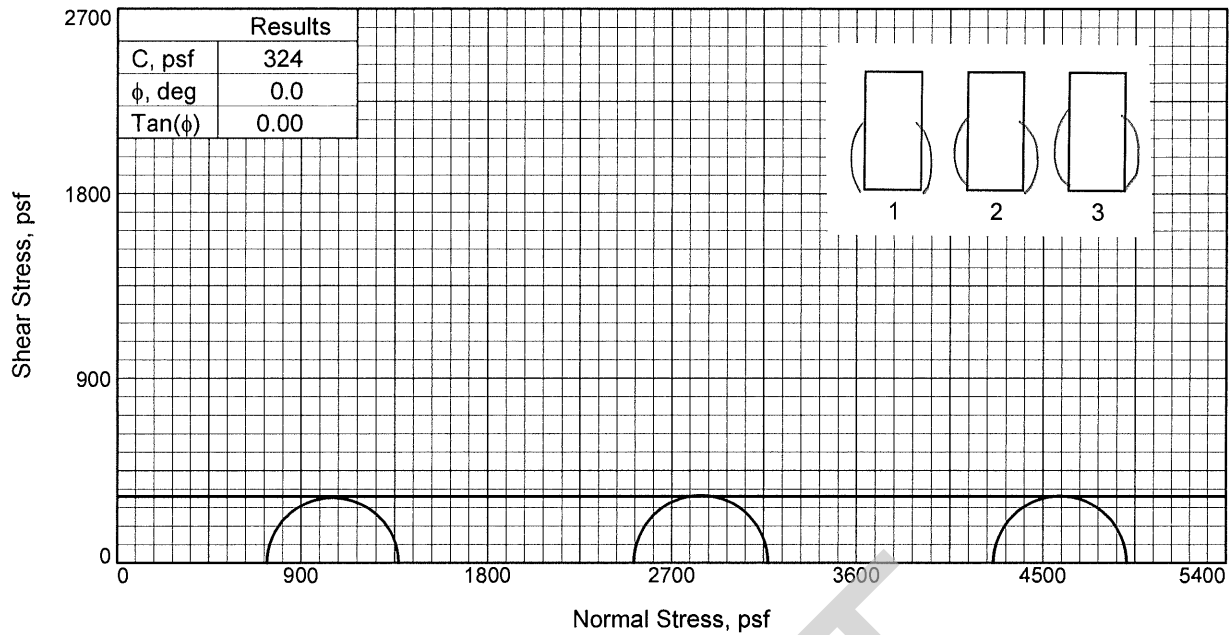
Figure _____

Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	40.2	39.4	41.4
	Dry Density, pcf	81.0	81.1	80.0
	Saturation, %	101.1	99.3	101.7
	Void Ratio	1.0653	1.0622	1.0901
	Diameter, in.	1.39	1.39	1.39
	Height, in.	3.00	3.00	3.00
At Test	Water Content, %	40.2	39.4	41.4
	Dry Density, pcf	81.0	81.1	80.0
	Saturation, %	101.1	99.3	101.7
	Void Ratio	1.0653	1.0622	1.0901
	Diameter, in.	1.39	1.39	1.39
	Height, in.	3.00	3.00	3.00
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	5.10	17.46	29.58	
Fail. Stress, psf	634	658	649	
Strain, %	14.6	12.3	12.3	
Ult. Stress, psf	634	658	649	
Strain, %	14.6	12.3	12.3	
σ_1 Failure, psf	1369	3172	4909	
σ_3 Failure, psf	734	2514	4260	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO BR CL4

Assumed Specific Gravity= 2.68

Remarks: Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-12A **Depth:** 13

Sample Number: N/A

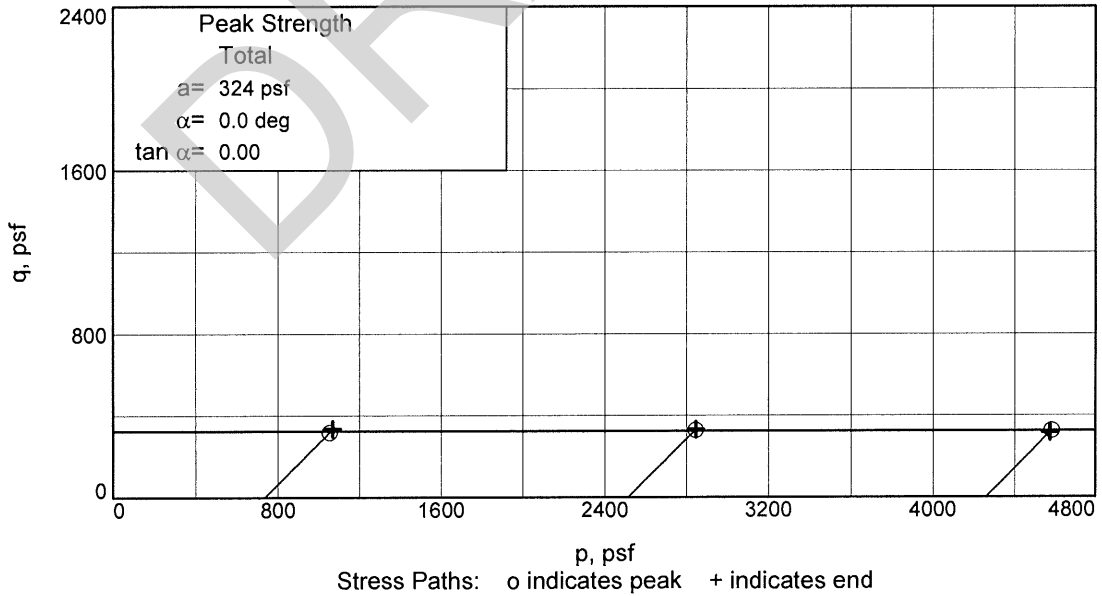
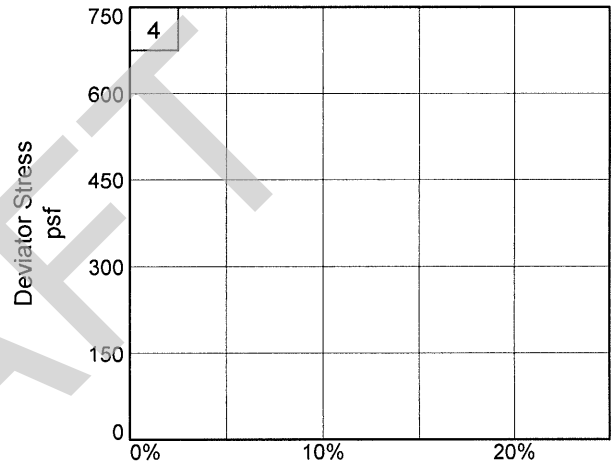
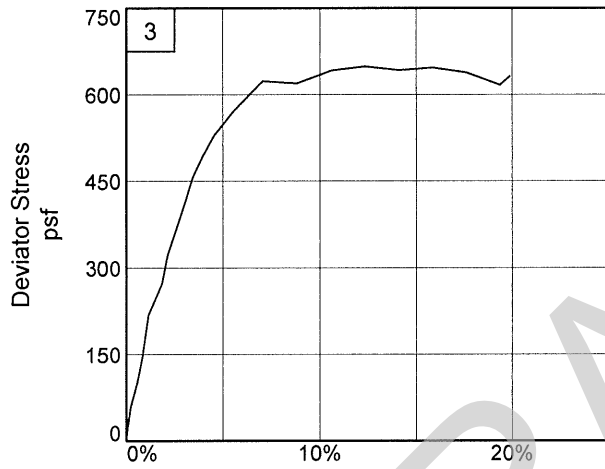
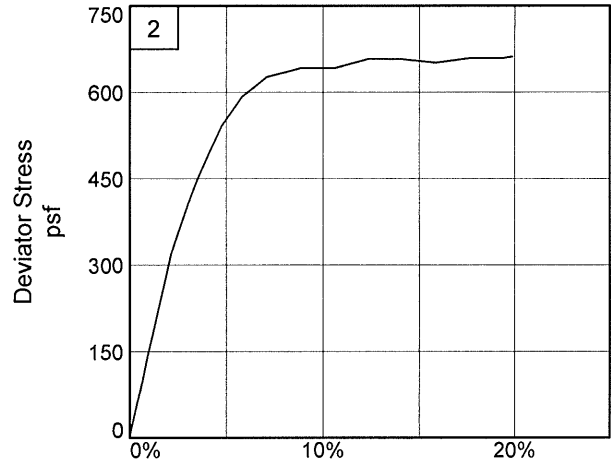
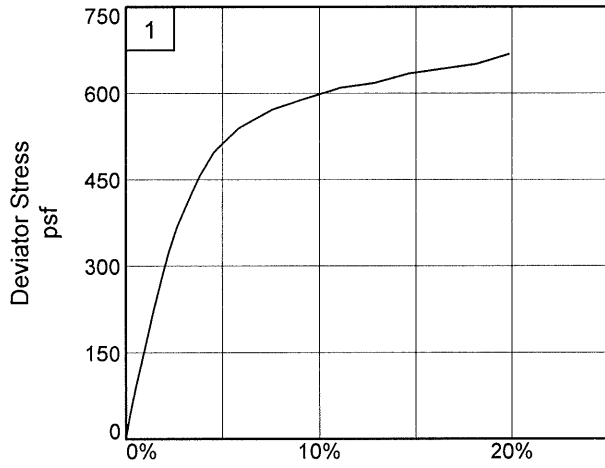
Proj. No.: 04.55124092 **Date Sampled:** 8/9/13

TRIAXIAL SHEAR TEST REPORT
Fugro Consultants, Inc.
Baton Rouge, LA

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-12A

Depth: 13

Sample Number: N/A

Project No.: 04.55124092

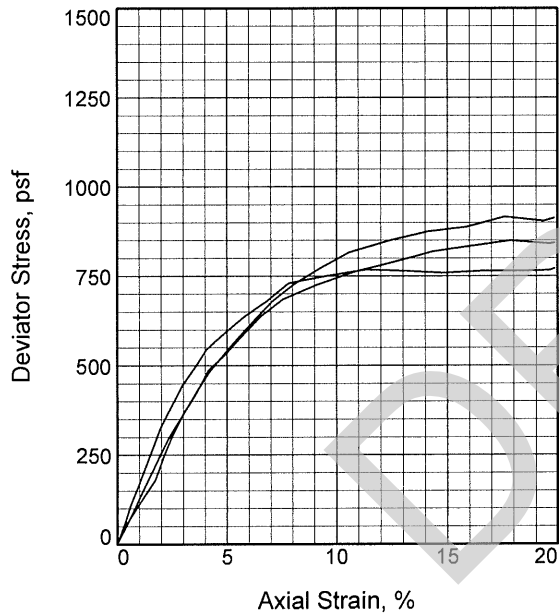
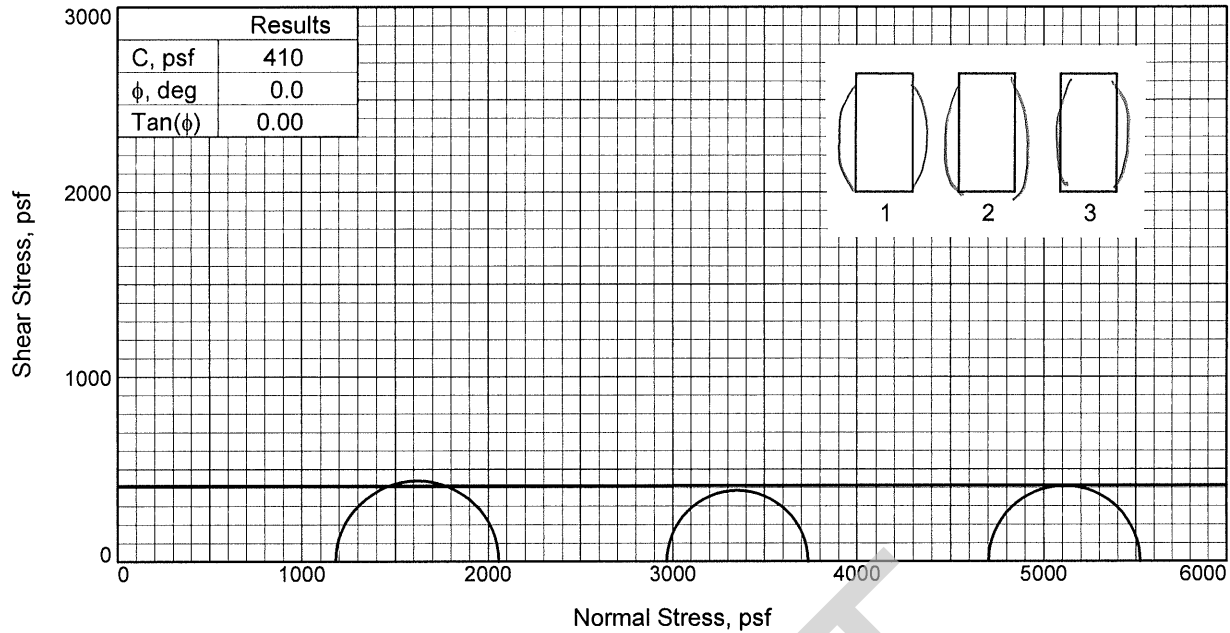
Figure _____

Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	32.7	34.4	33.8
	Dry Density, pcf	88.1	86.3	88.1
	Saturation, %	97.4	98.0	100.7
	Void Ratio	0.8992	0.9390	0.8990
	Diameter, in.	1.40	1.40	1.39
	Height, in.	2.99	2.99	3.00
At Test	Water Content, %	32.7	34.4	33.8
	Dry Density, pcf	88.1	86.3	88.1
	Saturation, %	97.4	98.0	100.7
	Void Ratio	0.8992	0.9390	0.8990
	Diameter, in.	1.40	1.40	1.39
	Height, in.	2.99	2.99	3.00
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	8.21	20.61	32.66	
Fail. Stress, psf	874	767	819	
Strain, %	14.1	11.3	14.3	
Ult. Stress, psf	874	759	819	
Strain, %	14.1	14.8	14.3	
σ_1 Failure, psf	2057	3735	5522	
σ_3 Failure, psf	1182	2968	4703	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: BR ML

LL= 33

PL= 26

PI= 7

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-12A

Depth: 21

Sample Number: N/A

Proj. No.: 04.55124092

Date Sampled: 8/9/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

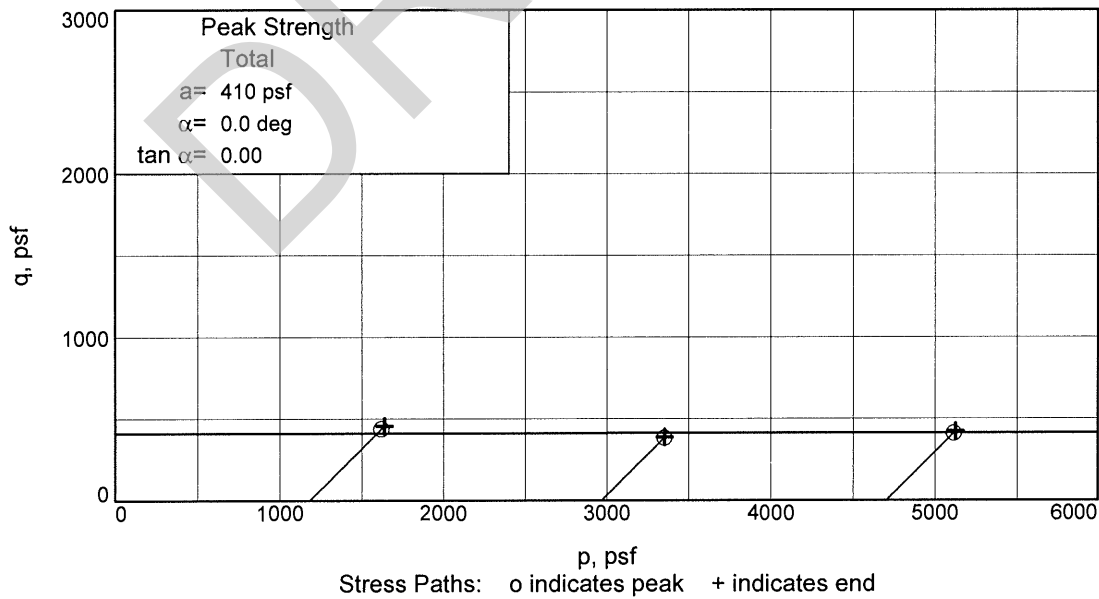
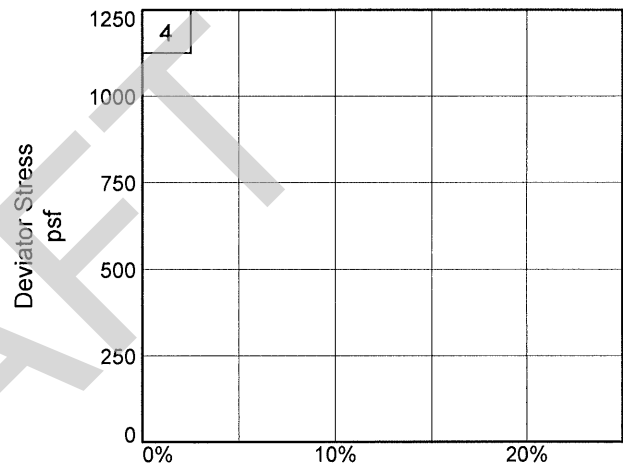
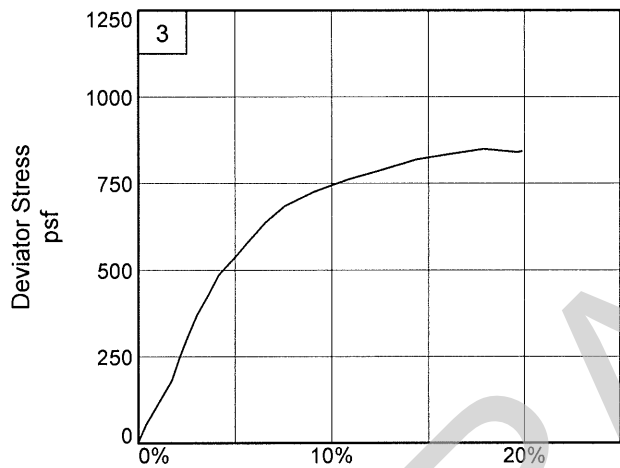
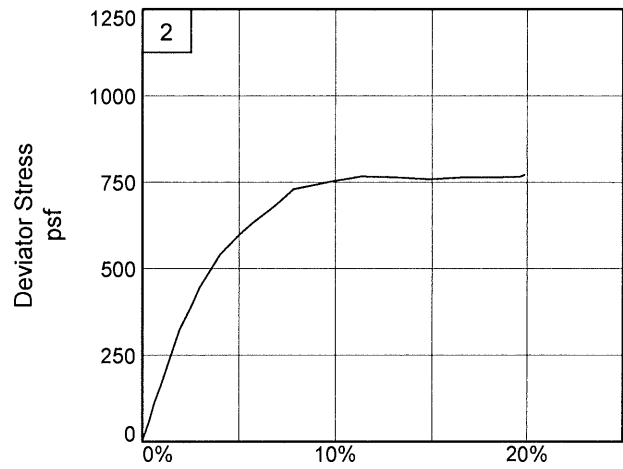
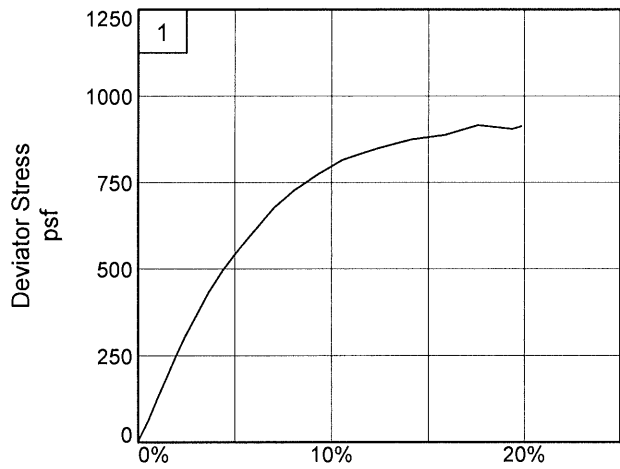
Baton Rouge, LA

Figure _____

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-12A

Depth: 21

Sample Number: N/A

Project No.: 04.55124092

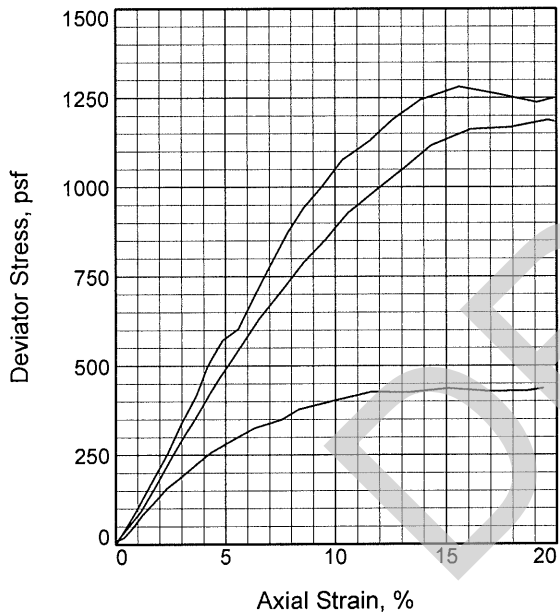
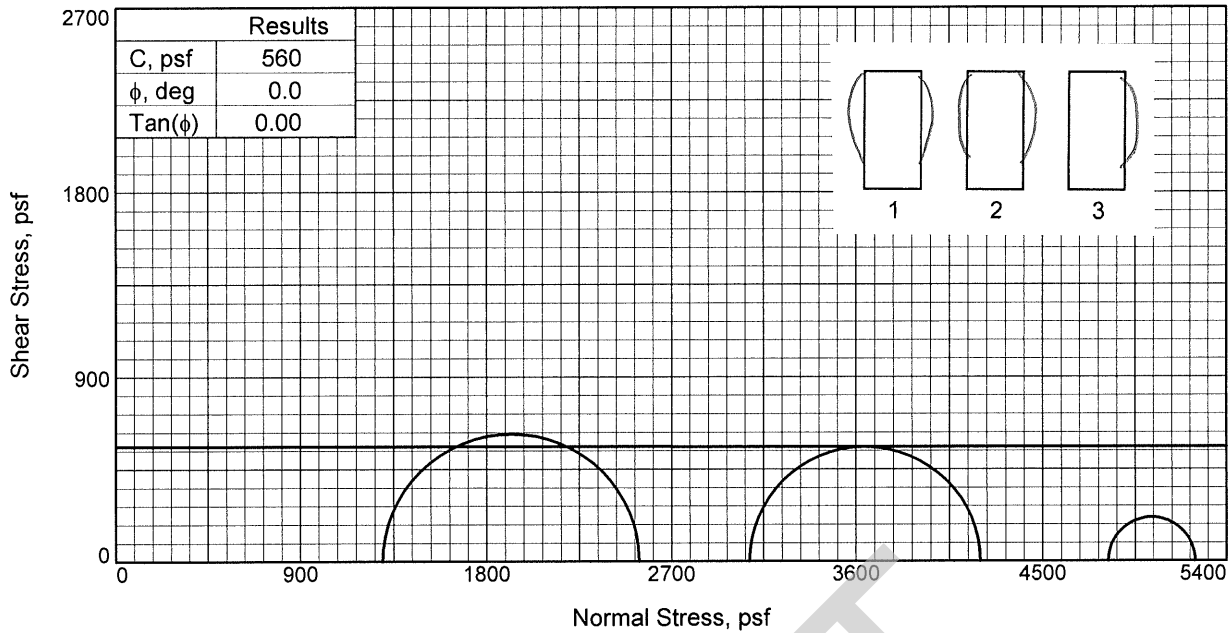
Figure _____

Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	30.1	29.9	34.9
	Dry Density, pcf	89.7	88.9	86.1
	Saturation, %	93.2	90.7	99.3
	Void Ratio	0.8653	0.8830	0.9430
	Diameter, in.	1.40	1.44	1.41
	Height, in.	2.99	3.00	2.98
At Test	Water Content, %	30.1	29.9	34.9
	Dry Density, pcf	89.7	88.9	86.1
	Saturation, %	93.2	90.7	99.3
	Void Ratio	0.8653	0.8830	0.9430
	Diameter, in.	1.40	1.44	1.41
	Height, in.	2.99	3.00	2.98
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	9.01	21.40	33.46	
Fail. Stress, psf	1244	1117	426	
Strain, %	13.8	14.3	11.6	
Ult. Stress, psf	1244	1117	425	
Strain, %	13.8	14.3	13.3	
σ_1 Failure, psf	2542	4198	5245	
σ_3 Failure, psf	1297	3082	4818	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: BR ML

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-12A

Depth: 23

Sample Number: N/A

Proj. No.: 04.55124092

Date Sampled: 8/9/13

TRIAXIAL SHEAR TEST REPORT

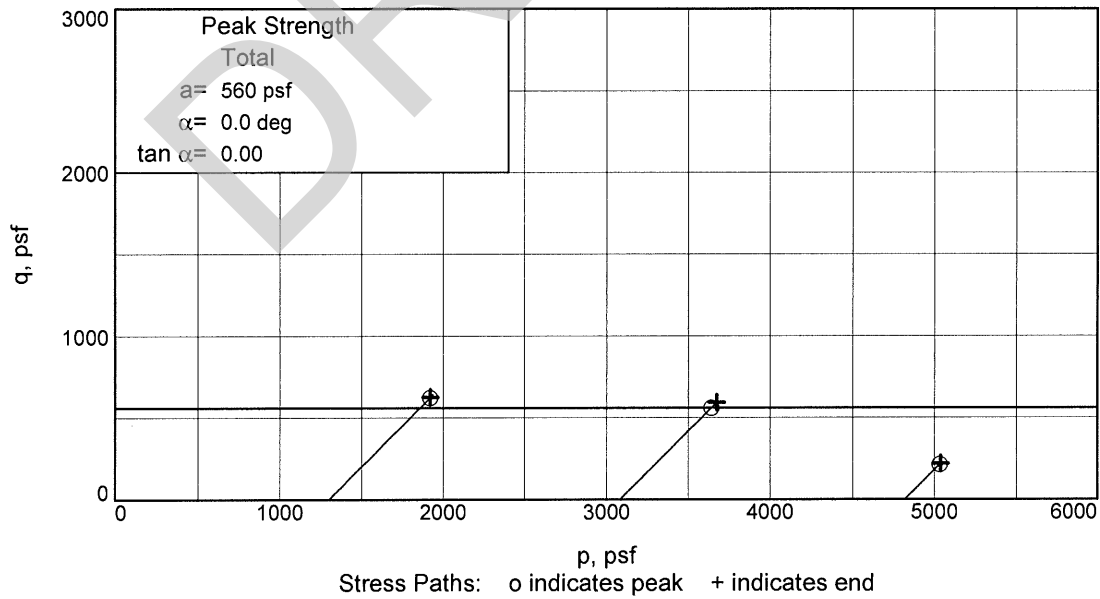
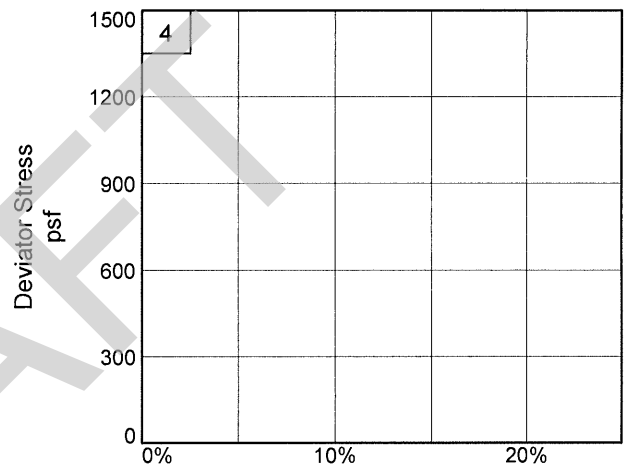
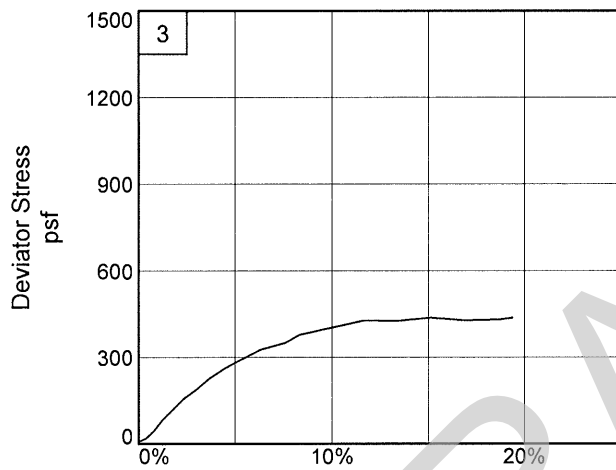
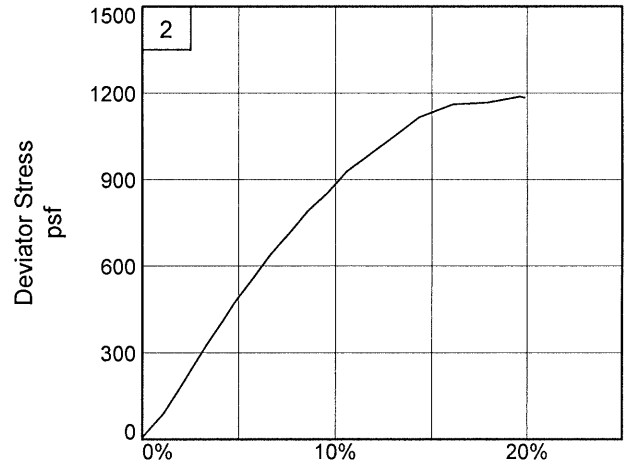
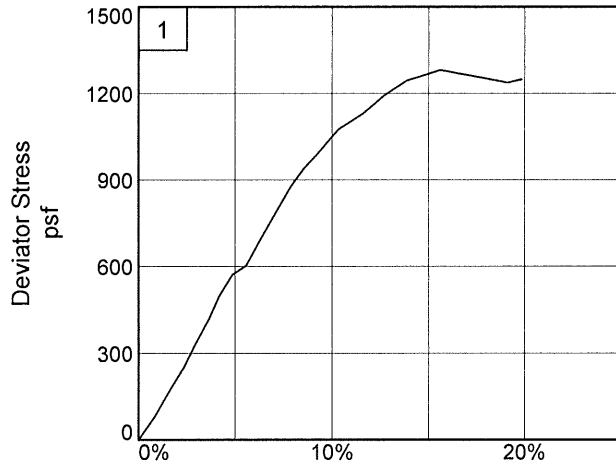
Fugro Consultants, Inc.
Baton Rouge, LA

Figure _____

Tested By: AL

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: IS-12A

Depth: 23

Sample Number: N/A

Project No.: 04.55124092

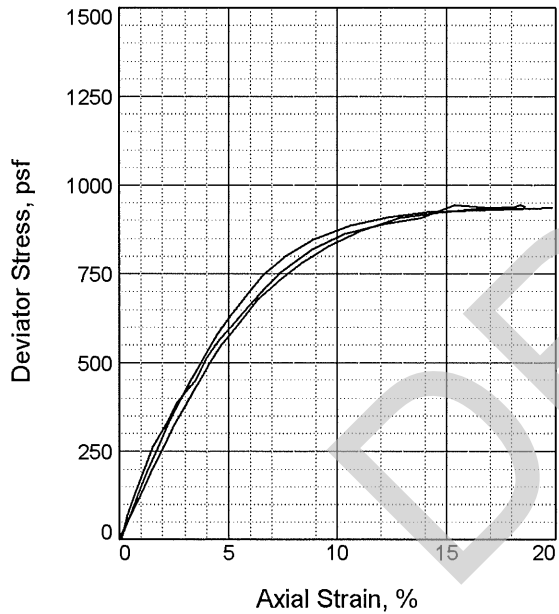
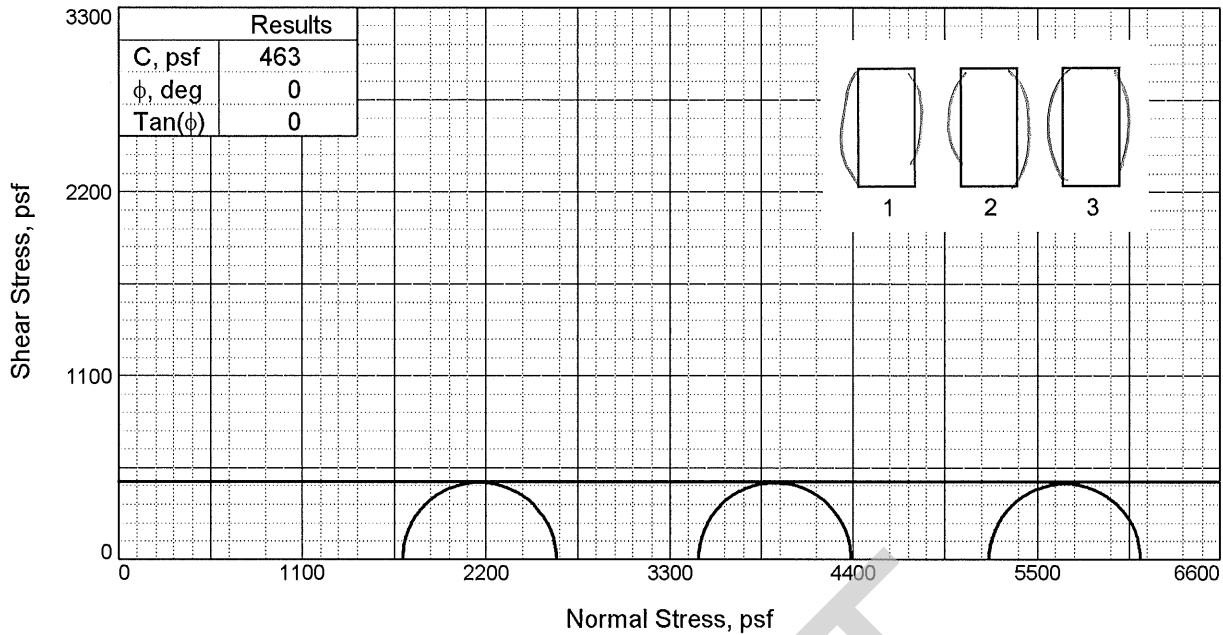
Figure _____

Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	33.2	33.7	33.8
Dry Density, pcf	87.7	88.0	87.0
Saturation, %	98.1	100.2	98.1
Void Ratio	0.9067	0.9017	0.9228
Diameter, in.	1.41	1.40	1.41
Height, in.	3.01	3.00	2.98
At Test			
Water Content, %	33.2	33.7	33.8
Dry Density, pcf	87.7	88.0	87.0
Saturation, %	98.1	100.2	98.1
Void Ratio	0.9067	0.9017	0.9228
Diameter, in.	1.41	1.40	1.41
Height, in.	3.01	3.00	2.98
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	11.79	24.08	36.18
Fail. Stress, psf	924	922	908
Strain, %	14.1	14.6	13.8
Ult. Stress, psf	924	922	908
Strain, %	14.1	14.6	13.8
σ_1 Failure, psf	2621	4389	6118
σ_3 Failure, psf	1698	3468	5210

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: BR ML

LL= 31 PL= 24 PI= 7

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: IS-12A

Depth: 30

Sample Number: N/A

Proj. No.: 04.55124092

Date Sampled: 8/9/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

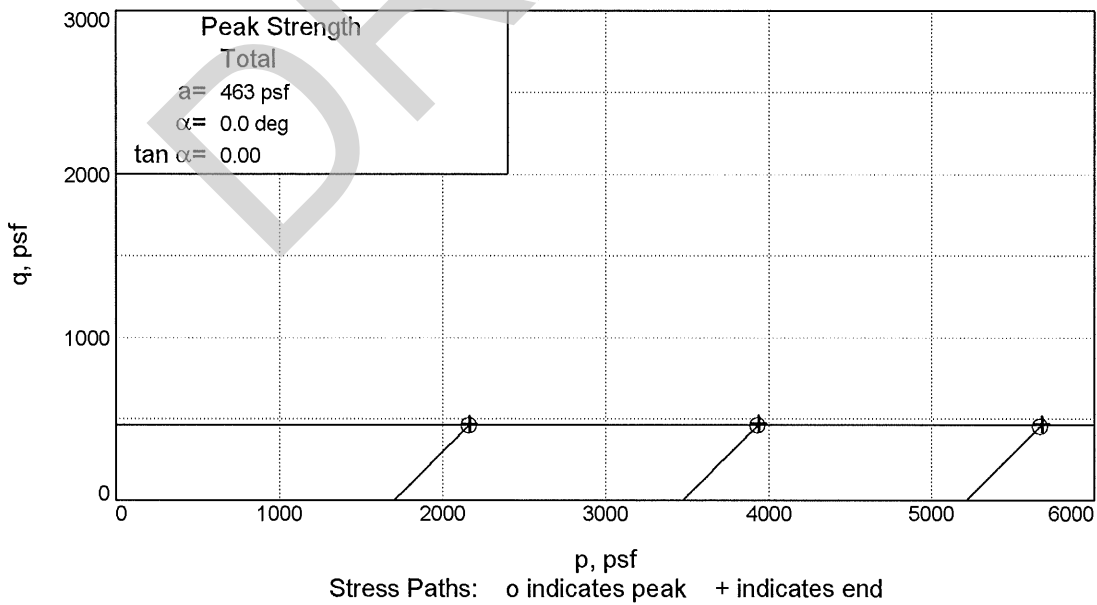
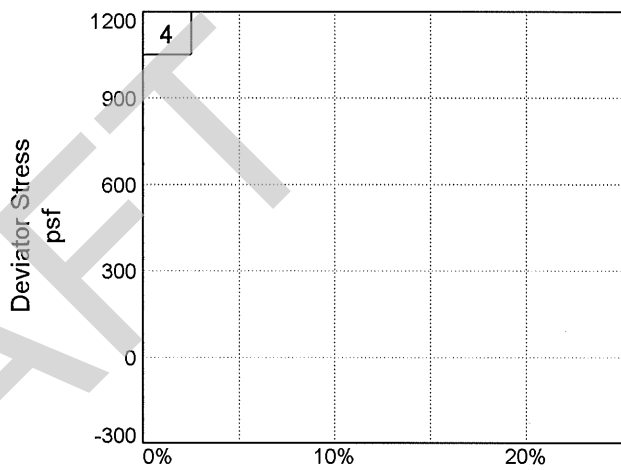
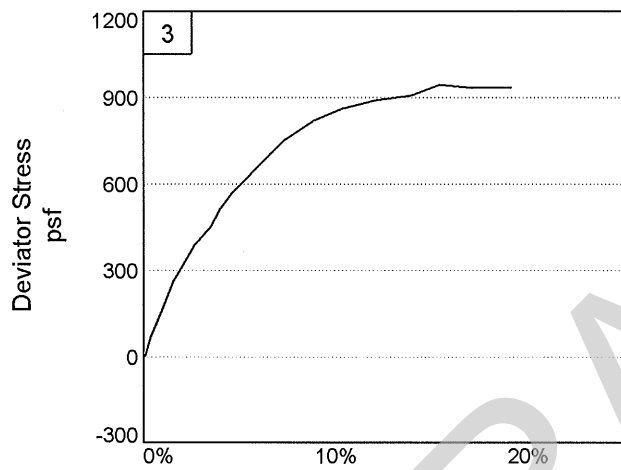
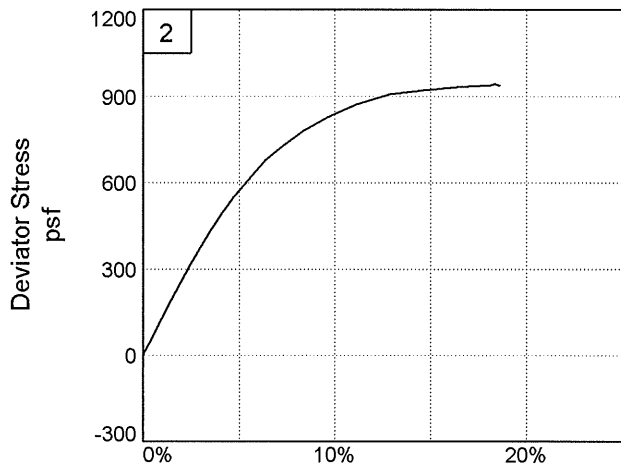
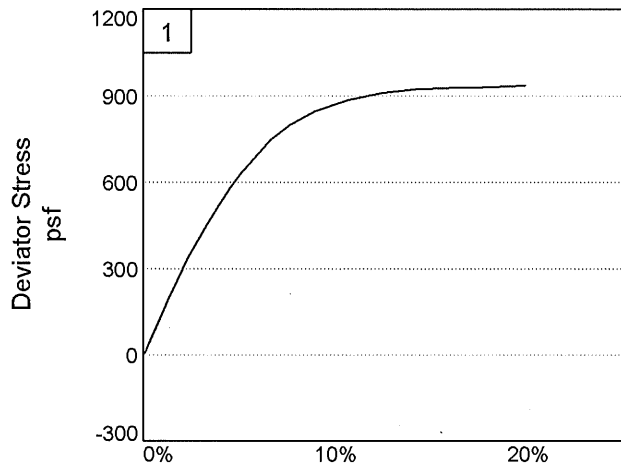
Baton Rouge, LA

Figure _____

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers
 Project: Mid Barataria Diversion
 Source of Sample: IS-12A
 Project No.: 04.55124092

Depth: 30 Sample Number: N/A
 Figure _____

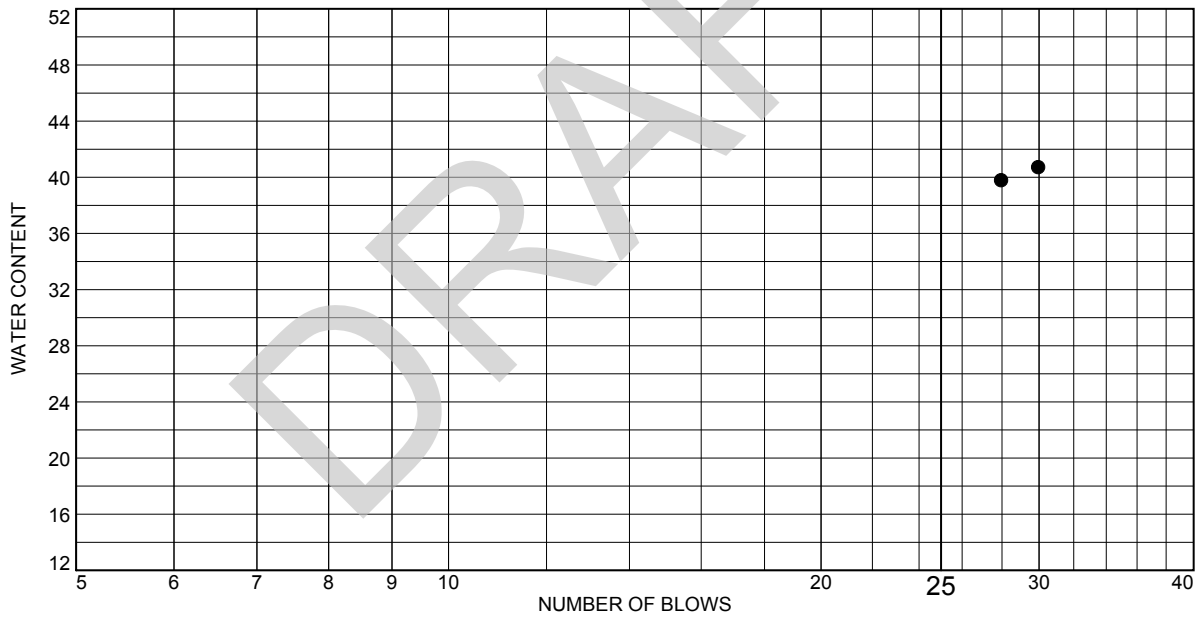
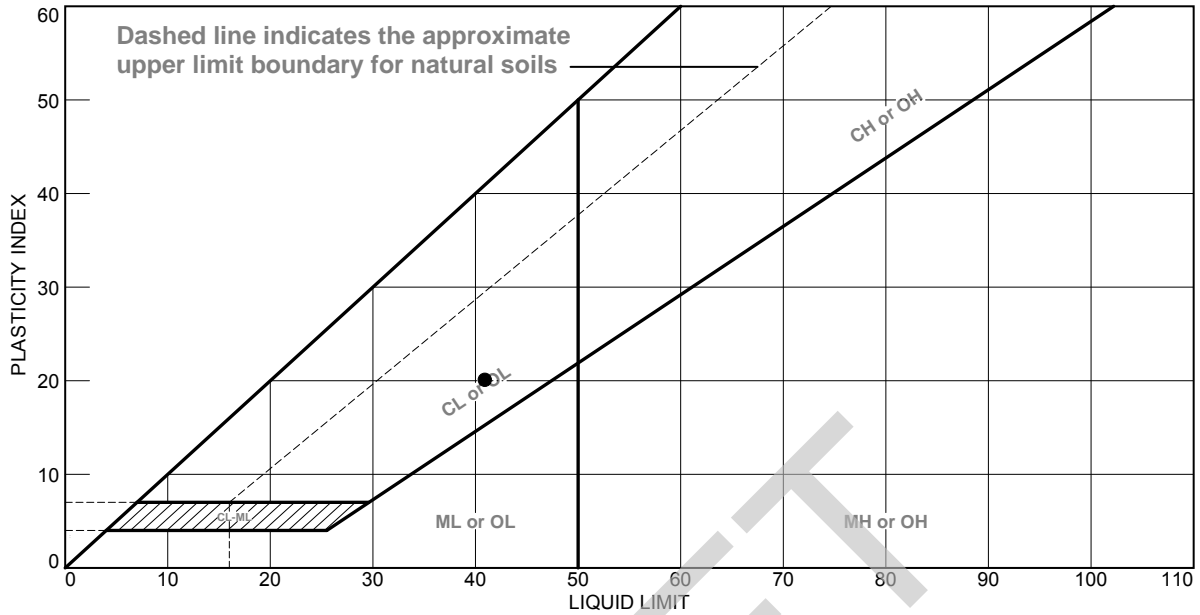
Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● T CLAY with Silt and Shells	41	21	20			(CL6)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-13A **Depth:** 2.2-3
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						36.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	36.4		

Material Description
Gr Silty SAND with Tr Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (SM) AASHTO=

Remarks

* (no specification provided)

Source of Sample: IS-13A Depth: 100.5-102

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	33.8	48.2	17.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.8		
#60	99.7		
#100	94.8		
#140	80.7		
#200	66.0		

Material Description

Gr S SILT with Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (ML) AASHTO=

Remarks

F.M.=0.06

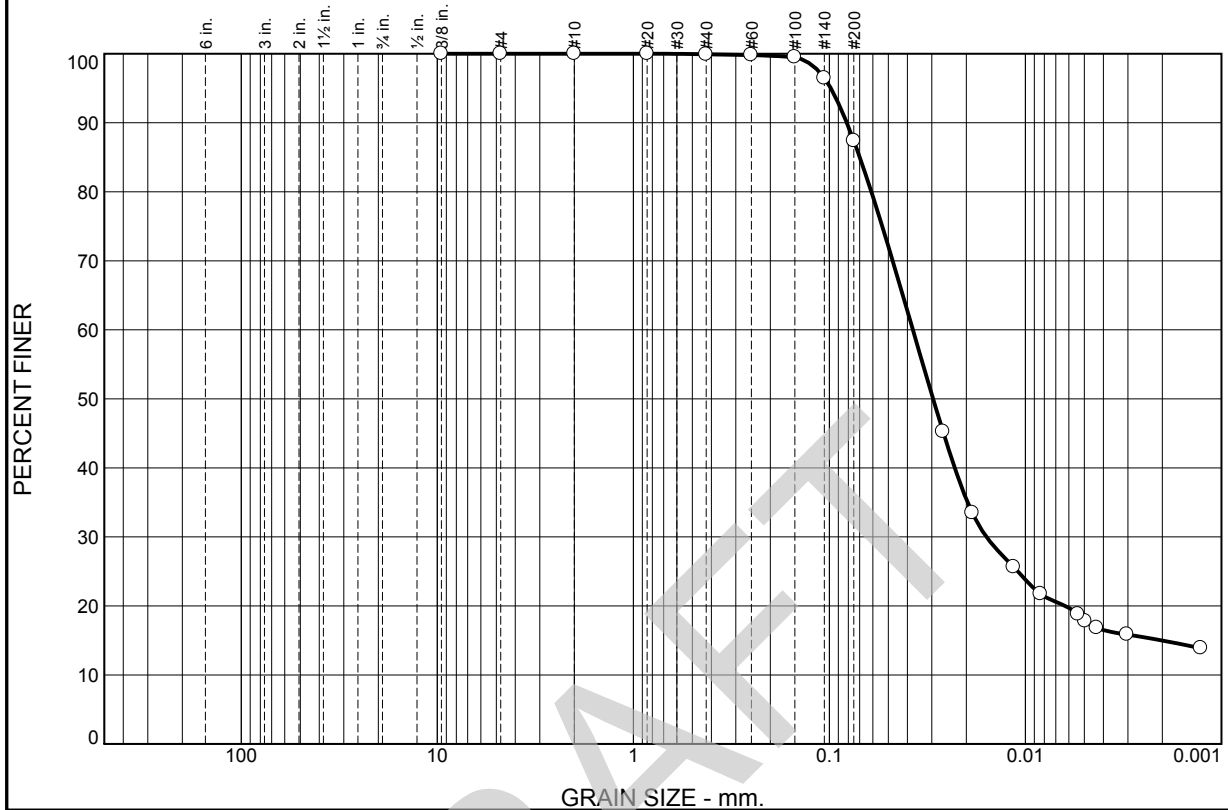
* (no specification provided)

Source of Sample: IS-13A Depth: 93-94.5

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	12.5	69.5	17.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.8		
#100	99.5		
#140	96.5		
#200	87.4		

Material Description
Gr SILT with Clay and Fine Sand

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (ML) AASHTO=

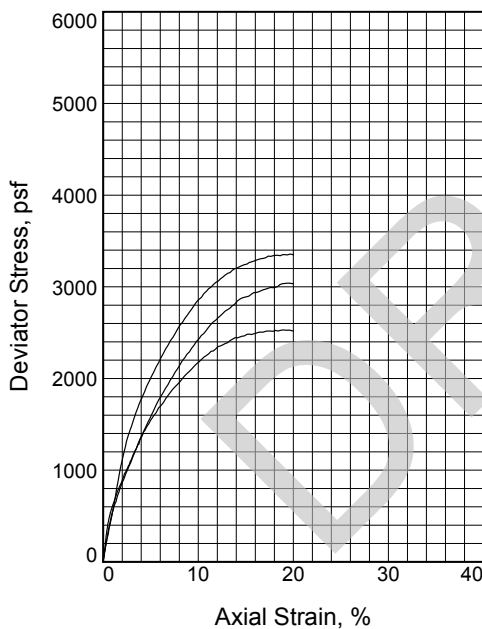
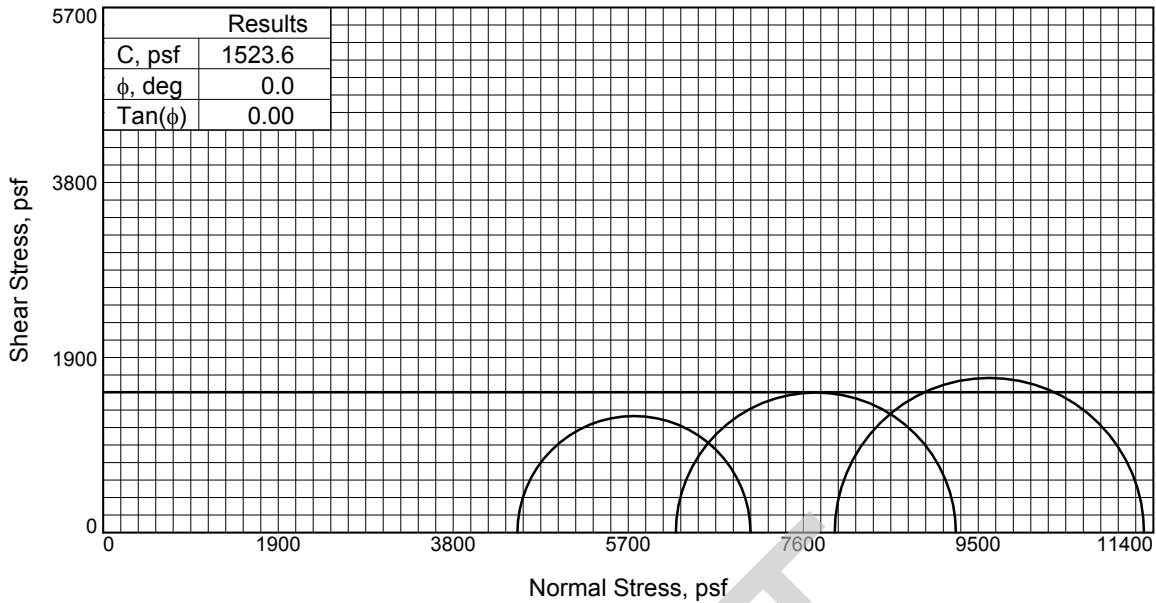
Remarks

F.M.=0.01

* (no specification provided)

Source of Sample: IS-13A Depth: 88-89.5 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure



Sample No.	1	2	3	
Initial	Water Content, %	30.5	31.5	31.1
	Dry Density, pcf	94.2	94.4	92.8
	Saturation, %	99.8	103.8	98.7
	Void Ratio	0.8563	0.8511	0.8835
	Diameter, in.	1.386	1.365	1.402
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	30.6	30.4	31.6
	Dry Density, pcf	94.2	94.4	92.8
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.8563	0.8511	0.8835
Strain rate, in./min.	Diameter, in.	1.386	1.365	1.402
	Height, in.	2.800	2.800	2.800
	Strain rate, in./min.	1.000	1.000	0.999
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	31.230	43.170	55.150	
Fail. Stress, psf	Strain, %	2529.8	3040.2	3357.4
	Strain, %	18.9	19.4	19.6
Ult. Stress, psf	Strain, %			
	Strain, %			
σ_1 Failure, psf	7027.0	9256.7	11299.0	
σ_3 Failure, psf	4497.1	6216.5	7941.6	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Laminating Fat CLAY with S Silt and Silty Clay (CH2)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

Bulge

Figure _____

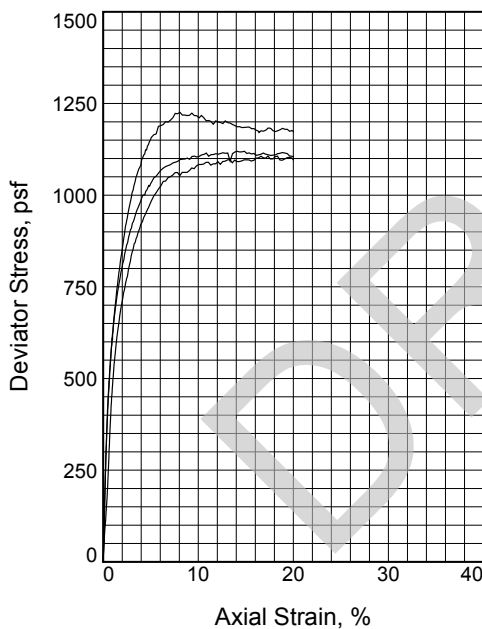
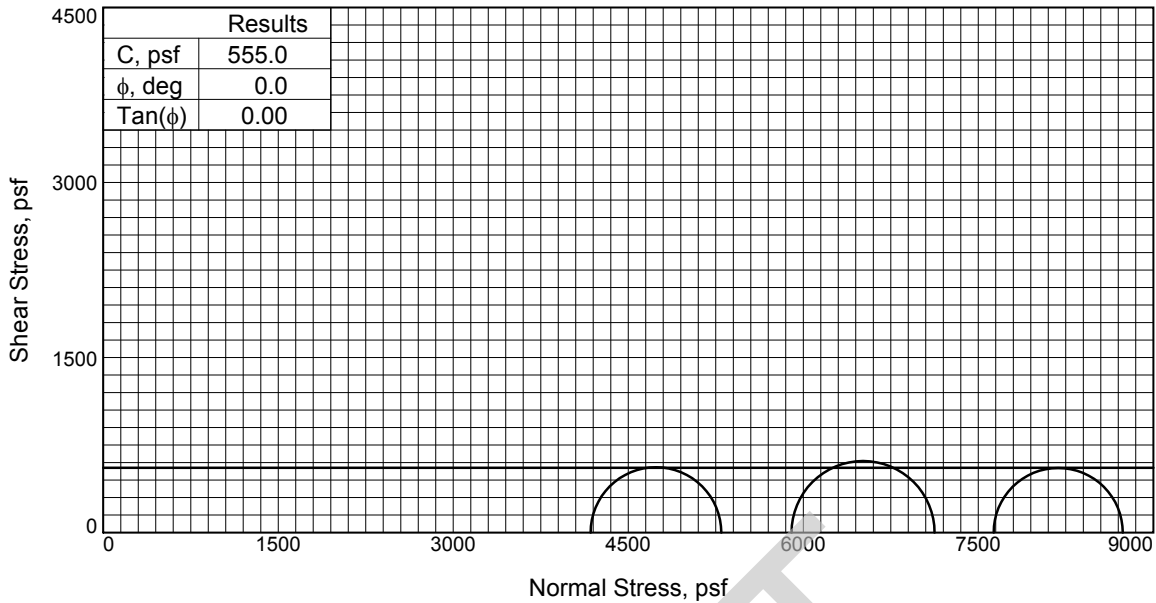
Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-13A **Depth:** 85-86

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA



Sample No.	1	2	3
Initial			
Water Content, %	49.4	46.0	46.7
Dry Density, pcf	72.1	73.7	72.9
Saturation, %	97.1	94.0	93.5
Void Ratio	1.4252	1.3704	1.3982
Diameter, in.	1.414	1.416	1.414
Height, in.	2.800	2.800	2.800
At Test			
Water Content, %	50.9	48.9	49.9
Dry Density, pcf	72.1	73.7	72.9
Saturation, %	100.0	100.0	100.0
Void Ratio	1.4252	1.3704	1.3982
Diameter, in.	1.414	1.416	1.414
Height, in.	2.800	2.800	2.800
Strain rate, in./min.	1.000	1.000	0.999
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	29.010	40.970	53.000
Fail. Stress, psf	1119.7	1225.7	1106.4
Strain, %	14.8	8.1	17.3
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	5297.1	7125.4	8738.4
σ_3 Failure, psf	4177.4	5899.7	7632.0

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Fat CLAY with Silty SS (CH3)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

Bulge

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-13A

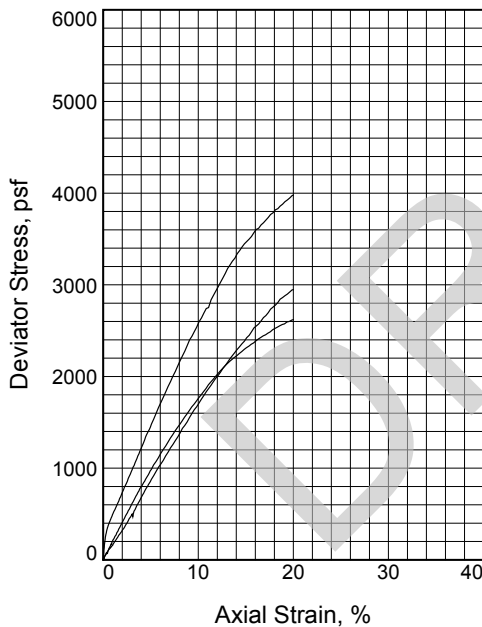
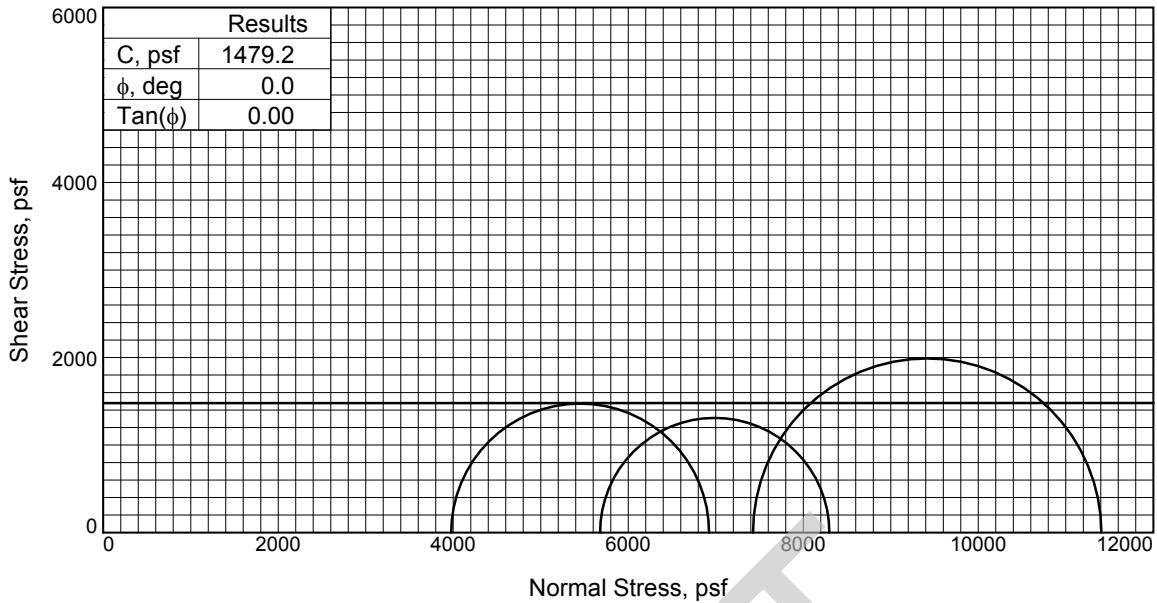
Depth: 79-80

Proj. No.: B13-018

Date Sampled:

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	29.0	29.0	29.4
	Dry Density, pcf	95.4	94.9	97.9
	Saturation, %	102.2	100.9	110.1
	Void Ratio	0.7660	0.7764	0.7210
	Diameter, in.	1.355	1.376	1.367
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	28.4	28.8	26.7
	Dry Density, pcf	95.4	94.9	97.9
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.7660	0.7764	0.7210
Strain rate, in./min.	Diameter, in.	1.355	1.376	1.367
	Height, in.	2.800	2.800	2.800
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	27.620	39.430	51.570	
Fail. Stress, psf	Strain, %	20.0	20.0	20.0
	Ult. Stress, psf	2946.3	2620.2	3979.9
Strain, %	σ_1 Failure, psf	20.0	20.0	20.0
	σ_3 Failure, psf	6923.6	8298.1	11406.0
		3977.3	5677.9	7426.1

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Lean CLAY with Fine Sand (CL4)

Assumed Specific Gravity= 2.70

Remarks: Type Failure:

Bulge

Figure _____

Client: GeoEngineers

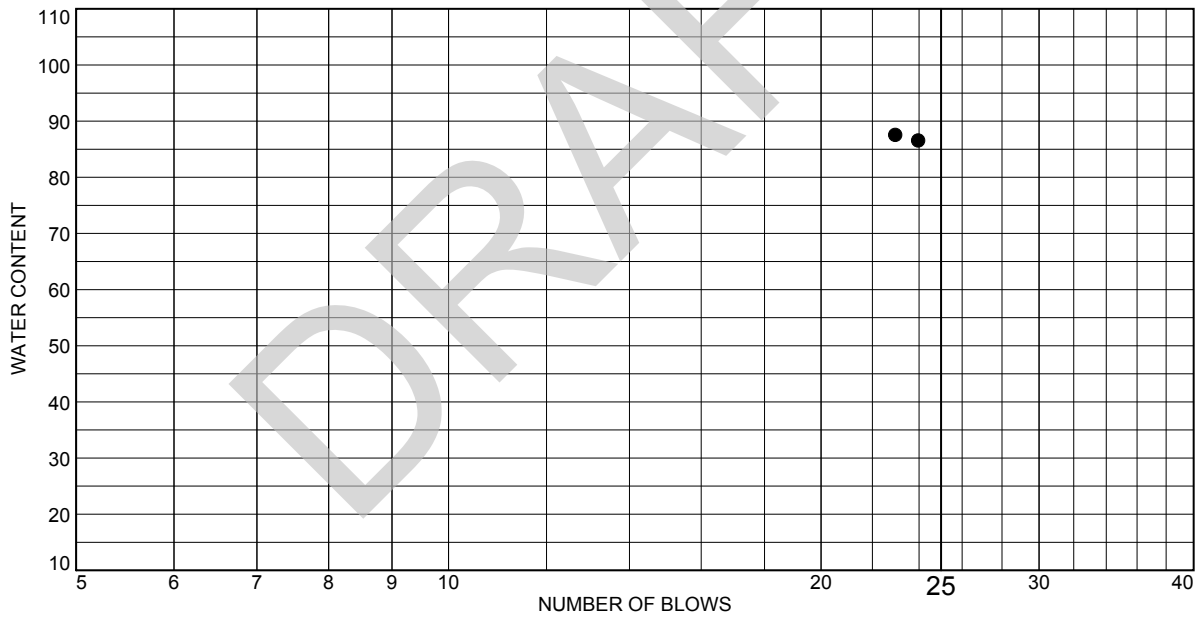
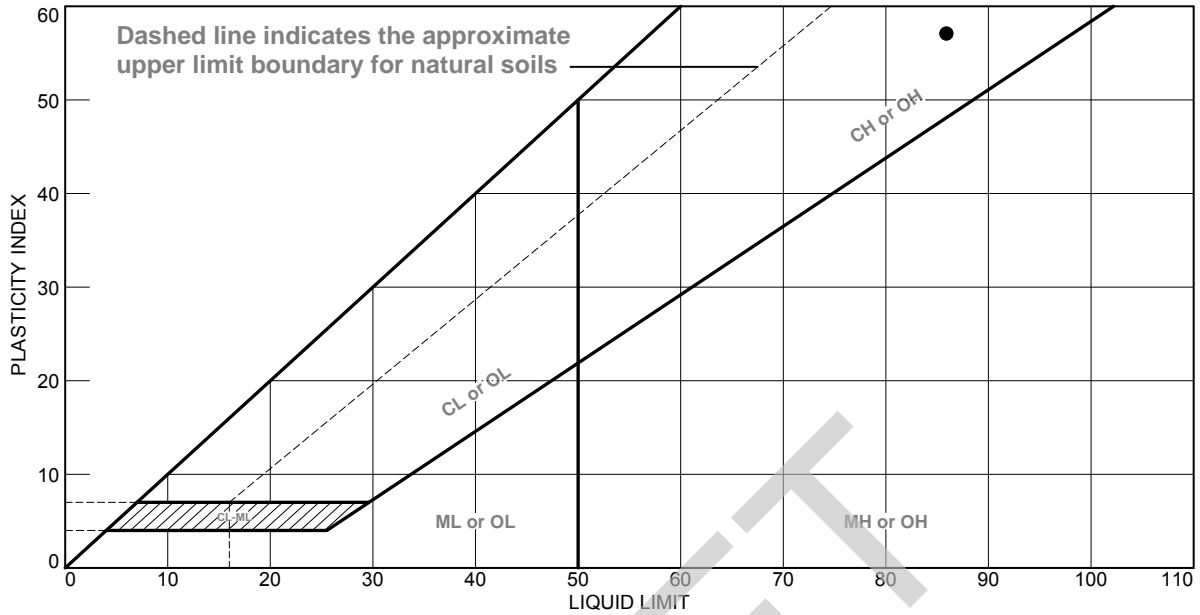
Project: Mid Baratara Diversion

Source of Sample: IS-13A **Depth:** 75-76

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT



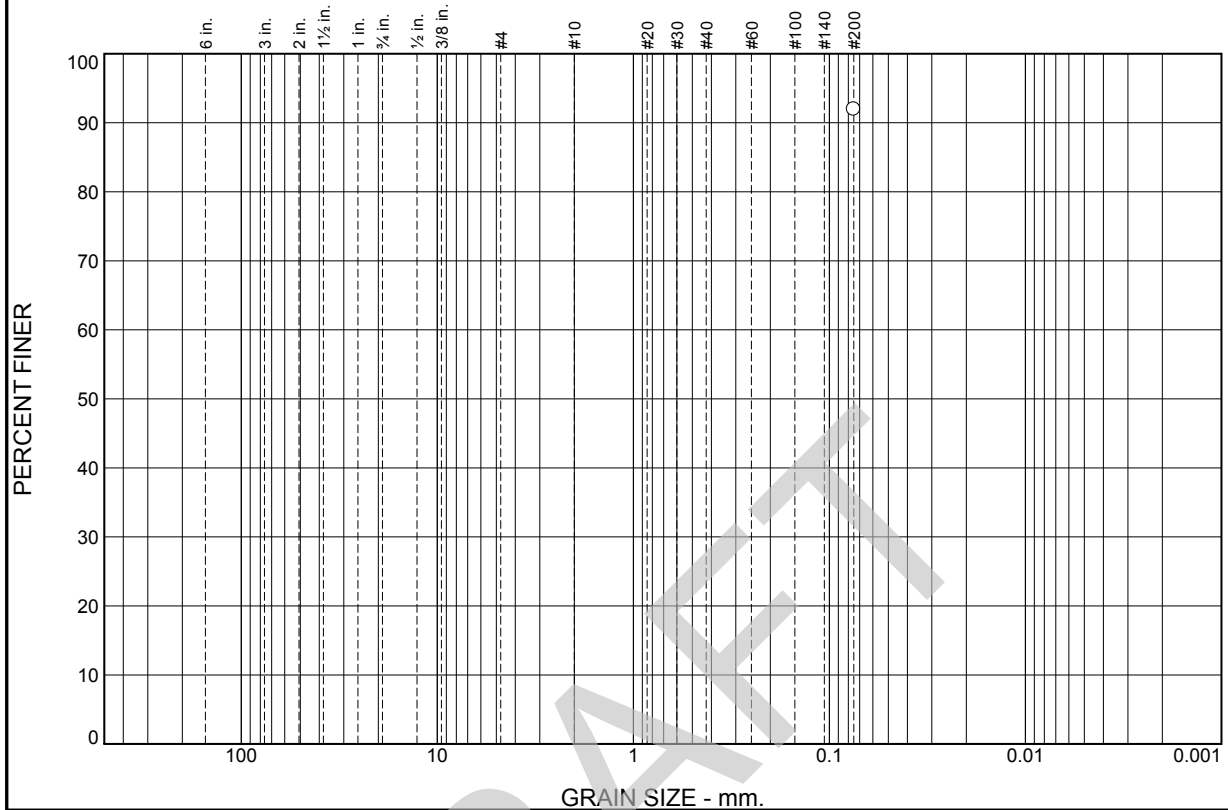
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
M, Gr Fat CLAY with S SIS	86	29	57			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: IS-13A **Depth:** 74-75
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						92.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	92.0		

Material Description
Gr SILT with Fine Sand and Clay Pockets

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (ML) AASHTO=

Remarks

* (no specification provided)

Source of Sample: IS-13A

Depth: 66-67

Date:

Southern Earth Sciences, Inc.
Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						98.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	98.2		

Material Description
Gr Lean CLAY with S Silty Pockets

Atterberg Limits
PL= LL= PI=

Classification
USCS= (CL4) AASHTO=

Remarks

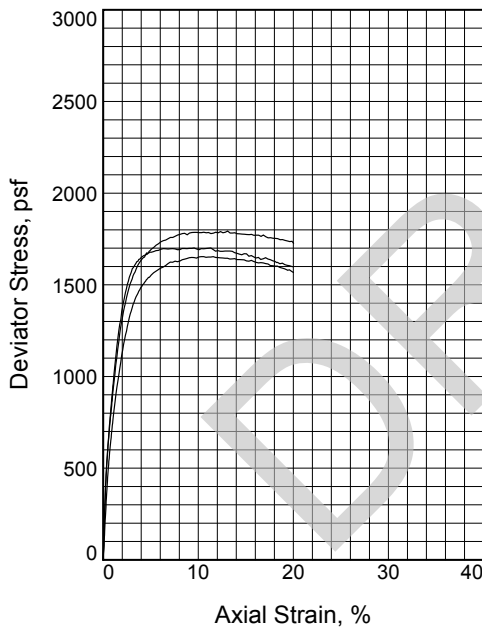
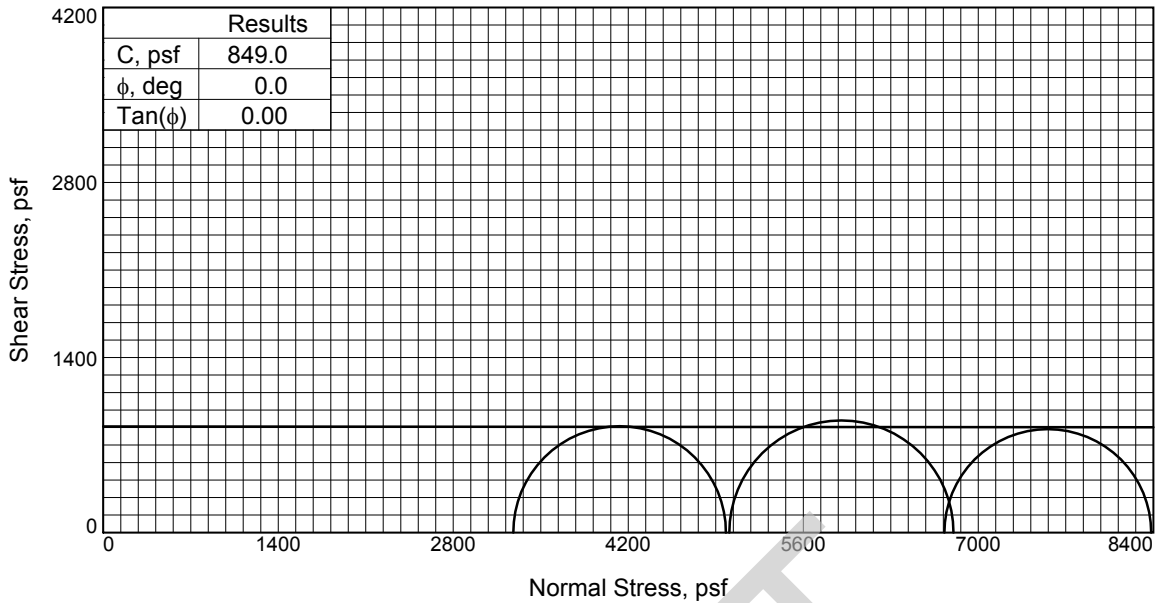
* (no specification provided)

Source of Sample: IS-13A Depth: 65.3-66

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Confidential Information: Privileged & Confidential Work Product



	1	2	3	
Sample No.	1	2	3	
Initial	Water Content, %	36.0	35.5	35.3
	Dry Density, pcf	84.9	86.2	86.0
	Saturation, %	95.2	96.6	95.8
	Void Ratio	1.0581	1.0279	1.0323
	Diameter, in.	1.414	1.412	1.417
Height, in.	2.800	2.800	2.800	
At Test	Water Content, %	37.8	36.7	36.9
	Dry Density, pcf	84.9	86.2	86.0
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.0581	1.0279	1.0323
	Diameter, in.	1.414	1.412	1.417
Height, in.	2.800	2.800	2.800	
Strain rate, in./min.	0.999	1.000	0.999	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	22.780	34.780	46.730	
Fail. Stress, psf	1701.0	1793.3	1653.9	
Strain, %	9.6	13.1	11.6	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	4981.3	6801.6	8383.0	
σ_3 Failure, psf	3280.3	5008.3	6729.1	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Lean CLAY with Silt Pockets (CL6)

LL= 43 **PL=** 23 **PI=** 20

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

Bulge

Figure _____

Client: GeoEngineers

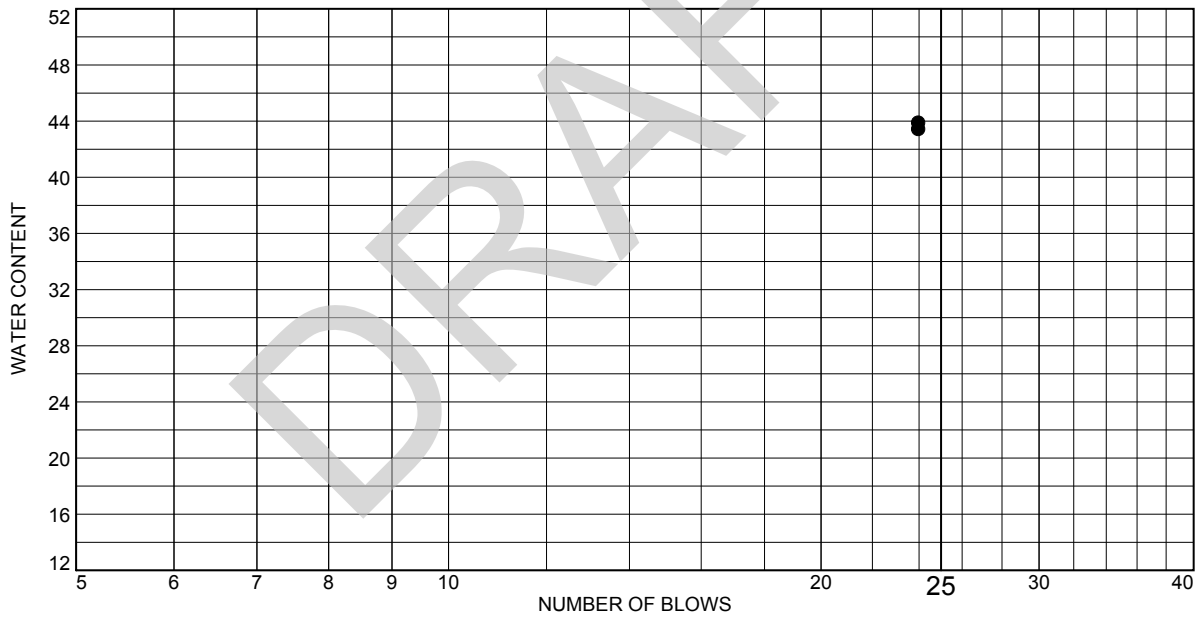
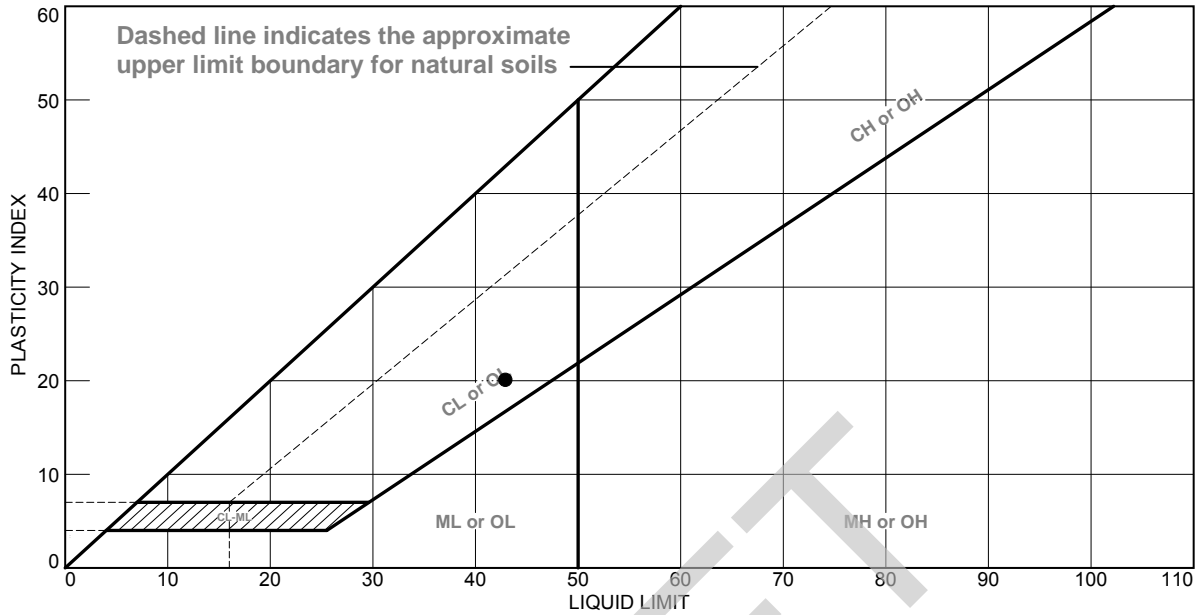
Project: Mid Baratara Diversion

Source of Sample: IS-13A **Depth:** 62-62.8

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
M, Gr Lean CLAY with Silt Pockets	43	23	20			(CL6)

Project No. B13-018 Client: GeoEngineers

Project: Mid Barataria Diversion

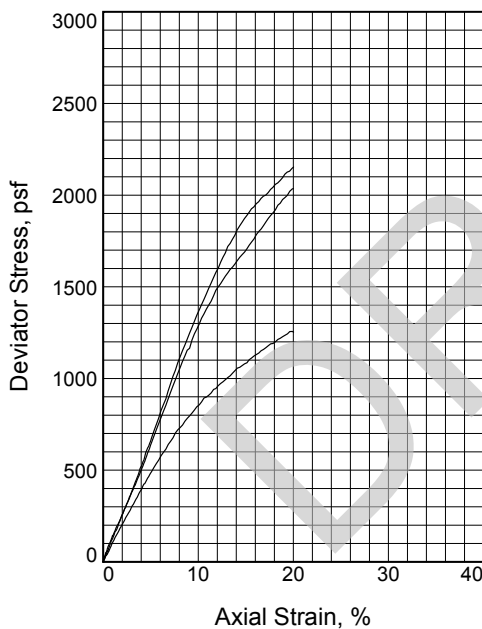
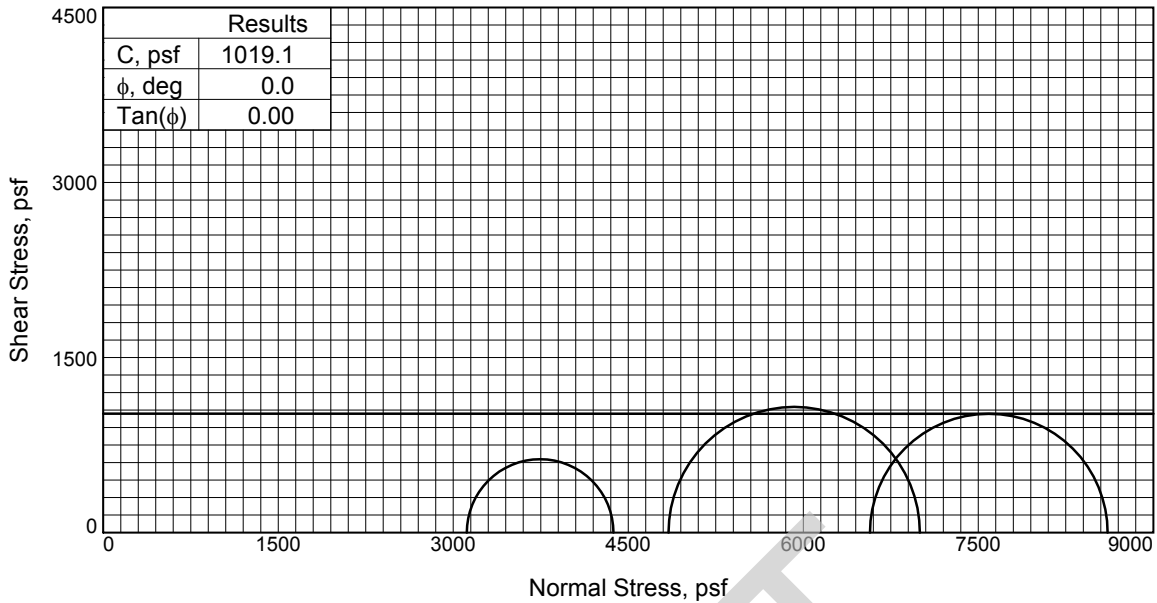
Source of Sample: IS-13A Depth: 62-62.8

Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	32.5	32.3	33.0
	Dry Density, pcf	90.8	94.0	93.0
	Saturation, %	104.7	112.7	112.4
	Void Ratio	0.8222	0.7604	0.7781
	Diameter, in.	1.396	1.392	1.375
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	31.0	28.7	29.4
	Dry Density, pcf	90.8	94.0	93.0
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.8222	0.7604	0.7781
Strain rate, in./min.	Diameter, in.	1.396	1.392	1.375
	Height, in.	2.800	2.800	2.800
	Strain rate, in./min.	1.000	1.001	1.000
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	21.640	33.650	45.640	
Fail. Stress, psf	Strain, %	1256.6	2153.4	2036.1
	Strain, %	19.9	20.0	20.0
Ult. Stress, psf	Strain, %			
	Strain, %			
σ_1 Failure, psf	4372.8	6999.0	8608.2	
σ_3 Failure, psf	3116.2	4845.6	6572.2	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: M to St, Gr SILT with Clay and Fine Sand (ML)

Assumed Specific Gravity= 2.65

Remarks: Type Failure:
Bulge
Slumping

Figure _____

Client: GeoEngineers

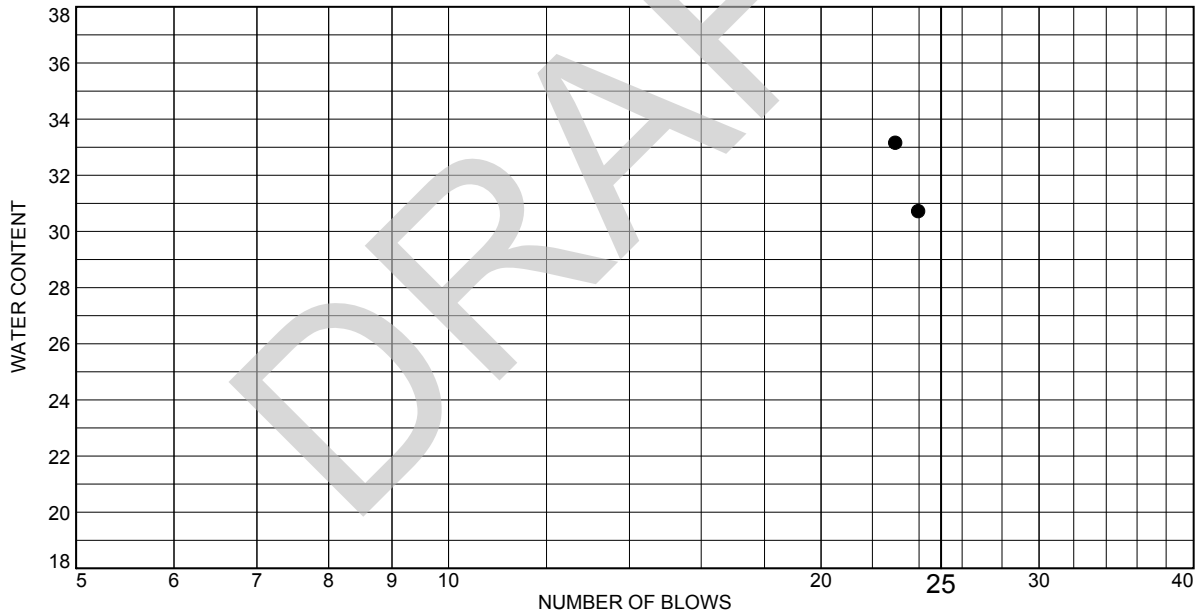
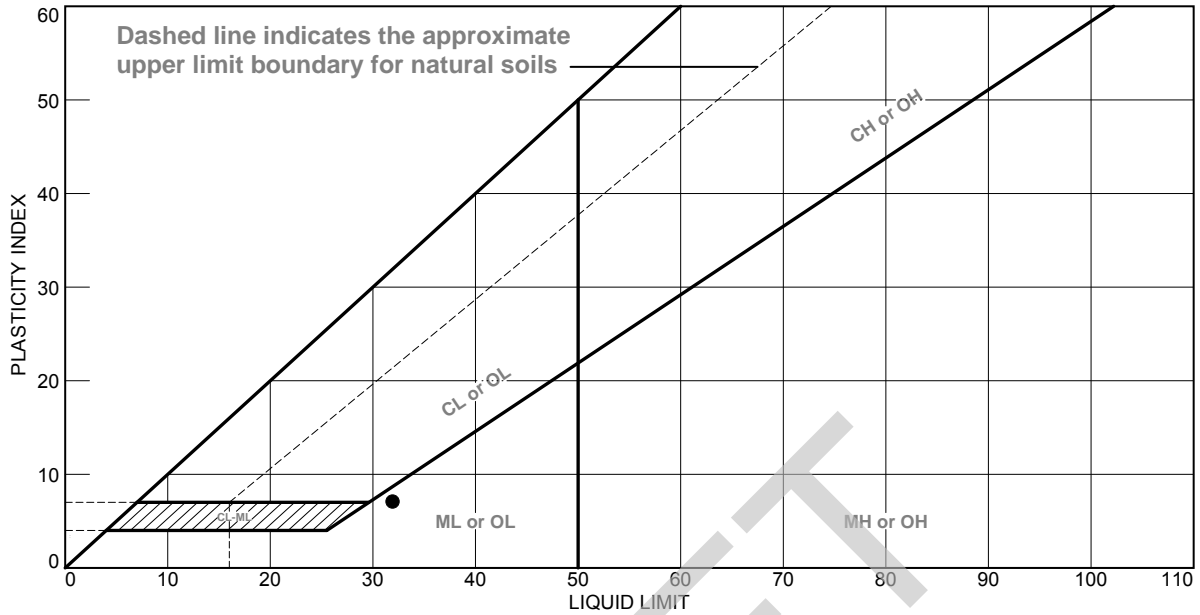
Project: Mid Barataria Diversion

Source of Sample: IS-13A **Depth:** 59-59.7

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT



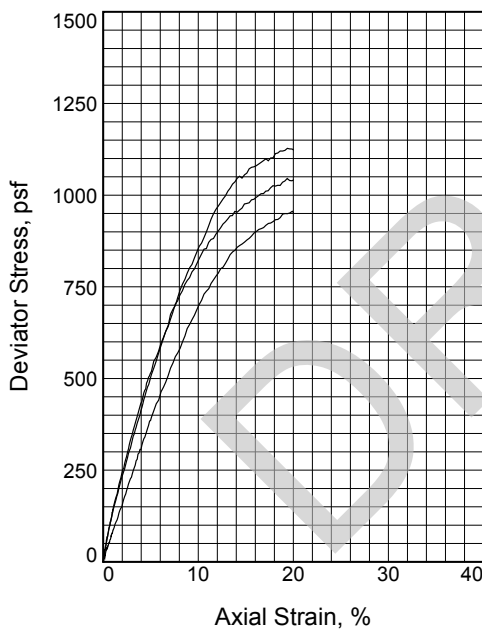
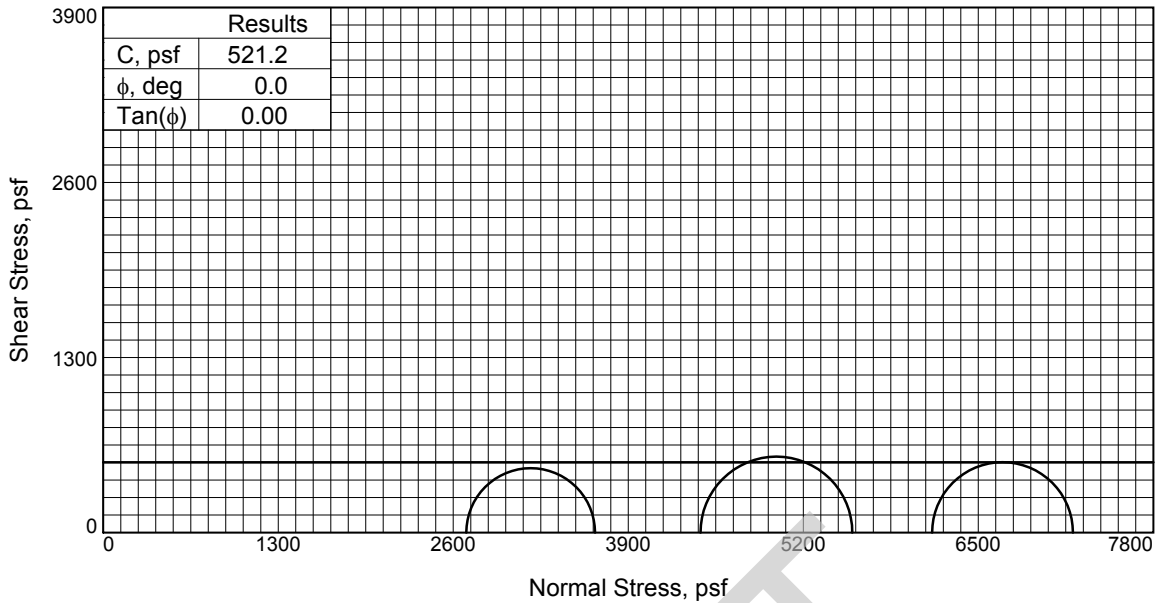
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Gr SILT with Clay and Fine Sand Pockets	32	25	7			(ML)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-13A **Depth:** 55-56
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3
Initial			
Water Content, %	32.2	31.4	32.7
Dry Density, pcf	91.7	91.9	91.3
Saturation, %	103.5	101.7	104.4
Void Ratio	0.8384	0.8332	0.8466
Diameter, in.	1.380	1.380	1.368
Height, in.	2.800	2.800	2.800
At Test			
Water Content, %	31.1	30.9	31.4
Dry Density, pcf	91.7	91.9	91.3
Saturation, %	100.0	100.0	100.0
Void Ratio	0.8384	0.8332	0.8466
Diameter, in.	1.380	1.380	1.368
Height, in.	2.800	2.800	2.800
Strain rate, in./min.	1.000	1.000	0.999
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	18.730	30.810	42.760
Fail. Stress, psf	956.0	1127.6	1045.4
Strain, %	19.9	19.4	19.4
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	3653.1	5564.2	7202.8
σ_3 Failure, psf	2697.1	4436.6	6157.4

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: So to M, Gr Lean CLAY with Tr Fine Sand (CL4)

LL= 37 PL= 22 PI= 15

Assumed Specific Gravity= 2.70

Remarks: Type Failure:

Bulge

Figure _____

Client: GeoEngineers

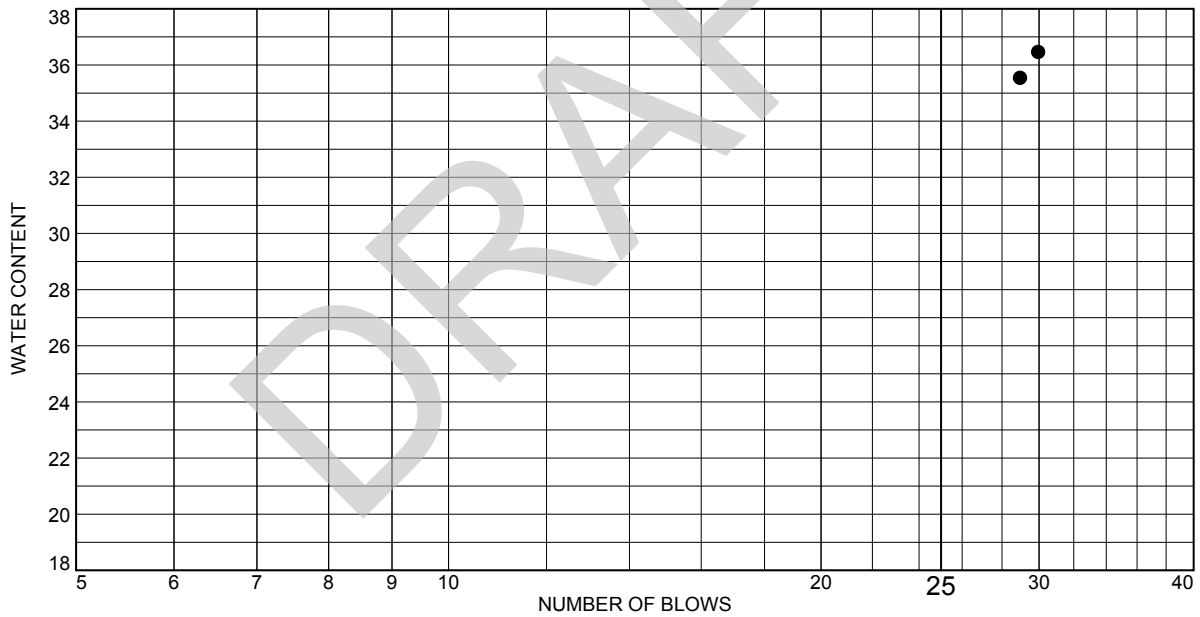
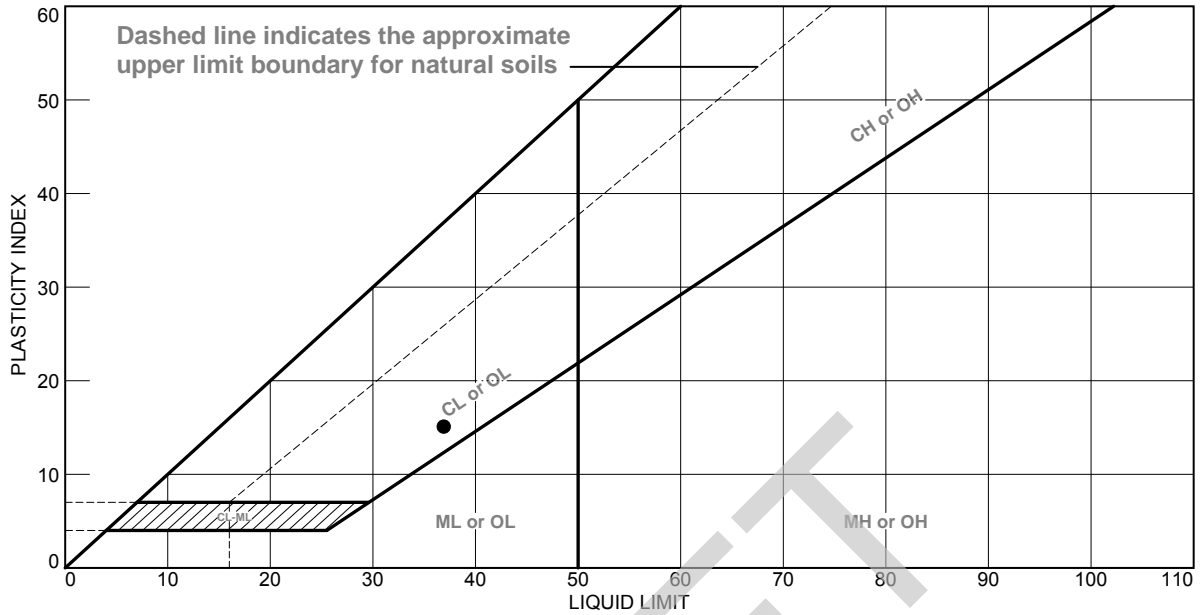
Project: Mid Baratara Diversion

Source of Sample: IS-13A **Depth:** 51-52

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT

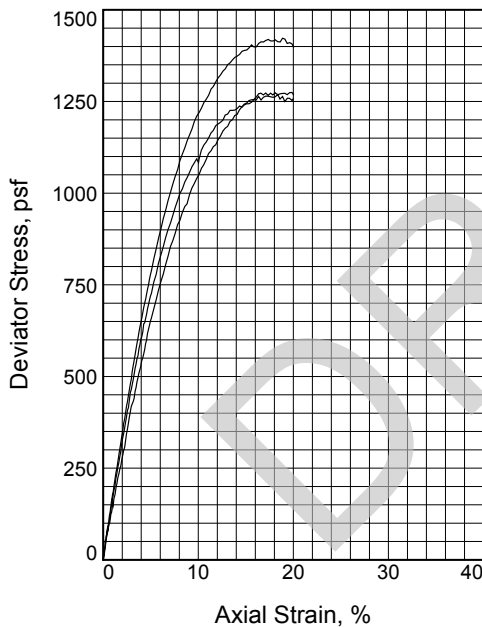
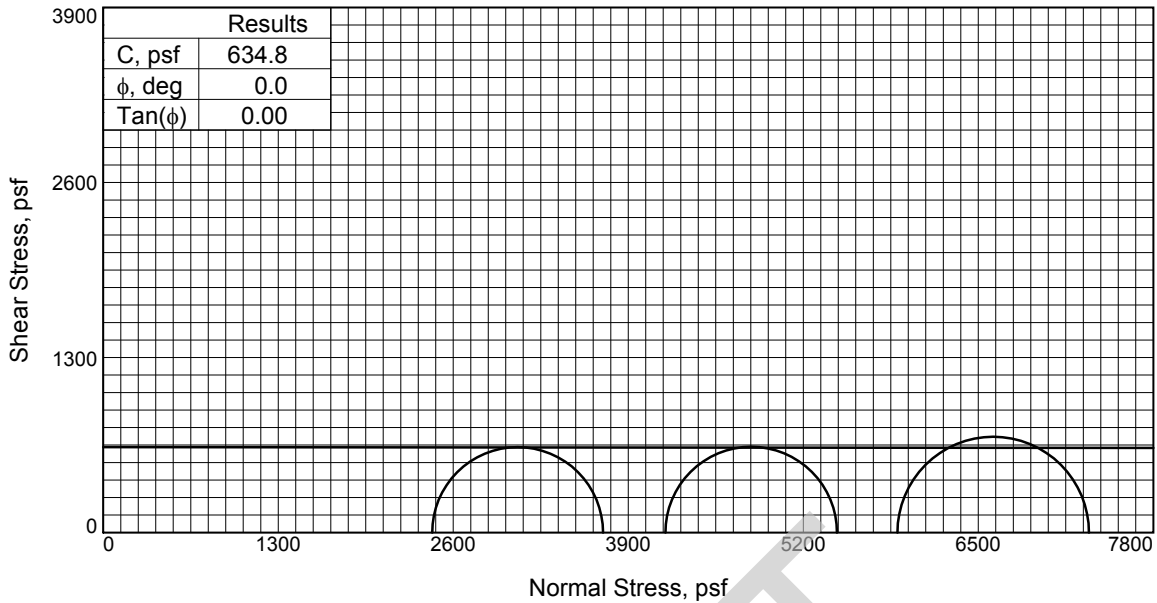


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● So to M, Gr Lean CLAY with Tr Fine Sand	37	22	15			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-13A **Depth:** 51-52
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3
Initial			
Water Content, %	31.6	31.5	31.7
Dry Density, pcf	94.2	92.5	93.4
Saturation, %	108.4	103.3	106.4
Void Ratio	0.7885	0.8224	0.8041
Diameter, in.	1.378	1.395	1.398
Height, in.	2.800	2.800	2.800
At Test			
Water Content, %	29.2	30.5	29.8
Dry Density, pcf	94.2	92.5	93.4
Saturation, %	100.0	100.0	100.0
Void Ratio	0.7885	0.8224	0.8041
Diameter, in.	1.378	1.395	1.398
Height, in.	2.800	2.800	2.800
Strain rate, in./min.	1.000	1.001	1.002
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	16.970	29.000	40.970
Fail. Stress, psf	1268.9	1274.3	1422.5
Strain, %	18.4	19.9	18.9
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	3712.6	5450.3	7322.2
σ_3 Failure, psf	2443.7	4176.0	5899.7

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Lean CLAY with Tr Fine Sand (CL4)

LL= 38 PL= 19 PI= 19

Assumed Specific Gravity= 2.70

Remarks: Type Failure:

Bulge

Figure _____

Client: GeoEngineers

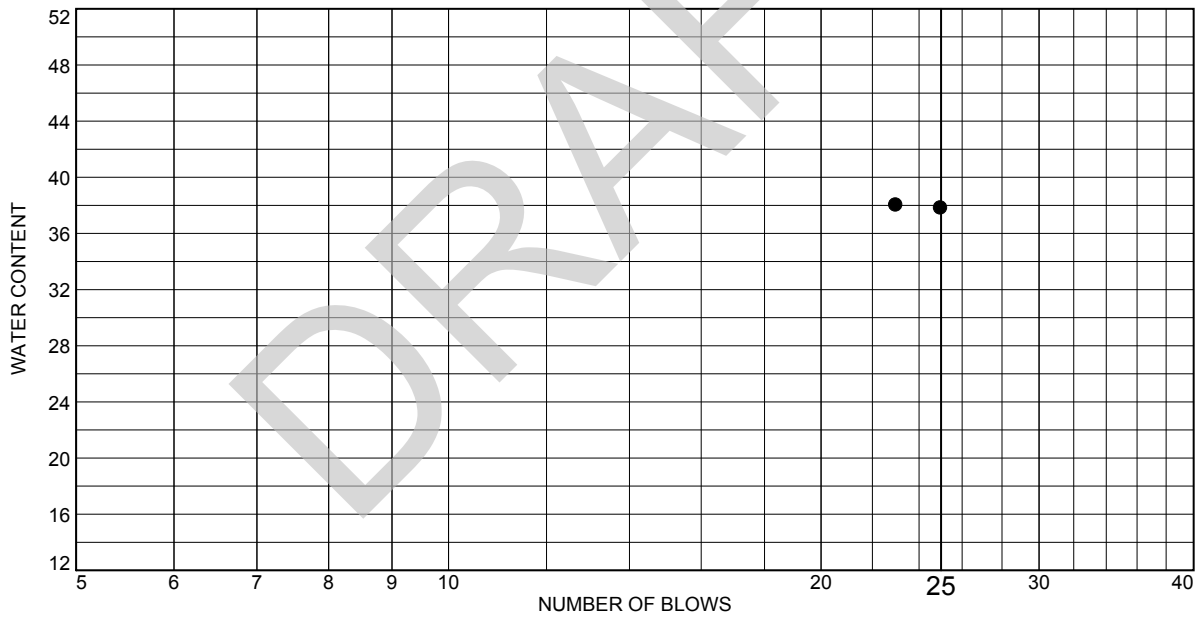
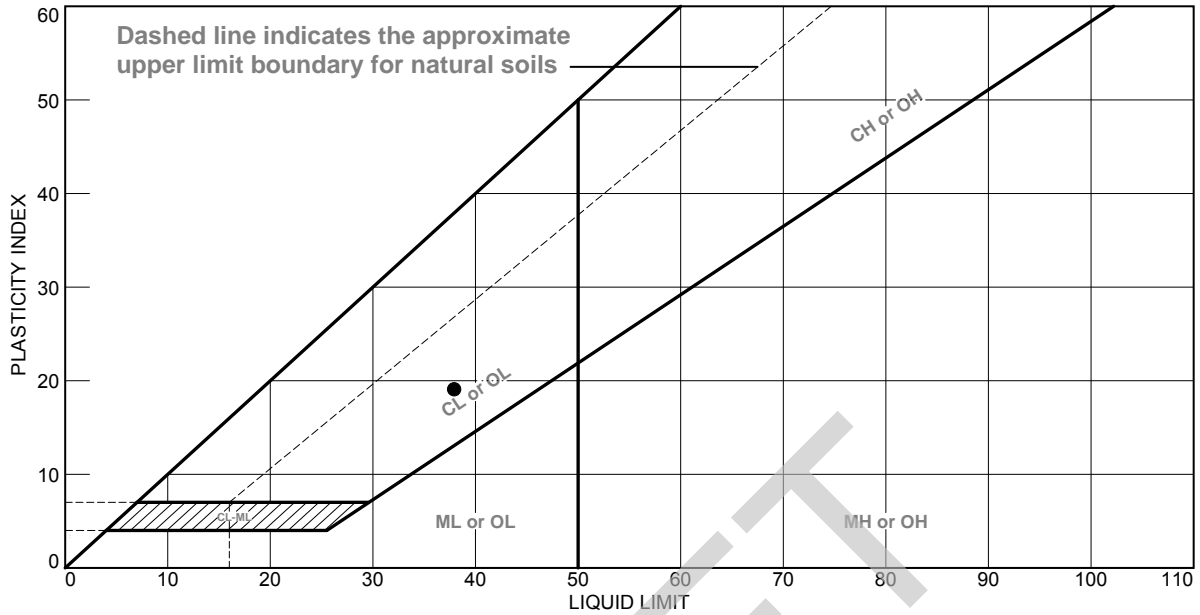
Project: Mid Barataria Diversion

Source of Sample: IS-13A **Depth:** 46-47

Proj. No.: B13-018 **Date Sampled:**

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 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT

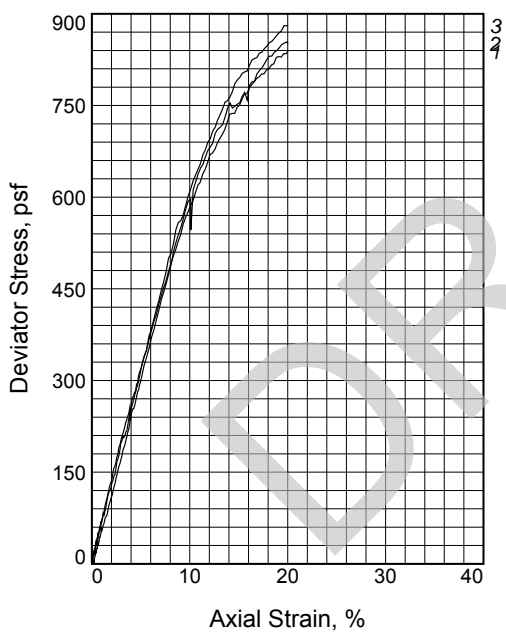
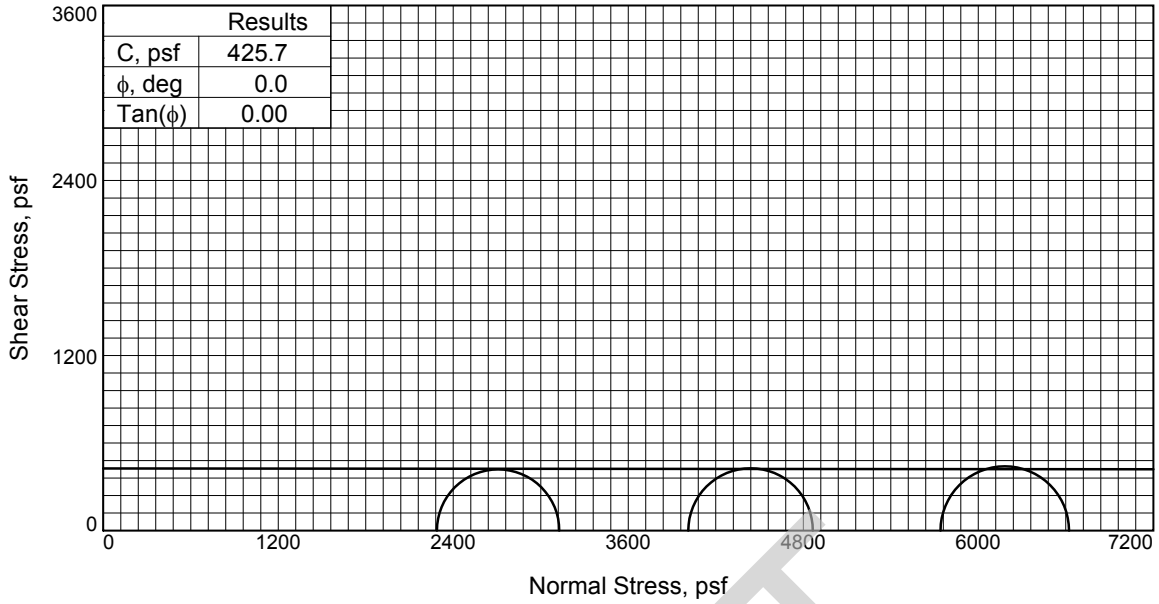


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● M, Gr Lean CLAY with Tr Fine Sand (CL4)	38	19	19			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-13A **Depth:** 46-47
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



	1	2	3	
Sample No.	1	2	3	
Initial	Water Content, %	31.7	31.4	31.2
	Dry Density, pcf	92.2	91.7	90.8
	Saturation, %	105.9	103.4	100.6
	Void Ratio	0.7935	0.8042	0.8224
	Diameter, in.	1.374	1.363	1.386
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	29.9	30.3	31.0
	Dry Density, pcf	92.2	91.7	90.8
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.7935	0.8042	0.8224
Ult. Stress, psf	Diameter, in.	1.374	1.363	1.386
	Height, in.	2.800	2.800	2.800
	Strain rate, in./min.	1.000	1.000	1.000
Fail. Stress, psf	Back Pressure, psi	0.000	0.000	0.000
	Cell Pressure, psi	15.890	27.860	39.870
Strain, %	Fail. Stress, psf	838.7	853.9	880.8
	Strain, %	20.0	19.9	20.0
σ_1 Failure, psf	Ult. Stress, psf			
	Strain, %			
σ_3 Failure, psf	σ_1 Failure, psf	3126.8	4865.7	6622.1
	σ_3 Failure, psf	2288.2	4011.8	5741.3

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: So, Gr SILT with Clay and Fine Sand (ML)

LL= 34 PL= 24 PI= 10

Assumed Specific Gravity= 2.65

Remarks: Tykpe Failure:
Bluge
Slumping

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

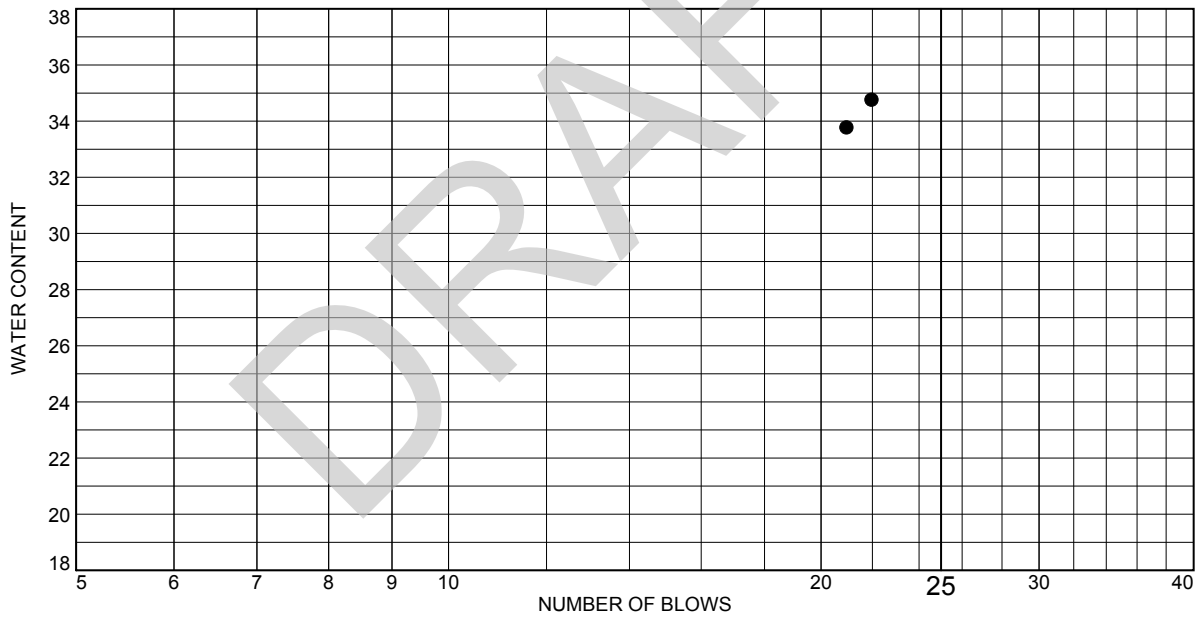
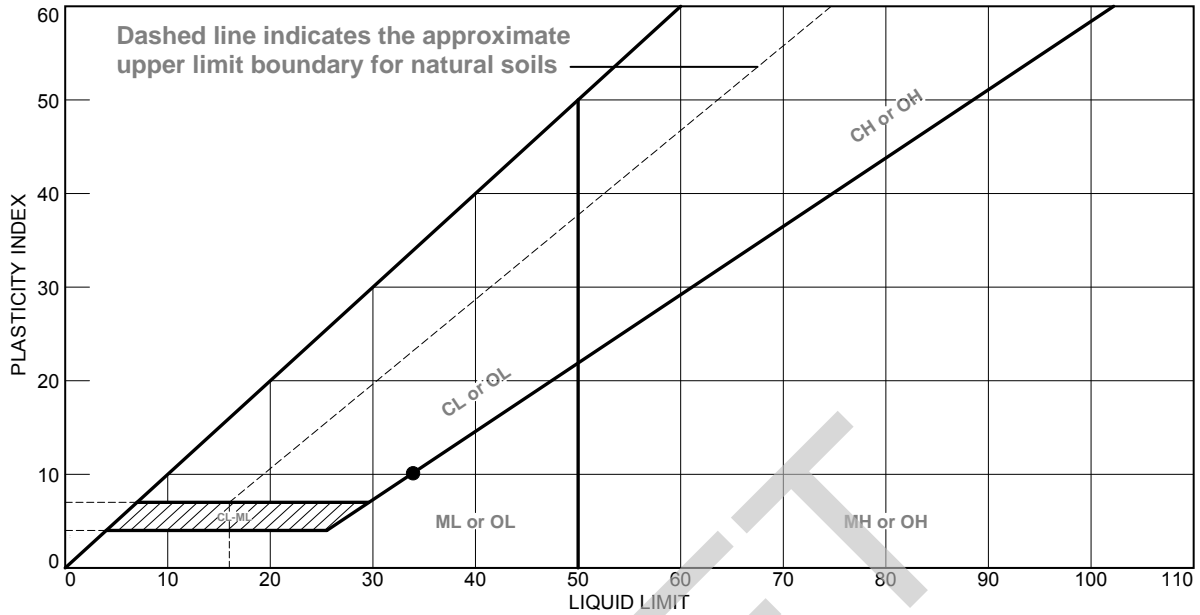
Source of Sample: IS-13A **Depth:** 43-44

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

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LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● So, Gr SILT with Clay and Fine Sand (ML)	34	24	10			(ML)

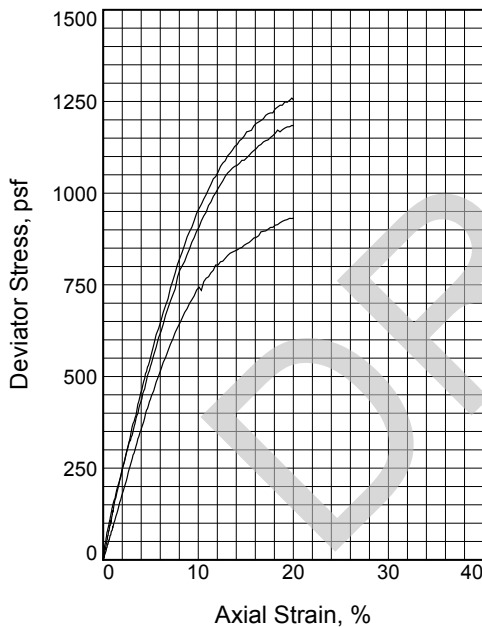
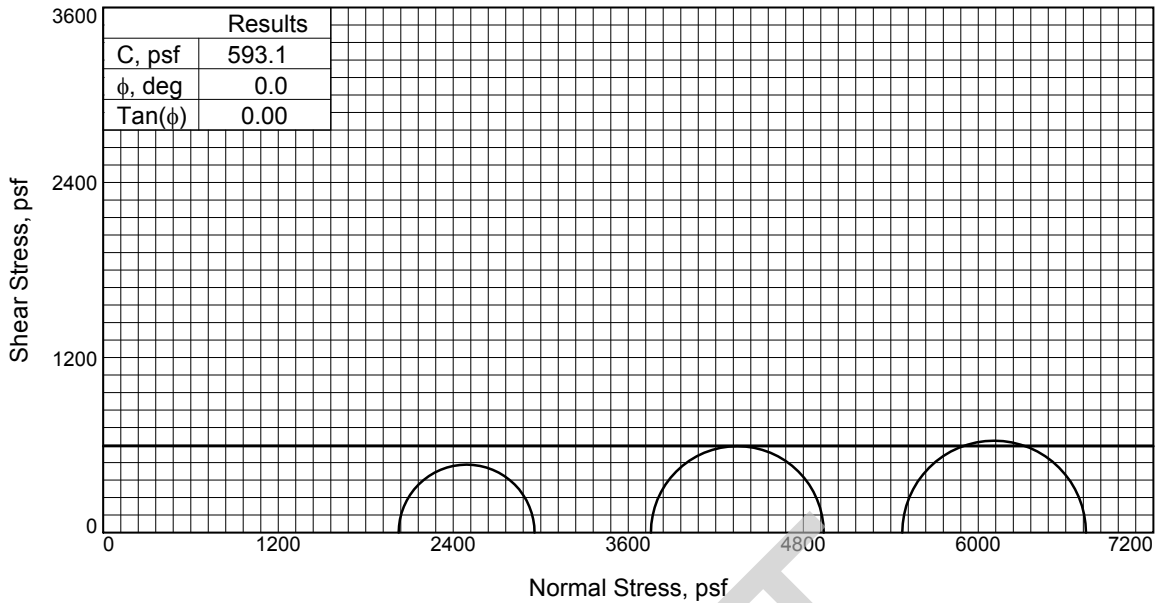
Project No. B13-018 Client: GeoEngineers
 Project: Mid Barataria Diversion
 Source of Sample: IS-13A Depth: 43-44

Southern Earth Sciences, Inc.
 Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	31.8	31.2	31.0
	Dry Density, pcf	94.7	93.8	95.7
	Saturation, %	110.1	105.6	110.0
	Void Ratio	0.7793	0.7977	0.7614
	Diameter, in.	1.354	1.369	1.354
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	28.9	29.5	28.2
	Dry Density, pcf	94.7	93.8	95.7
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.7793	0.7977	0.7614
Diameter, in.	1.354	1.369	1.354	
Height, in.	2.800	2.800	2.800	
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	14.070	26.080	38.050	
Fail. Stress, psf	931.5	1184.6	1259.1	
Strain, %	20.0	19.8	19.8	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	2957.6	4940.1	6738.3	
σ_3 Failure, psf	2026.1	3755.5	5479.2	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr CLAY with Silt and Fine Sand (CL4)

LL= 36 **PL=** 22 **PI=** 14

Assumed Specific Gravity= 2.70

Remarks: Type Failure:

Bulge

Laminations

Figure _____

Client: GeoEngineers

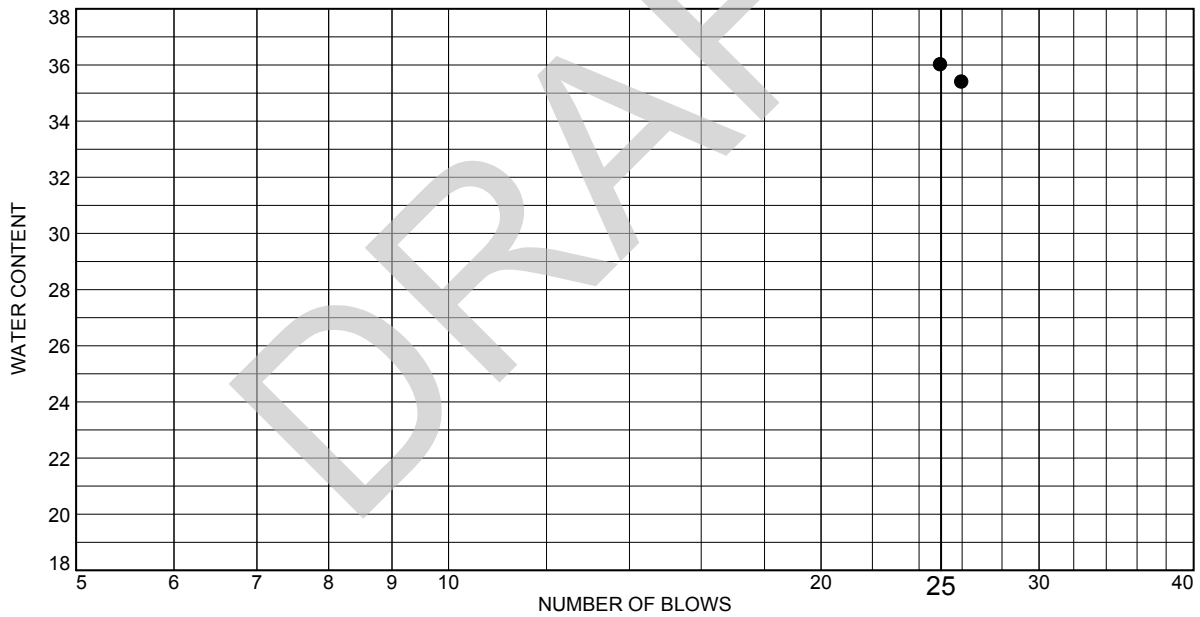
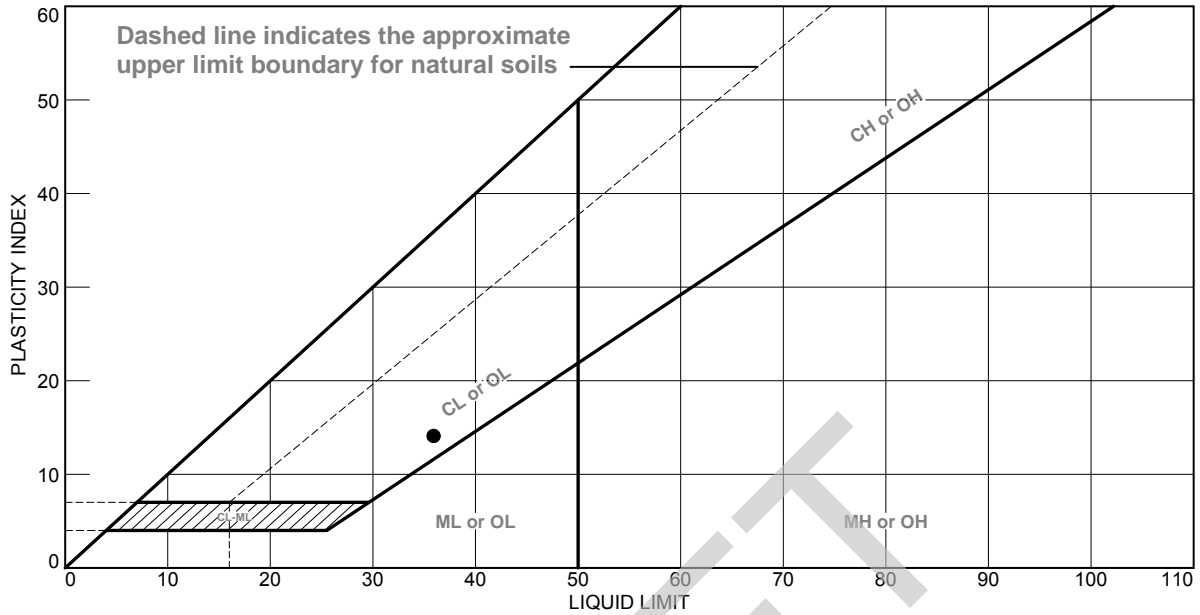
Project: Mid Baratara Diversion

Source of Sample: IS-13A **Depth:** 38-39

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● M, Gr CLAY with Silt and Fine Sand (CL4)	36	22	14			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-13A **Depth:** 38-39
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	10.4	89.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.9		
#100	99.6		
#140	97.8		
#200	89.6		

Material Description
Gr SILT with Sand and Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (ML) AASHTO=

Remarks

F.M.=0.00

* (no specification provided)

Source of Sample: IS-13A

Depth: 35-36

Date:

**Southern Earth
Sciences, Inc.
Baton Rouge, LA**

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	10.6	89.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.7		
#100	99.3		
#140	98.1		
#200	89.3		

Material Description
Gr SILT with Sand and Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

F.M.=0.01

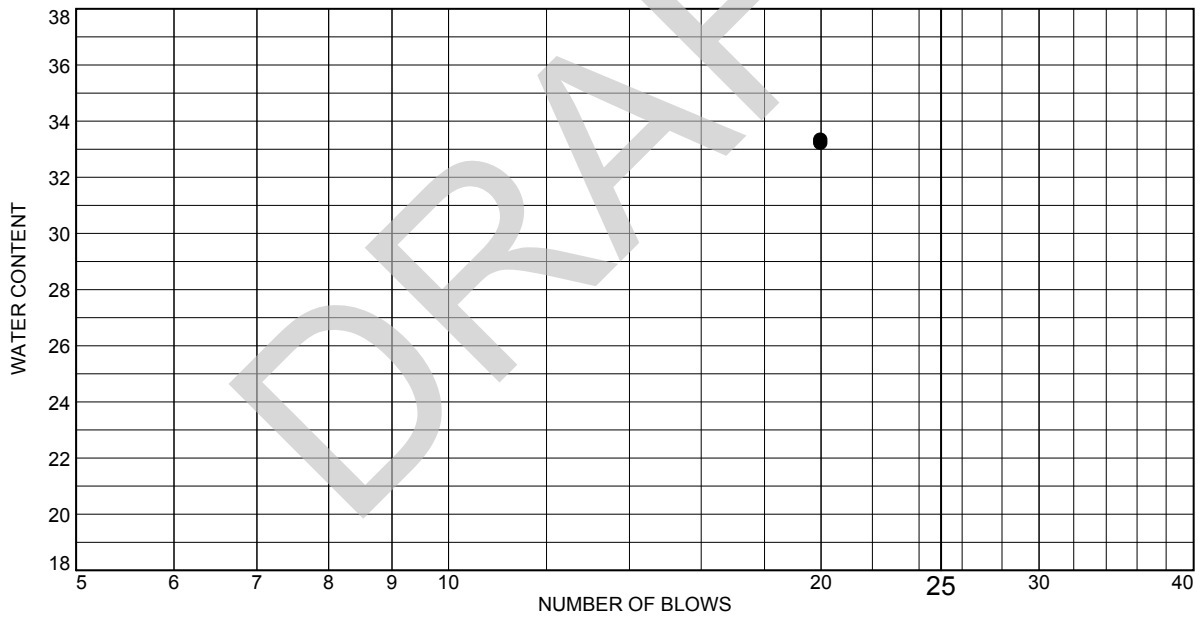
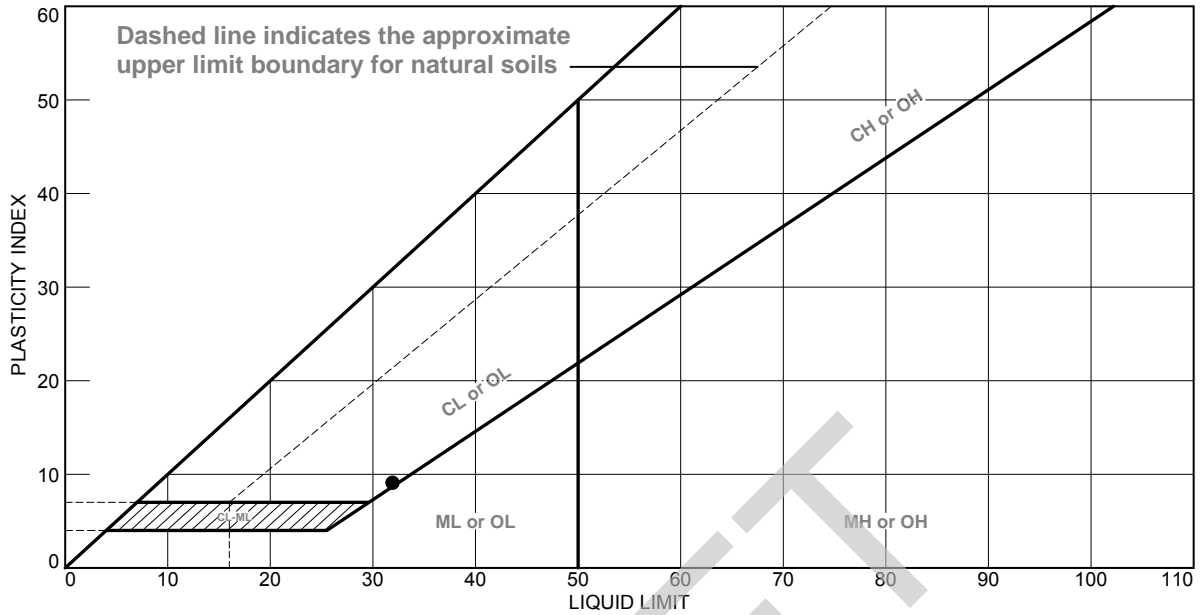
* (no specification provided)

Source of Sample: IS-13A Depth: 33-34

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



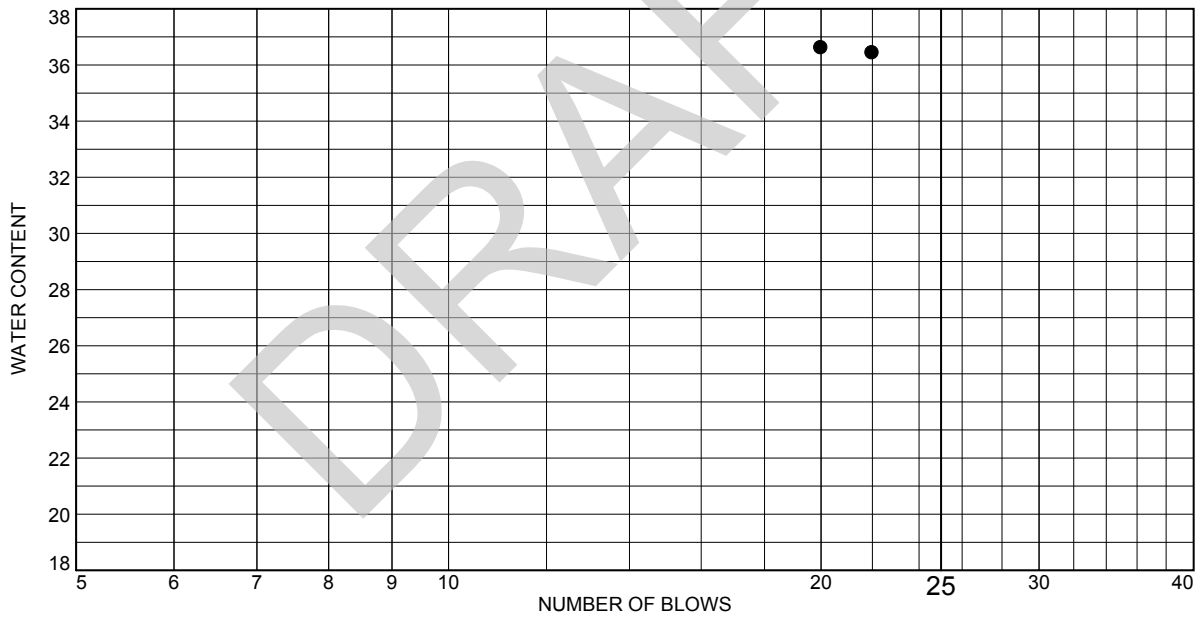
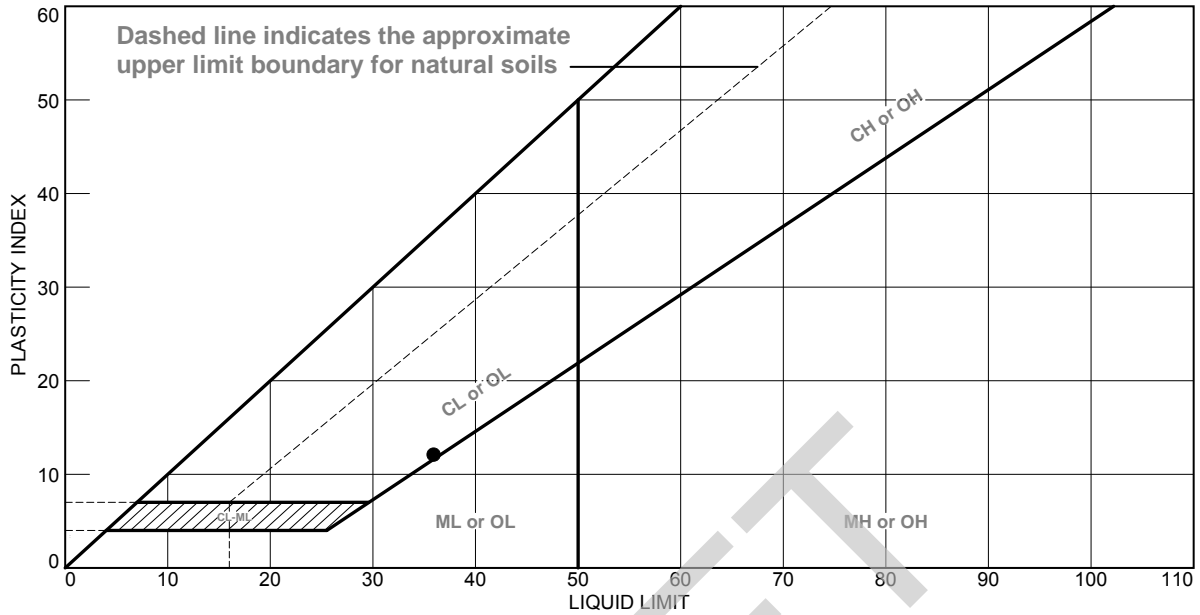
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Gr Lean CLAY with Tr Fine Sand	32	23	9			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-13A **Depth:** 31.5-33
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Gr Lean CLAY with Tr Fine Sand	36	24	12			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-13A **Depth:** 29-30.5

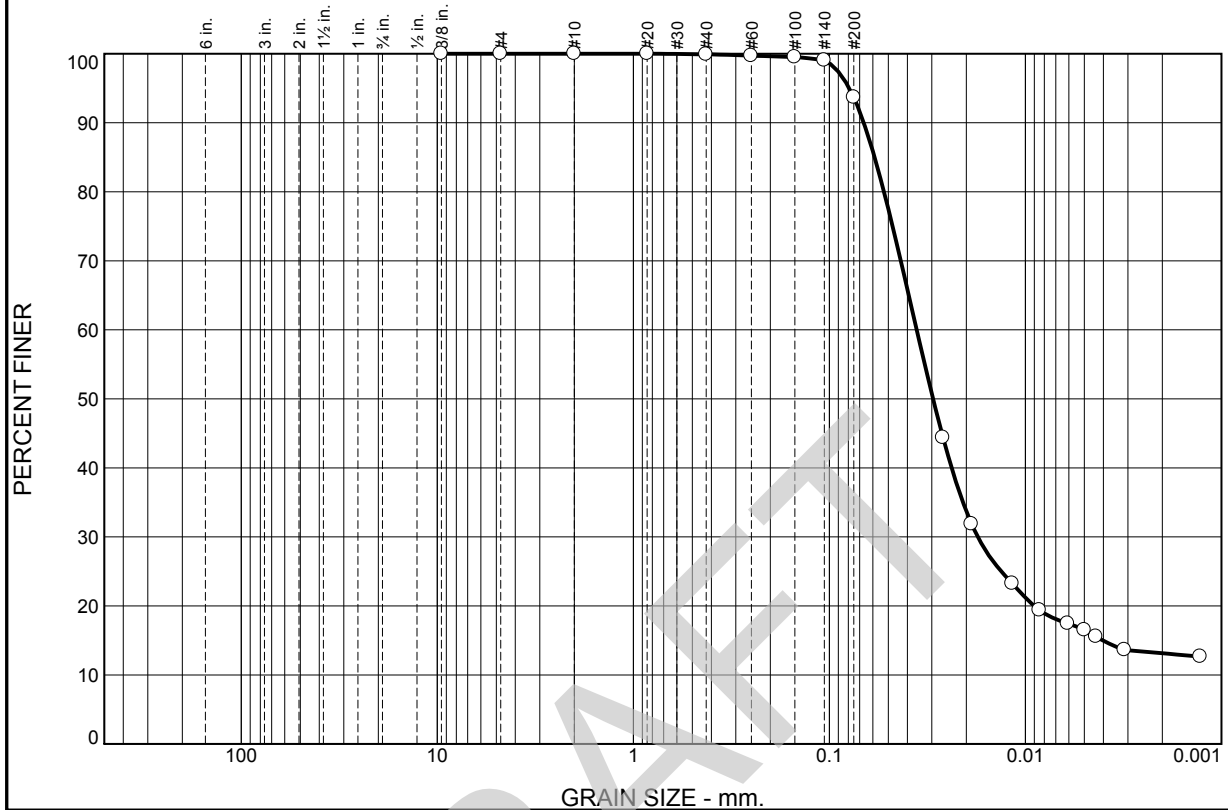
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	6.2	77.2	16.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.7		
#100	99.5		
#140	99.0		
#200	93.7		

Material Description
Gr SILT with Sand and Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

F.M.=0.01

* (no specification provided)

Source of Sample: IS-13A Depth: 24-25.5 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018	Figure
--	---	--------

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	28.5	71.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.8		
#100	99.4		
#140	95.1		
#200	71.5		

Material Description
Gr SILT with Sand and Tr Clay

PL= **Atterberg Limits** LL= PI=

USCS= (ML) **Classification** AASHTO=

Remarks

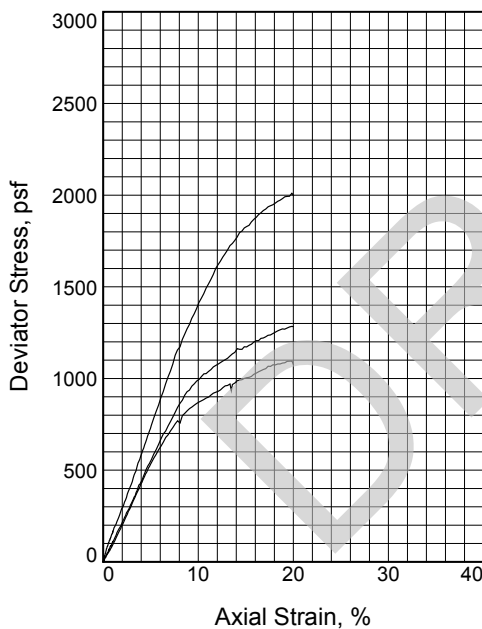
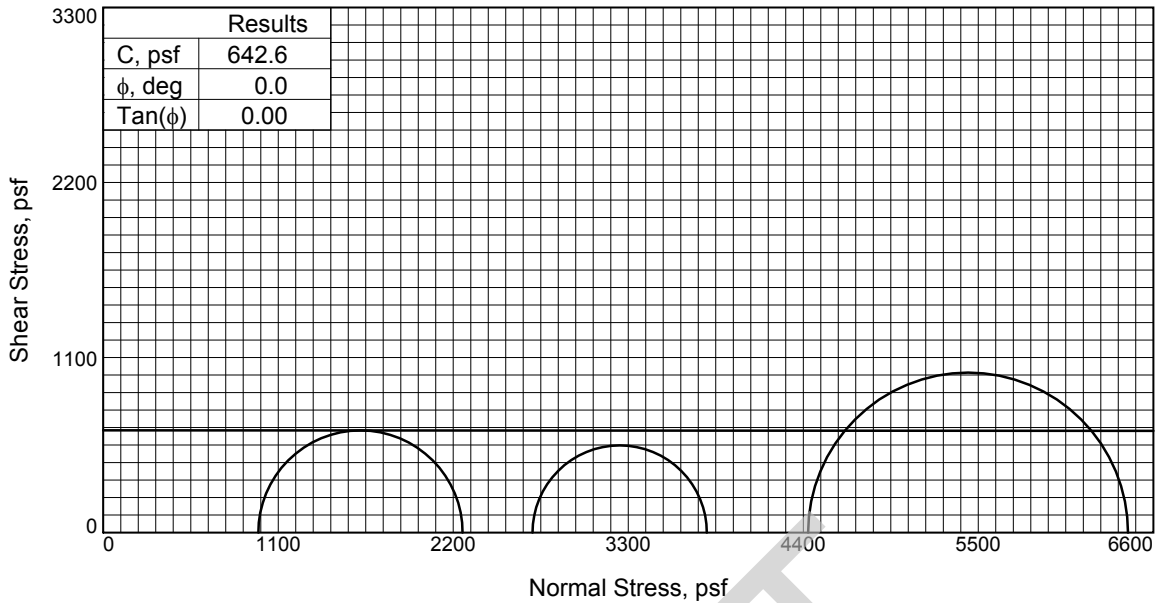
F.M.=0.01

* (no specification provided)

Source of Sample: IS-13A Depth: 23.5-24

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018	Figure
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	1	2	3	
Sample No.				
Initial	Water Content, %	30.1	30.9	31.5
	Dry Density, pcf	95.6	94.4	96.6
	Saturation, %	109.0	108.7	117.0
	Void Ratio	0.7310	0.7526	0.7123
	Diameter, in.	1.367	1.361	1.356
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	27.6	28.4	26.9
	Dry Density, pcf	95.6	94.4	96.6
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.7310	0.7526	0.7123
At Test	Diameter, in.	1.367	1.361	1.356
	Height, in.	2.800	2.800	2.800
	Strain rate, in./min.	0.999	1.000	1.000
	Back Pressure, psi	0.000	0.000	0.000
	Cell Pressure, psi	6.770	18.740	30.770
Fail. Stress, psf		1283.9	1095.3	2010.2
	Strain, %	19.8	19.9	19.8
Ult. Stress, psf				
	Strain, %			
σ_1 Failure, psf	2258.7	3793.8	6441.1	
σ_3 Failure, psf	974.9	2698.6	4430.9	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Silty CLAY with S Silt (CL4)

LL= 33 **PL=** 22 **PI=** 11

Assumed Specific Gravity= 2.65

Remarks: Type Failure:

- Bulge
- Slumping

Figure _____

Client: GeoEngineers

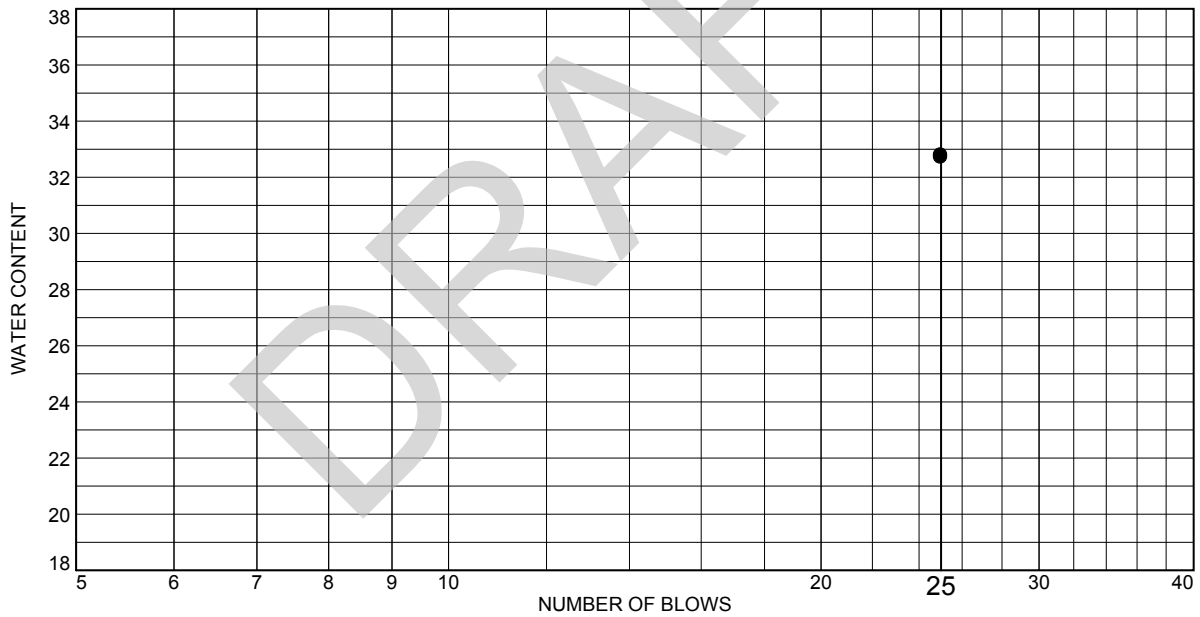
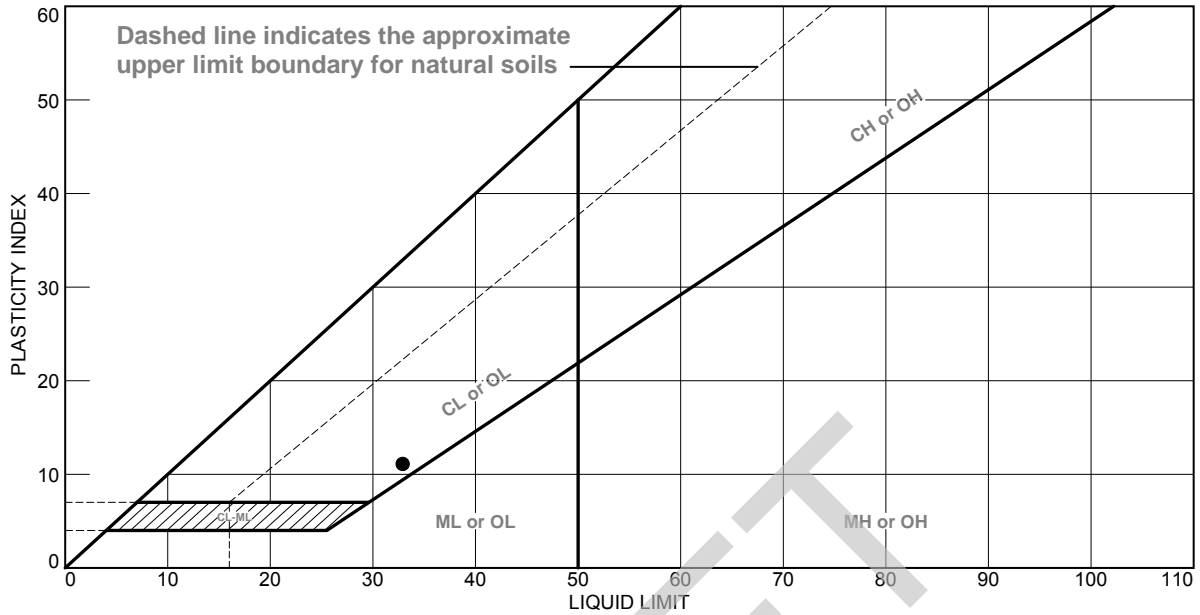
Project: Mid Barataria Diversion

Source of Sample: IS-13A **Depth:** 18-19

Proj. No.: B13-018 **Date Sampled:**

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 Southern Earth Sciences, Inc.
 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT

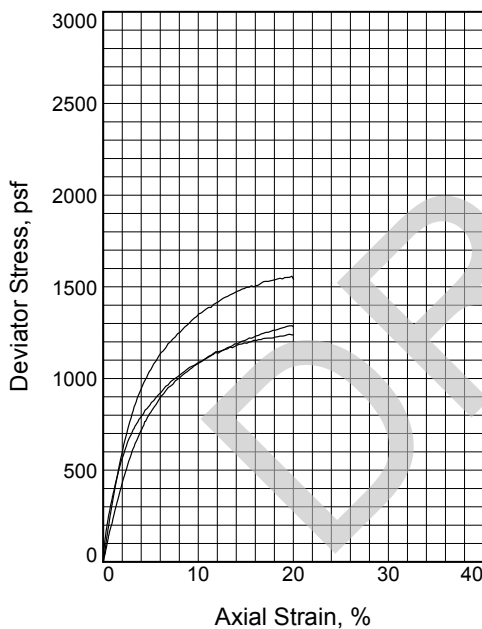
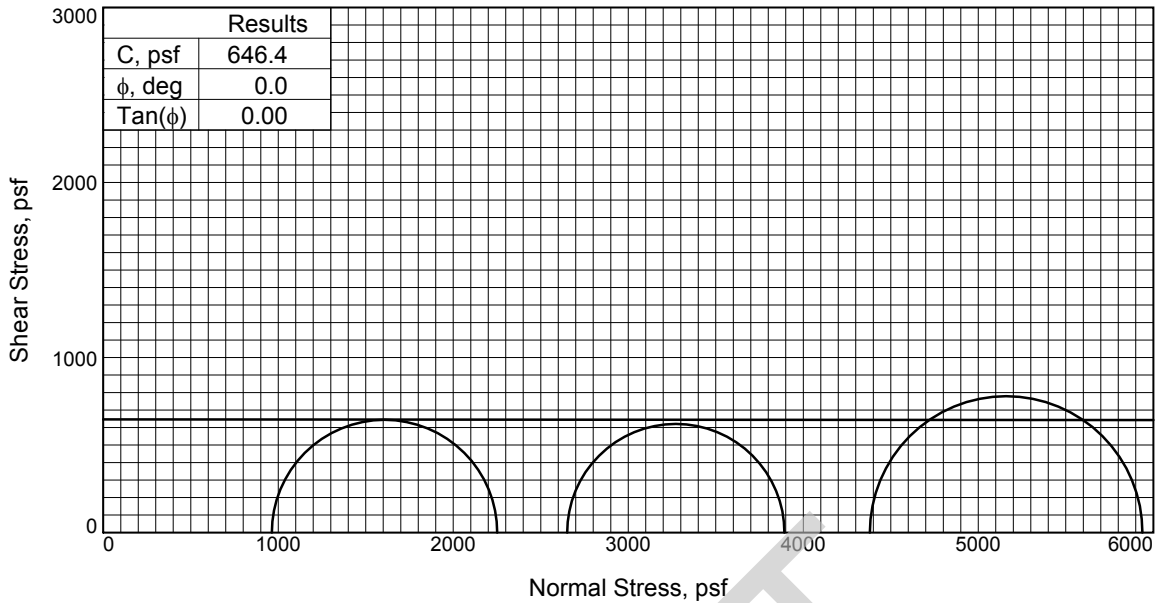


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● M, Gr Silty CLAY with S Silt (CL4)	33	22	11			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-13A **Depth:** 18-19
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	33.9	33.8	36.1
	Dry Density, pcf	86.9	85.7	88.7
	Saturation, %	97.3	94.4	108.1
	Void Ratio	0.9397	0.9667	0.9005
	Diameter, in.	1.393	1.396	1.355
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	34.8	35.8	33.4
	Dry Density, pcf	86.9	85.7	88.7
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.9397	0.9667	0.9005
Strain rate, in./min.	Diameter, in.	1.393	1.396	1.355
	Height, in.	2.800	2.800	2.800
	Back Pressure, psi	0.000	0.000	0.000
	Cell Pressure, psi	6.690	18.410	30.420
	Fail. Stress, psf	1288.0	1241.4	1557.5
Strain, %	Strain, %	19.9	19.6	19.8
	Ult. Stress, psf			
Strain, %	Strain, %			
	σ_1 Failure, psf	2251.4	3892.5	5938.0
σ_3 Failure, psf	963.4	2651.0	4380.5	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Lean CLAY with O Pockets

LL= 39 **PL=** 24 **PI=** 15

Assumed Specific Gravity= 2.70

Remarks: Type Failure:

Bulge

Figure _____

Client: GeoEngineers

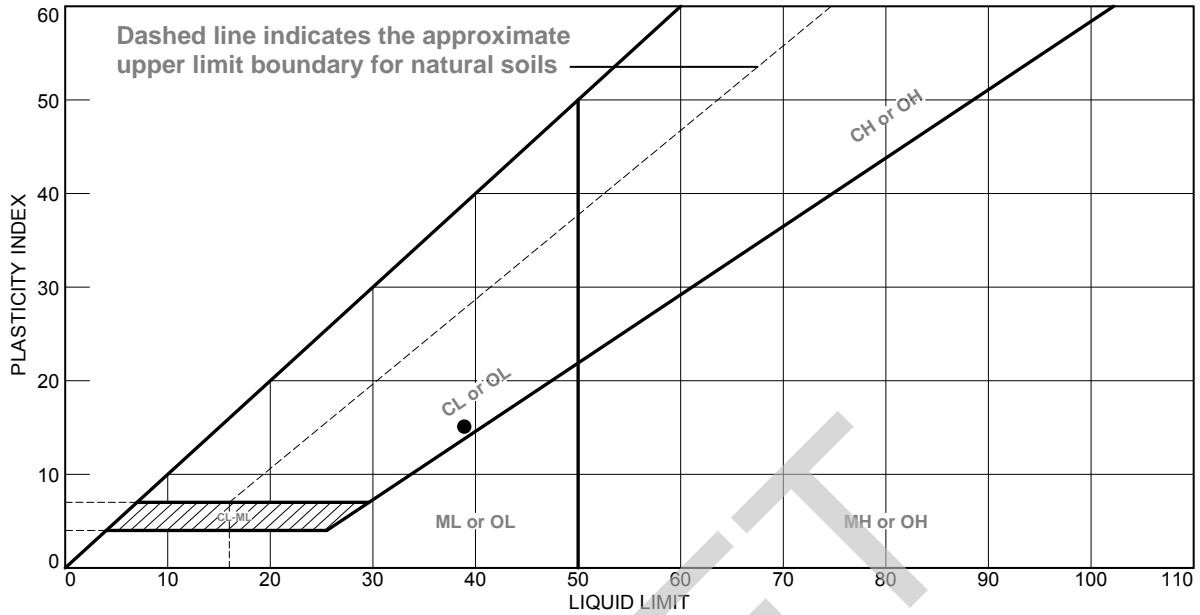
Project: Mid Baratara Diversion

Source of Sample: IS-13A **Depth:** 17-18

Proj. No.: B13-018 **Date Sampled:**

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 Southern Earth Sciences, Inc.
 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT



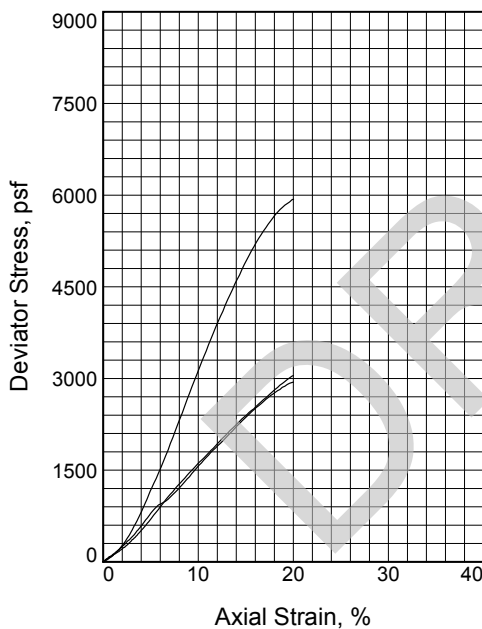
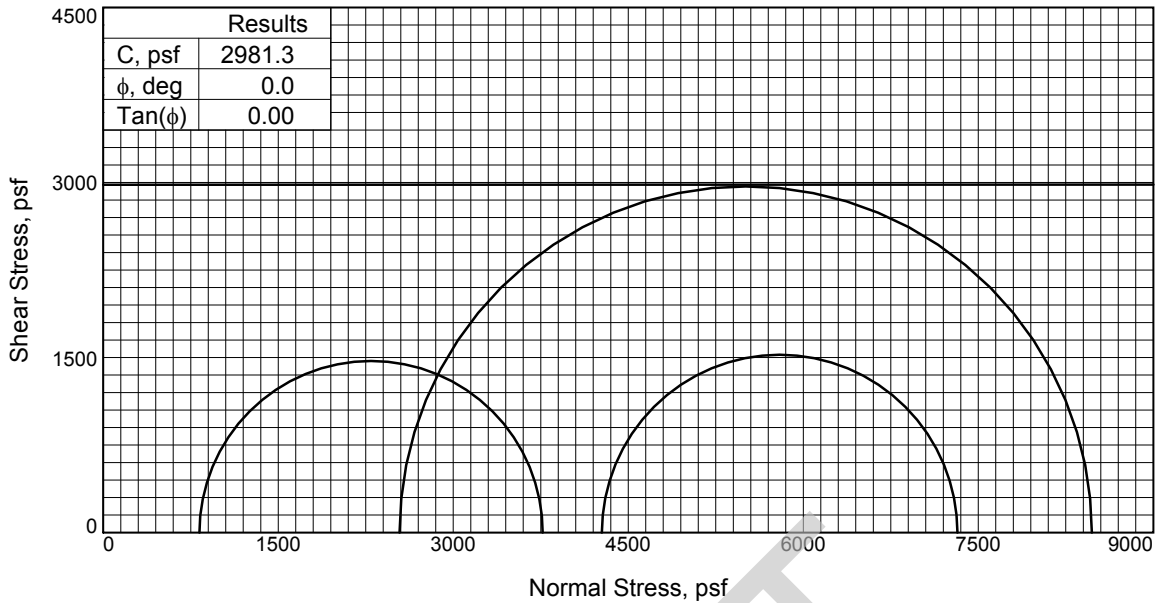
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
M, Gr Lean CLAY with O Pockets	39	24	15			(CL4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-13A **Depth:** 17-18
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	27.1	29.7	37.2
	Dry Density, pcf	94.1	91.4	81.9
	Saturation, %	94.8	97.1	96.7
	Void Ratio	0.7572	0.8105	1.0196
	Diameter, in.	1.410	1.410	1.410
At Test	Height, in.	2.800	2.800	2.800
	Water Content, %	28.6	30.6	38.5
	Dry Density, pcf	94.1	91.4	81.9
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.7572	0.8105	1.0196
Strain rate, in./min.	Diameter, in.	1.410	1.410	1.410
	Height, in.	2.800	2.800	2.800
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	5.730	17.640	29.680	
Fail. Stress, psf	Strain, %	20.0	20.0	20.0
	Ult. Stress, psf	2941.0	5933.4	3047.2
Strain, %	σ_1 Failure, psf	20.0	20.0	20.0
	σ_3 Failure, psf	3766.1	8473.5	7321.1
Strain, %	σ_3 Failure, psf	825.1	2540.2	4273.9

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr SILT with Sand and Tr Clay (ML)

LL= 28 **PL=** 26 **PI=** 2

Assumed Specific Gravity= 2.65

Remarks: Type Failure:

Bulge

Slumping (Sample 1,2,3)

Figure _____

Client: GeoEngineers

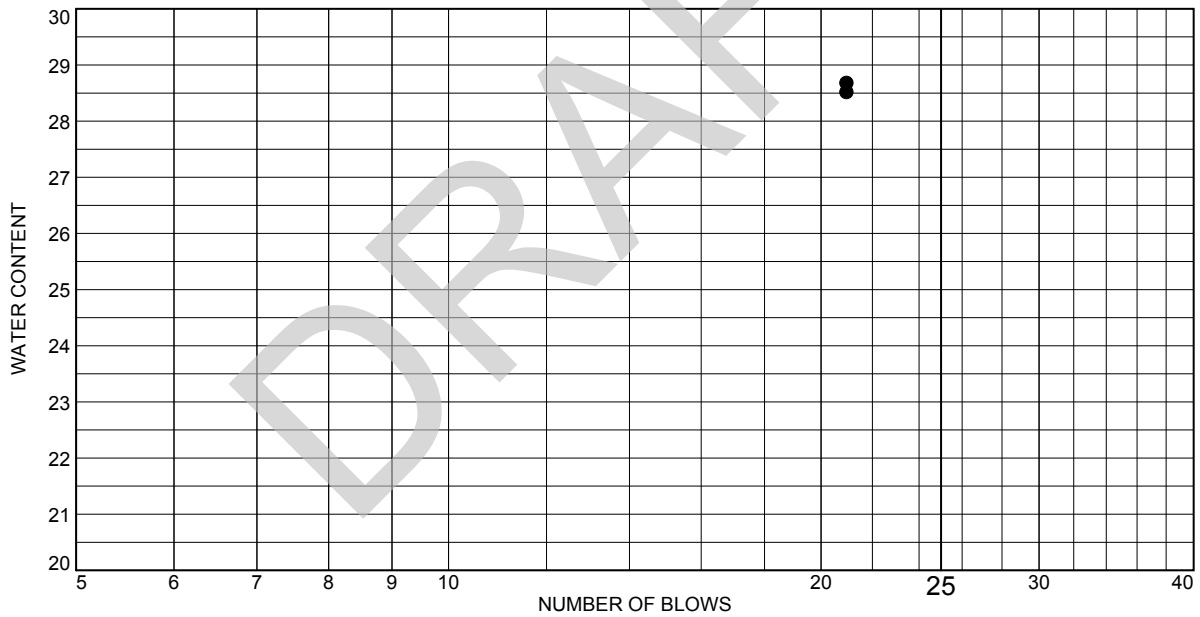
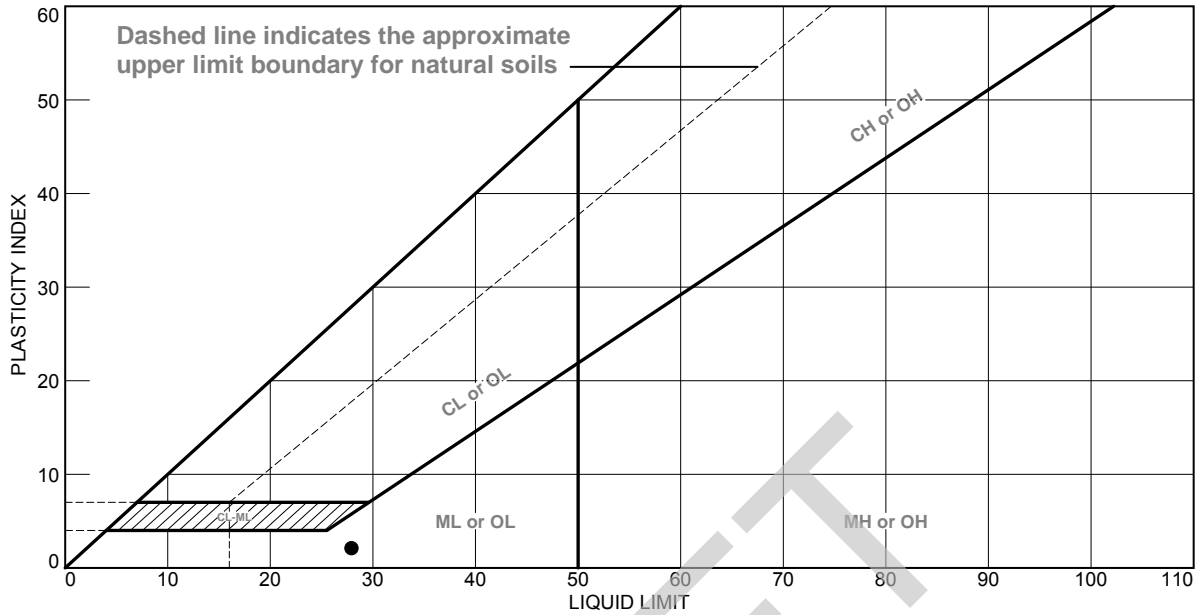
Project: Mid Barataria Diversion

Source of Sample: IS-13A **Depth:** 15-16

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT

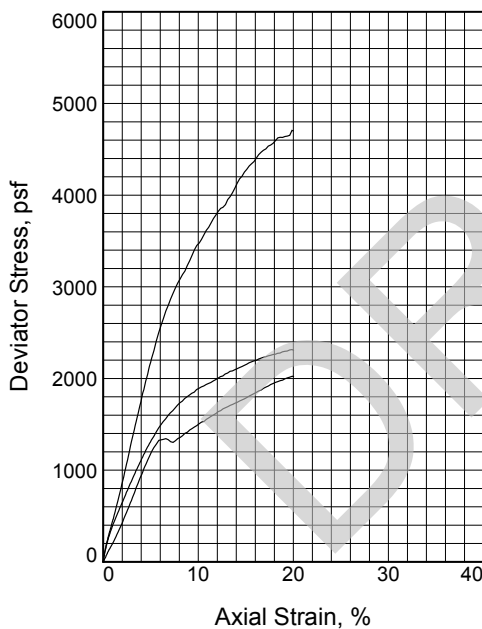
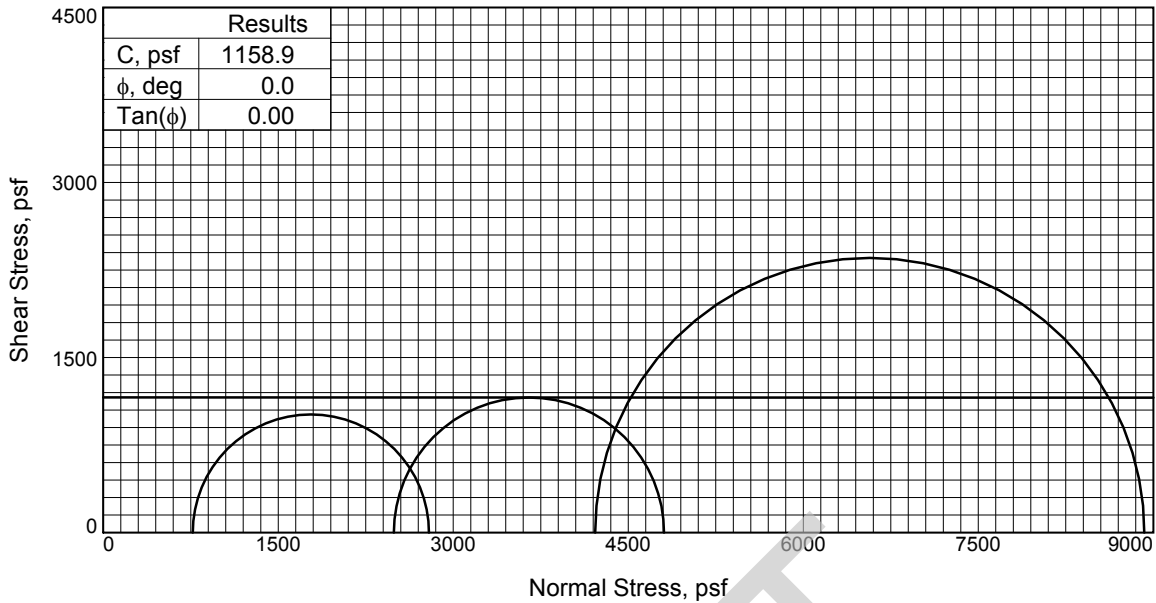


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● St, Gr SILT with Sand and Tr Clay (ML)	28	26	2			(ML)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-13A **Depth:** 15-16
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3
Initial			
Water Content, %	41.2	45.6	34.5
Dry Density, pcf	81.0	77.3	91.7
Saturation, %	102.8	104.3	110.9
Void Ratio	1.0819	1.1811	0.8387
Diameter, in.	1.378	1.354	1.347
Height, in.	2.800	2.800	2.800
At Test			
Water Content, %	40.1	43.7	31.1
Dry Density, pcf	81.0	77.3	91.7
Saturation, %	100.0	100.0	100.0
Void Ratio	1.0819	1.1811	0.8387
Diameter, in.	1.378	1.354	1.347
Height, in.	2.800	2.800	2.800
Strain rate, in./min.	1.001	1.000	1.000
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	5.330	17.300	29.280
Fail. Stress, psf	2024.3	2315.1	4706.8
Strain, %	19.9	19.9	19.9
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	2791.8	4806.3	8923.2
σ_3 Failure, psf	767.5	2491.2	4216.3

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, O Clay with Silt and Sand (CL6)

LL= 44 PL= 28 PI= 16

Assumed Specific Gravity= 2.70

Remarks: Type Failure:

Multi Shear (Sample 1, 3)

Bulge (Sample 2)

Figure _____

Client: GeoEngineers

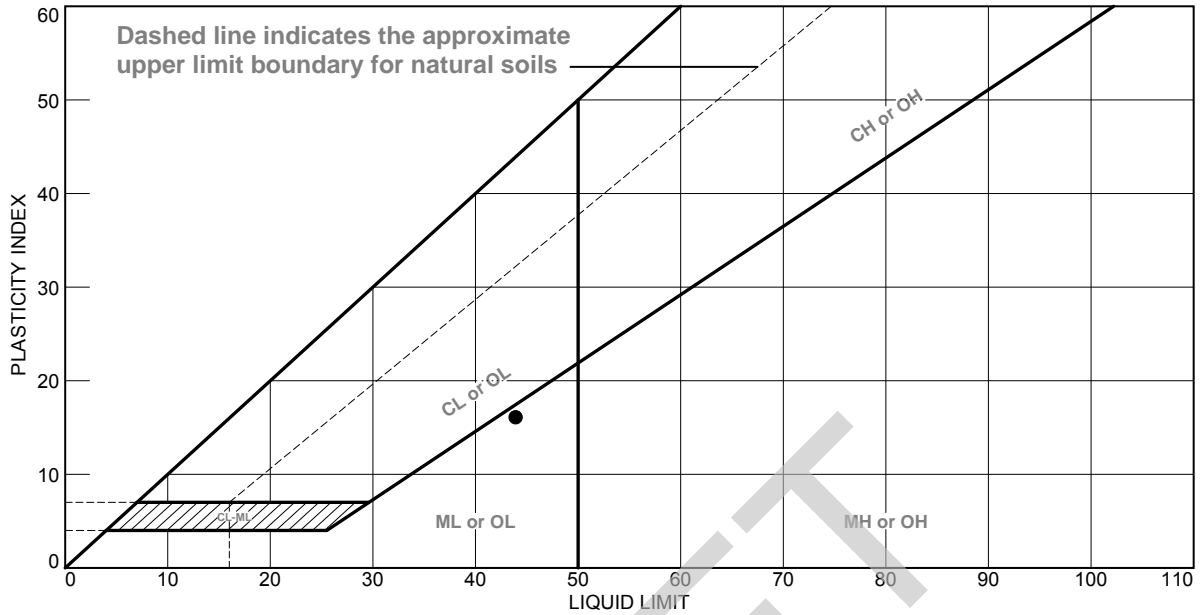
Project: Mid Baratara Diversion

Source of Sample: IS-13A **Depth:** 14-15

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● St, O Clay with Silt and Sand (CL6)	44	28	16			(OL)

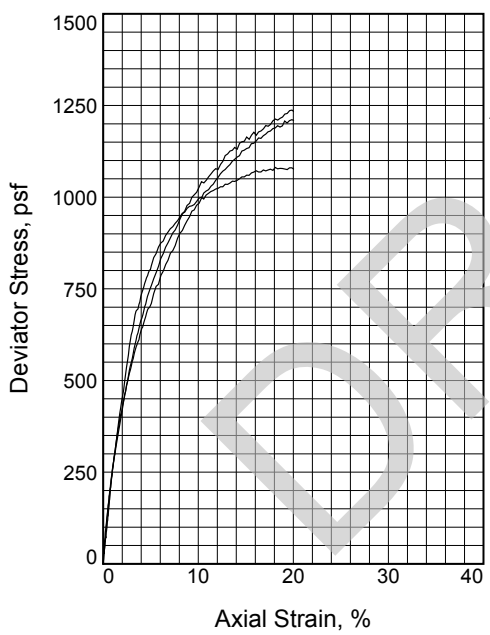
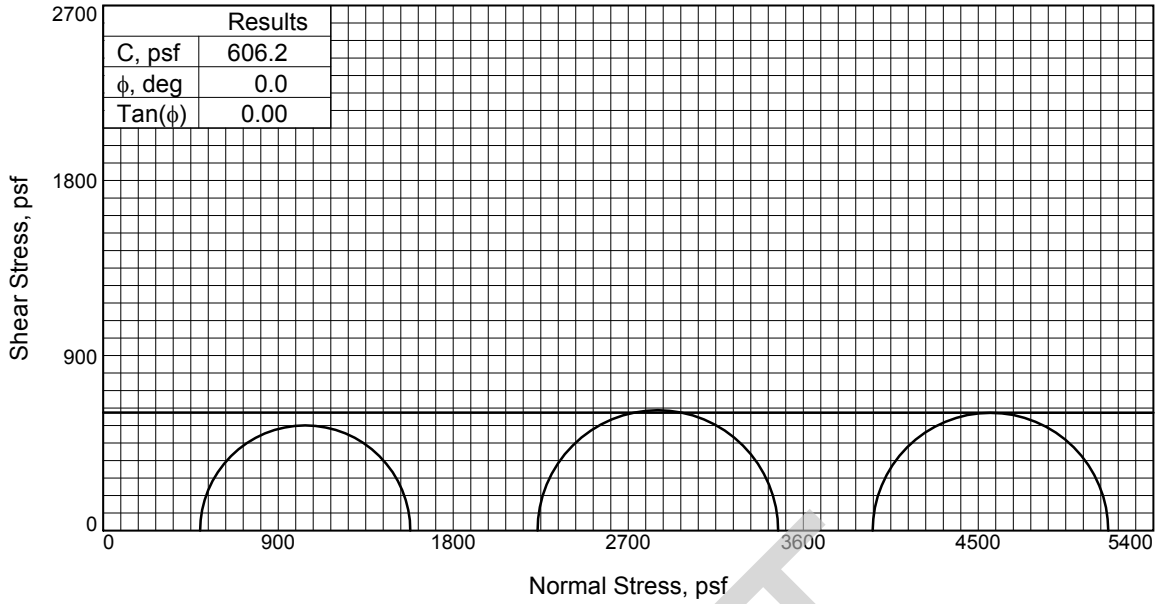
Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: IS-13A **Depth:** 14-15

Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3
Initial			
Water Content, %	37.4	36.3	37.7
Dry Density, pcf	85.0	86.4	89.3
Saturation, %	102.8	103.1	114.8
Void Ratio	0.9828	0.9507	0.8878
Diameter, in.	1.388	1.377	1.348
Height, in.	2.800	2.800	2.800
At Test			
Water Content, %	36.4	35.2	32.9
Dry Density, pcf	85.0	86.4	89.3
Saturation, %	100.0	100.0	100.0
Void Ratio	0.9828	0.9507	0.8878
Diameter, in.	1.388	1.377	1.348
Height, in.	2.800	2.800	2.800
Strain rate, in./min.	1.000	1.001	1.001
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	3.460	15.510	27.480
Fail. Stress, psf	1080.9	1237.3	1211.0
Strain, %	18.1	19.9	19.8
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	1579.2	3470.7	5168.2
σ_3 Failure, psf	498.2	2233.4	3957.1

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Lean CLAY with O Pockets (CL4)

Assumed Specific Gravity= 2.70

Remarks: Type Failure:
Bulge

Client: GeoEngineers

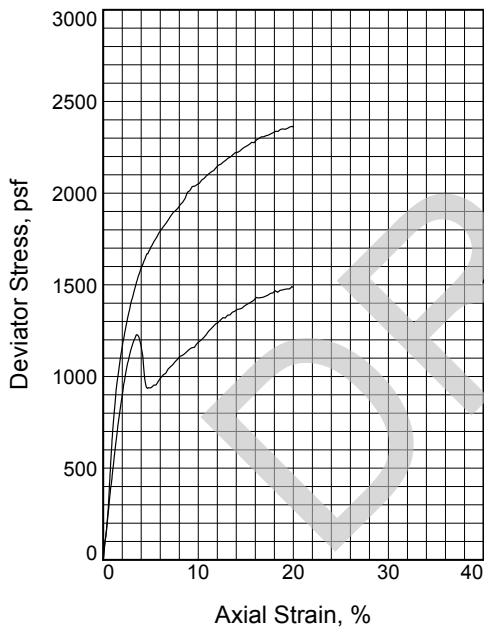
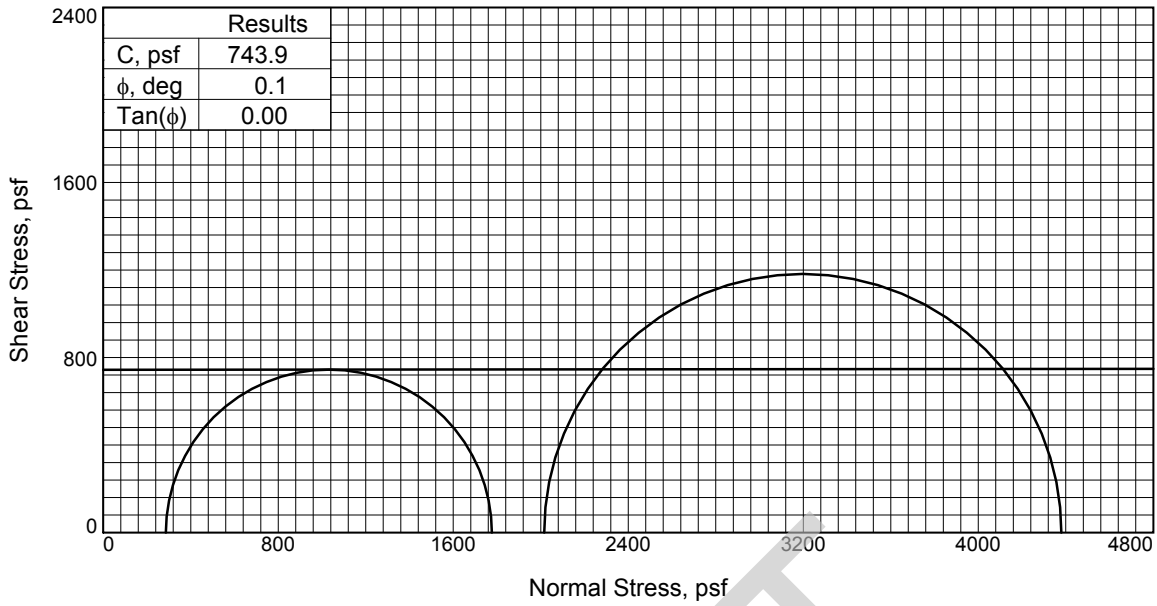
Project: Mid Barataria Diversion

Source of Sample: IS-13A **Depth:** 9-10

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Figure _____



	1	2	
Sample No.	1	2	
Initial	Water Content, %	27.9	28.2
	Dry Density, pcf	92.8	93.6
	Saturation, %	92.5	95.2
	Void Ratio	0.8155	0.8003
	Diameter, in.	1.377	1.376
	Height, in.	2.800	2.800
At Test	Water Content, %	30.2	29.6
	Dry Density, pcf	92.8	93.6
	Saturation, %	100.0	100.0
	Void Ratio	0.8155	0.8003
	Diameter, in.	1.377	1.376
	Height, in.	2.800	2.800
Strain rate, in./min.	1.000	1.000	
Back Pressure, psi	0.000	0.000	
Cell Pressure, psi	1.990	14.000	
Fail. Stress, psf	1489.7	2363.8	
Strain, %	19.8	19.9	
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	1776.3	4379.8	
σ_3 Failure, psf	286.6	2016.0	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M to St, T and Gr Lean CLAY with Ferrous Nodules (CL4)

Assumed Specific Gravity= 2.70

Remarks: Type Failure:

- 45 Degree Shear (Sample 1)
- Bulge (Sample 2)
- Sample Cracked while Trimming (Sample 3)

Figure _____

Client: GeoEngineers

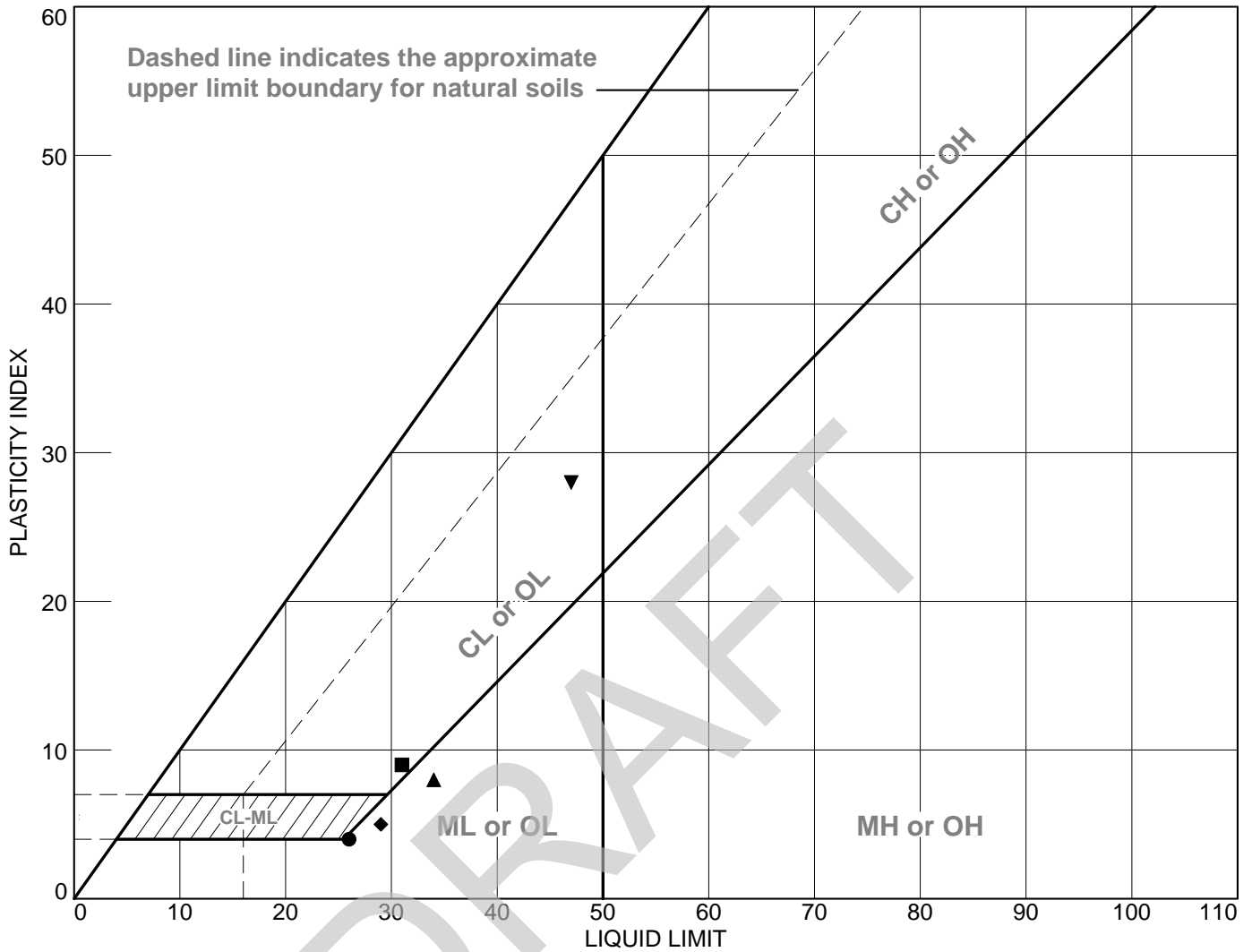
Project: Mid Barataria Diversion

Source of Sample: IS-13A **Depth:** 5-6

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	IS-17A	N/A	3	26	22	26	4	ML
■	IS-17A	N/A	5.3	31	22	31	9	CL
▲	IS-17A	N/A	13.3	31	26	34	8	ML
◆	IS-17A	N/A	18	33	24	29	5	ML
▼	IS-17A	N/A	23	41	19	47	28	CL6

Fugro Consultants, Inc.

Baton Rouge, LA

Client: GeoEngineers

Project: Mid Barataria Diversion

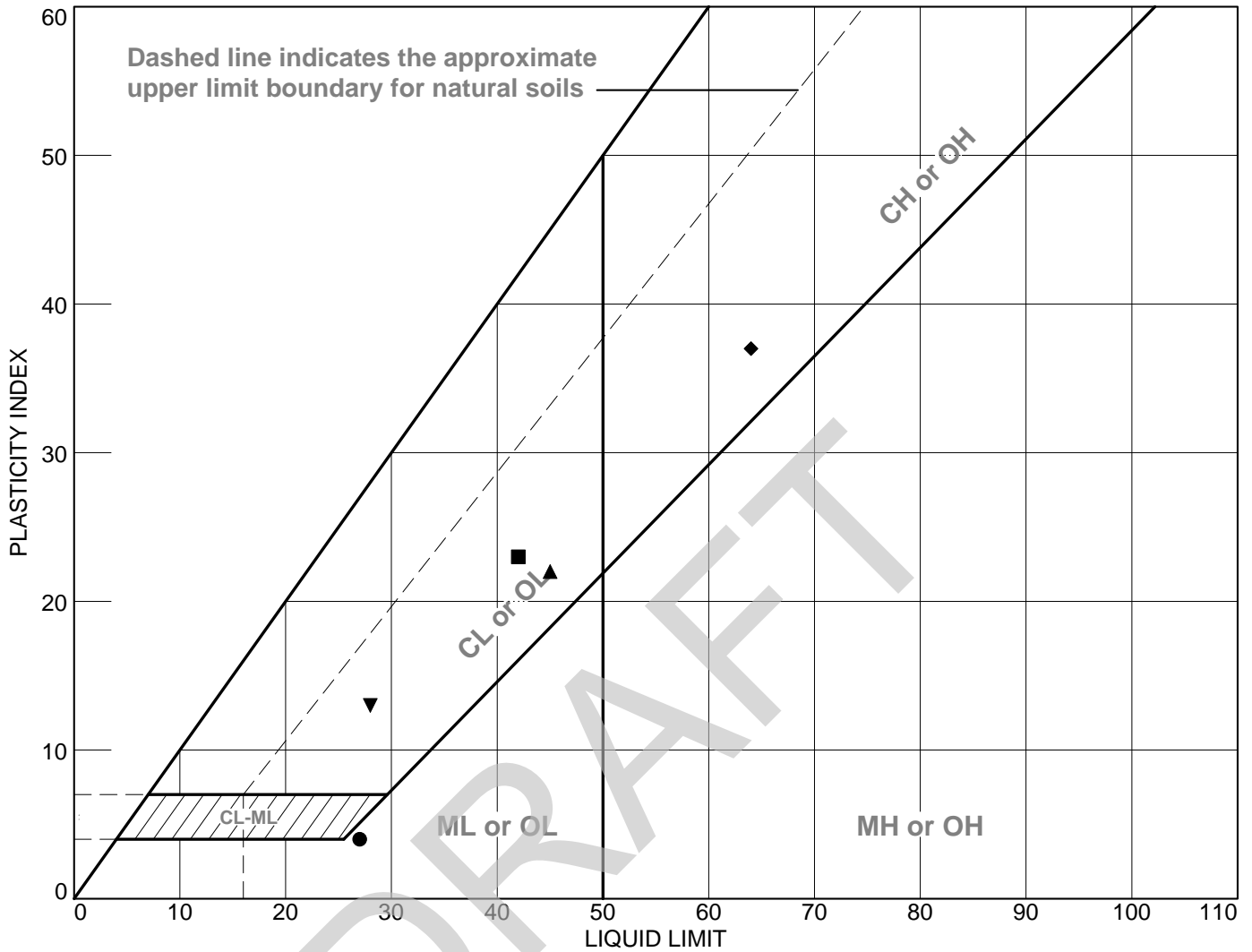
Project No.: 04.55124092

Figure

Tested By: ○ MC □ MC △ MC ◆ AJ ▼ AJ

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LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	IS-17A	N/A	29		23	27	4	CL
■	IS-17A	N/A	30		19	42	23	CL6
▲	IS-17A	N/A	58		23	45	22	CL6
◆	IS-17A	N/A	98	32.3	27	64	37	CH3
▼	IS-17A	N/A	100.5		15	28	13	CL

Fugro Consultants, Inc.

Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No.: 04.55124092

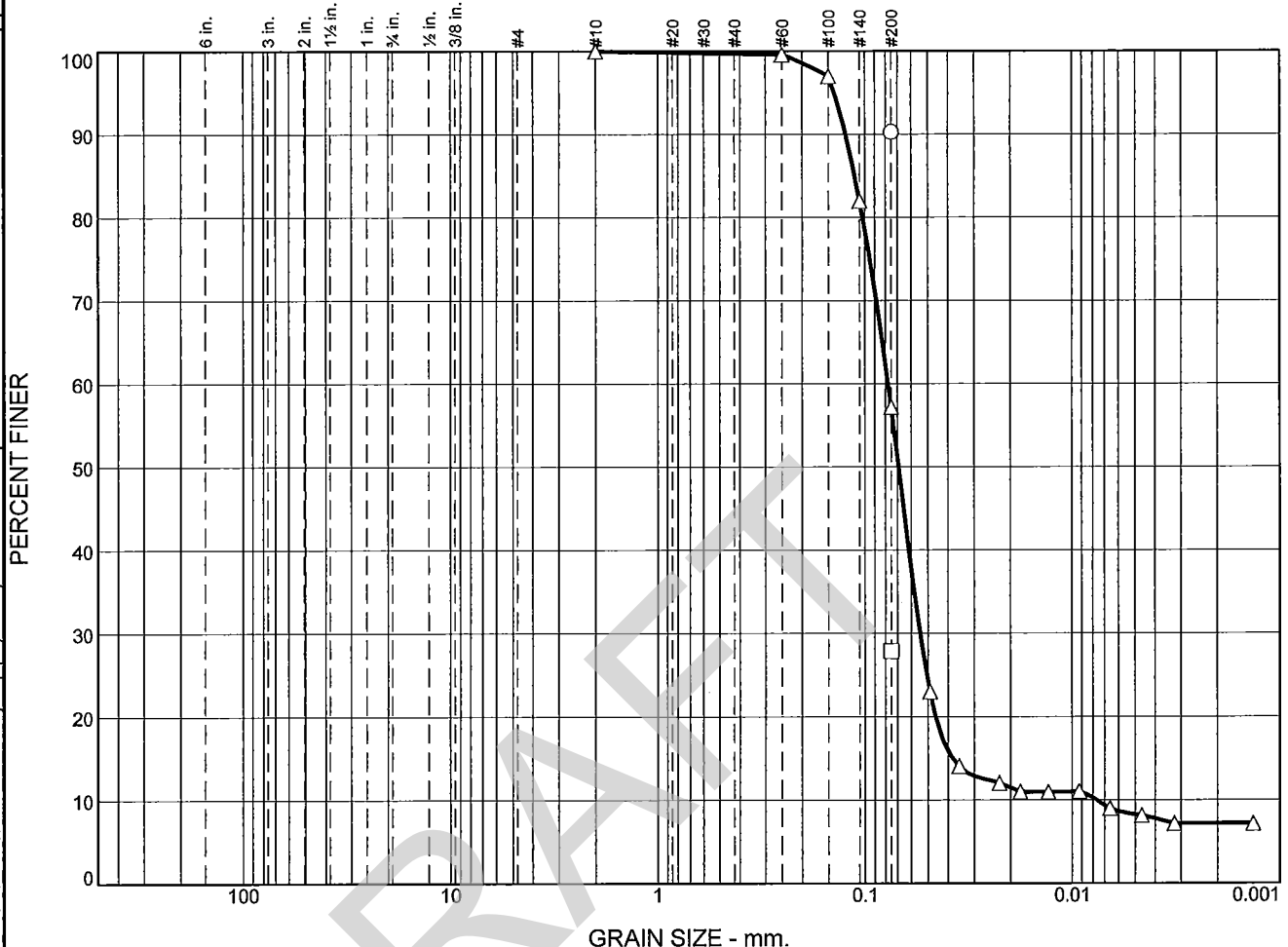
Figure

Tested By: ● AL ■ IK ▲ AJ ◆ AL ▼ AL Checked By: KA

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These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical

Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines		
			Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
○								90		
□								28		
△	0		0	0	0	0	43	49	8	
⊗	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○										
□										
△			0.1118	0.0776	0.0690	0.0544	0.0381	0.0077	4.96	10.07

Material Description								USCS	AASHTO
○	M GR CL6							CL6	
□	BR SM							SM	
△	GR ML W/O							ML	

Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Baratara Diversion

○ **Source of Sample:** IS-17A **Depth:** 38 **Sample Number:** N/A
□ **Source of Sample:** IS-17A **Depth:** 43 **Sample Number:** N/A
△ **Source of Sample:** IS-17A **Depth:** 46.5 **Sample Number:** N/A

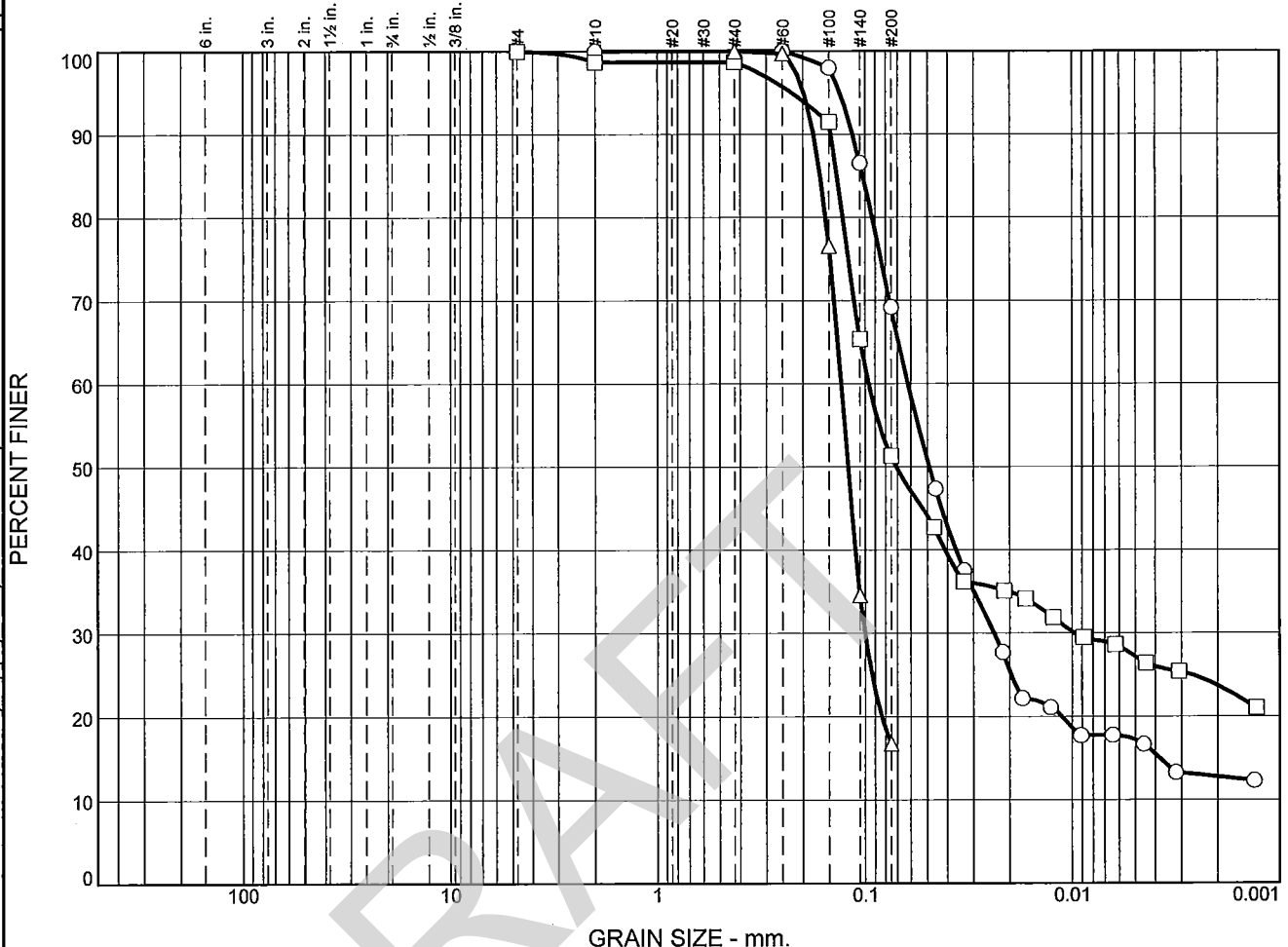
Fugro Consultants, Inc.
Baton Rouge, LA

Remarks:
○ "Confidential Information: Privileged & Confidential Work Product"

Figure

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical.

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	31	52	17		
□	0	0	0	1	0	48	24	27		
△	0	0	0	0	0	83	17			
	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			0.1024	0.0620	0.0489	0.0236	0.0038			
□			0.1370	0.0965	0.0707	0.0097				
△			0.1646	0.1308	0.1212	0.1005				

Material Description	USCS	AASHTO
○ BR & GR ML W/ O	ML	
□ BR & GR CL4 W/ O, ARS SP	CL4	
△ BR SM	SM	

Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Barataria Diversion

○ **Source of Sample:** IS-17A **Depth:** 48 **Sample Number:** N/A
□ **Source of Sample:** IS-17A **Depth:** 50.5 **Sample Number:** N/A
△ **Source of Sample:** IS-17A **Depth:** 53 **Sample Number:** N/A

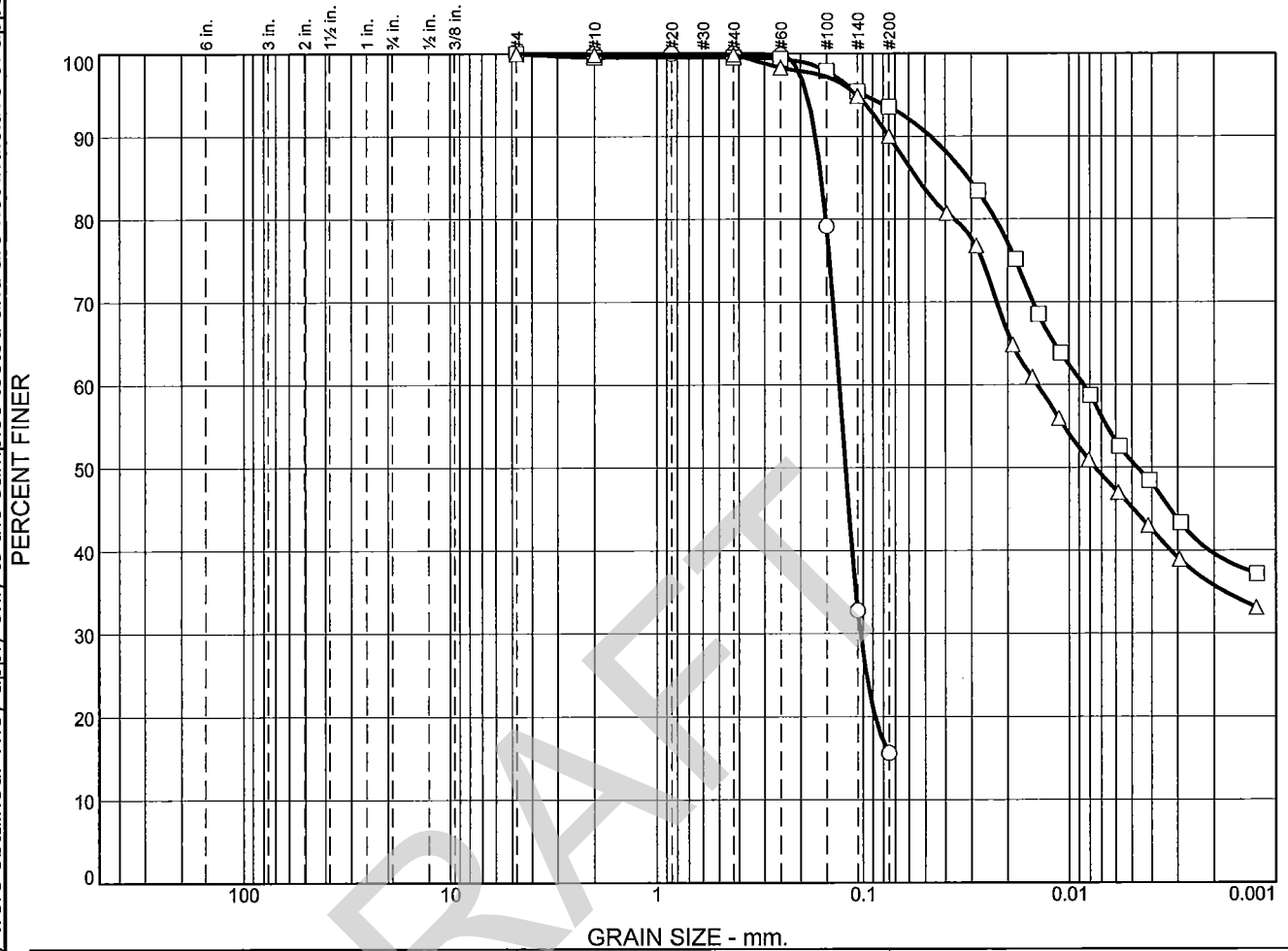
Fugro Consultants, Inc.
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Remarks:
○ "Confidential Information: Privileged & Confidential Work Product"

Figure

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0	0	0	0	0	84	16			
□	0	0	0	0	0	6	43	51		
△	0	0	0	0	0	10	45	45		
	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			0.1589	0.1299	0.1213	0.1029				
□	45	23	0.0310	0.0086	0.0047					
△			0.0547	0.0143	0.0075					

Material Description							USCS	AASHTO
○	BR SM						SM	
□	BR & GR CL6 W/O						CL6	
△	BR & GR CL6 W/O						CL6	

Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Baratara Diversion

○ **Source of Sample:** IS-17A **Depth:** 55.5 **Sample Number:** N/A
 □ **Source of Sample:** IS-17A **Depth:** 58 **Sample Number:** N/A
 △ **Source of Sample:** IS-17A **Depth:** 60.5 **Sample Number:** N/A

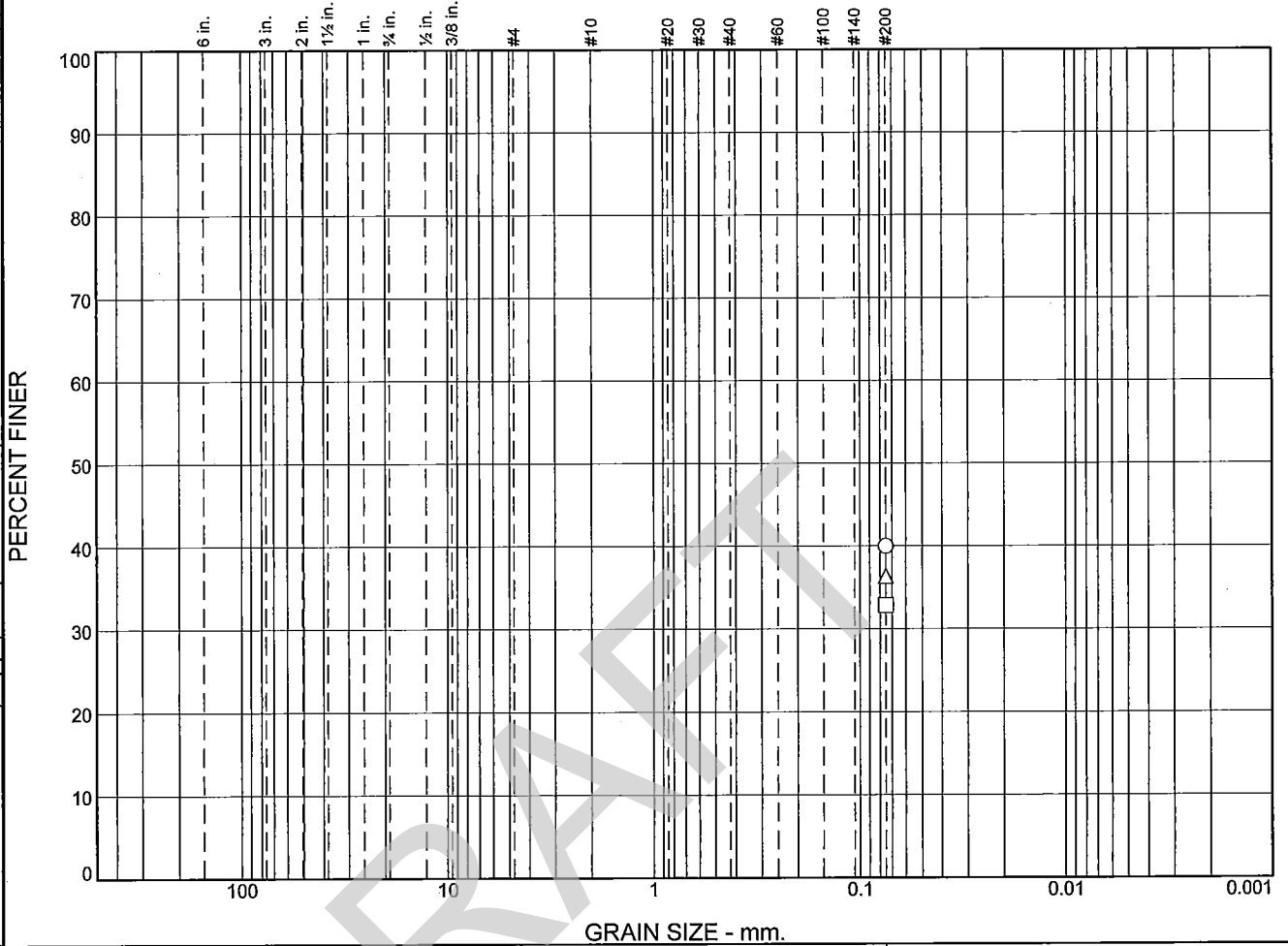
Fugro Consultants, Inc.
Baton Rouge, LA

Remarks:
 ○ "Confidential Information: Privileged & Confidential Work Product"

Figure

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Particle Size Distribution Report



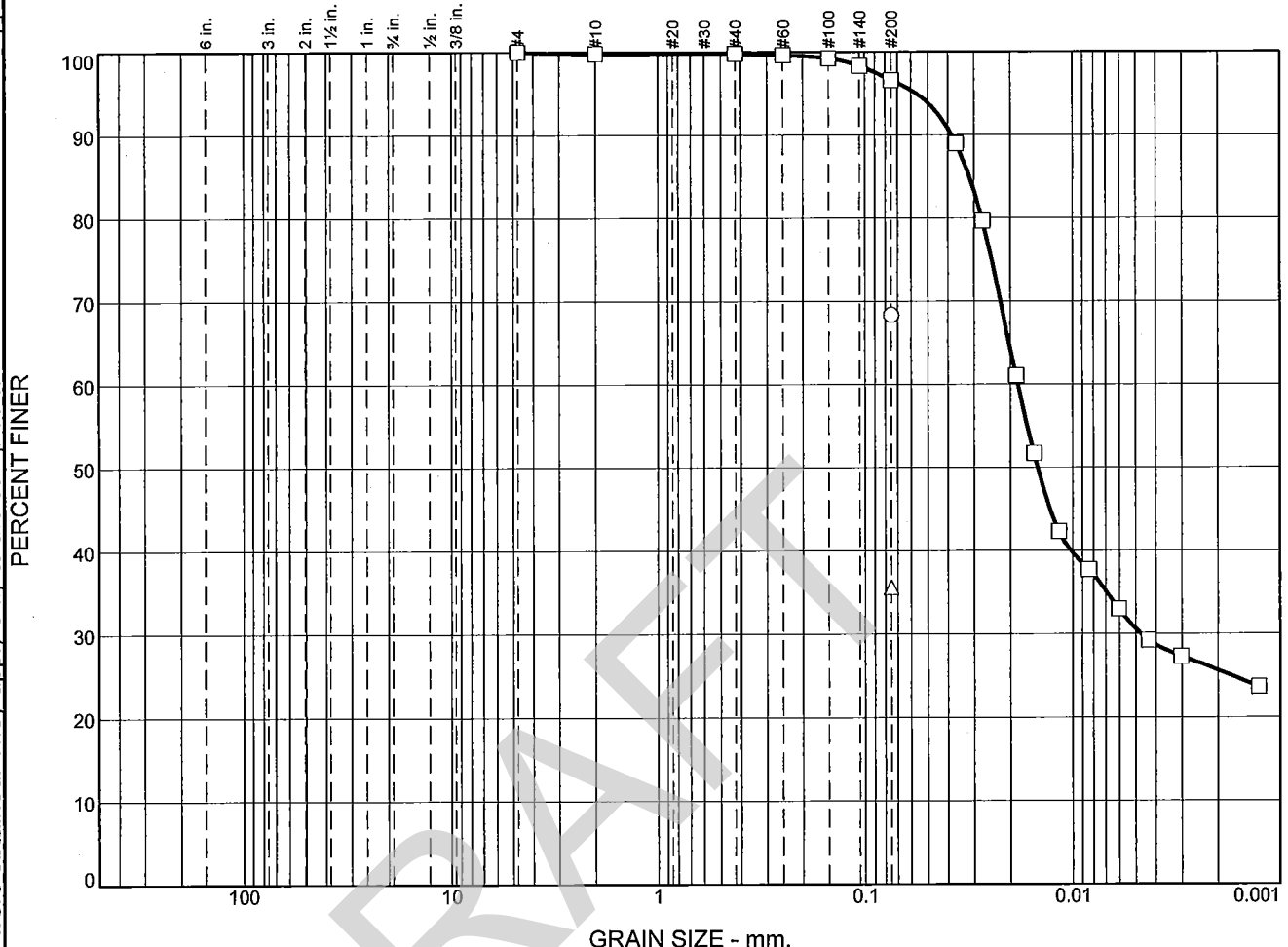
	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
<input type="checkbox"/>							40			
<input type="checkbox"/>							33			
<input type="checkbox"/>							36			
	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="checkbox"/>										
<input type="checkbox"/>										
<input type="checkbox"/>										

Material Description	USCS	AASHTO
<input type="checkbox"/> BR & GR SM W/ ARS CH, O	SM	
<input type="checkbox"/> BR & GR SM W/ ARS CH, O	SM	
<input type="checkbox"/> BR & GR SM W/ ARS CH, O	SM	

<p>Project No. 04.55124092 Client: GeoEngineers</p> <p>Project: Mid Barataria Diversion</p> <p><input type="checkbox"/> Source of Sample: IS-17A Depth: 63 Sample Number: N/A</p> <p><input type="checkbox"/> Source of Sample: IS-17A Depth: 68 Sample Number: N/A</p> <p><input type="checkbox"/> Source of Sample: IS-17A Depth: 75.5 Sample Number: N/A</p> <p style="text-align: center;">Fugro Consultants, Inc.</p> <p style="text-align: center;">Baton Rouge, LA</p>	<p>Remarks:</p> <p><input type="checkbox"/> "Confidential Information: Privileged & Confidential Work Product"</p> <p style="text-align: right;">Figure</p>
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These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical

Particle Size Distribution Report



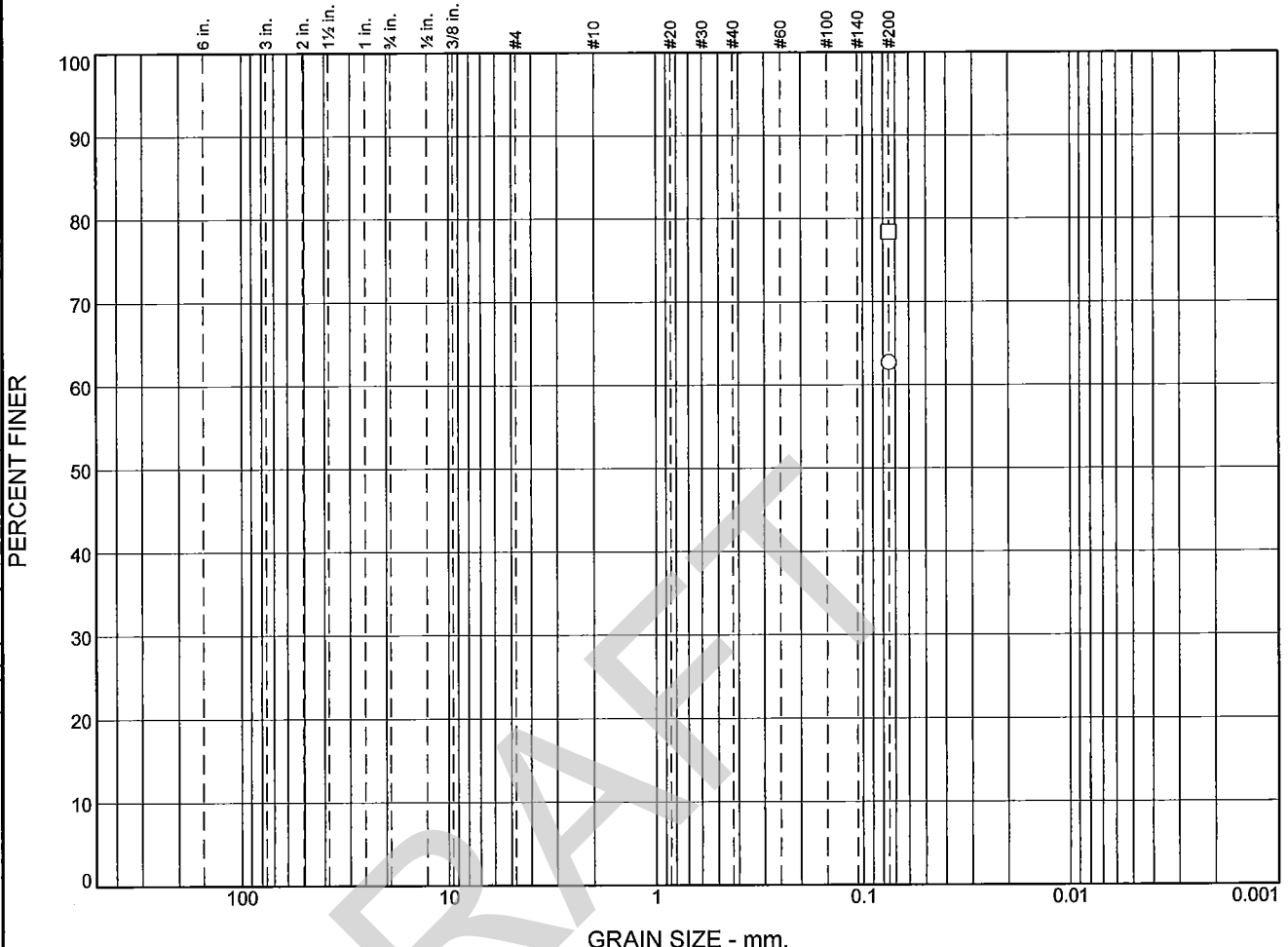
	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○							68			
□	0	0	0	0	0	3	66	31		
△							36			
	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○										
□			0.0314	0.0184	0.0148	0.0047				
△										

Material Description	USCS	AASHTO
○ BR & GR ML W/ LNS SP	ML	
□ BR & GR ML W/ ARS CH, O	ML	
△ BR & GR SM W/ ARS CH, O	SM	

<p>Project No. 04.55124092 Client: GeoEngineers</p> <p>Project: Mid Baratara Diversion</p> <p>○ Source of Sample: IS-17A Depth: 78.8 Sample Number: N/A</p> <p>□ Source of Sample: IS-17A Depth: 80.5 Sample Number: N/A</p> <p>△ Source of Sample: IS-17A Depth: 85.5 Sample Number: N/A</p> <p style="text-align: center;">Fugro Consultants, Inc.</p> <p style="text-align: center;">Baton Rouge, LA</p>	<p>Remarks:</p> <p>○ "Confidential Information: Privileged & Confidential Work Product"</p> <p style="text-align: right;">Figure</p>
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These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
<input type="checkbox"/>							63			
<input type="checkbox"/>							78			
	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input checked="" type="checkbox"/>	64	27								

Material Description	USCS	AASHTO
<input type="checkbox"/> M BR CL4	CL4	
<input type="checkbox"/> ST BR CH3 W/ ARS SP	CH3	

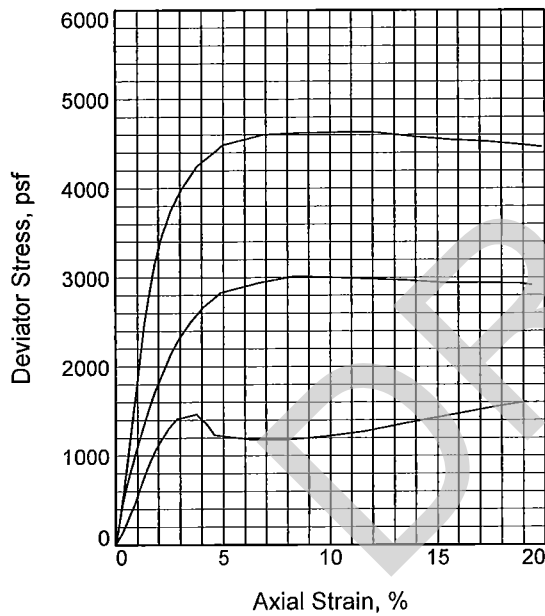
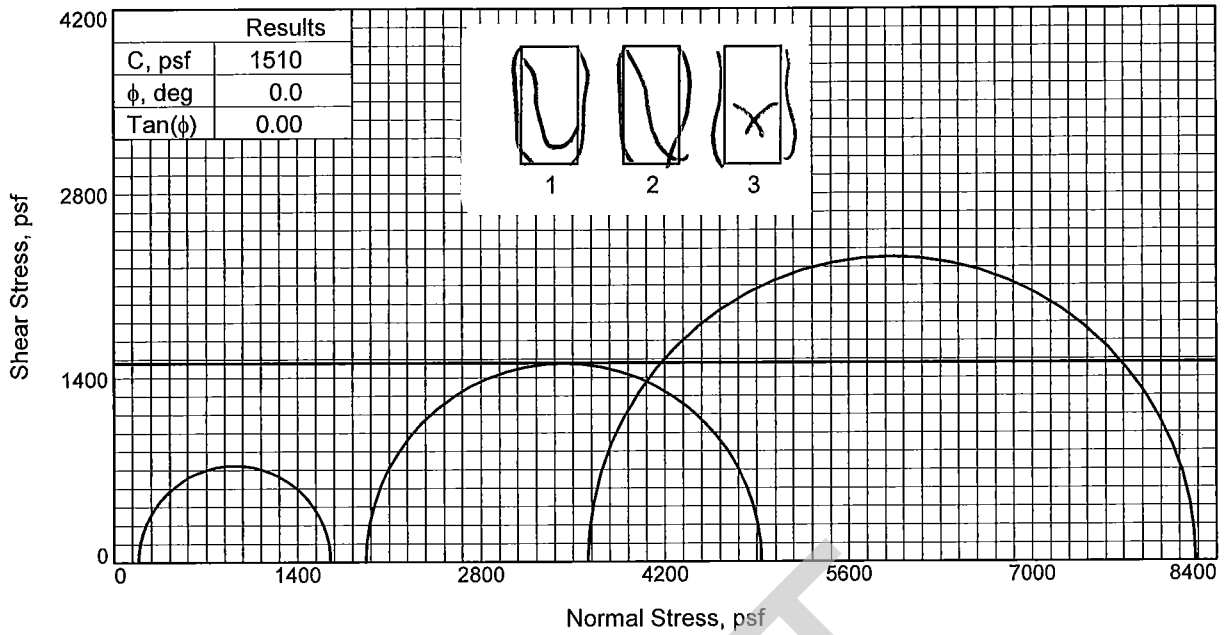
Project No. 04.55124092 **Client:** GeoEngineers
Project: Mid Baratara Diversion

Source of Sample: IS-17A **Depth:** 93 **Sample Number:** N/A
 Source of Sample: IS-17A **Depth:** 98 **Sample Number:** N/A

Fugro Consultants, Inc.
Baton Rouge, LA

Remarks:
 "Confidential Information: Privileged & Confidential Work Product"

Figure



Sample No.	1	2	3
Initial			
Water Content, %	25.3	26.5	25.8
Dry Density, pcf	97.0	96.0	97.9
Saturation, %	93.6	95.5	97.6
Void Ratio	0.7247	0.7427	0.7082
Diameter, in.	1.40	1.40	1.41
Height, in.	3.01	3.01	3.02
At Test			
Water Content, %	25.3	26.5	25.8
Dry Density, pcf	97.0	96.0	97.9
Saturation, %	93.6	95.5	97.6
Void Ratio	0.7247	0.7427	0.7082
Diameter, in.	1.40	1.40	1.41
Height, in.	3.01	3.01	3.02
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	1.27	13.34	25.08
Fail. Stress, psf	1469	3016	4632
Strain, %	3.8	8.3	10.3
Ult. Stress, psf	1181	2969	4583
Strain, %	6.3	13.6	13.8
σ_1 Failure, psf	1652	4937	8243
σ_3 Failure, psf	183	1921	3612

Type of Test:
Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: BR ML

LL= 26 PL= 22 PI= 4

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

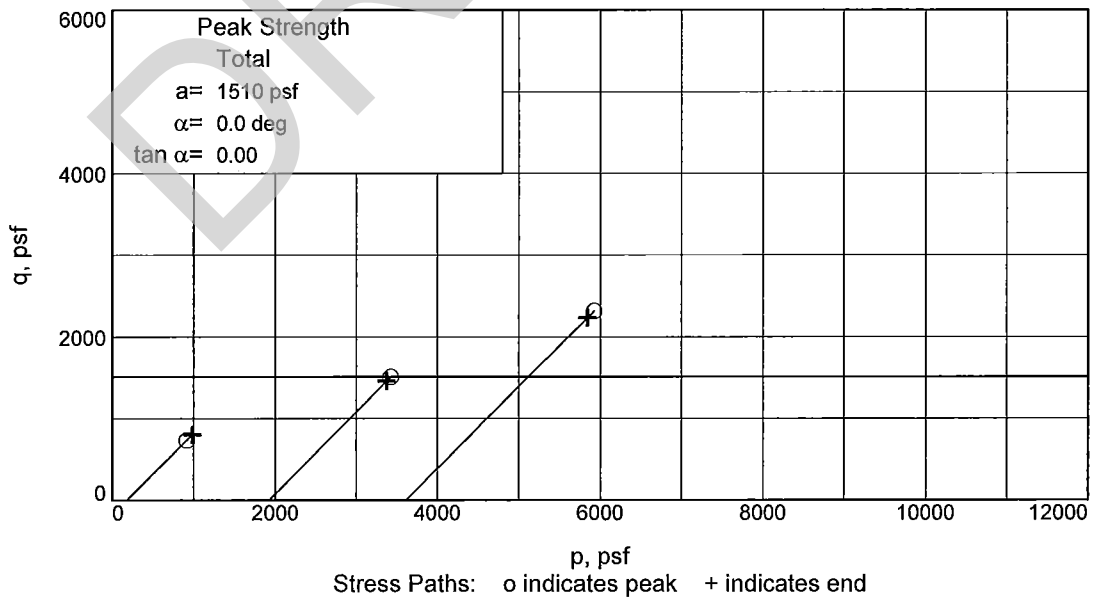
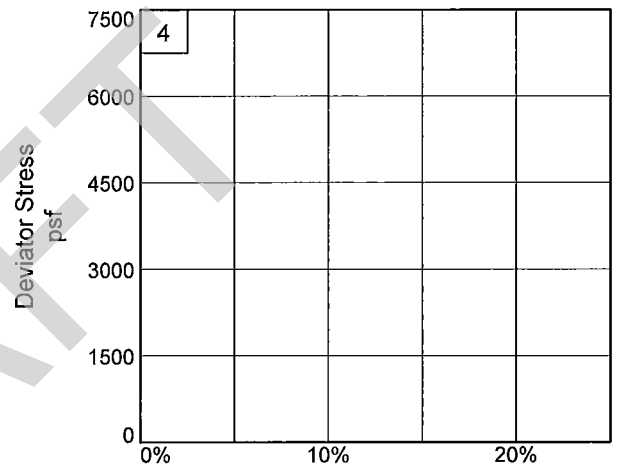
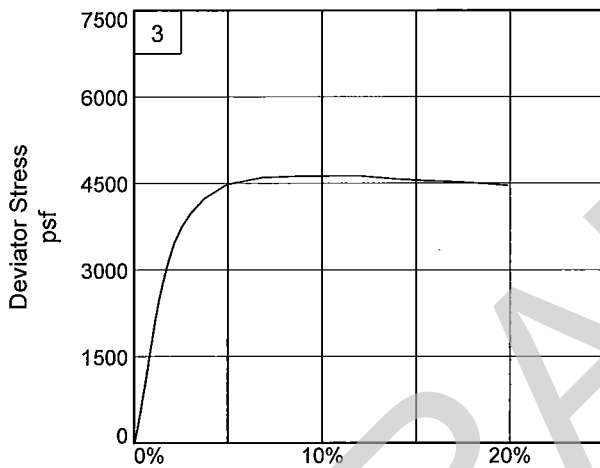
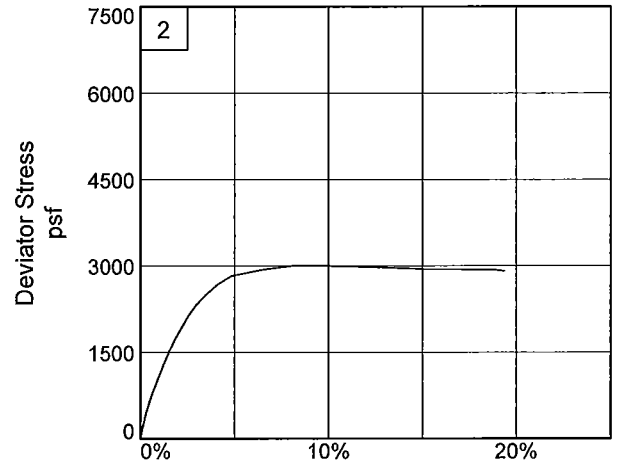
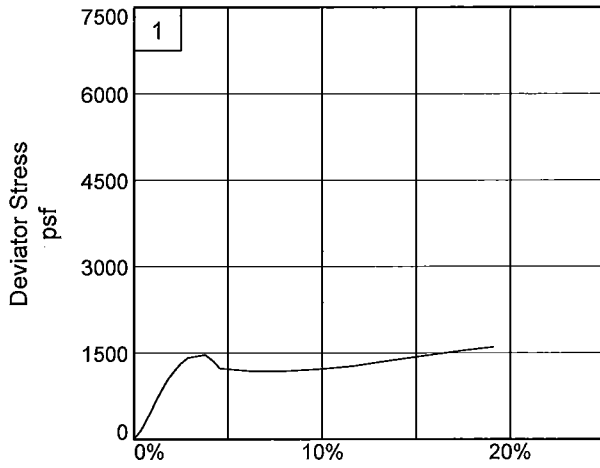
Project: Mid Barataria Diversion

Source of Sample: IS-17A **Depth:** 3

Sample Number: N/A

Proj. No.: 04.55124092 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Fugro Consultants, Inc.
 Baton Rouge, LA



Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: IS-17A

Depth: 3

Sample Number: N/A

Project No.: 04.55124092

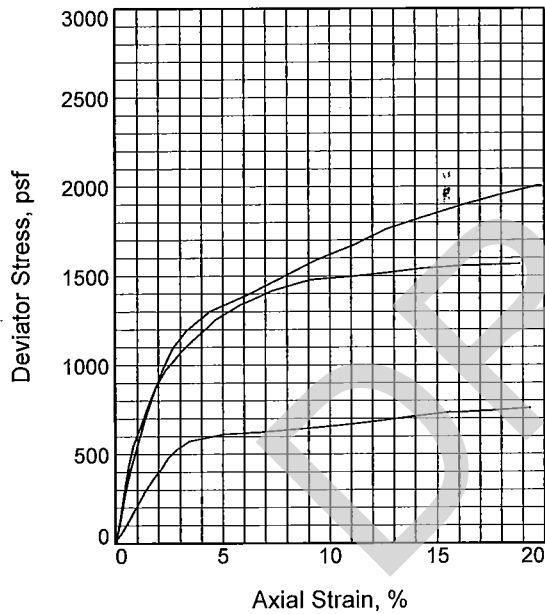
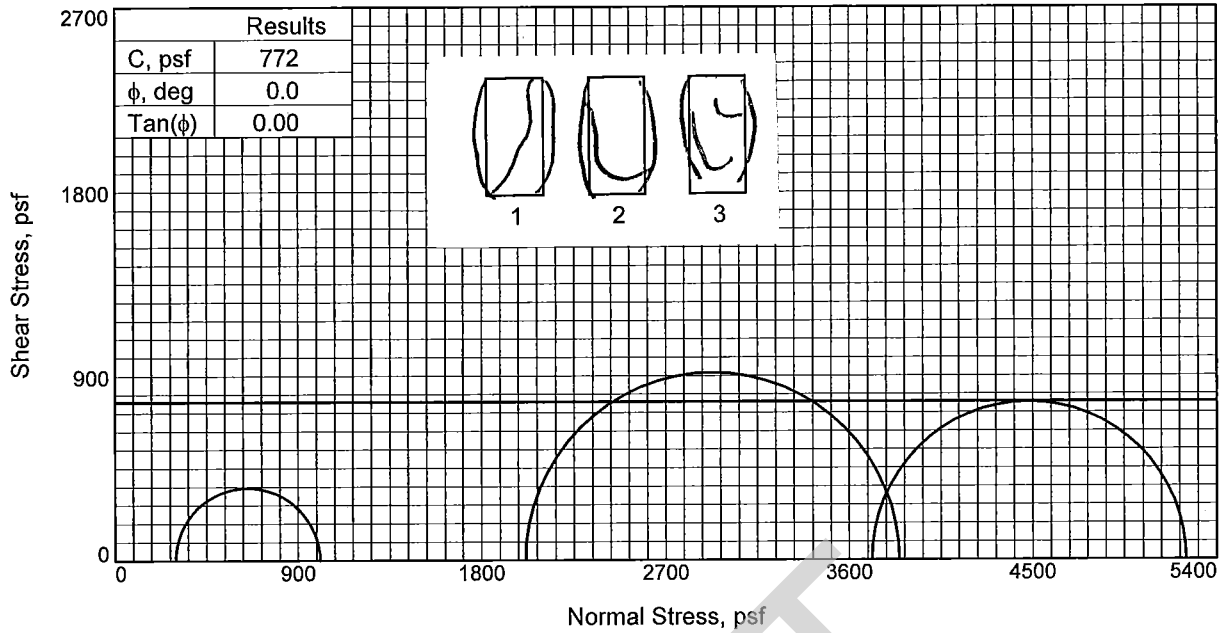
Figure _____

Fugro Consultants, Inc.

Tested By: AJ

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	30.5	28.5	32.6
Dry Density, pcf	91.2	94.6	88.1
Saturation, %	98.1	99.5	96.9
Void Ratio	0.8336	0.7688	0.9000
Diameter, in.	1.40	1.40	1.39
Height, in.	3.00	3.01	2.99
At Test			
Water Content, %	30.5	28.5	32.6
Dry Density, pcf	91.2	94.6	88.1
Saturation, %	98.1	99.5	96.9
Void Ratio	0.8336	0.7688	0.9000
Diameter, in.	1.40	1.39	1.39
Height, in.	3.00	3.01	2.99
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	2.06	13.98	25.76
Fail. Stress, psf	710	1831	1542
Strain, %	13.8	14.4	14.3
Ult. Stress, psf	710	1831	1542
Strain, %	13.8	14.4	14.3
σ_1 Failure, psf	1007	3844	5252
σ_3 Failure, psf	297	2013	3709

Type of Test:
Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M BR CL

LL= 31 PL= 22 PI= 9

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A **Depth:** 5.3

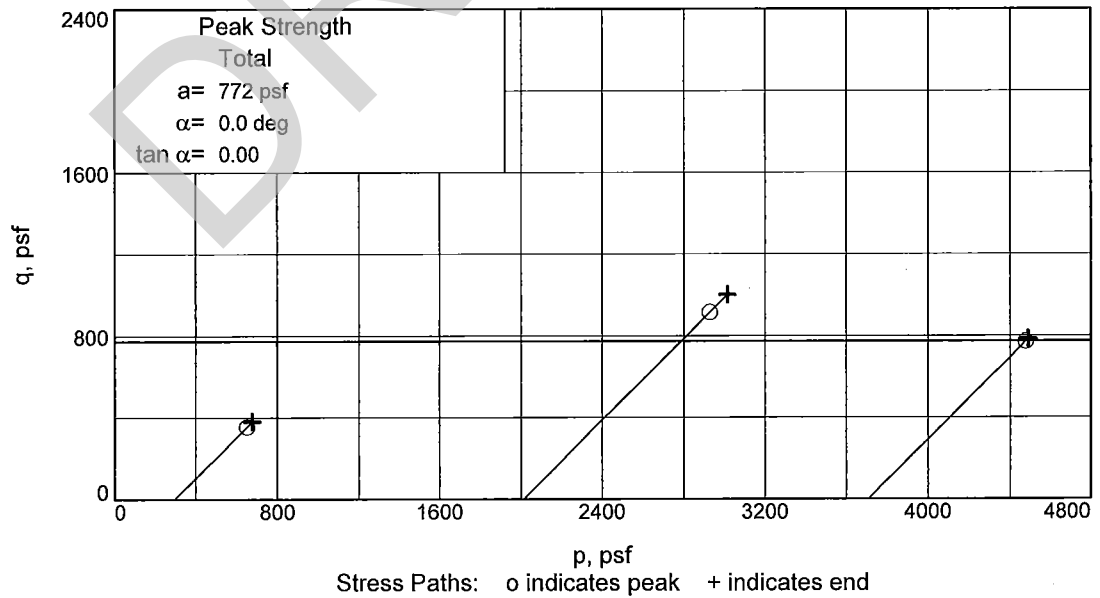
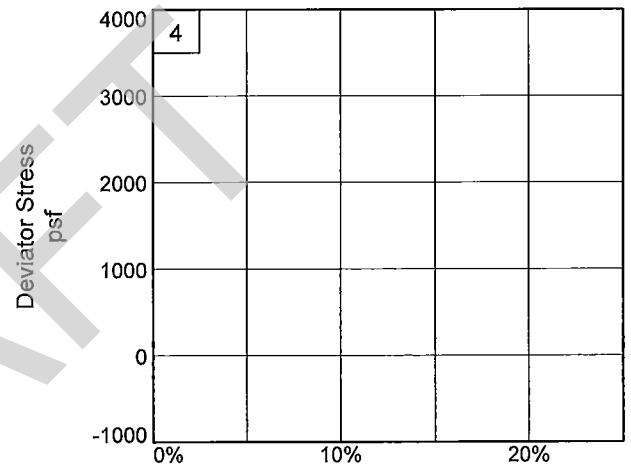
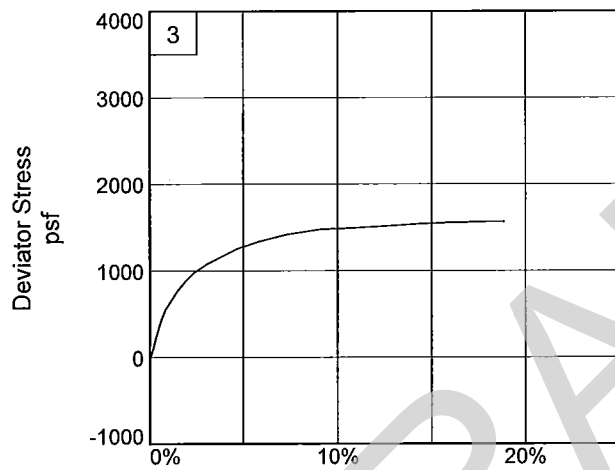
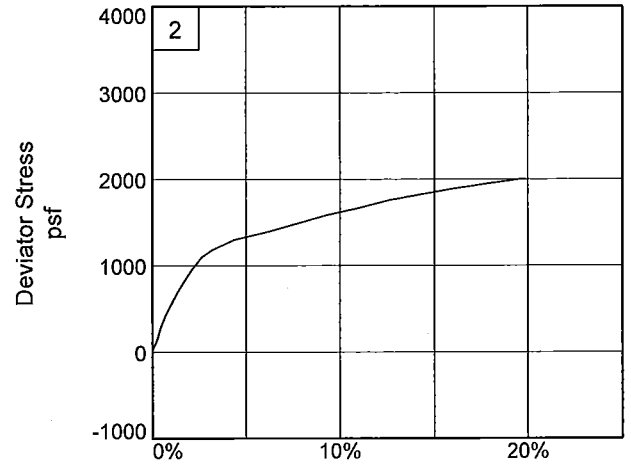
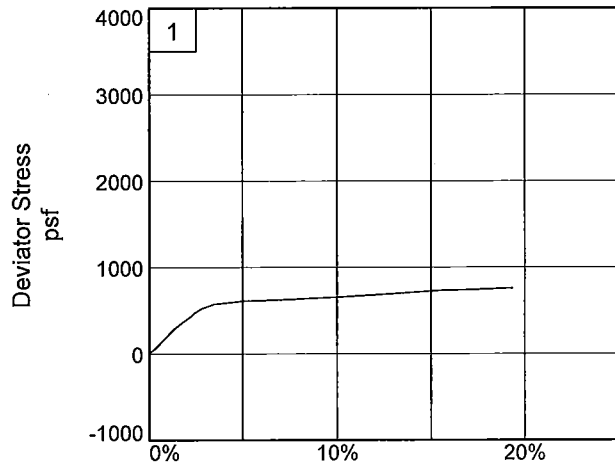
Sample Number: N/A

Proj. No.: 04.55124092 **Date Sampled:** 8/2/13

TRIAXIAL SHEAR TEST REPORT
 Fugro Consultants, Inc.
 Baton Rouge, LA

Tested By: AJ

Checked By: KA
 "Confidential Information, Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A

Depth: 5.3

Sample Number: N/A

Project No.: 04.55124092

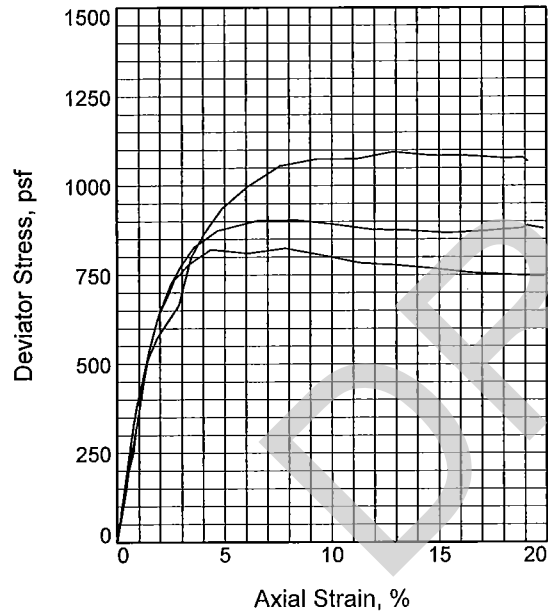
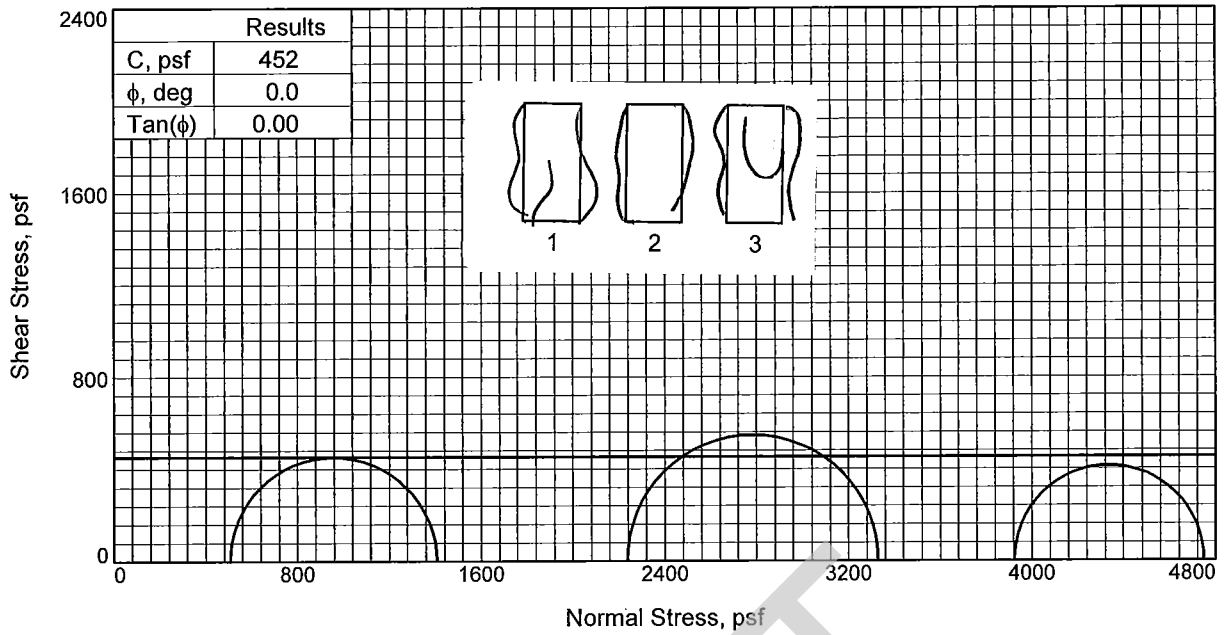
Figure _____

Fugro Consultants, Inc.

Tested By: AJ

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	48.7	52.1	52.8
	Dry Density, pcf	70.2	68.2	66.2
	Saturation, %	93.7	95.7	92.3
	Void Ratio	1.4027	1.4715	1.5454
	Diameter, in.	1.40	1.39	1.40
	Height, in.	3.02	3.01	3.01
At Test	Water Content, %	48.7	52.1	52.8
	Dry Density, pcf	70.2	68.2	66.2
	Saturation, %	93.7	95.7	92.3
	Void Ratio	1.4027	1.4715	1.5454
	Diameter, in.	1.40	1.39	1.40
	Height, in.	3.02	3.01	3.01
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	3.50	15.52	27.24	
Fail. Stress, psf	904	1095	825	
Strain, %	8.3	12.8	7.8	
Ult. Stress, psf	875	1085	768	
Strain, %	13.6	14.6	14.8	
σ_1 Failure, psf	1408	3330	4748	
σ_3 Failure, psf	504	2235	3923	

Type of Test:
Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO DGR CH3 W/ O, ARS ML, WD

Assumed Specific Gravity: 2.70

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barataria Diversion

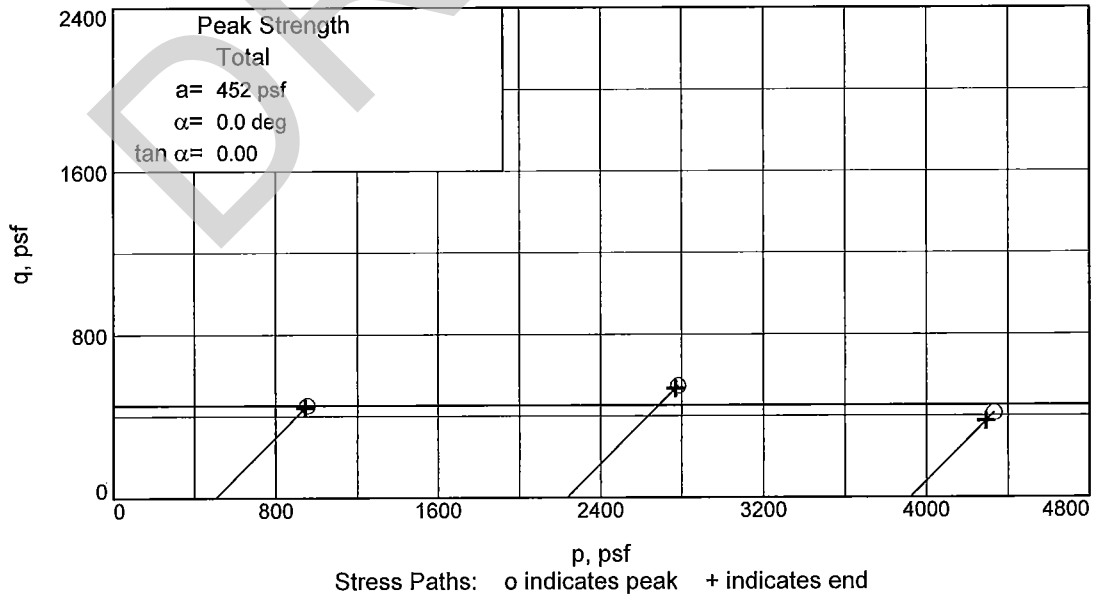
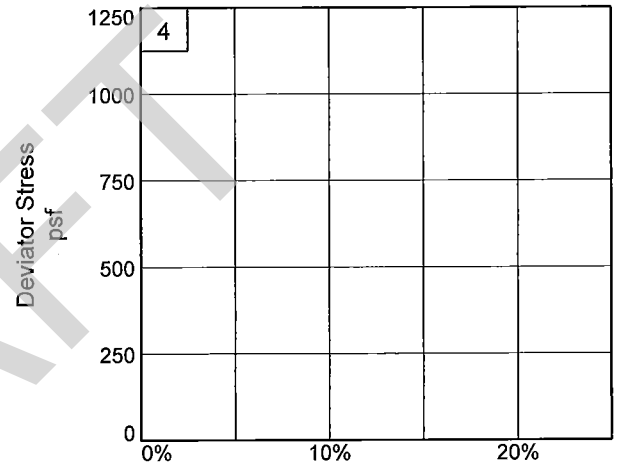
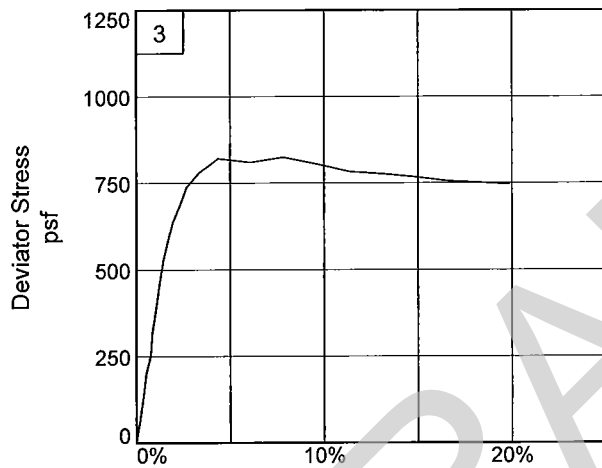
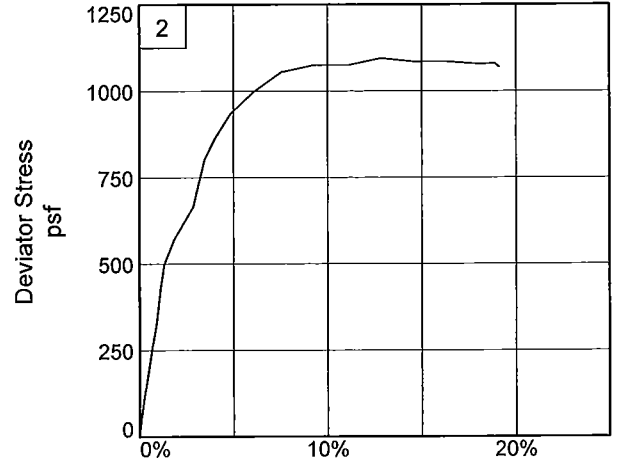
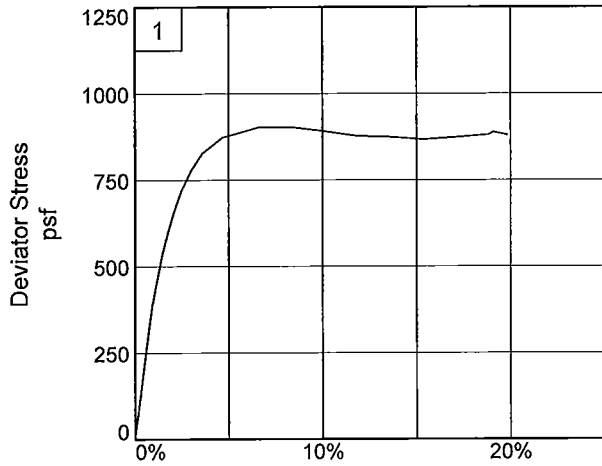
Source of Sample: IS-17A **Depth:** 9.5

Sample Number: N/A

Proj. No.: 04.55124092 **Date Sampled:** 8/2/13

TRIAxIAL SHEAR TEST REPORT
 Fugro Consultants, Inc.
 Baton Rouge, LA

Figure _____



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A

Depth: 9.5

Sample Number: N/A

Project No.: 04.55124092

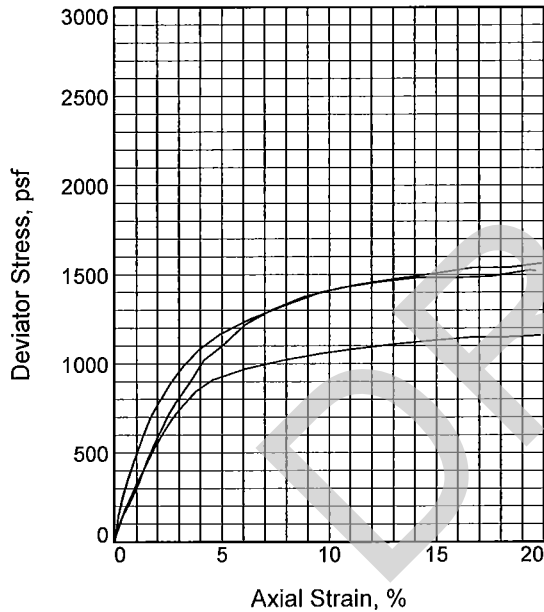
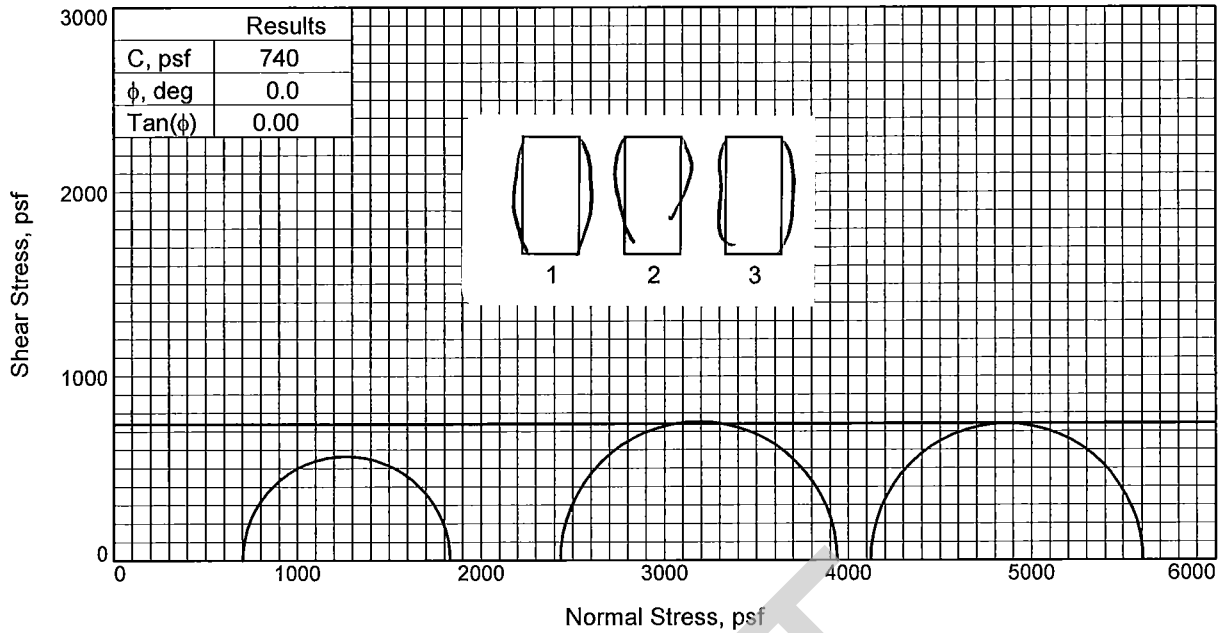
Figure _____

Fugro Consultants, Inc.

Tested By: AJ

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
initial			
Water Content, %	33.4	30.2	30.5
Dry Density, pcf	87.9	91.3	92.8
Saturation, %	98.9	97.4	101.7
Void Ratio	0.9037	0.8321	0.8022
Diameter, in.	1.39	1.40	1.39
Height, in.	3.01	3.01	3.00
At Test			
Water Content, %	33.4	30.2	30.5
Dry Density, pcf	87.9	91.3	92.8
Saturation, %	98.9	97.4	101.7
Void Ratio	0.9037	0.8321	0.8022
Diameter, in.	1.39	1.40	1.39
Height, in.	3.01	3.01	3.00
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	4.86	16.90	28.62
Fail. Stress, psf	1132	1506	1484
Strain, %	14.8	14.9	14.1
Ult. Stress, psf	1132	1506	1484
Strain, %	14.8	14.9	14.1
σ_1 Failure, psf	1831	3940	5605
σ_3 Failure, psf	700	2434	4121

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: GR ML

LL= 34 PL= 26 PI= 8

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: IS-17A **Depth:** 13.3

Sample Number: N/A

Proj. No.: 04.55124092

Date Sampled: 8/2/13

TRIAXIAL SHEAR TEST REPORT

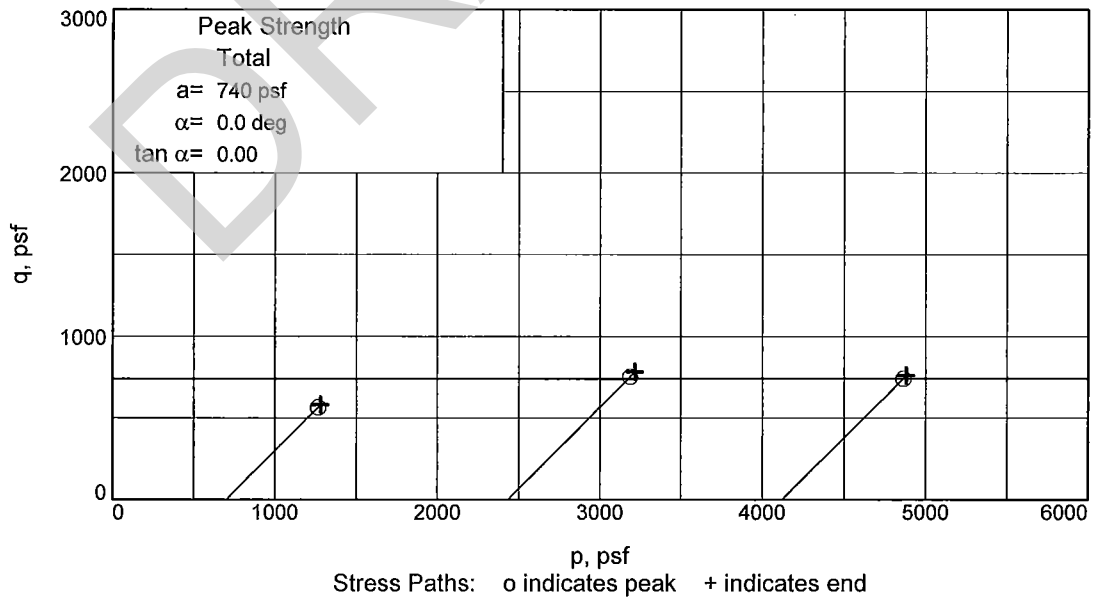
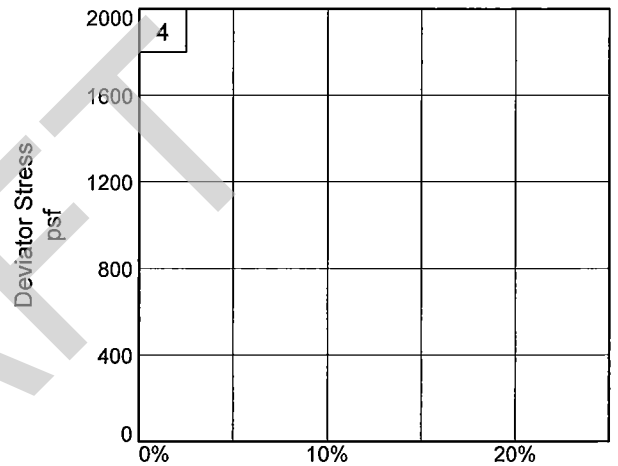
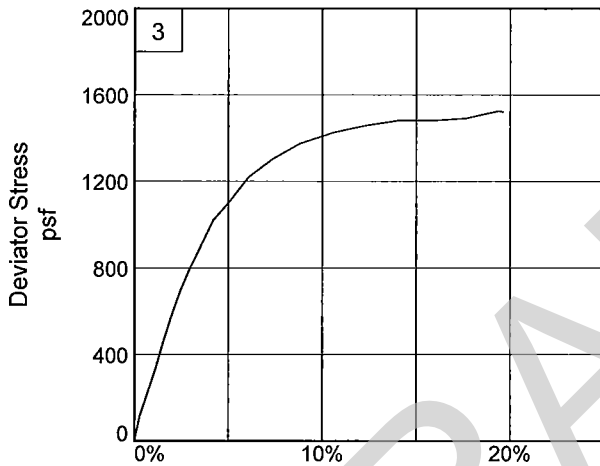
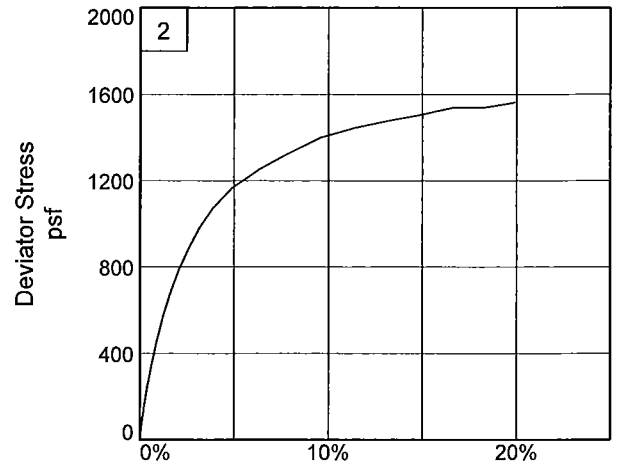
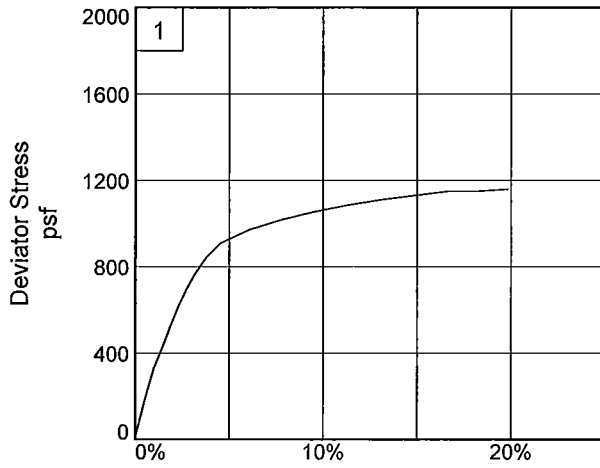
Fugro Consultants, Inc.

Baton Rouge, LA

Tested By: AJ

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A

Depth: 13.3

Sample Number: N/A

Project No.: 04.55124092

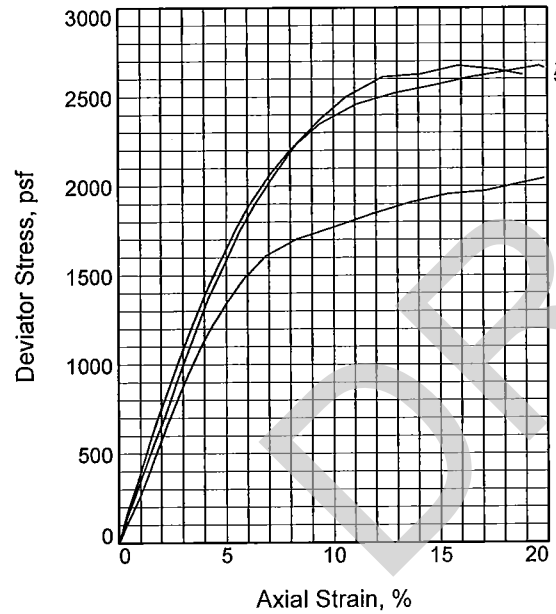
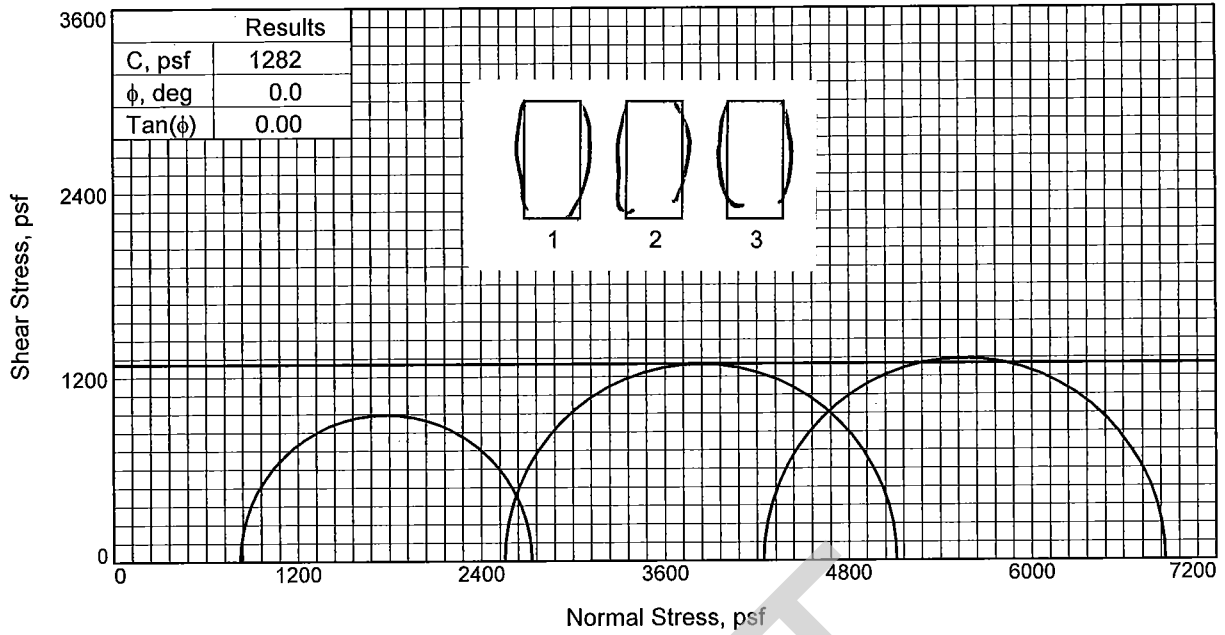
Figure _____

Fugro Consultants, Inc.

Tested By: AJ

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	27.7	27.8	26.9
Dry Density, pcf	96.2	96.6	99.5
Saturation, %	100.5	101.7	105.8
Void Ratio	0.7395	0.7328	0.6820
Diameter, in.	1.39	1.38	1.39
Height, in.	3.03	3.03	3.02
At Test			
Water Content, %	27.7	27.8	26.9
Dry Density, pcf	96.2	96.6	99.5
Saturation, %	100.5	101.7	105.8
Void Ratio	0.7395	0.7328	0.6820
Diameter, in.	1.39	1.38	1.39
Height, in.	3.03	3.03	3.02
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	5.70	17.72	29.46
Fail. Stress, psf	1910	2562	2627
Strain, %	13.6	14.6	14.1
Ult. Stress, psf	1910	2562	2627
Strain, %	13.6	14.6	14.1
σ_1 Failure, psf	2731	5114	6869
σ_3 Failure, psf	821	2552	4242

Type of Test:
Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: GR ML W/ ARS CH

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barataria Diversion

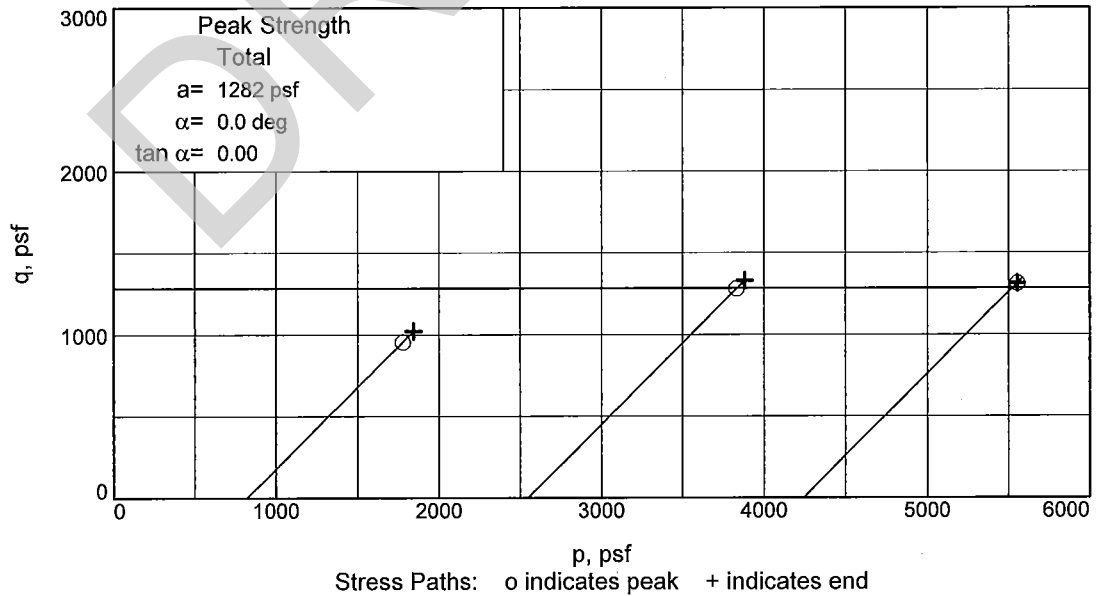
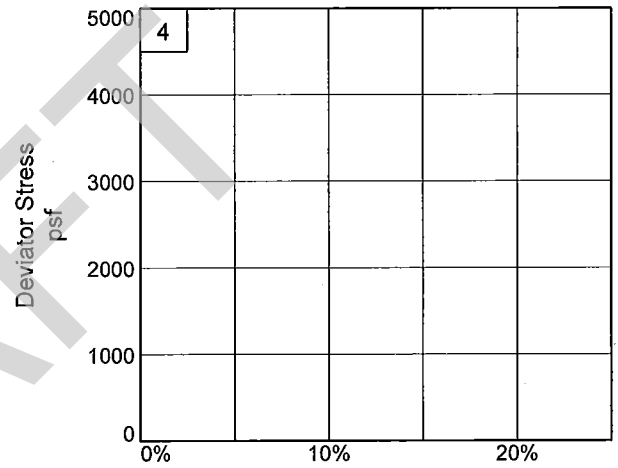
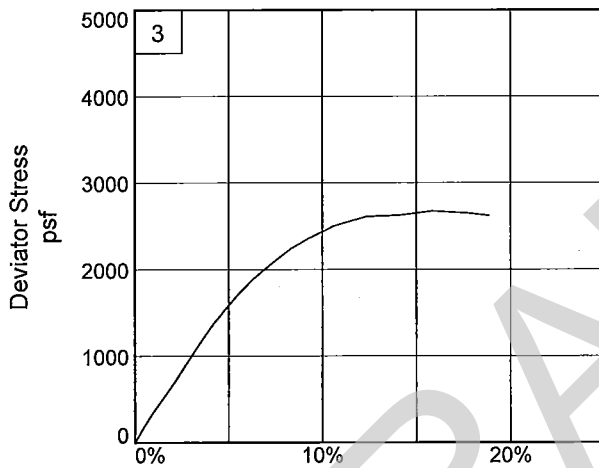
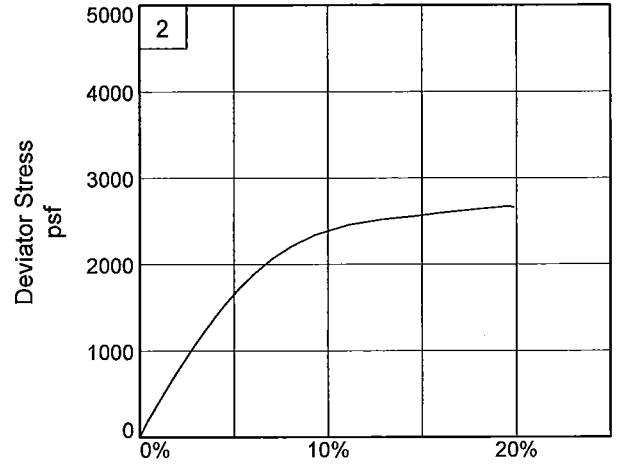
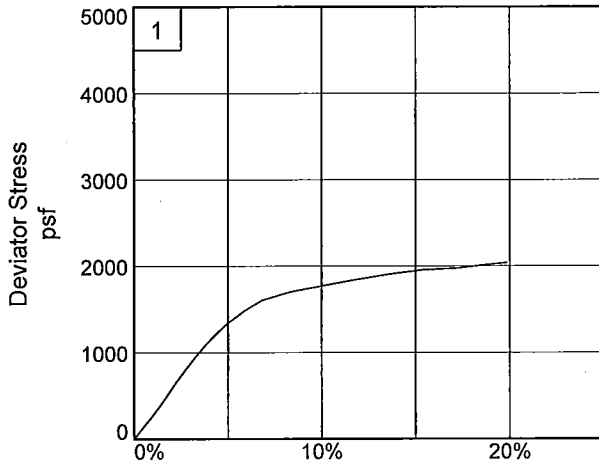
Source of Sample: IS-17A **Depth:** 15

Sample Number: N/A

Proj. No.: 04.55124092 **Date Sampled:** 8/2/13

TRIAXIAL SHEAR TEST REPORT
 Fugro Consultants, Inc.
 Baton Rouge, LA

Figure _____



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A

Depth: 15

Sample Number: N/A

Project No.: 04.55124092

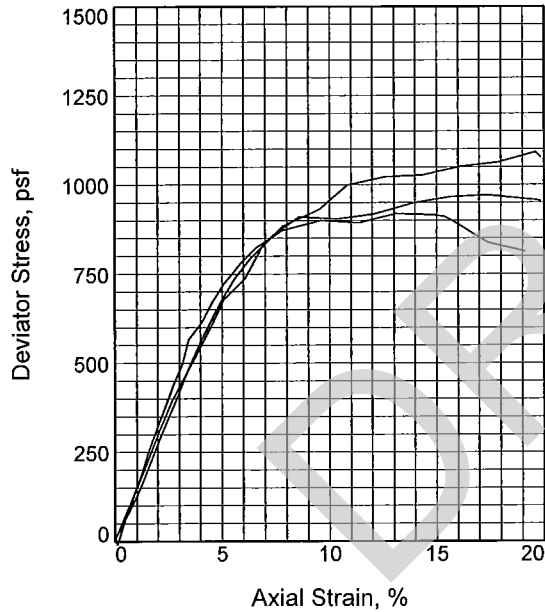
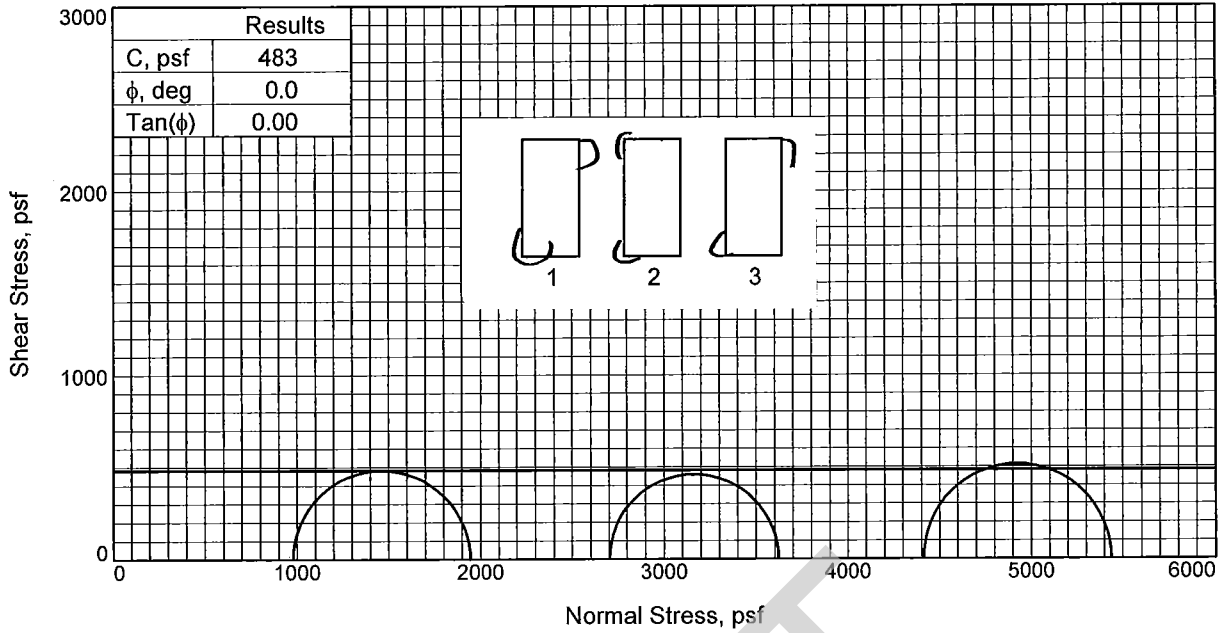
Figure _____

Fugro Consultants, Inc.

Tested By: AJ

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	33.3	33.4	32.7
	Dry Density, pcf	89.5	89.8	88.2
	Saturation, %	102.6	103.7	97.8
	Void Ratio	0.8690	0.8633	0.8969
	Diameter, in.	1.40	1.38	1.40
	Height, in.	2.93	2.96	2.92
At Test	Water Content, %	33.3	33.4	32.7
	Dry Density, pcf	89.5	89.8	88.2
	Saturation, %	102.6	103.7	97.8
	Void Ratio	0.8690	0.8633	0.8969
	Diameter, in.	1.40	1.38	1.40
	Height, in.	2.93	2.96	2.92
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	6.79	18.77	30.63	
Fail. Stress, psf	966	919	1027	
Strain, %	15.6	13.1	14.3	
Ult. Stress, psf	966	916	1027	
Strain, %	15.6	14.8	14.3	
σ_1 Failure, psf	1944	3622	5438	
σ_3 Failure, psf	978	2703	4411	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: DGR ML

LL= 29 PL= 24 PI= 5

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A **Depth:** 18

Sample Number: N/A

Proj. No.: 04.55124092

Date Sampled: 8/5/13

TRIAxIAL SHEAR TEST REPORT

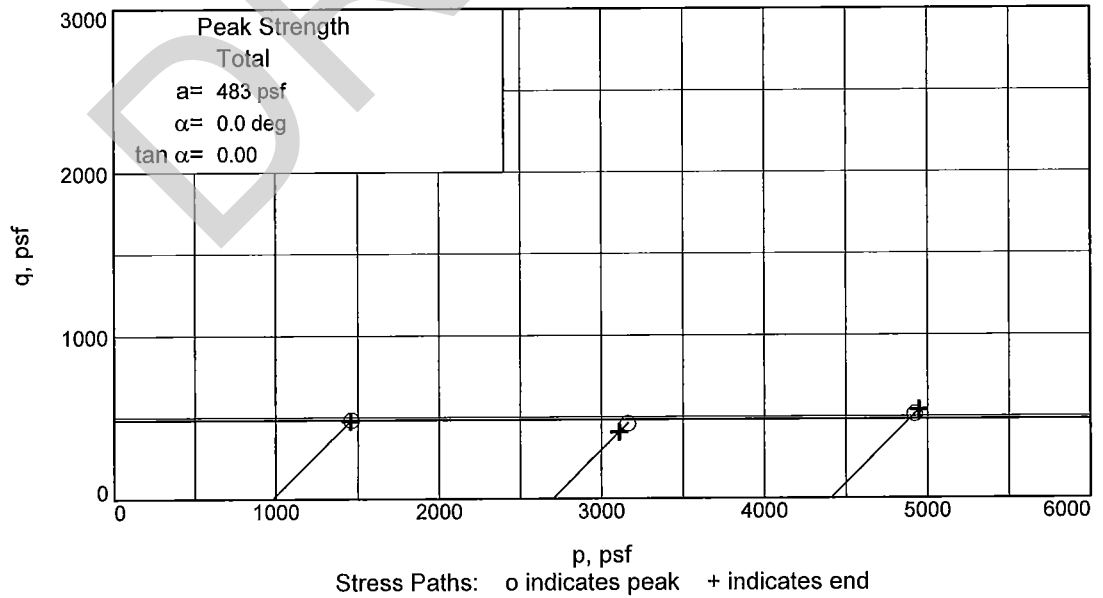
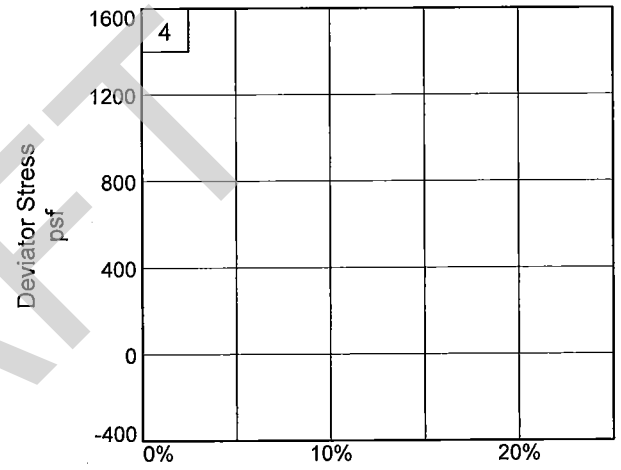
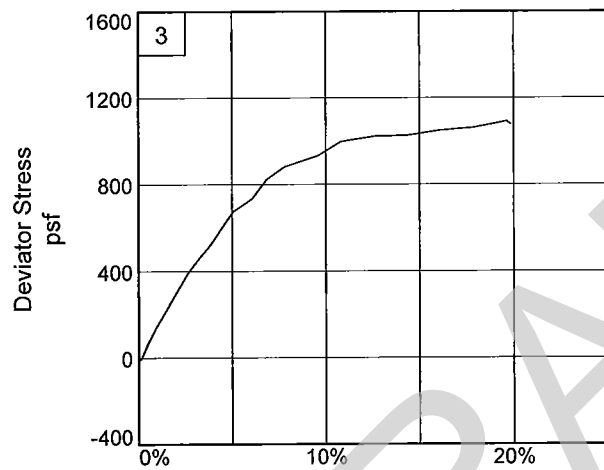
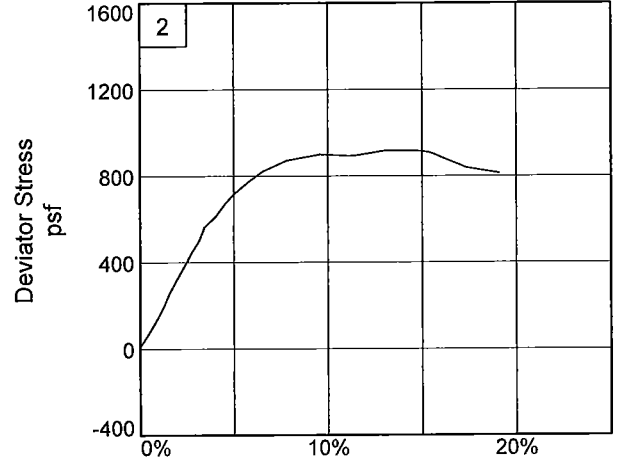
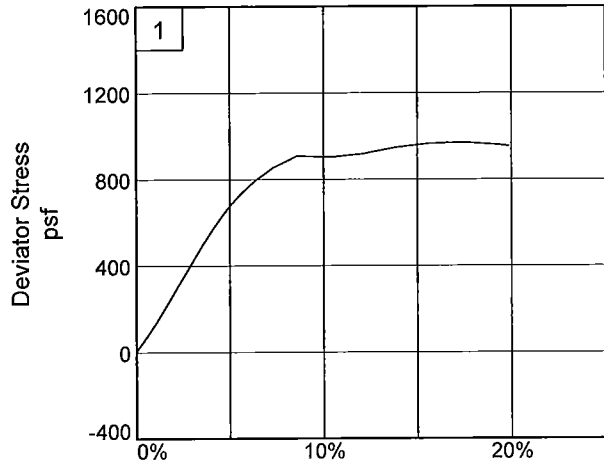
Fugro Consultants, Inc.

Baton Rouge, LA

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A

Depth: 18

Sample Number: N/A

Project No.: 04.55124092

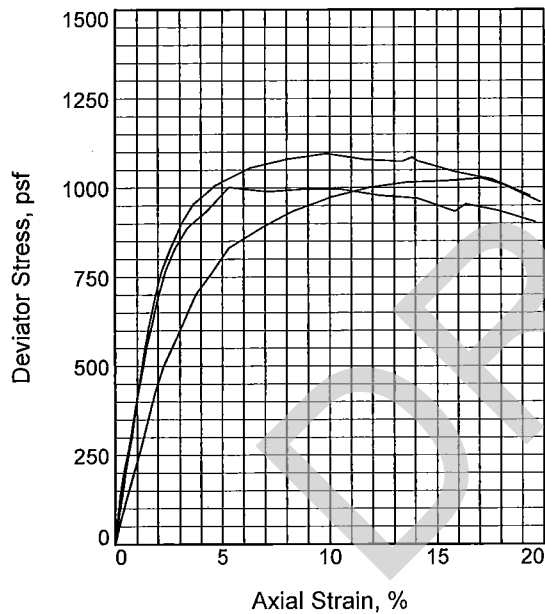
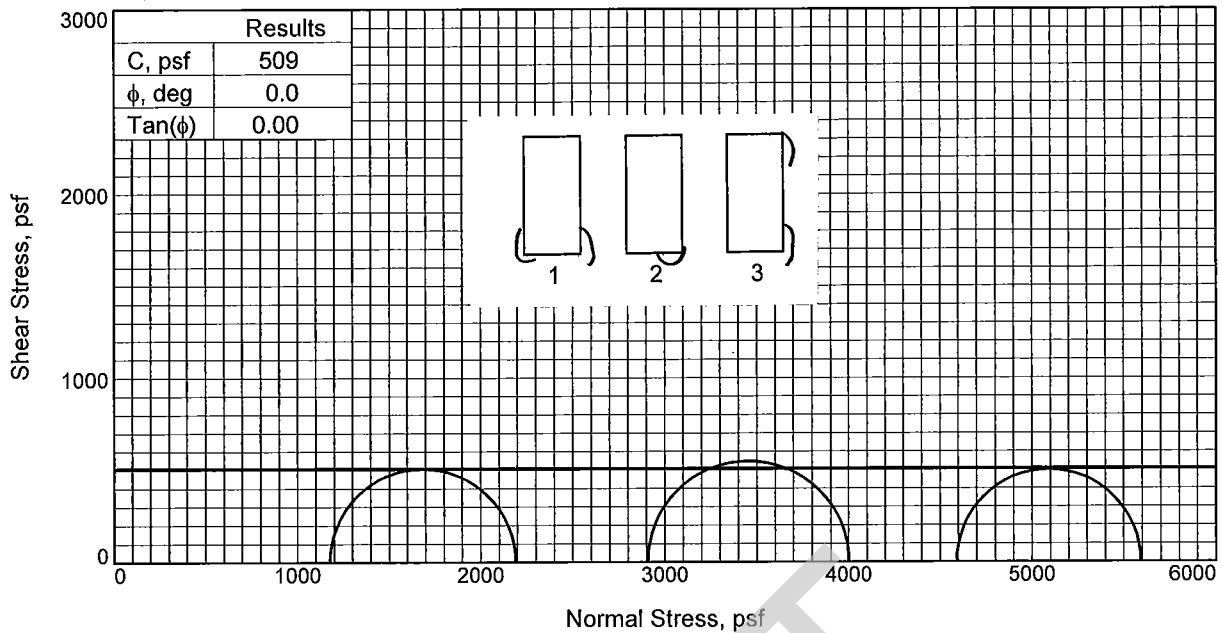
Figure _____

Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	35.3	36.5	38.9
Dry Density, pcf	85.2	86.1	84.0
Saturation, %	98.3	103.7	105.2
Void Ratio	0.9630	0.9439	0.9920
Diameter, in.	1.40	1.40	1.40
Height, in.	2.97	3.00	2.99
At Test			
Water Content, %	35.3	36.5	38.9
Dry Density, pcf	85.2	86.1	84.0
Saturation, %	98.3	103.7	105.2
Void Ratio	0.9630	0.9439	0.9920
Diameter, in.	1.40	1.40	1.40
Height, in.	2.97	3.00	2.99
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	8.16	20.18	31.88
Fail. Stress, psf	1016	1096	1002
Strain, %	13.6	9.8	5.3
Ult. Stress, psf	1016	1076	971
Strain, %	13.6	14.1	14.1
σ_1 Failure, psf	2191	4002	5593
σ_3 Failure, psf	1175	2906	4591

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: DGR ML

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A

Depth: 22

Sample Number: N/A

Proj. No.: 04.55124092

Date Sampled: 8/5/13

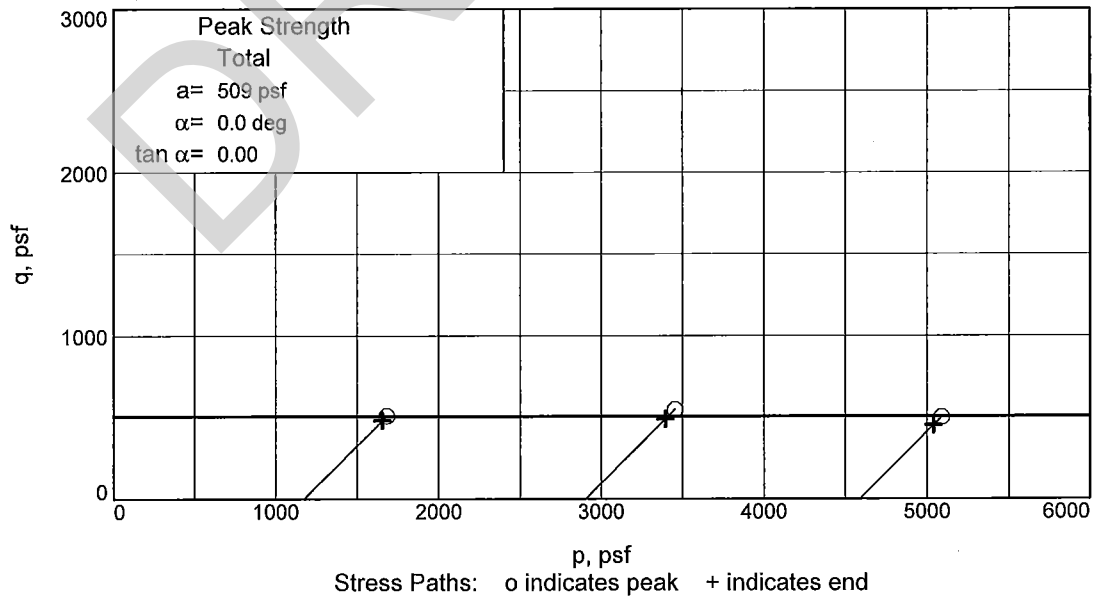
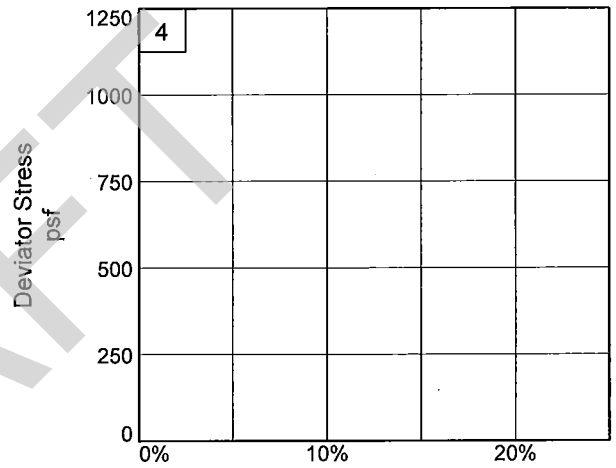
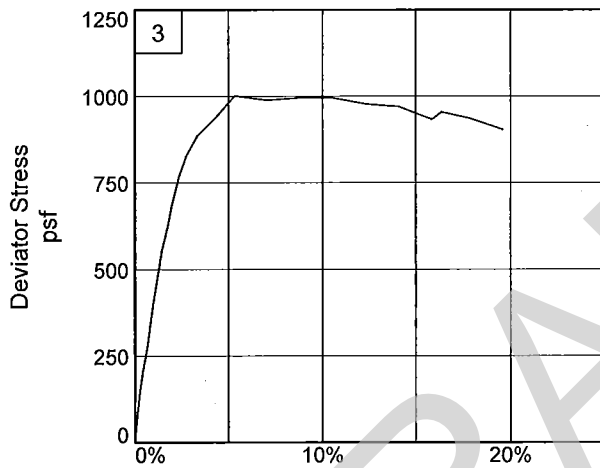
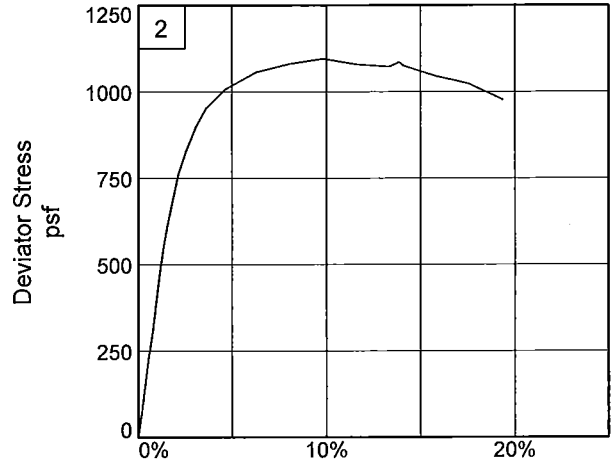
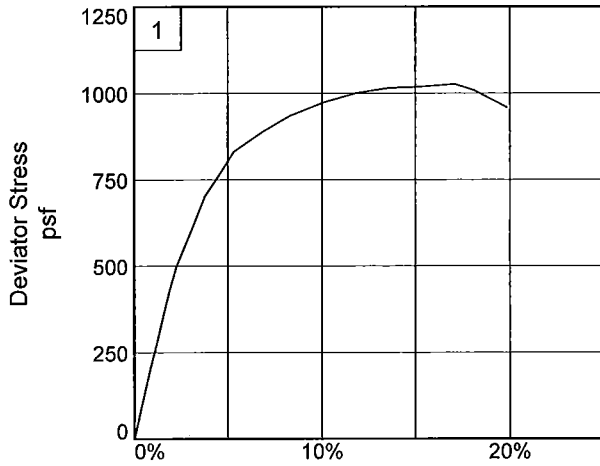
TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.
Baton Rouge, LA

Tested By: AL

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A

Depth: 22

Sample Number: N/A

Project No.: 04.55124092

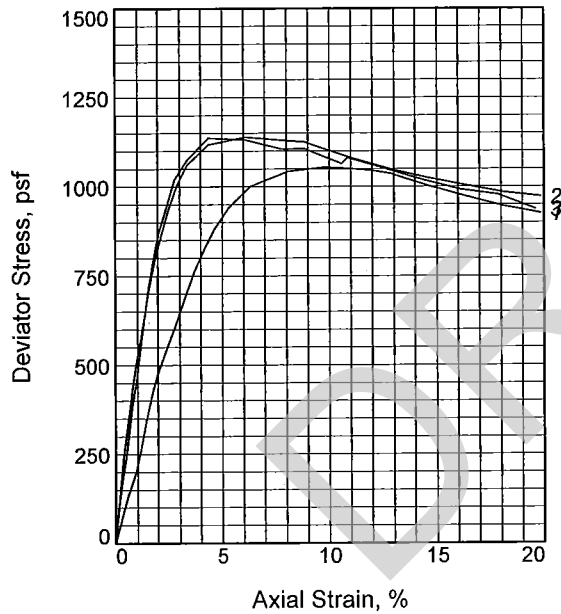
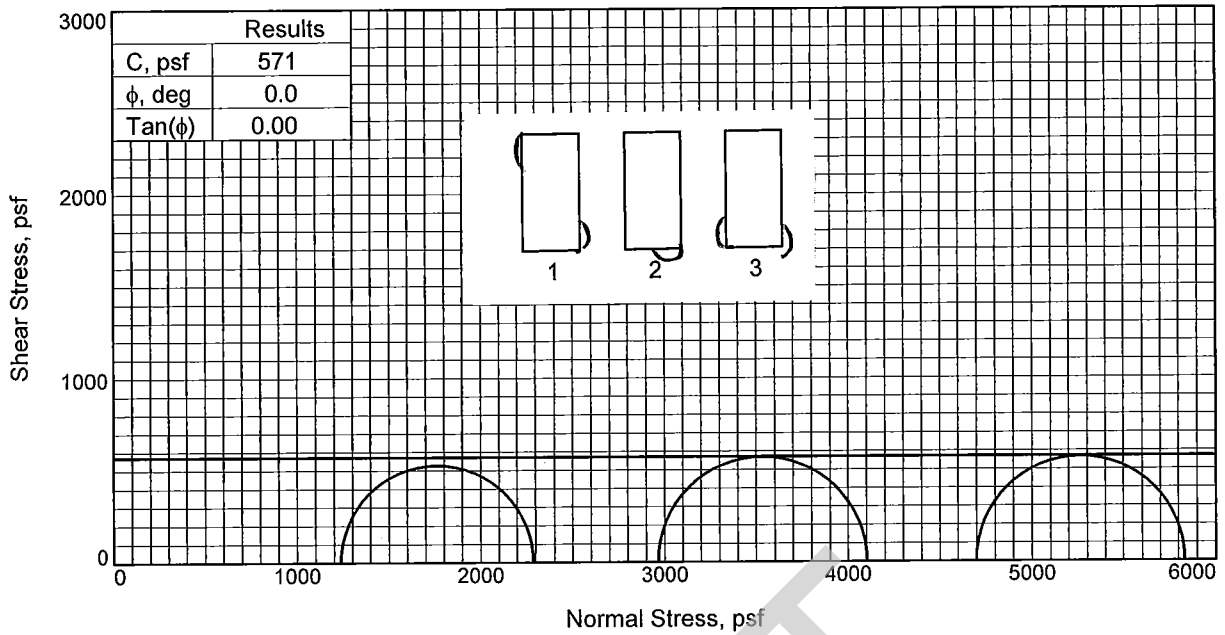
Figure _____

Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Sample No.	1	2	3
initial			
Water Content, %	40.8	41.2	41.7
Dry Density, pcf	81.3	80.9	78.5
Saturation, %	103.4	103.4	98.8
Void Ratio	1.0568	1.0677	1.1316
Diameter, in.	1.40	1.40	1.42
Height, in.	3.00	3.00	3.03
At Test			
Water Content, %	40.8	41.2	41.7
Dry Density, pcf	81.3	80.9	78.5
Saturation, %	103.4	103.4	98.8
Void Ratio	1.0568	1.0677	1.1316
Diameter, in.	1.40	1.40	1.42
Height, in.	3.00	3.00	3.03
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	8.57	20.58	32.62
Fail. Stress, psf	1055	1140	1137
Strain, %	9.8	6.1	4.4
Ult. Stress, psf	1003	1025	1020
Strain, %	14.6	14.6	14.3
σ_1 Failure, psf	2289	4103	5834
σ_3 Failure, psf	1234	2964	4697

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M DGR CL6

LL= 47 PL= 19 PI= 28

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A **Depth:** 23

Sample Number: N/A

Proj. No.: 04.55124092 **Date Sampled:** 8/5/13

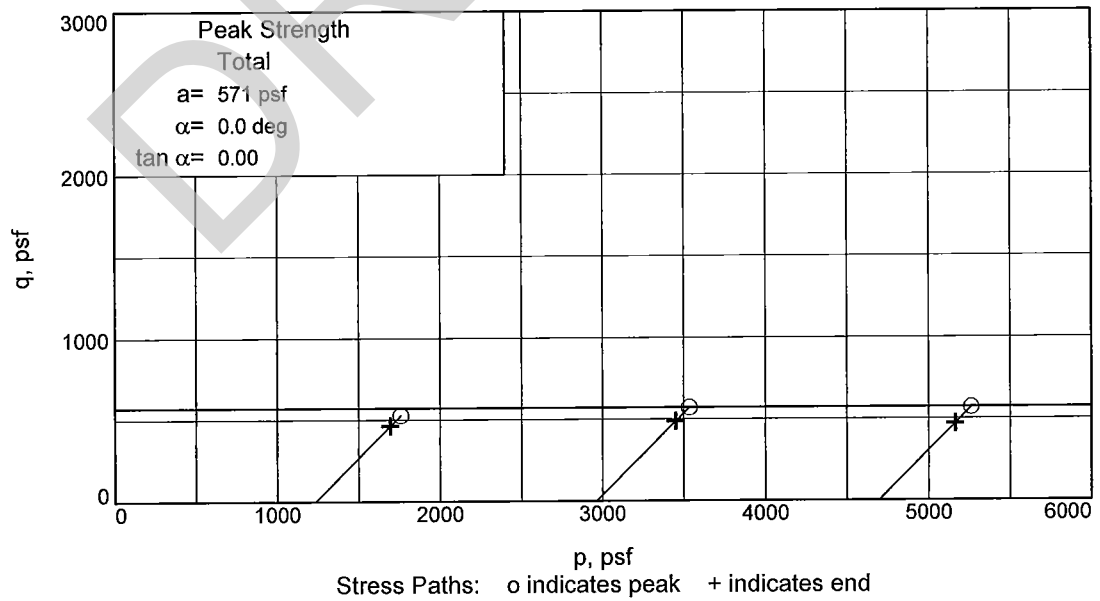
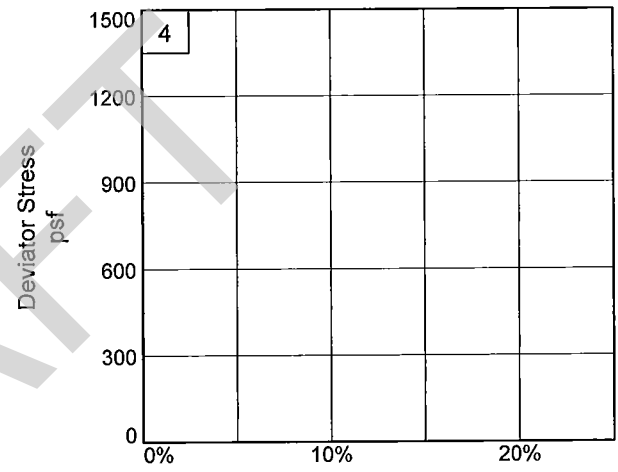
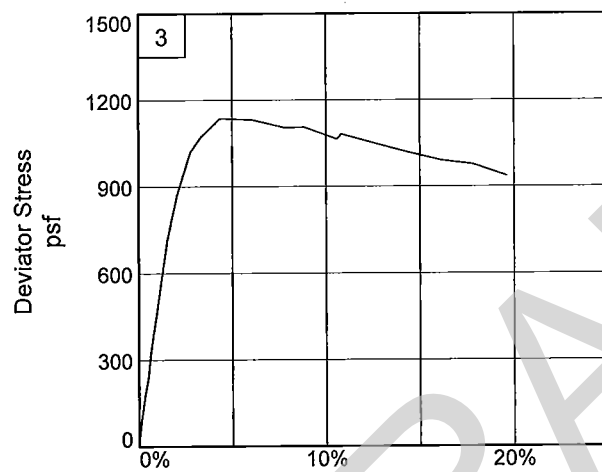
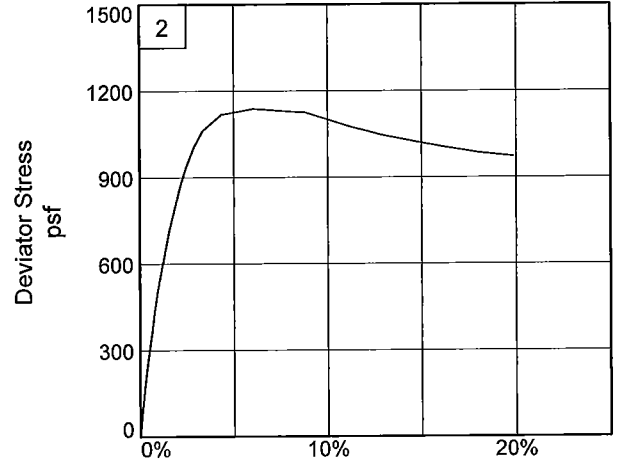
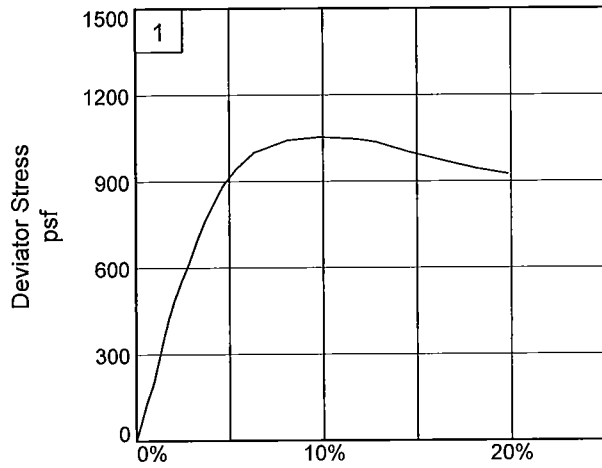
TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.
Baton Rouge, LA

Tested By: AL

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A

Depth: 23

Sample Number: N/A

Project No.: 04.55124092

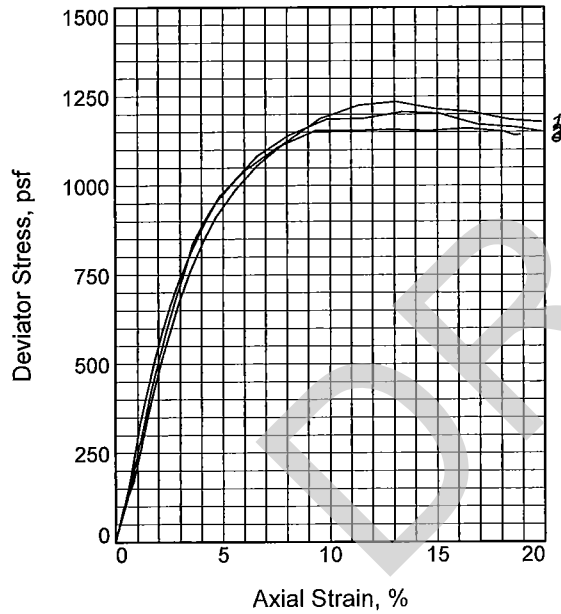
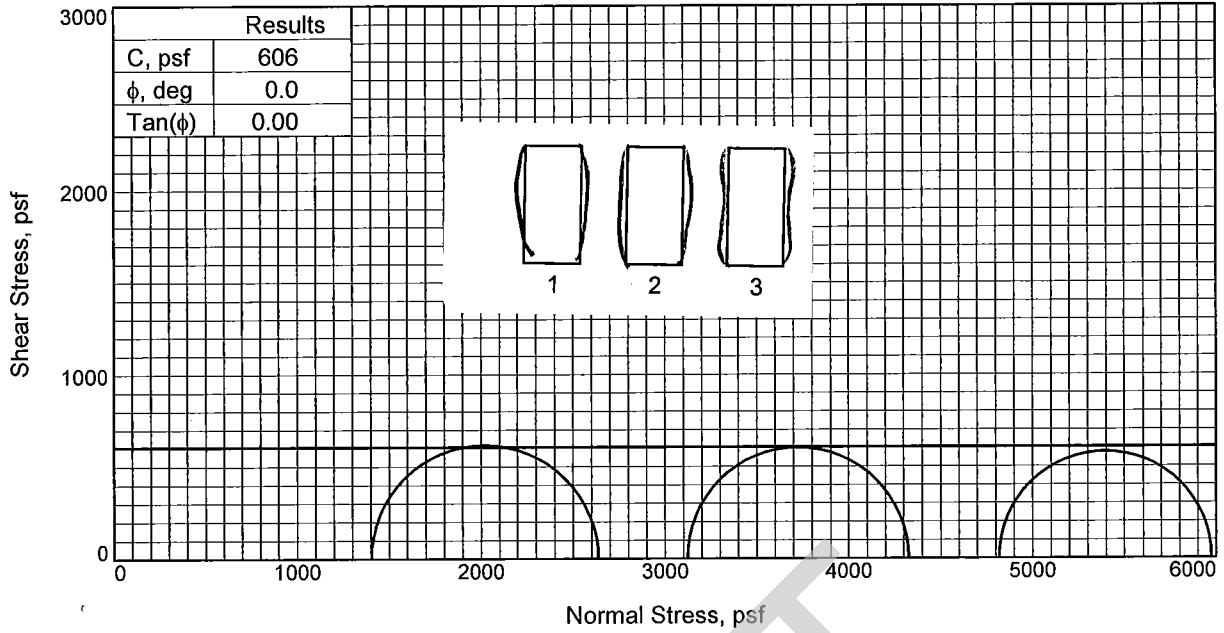
Figure _____

Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	34.2	34.5	35.0
Dry Density, pcf	86.4	85.5	86.9
Saturation, %	98.0	96.6	101.4
Void Ratio	0.9362	0.9571	0.9245
Diameter, in.	1.41	1.41	1.41
Height, in.	3.03	3.02	3.01
At Test			
Water Content, %	34.2	34.5	35.0
Dry Density, pcf	86.4	85.5	86.9
Saturation, %	98.0	96.6	101.4
Void Ratio	0.9362	0.9571	0.9245
Diameter, in.	1.41	1.41	1.41
Height, in.	3.03	3.02	3.01
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	9.73	21.67	33.45
Fail. Stress, psf	1236	1207	1158
Strain, %	13.1	13.4	12.9
Ult. Stress, psf	1216	1207	1154
Strain, %	14.8	13.4	14.6
σ_1 Failure, psf	2637	4327	5975
σ_3 Failure, psf	1401	3120	4817

Type of Test:
Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M DGR CL6

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barataria Diversion

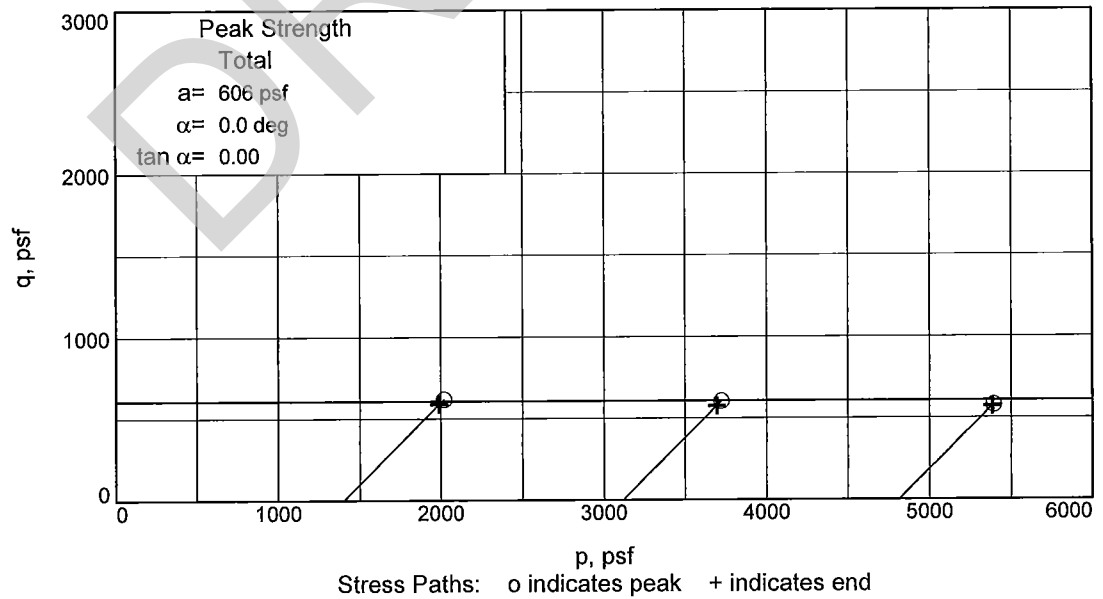
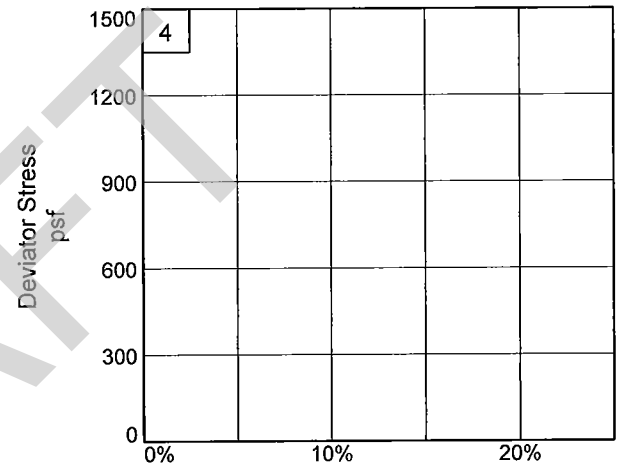
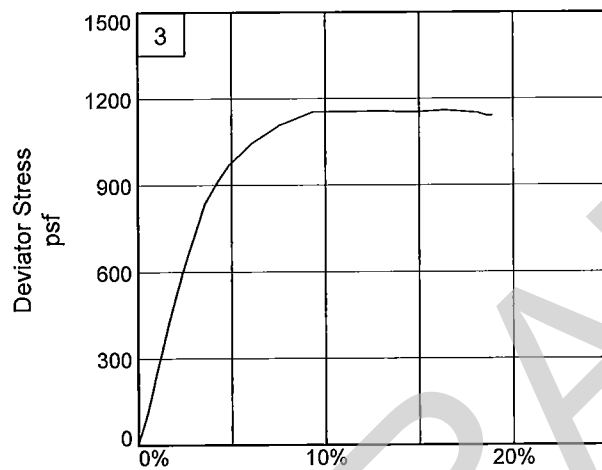
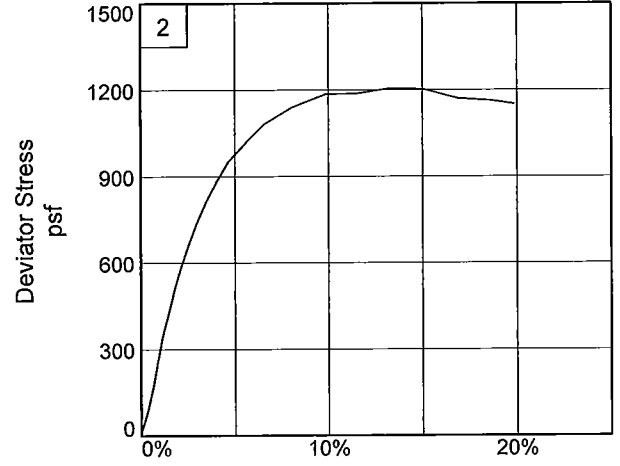
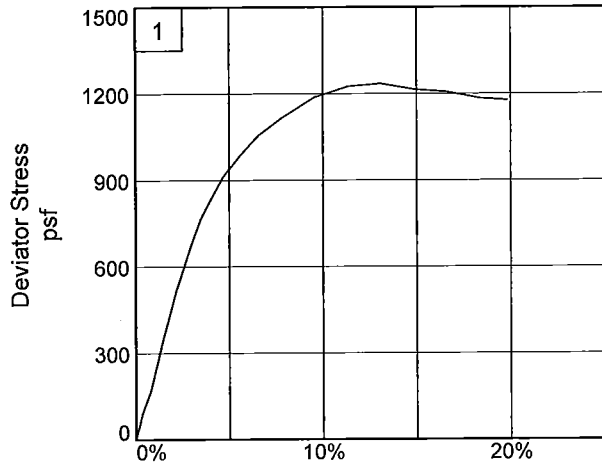
Source of Sample: IS-17A **Depth:** 26

Sample Number: N/A

Proj. No.: 04.55124092 **Date Sampled:** 8/5/13

TRIAXIAL SHEAR TEST REPORT
 Fugro Consultants, Inc.
 Baton Rouge, LA

Figure _____



Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: IS-17A

Depth: 26

Sample Number: N/A

Project No.: 04.55124092

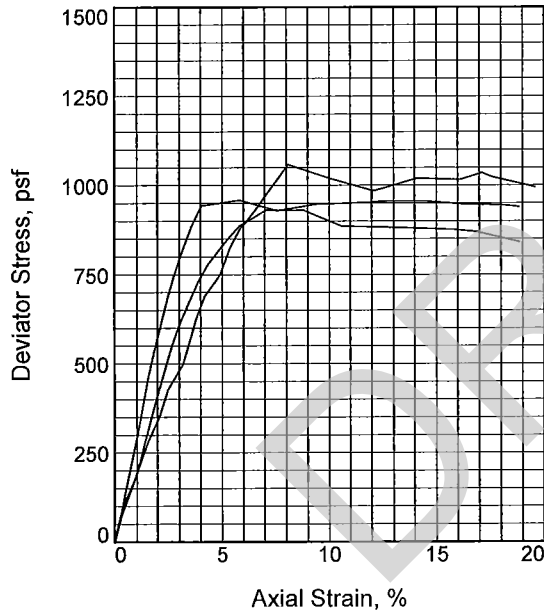
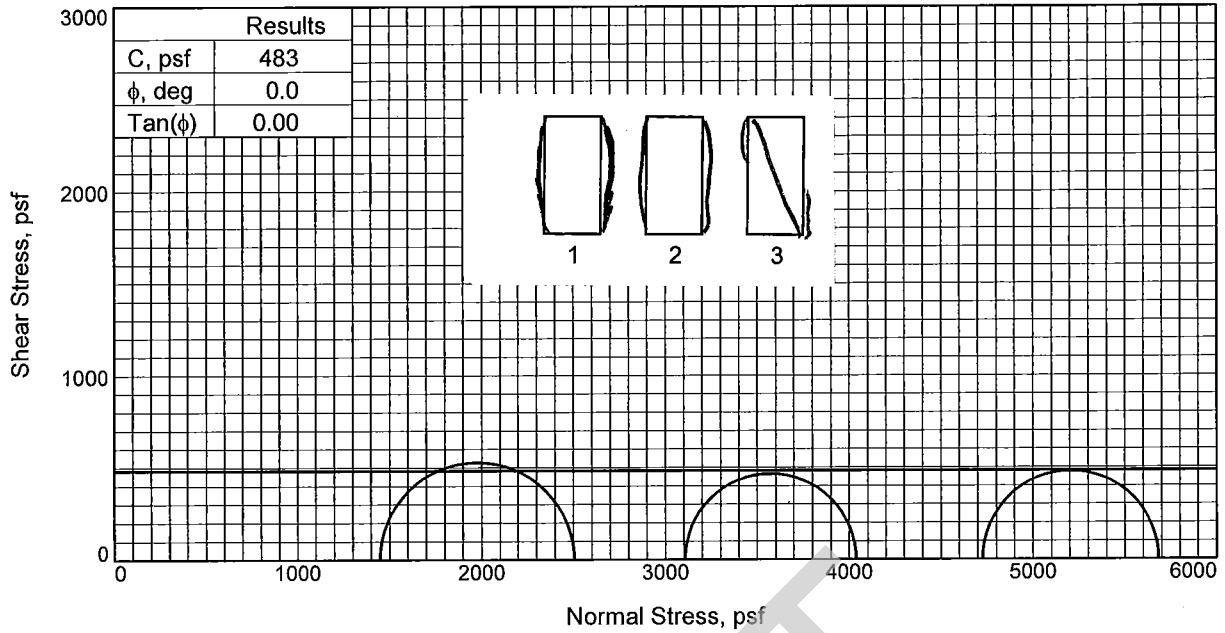
Figure _____

Fugro Consultants, Inc.

Tested By: AL

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	37.2	40.6	39.1
	Dry Density, pcf	84.9	81.6	83.3
	Saturation, %	102.6	103.7	103.9
	Void Ratio	0.9702	1.0494	1.0093
	Diameter, in.	1.43	1.43	1.43
	Height, in.	2.76	2.89	2.87
At Test	Water Content, %	37.2	40.6	39.1
	Dry Density, pcf	84.9	81.6	83.3
	Saturation, %	102.6	103.7	103.9
	Void Ratio	0.9702	1.0494	1.0093
	Diameter, in.	1.43	1.43	1.43
	Height, in.	2.76	2.89	2.87
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	10.05	21.57	32.82	
Fail. Stress, psf	1058	931	959	
Strain, %	8.1	7.1	5.8	
Ult. Stress, psf	1020	880	955	
Strain, %	14.1	14.1	14.6	
σ_1 Failure, psf	2506	4037	5685	
σ_3 Failure, psf	1447	3106	4726	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO GR CL6

LL= 42 PL= 19 PI= 23

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: IS-17A **Depth:** 30

Sample Number: N/A

Proj. No.: 04.55124092

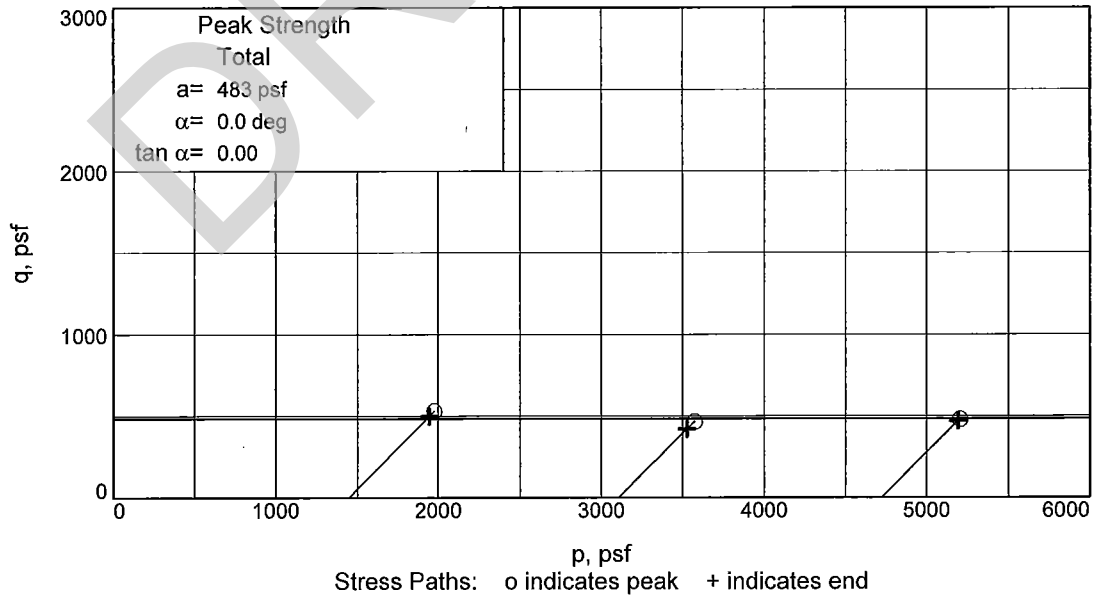
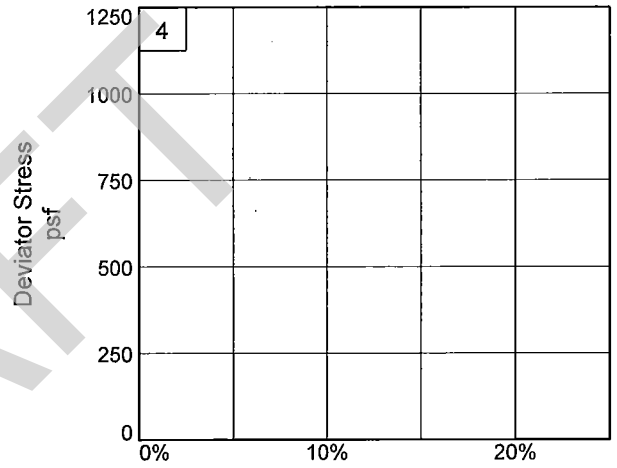
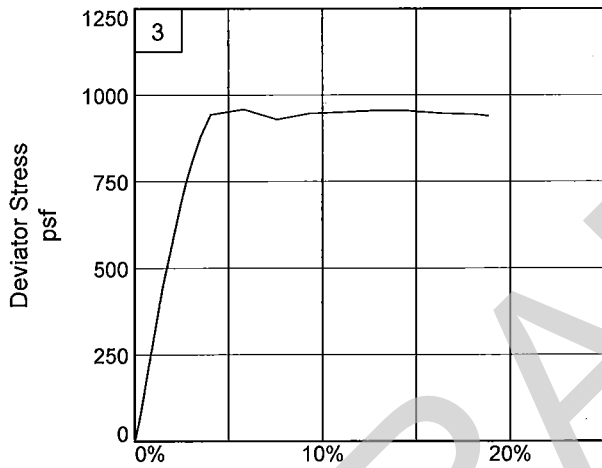
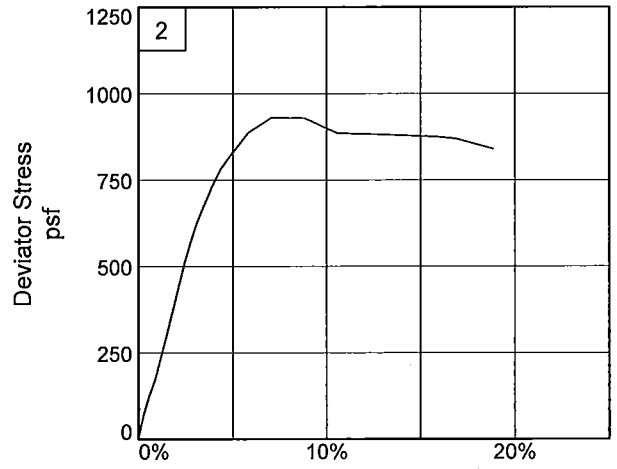
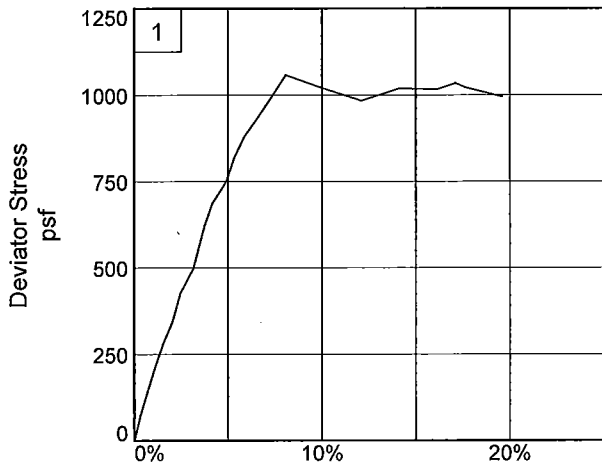
Date Sampled: 8/8/13

TRIAXIAL SHEAR TEST REPORT
Fugro Consultants, Inc.
Baton Rouge, LA

Tested By: JSA

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: IS-17A

Depth: 30

Sample Number: N/A

Project No.: 04.55124092

Figure _____

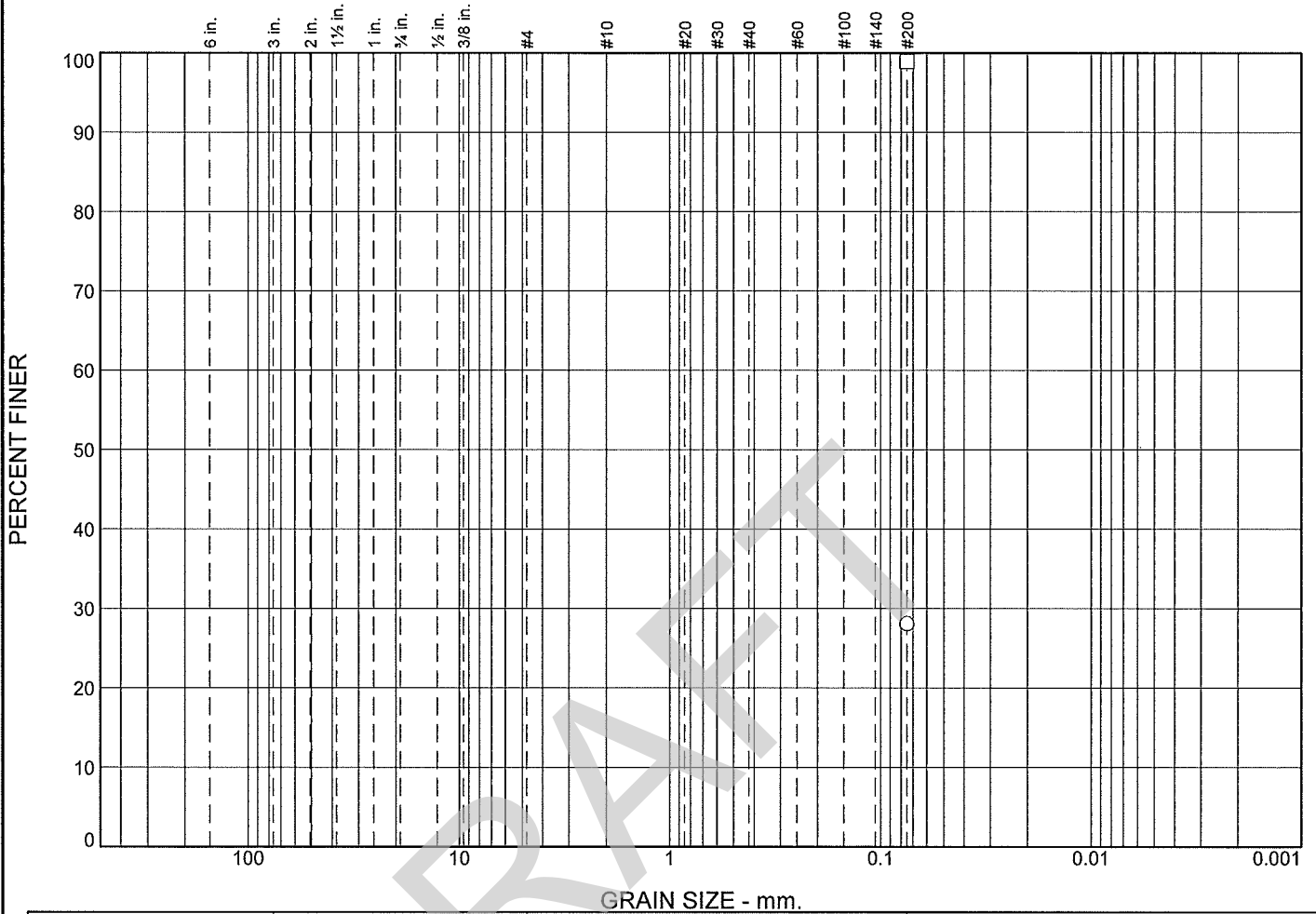
Fugro Consultants, Inc.

Tested By: JSA

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report

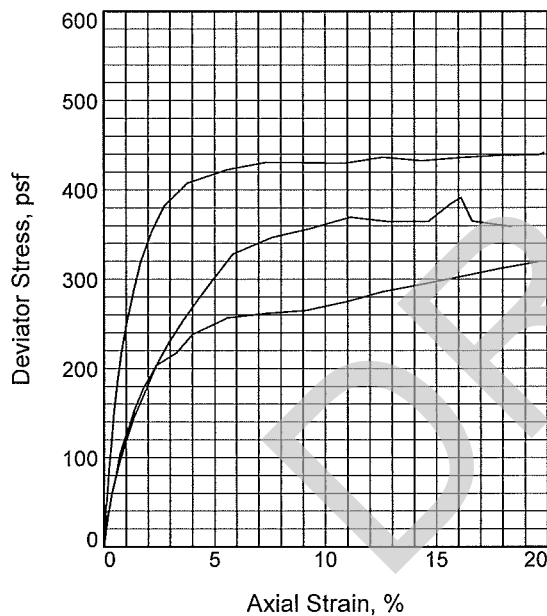
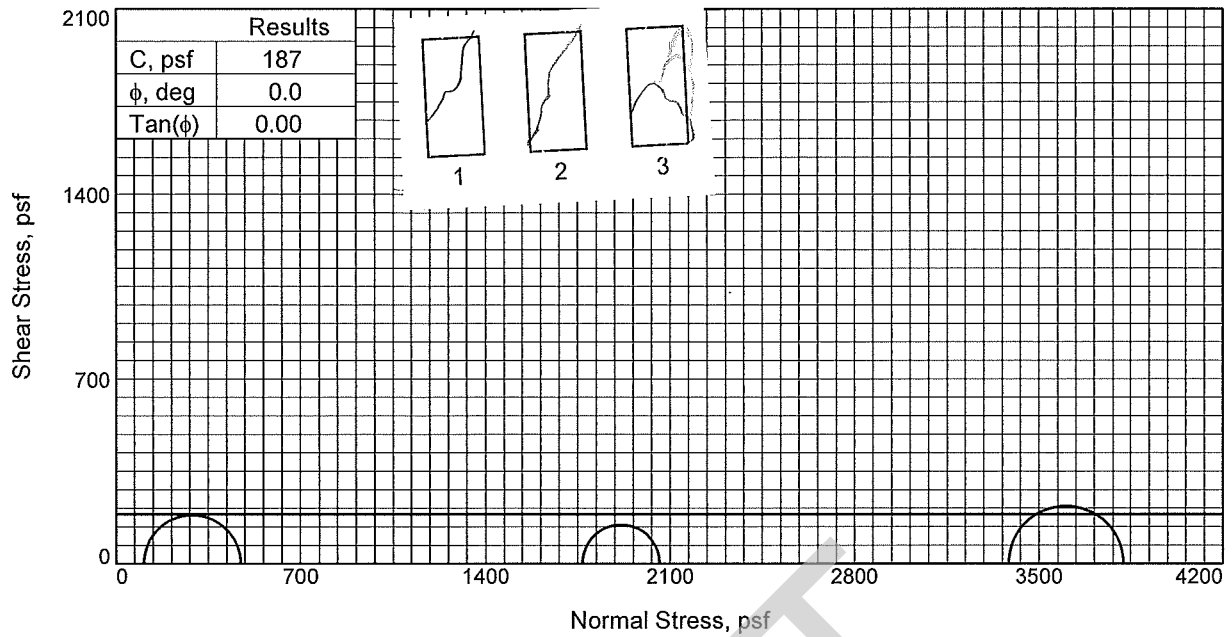


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		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="checkbox"/>								28.1			
<input type="checkbox"/>								98.9			
	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
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<input type="checkbox"/>											

Material Description	USCS	AASHTO
<input type="checkbox"/> GR SC W/ SHELLS	SC	
<input type="checkbox"/> GR CH4 W/ SIF	CH4	

<p>Project No. 04.55124092 Client: GeoEngineers</p> <p>Project: Mid Barrataria Diversion</p> <p><input type="checkbox"/> Source of Sample: NL-3A Depth: 114.0 Sample Number: NA</p> <p><input type="checkbox"/> Source of Sample: NL-3A Depth: 116.0 Sample Number: NA</p> <p>Date: <input type="checkbox"/></p> <p style="text-align: center;">Fugro Consultants, Inc.</p> <p style="text-align: center;">Baton Rouge, LA</p>	<p>Remarks:</p> <p><input type="checkbox"/> "Confidential Information: Privileged & Confidential Work Product"</p>
---	---

Figure



Sample No.	1	2	3
Initial			
Water Content, %	100.3	99.4	104.7
Dry Density, pcf	44.0	44.5	42.8
Saturation, %	97.2	97.9	97.7
Void Ratio	2.6609	2.6202	2.7670
Diameter, in.	1.43	1.45	1.43
Height, in.	2.92	3.02	3.02
At Test			
Water Content, %	100.3	99.4	104.7
Dry Density, pcf	44.0	44.5	42.8
Saturation, %	97.2	97.9	97.7
Void Ratio	2.6609	2.6202	2.7670
Diameter, in.	1.43	1.45	1.43
Height, in.	2.92	3.02	3.02
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	0.72	12.27	23.50
Fail. Stress, psf	369	294	437
Strain, %	11.1	14.3	12.6
Ult. Stress, psf	364	294	433
Strain, %	14.6	14.3	14.3
σ_1 Failure, psf	473	2061	3821
σ_3 Failure, psf	104	1767	3384

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: VSO DGR CHOA

LL= 141 PL= 40 PI= 101

Assumed Specific Gravity= 2.58

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A **Depth:** 2.0

Sample Number: NA

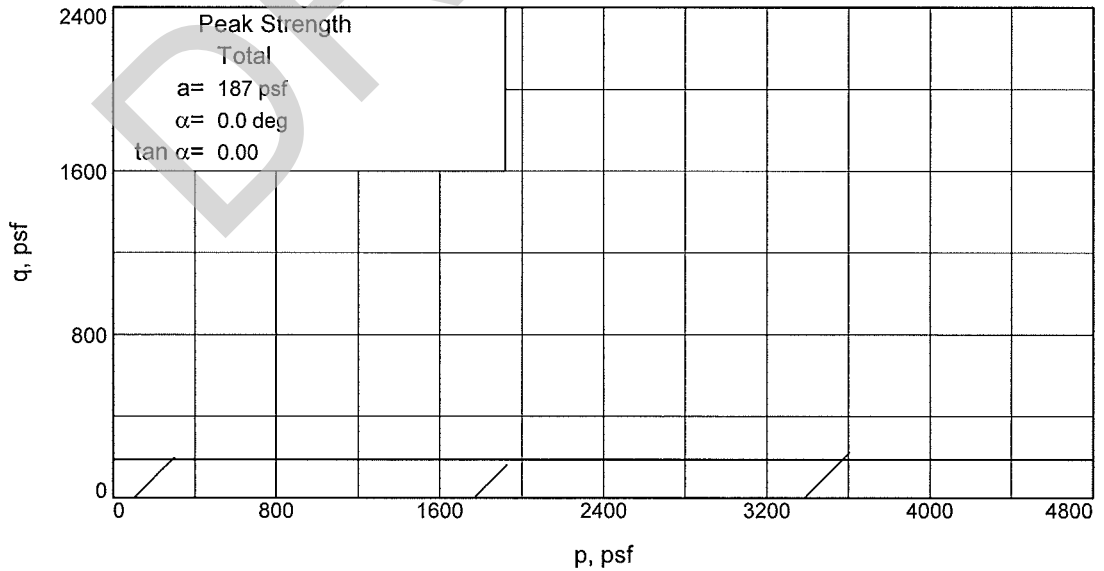
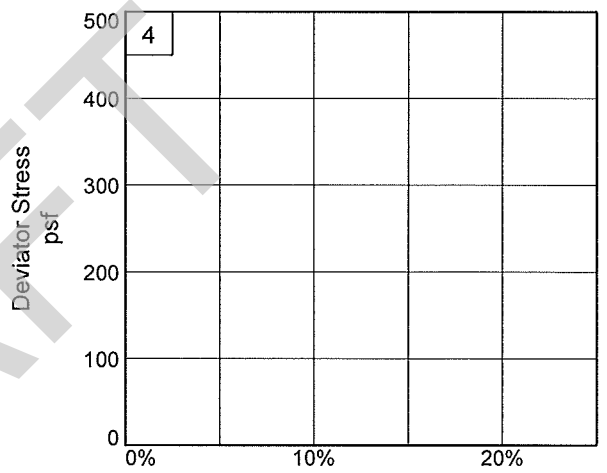
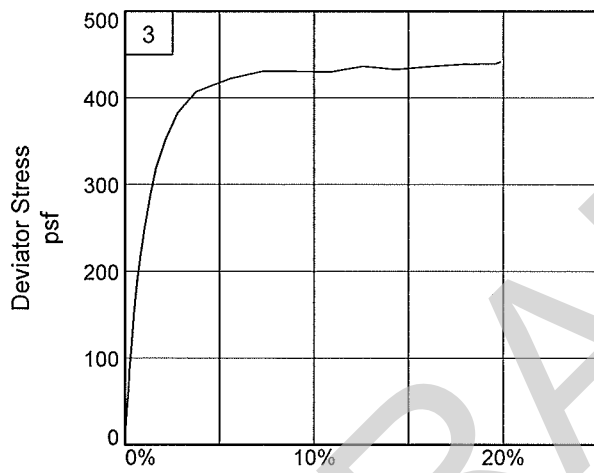
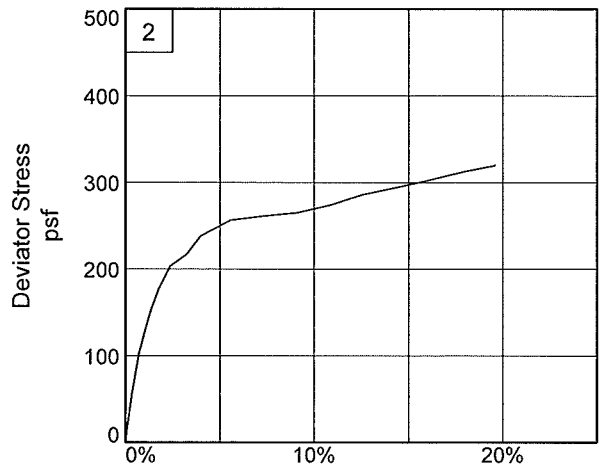
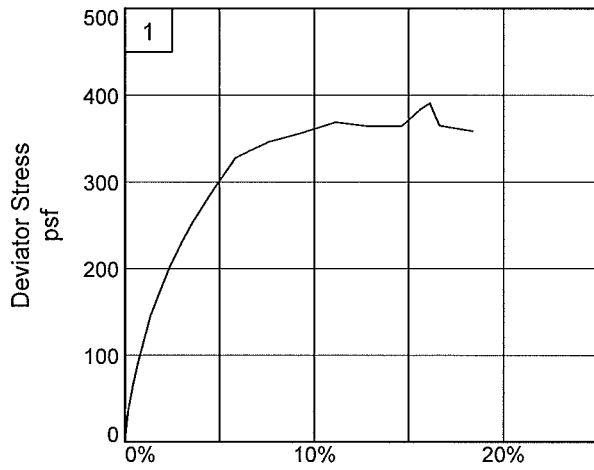
Proj. No.: 04.55124092

Date Sampled: 6/10/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 2.0

Sample Number: NA

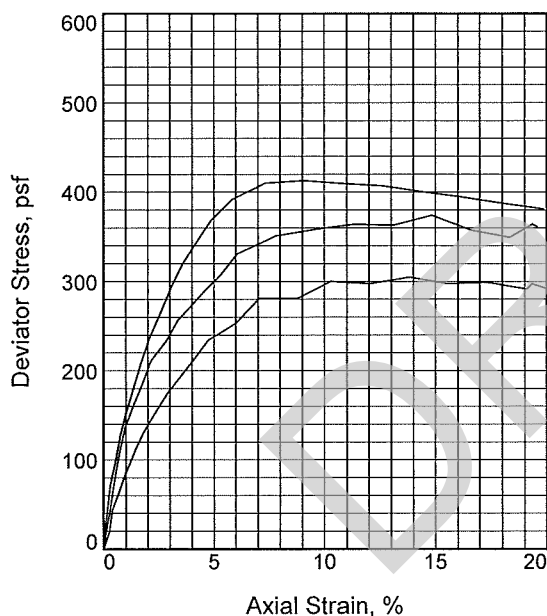
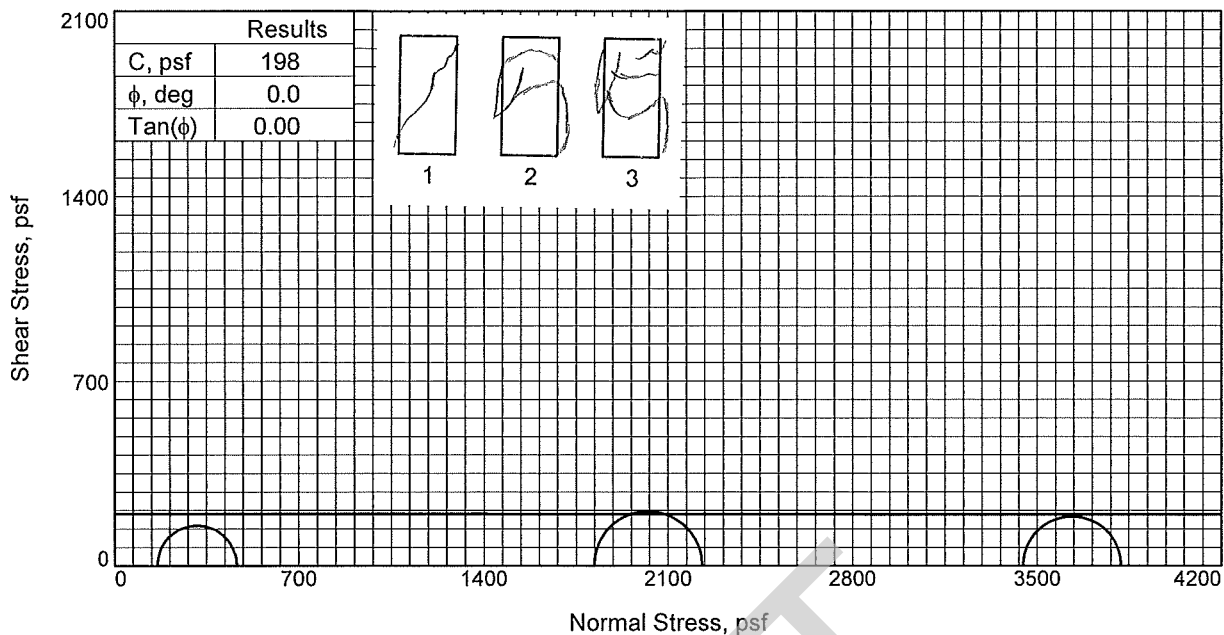
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA
"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	135.0	129.9	127.9
Dry Density, pcf	36.0	36.2	37.9
Saturation, %	101.7	98.5	103.1
Void Ratio	3.2660	3.2439	3.0513
Diameter, in.	1.42	1.44	1.43
Height, in.	3.00	3.02	2.90
At Test			
Water Content, %	135.0	129.9	127.9
Dry Density, pcf	36.0	36.2	37.9
Saturation, %	101.7	98.5	103.1
Void Ratio	3.2660	3.2439	3.0513
Diameter, in.	1.42	1.44	1.43
Height, in.	3.00	3.02	2.90
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	1.12	12.62	23.93
Fail. Stress, psf	305	413	374
Strain, %	13.8	9.1	14.8
Ult. Stress, psf	305	401	374
Strain, %	13.8	14.3	14.8
σ_1 Failure, psf	466	2230	3820
σ_3 Failure, psf	161	1817	3446

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: VSO DGR CHOB

LL= 160 PL= 45 PI= 115

Assumed Specific Gravity: 2.46

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A **Depth:** 3.0

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/10/13

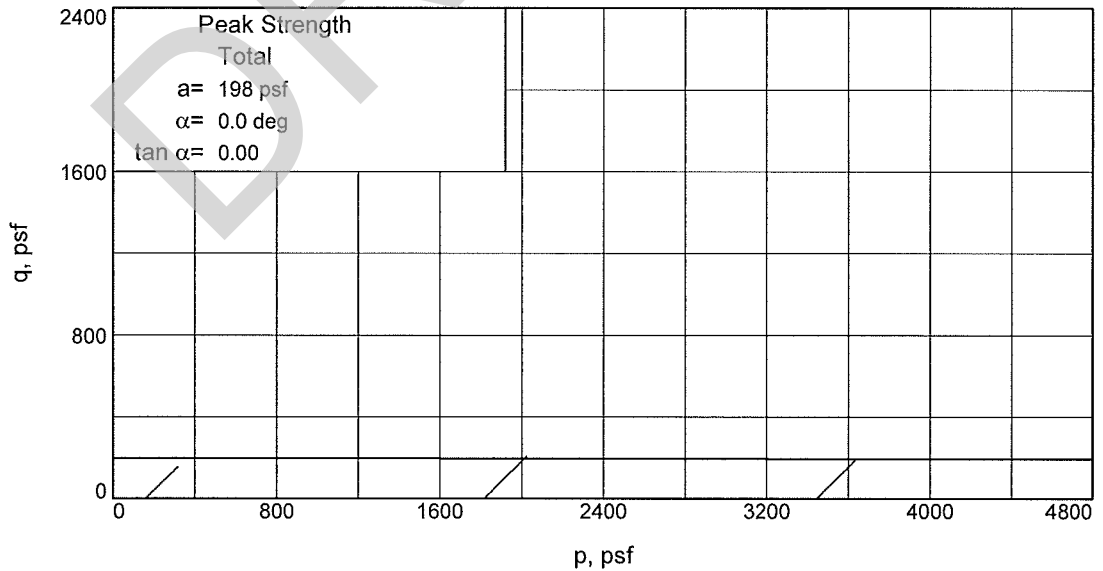
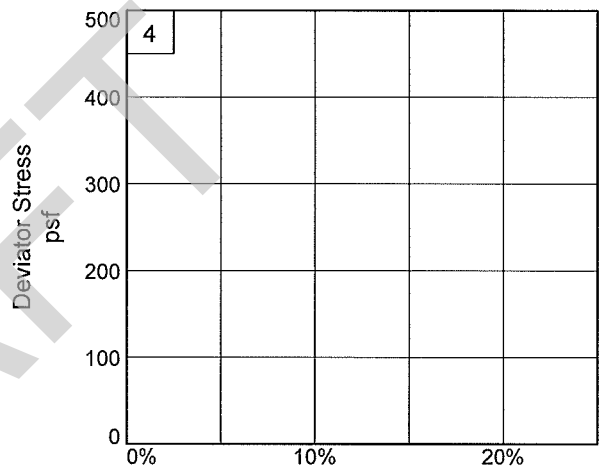
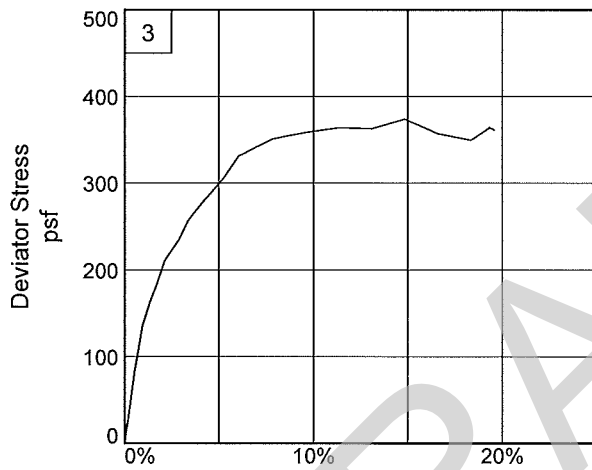
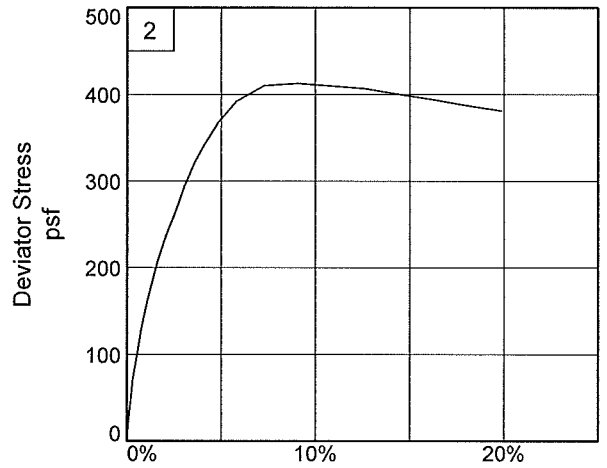
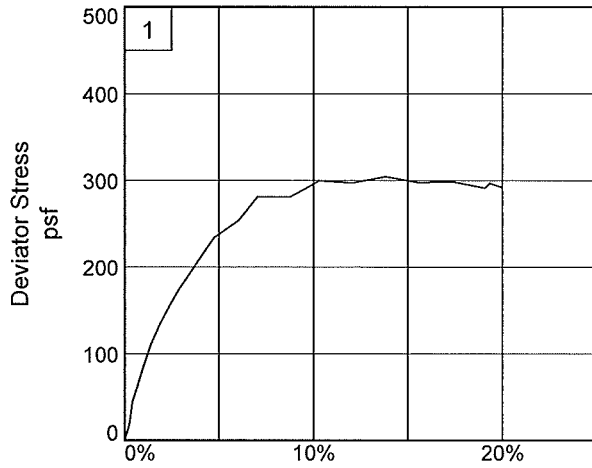
TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA

Tested By: PN

Checked By: KA
 "Confidential Information: Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 3.0

Sample Number: NA

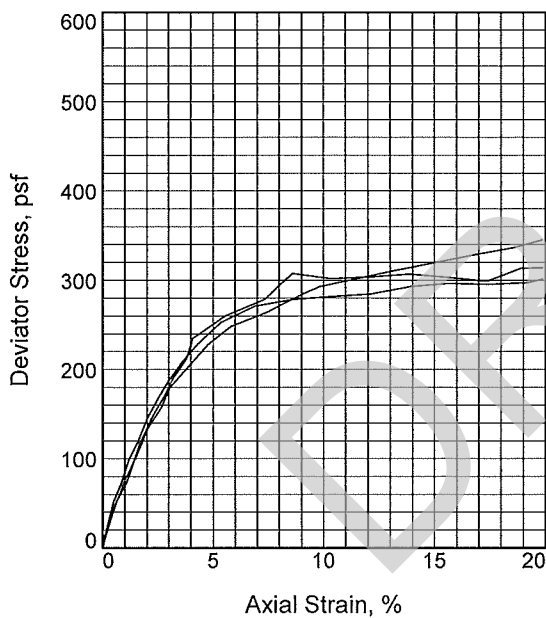
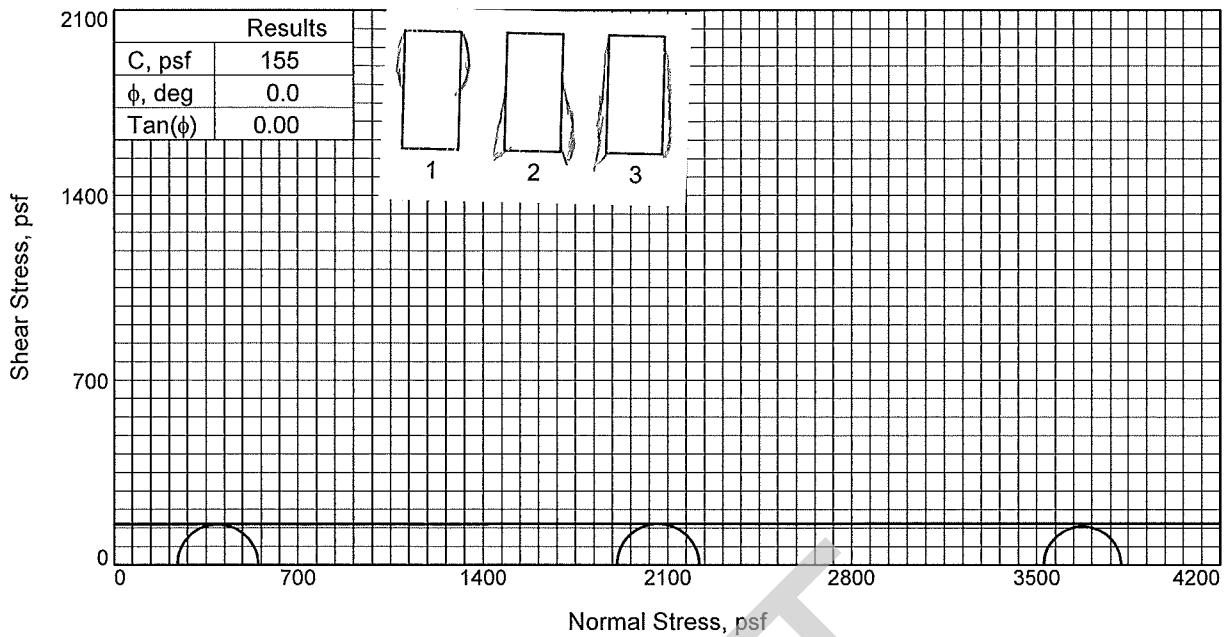
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA
 "Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	64.2	48.5	54.4
	Dry Density, pcf	59.3	72.5	68.0
	Saturation, %	94.1	98.8	99.2
	Void Ratio	1.8422	1.3252	1.4792
	Diameter, in.	1.42	1.41	1.42
	Height, in.	2.87	3.00	3.02
At Test	Water Content, %	64.2	48.5	54.4
	Dry Density, pcf	59.3	72.5	68.0
	Saturation, %	94.1	98.8	99.2
	Void Ratio	1.8422	1.3252	1.4792
	Diameter, in.	1.42	1.41	1.42
	Height, in.	2.87	3.00	3.02
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	1.67	13.25	24.50	
Fail. Stress, psf		308	312	293
	Strain, %	8.6	13.3	13.9
Ult. Stress, psf		307	312	293
	Strain, %	13.9	13.3	13.9
σ_1 Failure, psf		548	2220	3821
σ_3 Failure, psf		240	1908	3528

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: VSO GR CH3

LL= 61 PL= 22 PI= 39

Assumed Specific Gravity: 2.70

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A **Depth:** 5.0

Sample Number: NA

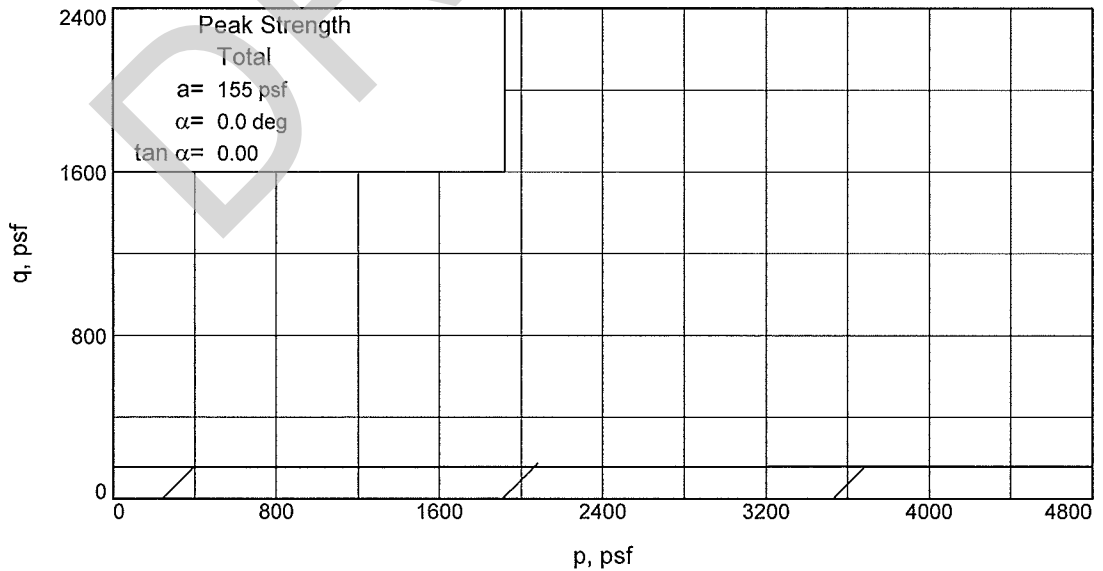
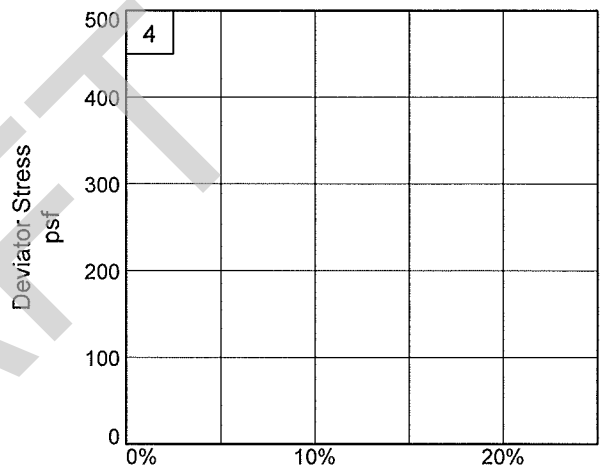
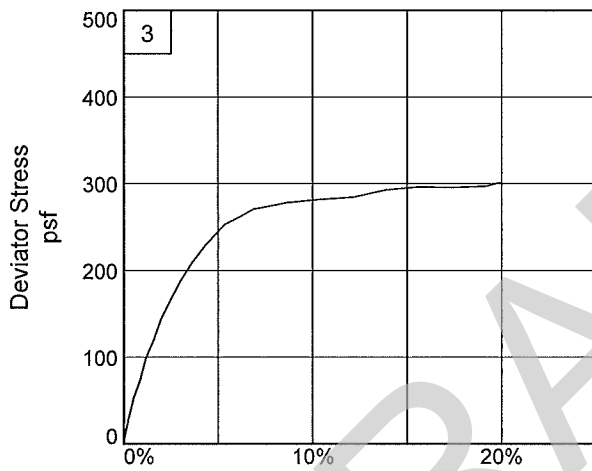
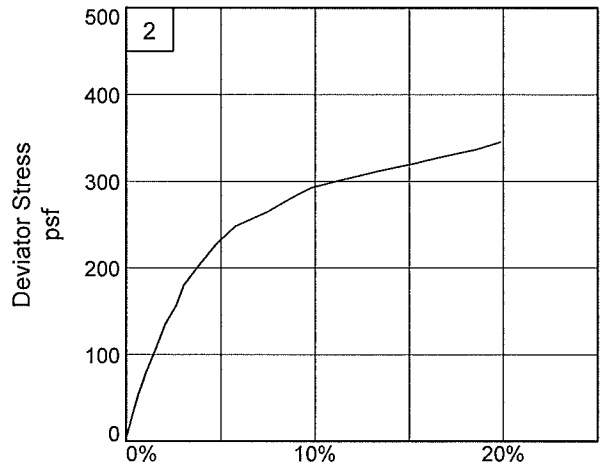
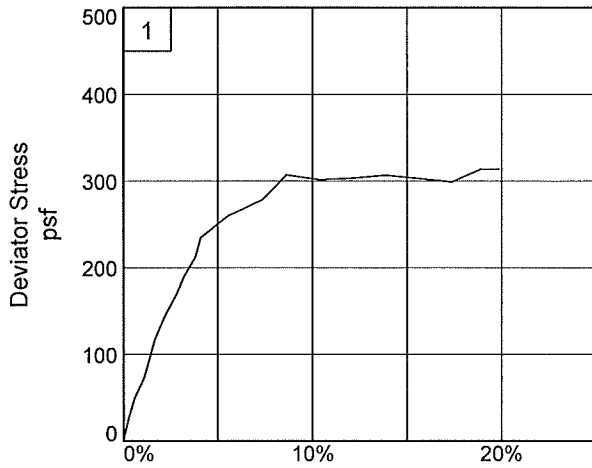
Proj. No.: 04.55124092

Date Sampled: 6/11/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 5.0

Sample Number: NA

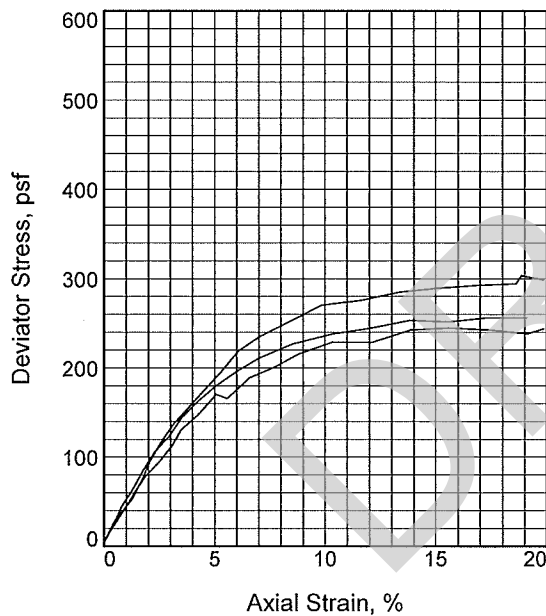
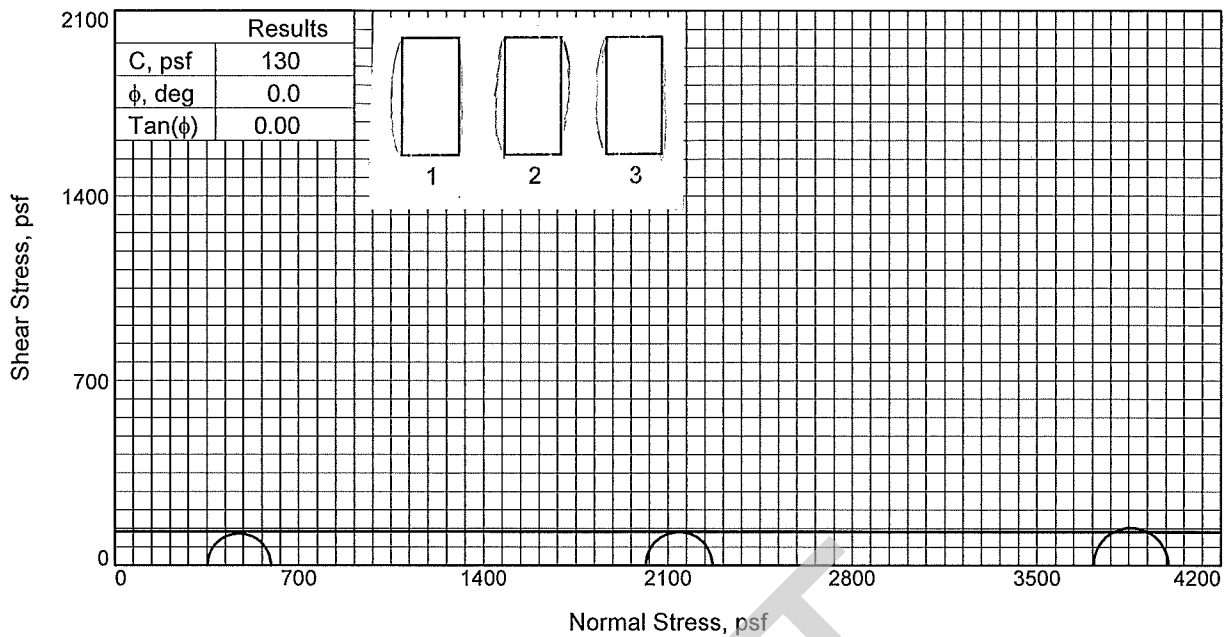
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: JSA

Checked By: KA
"Confidential Information, Proprietary & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	52.9	53.1	52.8
Dry Density, pcf	70.2	70.1	67.6
Saturation, %	102.4	102.7	95.8
Void Ratio	1.3839	1.3860	1.4767
Diameter, in.	1.44	1.44	1.45
Height, in.	2.93	2.97	2.98
At Test			
Water Content, %	52.9	53.1	52.8
Dry Density, pcf	70.2	70.1	67.6
Saturation, %	102.4	102.7	95.8
Void Ratio	1.3839	1.3860	1.4767
Diameter, in.	1.44	1.44	1.45
Height, in.	2.93	2.97	2.98
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	2.44	14.00	25.79
Fail. Stress, psf	243	253	285
Strain, %	13.9	13.8	13.3
Ult. Stress, psf	243	253	285
Strain, %	13.9	13.8	13.3
σ_1 Failure, psf	594	2269	3999
σ_3 Failure, psf	351	2016	3714

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: VSO GR CH2 W/ LNS ML

LL= 51 PL= 22 PI= 29

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A **Depth:** 7

Sample Number: NA

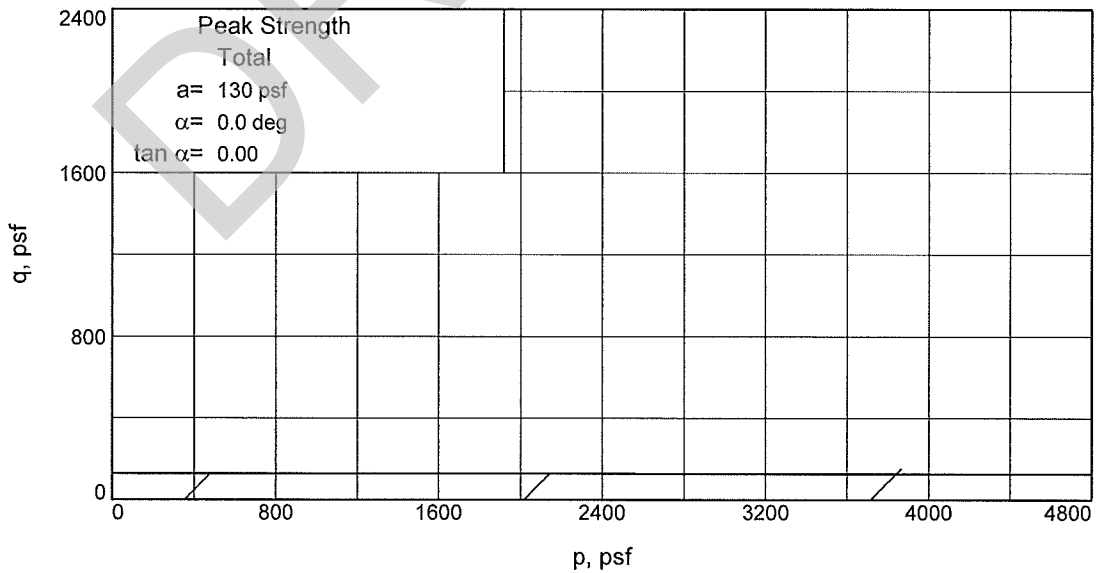
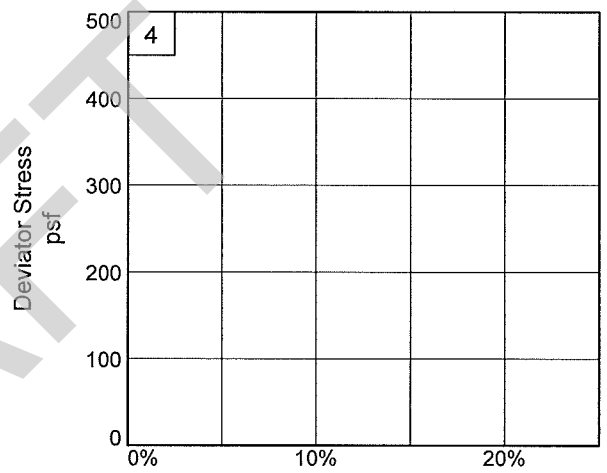
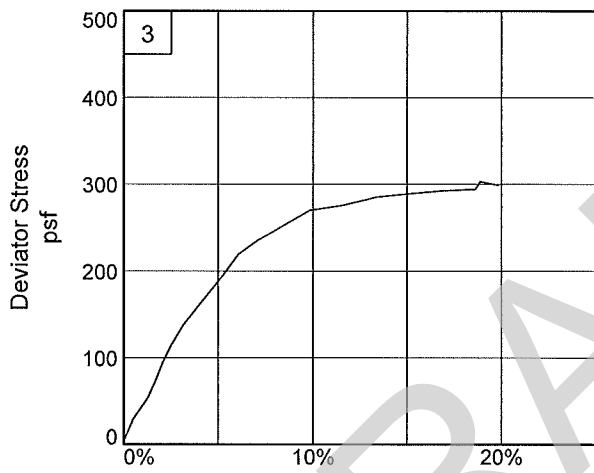
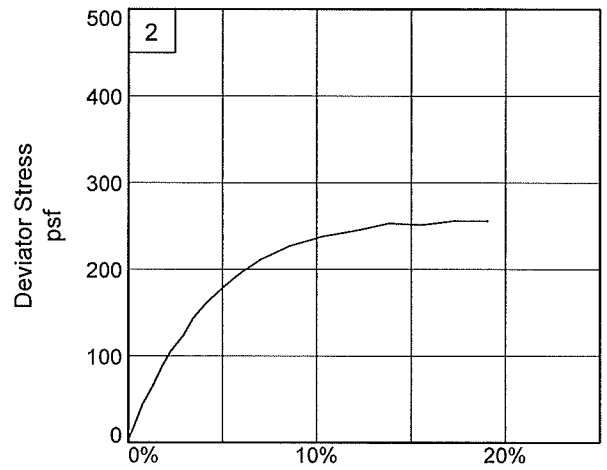
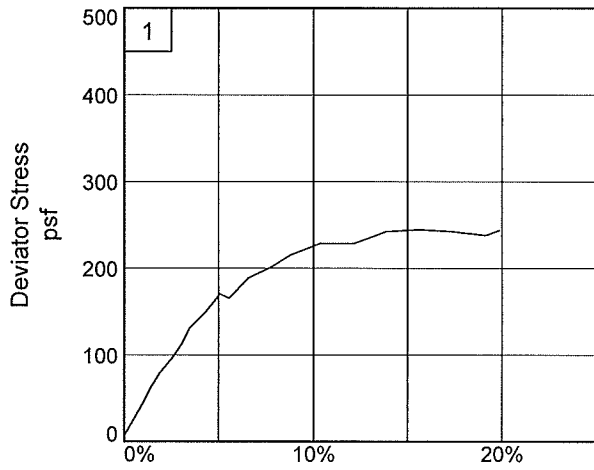
Proj. No.: 04.55124092

Date Sampled: 6/10/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 7

Sample Number: NA

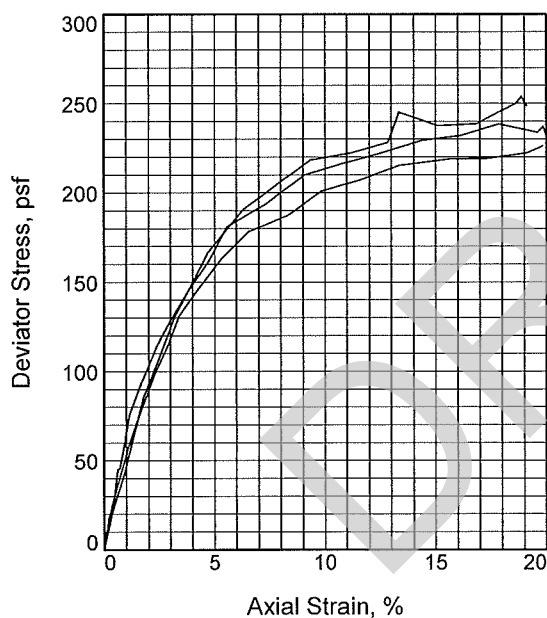
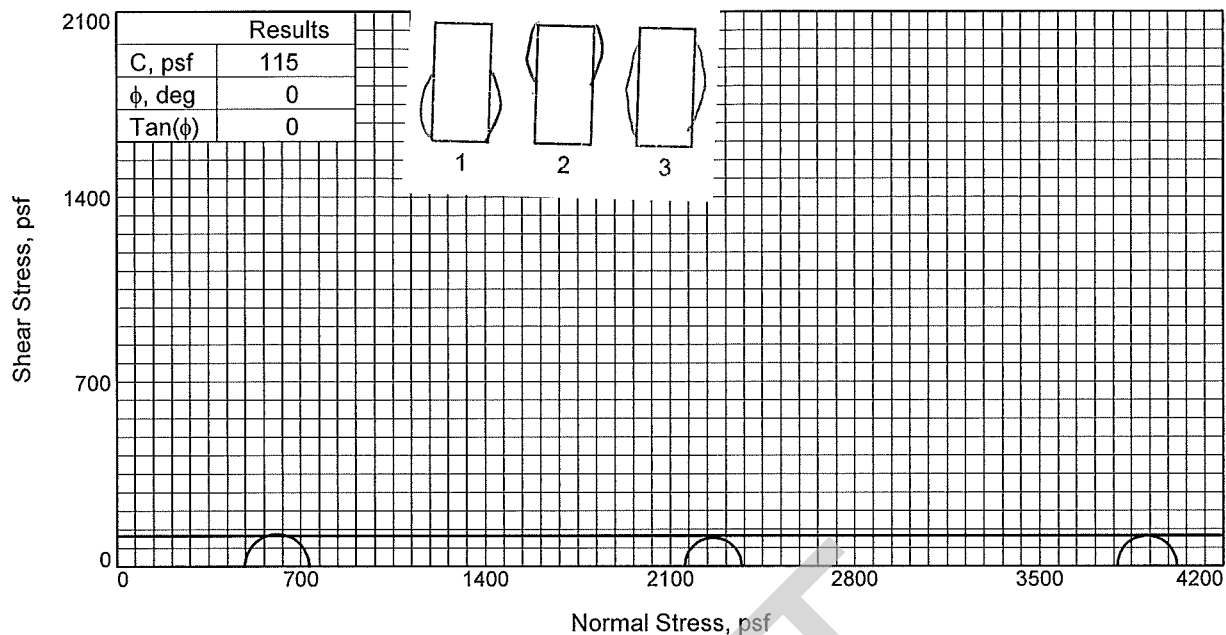
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: JSA

Checked By: KA
"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	67.3	68.7	64.8
Dry Density, pcf	60.8	58.6	62.9
Saturation, %	102.7	98.9	104.2
Void Ratio	1.7704	1.8765	1.6785
Diameter, in.	1.39	1.40	1.39
Height, in.	3.02	3.01	3.08
At Test			
Water Content, %	67.3	68.7	64.8
Dry Density, pcf	60.8	58.6	62.9
Saturation, %	102.7	98.9	104.2
Void Ratio	1.7704	1.8765	1.6785
Diameter, in.	1.39	1.40	1.39
Height, in.	3.02	3.01	3.08
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	3.38	14.96	26.35
Fail. Stress, psf	245	215	229
Strain, %	13.3	13.3	14.3
Ult. Stress, psf	245	215	229
Strain, %	13.3	13.3	14.3
σ_1 Failure, psf	732	2370	4024
σ_3 Failure, psf	487	2154	3794

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: VSO GR CH3

LL= 60 PL= 21 PI= 39

Assumed Specific Gravity: 2.70

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A **Depth:** 10

Sample Number: NA

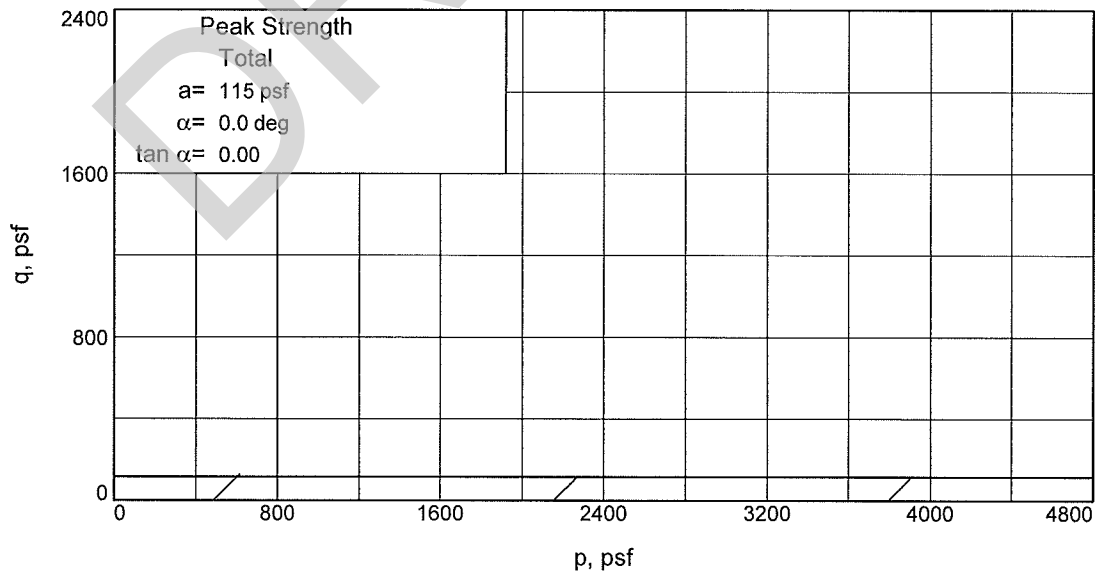
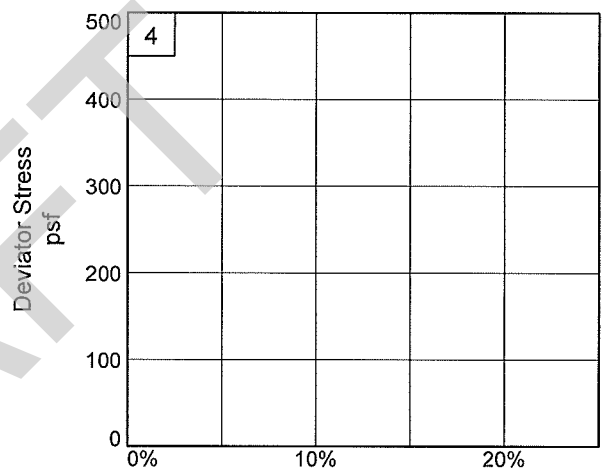
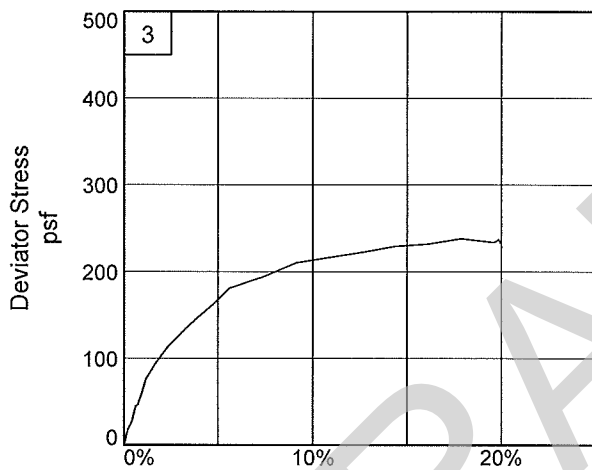
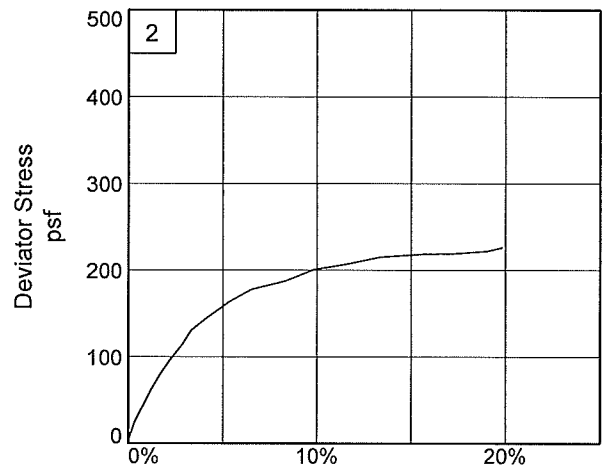
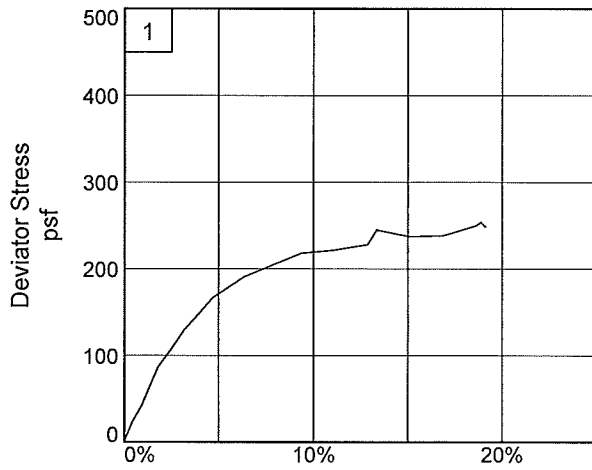
Proj. No.: 04.55124092

Date Sampled: 6/10/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 10

Sample Number: NA

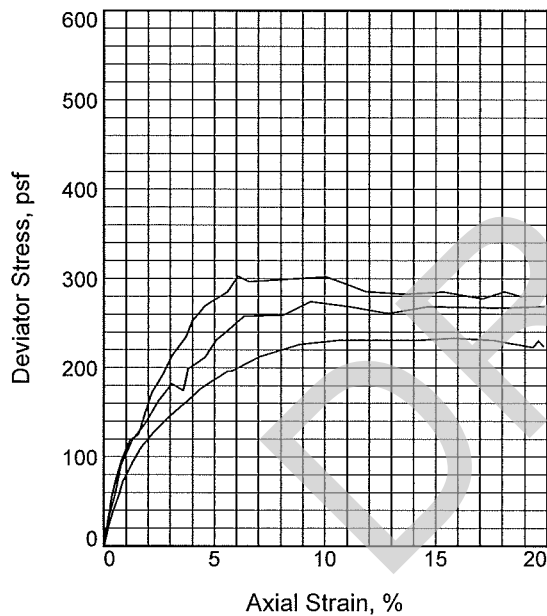
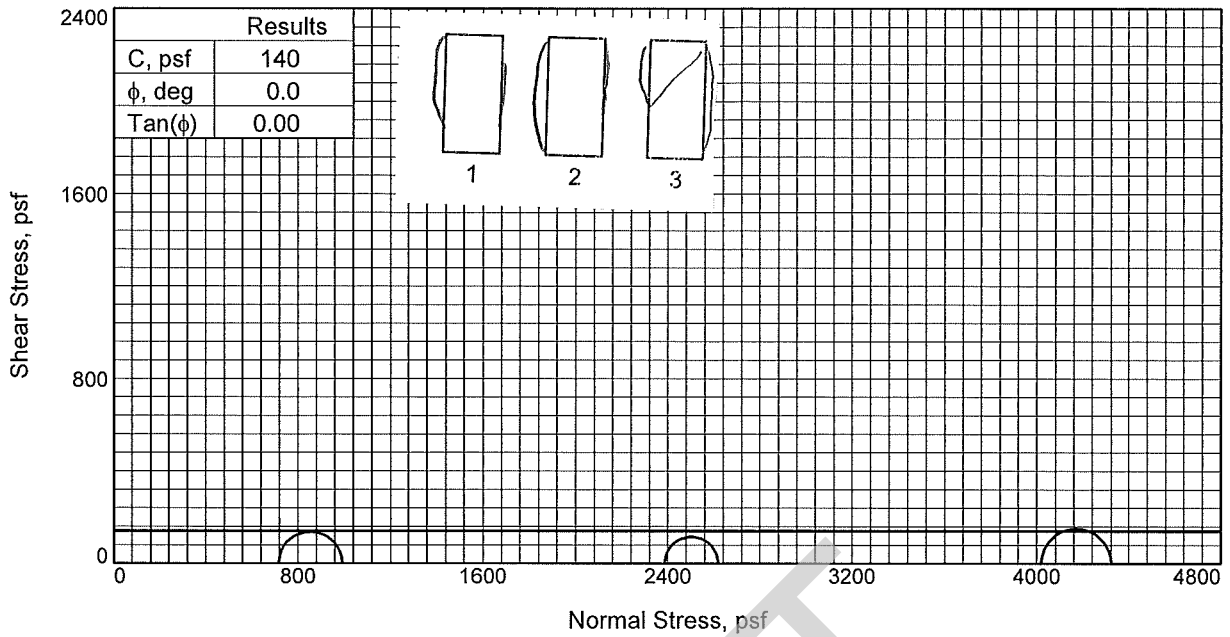
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: JSA

Checked By: KA
 "Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	94.6	95.4	95.7
Dry Density, pcf	47.0	47.3	47.0
Saturation, %	98.8	100.5	99.9
Void Ratio	2.5960	2.5739	2.5970
Diameter, in.	1.42	1.44	1.41
Height, in.	3.02	2.98	3.03
At Test			
Water Content, %	94.6	95.4	95.7
Dry Density, pcf	47.0	47.3	47.0
Saturation, %	98.8	100.5	99.9
Void Ratio	2.5960	2.5739	2.5970
Diameter, in.	1.42	1.44	1.41
Height, in.	3.02	2.98	3.03
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	4.98	16.58	27.91
Fail. Stress, psf	274	231	303
Strain, %	9.3	10.6	6.1
Ult. Stress, psf	269	231	283
Strain, %	14.6	14.1	13.6
σ_1 Failure, psf	991	2618	4322
σ_3 Failure, psf	717	2388	4019

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: VSO GR CH4

LL= 94

PL= 28

PI= 66

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 15

Sample Number: NA

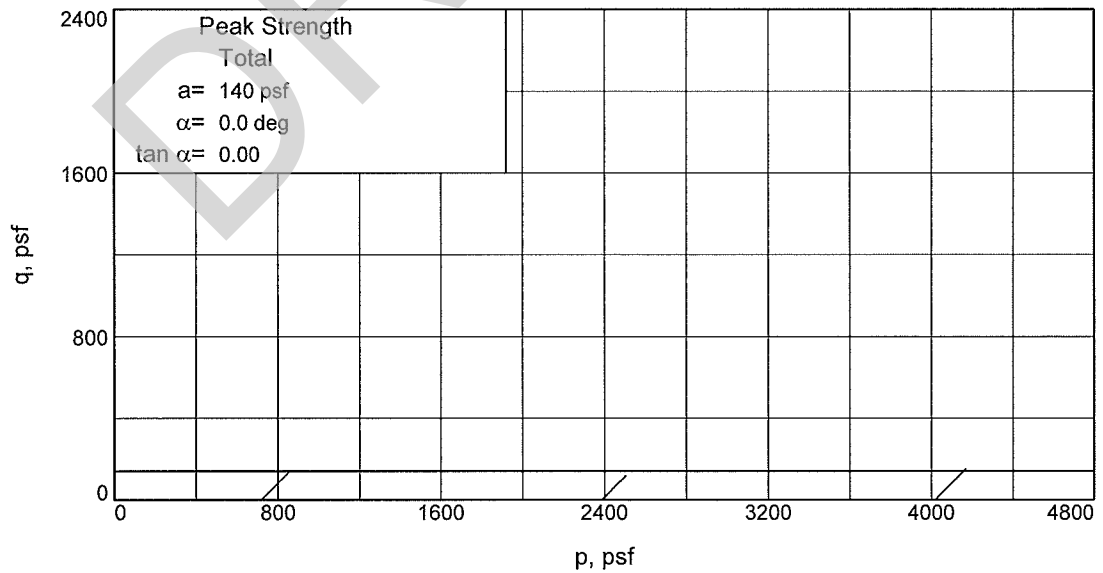
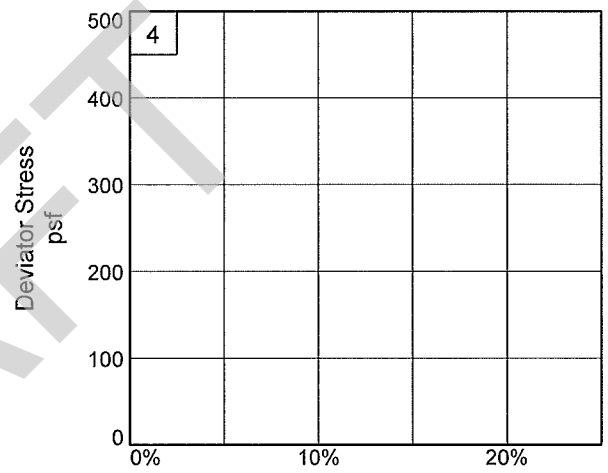
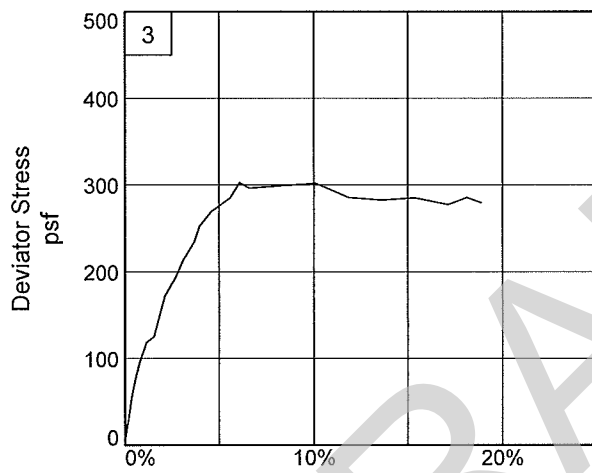
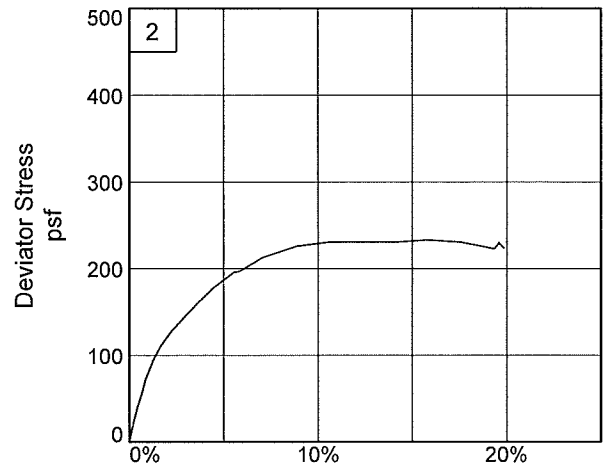
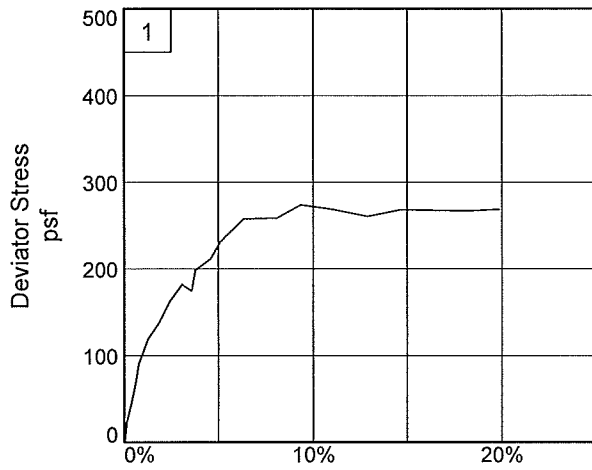
Proj. No.: 04.55124092

Date Sampled: 6/11/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 15

Sample Number: NA

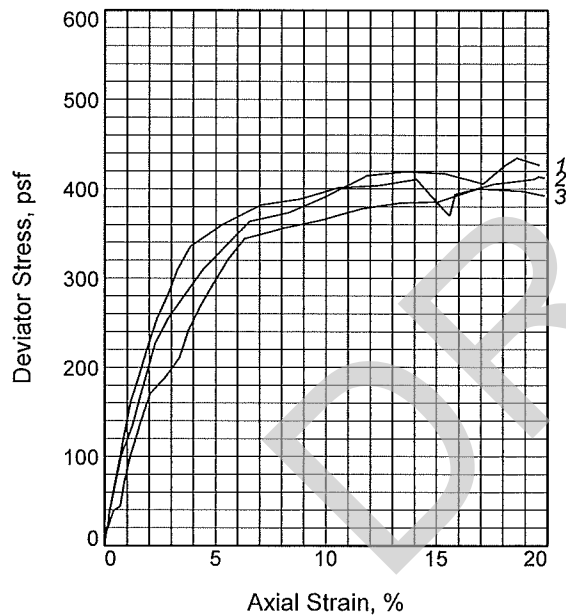
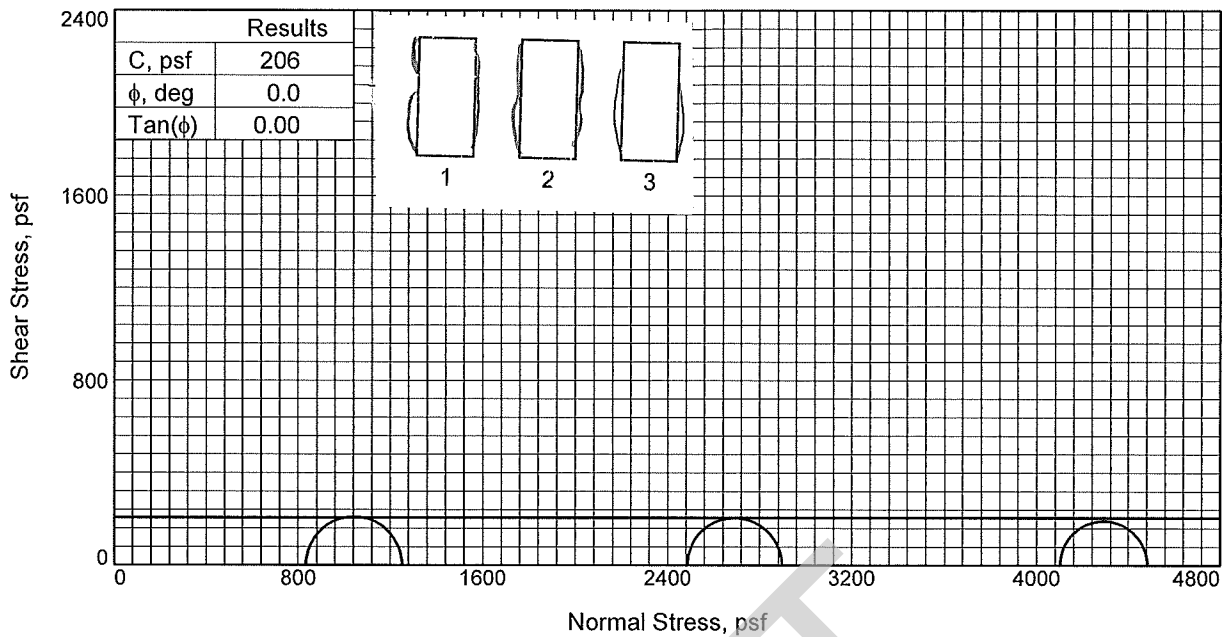
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: PN/JSA

Checked By: KA
"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	50.9	51.0	45.2
Dry Density, pcf	70.9	71.6	73.6
Saturation, %	100.3	102.2	95.1
Void Ratio	1.3598	1.3369	1.2741
Diameter, in.	1.40	1.40	1.43
Height, in.	3.02	3.06	3.02
At Test			
Water Content, %	50.9	51.0	45.2
Dry Density, pcf	70.9	71.6	73.6
Saturation, %	100.3	102.2	95.1
Void Ratio	1.3598	1.3369	1.2741
Diameter, in.	1.40	1.40	1.43
Height, in.	3.02	3.06	3.02
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	5.78	17.26	28.47
Fail. Stress, psf	420	411	384
Strain, %	13.6	14.1	13.3
Ult. Stress, psf	420	411	384
Strain, %	13.6	14.1	13.3
σ_1 Failure, psf	1252	2896	4484
σ_3 Failure, psf	832	2485	4100

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: VSO GR CH2 W/ LNS ML

LL= 54 PL= 19 PI= 35

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A **Depth:** 17

Sample Number: NA

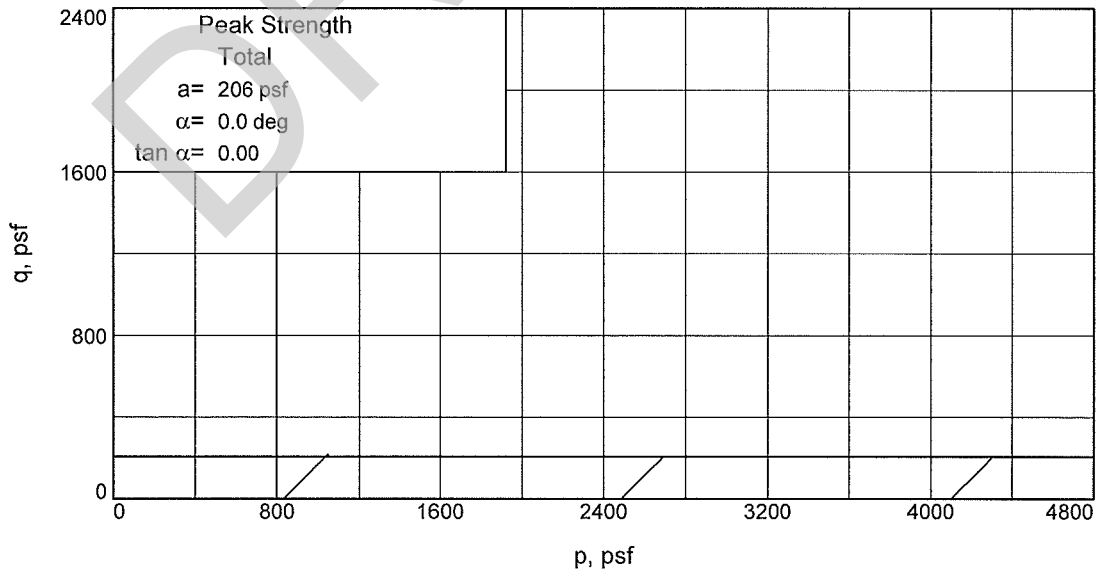
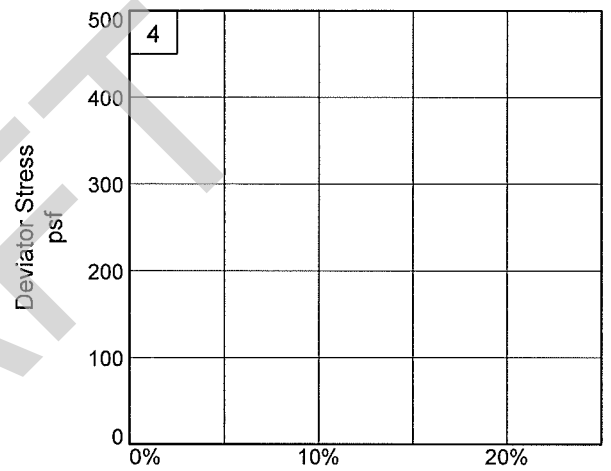
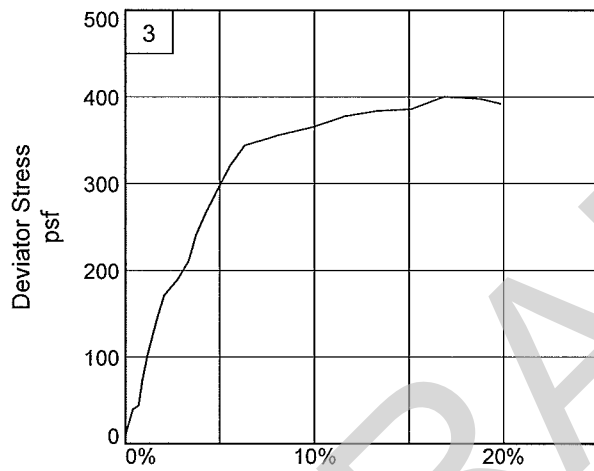
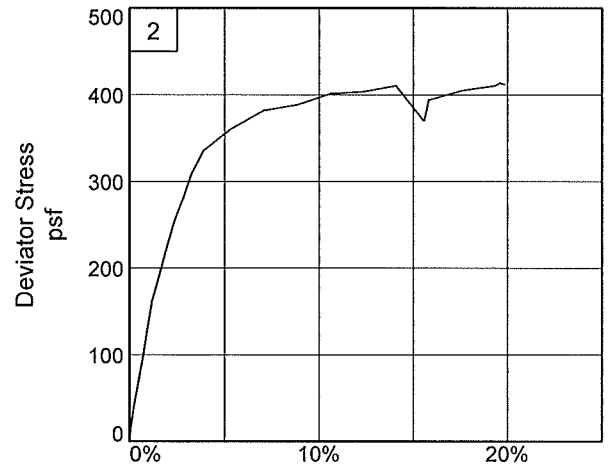
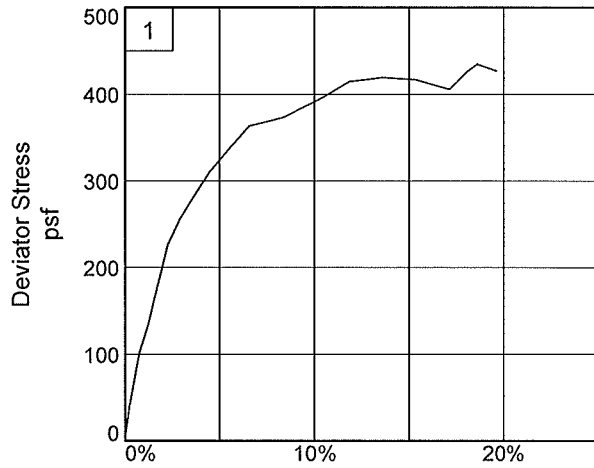
Proj. No.: 04.55124092

Date Sampled: 6/11/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 17

Sample Number: NA

Project No.: 04.55124092

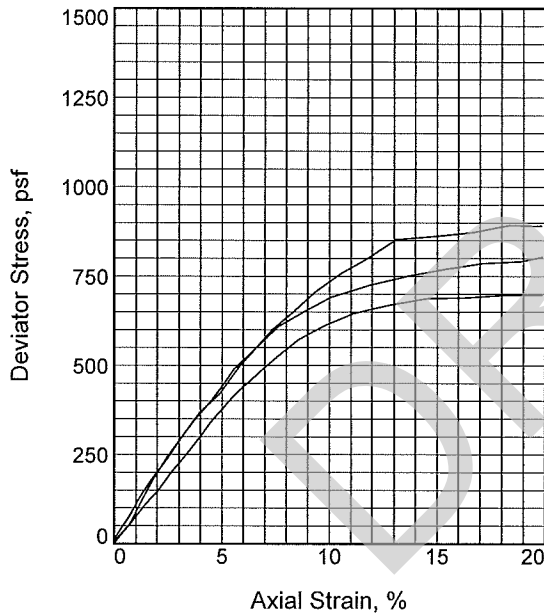
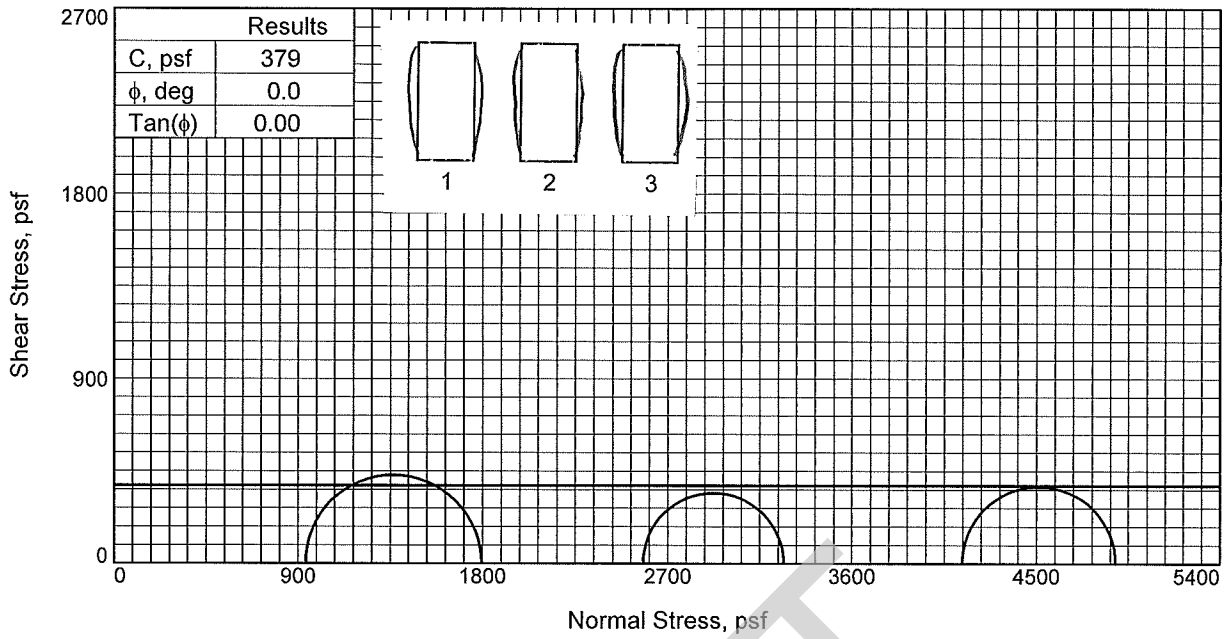
Figure _____

Fugro Consultants, Inc.

Tested By: PN/JSA

Confidential Information, Proprietary & Confidential Work Product

Checked By: KA



Sample No.	1	2	3
Initial			
Water Content, %	38.8	39.8	39.2
Dry Density, pcf	81.4	82.5	82.3
Saturation, %	98.6	103.7	101.7
Void Ratio	1.0552	1.0281	1.0323
Diameter, in.	1.42	1.39	1.40
Height, in.	3.04	2.98	2.95
At Test			
Water Content, %	38.8	39.8	39.2
Dry Density, pcf	81.4	82.5	82.3
Saturation, %	98.6	103.7	101.7
Void Ratio	1.0552	1.0281	1.0323
Diameter, in.	1.42	1.39	1.40
Height, in.	3.04	2.98	2.95
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	6.49	17.91	28.72
Fail. Stress, psf	862	688	750
Strain, %	14.8	14.6	13.6
Ult. Stress, psf	862	688	750
Strain, %	14.8	14.6	13.6
σ_1 Failure, psf	1796	3267	4886
σ_3 Failure, psf	935	2579	4136

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO GR CL4

LL= 41 PL= 23 PI= 18

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A **Depth:** 19

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/12/13

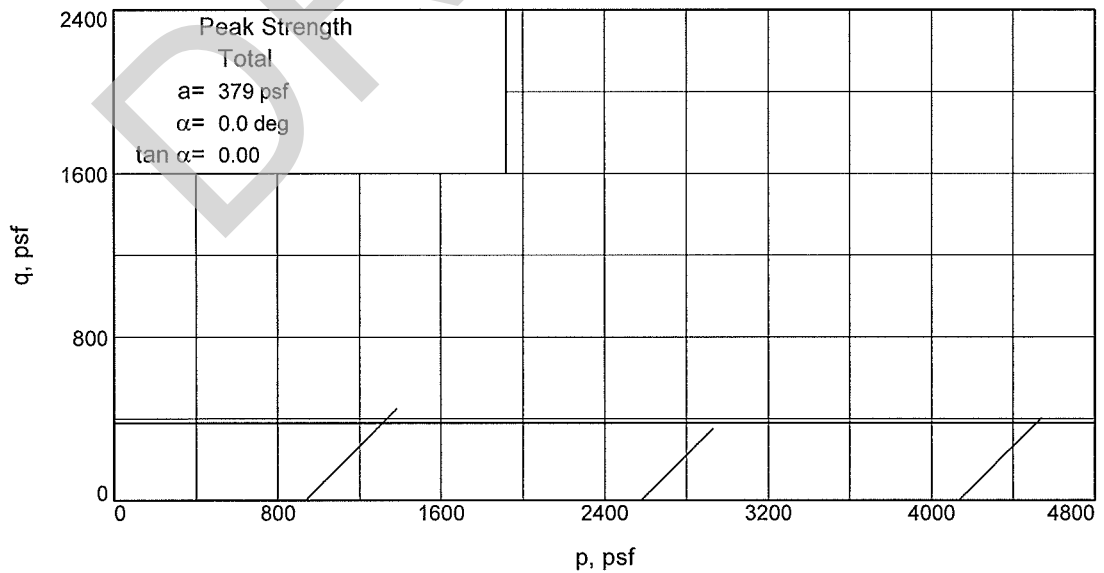
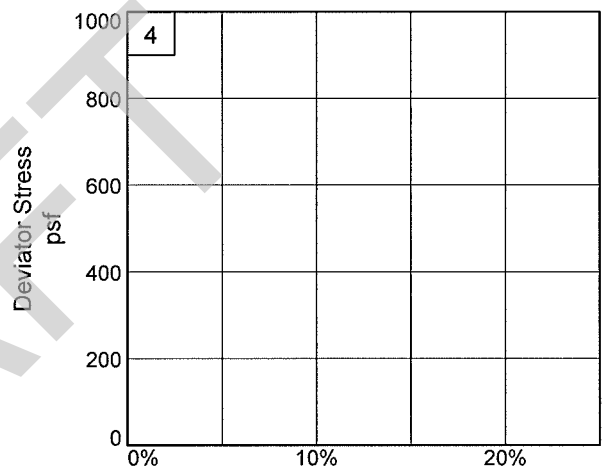
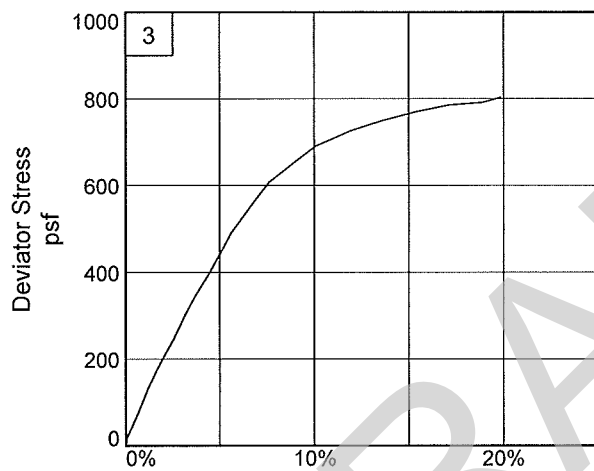
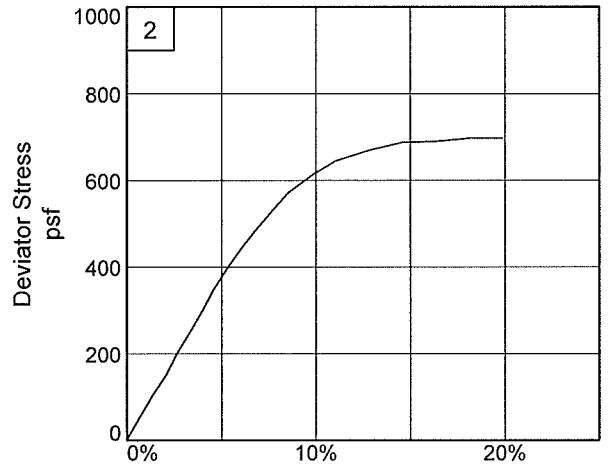
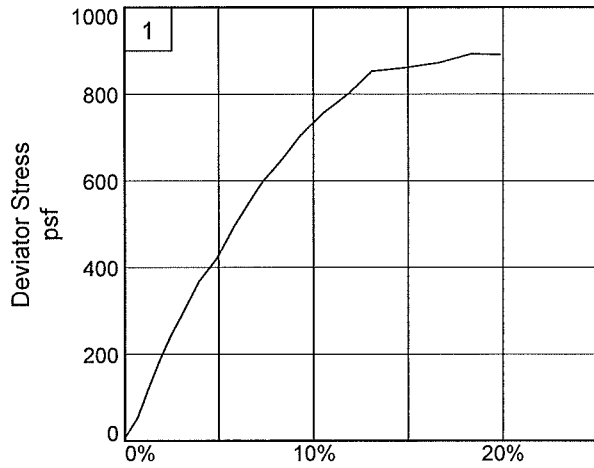
TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA

Tested By: PN/IK

Checked By: KA
 "Confidential Information, Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

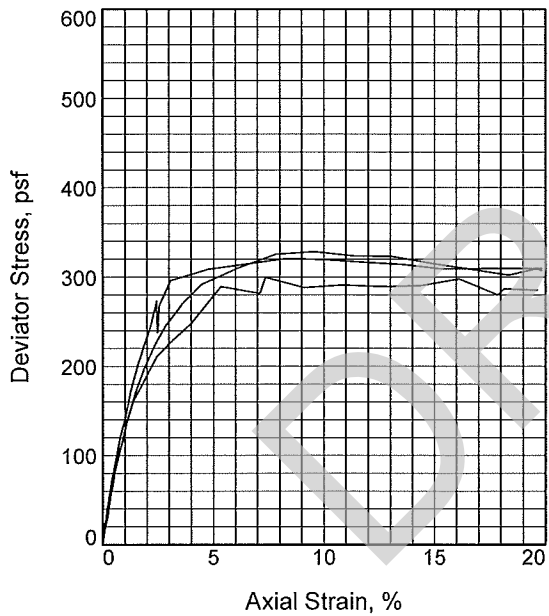
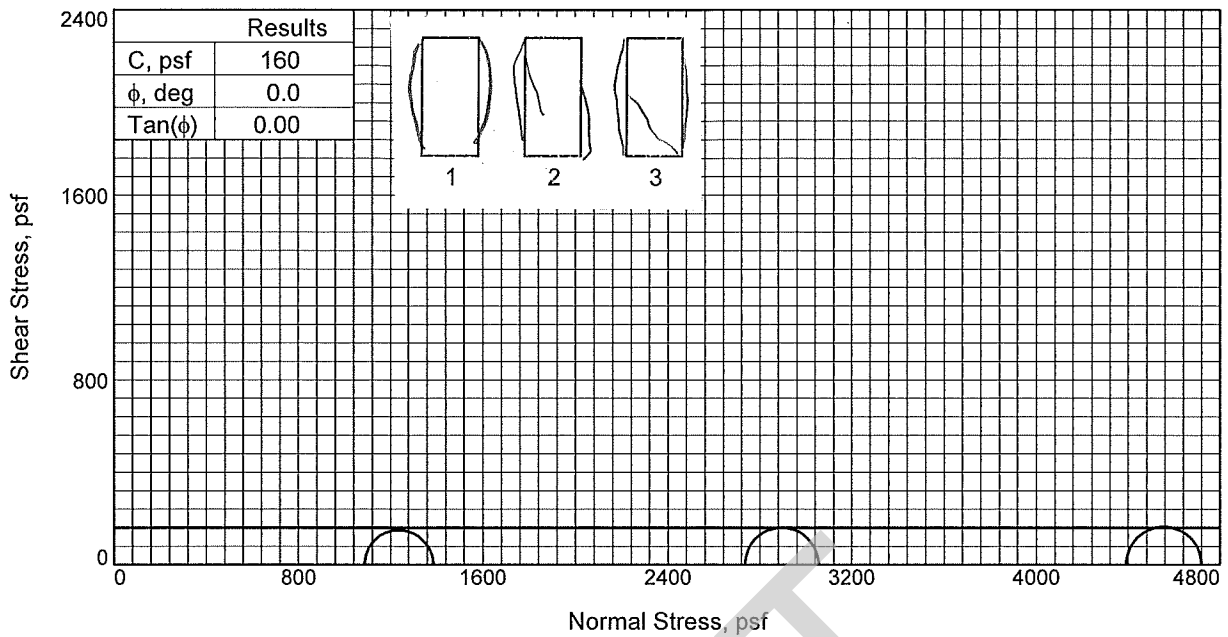
Depth: 19

Sample Number: NA

Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.



Sample No.	1	2	3	
Initial	Water Content, %	80.5	86.7	81.9
	Dry Density, pcf	52.7	50.9	52.5
	Saturation, %	98.6	101.2	99.9
	Void Ratio	2.2117	2.3219	2.2220
	Diameter, in.	1.40	1.40	1.41
	Height, in.	3.07	3.10	2.99
At Test	Water Content, %	80.5	86.7	81.9
	Dry Density, pcf	52.7	50.9	52.5
	Saturation, %	98.6	101.2	99.9
	Void Ratio	2.2117	2.3219	2.2220
	Diameter, in.	1.40	1.40	1.41
	Height, in.	3.07	3.10	2.99
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	7.54	18.99	30.49	
Fail. Stress, psf	300	321	329	
Strain, %	7.3	8.3	9.6	
Ult. Stress, psf	288	314	316	
Strain, %	9.1	13.6	14.8	
σ_1 Failure, psf	1386	3055	4719	
σ_3 Failure, psf	1086	2735	4391	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: VSO GR CH4

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 22

Sample Number: NA

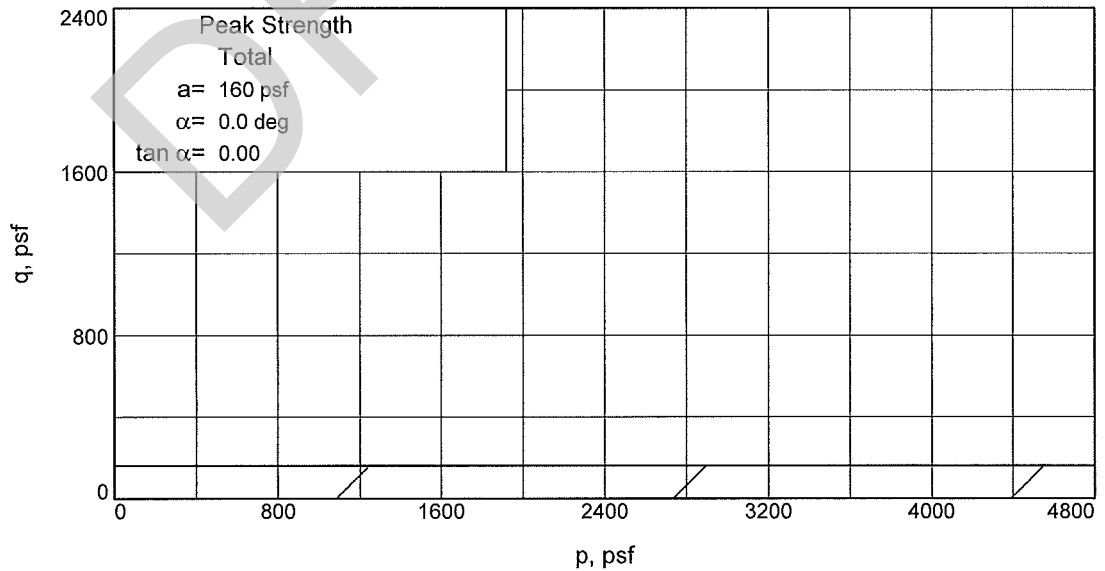
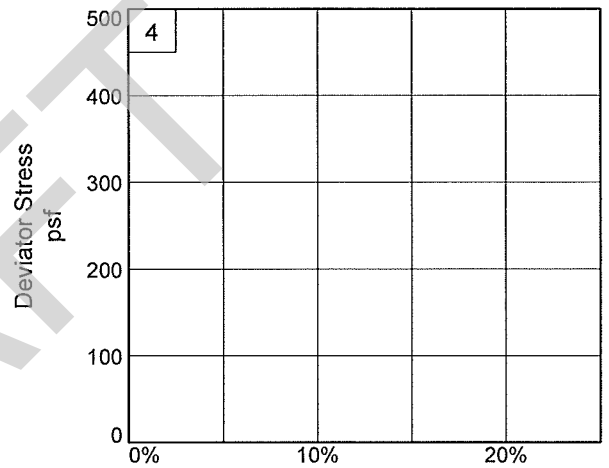
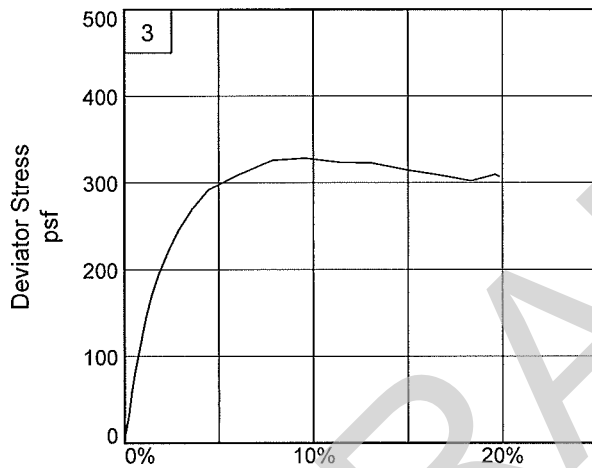
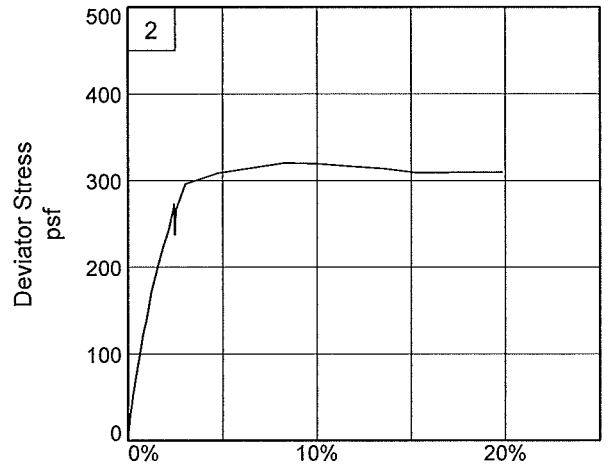
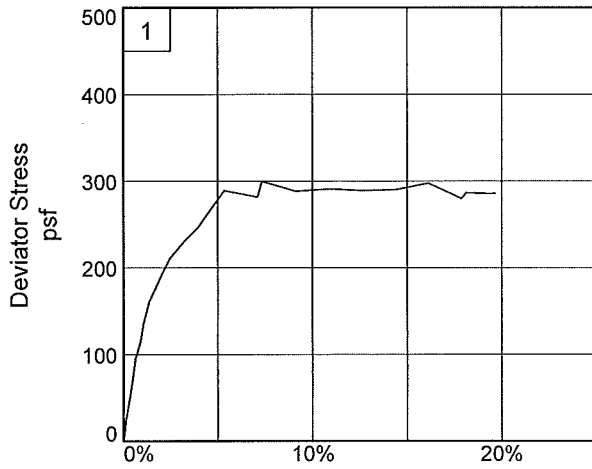
Proj. No.: 04.55124092

Date Sampled: 6/12/13

TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

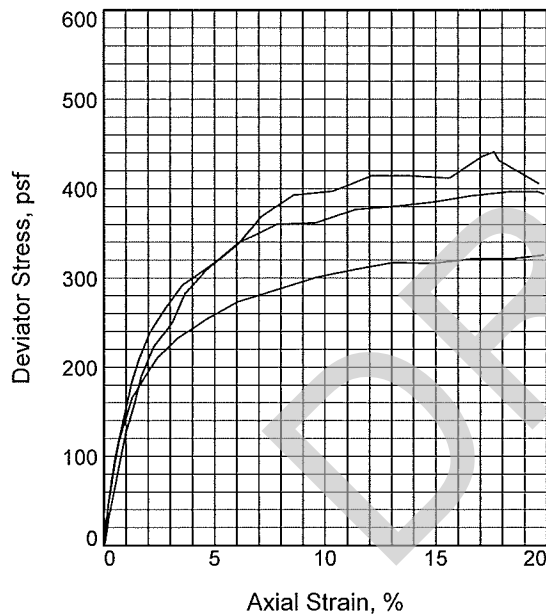
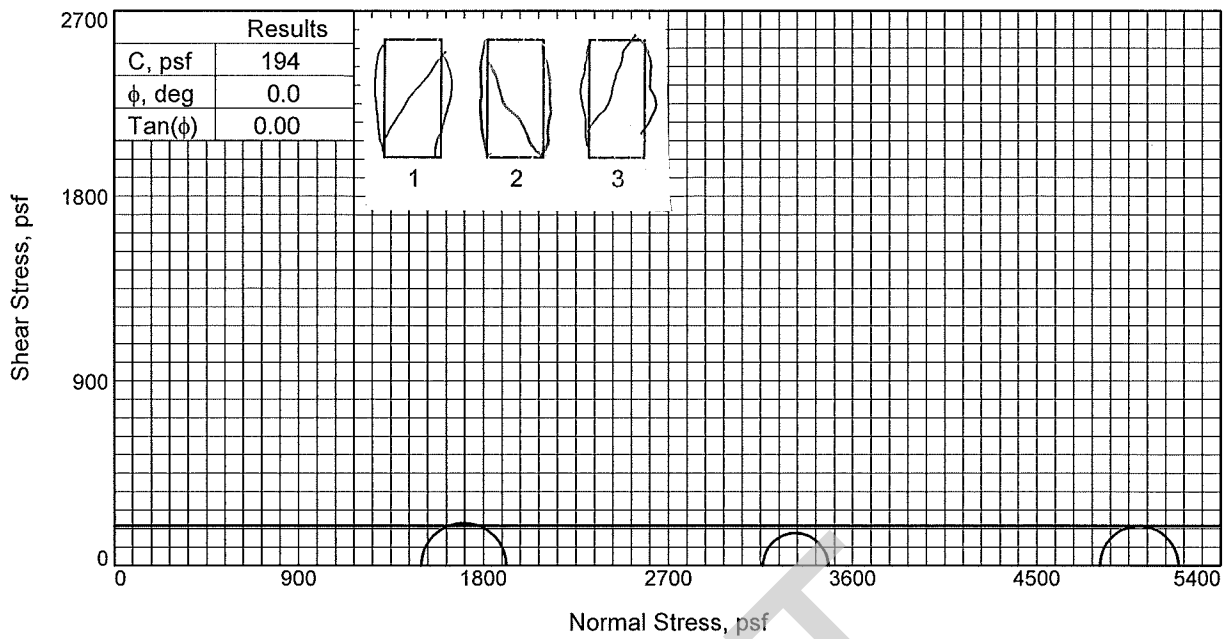
Depth: 22

Sample Number: NA

Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.



Sample No.	1	2	3	
Initial	Water Content, %	76.3	79.8	75.2
	Dry Density, pcf	55.3	52.3	55.3
	Saturation, %	100.6	96.7	99.1
	Void Ratio	2.0566	2.2364	2.0567
	Diameter, in.	1.40	1.41	1.40
	Height, in.	3.00	3.01	3.01
At Test	Water Content, %	76.3	79.8	75.2
	Dry Density, pcf	55.3	52.3	55.3
	Saturation, %	100.6	96.7	99.1
	Void Ratio	2.0566	2.2364	2.0567
	Diameter, in.	1.40	1.41	1.40
	Height, in.	3.00	3.01	3.01
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	10.40	21.96	33.39	
Fail. Stress, psf		415	317	385
	Strain, %	13.9	13.1	14.8
Ult. Stress, psf		415	316	385
	Strain, %	13.9	14.8	14.8
σ_1 Failure, psf		1912	3480	5193
σ_3 Failure, psf		1498	3162	4808

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: VSO GR CH4 W/ O

LL= 88 PL= 27 PI= 61

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A **Depth:** 31

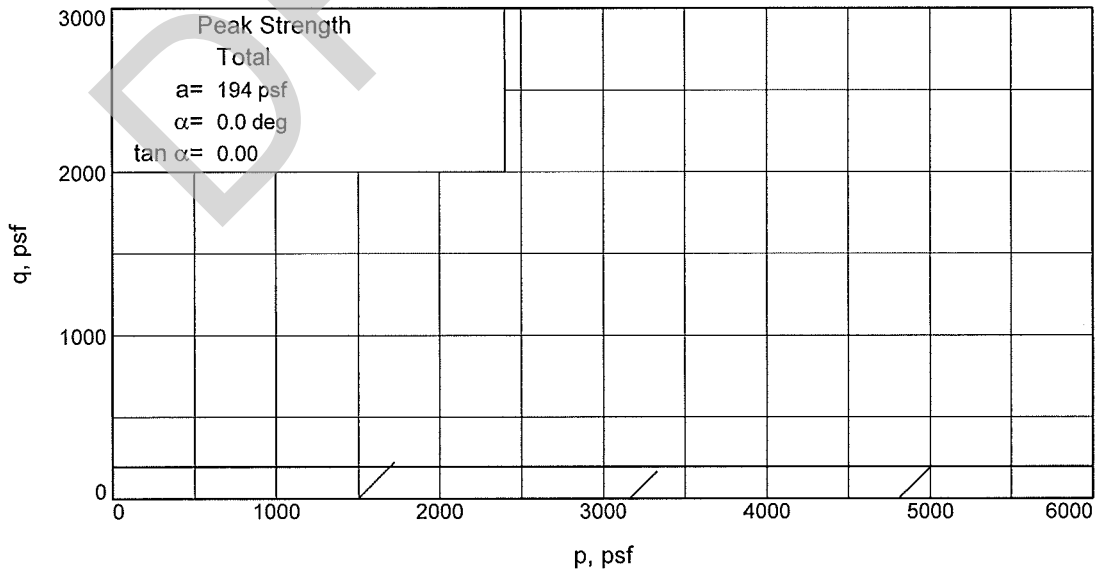
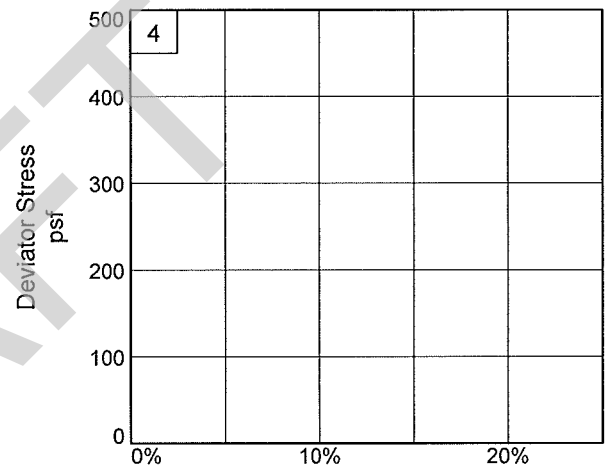
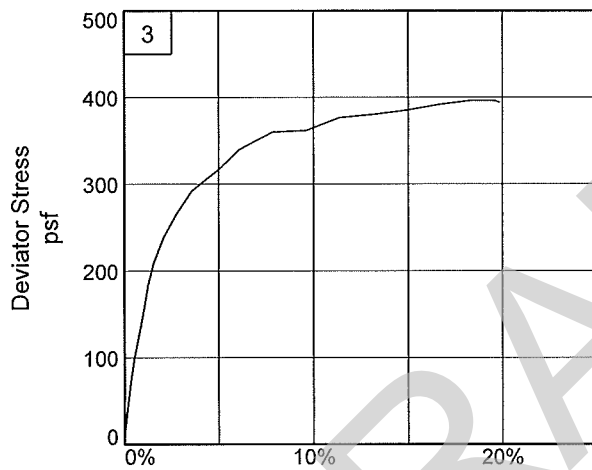
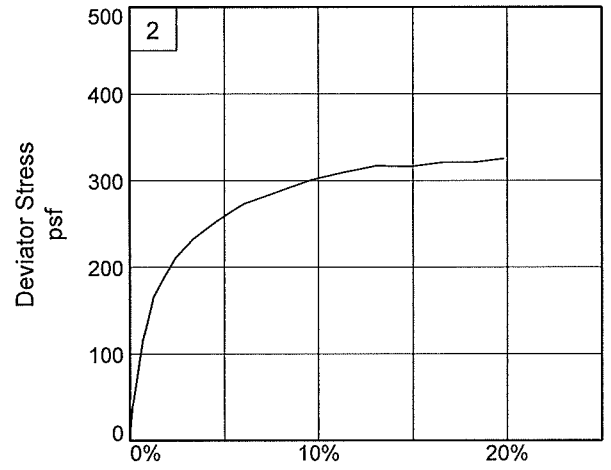
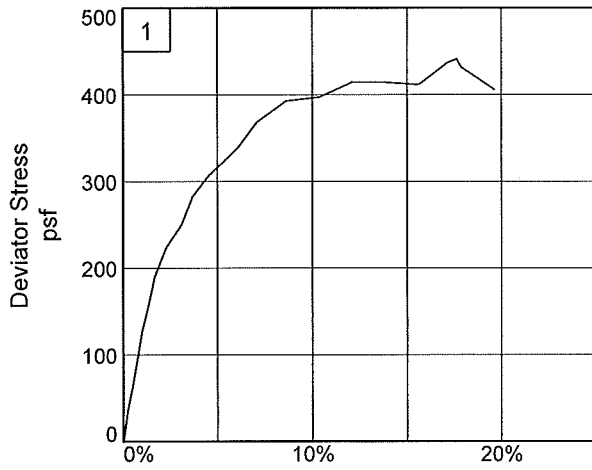
Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/12/13

TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.
Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

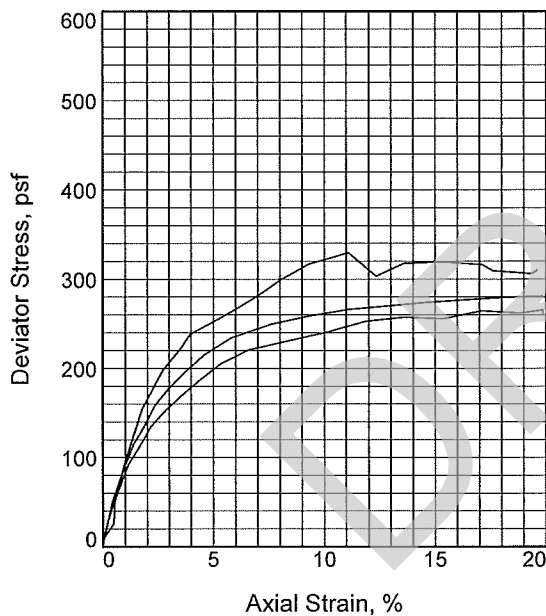
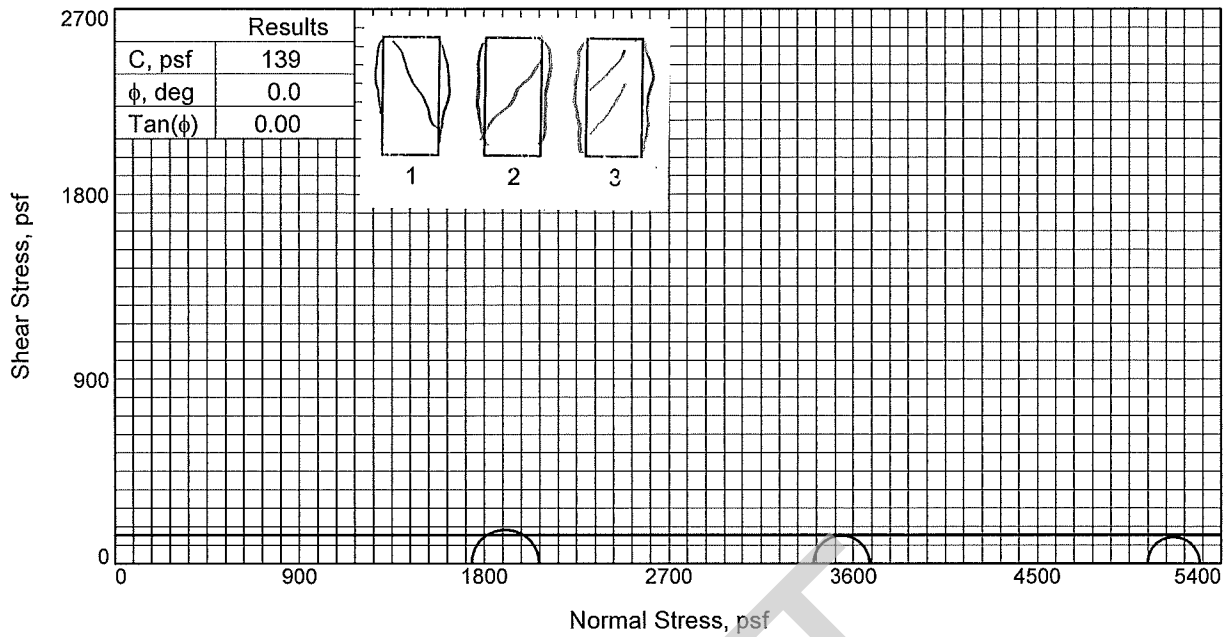
Depth: 31

Sample Number: NA

Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.



Sample No.	1	2	3
Initial			
Water Content, %	76.9	77.8	79.3
Dry Density, pcf	54.8	54.2	54.0
Saturation, %	100.0	99.5	100.7
Void Ratio	2.0852	2.1191	2.1320
Diameter, in.	1.40	1.41	1.39
Height, in.	2.98	3.04	3.05
At Test			
Water Content, %	76.9	77.8	79.3
Dry Density, pcf	54.8	54.2	54.0
Saturation, %	100.0	99.5	100.7
Void Ratio	2.0852	2.1191	2.1320
Diameter, in.	1.40	1.41	1.39
Height, in.	2.98	3.04	3.05
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	12.07	23.65	34.98
Fail. Stress, psf	330	274	257
Strain, %	11.1	14.6	13.6
Ult. Stress, psf	303	274	257
Strain, %	12.3	14.6	13.6
σ_1 Failure, psf	2068	3680	5295
σ_3 Failure, psf	1738	3406	5037

Type of Test:
Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: VSO GR CH4

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

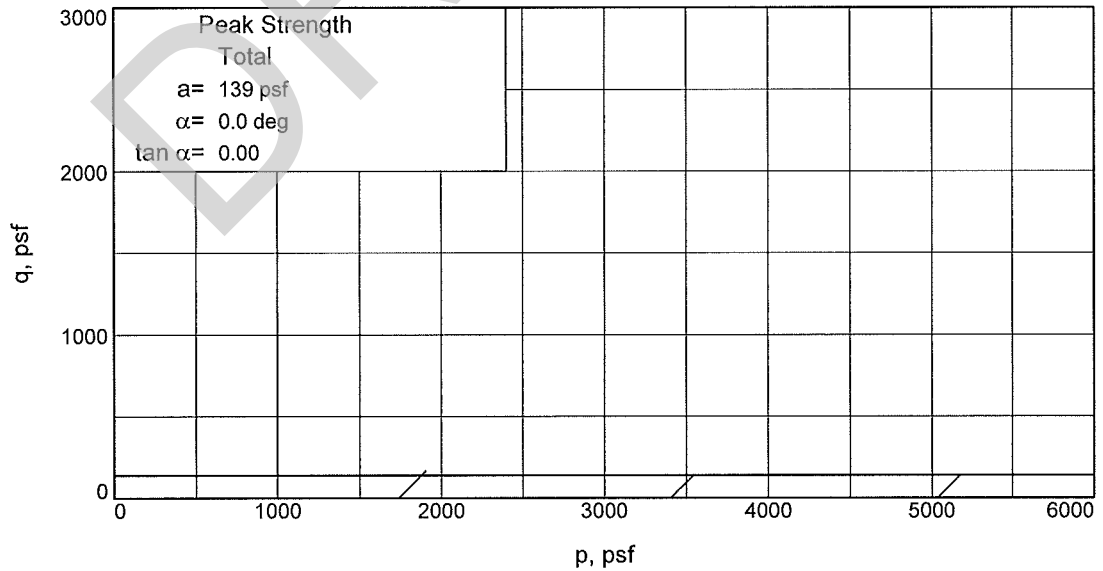
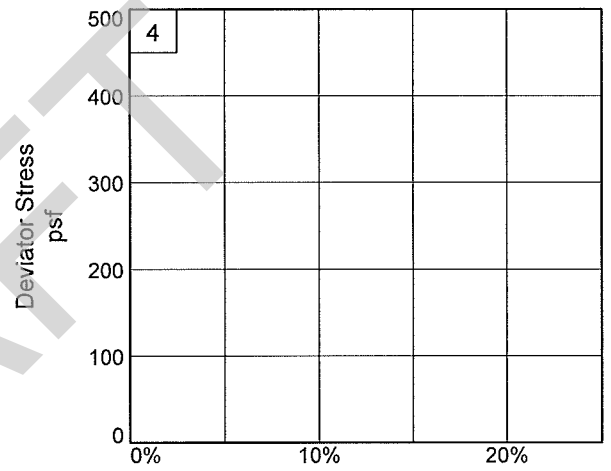
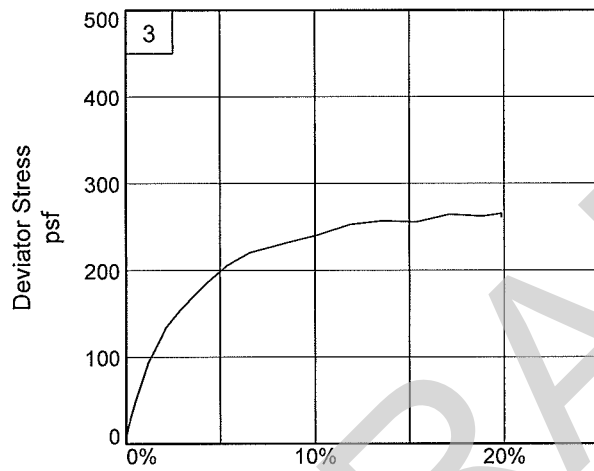
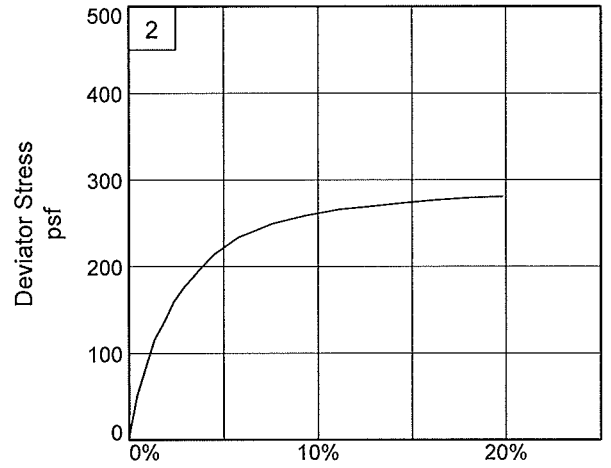
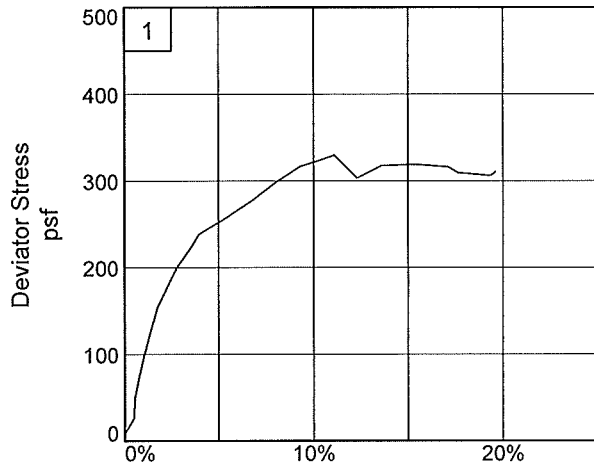
Source of Sample: NL-3A **Depth:** 36

Sample Number: NA

Proj. No.: 04.55124092 **Date Sampled:** 6/12/13

TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.
Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

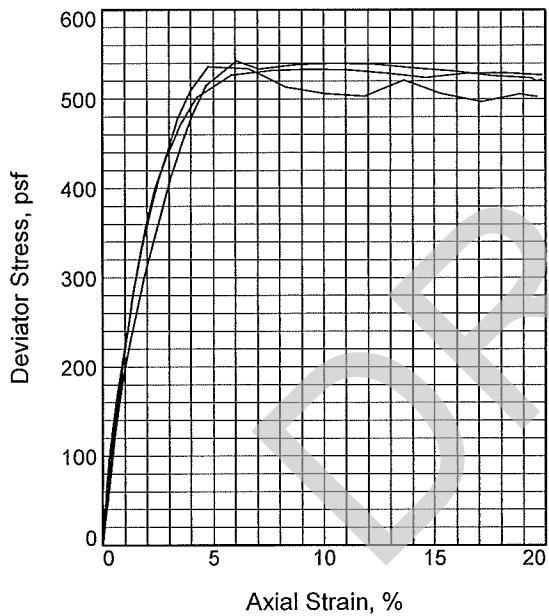
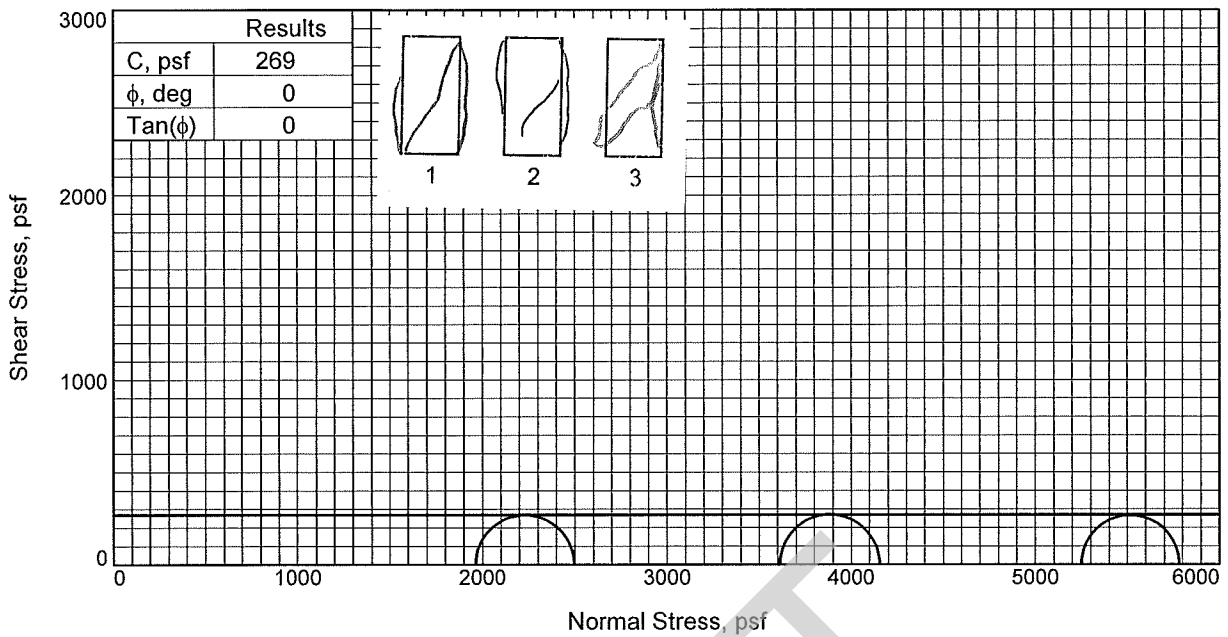
Depth: 36

Sample Number: NA

Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.



Sample No.	1	2	3	
Initial	Water Content, %	60.2	56.0	57.1
	Dry Density, pcf	64.8	67.9	66.9
	Saturation, %	101.2	101.7	101.2
	Void Ratio	1.6123	1.4929	1.5287
	Diameter, in.	1.42	1.40	1.41
	Height, in.	3.01	3.10	3.09
At Test	Water Content, %	60.2	56.0	57.1
	Dry Density, pcf	64.8	67.9	66.9
	Saturation, %	101.2	101.7	101.2
	Void Ratio	1.6123	1.4929	1.5287
	Diameter, in.	1.42	1.40	1.41
	Height, in.	3.01	3.10	3.09
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	13.62	25.08	36.45	
Fail. Stress, psf		536	543	533
	Strain, %	4.8	6.1	9.3
Ult. Stress, psf		503	534	524
	Strain, %	11.8	7.1	14.6
σ_1 Failure, psf	2498	4154	5782	
σ_3 Failure, psf	1961	3612	5249	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO GR CH4

LL= 72 PL= 22 PI= 50

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A **Depth:** 40

Sample Number: NA

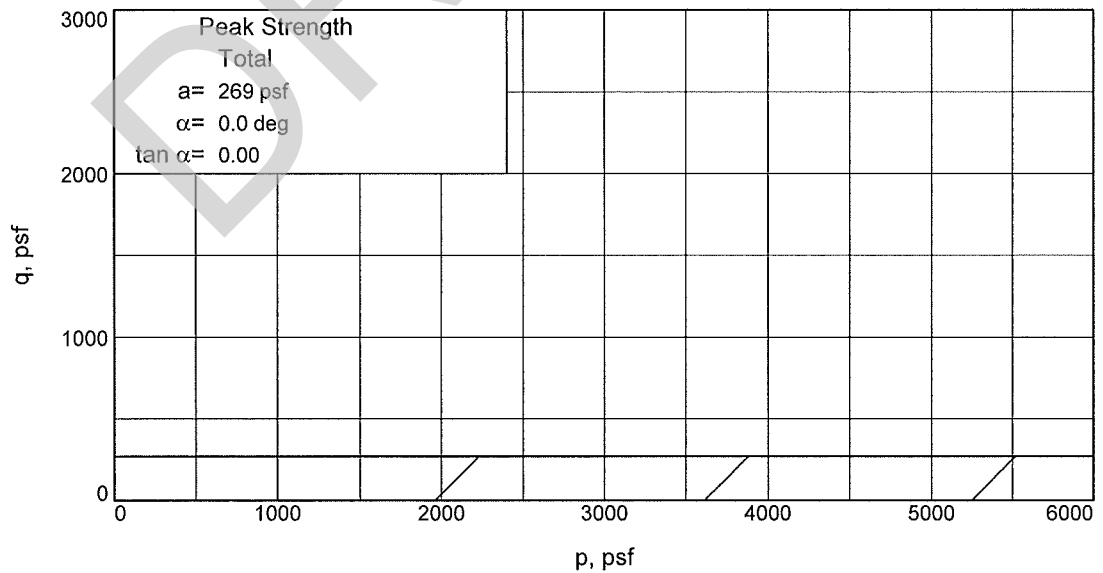
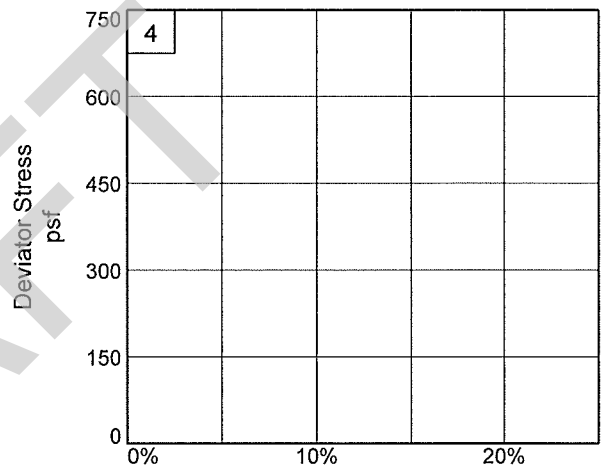
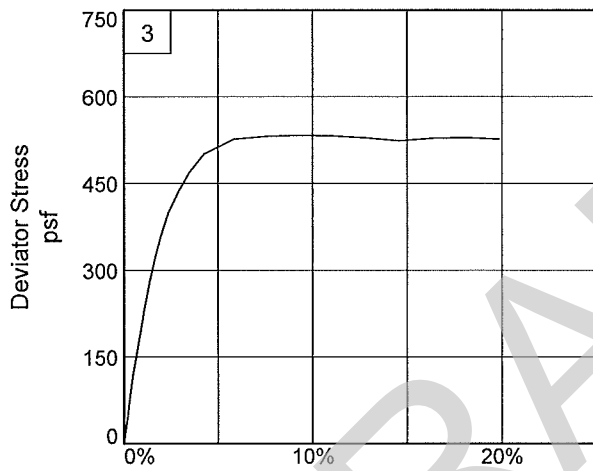
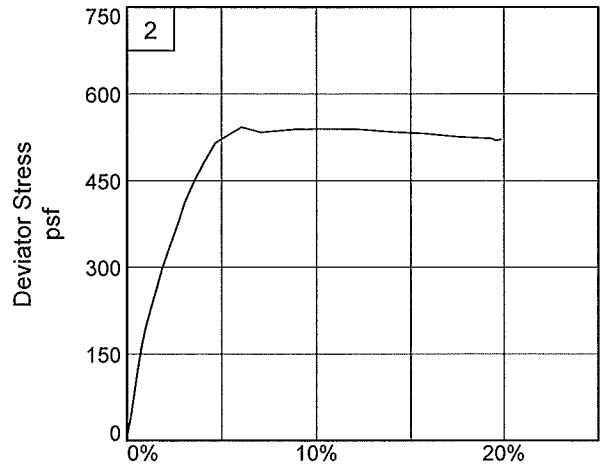
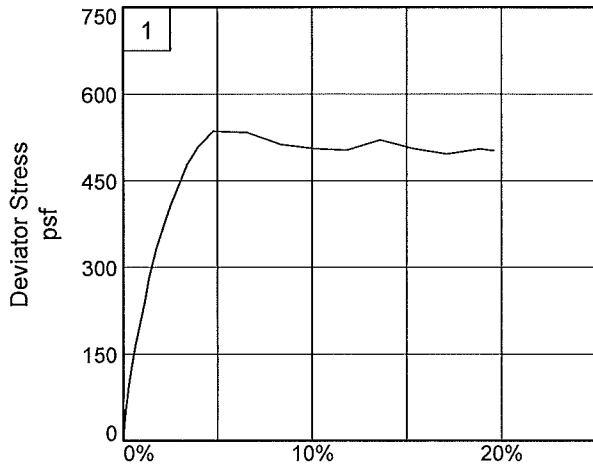
Proj. No.: 04.55124092

Date Sampled: 6/12/13

TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

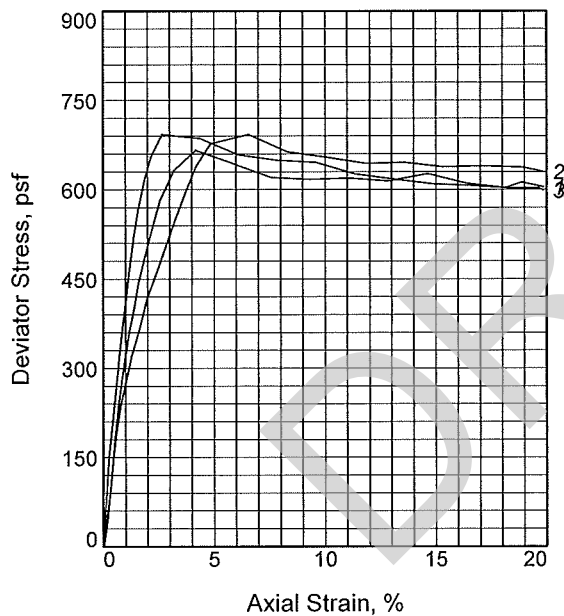
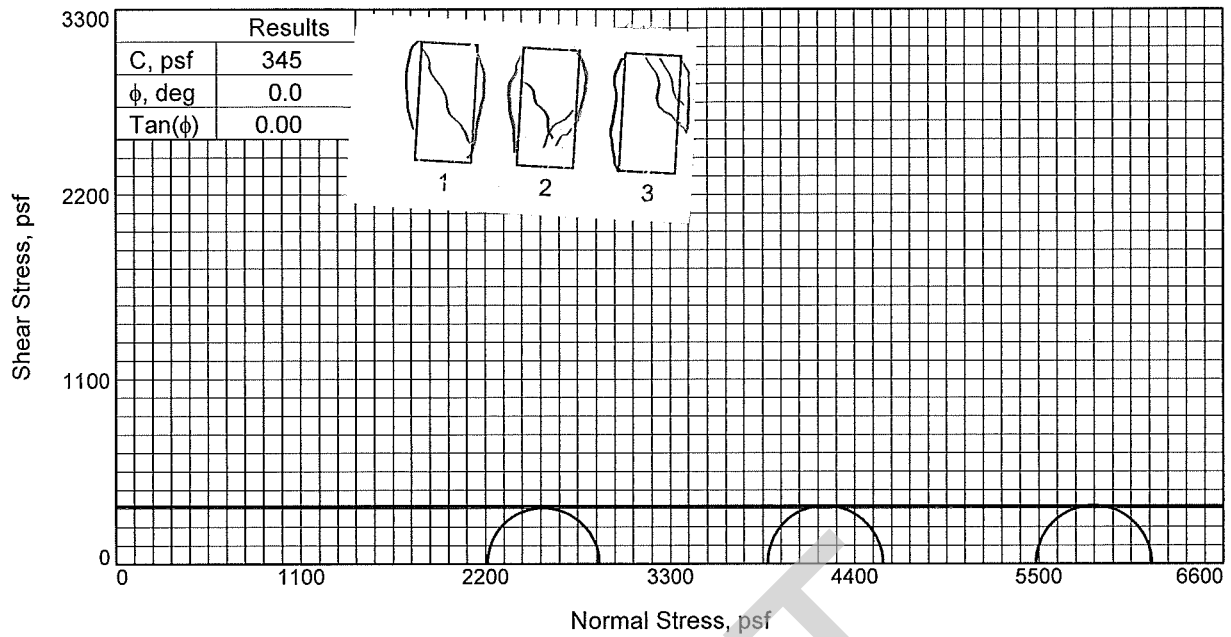
Depth: 40

Sample Number: NA

Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.



Sample No.	1	2	3
Water Content, %	70.8	65.0	69.1
Dry Density, pcf	57.5	60.7	58.4
Saturation, %	98.7	98.7	98.7
Void Ratio	1.9435	1.7850	1.8986
Diameter, in.	1.41	1.41	1.41
Height, in.	3.03	3.04	3.08
Water Content, %	70.8	65.0	69.3
Dry Density, pcf	57.5	60.7	58.4
Saturation, %	98.7	98.7	98.9
Void Ratio	1.9435	1.7850	1.8986
Diameter, in.	1.41	1.41	1.41
Height, in.	3.03	3.04	3.08
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	15.35	26.92	38.06
Fail. Stress, psf	667	693	693
Strain, %	4.2	6.6	2.7
Ult. Stress, psf	615	644	610
Strain, %	12.9	11.8	14.9
σ_1 Failure, psf	2877	4569	6173
σ_3 Failure, psf	2210	3876	5481

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO GR CH4

LL= 74

PL= 23

PI= 51

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 45

Sample Number: NA

Proj. No.: 04.55124092

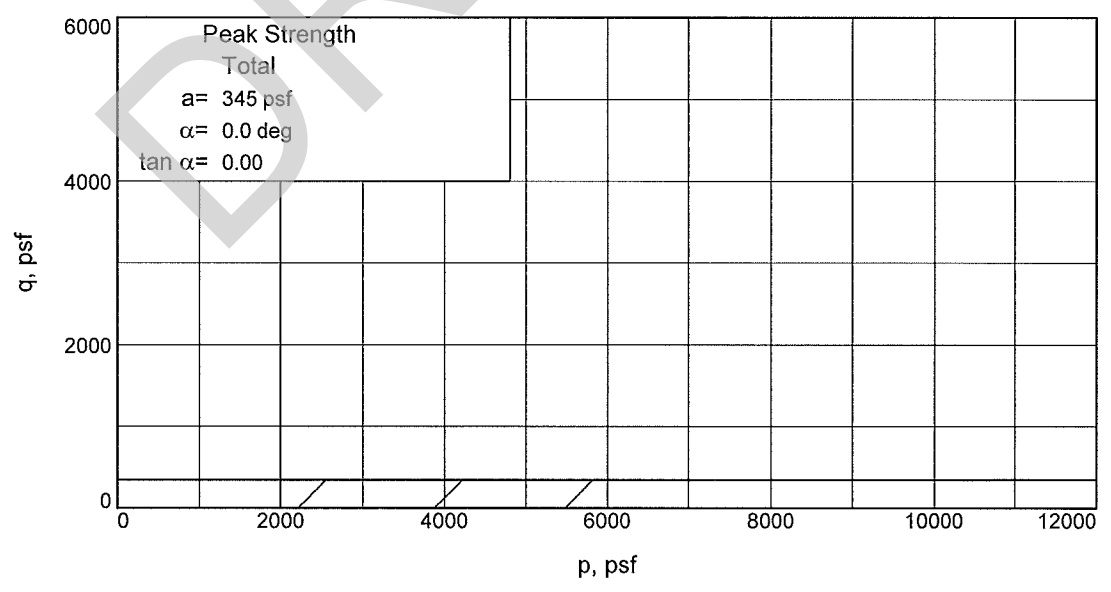
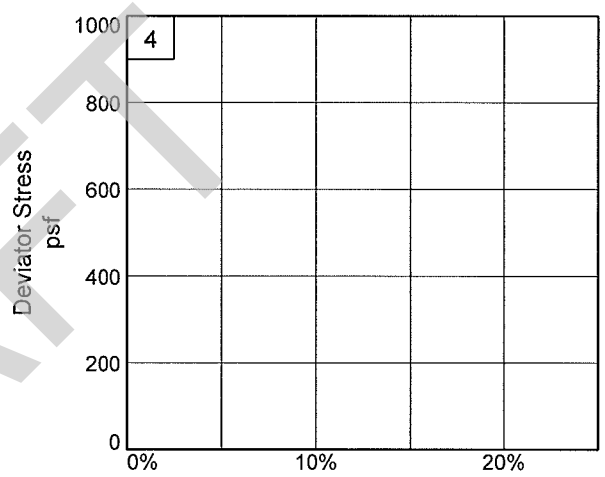
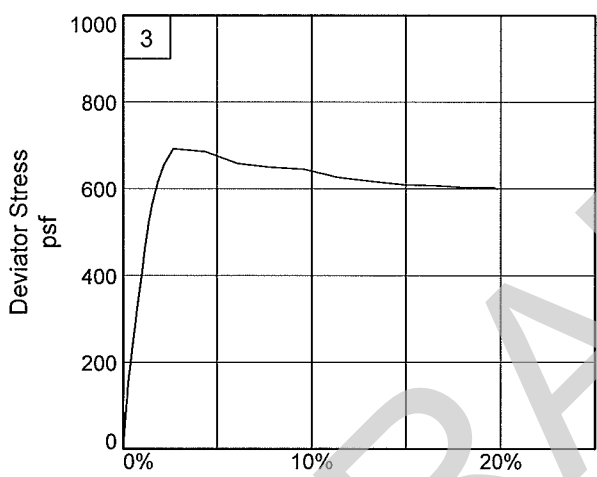
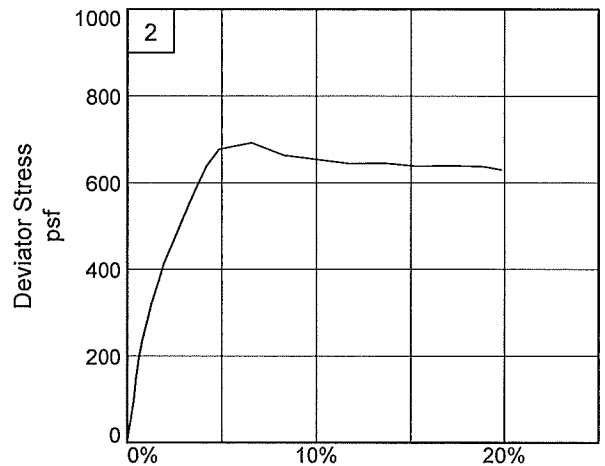
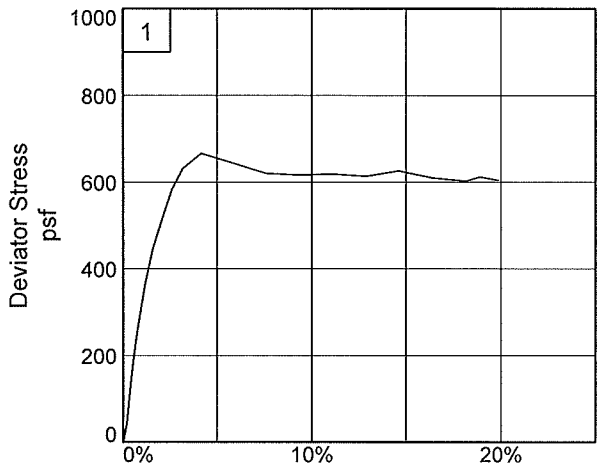
Date Sampled: 6/12/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA

Figure _____



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 45

Sample Number: NA

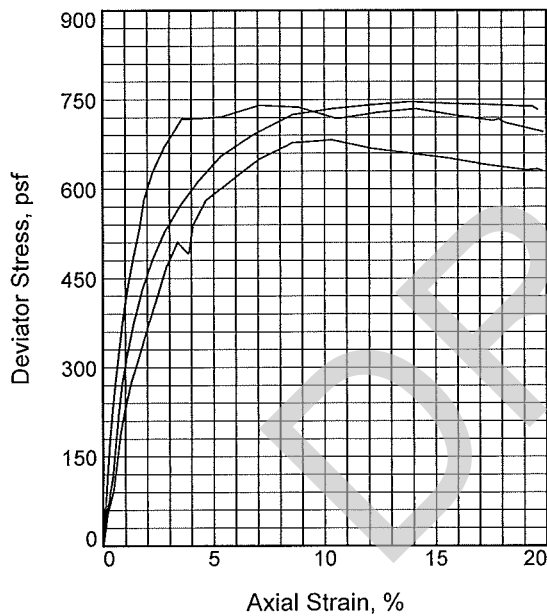
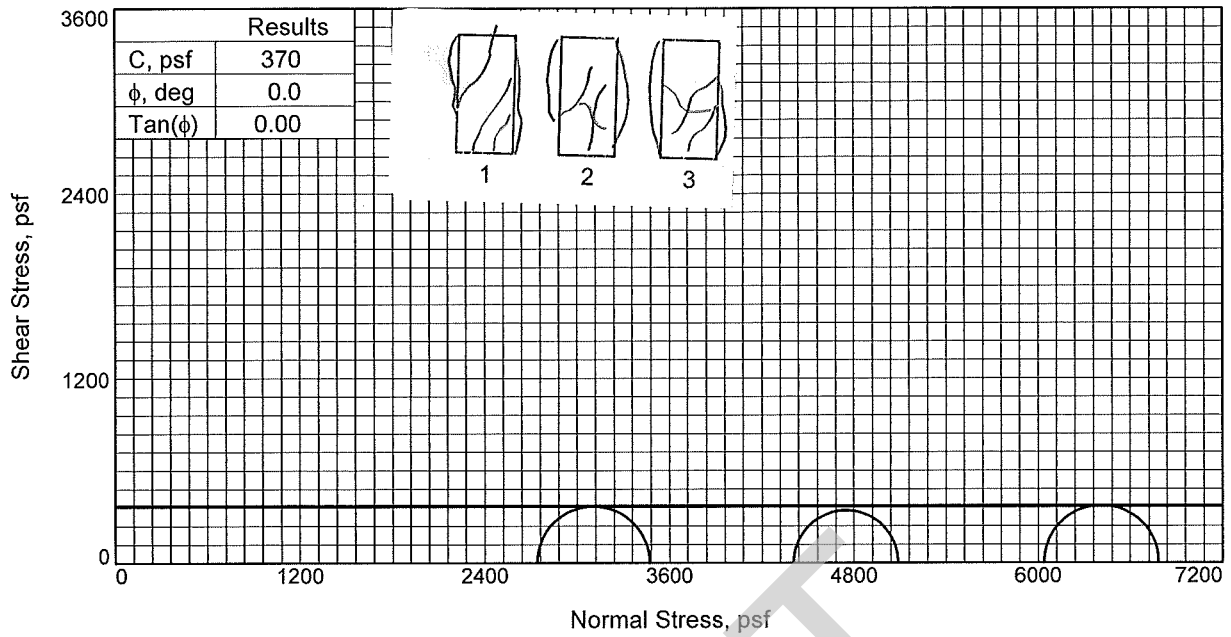
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: PN/IK

Checked By: KA
 "Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	61.9	61.2	61.6
Dry Density, pcf	63.3	62.3	63.4
Saturation, %	100.4	96.7	100.0
Void Ratio	1.6718	1.7152	1.6677
Diameter, in.	1.41	1.42	1.41
Height, in.	3.10	3.08	3.05
At Test			
Water Content, %	61.9	61.2	61.6
Dry Density, pcf	63.3	62.3	63.4
Saturation, %	100.4	96.7	100.0
Void Ratio	1.6718	1.7152	1.6677
Diameter, in.	1.41	1.42	1.41
Height, in.	3.10	3.08	3.05
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	19.01	30.60	41.93
Fail. Stress, psf	735	683	747
Strain, %	14.1	10.3	13.9
Ult. Stress, psf	735	660	747
Strain, %	14.1	13.8	13.9
σ_1 Failure, psf	3472	5089	6785
σ_3 Failure, psf	2737	4406	6038

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO GR CH4

LL= 79

PL= 24

PI= 55

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 55

Sample Number: NA

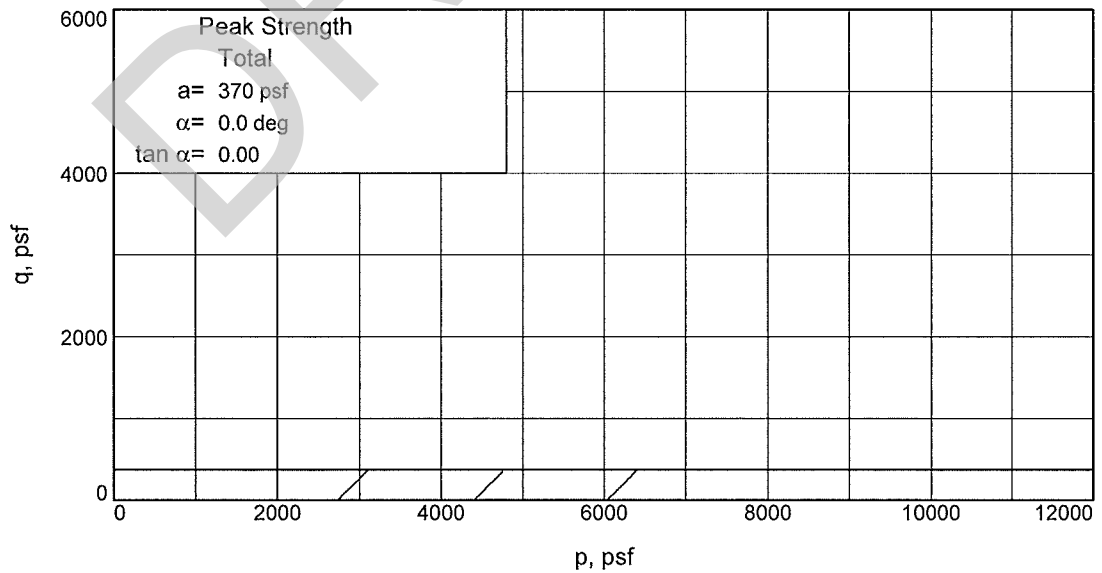
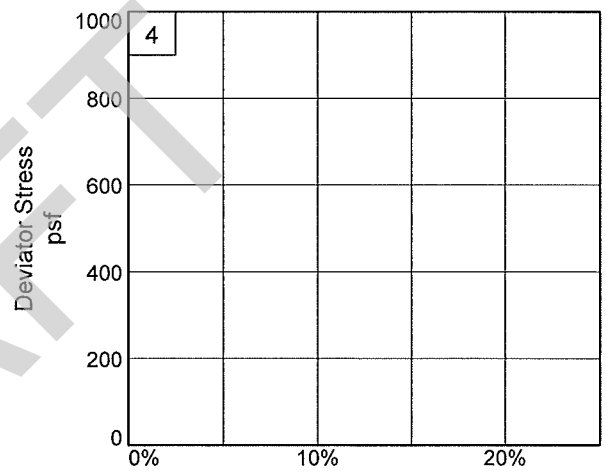
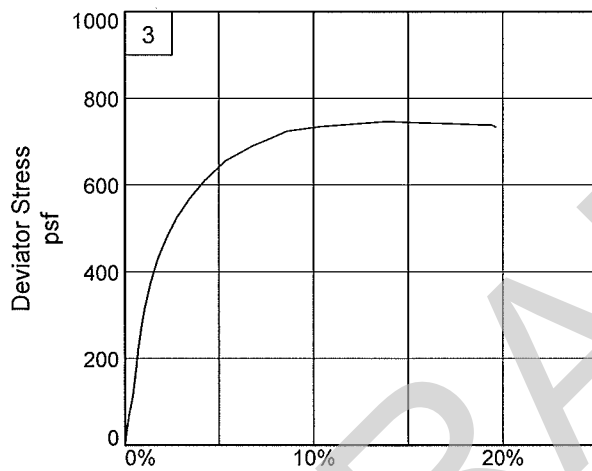
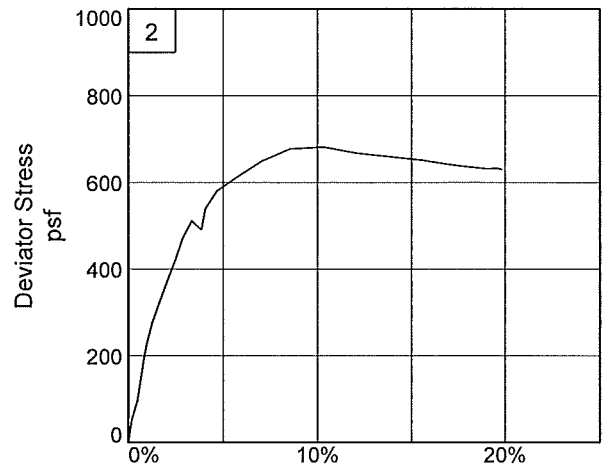
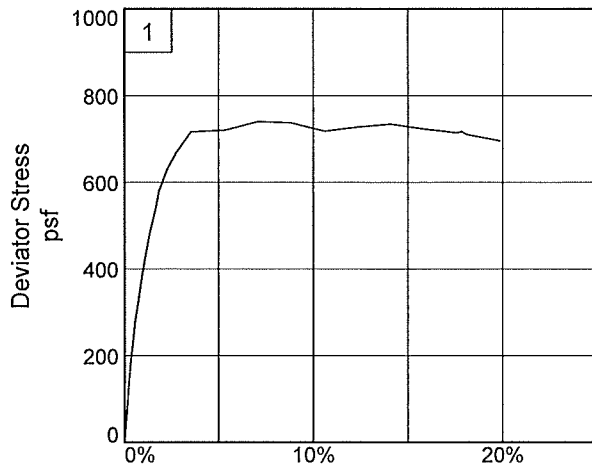
Proj. No.: 04.55124092

Date Sampled: 6/12/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

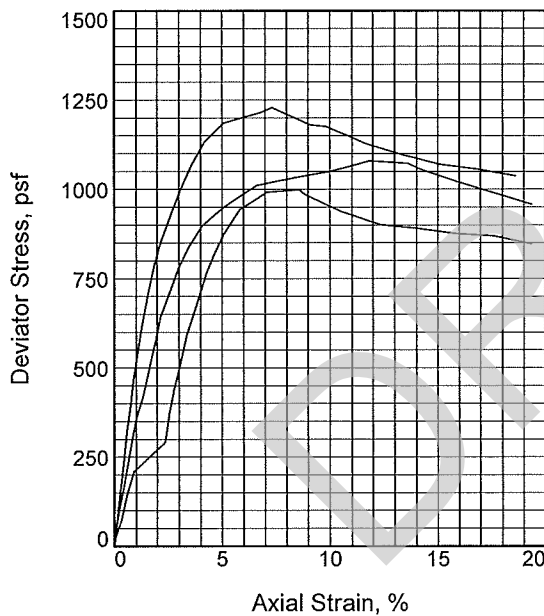
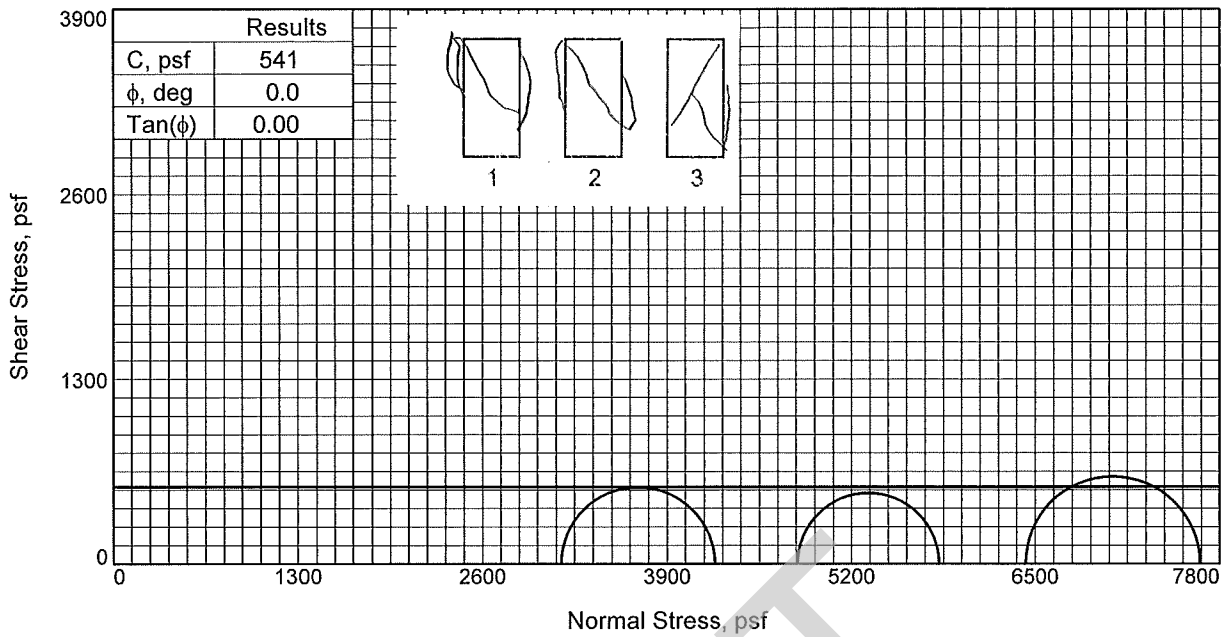
Depth: 55

Sample Number: NA

Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.



Sample No.	1	2	3
Initial			
Water Content, %	56.8	56.6	54.1
Dry Density, pcf	66.3	65.1	68.2
Saturation, %	99.2	96.1	99.0
Void Ratio	1.5524	1.5973	1.4822
Diameter, in.	1.44	1.42	1.42
Height, in.	3.06	2.96	3.05
At Test			
Water Content, %	56.8	56.6	54.1
Dry Density, pcf	66.3	65.1	68.2
Saturation, %	99.2	96.1	99.0
Void Ratio	1.5524	1.5973	1.4822
Diameter, in.	1.44	1.42	1.42
Height, in.	3.06	2.96	3.05
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	21.91	33.47	44.66
Fail. Stress, psf	1081	999	1230
Strain, %	11.8	8.6	7.3
Ult. Stress, psf	1059	891	1097
Strain, %	14.1	14.1	13.3
σ_1 Failure, psf	4236	5819	7661
σ_3 Failure, psf	3155	4820	6431

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CH4

LL= 77 PL= 28 PI= 49

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

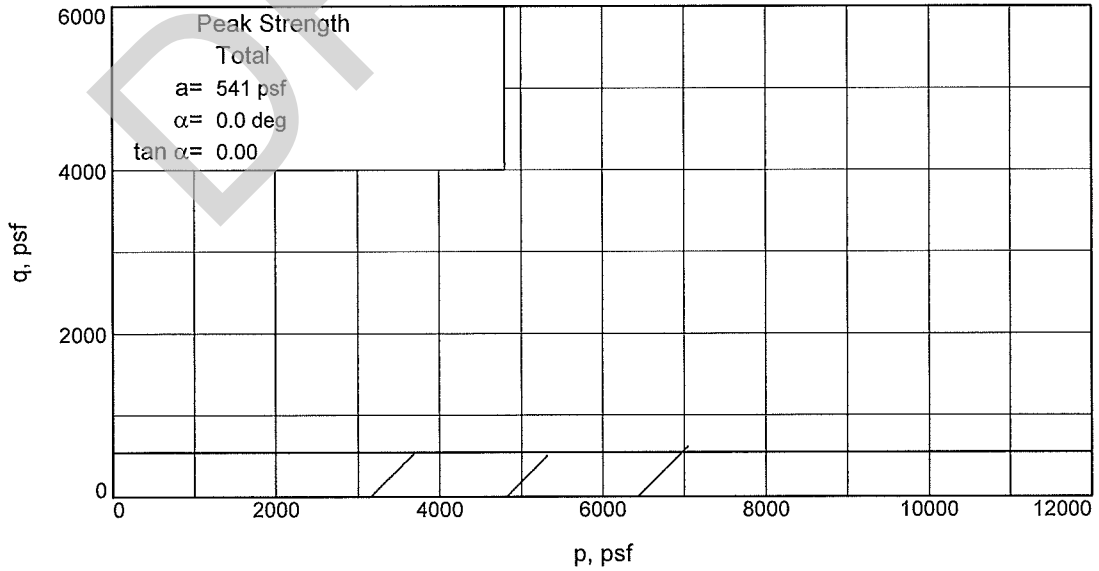
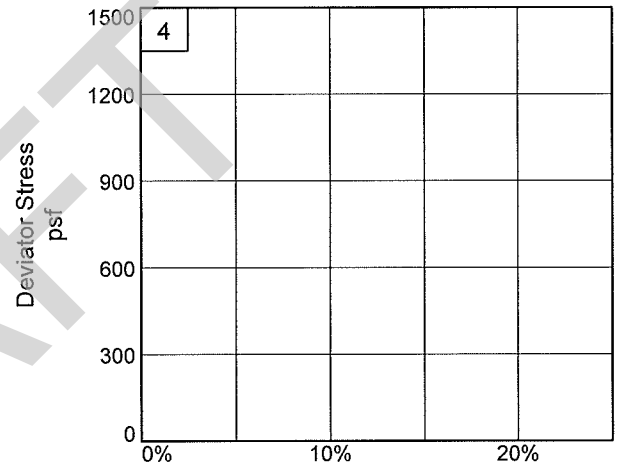
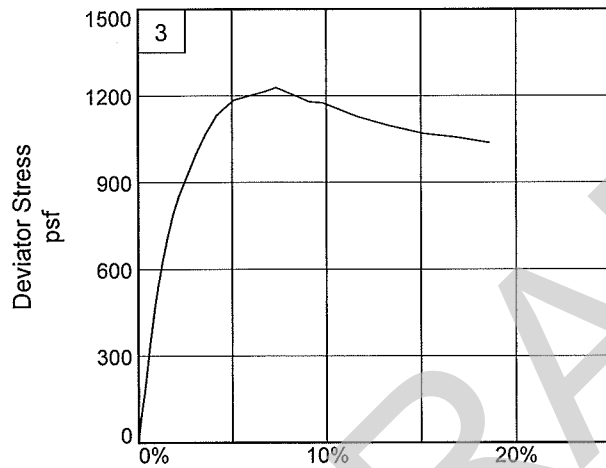
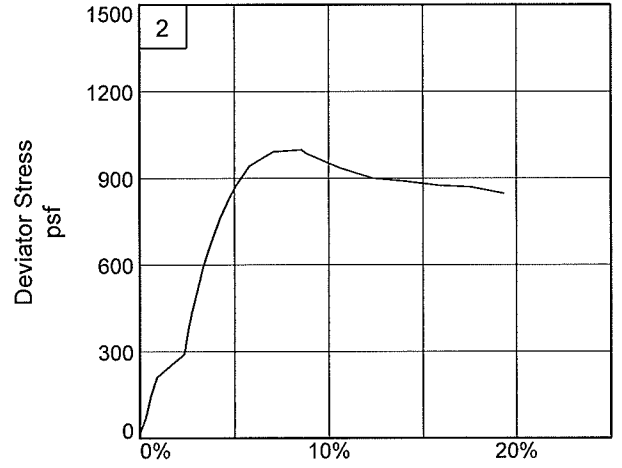
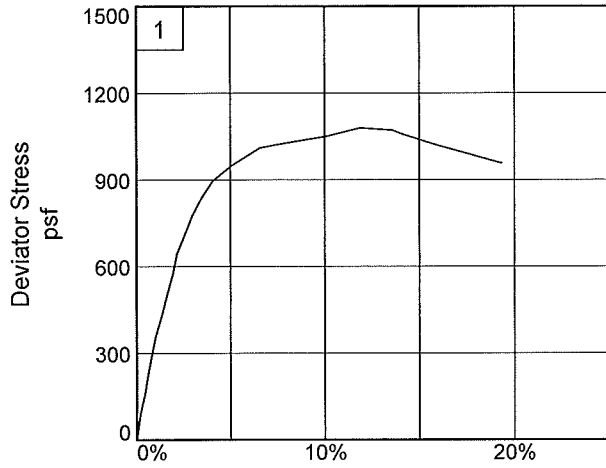
Source of Sample: NL-3A **Depth:** 63

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/11/13

TRIAxIAL SHEAR TEST REPORT
Fugro Consultants, Inc.
Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

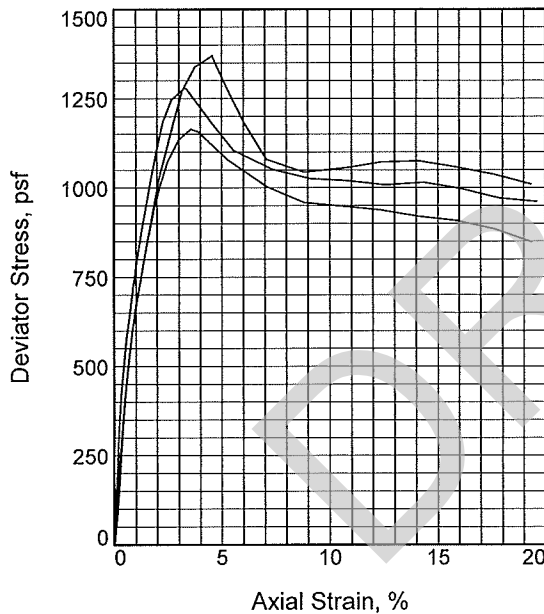
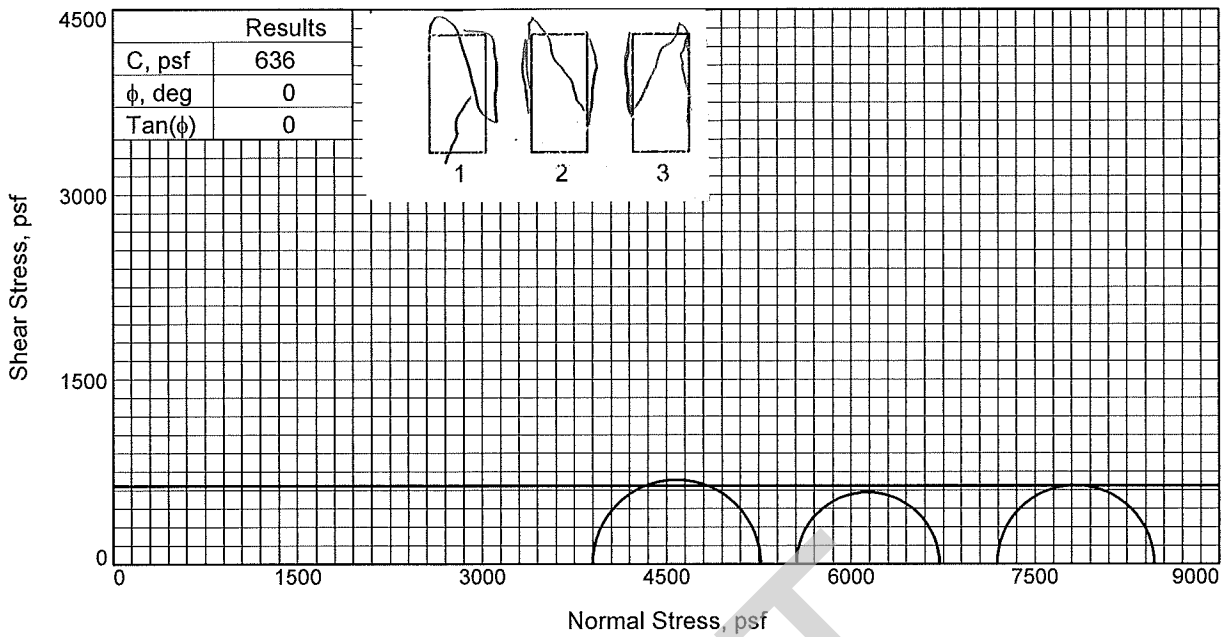
Depth: 63

Sample Number: NA

Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.



Sample No.	1	2	3
Initial			
Water Content, %	59.7	59.8	59.6
Dry Density, pcf	65.0	64.7	64.7
Saturation, %	100.9	100.4	99.9
Void Ratio	1.6027	1.6140	1.6169
Diameter, in.	1.40	1.41	1.42
Height, in.	3.06	3.06	3.04
At Test			
Water Content, %	59.7	59.8	59.6
Dry Density, pcf	65.0	64.7	64.7
Saturation, %	100.9	100.4	99.9
Void Ratio	1.6027	1.6140	1.6169
Diameter, in.	1.40	1.41	1.42
Height, in.	3.06	3.06	3.04
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	27.06	38.57	49.93
Fail. Stress, psf	1370	1164	1280
Strain, %	4.6	3.6	3.3
Ult. Stress, psf	1076	920	1008
Strain, %	14.1	14.1	12.6
σ_1 Failure, psf	5267	6719	8470
σ_3 Failure, psf	3897	5554	7190

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CH4

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

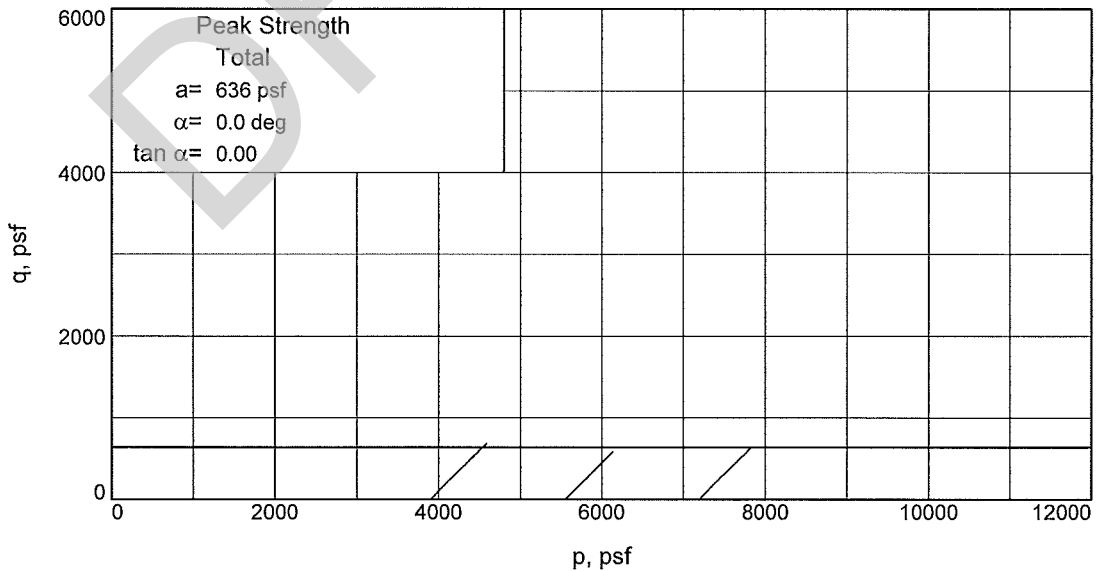
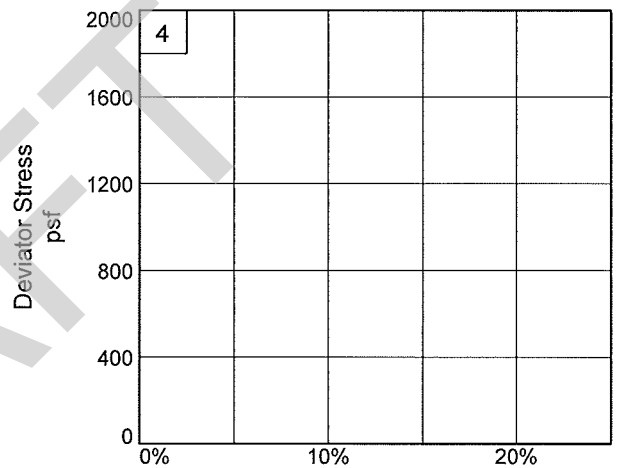
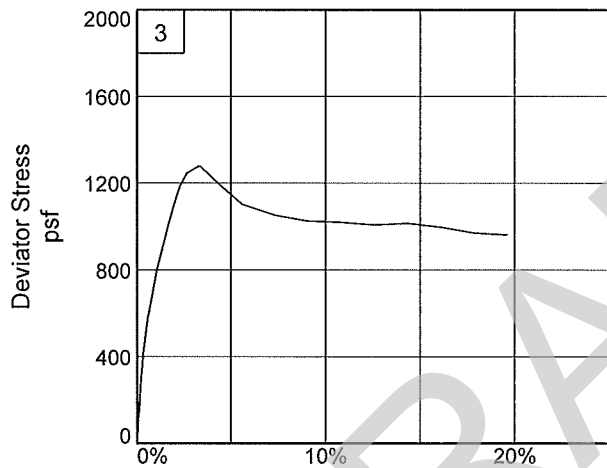
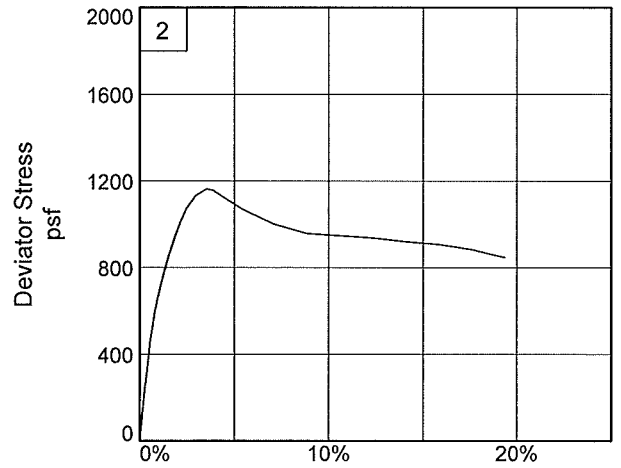
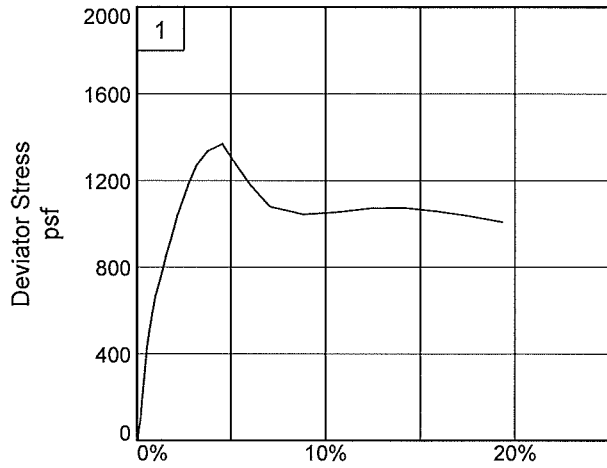
Source of Sample: NL-3A **Depth:** 77

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/12/13

TRIAXIAL SHEAR TEST REPORT
Fugro Consultants, Inc.
Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

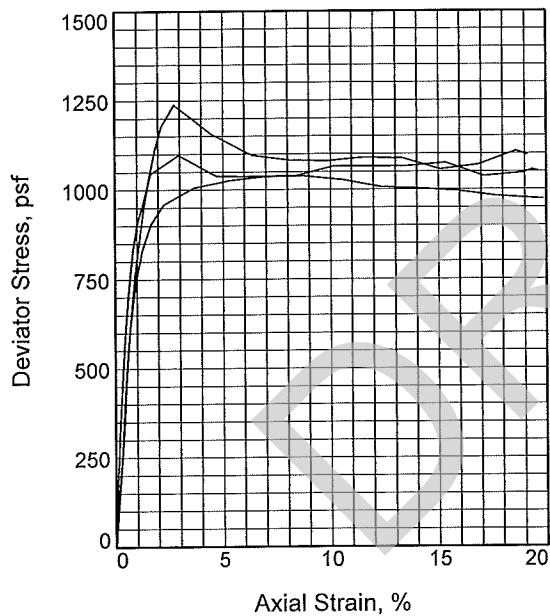
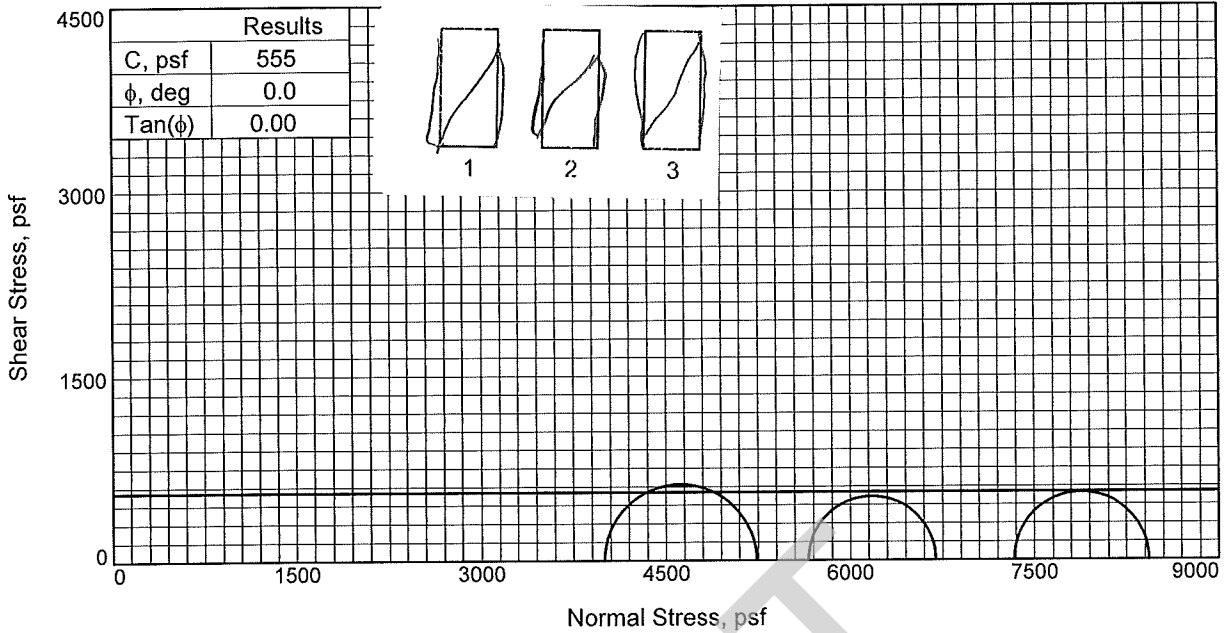
Depth: 77

Sample Number: NA

Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.



Sample No.	1	2	3
Initial			
Water Content, %	63.6	64.1	63.5
Dry Density, pcf	61.9	61.5	61.3
Saturation, %	99.4	99.2	97.8
Void Ratio	1.7341	1.7503	1.7604
Diameter, in.	1.42	1.42	1.42
Height, in.	3.05	3.09	3.01
At Test			
Water Content, %	63.6	64.1	63.5
Dry Density, pcf	61.9	61.5	61.3
Saturation, %	99.4	99.2	97.8
Void Ratio	1.7341	1.7503	1.7604
Diameter, in.	1.42	1.42	1.42
Height, in.	3.05	3.09	3.01
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	27.77	39.28	50.93
Fail. Stress, psf	1238	1038	1098
Strain, %	2.7	7.1	3.0
Ult. Stress, psf	1081	1003	1037
Strain, %	9.8	14.1	6.6
σ_1 Failure, psf	5237	6694	8432
σ_3 Failure, psf	3999	5656	7334

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CH4

LL= 94 PL= 29 PI= 65

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

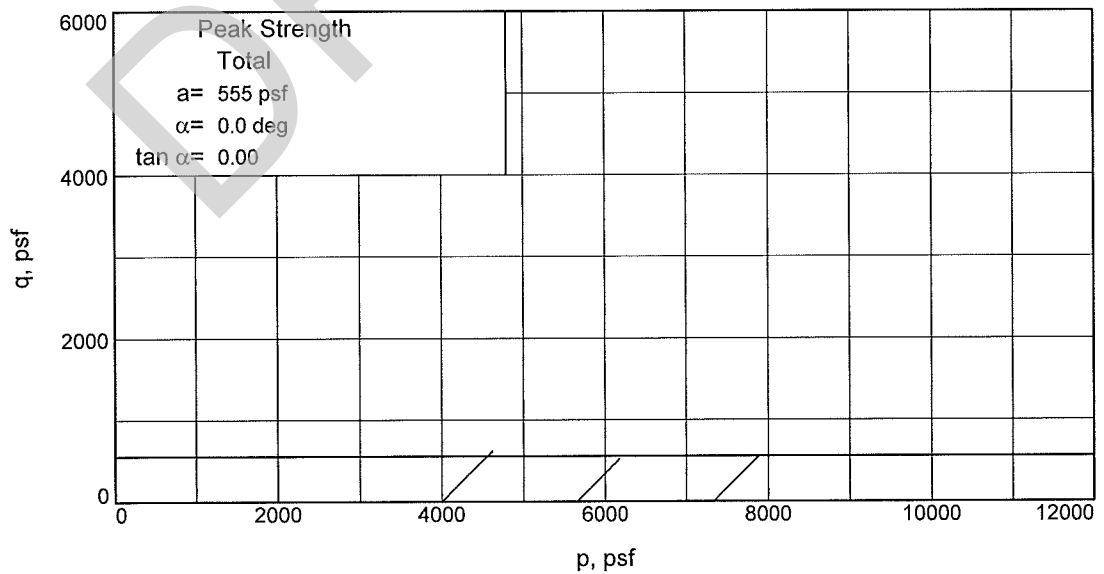
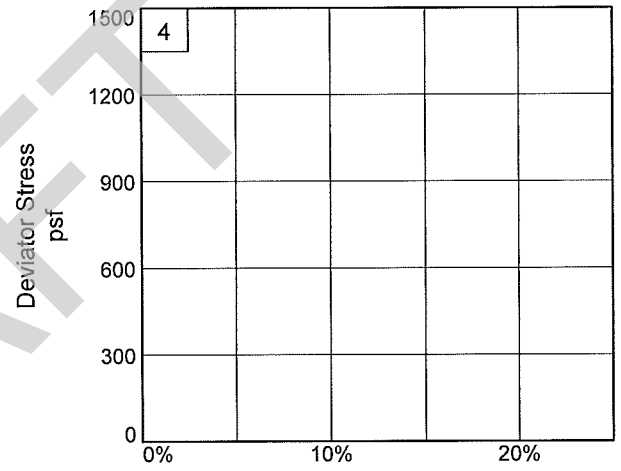
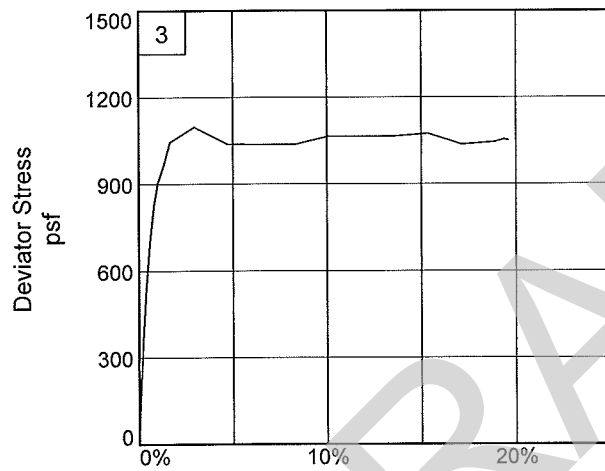
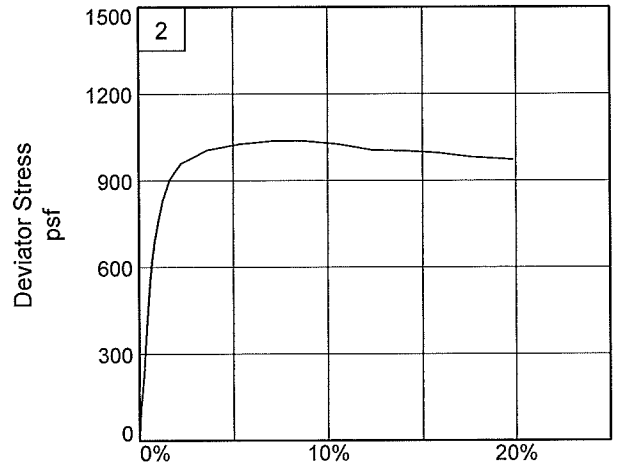
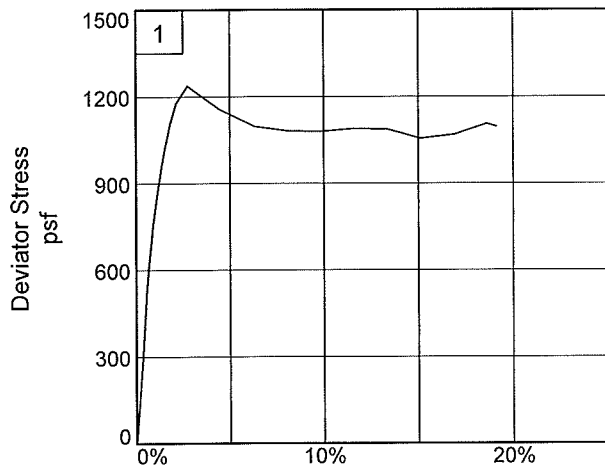
Source of Sample: NL-3A **Depth:** 79

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/13/13

TRIAxIAL SHEAR TEST REPORT
Fugro Consultants, Inc.
Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 79

Sample Number: NA

Project No.: 04.55124092

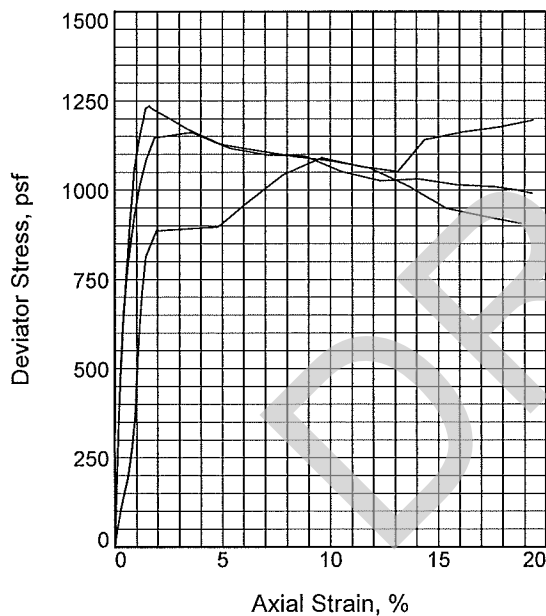
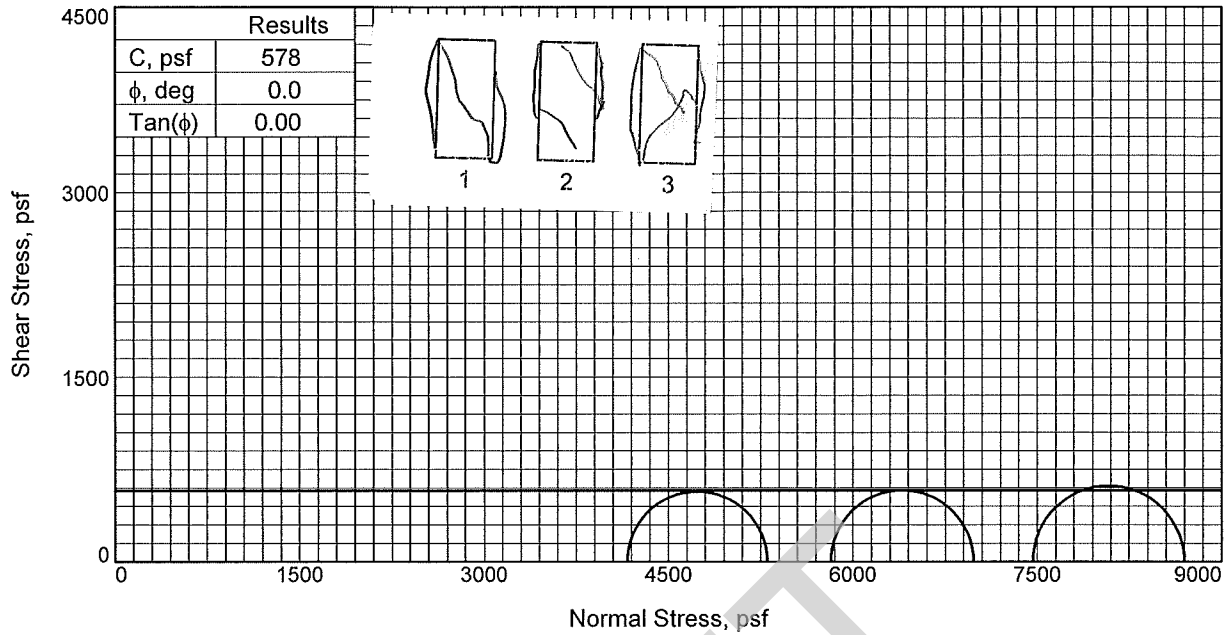
Figure _____

Fugro Consultants, Inc.

Tested By: PN/IK

"Confidential Information: Privileged & Confidential Work Product"

Checked By: KA



Sample No.	1	2	3	
Initial	Water Content, %	65.4	66.0	65.7
	Dry Density, pcf	61.5	61.0	60.8
	Saturation, %	101.2	101.0	100.0
	Void Ratio	1.7527	1.7715	1.7808
	Diameter, in.	1.41	1.40	1.41
	Height, in.	3.10	3.05	3.13
At Test	Water Content, %	65.4	66.0	65.7
	Dry Density, pcf	61.5	61.0	60.8
	Saturation, %	101.2	101.0	100.0
	Void Ratio	1.7527	1.7715	1.7808
	Diameter, in.	1.41	1.40	1.41
	Height, in.	3.10	3.05	3.13
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	28.92	40.41	51.83	
Fail. Stress, psf		1141	1162	1236
	Strain, %	14.4	3.6	1.6
Ult. Stress, psf		1141	1027	1012
	Strain, %	14.4	12.3	13.6
σ_1 Failure, psf		5306	6981	8699
σ_3 Failure, psf		4164	5819	7464

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CH4

LL= 95 PL= 31 PI= 64

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

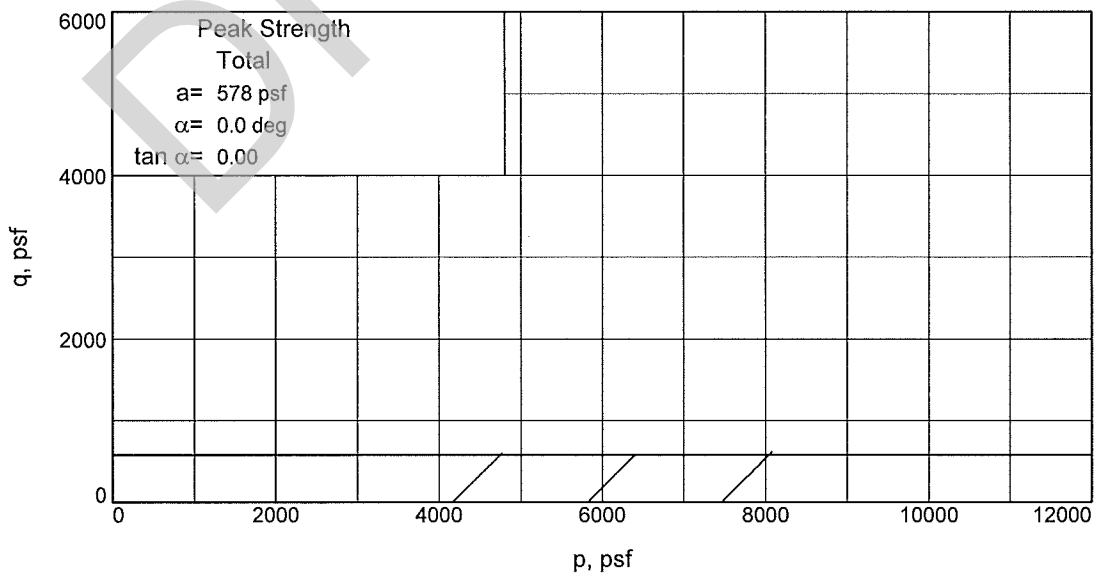
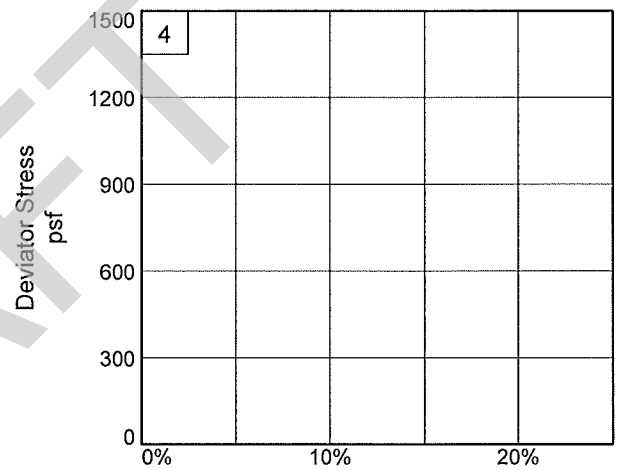
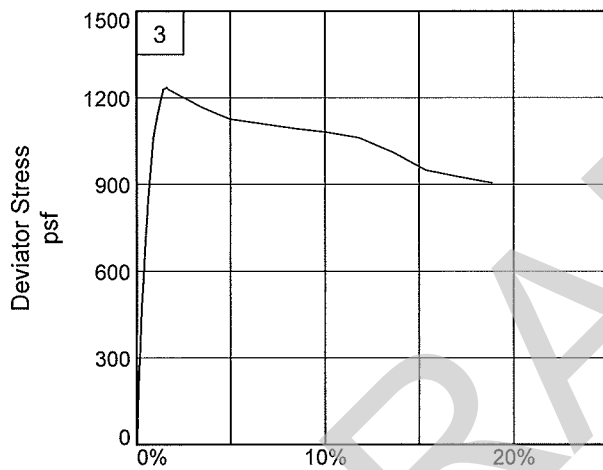
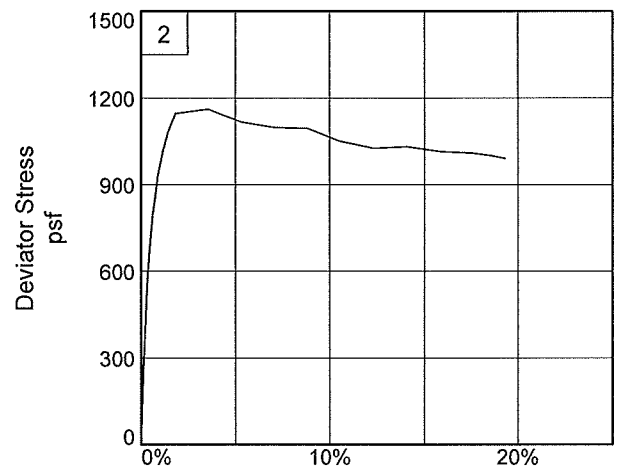
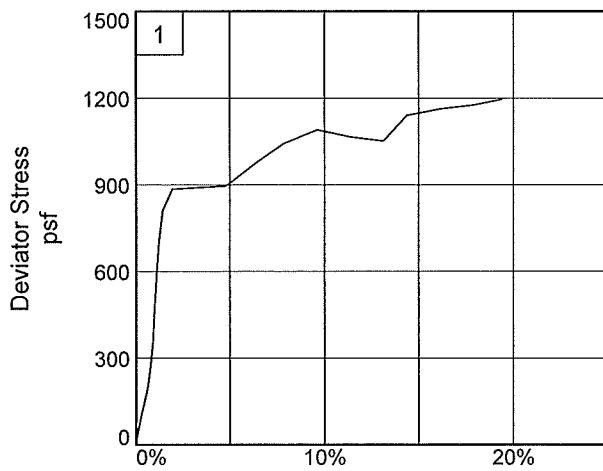
Source of Sample: NL-3A **Depth:** 82

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/13/13

TRIAxIAL SHEAR TEST REPORT
Fugro Consultants, Inc.
Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 82

Sample Number: NA

Project No.: 04.55124092

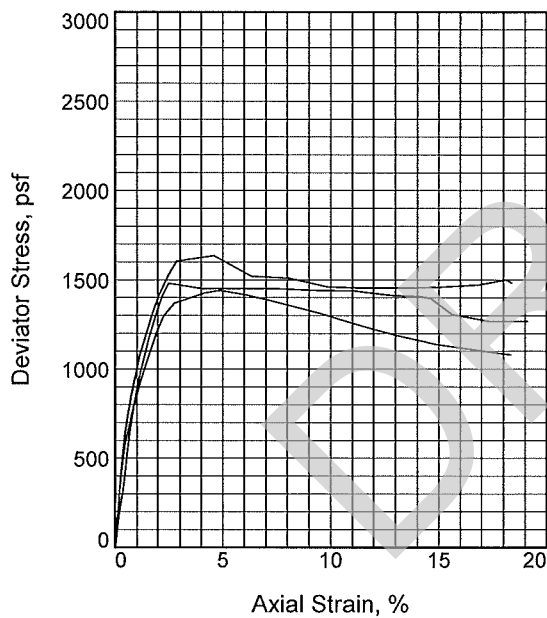
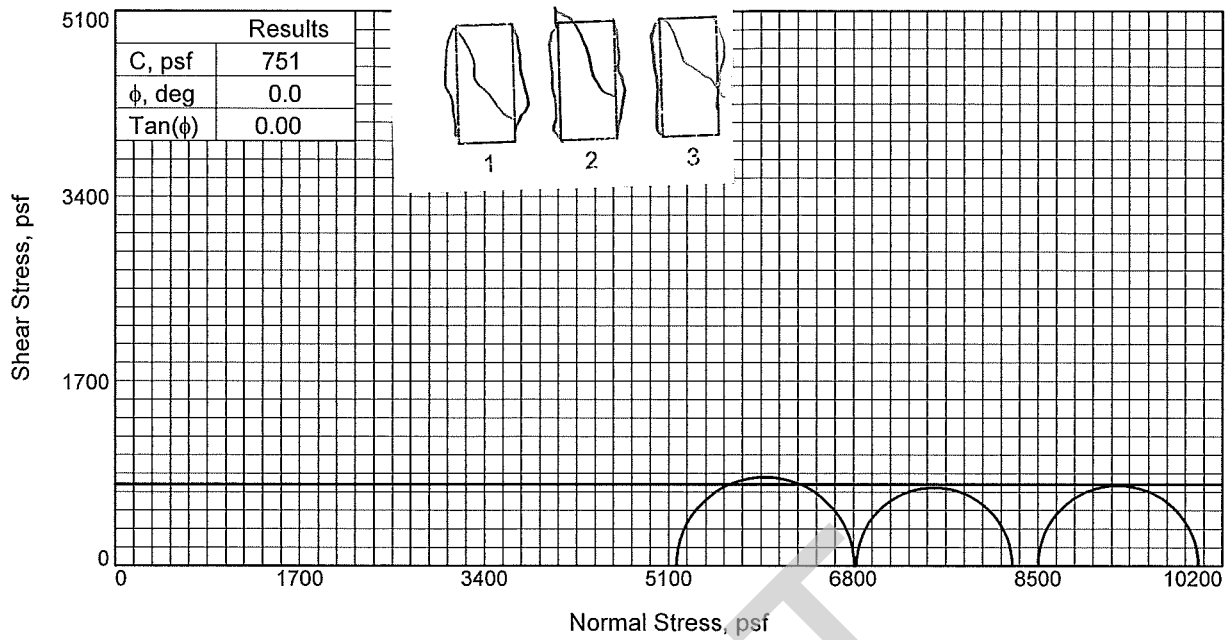
Figure _____

Fugro Consultants, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Tested By: PN/IK

Checked By: KA



	1	2	3	
Sample No.	1	2	3	
Initial	Water Content, %	56.3	58.5	55.2
	Dry Density, pcf	65.4	65.2	67.0
	Saturation, %	96.0	99.4	98.1
	Void Ratio	1.5880	1.5936	1.5249
	Diameter, in.	1.45	1.42	1.42
	Height, in.	3.05	3.12	3.09
At Test	Water Content, %	56.3	58.5	55.2
	Dry Density, pcf	65.4	65.2	67.0
	Saturation, %	96.0	99.4	98.1
	Void Ratio	1.5880	1.5936	1.5249
	Diameter, in.	1.45	1.42	1.42
	Height, in.	3.05	3.12	3.09
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	35.90	47.38	59.02	
Fail. Stress, psf	1637	1442	1482	
Strain, %	4.6	4.9	2.5	
Ult. Stress, psf	1454	1140	1397	
Strain, %	11.6	14.8	14.6	
σ_1 Failure, psf	6806	8264	9981	
σ_3 Failure, psf	5170	6823	8499	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

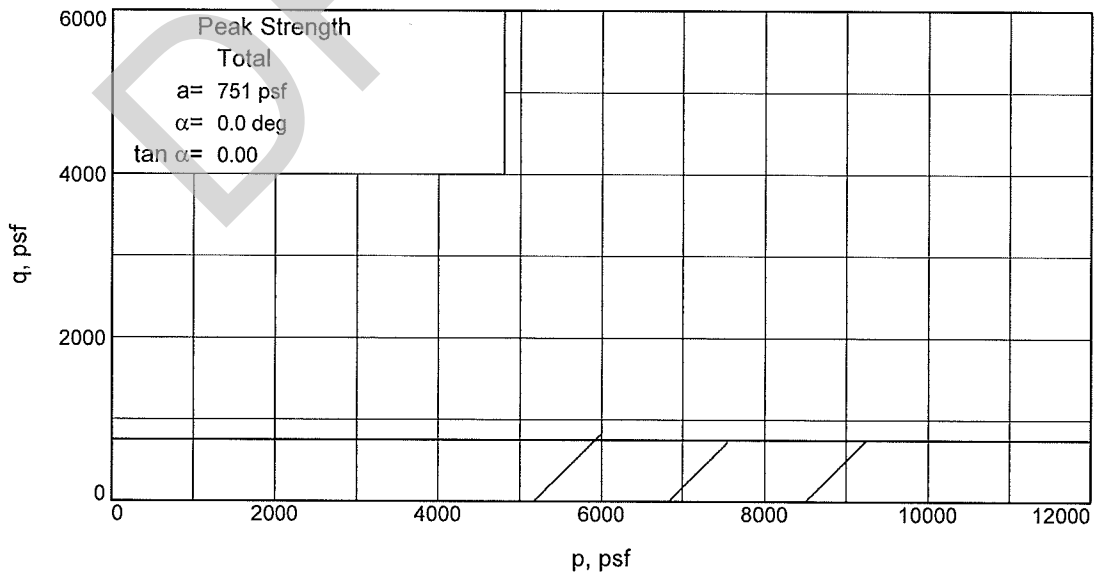
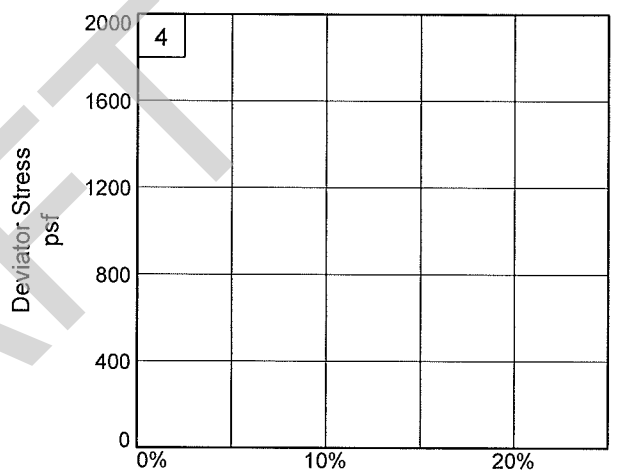
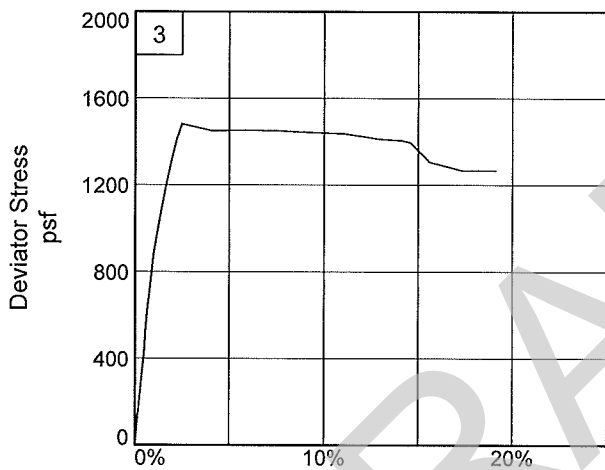
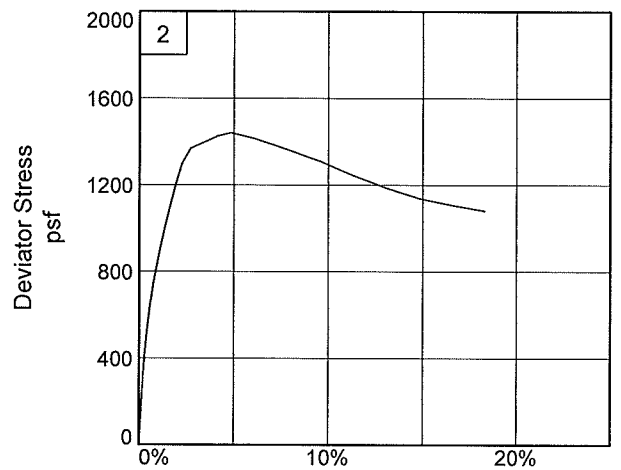
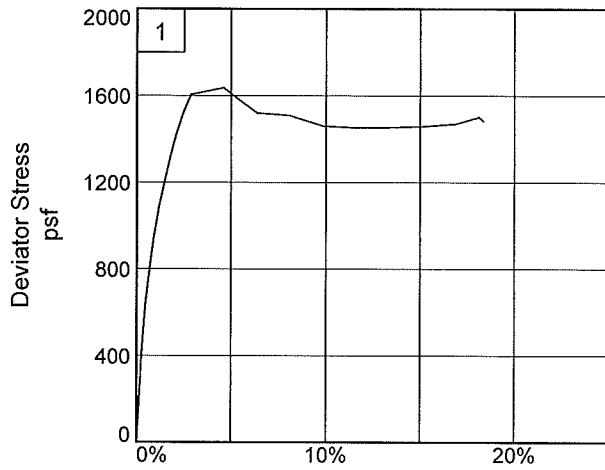
Description: M GR CH4

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers
Project: Mid Barrataria Diversion
Source of Sample: NL-3A Depth: 101
Sample Number: NA
Proj. No.: 04.55124092 Date Sampled: 6/13/13
TRIAXIAL SHEAR TEST REPORT Fugro Consultants, Inc. Baton Rouge, LA

Figure _____



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 101

Sample Number: NA

Project No.: 04.55124092

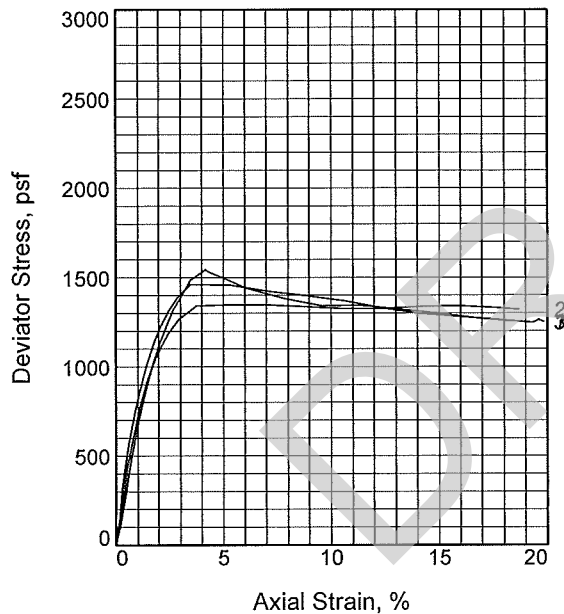
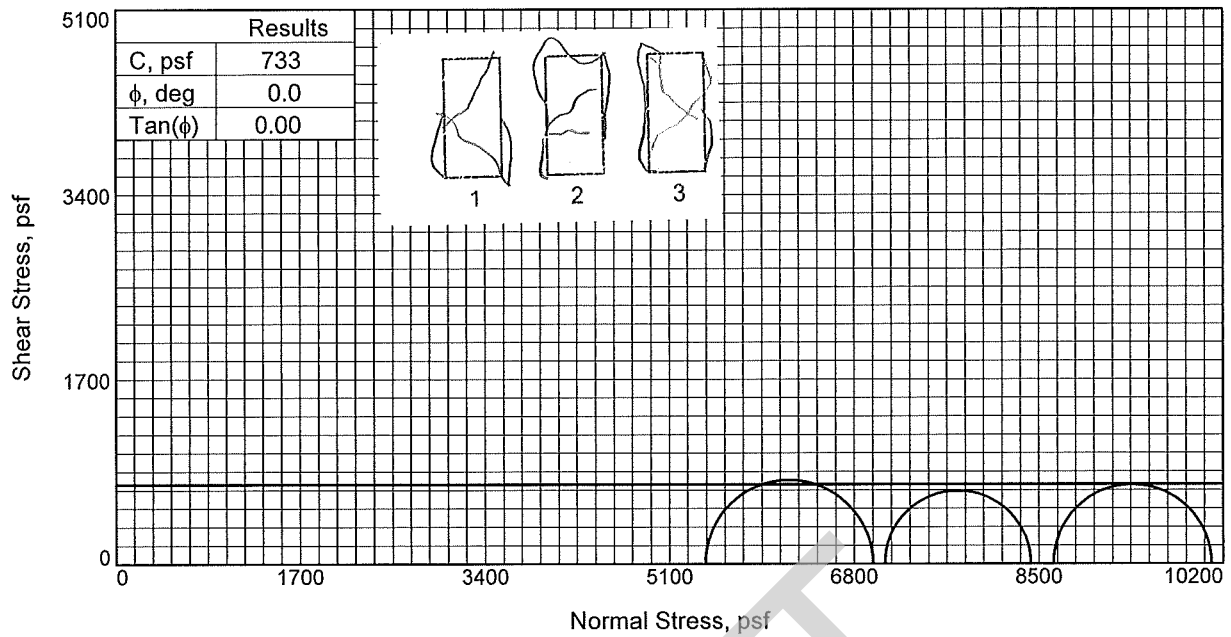
Figure _____

Fugro Consultants, Inc.

Tested By: PN/IK

"Confidential Information: Privileged & Confidential Work Product"

Checked By: KA



Sample No.	1	2	3
Initial			
Water Content, %	48.5	46.1	49.9
Dry Density, pcf	72.5	73.9	70.9
Saturation, %	98.8	97.0	97.8
Void Ratio	1.3259	1.2820	1.3768
Diameter, in.	1.40	1.41	1.42
Height, in.	3.06	3.05	3.08
At Test			
Water Content, %	48.5	46.1	49.9
Dry Density, pcf	72.5	73.9	70.9
Saturation, %	98.8	97.0	97.9
Void Ratio	1.3259	1.2820	1.3768
Diameter, in.	1.40	1.41	1.42
Height, in.	3.06	3.05	3.08
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	37.69	49.15	59.95
Fail. Stress, psf	1545	1348	1461
Strain, %	4.2	5.4	3.5
Ult. Stress, psf	1303	1326	1299
Strain, %	14.9	10.7	14.1
σ_1 Failure, psf	6972	8426	10094
σ_3 Failure, psf	5427	7078	8633

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CH3 W/ LYS ML

LL= 72 PL= 25 PI= 47

Assumed Specific Gravity= 2.70

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

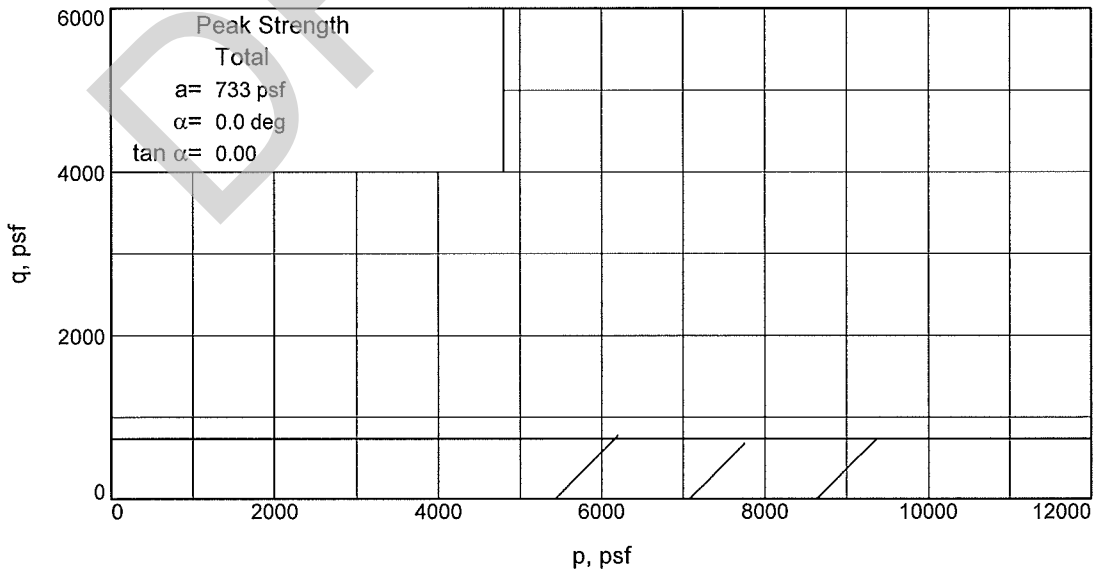
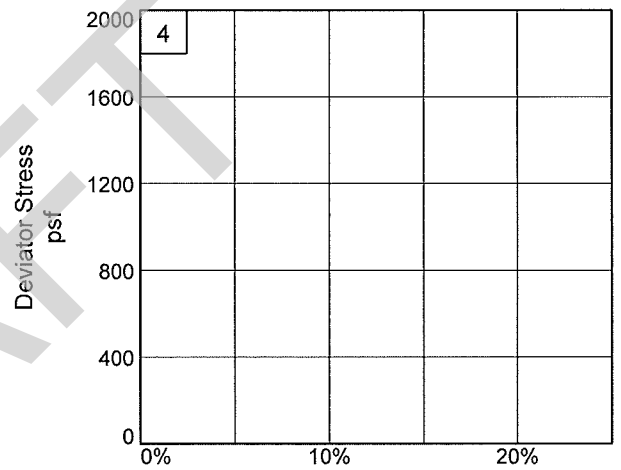
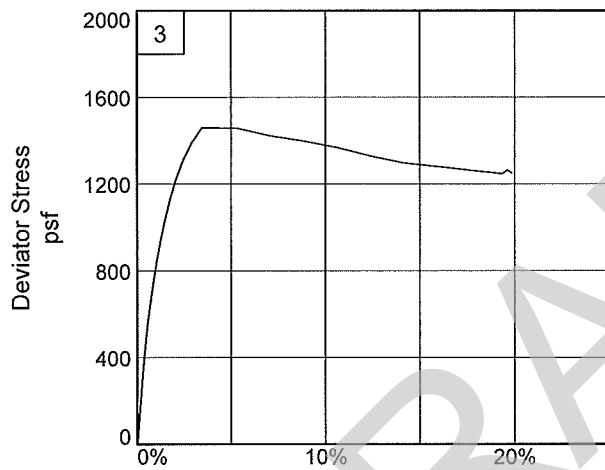
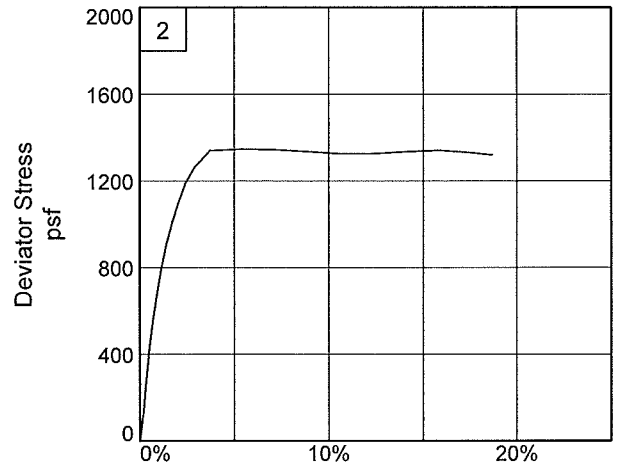
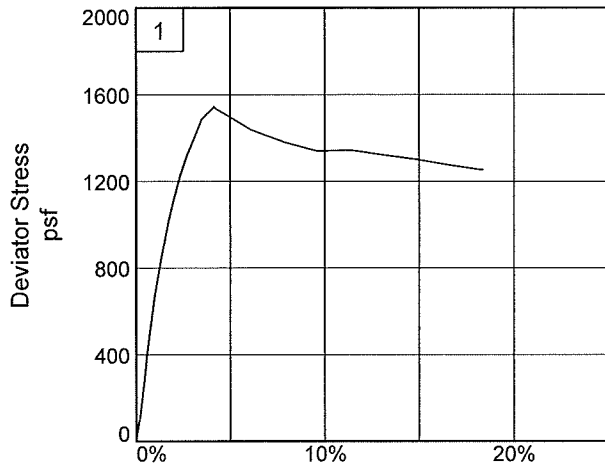
Source of Sample: NL-3A **Depth:** 106

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/13/13

TRIAxIAL SHEAR TEST REPORT
Fugro Consultants, Inc.
Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 106

Sample Number: NA

Project No.: 04.55124092

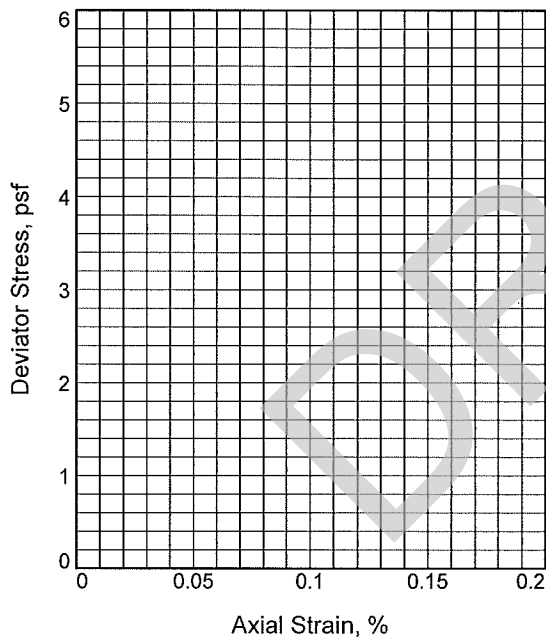
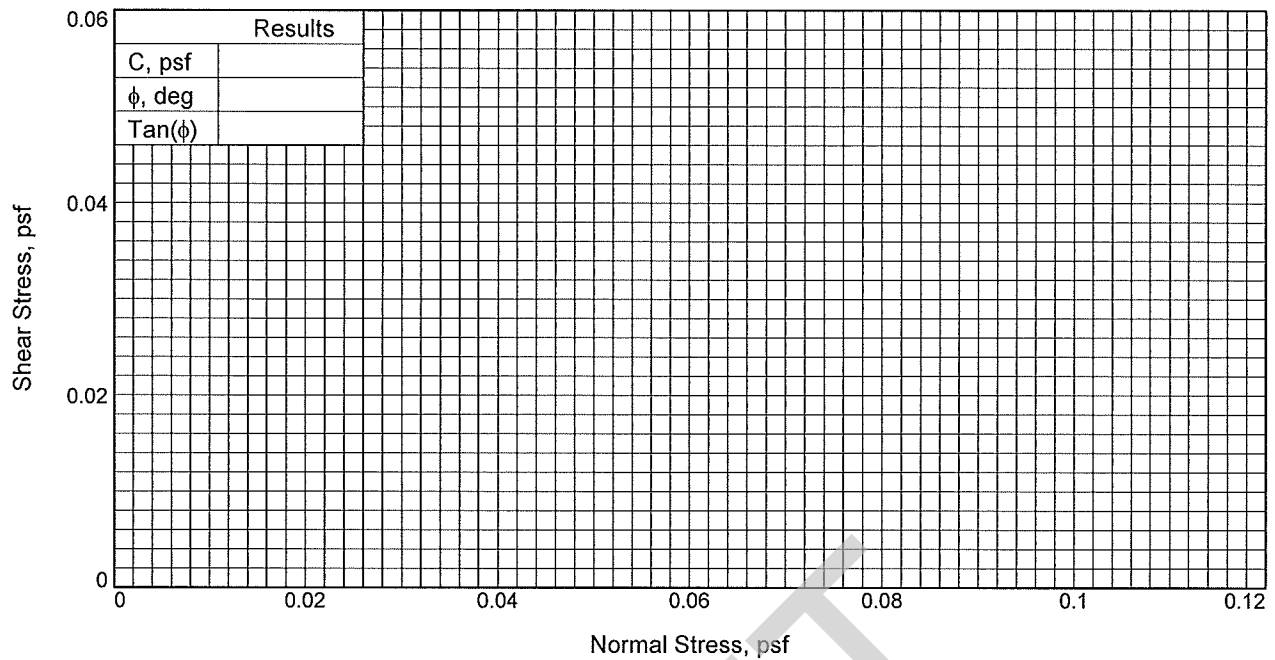
Figure _____

Fugro Consultants, Inc.

Tested By: PN/IK

"Confidential Information: Privileged & Confidential Work Product"

Checked By: KA



Sample No.	
Initial	Water Content, %
	Dry Density, pcf
	Saturation, %
	Void Ratio
	Diameter, in. Height, in.
At Test	Water Content, %
	Dry Density, pcf
	Saturation, %
	Void Ratio
	Diameter, in. Height, in.
Strain rate, in./min.	
Back Pressure, psi	
Cell Pressure, psi	
Fail. Stress, psf	
Strain, %	
Ult. Stress, psf	
Strain, %	
σ_1 Failure, psf	
σ_3 Failure, psf	

Type of Test:
Unconsolidated Undrained

Sample Type:

Description: GR CH3 W/ SHELLS

Specific Gravity=

Remarks: Could not test due to shells;
"Confidential Information: Privileged &
Confidential Work Product"

Figure _____

Client: GeoEngineers

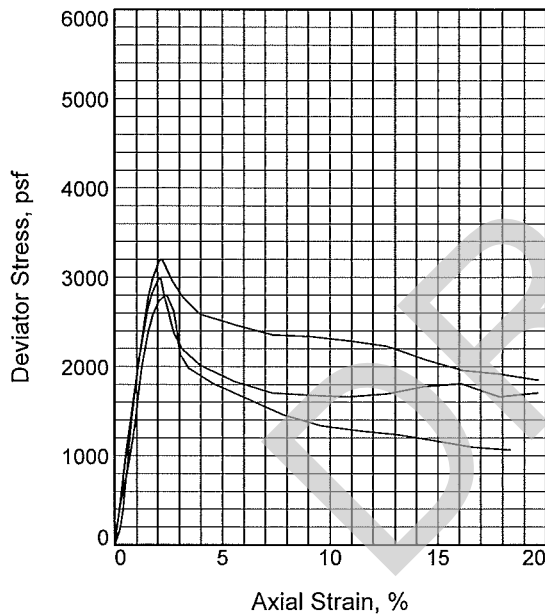
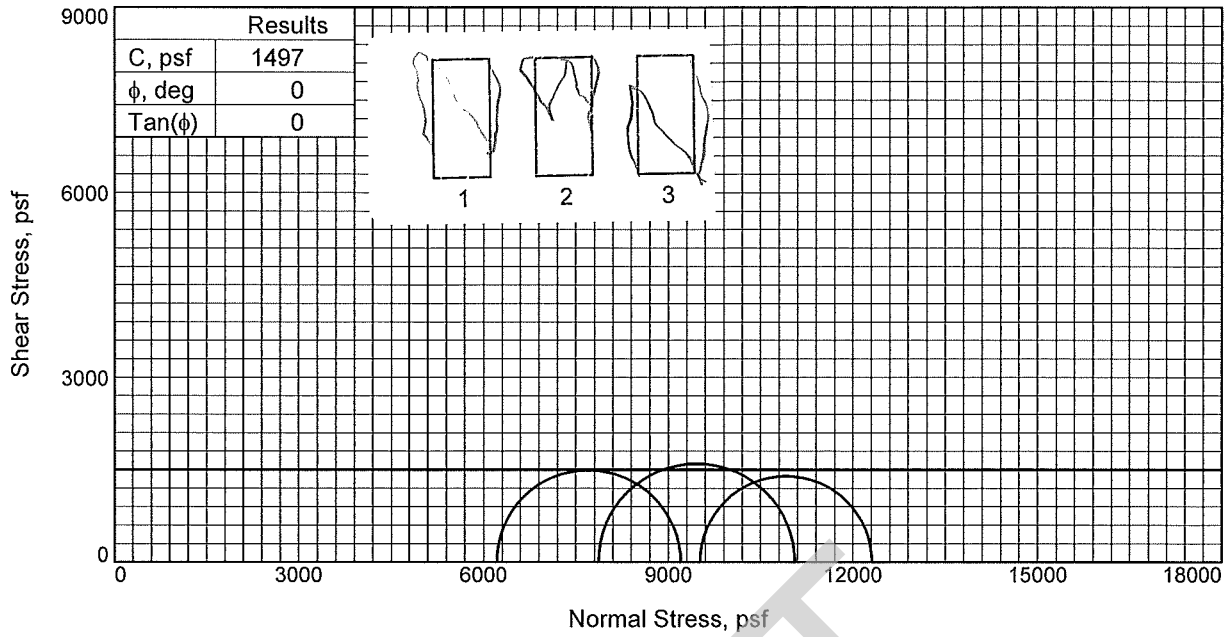
Project: Mid Barrataria Diversion

Source of Sample: NL-3A **Depth:** 112.0

Sample Number: NA

Proj. No.: 04.55124092 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Fugro Consultants, Inc.
Baton Rouge, LA



Sample No.	1	2	3	
Initial	Water Content, %	68.2	64.8	65.3
	Dry Density, pcf	59.4	61.4	61.1
	Saturation, %	99.9	99.9	100.1
	Void Ratio	1.8496	1.7576	1.7677
	Diameter, in.	1.41	1.43	1.41
	Height, in.	2.95	3.18	3.10
At Test	Water Content, %	68.2	64.8	65.3
	Dry Density, pcf	59.4	61.4	61.1
	Saturation, %	99.9	99.9	100.1
	Void Ratio	1.8496	1.7576	1.7677
	Diameter, in.	1.41	1.43	1.41
	Height, in.	2.95	3.18	3.10
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	43.13	54.60	66.08	
Fail. Stress, psf	2988	3199	2797	
Strain, %	2.0	2.1	2.4	
Ult. Stress, psf	1664	2081	1172	
Strain, %	10.8	14.4	14.9	
σ_1 Failure, psf	9199	11061	12313	
σ_3 Failure, psf	6211	7862	9516	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: ST GR CH4

LL= 105 PL= 31 PI= 74

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A **Depth:** 121

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/11/13

TRIAXIAL SHEAR TEST REPORT

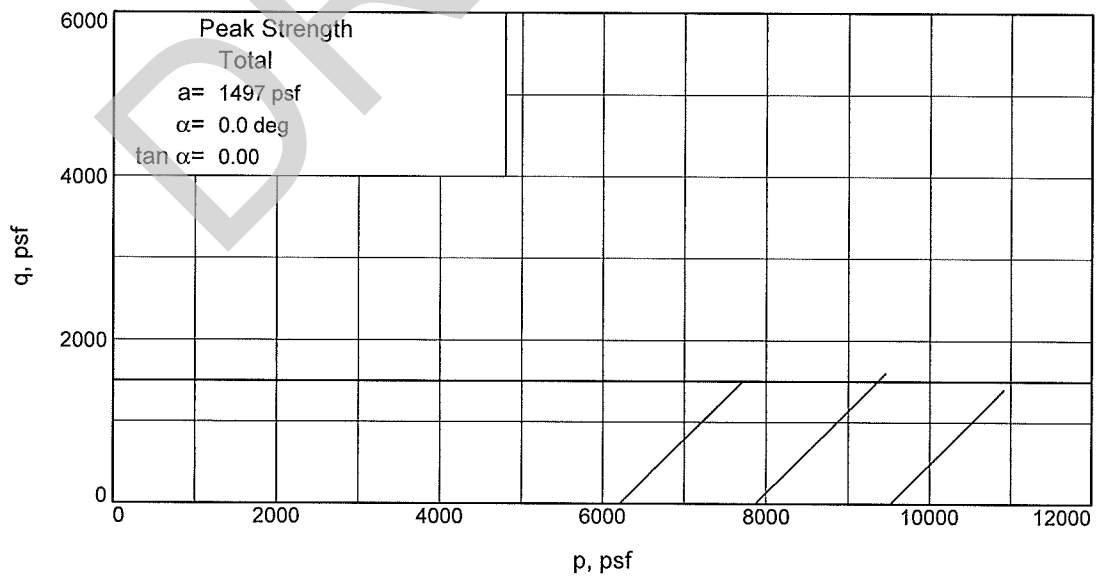
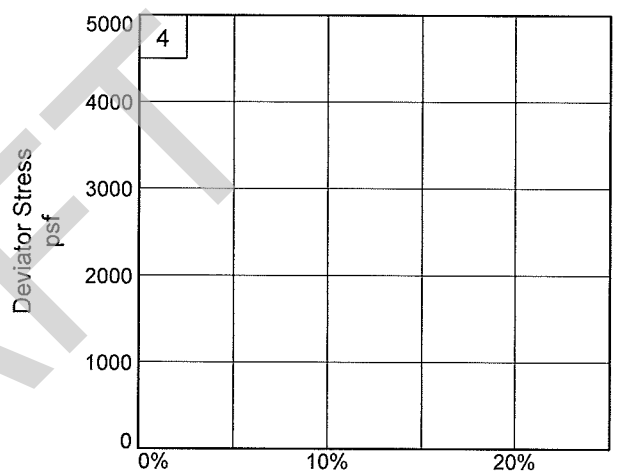
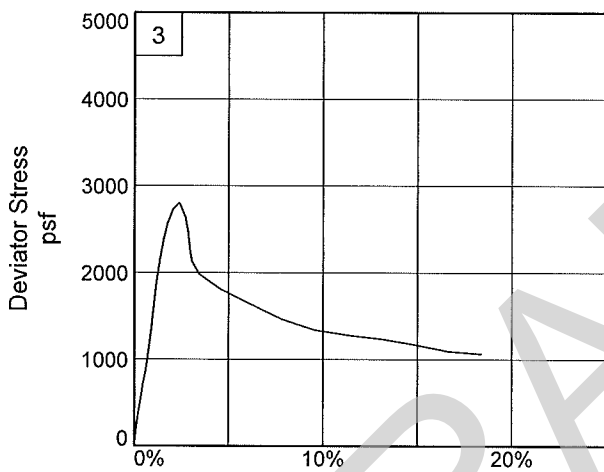
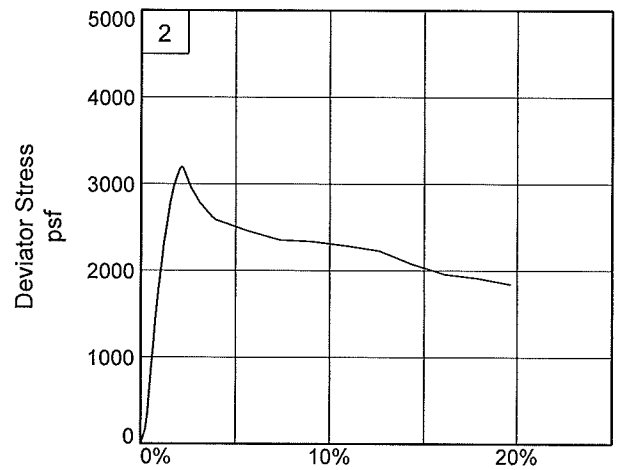
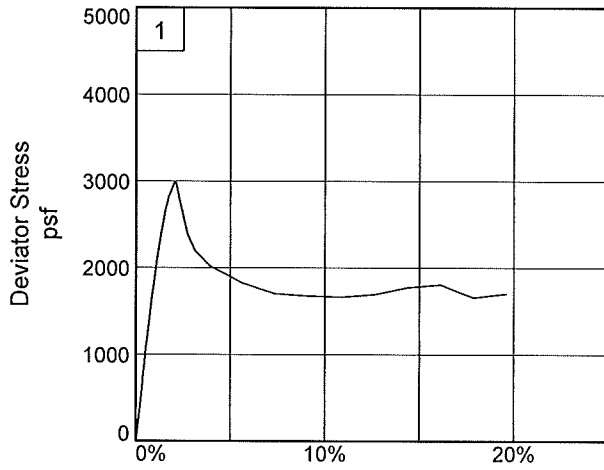
Fugro Consultants, Inc.

Baton Rouge, LA

Tested By: PN/IK

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 121

Sample Number: NA

Project No.: 04.55124092

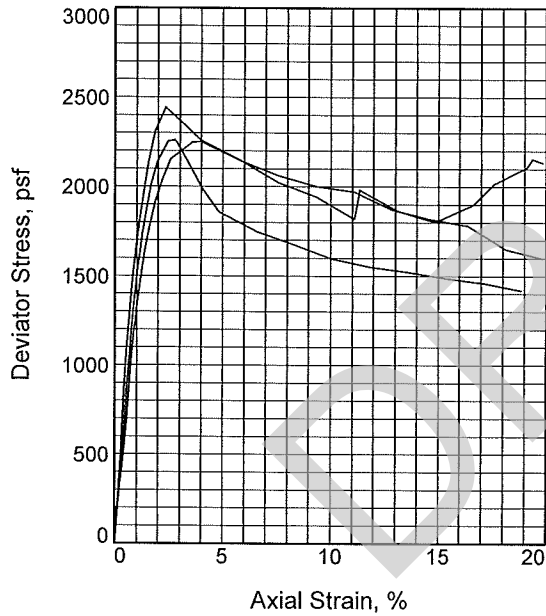
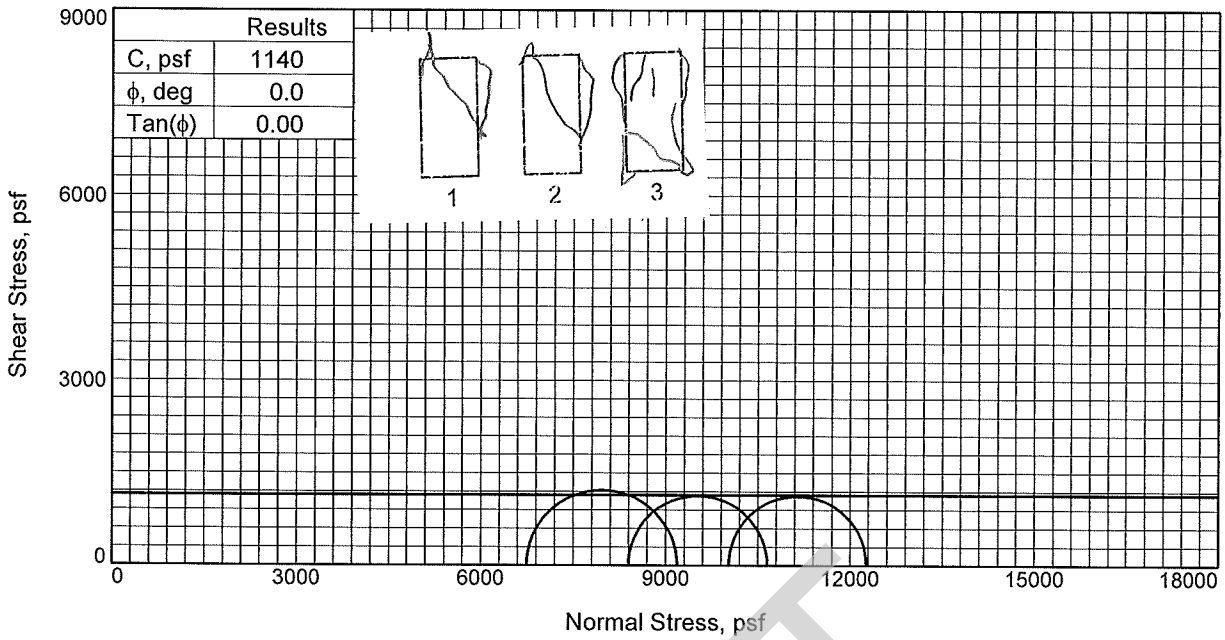
Figure _____

Fugro Consultants, Inc.

Tested By: PN/IK

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	61.5	63.6	60.3
	Dry Density, pcf	59.5	61.0	63.6
	Saturation, %	90.5	97.1	98.4
	Void Ratio	1.8412	1.7741	1.6600
	Diameter, in.	1.42	1.41	1.43
	Height, in.	3.00	3.12	3.00
At Test	Water Content, %	61.5	63.6	60.3
	Dry Density, pcf	59.5	61.0	63.6
	Saturation, %	90.5	97.1	98.4
	Void Ratio	1.8412	1.7741	1.6600
	Diameter, in.	1.42	1.41	1.43
	Height, in.	3.00	3.12	3.00
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	46.83	58.28	69.57	
Fail. Stress, psf	2443	2261	2252	
Strain, %	2.3	2.8	4.0	
Ult. Stress, psf	1804	1523	1819	
Strain, %	14.8	13.6	14.6	
σ_1 Failure, psf	9186	10654	12270	
σ_3 Failure, psf	6744	8392	10018	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: ST GR CH W/ SIF

LL= 104

PL= 28

PI= 76

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 131

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/13/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

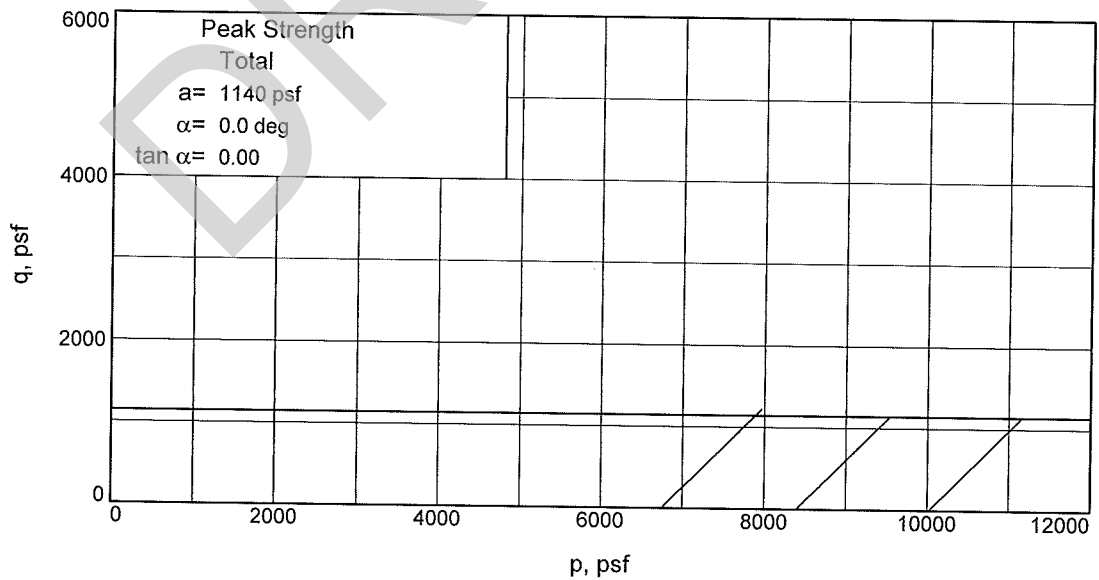
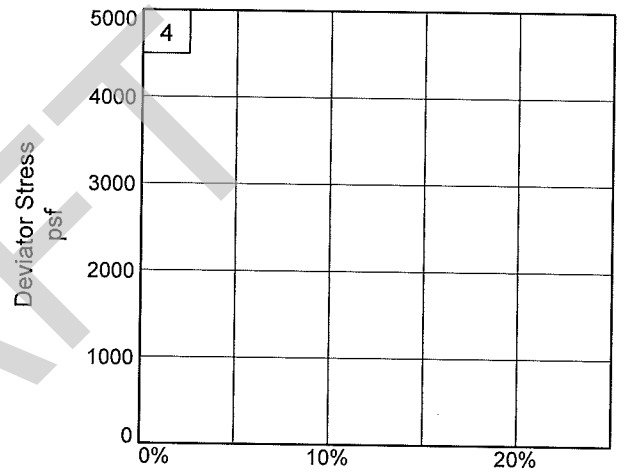
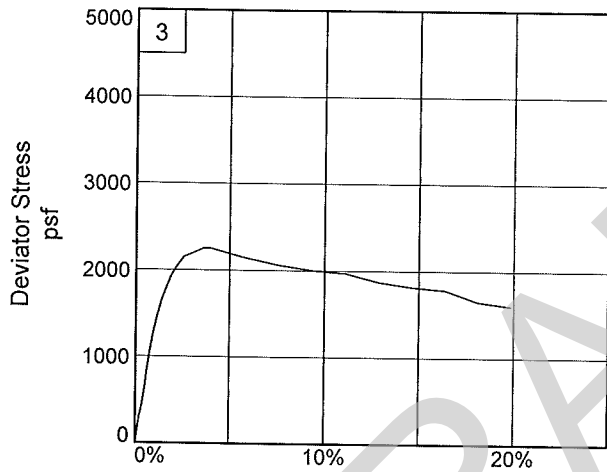
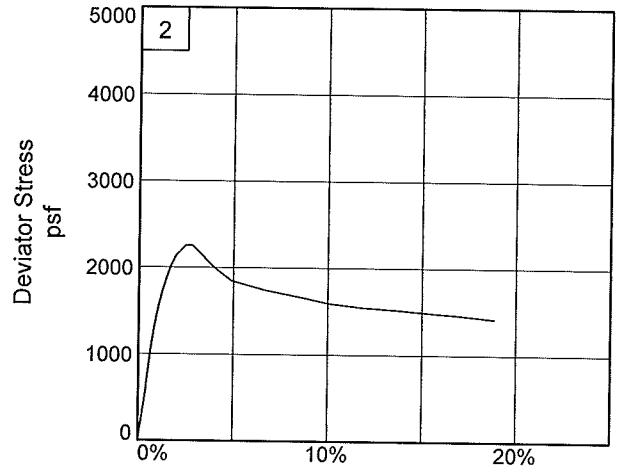
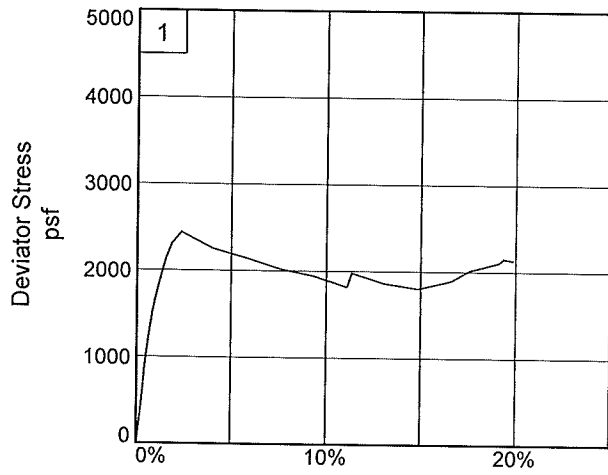
Baton Rouge, LA

Figure _____

Tested By: PN/IK

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barrataria Diversion

Source of Sample: NL-3A

Depth: 131

Sample Number: NA

Project No.: 04.55124092

Figure _____

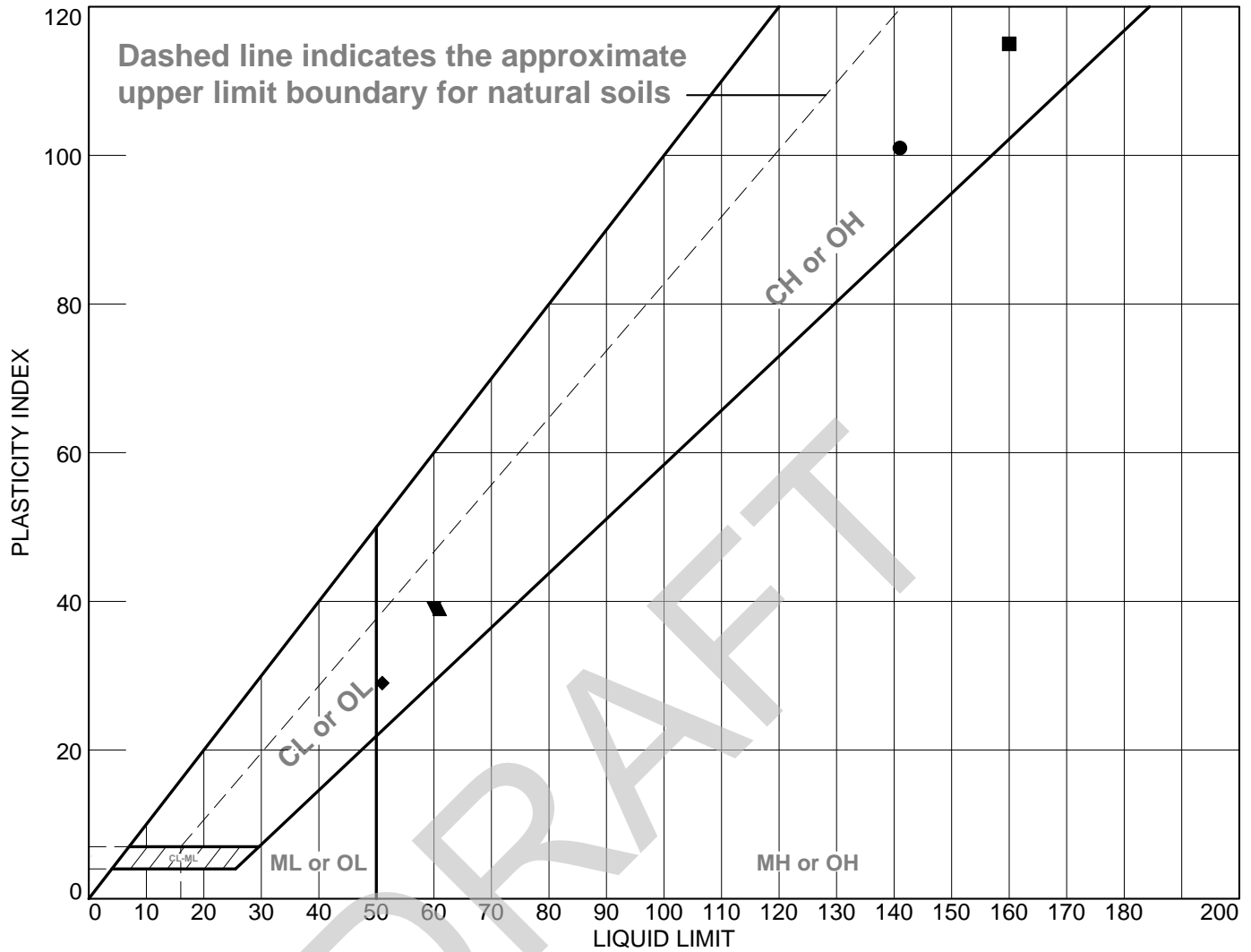
Fugro Consultants, Inc.

Tested By: PN/IK

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	NL-3A	NA	2.0		40	141	101	CHOA
■	NL-3A	NA	3.0		45	160	115	CH0B
▲	NL-3A	NA	5.0		22	61	39	CH3
◆	NL-3A	NA	7		22	51	29	CH2
▼	NL-3A	NA	10		21	60	39	CH3

Fugro Consultants, Inc.

Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No.: 04.55124092

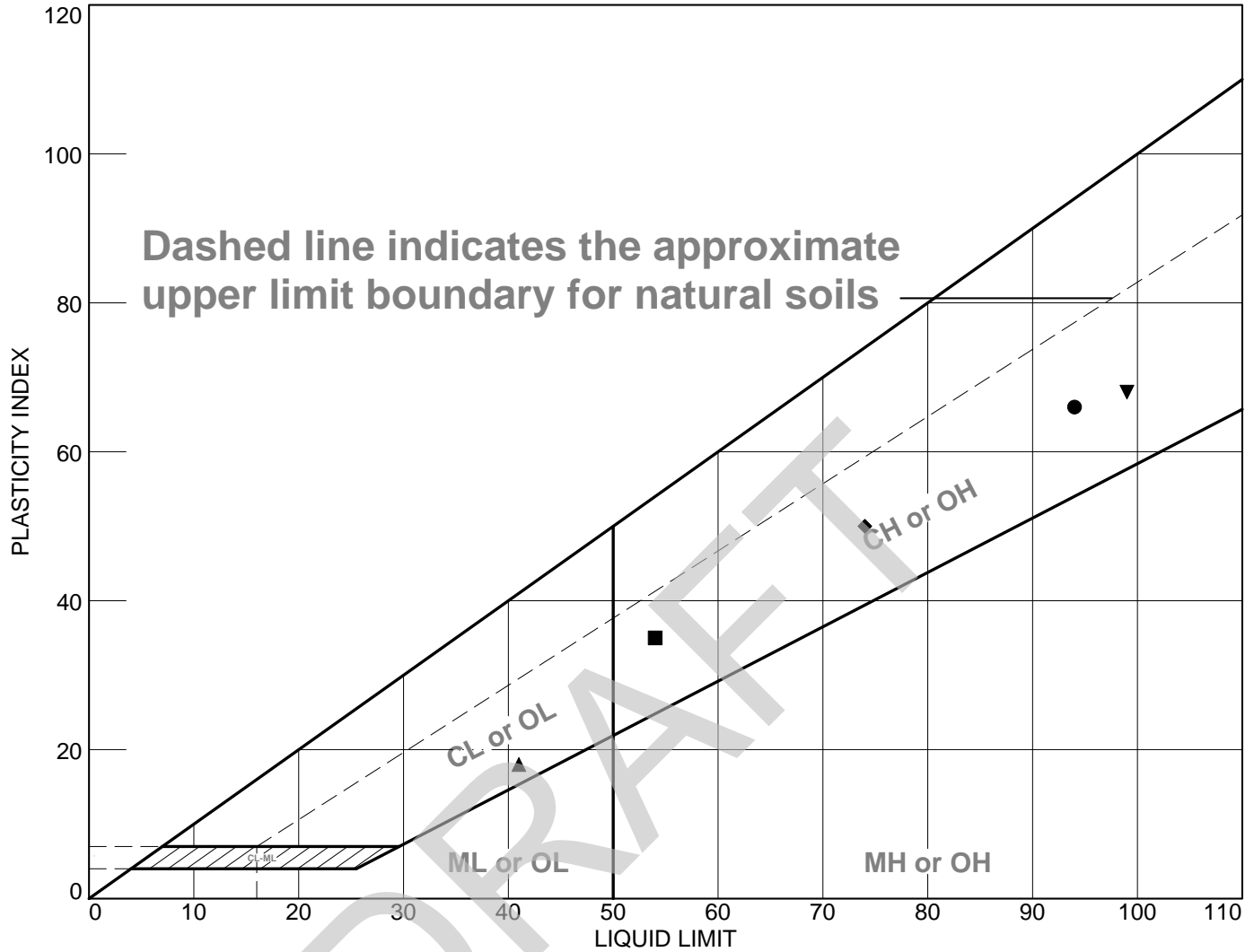
Figure

Tested By: SS

Checked By: KA

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LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	NL-3A	NA	15		28	94	66	CH4
■	NL-3A	NA	17		19	54	35	CH2
▲	NL-3A	NA	19		23	41	18	CL4
◆	NL-3A	NA	21		24	74	50	CH4
▼	NL-3A	NA	25		31	99	68	CH4

Fugro Consultants, Inc.

Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

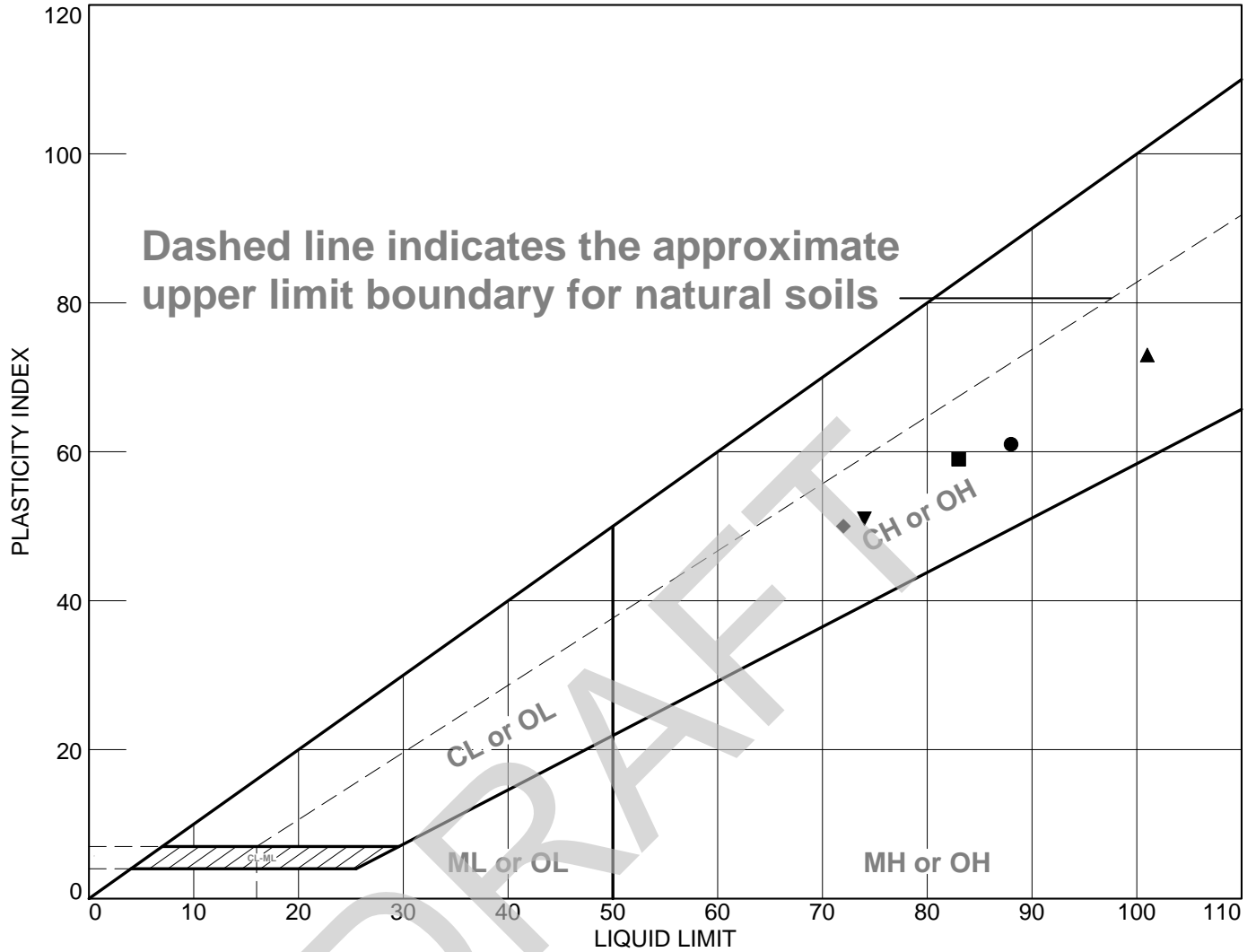
Project No.: 04.55124092

Figure

Tested By: ● SS/DW ■ SS/DW ▲ SS/DW ◆ SS ▼ SS/DW Checked By: KA

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LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	NL-3A	NA	31		27	88	61	CH4
■	NL-3A	NA	34		24	83	59	CH4
▲	NL-3A	NA	39		28	101	73	CH4
◆	NL-3A	NA	40		22	72	50	CH3
▼	NL-3A	NA	45		23	74	51	CH4

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Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

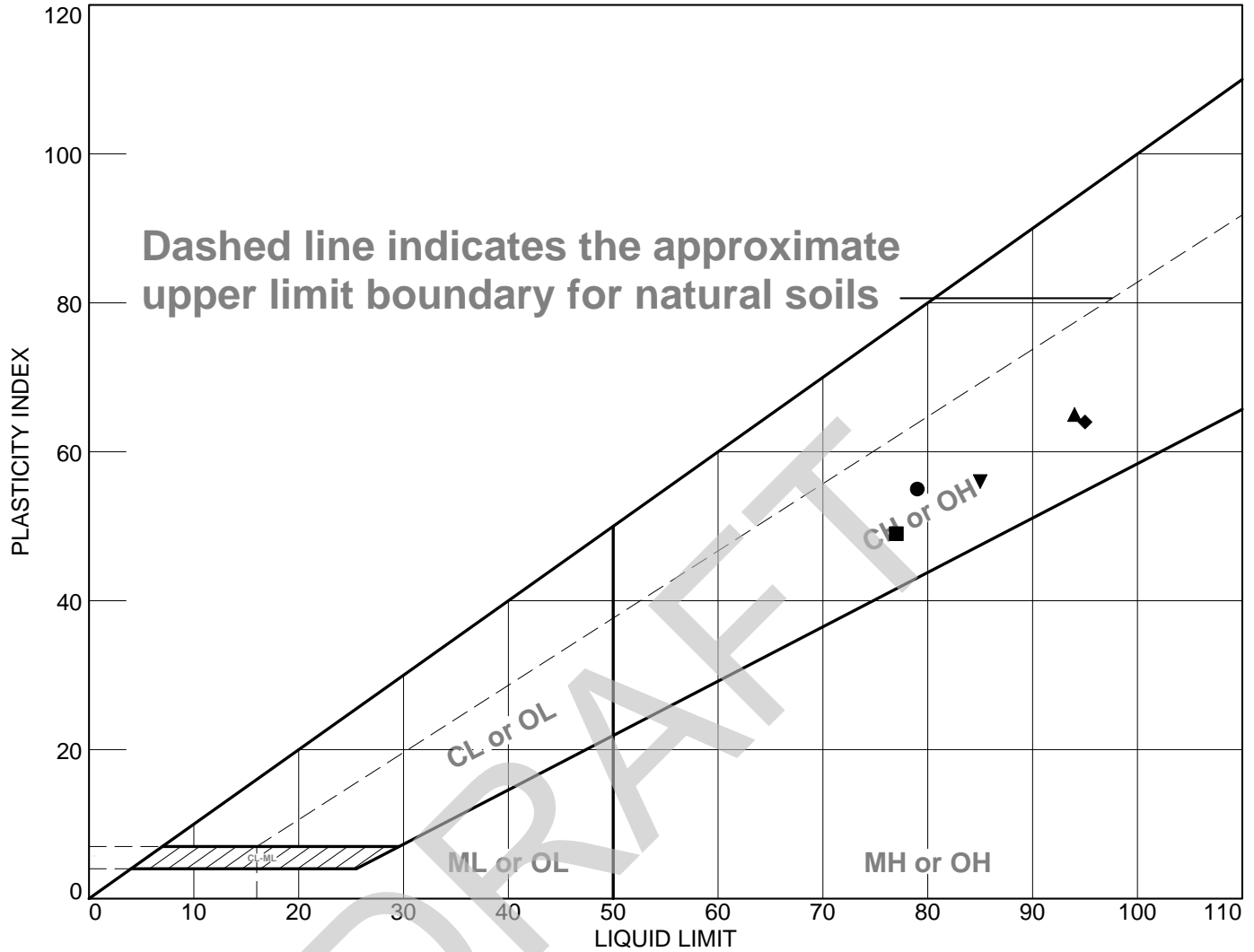
Project No.: 04.55124092

Figure

Tested By: ● SS/DW ■ ss ▲ DW ◆ DW ▼ DW Checked By: KA

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LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	NL-3A	NA	55		24	79	55	CH4
■	NL-3A	NA	63		28	77	49	CH4
▲	NL-3A	NA	79		29	94	65	CH4
◆	NL-3A	NA	82		31	95	64	CH4
▼	NL-3A	NA	86		29	85	56	CH4

Fugro Consultants, Inc.

Baton Rouge, LA

Client: GeoEngineers

Project: Mid Barataria Diversion

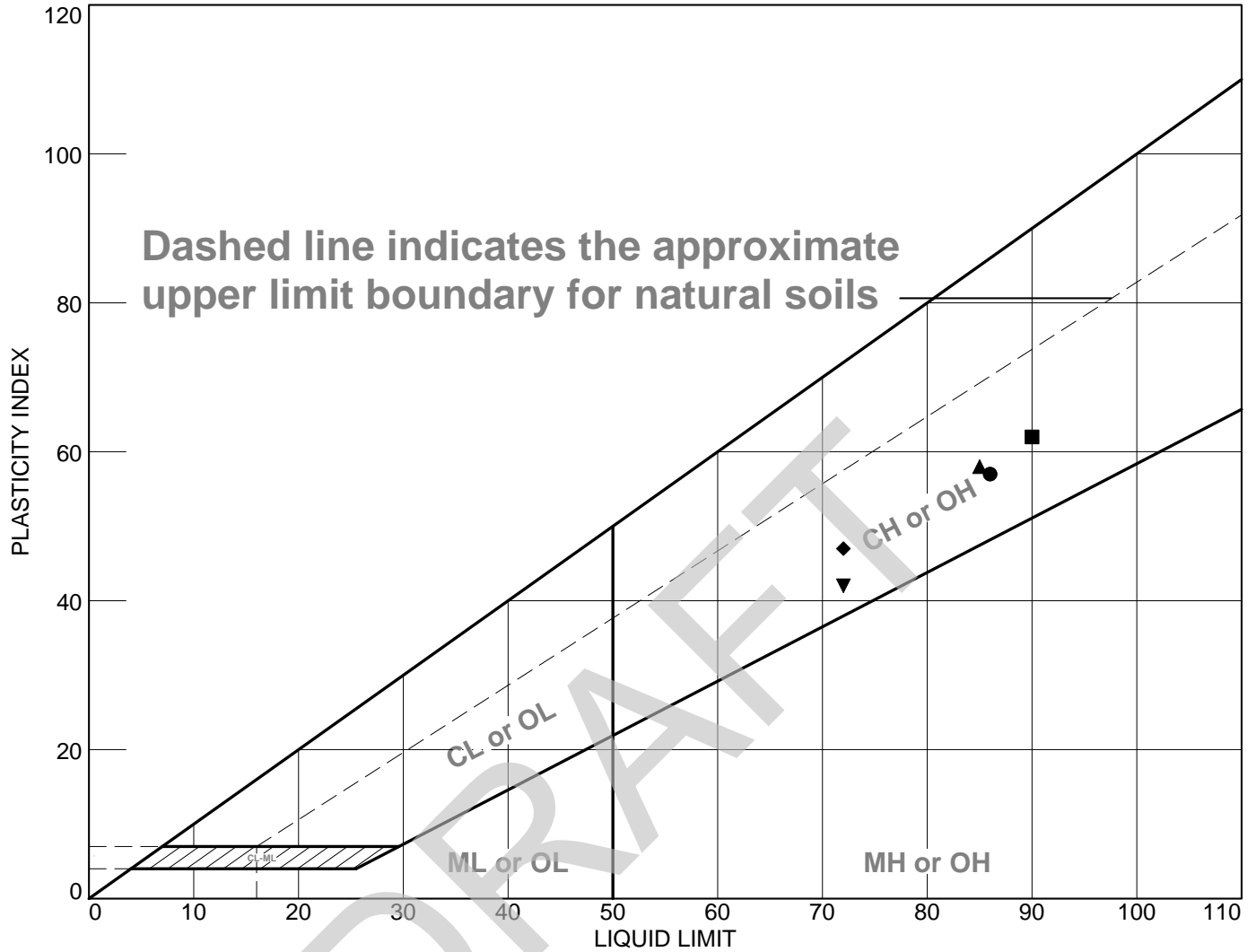
Project No.: 04.55124092

Figure

Tested By: ● DW ■ SS ▲ DW ◆ DW ▼ SS Checked By: KA

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LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	NL-3A	NA	93.8		29	86	57	CH4
■	NL-3A	NA	97		28	90	62	CH4
▲	NL-3A	NA	103		27	85	58	CH4
◆	NL-3A	NA	106		25	72	47	CH3
▼	NL-3A	NA	109		30	72	42	CH3

Fugro Consultants, Inc.

Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No.: 04.55124092

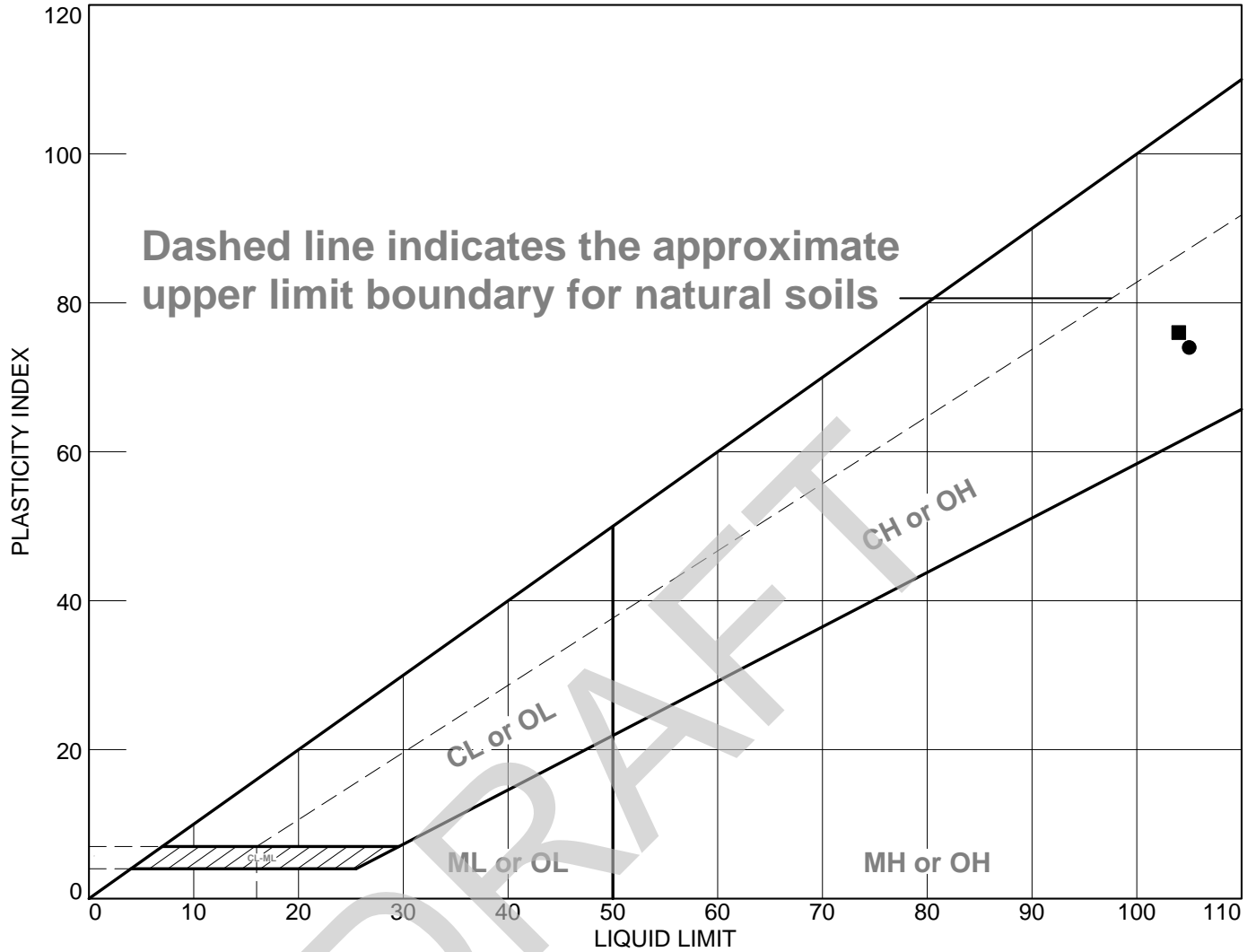
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Tested By: SS

Checked By: KA

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LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	NL-3A	NA	121		31	105	74	CH4
■	NL-3A	NA	131		28	104	76	CH

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Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No.: 04.55124092

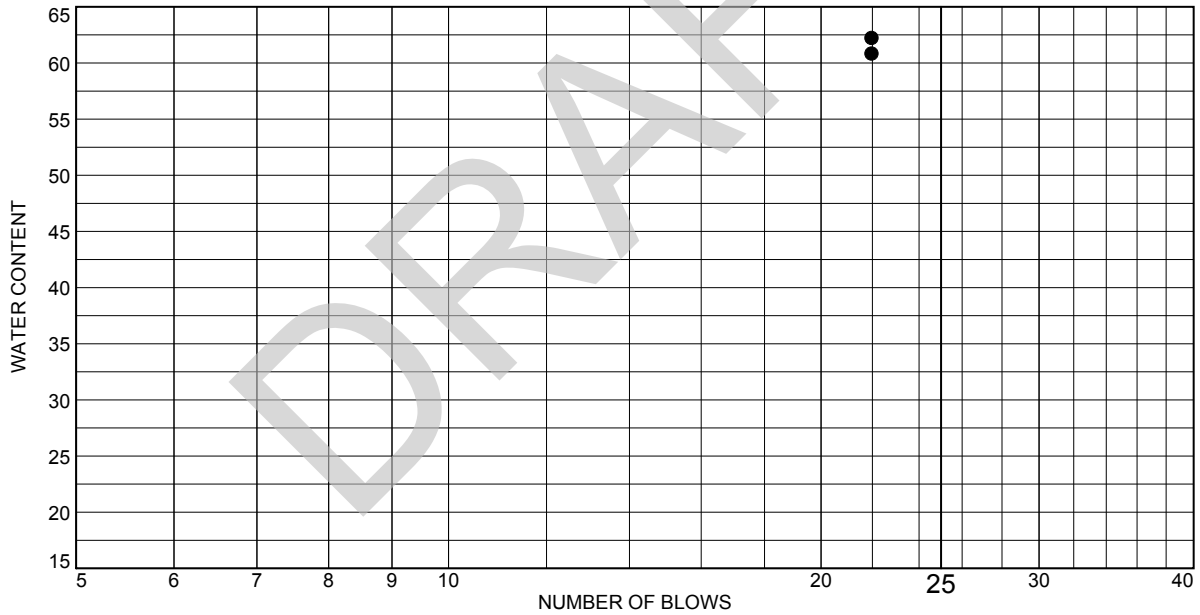
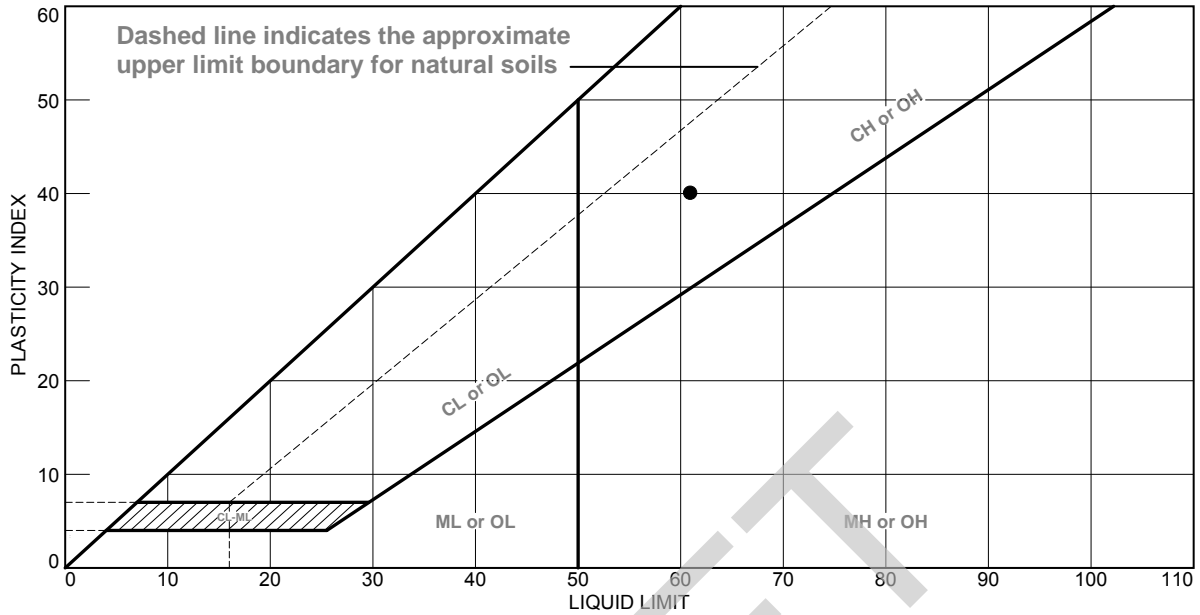
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Tested By: ● SS ■ DW

Checked By: KA

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LIQUID AND PLASTIC LIMITS TEST REPORT

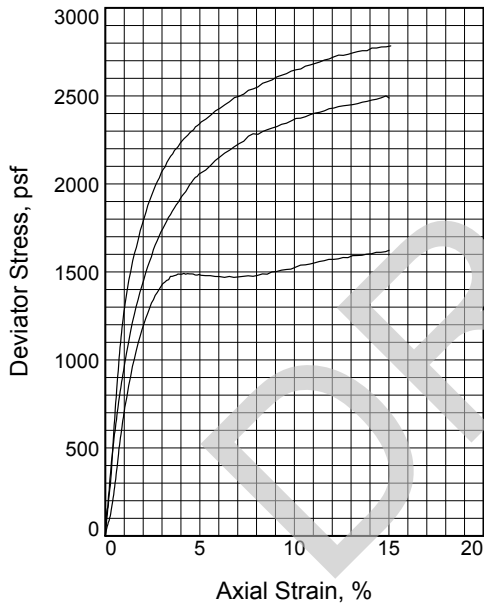
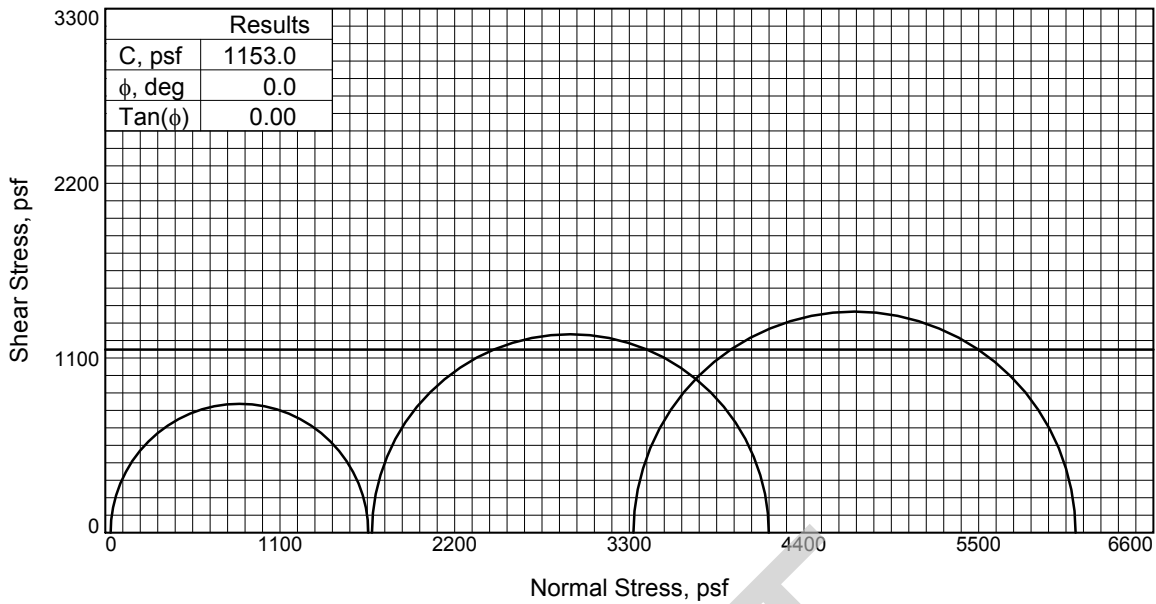


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
St, Gr Fat CLAY with silt pockets	61	21	40			(CH2)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 0-1
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3
Initial			
Water Content, %	27.9	27.7	30.3
Dry Density, pcf	88.0	92.1	90.3
Saturation, %	80.8	88.2	92.4
Void Ratio	0.9502	0.8638	0.9009
Diameter, in.	1.387	1.372	1.401
Height, in.	2.803	2.803	2.803
At Test			
Water Content, %	34.6	31.4	32.8
Dry Density, pcf	88.0	92.1	90.3
Saturation, %	100.0	100.0	100.0
Void Ratio	0.9502	0.8638	0.9009
Diameter, in.	1.387	1.372	1.401
Height, in.	2.803	2.803	2.803
Strain rate, in./min.	15.017	15.033	15.017
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	0.230	11.660	23.100
Fail. Stress, psf	1623.1	2499.8	2784.2
Strain, %	15.0	14.8	15.1
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	1656.2	4178.9	6110.6
σ_3 Failure, psf	33.1	1679.0	3326.4

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY with silt pockets (CH2)

LL= 61 PL= 21 PI= 40

Assumed Specific Gravity= 2.75

Remarks: Failure Type:
1 45 Degree Shear
2 Bulge
3 Bulge

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 0-1

Proj. No.: B13-018 **Date Sampled:** 6/4/13

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

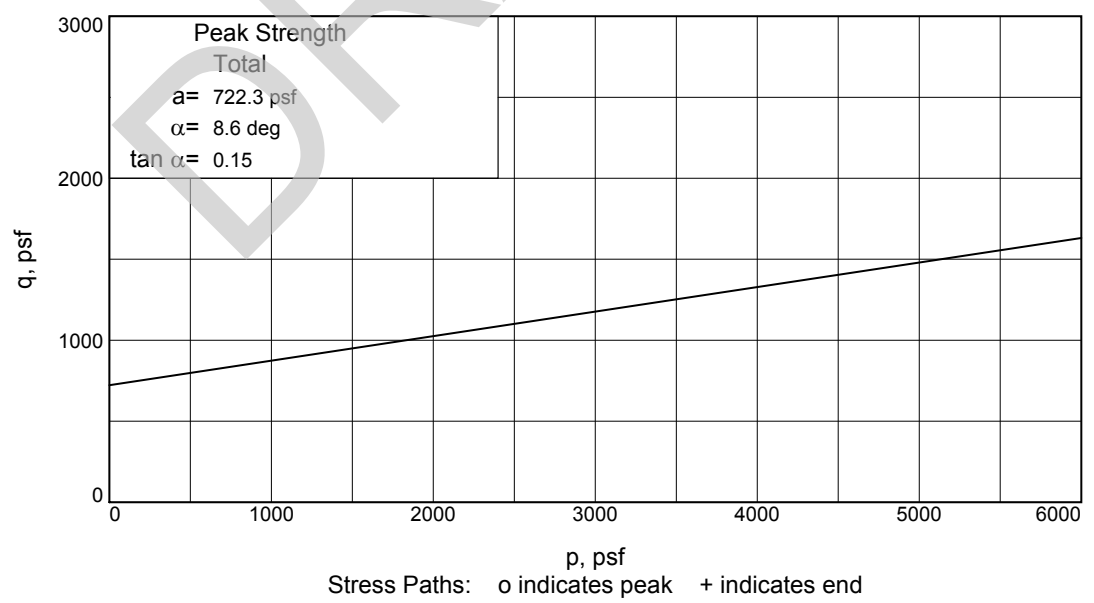
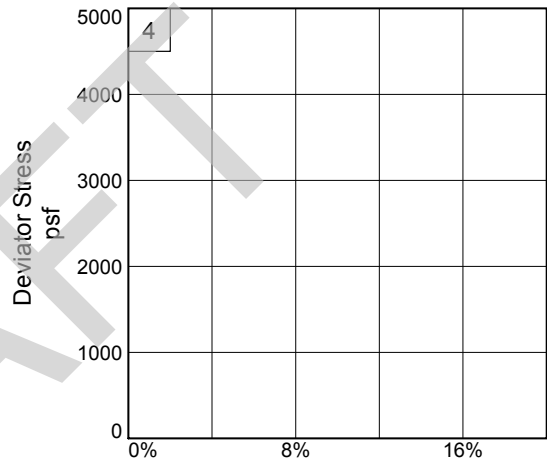
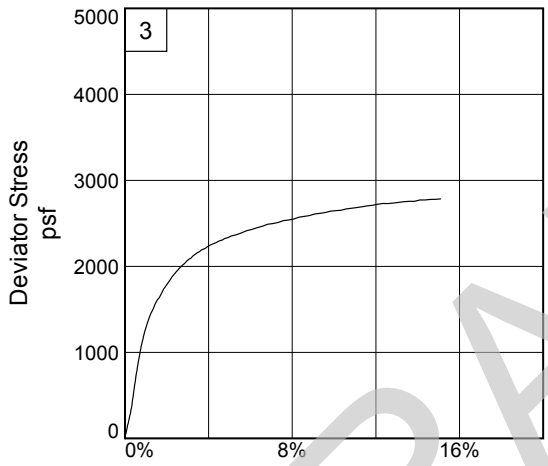
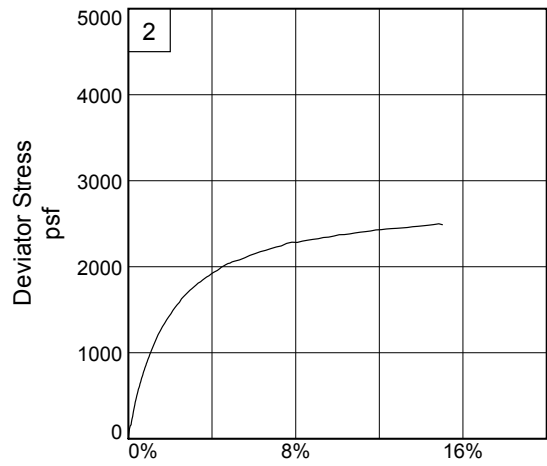
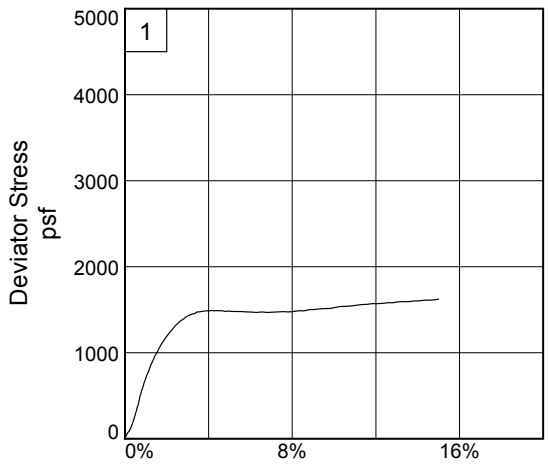
Confidential Information: Privileged & Confidential Work Product

Tested By: MP

Checked By: RLJ

"Confidential Information; Privileged & Confidential Work Product"

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers
Project: Mid Baratara Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 0-1

Figure _____

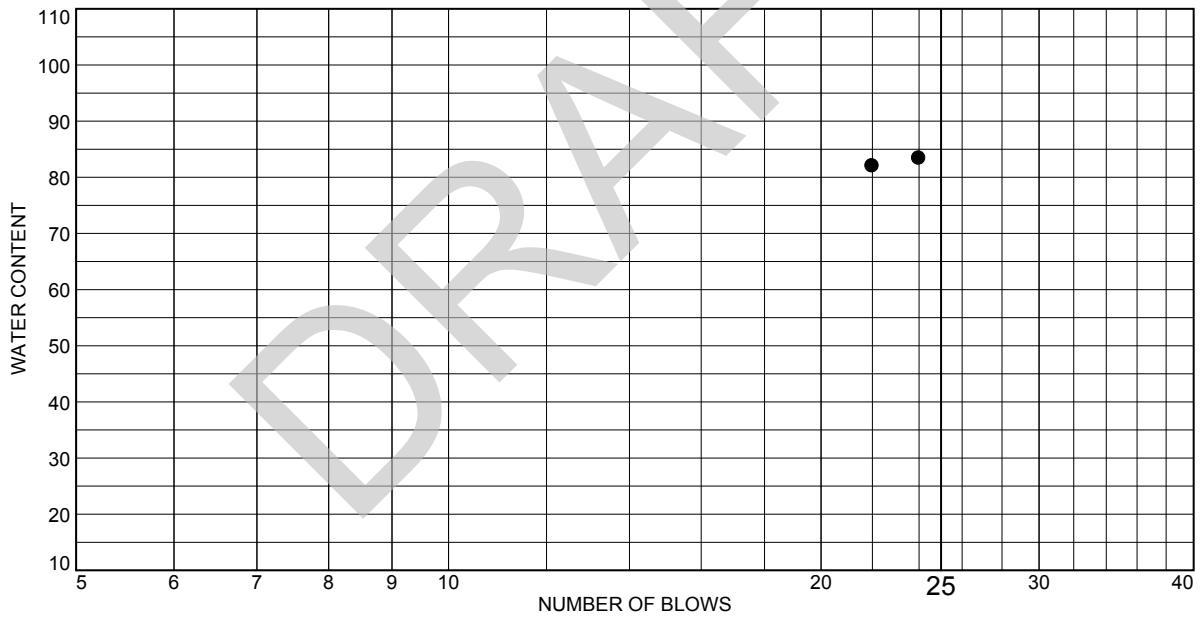
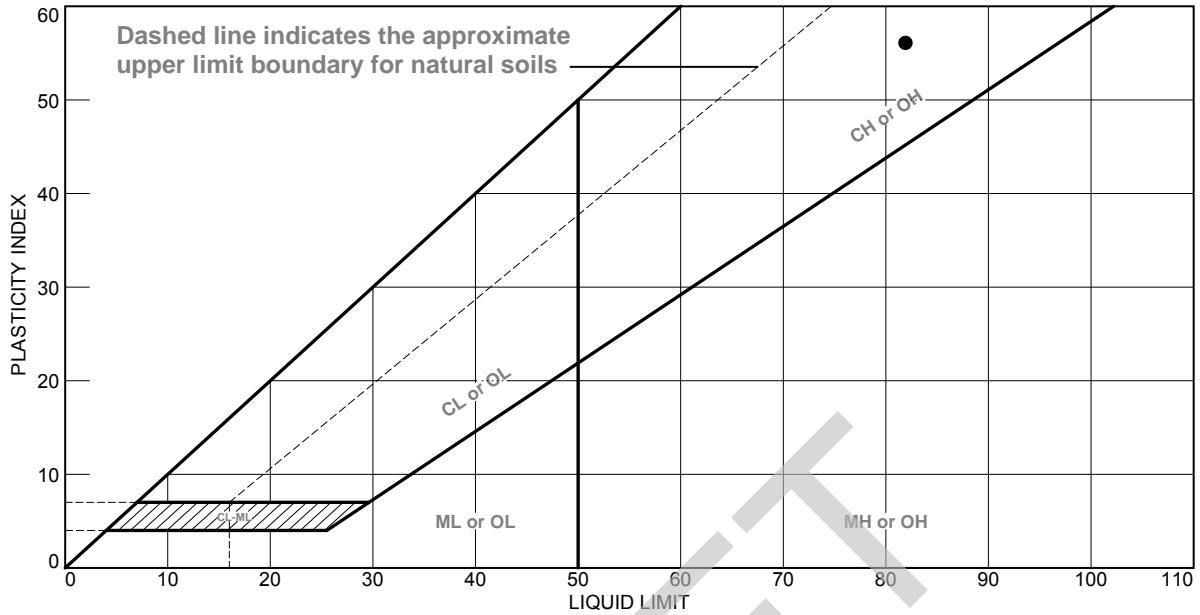
Southern Earth Sciences, Inc.

Tested By: MP

Checked By: RLJ

"Confidential Information; Privileged & Confidential Work Product"

LIQUID AND PLASTIC LIMITS TEST REPORT

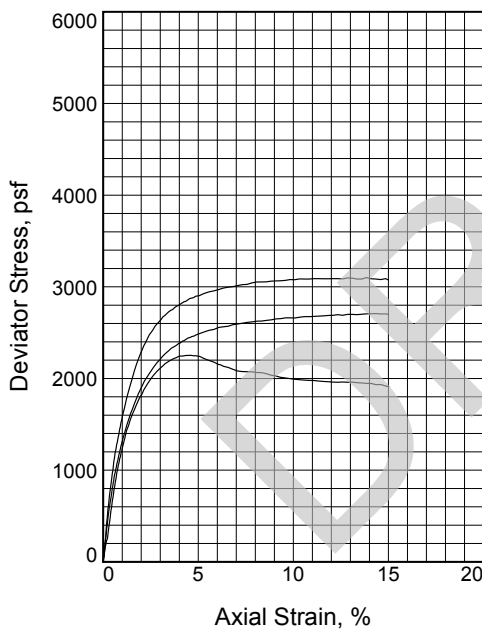
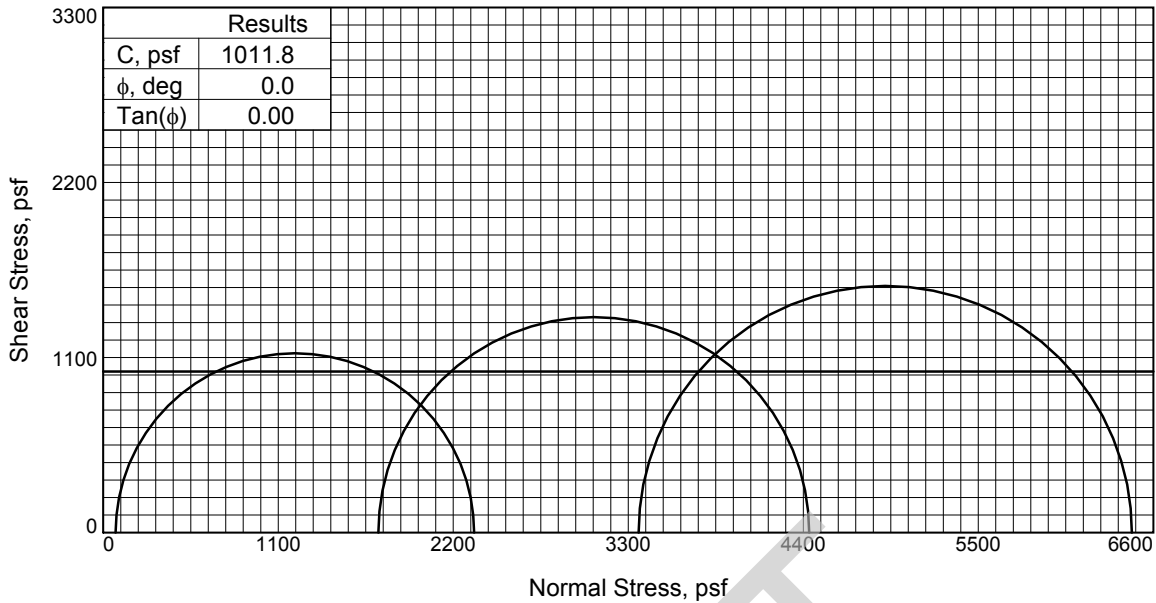


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● St, Gr and Br Fat CLAY with trace silt	82	26	56			(CH3)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 1-2
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	36.5	35.8	32.3
	Dry Density, pcf	84.6	83.0	85.8
	Saturation, %	97.5	92.2	88.8
	Void Ratio	1.0298	1.0680	1.0009
	Diameter, in.	1.381	1.403	1.405
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	37.4	38.8	36.4
	Dry Density, pcf	84.6	83.0	85.8
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.0298	1.0680	1.0009
Strain rate, in./min.	Diameter, in.	1.381	1.403	1.405
	Height, in.	2.803	2.803	2.803
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	0.540	12.010	23.370	
Fail. Stress, psf	Strain, %	2253.4	2707.9	3100.2
	Strain, %	4.6	14.3	13.8
Ult. Stress, psf	Strain, %			
	σ_1 Failure, psf	2331.2	4437.4	6465.5
σ_3 Failure, psf	77.8	1729.4	3365.3	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr and Br Fat CLAY with trace silt (CH3)

LL= 82 **PL=** 26 **PI=** 56

Assumed Specific Gravity= 2.75

Remarks: Failure Type:

- 1 SLS
- 2 Bulge
- 3 Bulge

Figure _____

Client: GeoEngineers

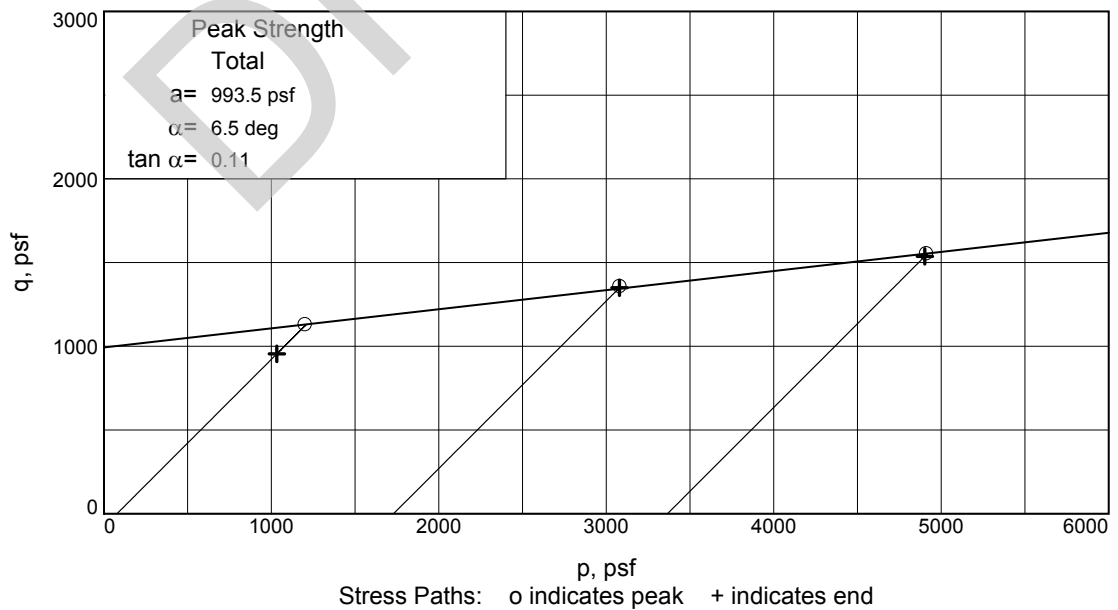
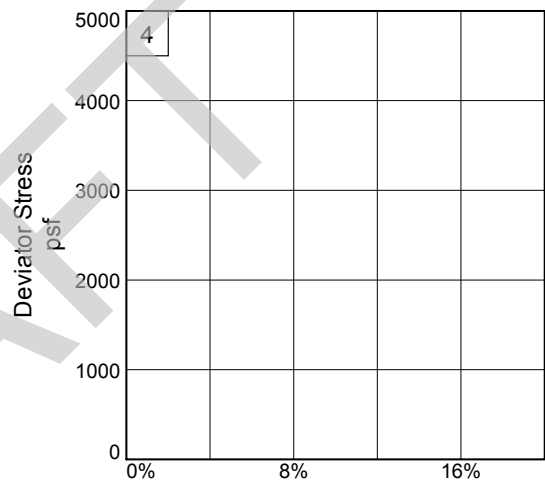
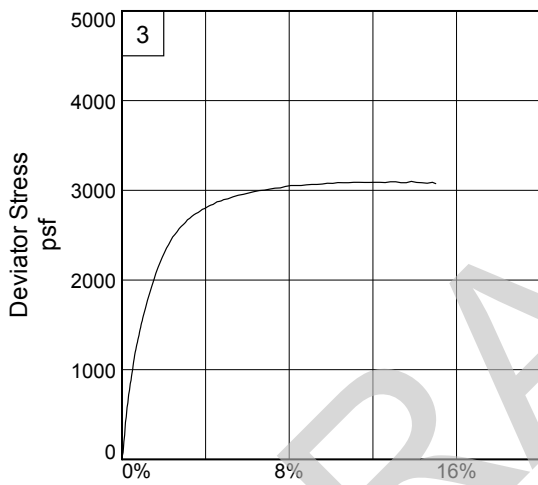
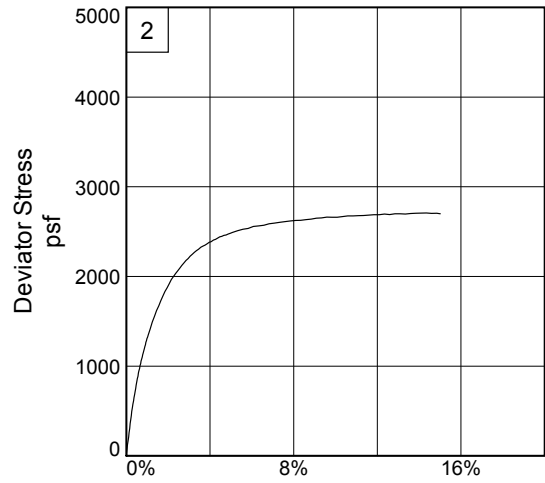
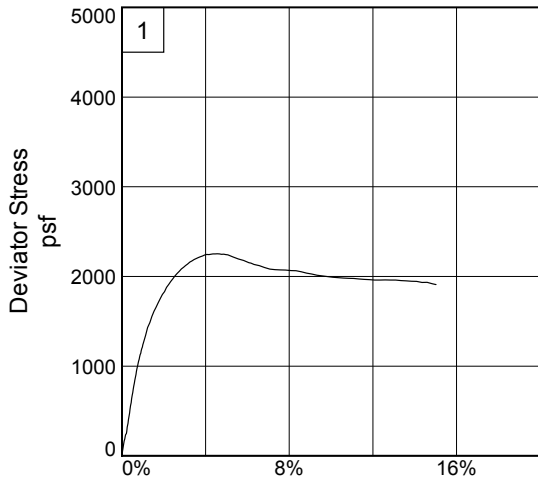
Project: Mid Baratara Diversion

Source of Sample: NL-6A **Depth:** 1-2

Proj. No.: B13-018 **Date Sampled:** 6/4/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-6A

Depth: 1-2

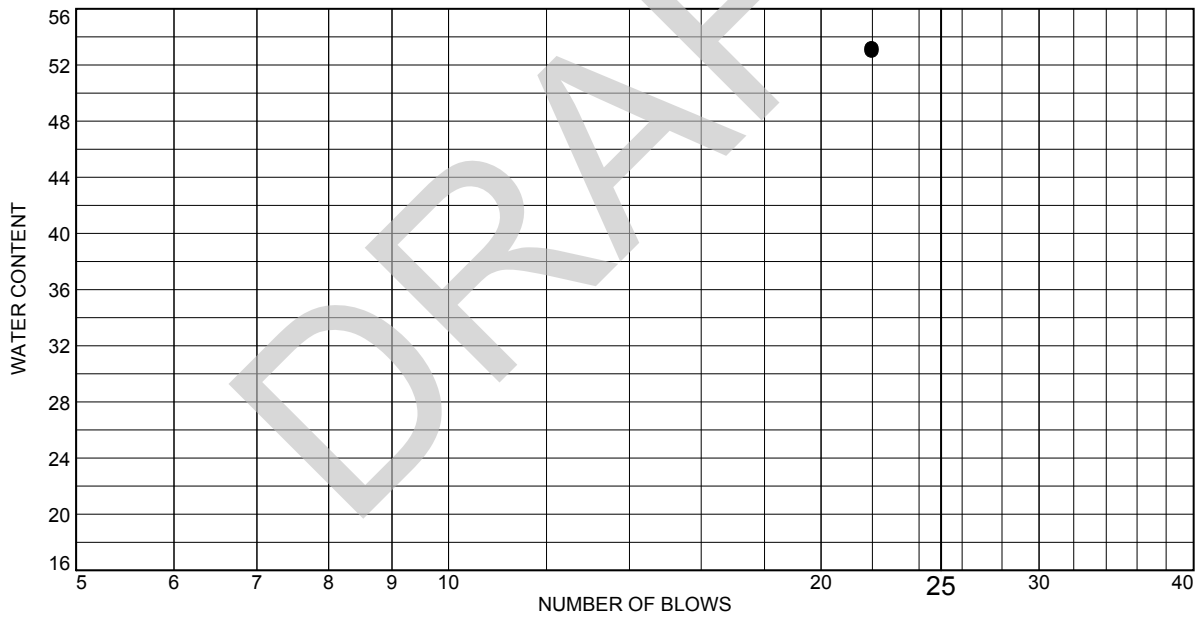
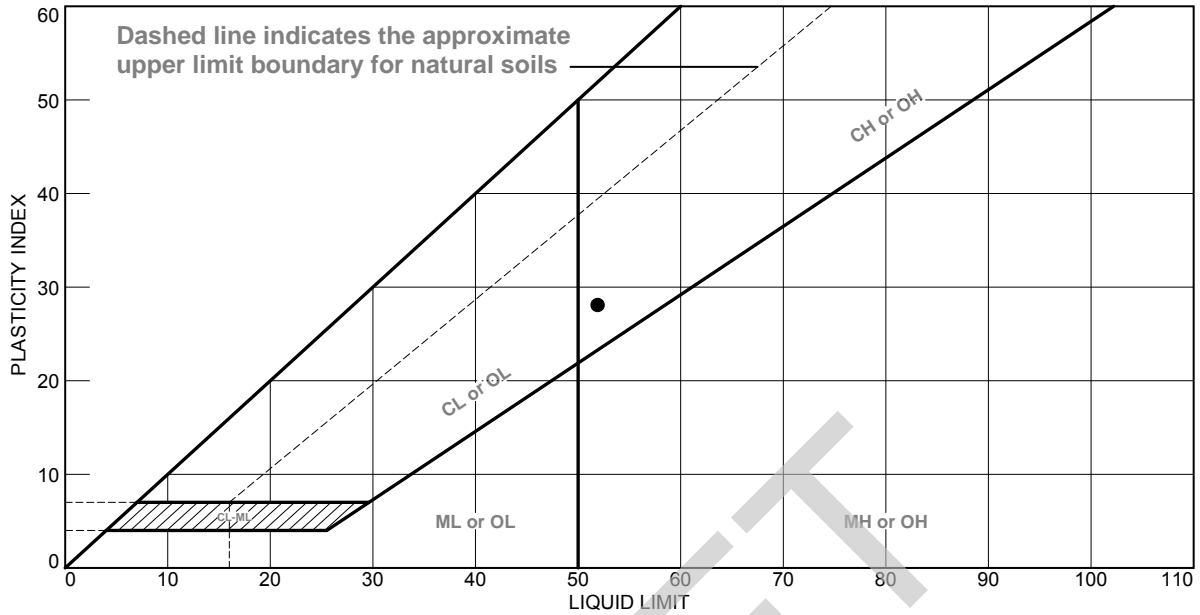
Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

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LIQUID AND PLASTIC LIMITS TEST REPORT



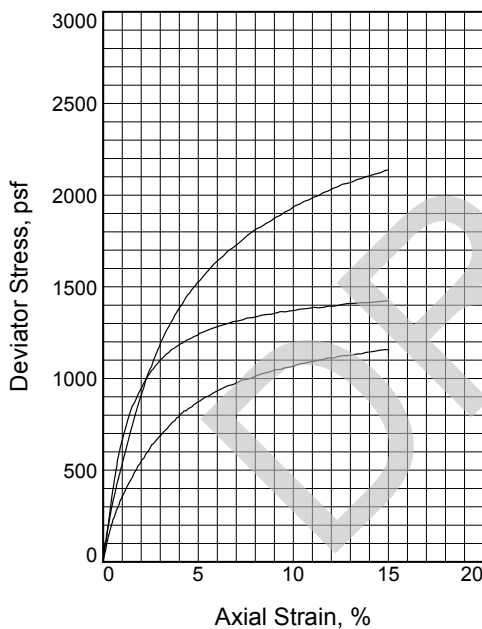
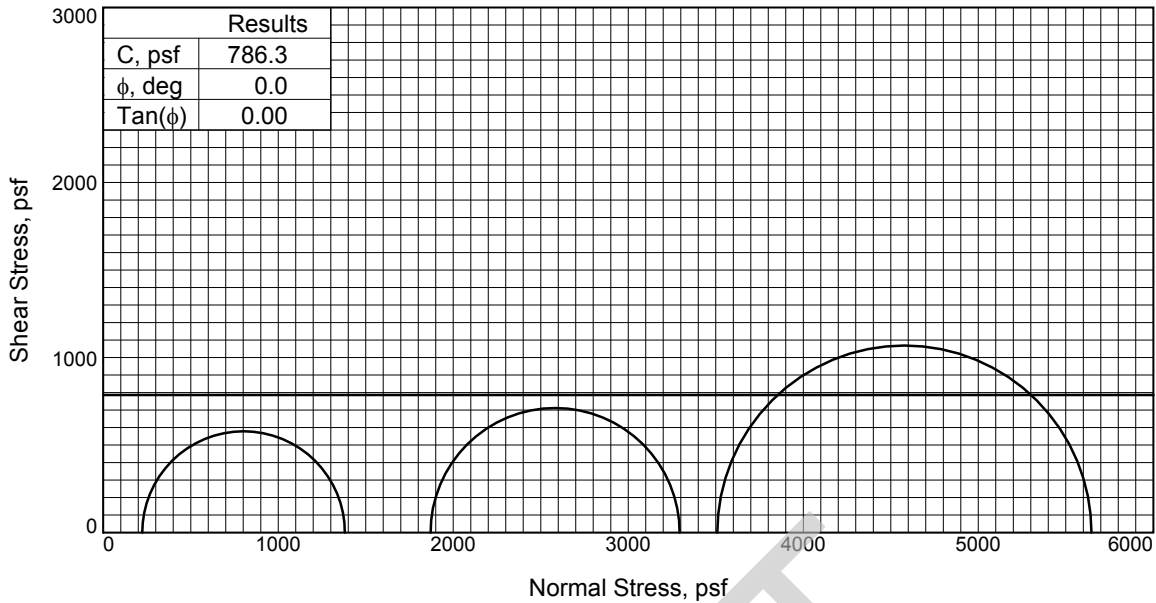
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
M, Gr and Br Fat CLAY with silt pockets	52	24	28			(CH2)

Project No. B13-018 Client: GeoEngineers
 Project: Mid Barataria Diversion
 Source of Sample: NL-6A Depth: 4.4-5
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Remarks:

 Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	39.7	41.6	33.1
	Dry Density, pcf	81.7	78.5	88.5
	Saturation, %	99.2	96.6	96.8
	Void Ratio	1.1005	1.1856	0.9397
	Diameter, in.	1.402	1.399	1.397
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	40.0	43.1	34.2
	Dry Density, pcf	81.7	78.5	88.5
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.1005	1.1856	0.9397
Strain rate, in./min.	Diameter, in.	1.402	1.399	1.397
	Height, in.	2.803	2.803	2.803
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	1.550	12.990	24.370	
Fail. Stress, psf	Strain, %	1157.5	1423.0	2137.1
	Strain, %	14.8	15.0	15.0
Ult. Stress, psf	Strain, %			
	σ_1 Failure, psf	1380.7	3293.6	5646.4
σ_3 Failure, psf	223.2	1870.6	3509.3	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr and Br Fat CLAY with silt pockets (CH2)

LL= 52 PL= 24 PI= 28

Assumed Specific Gravity= 2.75

Remarks: Failure Type:

- 1 60 Degree Shear
- 2 Bulge
- 3 Bulge

Figure _____

Client: GeoEngineers

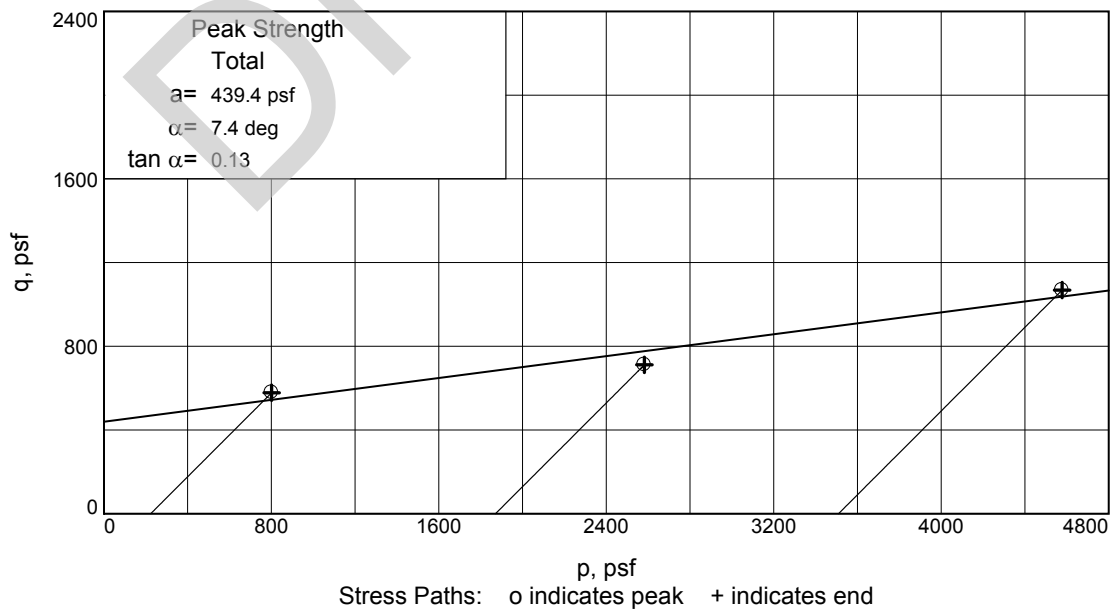
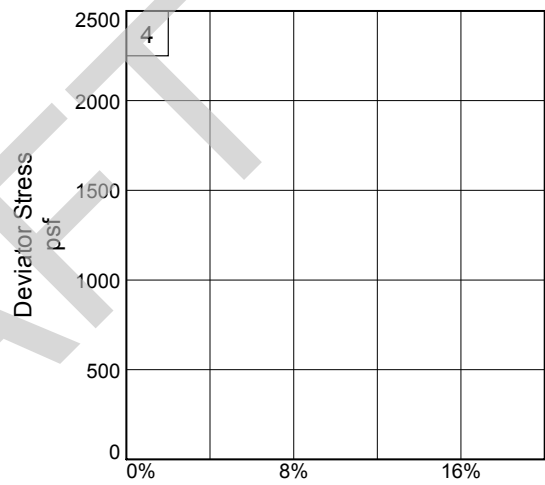
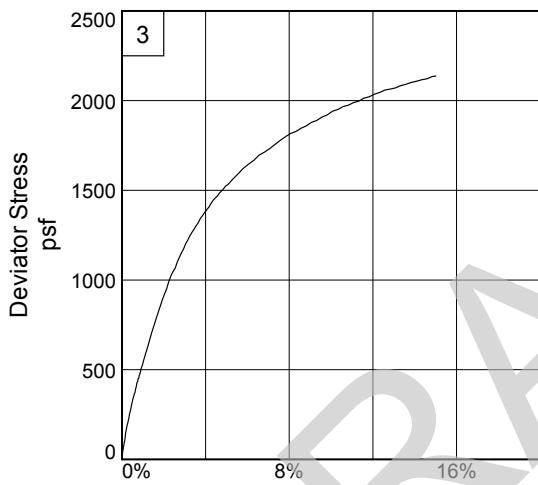
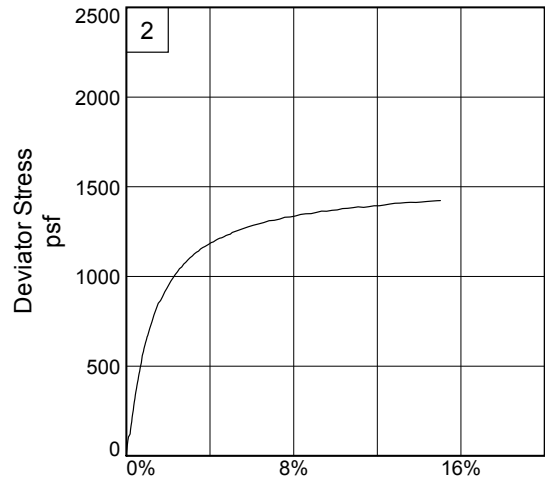
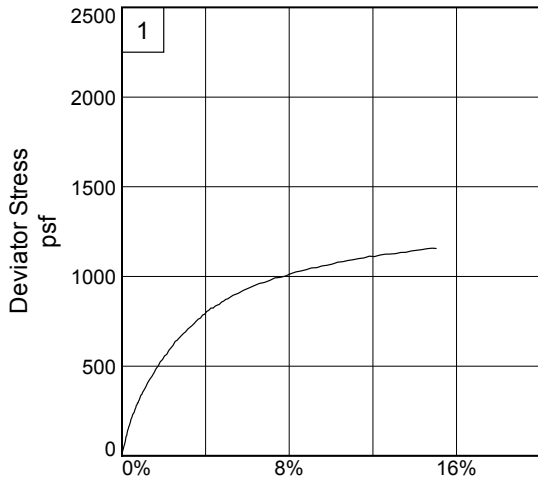
Project: Mid Baratara Diversion

Source of Sample: NL-6A **Depth:** 4.4-5

Proj. No.: B13-018 **Date Sampled:** 6/4/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-6A

Depth: 4.4-5

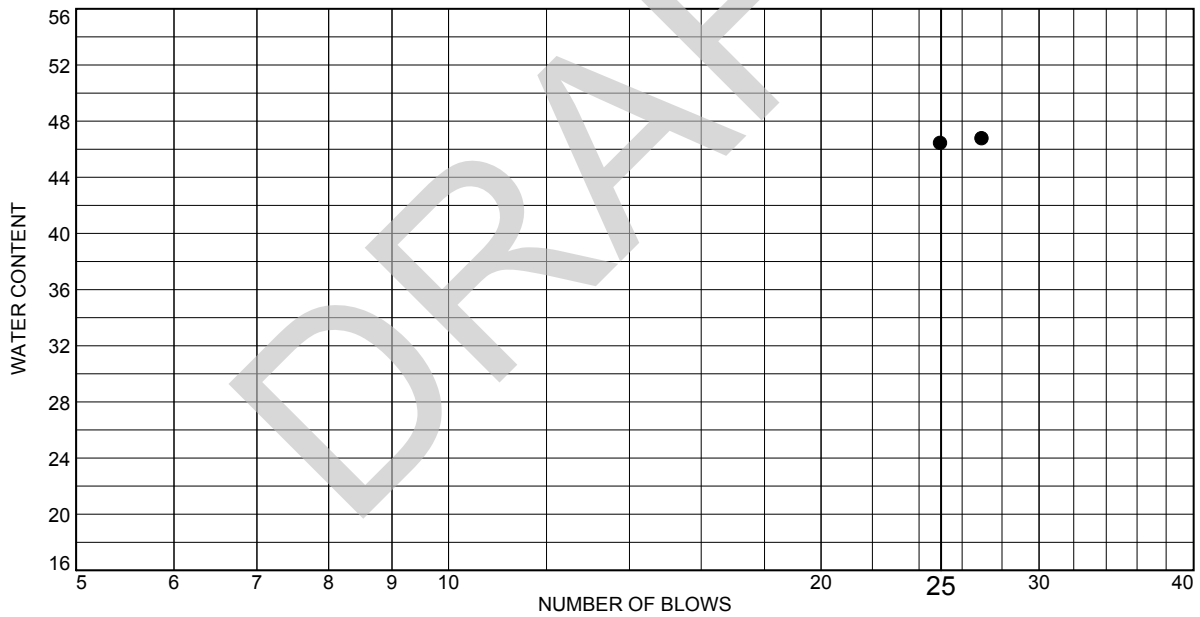
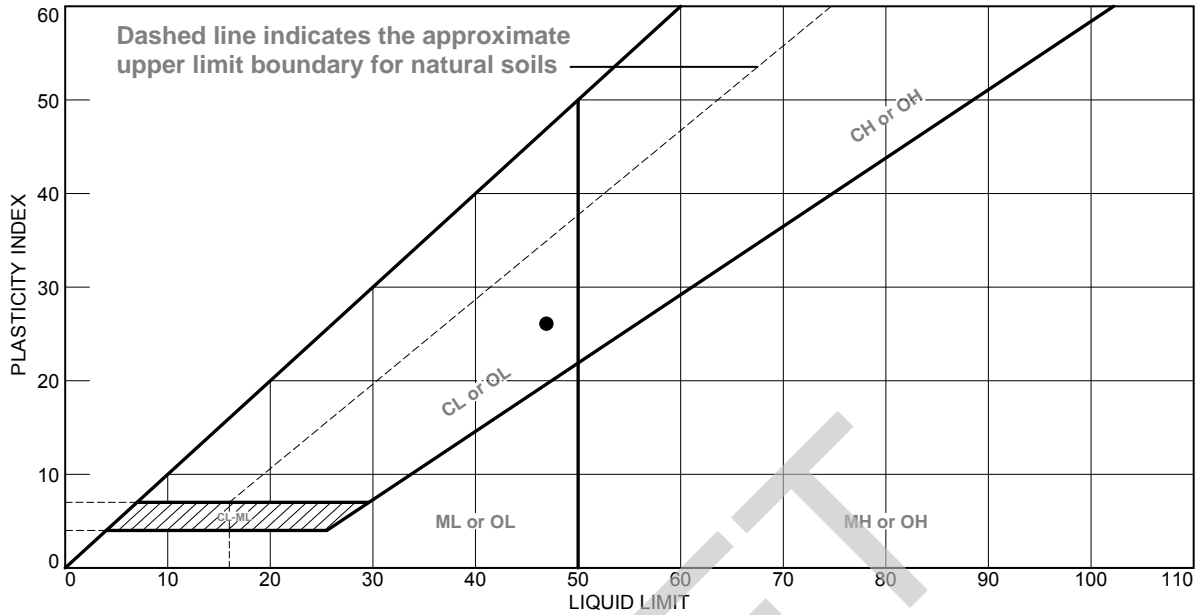
Project No.: B13-018

Figure _____

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LIQUID AND PLASTIC LIMITS TEST REPORT

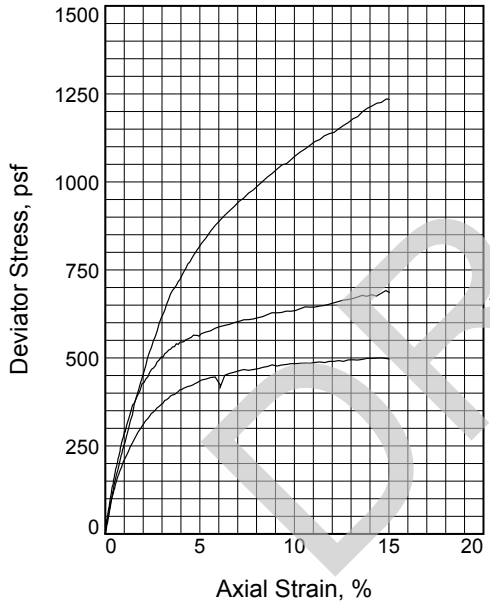
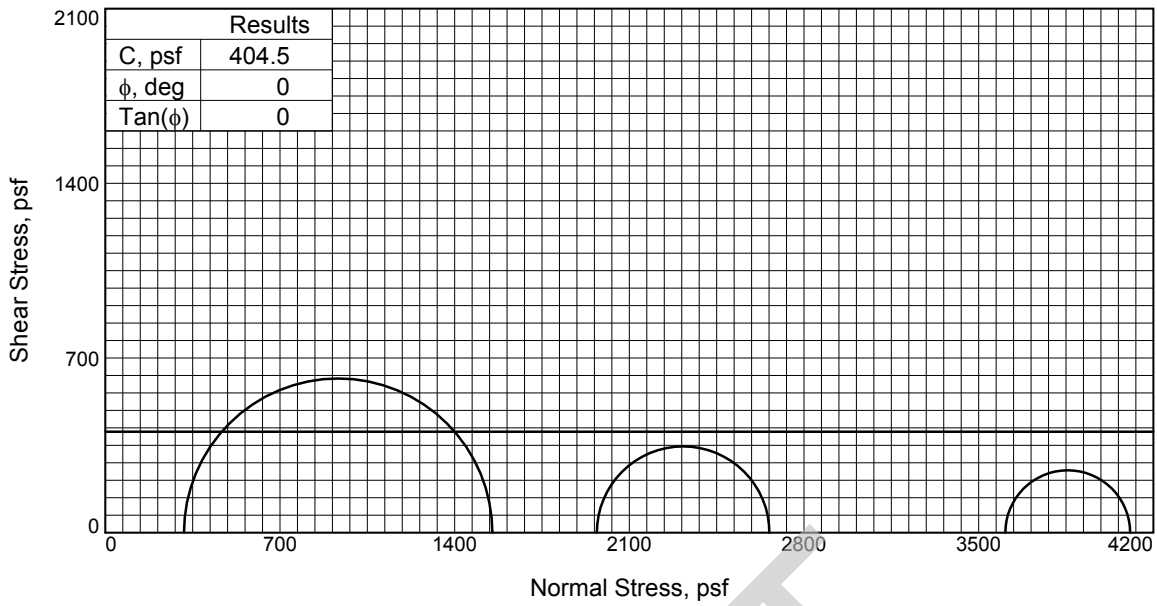


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
So, Gr Lean CLAY with clay pockets	47	21	26			(CL)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 6-7
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:
 ● Atterberg ran on Lean CLAY portion of sample

Figure



Sample No.	1	2	3
Initial			
Water Content, %	30.9	37.9	44.0
Dry Density, pcf	88.1	80.5	73.2
Saturation, %	89.6	92.1	89.9
Void Ratio	0.9481	1.1316	1.3469
Diameter, in.	1.407	1.397	1.396
Height, in.	2.803	2.803	2.803
At Test			
Water Content, %	34.5	41.2	49.0
Dry Density, pcf	88.1	80.5	73.2
Saturation, %	100.0	100.0	100.0
Void Ratio	0.9481	1.1316	1.3469
Diameter, in.	1.407	1.397	1.396
Height, in.	2.803	2.803	2.803
Strain rate, in./min.	15.017	15.017	15.017
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	2.190	13.680	25.050
Fail. Stress, psf	1235.7	691.5	500.0
Strain, %	14.9	14.8	14.6
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	1551.1	2661.4	4107.2
σ_3 Failure, psf	315.4	1969.9	3607.2

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: So, Gr Lean CLAY with clay pockets (CL)

LL= 47 PL= 21 PI= 26

Assumed Specific Gravity= 2.75

Remarks: Failure Type:
Bulge
UU ran on Lean CLAY portion of sample

Client: GeoEngineers

Project: Mid Barataria Diversion

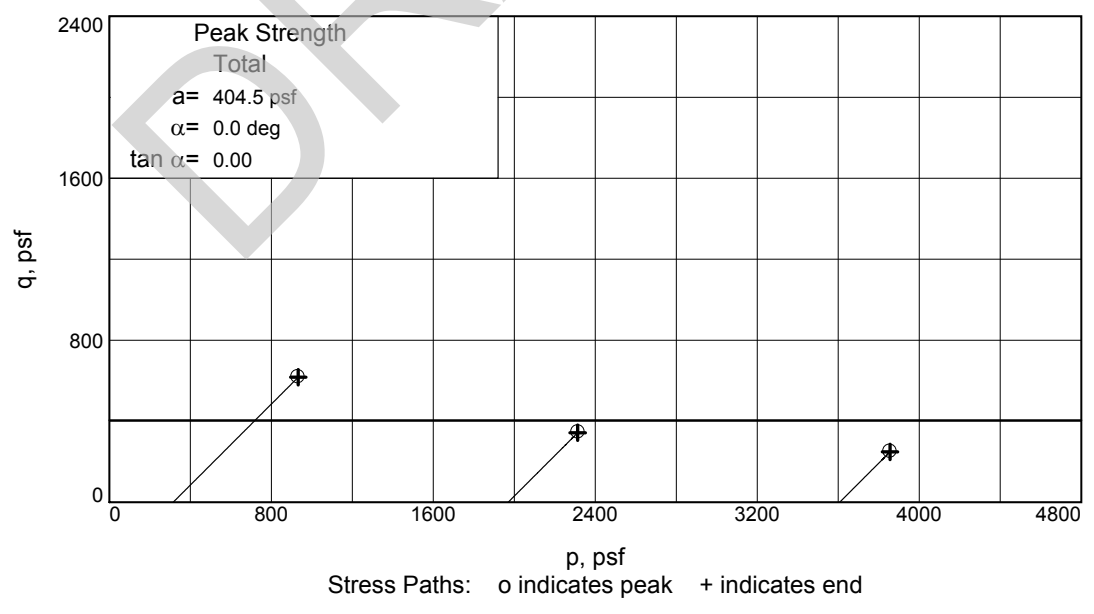
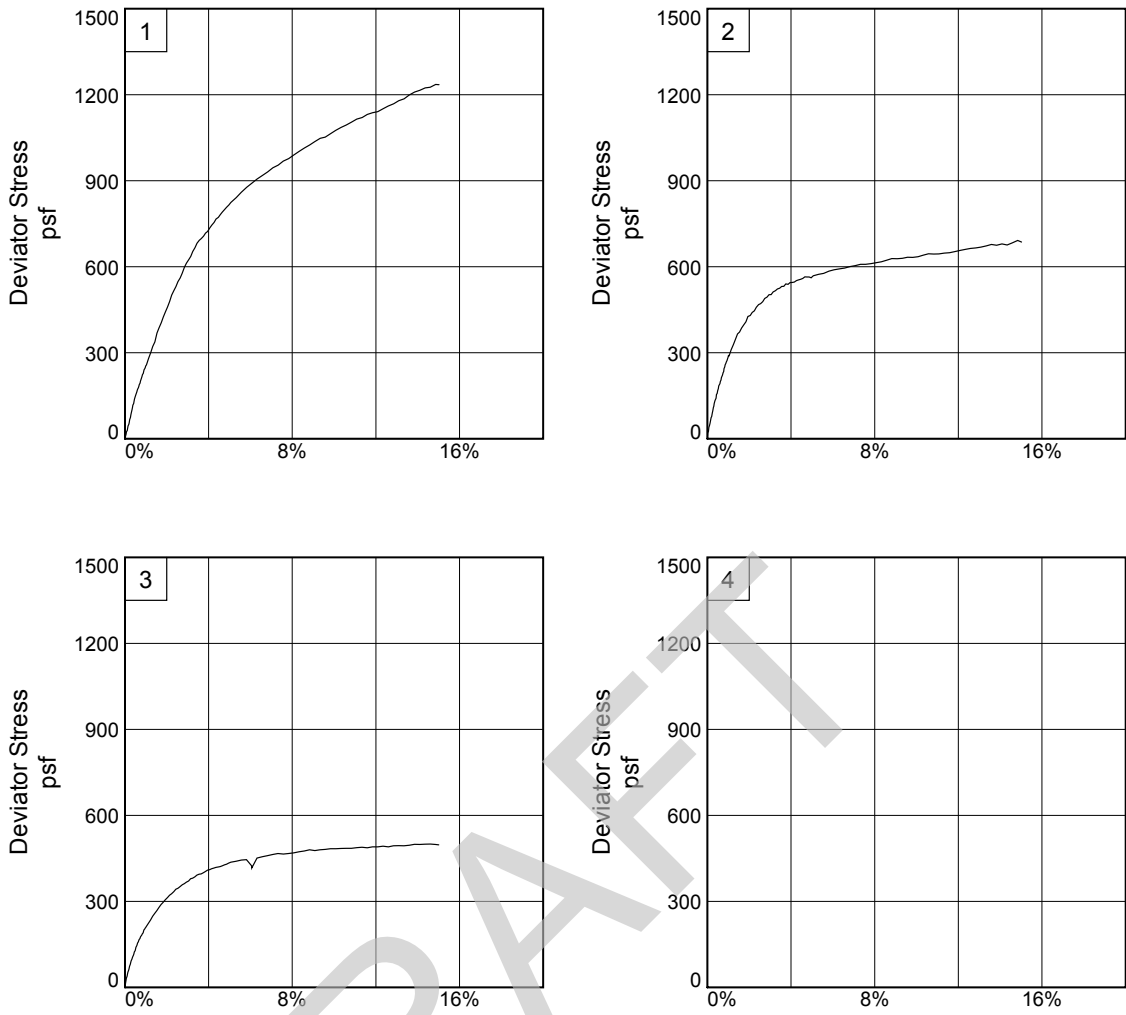
Source of Sample: NL-6A **Depth:** 6-7

Proj. No.: B13-018 **Date Sampled:** 6/4/13

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

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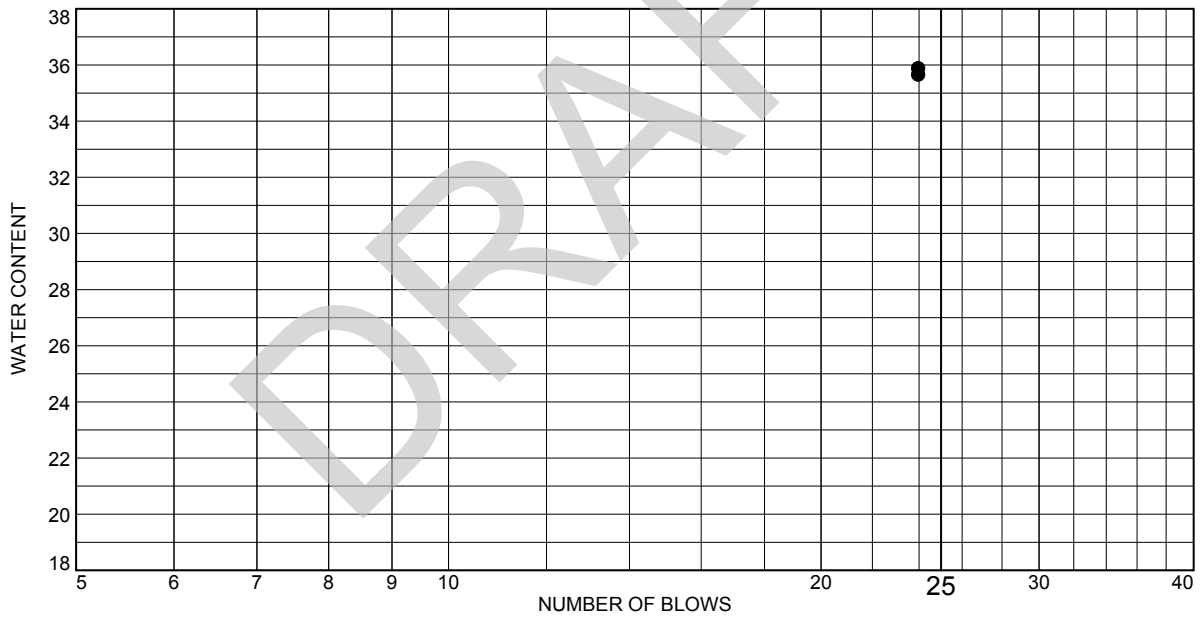
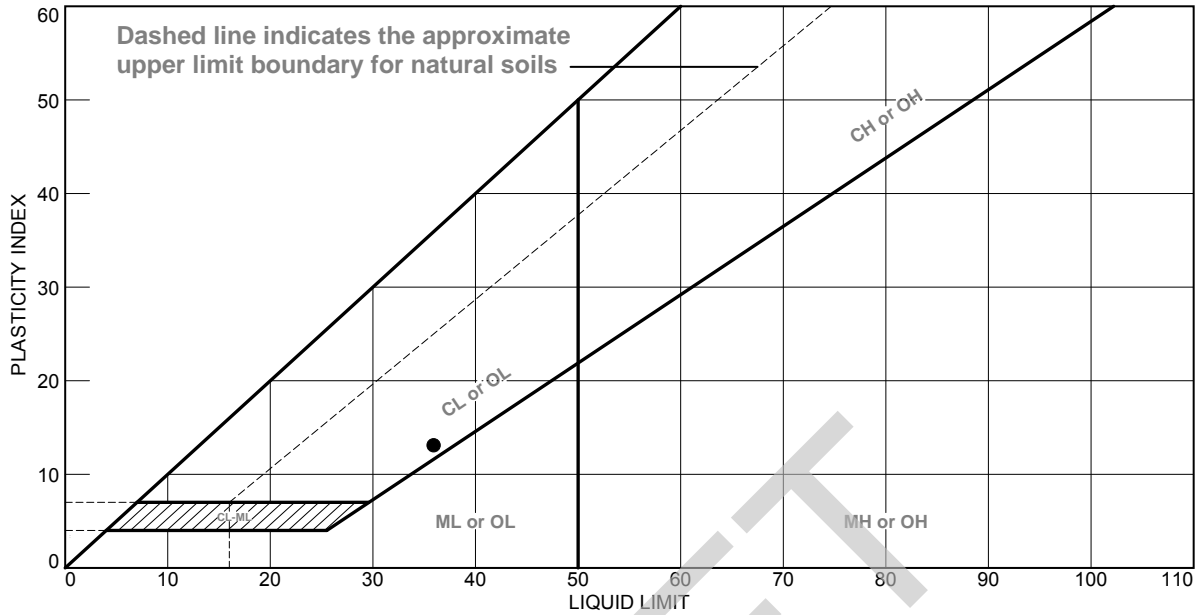
Client: GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 6-7
Figure _____

Southern Earth Sciences, Inc.

Tested By: MP _____ **Checked By:** RLJ _____
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LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
So, Gr and Br Lean CLAY with clay pockets	36	23	13			(CL4)

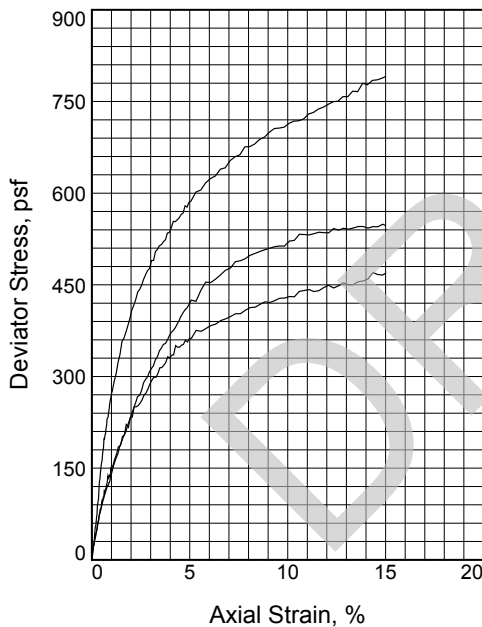
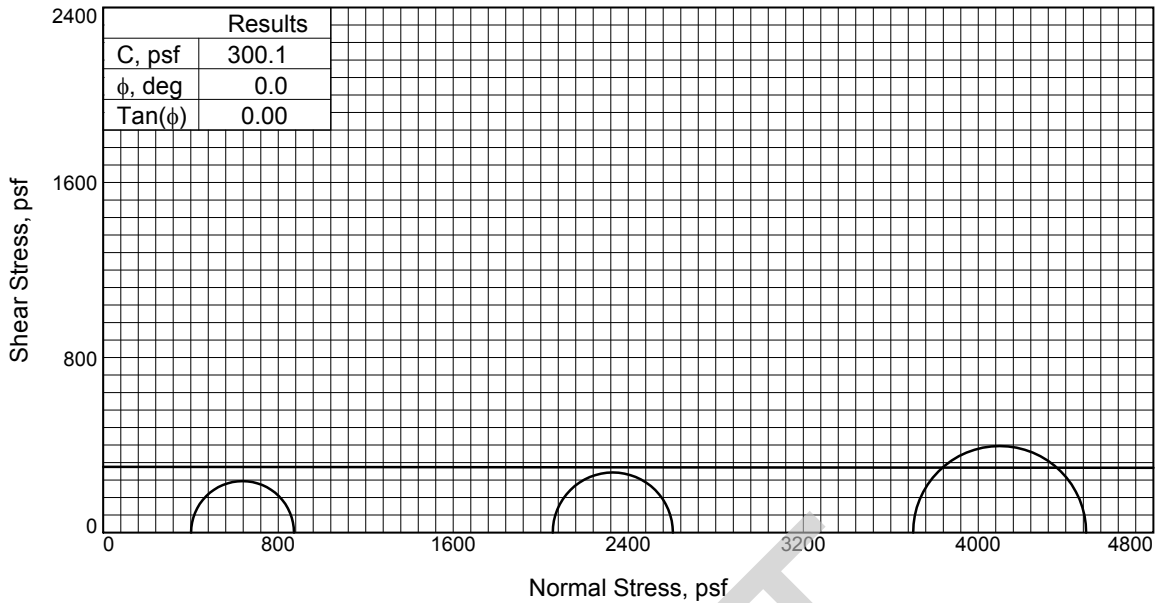
Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 8.6-9

Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	47.9	46.2	41.8
	Dry Density, pcf	72.1	72.8	77.5
	Saturation, %	95.4	93.6	94.7
	Void Ratio	1.3795	1.3569	1.2145
	Diameter, in.	1.409	1.354	1.401
	Height, in.	2.803	2.803	2.803
At Test	Water Content, %	50.2	49.3	44.2
	Dry Density, pcf	72.1	72.8	77.5
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.3795	1.3569	1.2145
	Diameter, in.	1.409	1.354	1.401
	Height, in.	2.803	2.803	2.803
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	2.790	14.270	25.710	
Fail. Stress, psf	470.1	549.0	790.8	
Strain, %	14.4	14.9	15.0	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	871.9	2603.9	4493.0	
σ_3 Failure, psf	401.8	2054.9	3702.2	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: So, Gr and Br Lean CLAY with clay pockets

LL= 36 **PL=** 23 **PI=** 13

Assumed Specific Gravity= 2.75

Remarks: Failure Type:

- 1 Bulge
- 2 Bulge
- 3 Bulge

Figure _____

Client: GeoEngineers

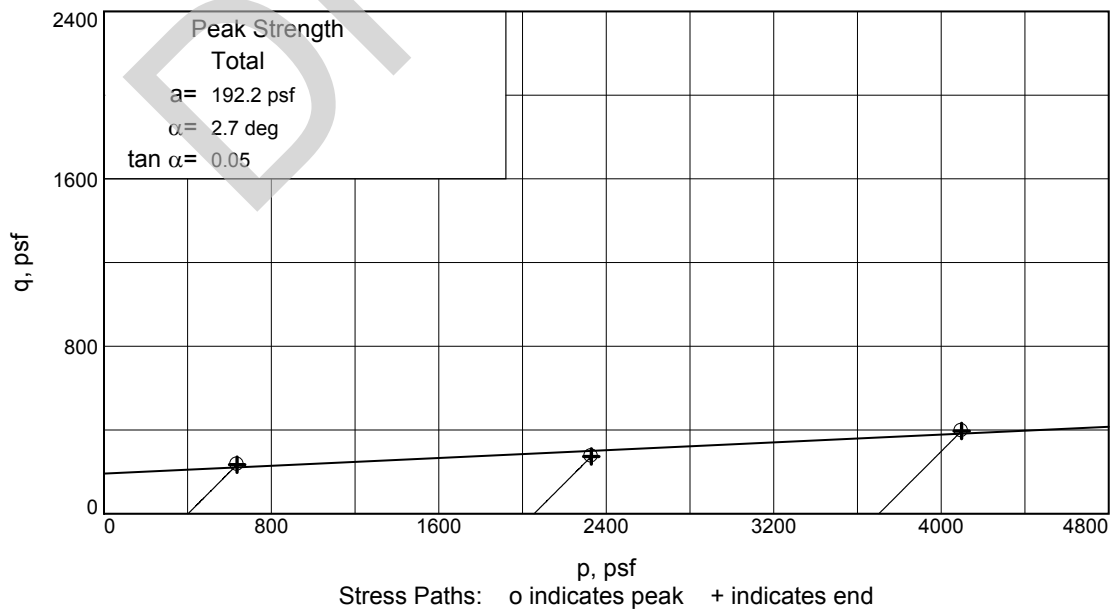
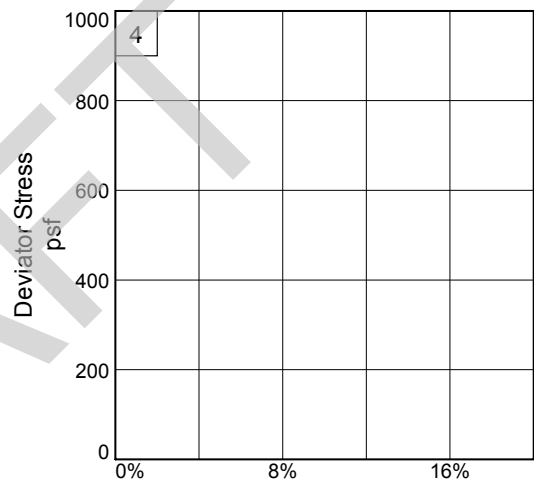
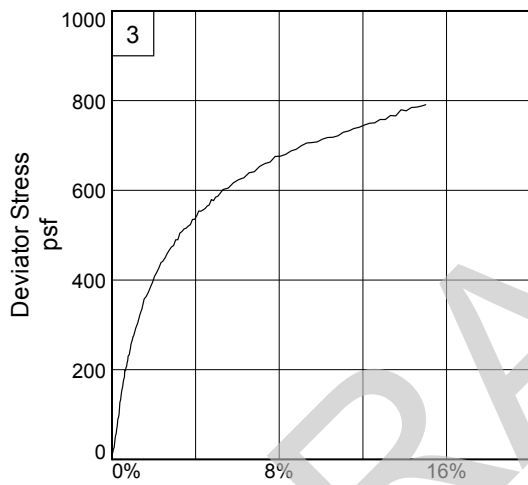
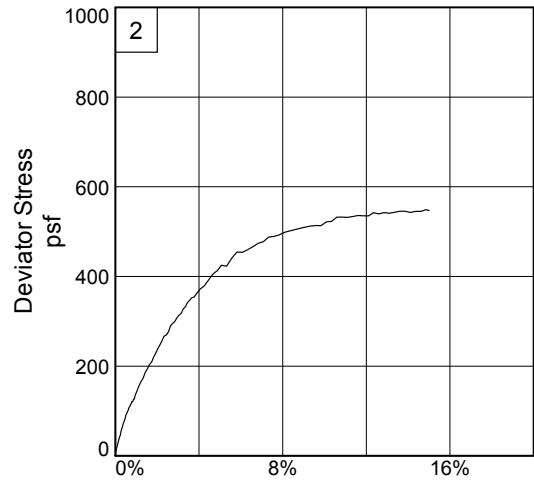
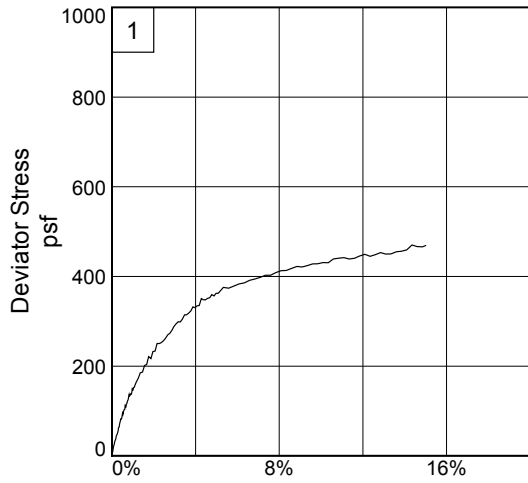
Project: Mid Baratara Diversion

Source of Sample: NL-6A **Depth:** 8.6-9

Proj. No.: B13-018 **Date Sampled:** 6/4/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-6A

Depth: 8.6-9

Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						92.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	92.4		

Material Description
Alternating layers of Gr CLAY, SILT and SILTY SAND

Atterberg Limits
PL= LL= PI=

Classification
USCS= (ML) AASHTO=

Remarks
Moisture Content: 29.3%

* SESI

Source of Sample: NL-6A

Depth: 9.6-10.3

Date:

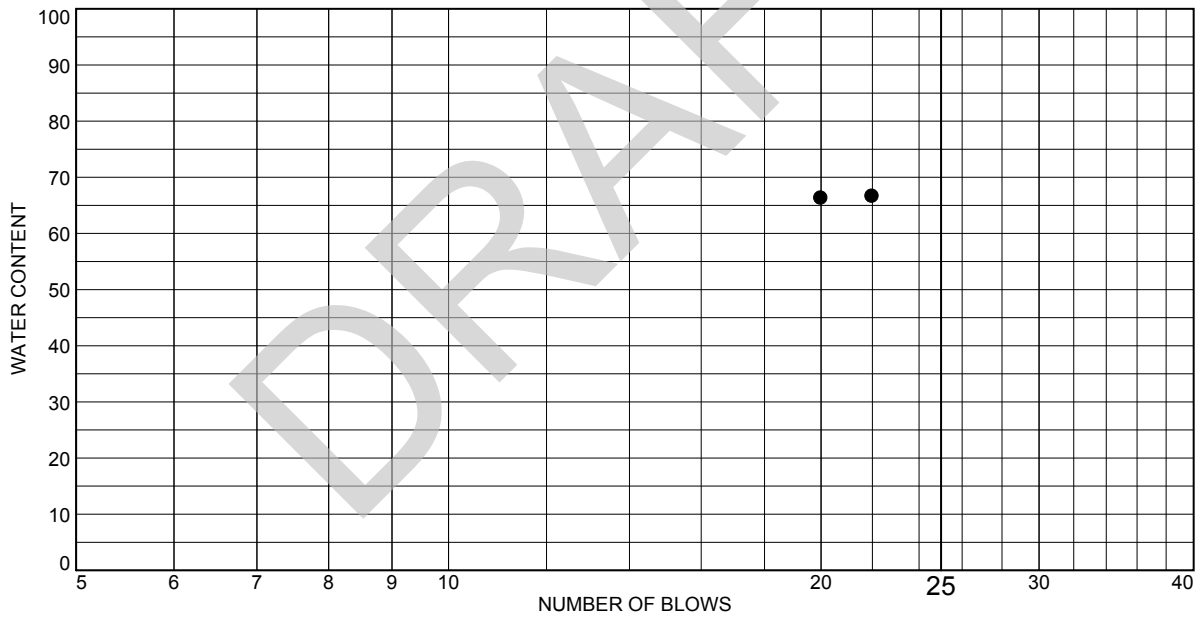
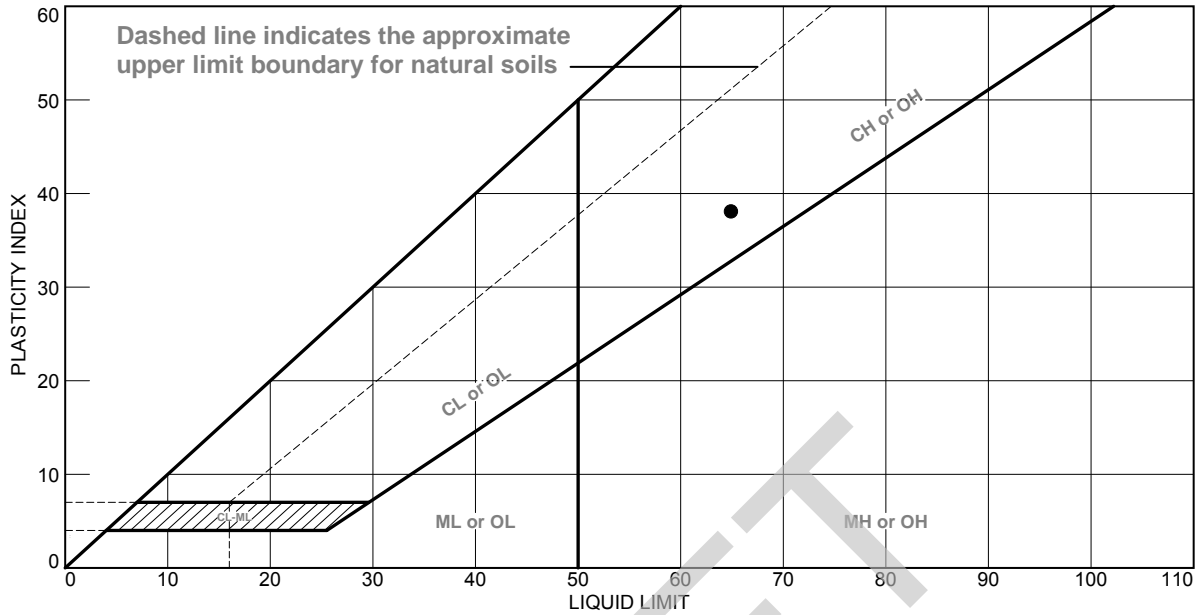
**Southern Earth Sciences, Inc.
Baton Rouge, LA**

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
So, Gr CLAY with silt pockets and lenses with roots	65	27	38			(CH3)

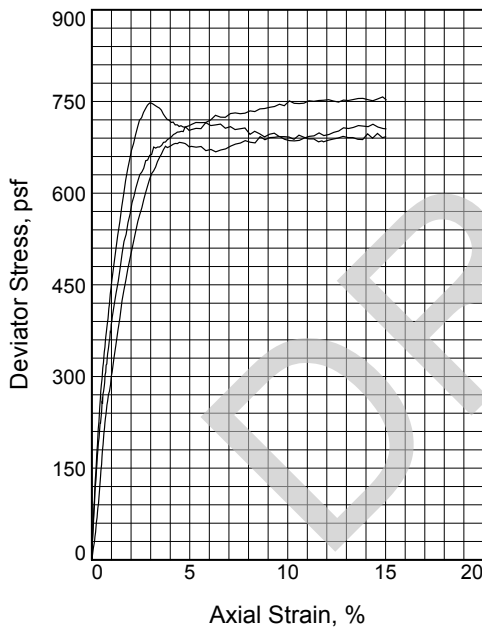
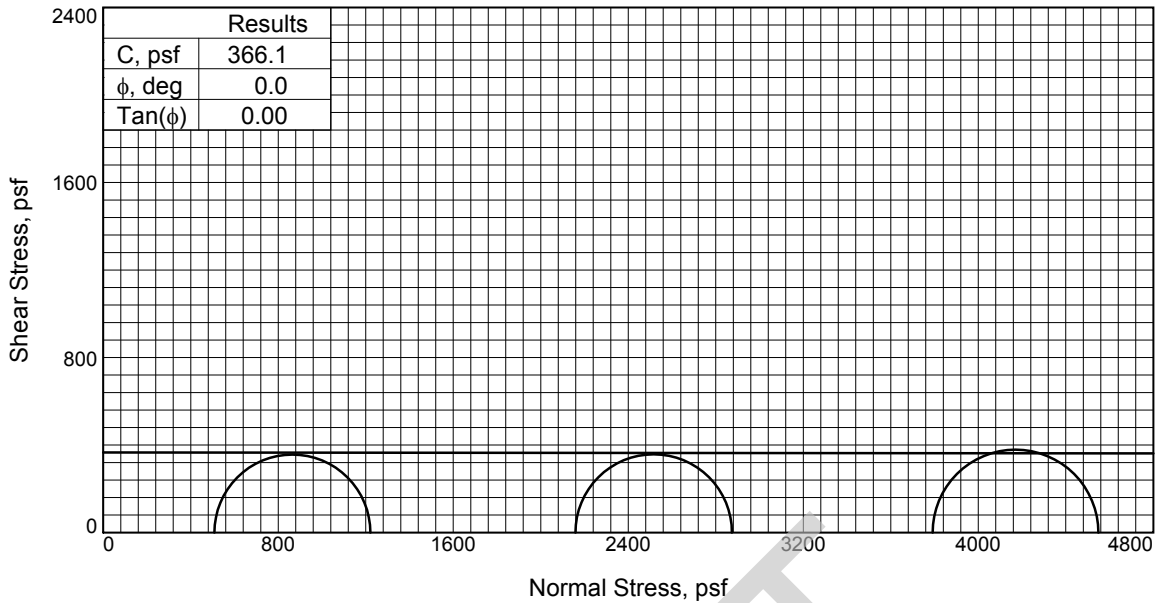
Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 10.3-11

Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3
Initial			
Water Content, %	58.7	57.5	57.4
Dry Density, pcf	65.3	65.8	66.3
Saturation, %	98.9	98.3	99.3
Void Ratio	1.6302	1.6079	1.5890
Diameter, in.	1.381	1.391	1.393
Height, in.	2.803	2.803	2.803
At Test			
Water Content, %	59.3	58.5	57.8
Dry Density, pcf	65.3	65.8	66.3
Saturation, %	100.0	100.0	100.0
Void Ratio	1.6302	1.6079	1.5890
Diameter, in.	1.381	1.391	1.393
Height, in.	2.803	2.803	2.803
Strain rate, in./min.	1.000	1.000	1.000
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	3.530	14.990	26.330
Fail. Stress, psf	712.7	715.3	757.4
Strain, %	14.4	5.8	14.8
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	1221.1	2873.8	4548.9
σ_3 Failure, psf	508.3	2158.6	3791.5

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: So, Gr CLAY with silt pockets and lenses with roots (CH3)

LL= 65 PL= 27 PI= 38

Assumed Specific Gravity= 2.75

Remarks: Failure Type:

Bulge

Client: GeoEngineers

Project: Mid Baratara Diversion

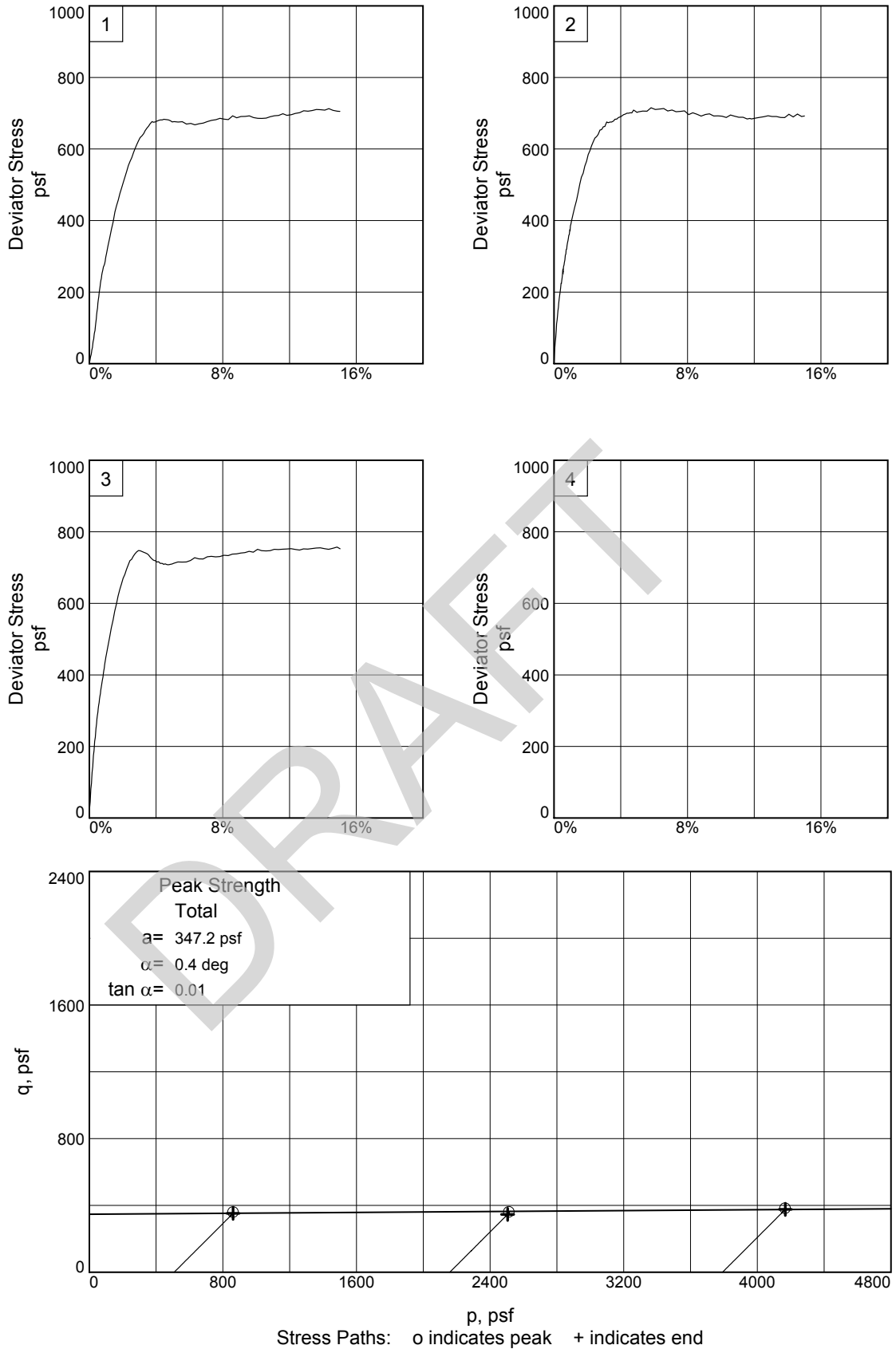
Source of Sample: NL-6A **Depth:** 10.3-11

Proj. No.: B13-018 **Date Sampled:** 6/4/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Figure _____

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 10.3-11

Figure _____

Southern Earth Sciences, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						74.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	74.0		

Material Description
Gr SILT with sand and roots

Atterberg Limits
PL= LL= PI=

Classification
USCS= (ML) AASHTO=

Remarks
Moisture Content: 28.1%

* (no specification provided)

Source of Sample: NL-6A

Depth: 12.4-13

Date:

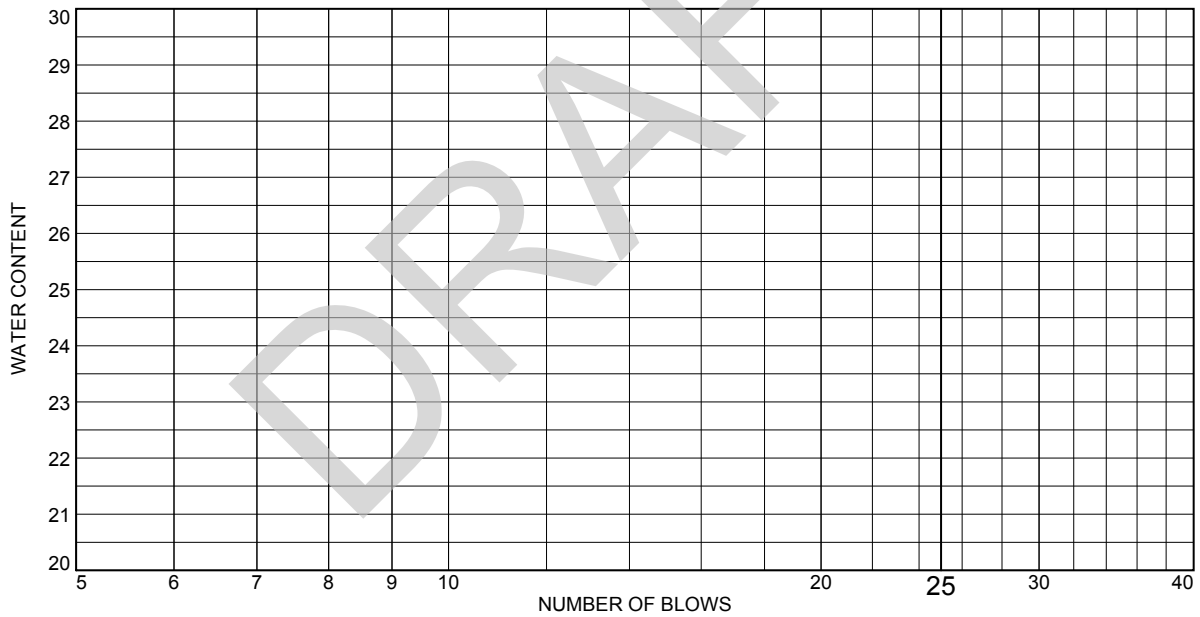
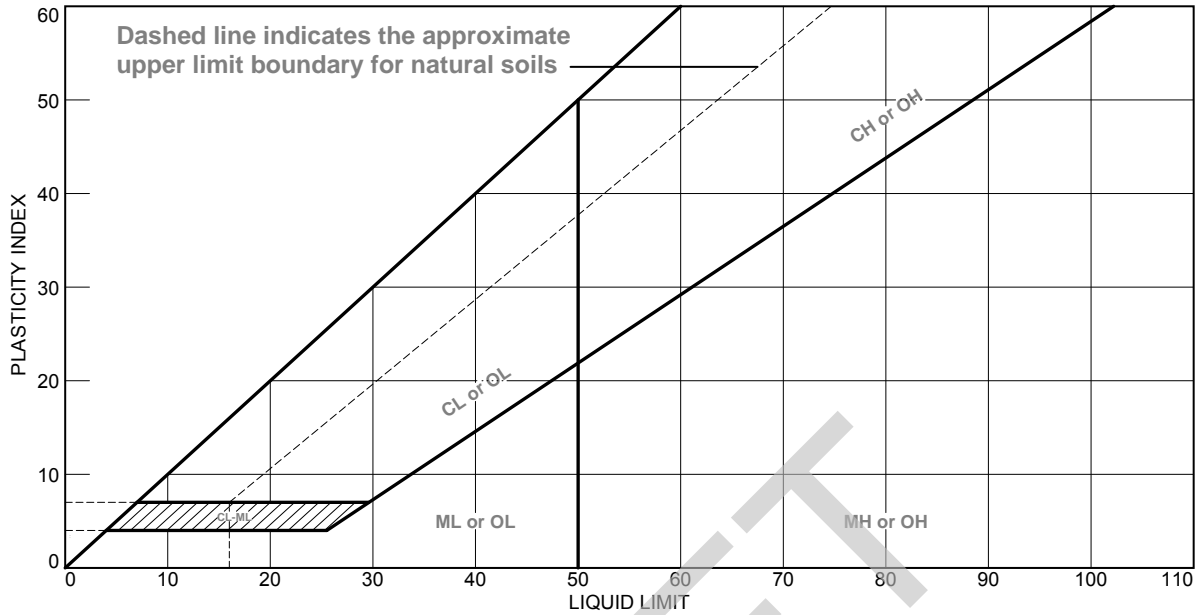
**Southern Earth Sciences, Inc.
Baton Rouge, LA**

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Gr Silty SAND	NP	NP	NP		42.8	(SM)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 13-14

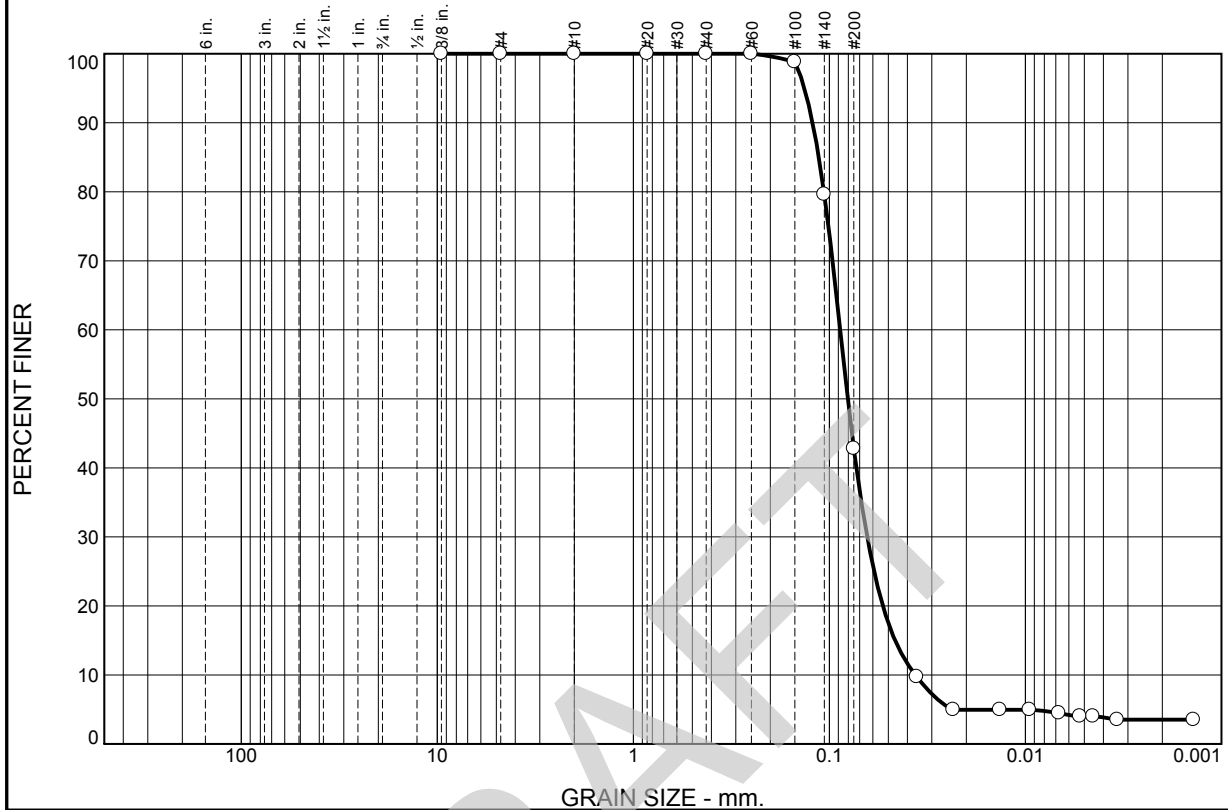
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	57.2	38.8	4.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	100.0		
#100	98.8		
#140	79.6		
#200	42.8		

Material Description
Gr Silty SAND

Atterberg Limits
 PL= NP LL= NP PI= NP

Classification
 USCS= (SM) AASHTO=

Remarks
 F.M.=0.01

* SESI

Source of Sample: NL-6A Depth: 13-14 Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						26.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	26.0		

Material Description

Gr Silty SAND

Atterberg Limits

PL= LL= PI=

Classification

USCS= (SM) AASHTO=

Remarks

Moisture Content: 25.5%

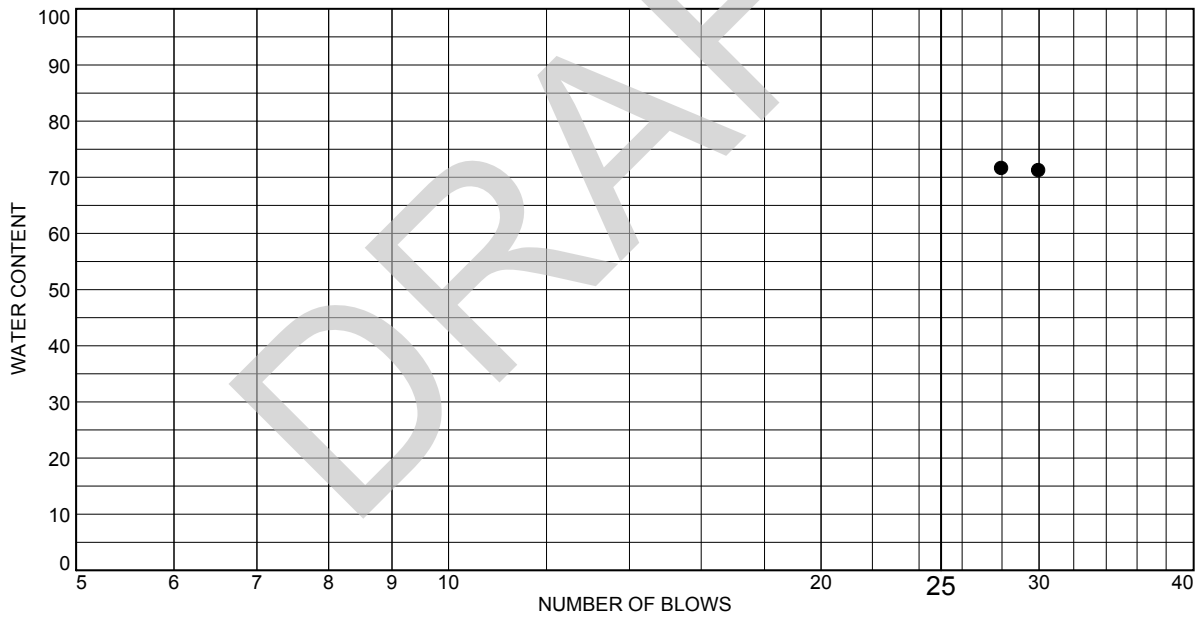
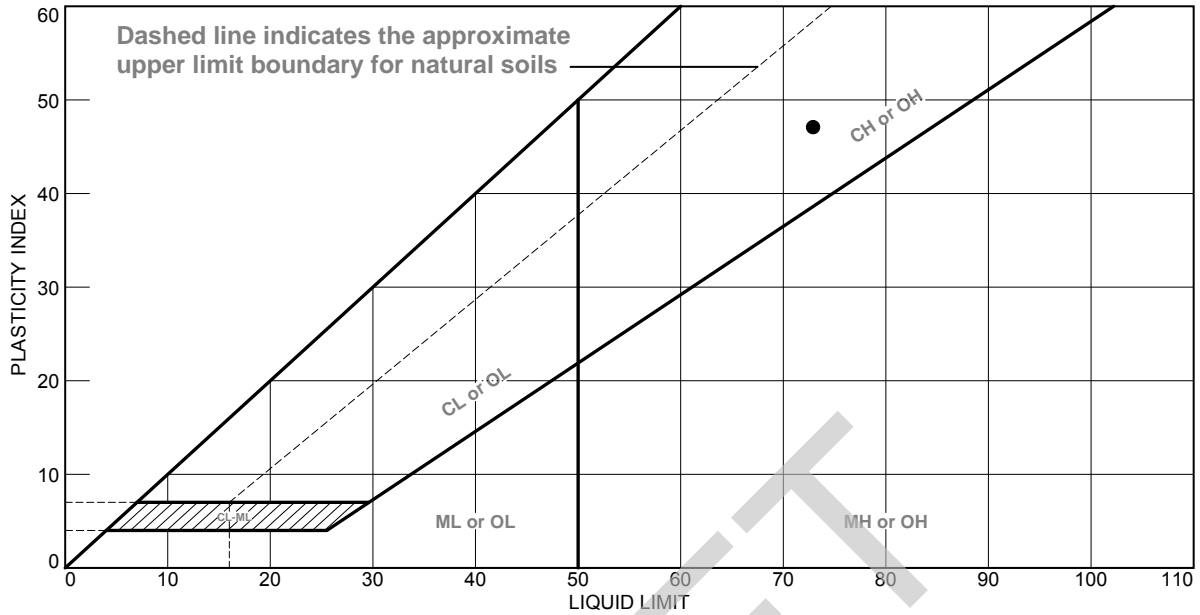
* (no specification provided)

Source of Sample: NL-6A Depth: 14-15

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

LIQUID AND PLASTIC LIMITS TEST REPORT

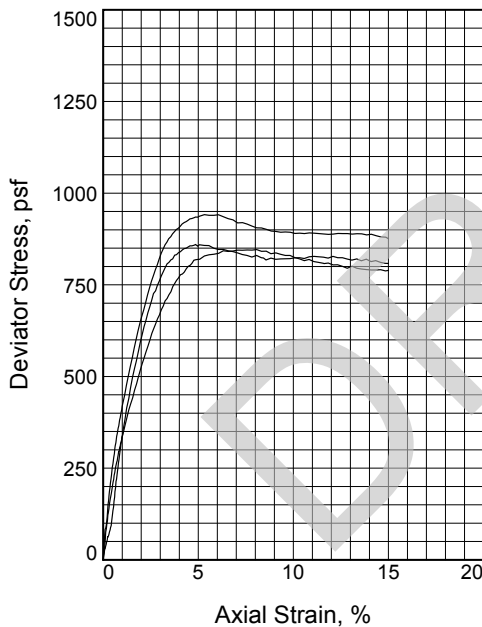
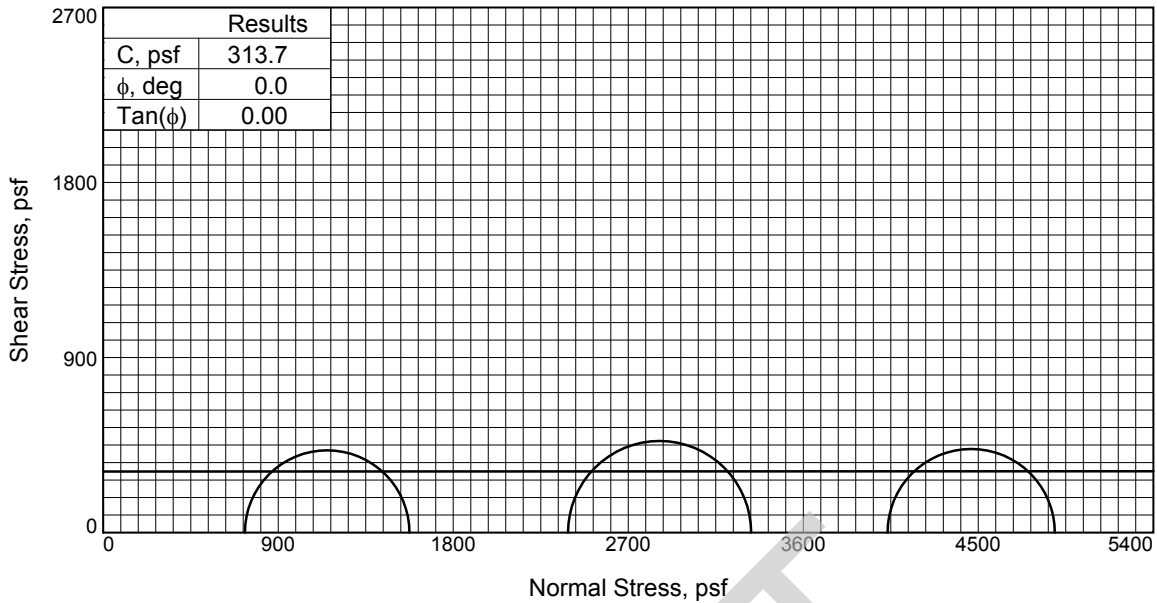


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
So, Gr Fat CLAY with silt pockets and lenses	73	26	47			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 15-15.6
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	55.2	56.4	55.5
	Dry Density, pcf	68.3	67.0	68.3
	Saturation, %	99.1	98.2	99.6
	Void Ratio	1.5581	1.6091	1.5585
	Diameter, in.	1.396	1.411	1.392
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	55.6	57.5	55.7
	Dry Density, pcf	68.3	67.0	68.3
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.5581	1.6091	1.5585
Strain rate, in./min.	Diameter, in.	1.396	1.411	1.392
	Height, in.	2.803	2.803	2.803
	Strain rate, in./min.	1.000	1.000	1.000
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	5.060	16.600	28.010	
Fail. Stress, psf	Strain, %	845.9	941.5	859.9
	Strain, %	8.1	5.3	4.9
Ult. Stress, psf	Strain, %			
	Strain, %			
σ_1 Failure, psf	1574.6	3331.9	4893.4	
σ_3 Failure, psf	728.6	2390.4	4033.4	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: So, Gr Fat CLAY with silt pockets and lenses (CH)

LL= 73 **PL=** 26 **PI=** 47

Assumed Specific Gravity= 2.80

Remarks: Failure Type:

60 Degree Shear

Figure _____

Client: GeoEngineers

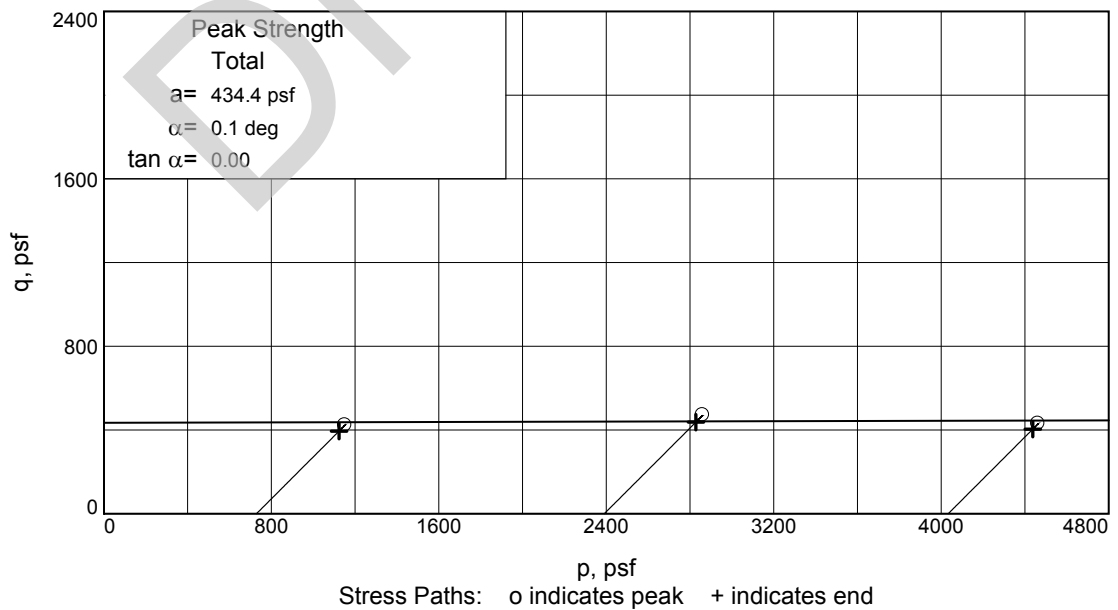
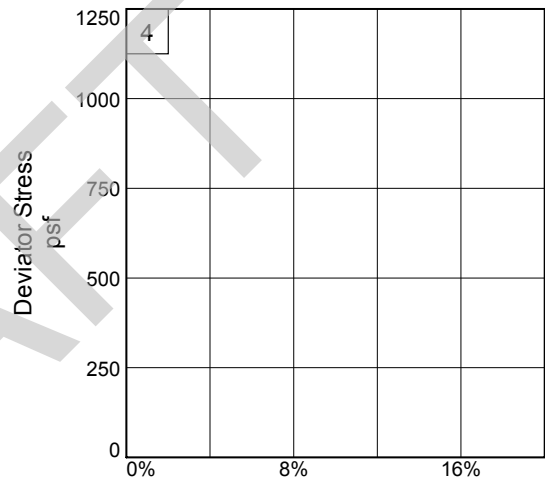
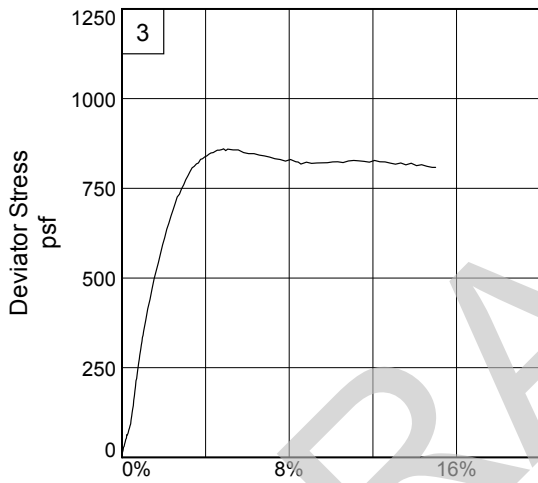
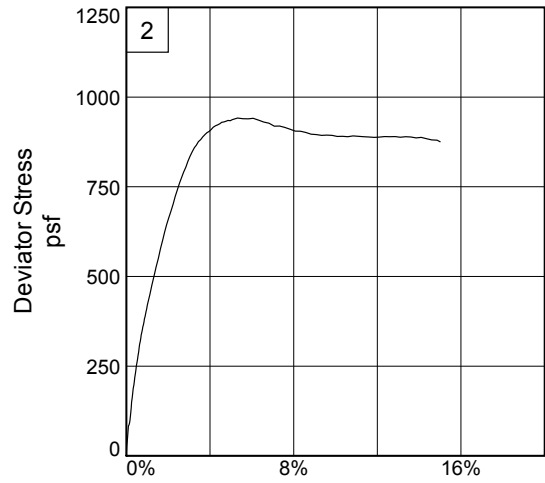
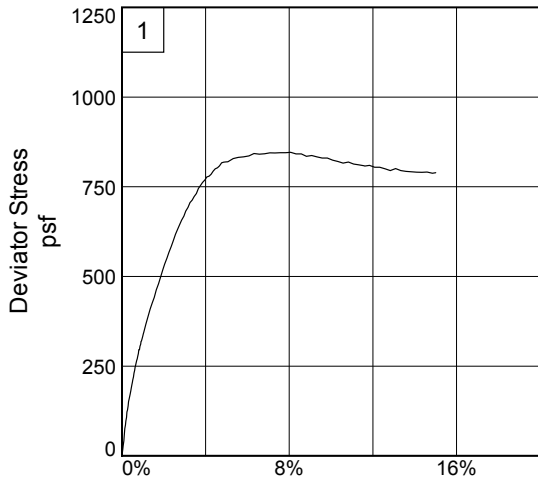
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 15-15.6

Proj. No.: B13-018 **Date Sampled:** 6/4/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-6A

Depth: 15-15.6

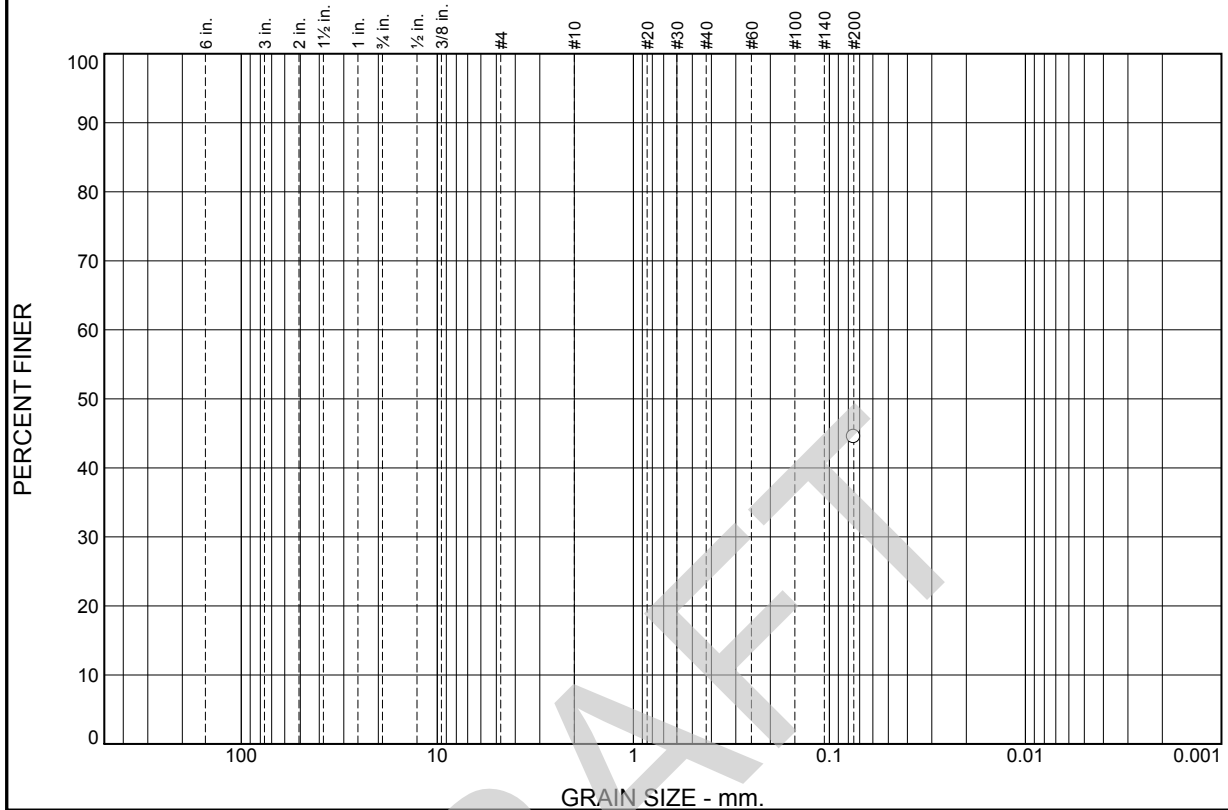
Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						44.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	44.5		

Material Description

Gr Silty SAND

Atterberg Limits

PL= LL= PI=

Classification

USCS= (SM) AASHTO=

Remarks

Moisture Content: 20.6%

* (no specification provided)

Source of Sample: NL-6A

Depth: 16.8-17

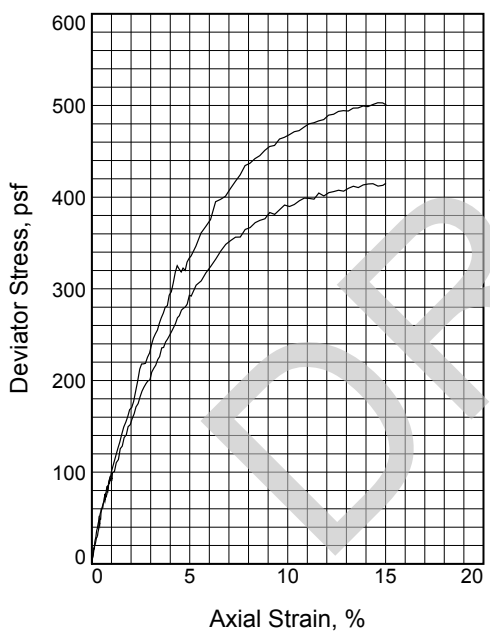
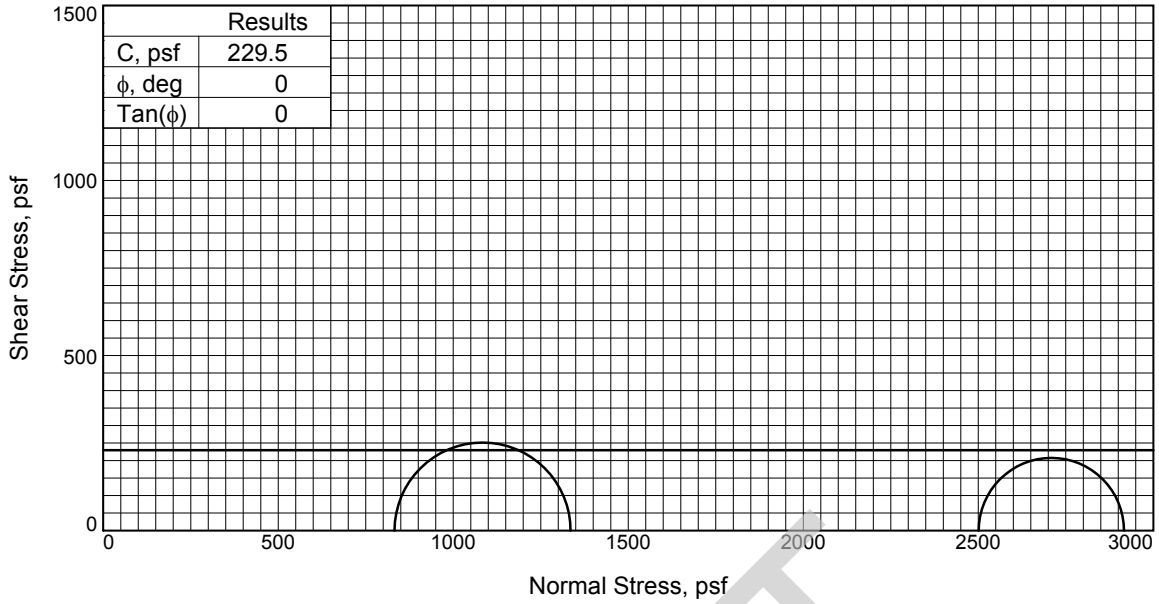
Date:

**Southern Earth
Sciences, Inc.
Baton Rouge, LA**

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure



	1	2	
Sample No.	1	2	
Initial	Water Content, %	55.3	60.3
	Dry Density, pcf	68.5	67.4
	Saturation, %	100.9	107.0
	Void Ratio	1.5069	1.5485
	Diameter, in.	1.384	1.364
	Height, in.	2.803	2.803
At Test	Water Content, %	54.8	56.3
	Dry Density, pcf	68.5	67.4
	Saturation, %	100.0	100.0
	Void Ratio	1.5069	1.5485
	Diameter, in.	1.384	1.364
	Height, in.	2.803	2.803
Strain rate, in./min.	1.000	1.000	
Back Pressure, psi	0.000	0.000	
Cell Pressure, psi	5.780	17.370	
Fail. Stress, psf	502.9	415.0	
Strain, %	14.6	15.0	
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	1335.2	2916.3	
σ_3 Failure, psf	832.3	2501.3	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: vSo, Gr CLAY with sand pockets and silt lenses (CH4)

Assumed Specific Gravity= 2.75

Remarks: Failure Type:
 1 Bulge
 2 Bulge
 3 Could not trim

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

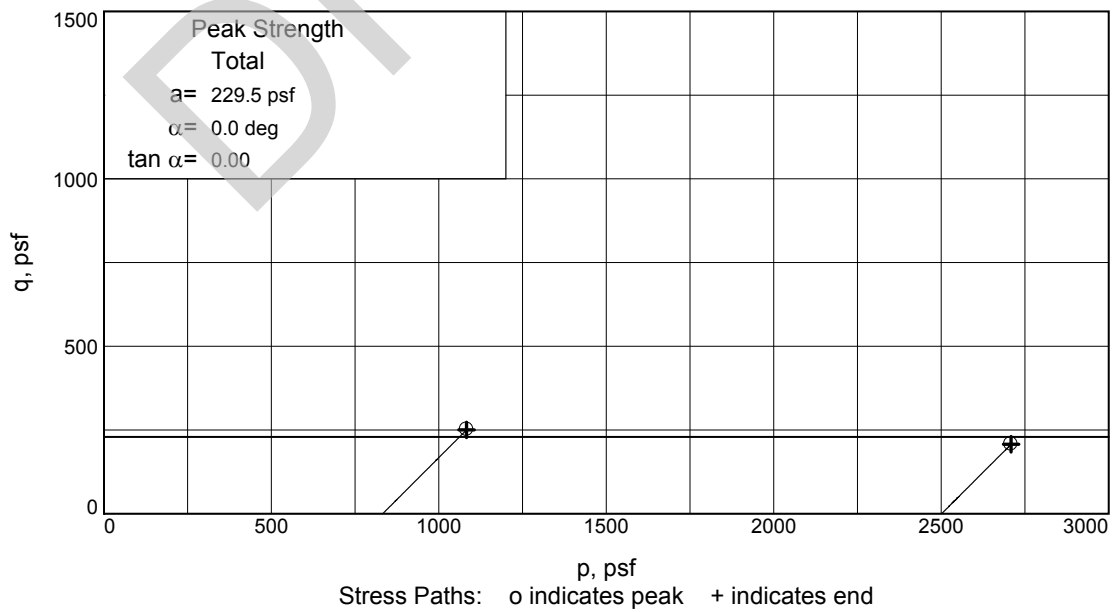
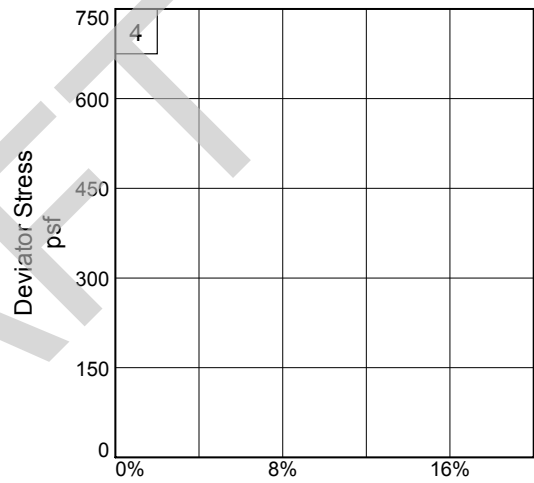
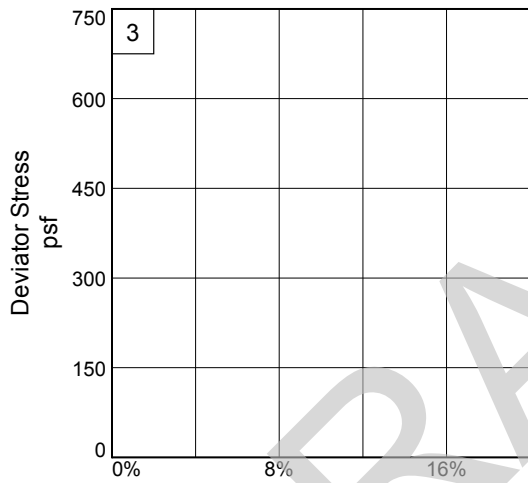
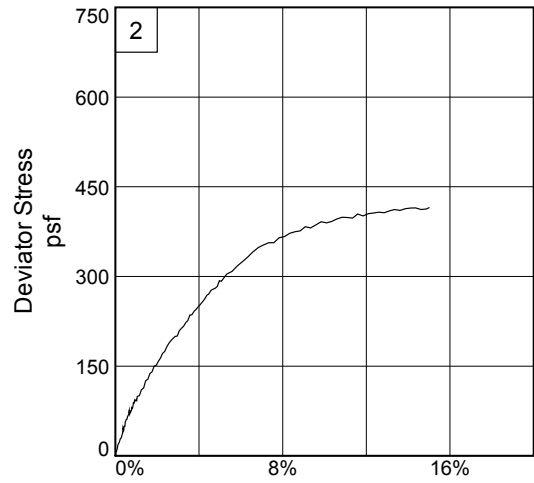
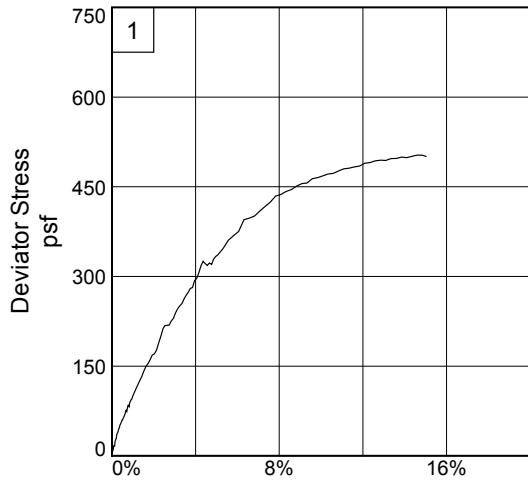
Source of Sample: NL-6A **Depth:** 17.3-17.8

Proj. No.: B13-018 **Date Sampled:** 6/4/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-6A

Depth: 17.3-17.8

Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						32.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	32.0		

Material Description

Gr Silty SAND

Atterberg Limits

PL= LL= PI=

Classification

USCS= (SM) AASHTO=

Remarks

Moisture Content: 25.2%

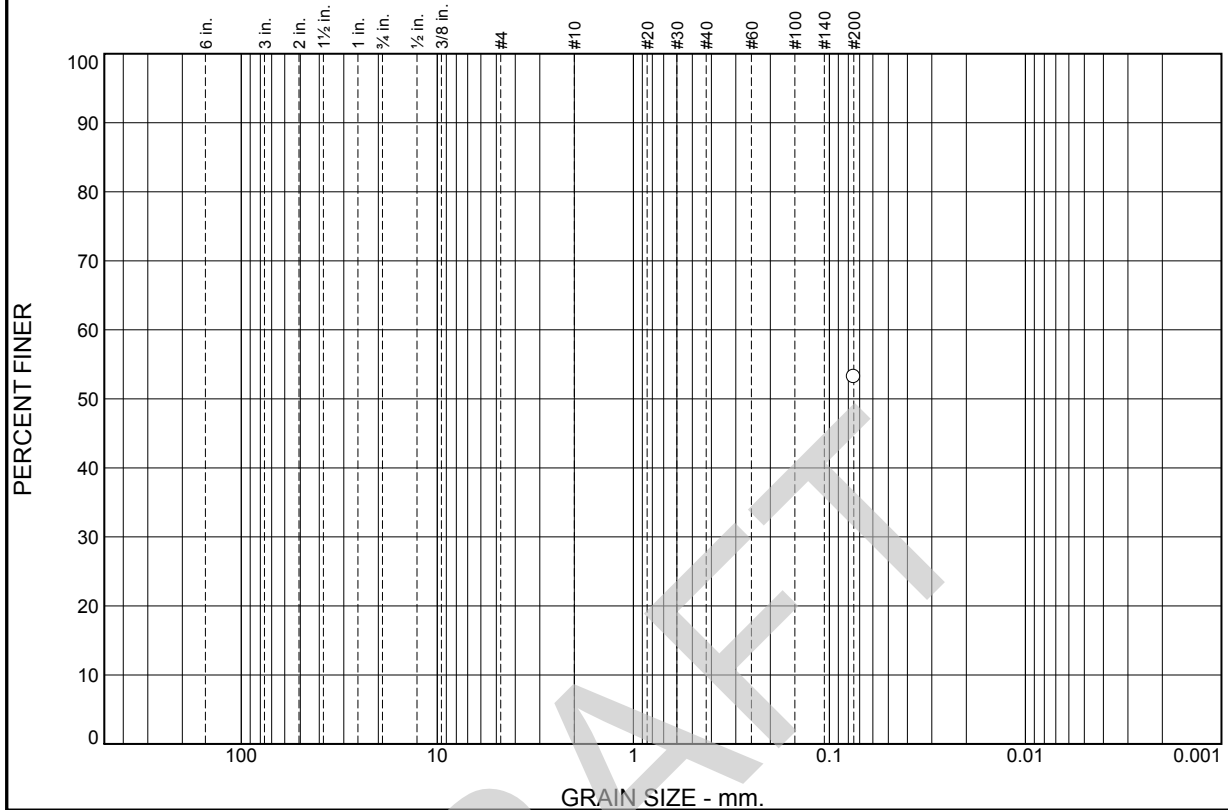
* (no specification provided)

Source of Sample: NL-6A Depth: 17-17.3

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
	Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						53.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	53.2		

Material Description

Gr Sandy SILT

Atterberg Limits

PL= LL= PI=

Classification

USCS= (ML) AASHTO=

Remarks

Moisture Content: 28.9%

* (no specification provided)

Source of Sample: NL-6A

Depth: 18-19

Date:

Southern Earth Sciences, Inc.
Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						30.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	30.6		

Material Description

Gr Silty SAND

Atterberg Limits

PL= LL= PI=

Classification

USCS= (SM) AASHTO=

Remarks

Moisture Content: 19.2%

* (no specification provided)

Source of Sample: NL-6A

Depth: 19.3-20

Date:

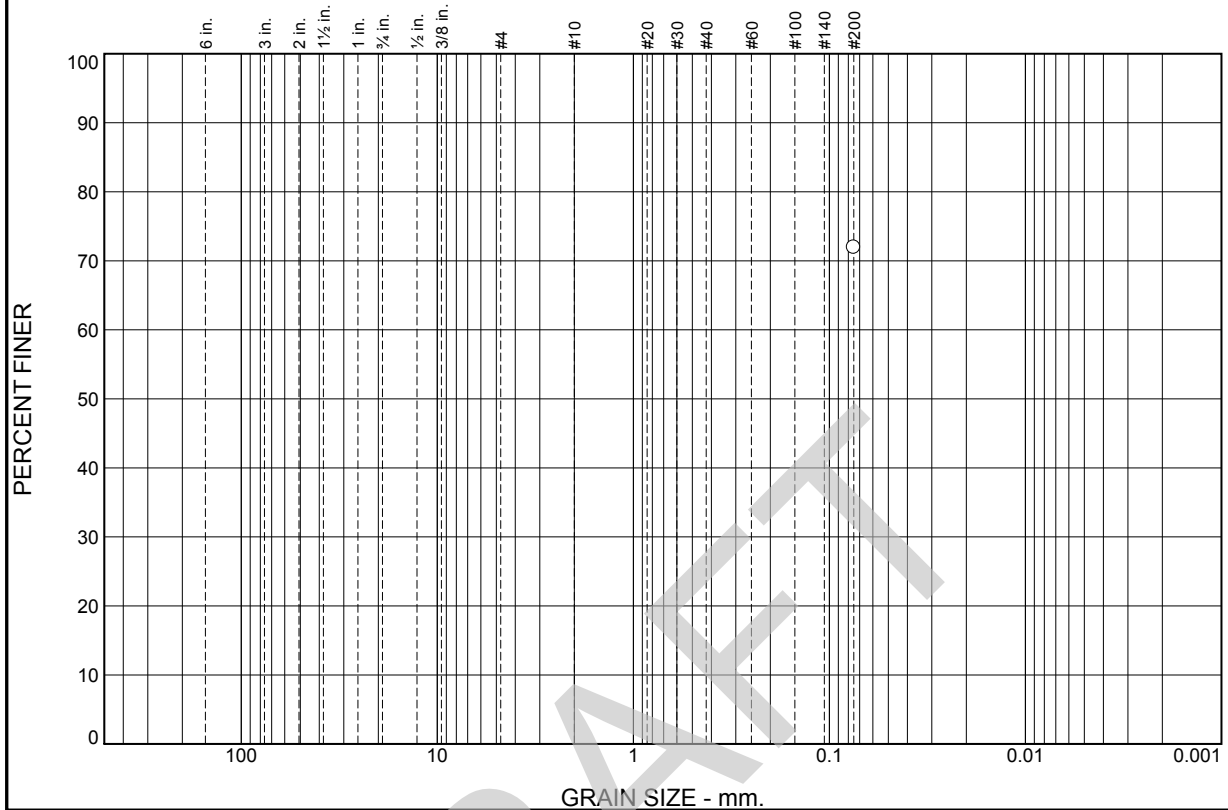
Southern Earth Sciences, Inc.
Baton Rouge, LA

Client: GeoEngineers
 Project: Mid Barataria Diversion

Project No: B13-018

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						71.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	71.9		

Material Description
Gr SILT with sand and clay

Atterberg Limits
PL= LL= PI=

Classification
USCS= (ML) AASHTO=

Remarks
Moisture Content: 33.1%

* (no specification provided)

Source of Sample: NL-6A

Depth: 20-21.5

Date:

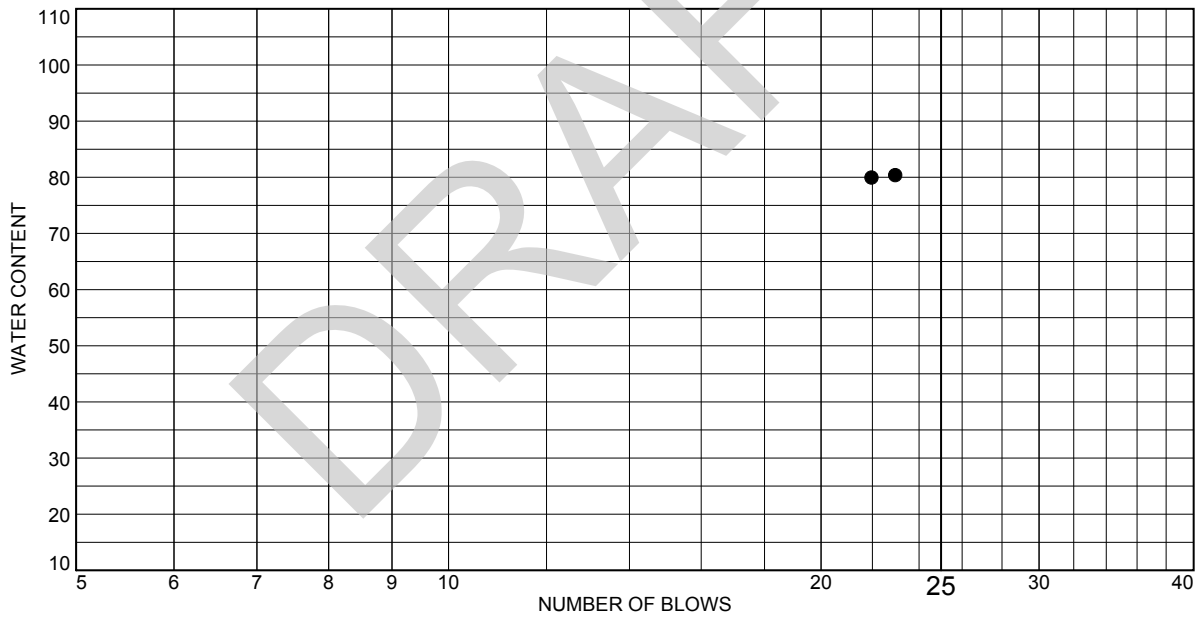
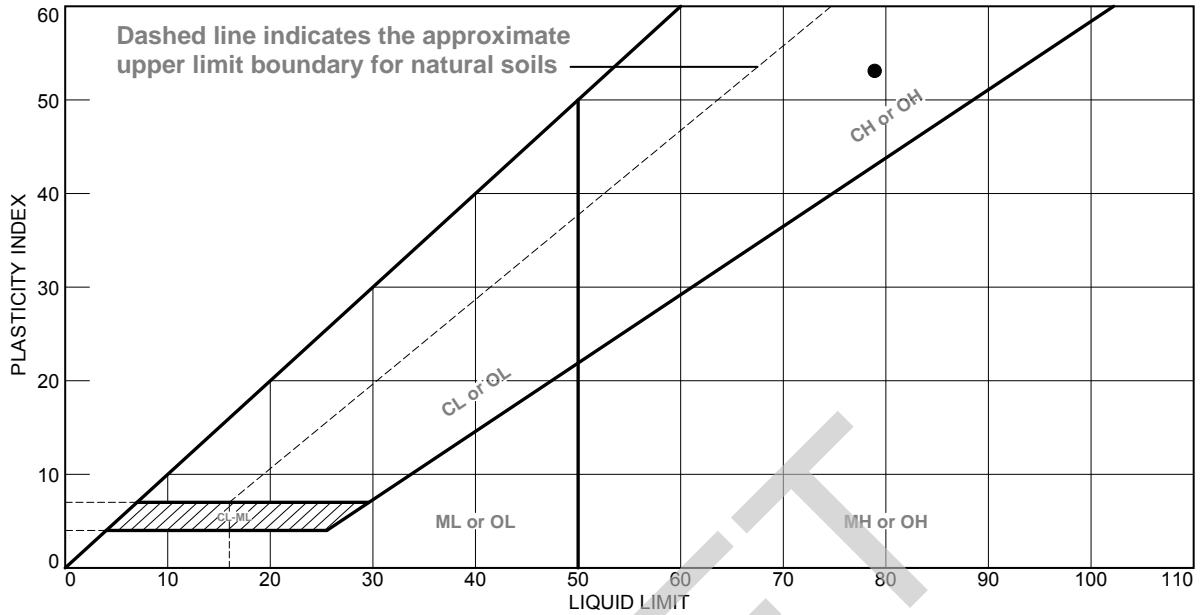
**Southern Earth
Sciences, Inc.
Baton Rouge, LA**

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



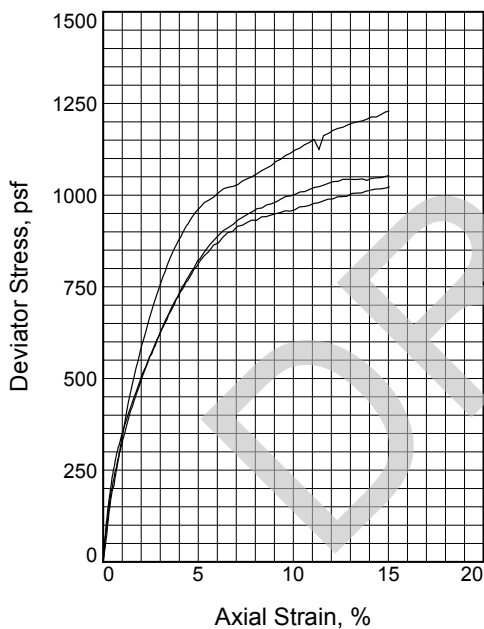
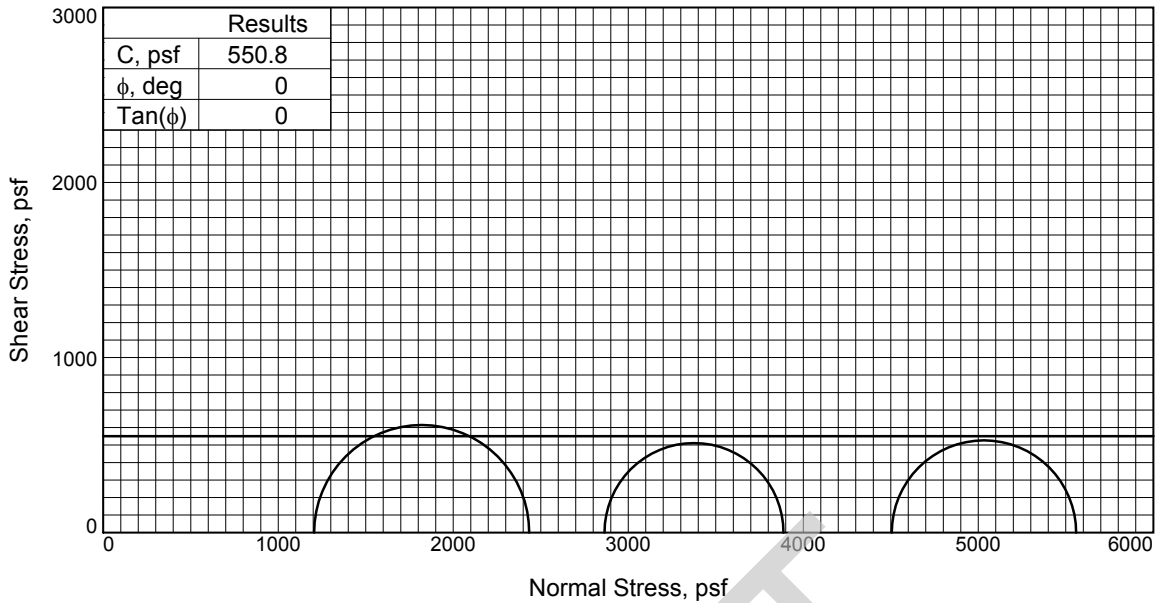
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
M, Gr Fat CLAY with S SIS	79	26	53			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 25-26
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	46.4	41.6	41.4
	Dry Density, pcf	78.9	78.4	80.0
	Saturation, %	110.3	97.7	101.0
	Void Ratio	1.1373	1.1500	1.1061
	Diameter, in.	1.382	1.399	1.392
	Height, in.	2.803	2.803	2.803
At Test	Water Content, %	42.1	42.6	41.0
	Dry Density, pcf	78.9	78.4	80.0
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.1373	1.1500	1.1061
	Diameter, in.	1.382	1.399	1.392
	Height, in.	2.803	2.803	2.803
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	8.370	19.890	31.290	
Fail. Stress, psf	1228.9	1022.6	1053.4	
Strain, %	15.0	15.0	15.0	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	2434.2	3886.7	5559.1	
σ_3 Failure, psf	1205.3	2864.2	4505.8	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Fat CLAY with sandy silt lenses (CH4)

LL= 79 **PL=** 26 **PI=** 53

Assumed Specific Gravity= 2.70

Remarks: Failure Type:

- 1 Bulge
- 2 Bulge
- 3 45 Degree Shear

Figure _____

Client: GeoEngineers

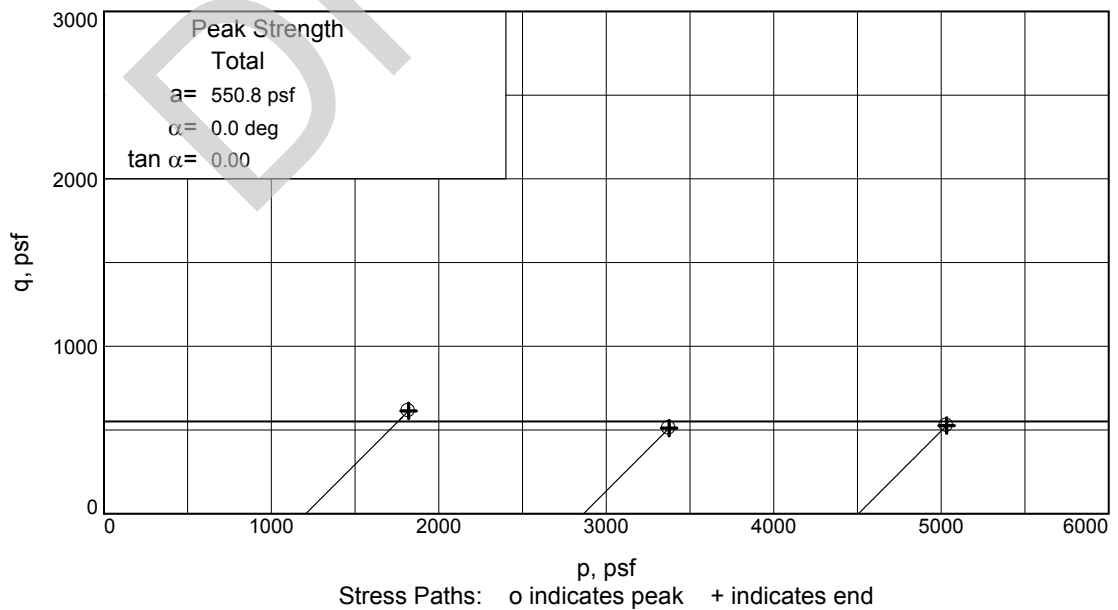
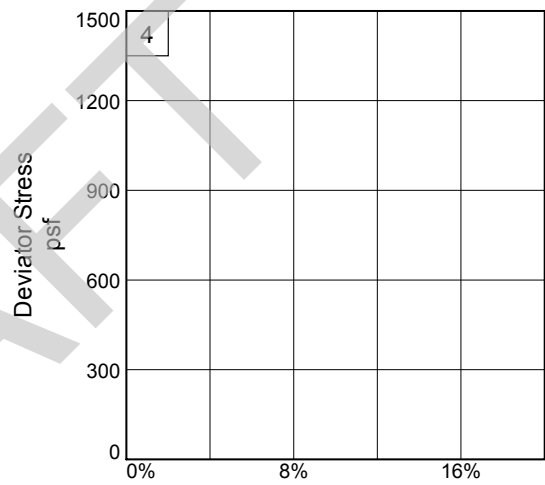
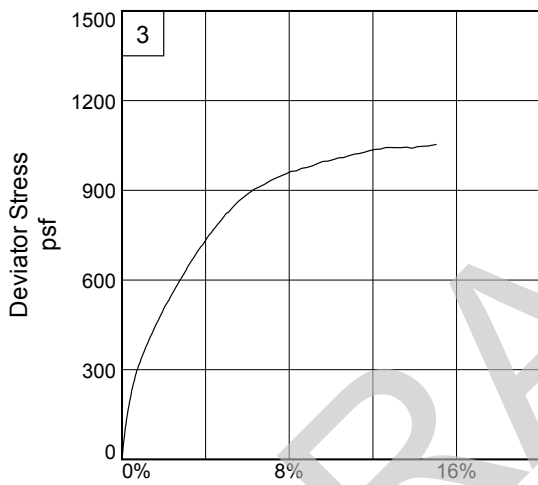
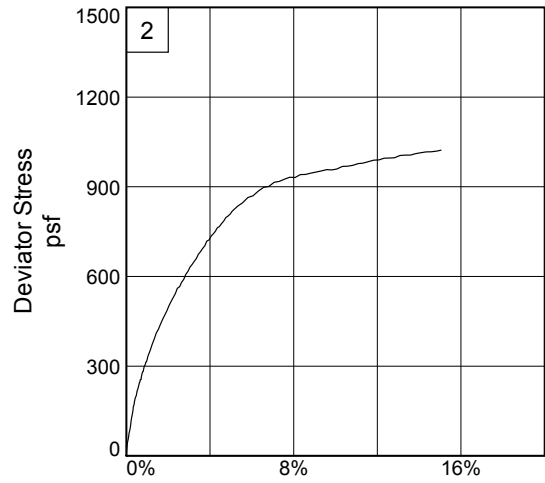
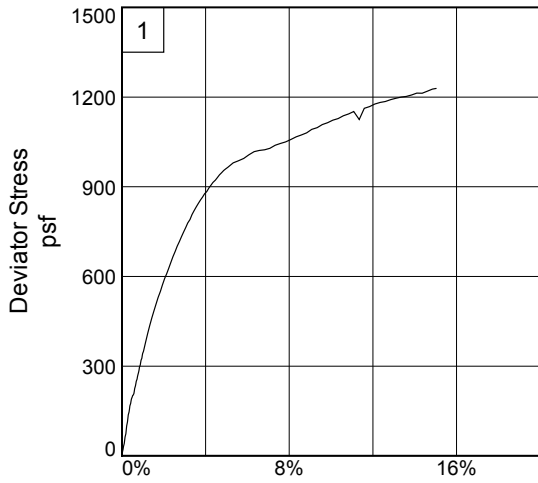
Project: Mid Baratara Diversion

Source of Sample: NL-6A **Depth:** 25-26

Proj. No.: B13-018 **Date Sampled:** 6/4/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-6A

Depth: 25-26

Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						22.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	22.8		

Material Description

Gr Silty SAND

Atterberg Limits

PL= LL= PI=

Classification

USCS= (SM) AASHTO=

Remarks

Moisture Content: 25.11%

* (no specification provided)

Source of Sample: NL-6A

Depth: 27-28

Date:

**Southern Earth Sciences, Inc.
Baton Rouge, LA**

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						74.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	74.4		

Material Description

Gr SILT with sand

Atterberg Limits

PL= LL= PI=

Classification

USCS= (CH3) AASHTO=

Remarks

Moisture Content: 25.2%

* (no specification provided)

Source of Sample: NL-6A

Depth: 30.5-31

Date:

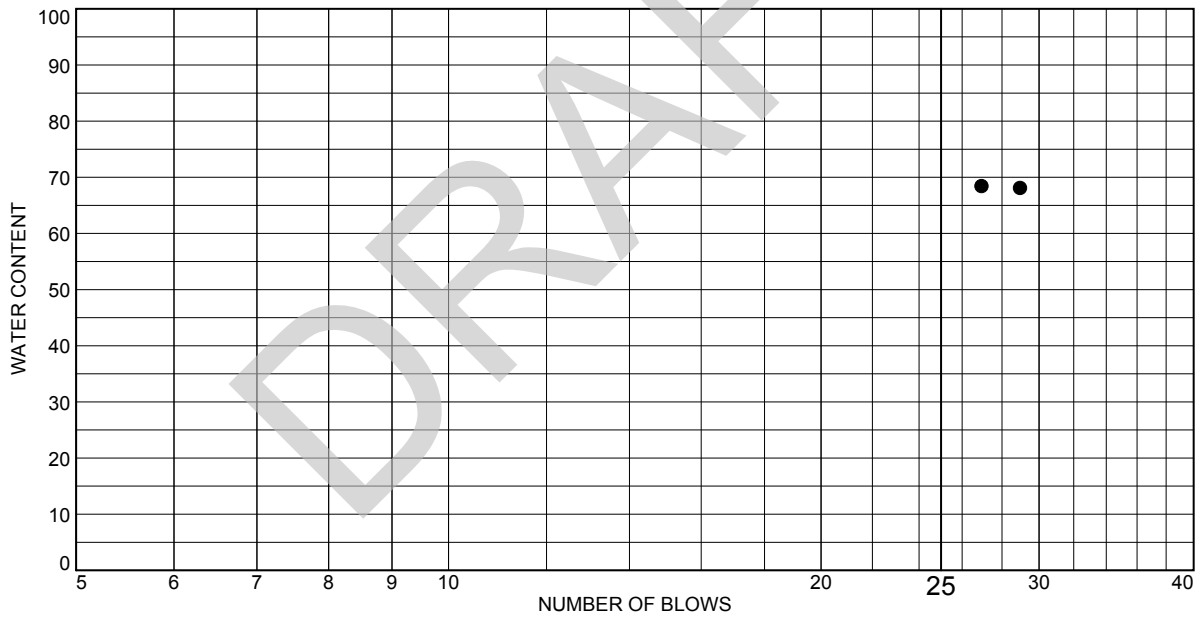
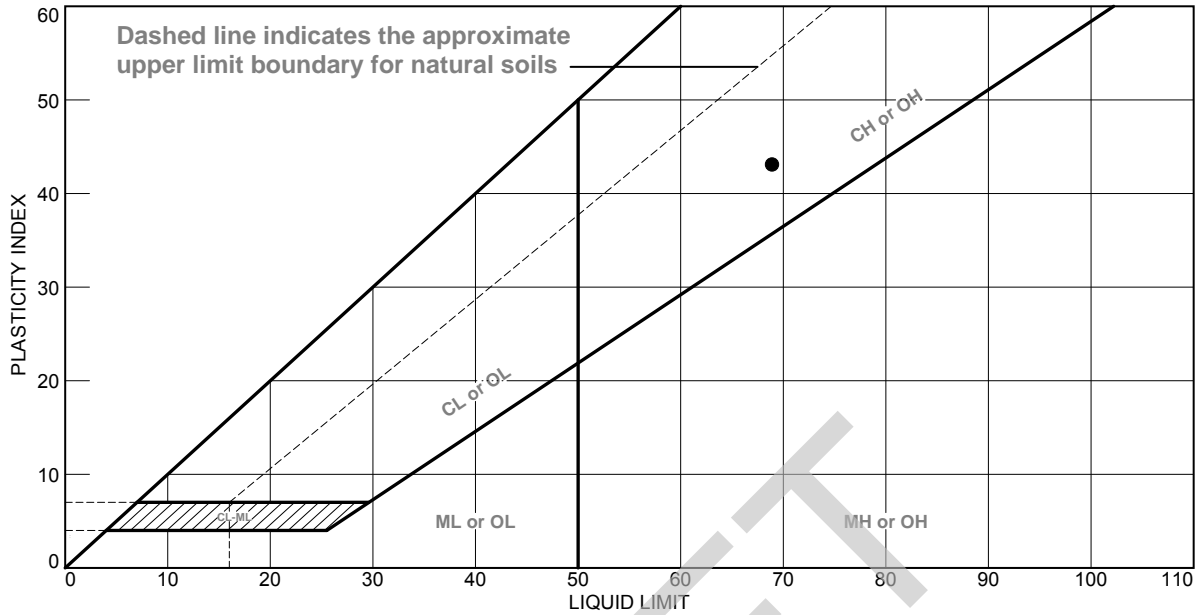
**Southern Earth Sciences, Inc.
Baton Rouge, LA**

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



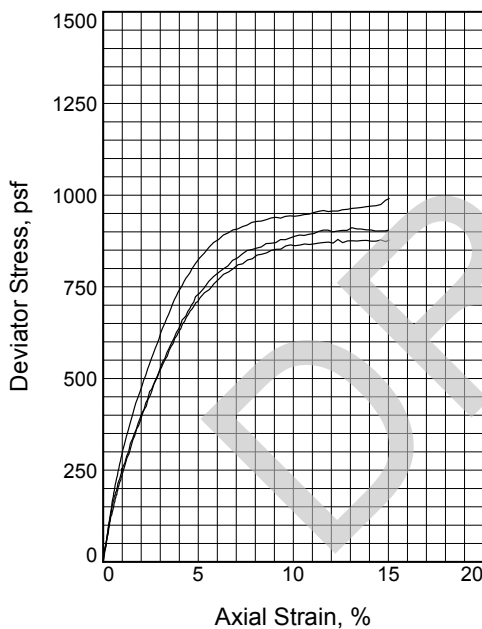
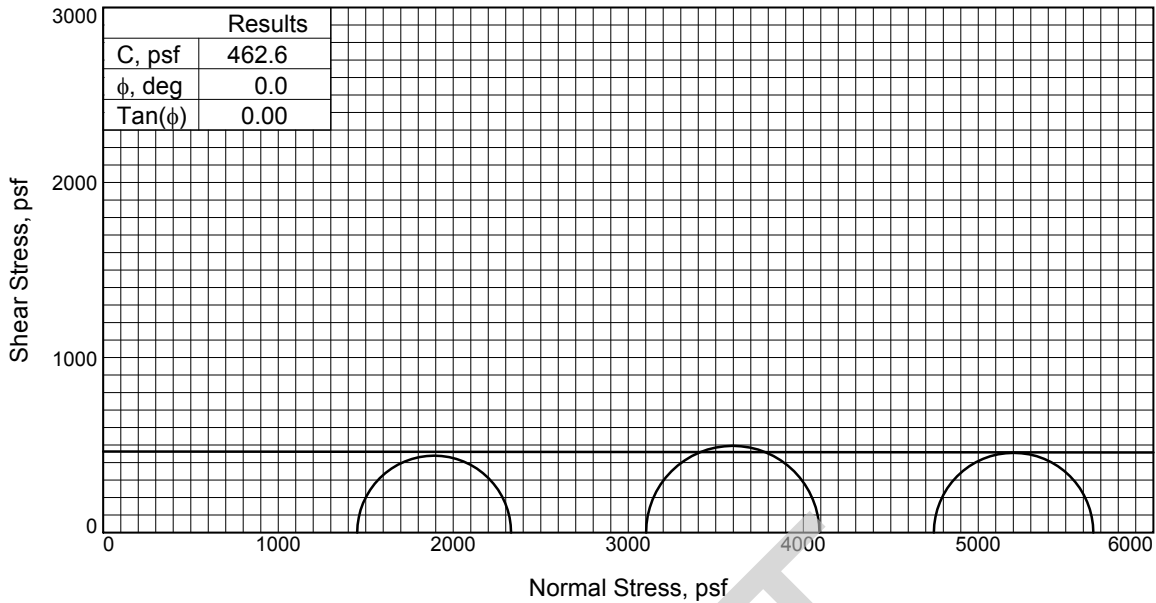
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
So, Gr Fat CLAY with silt lenses	69	26	43			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 30-30.5
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	50.8	51.2	50.8
	Dry Density, pcf	71.6	71.6	71.6
	Saturation, %	100.0	100.7	99.9
	Void Ratio	1.3970	1.3980	1.3975
	Diameter, in.	1.399	1.402	1.408
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	50.8	50.8	50.8
	Dry Density, pcf	71.6	71.6	71.6
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.3970	1.3980	1.3975
Diameter, in.	1.399	1.402	1.408	
Height, in.	2.803	2.803	2.803	
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	10.080	21.540	32.960	
Fail. Stress, psf	879.0	990.8	911.1	
Strain, %	12.3	15.0	13.1	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	2330.5	4092.5	5657.3	
σ_3 Failure, psf	1451.5	3101.8	4746.2	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: So, Gr Fat CLAY with silt lenses

LL= 69 **PL=** 26 **PI=** 43

Assumed Specific Gravity= 2.75

Remarks: Failure Type:

Bulge

Figure _____

Client: GeoEngineers

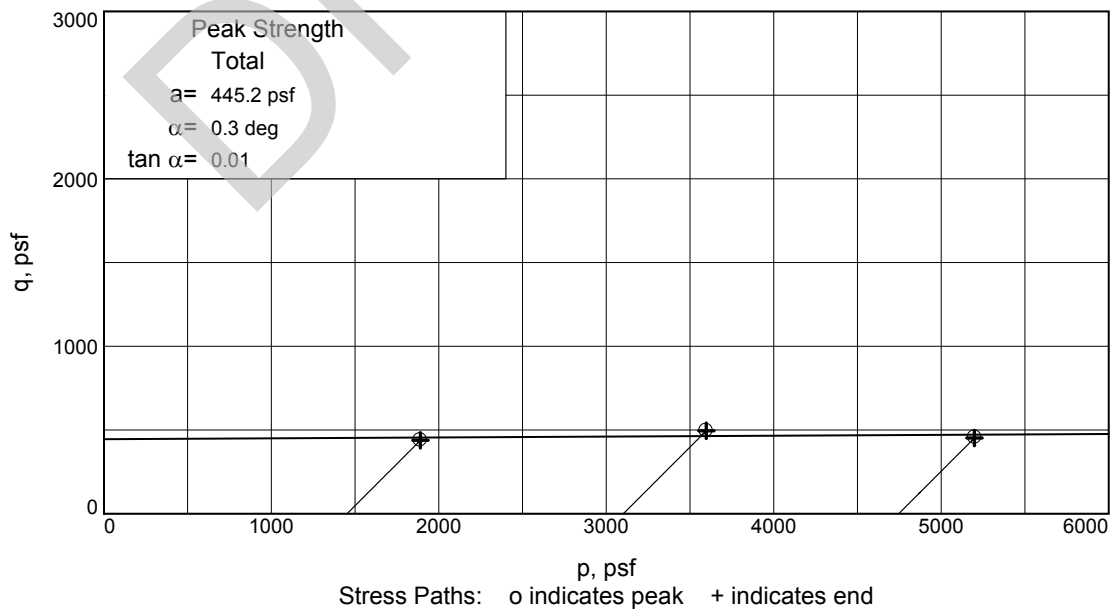
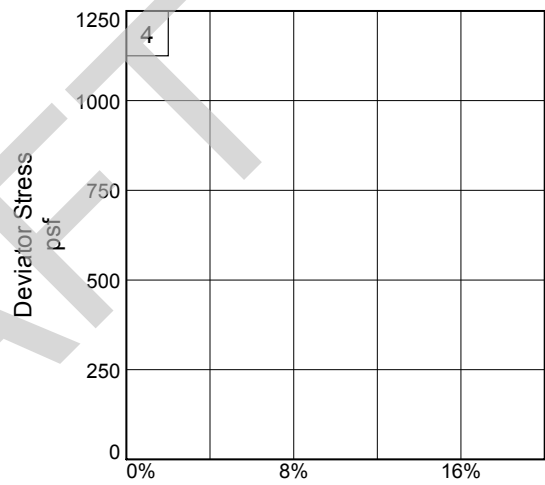
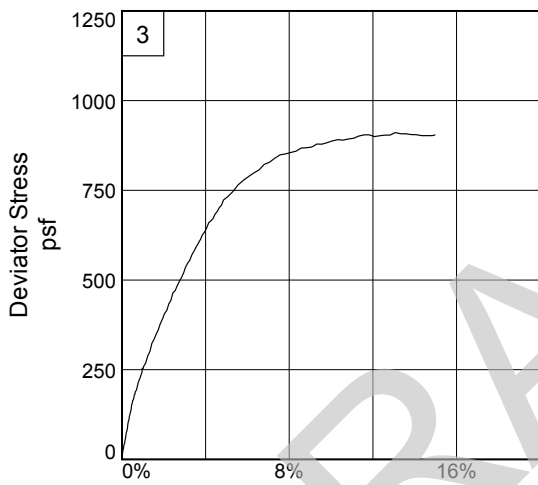
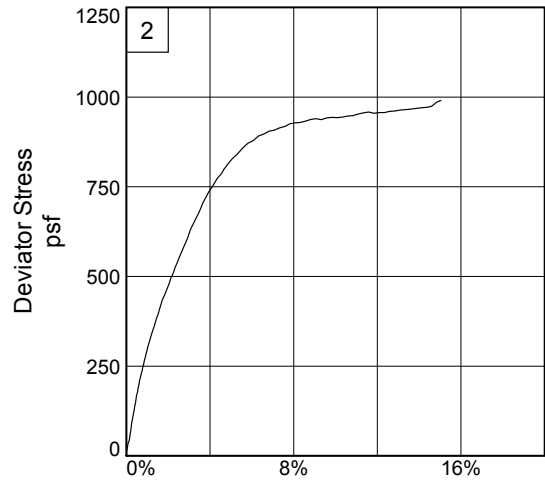
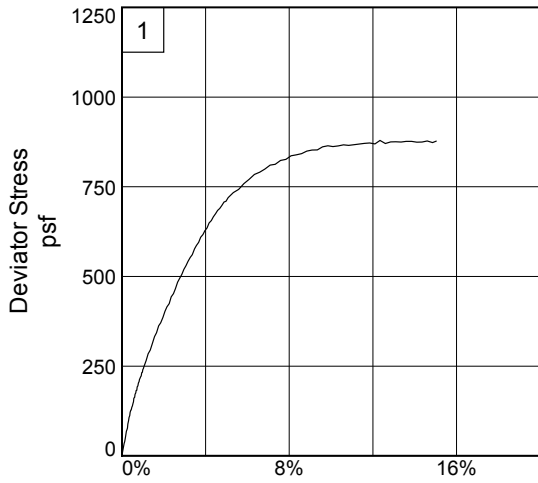
Project: Mid Baratara Diversion

Source of Sample: NL-6A **Depth:** 30-30.5

Proj. No.: B13-018 **Date Sampled:** 6/4/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-6A

Depth: 30-30.5

Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						71.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	71.2		

Material Description

Gr Silty SAND

Atterberg Limits

PL= LL= PI=

Classification

USCS= (SM) AASHTO=

Remarks

Moisture Content: 26.1

* (no specification provided)

Source of Sample: NL-6A

Depth: 31.7-32

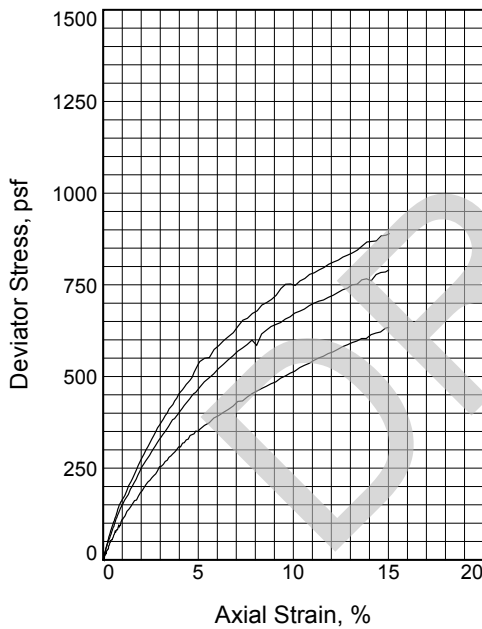
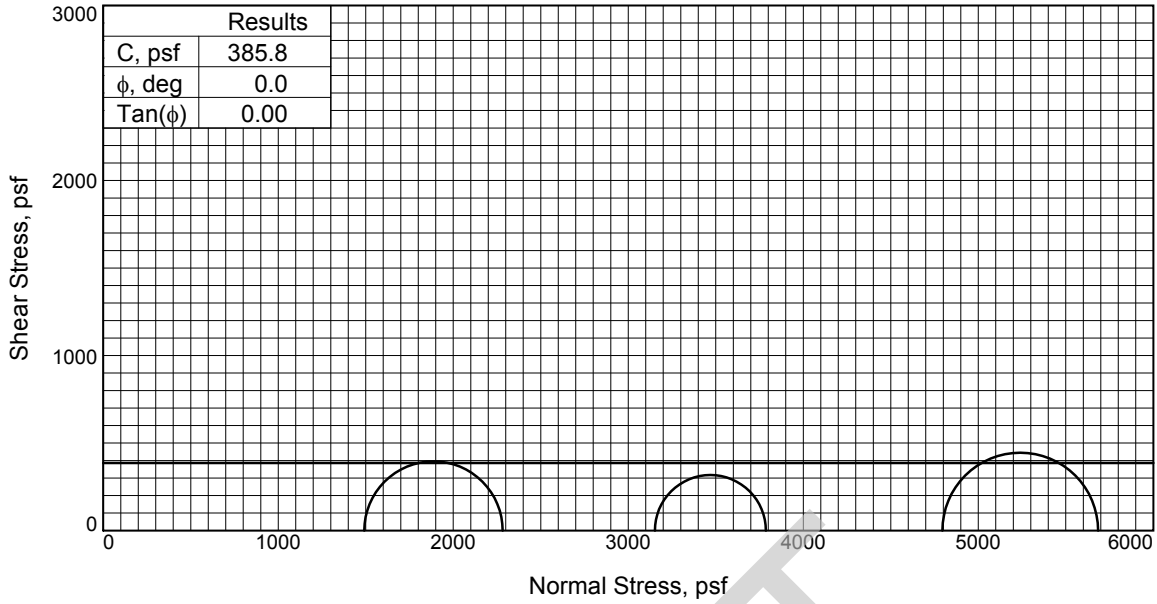
Date:

**Southern Earth
Sciences, Inc.
Baton Rouge, LA**

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure



Sample No.	1	2	3	
Initial	Water Content, %	36.7	35.9	35.3
	Dry Density, pcf	87.5	86.9	89.0
	Saturation, %	109.4	105.1	109.1
	Void Ratio	0.8901	0.9044	0.8582
	Diameter, in.	1.352	1.374	1.366
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	33.6	34.1	32.4
	Dry Density, pcf	87.5	86.9	89.0
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.8901	0.9044	0.8582
Strain rate, in./min.	Diameter, in.	1.352	1.374	1.366
	Height, in.	2.803	2.803	2.803
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	10.360	21.890	33.300	
Fail. Stress, psf	790.4	634.1	889.3	
Ult. Stress, psf	Strain, %	15.0	15.0	15.0
	Strain, %			
σ_1 Failure, psf	2282.2	3786.3	5684.5	
σ_3 Failure, psf	1491.8	3152.2	4795.2	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: So, Alternating layers and lenses of Gr CLAY, Silty CLAY, Sandy SILT, Silty SAND (CL4)

Assumed Specific Gravity= 2.65

Remarks: Failure Type:

- 1 Bulge
- 2 Bulge
- 3 Bulge

Figure _____

Client: GeoEngineers

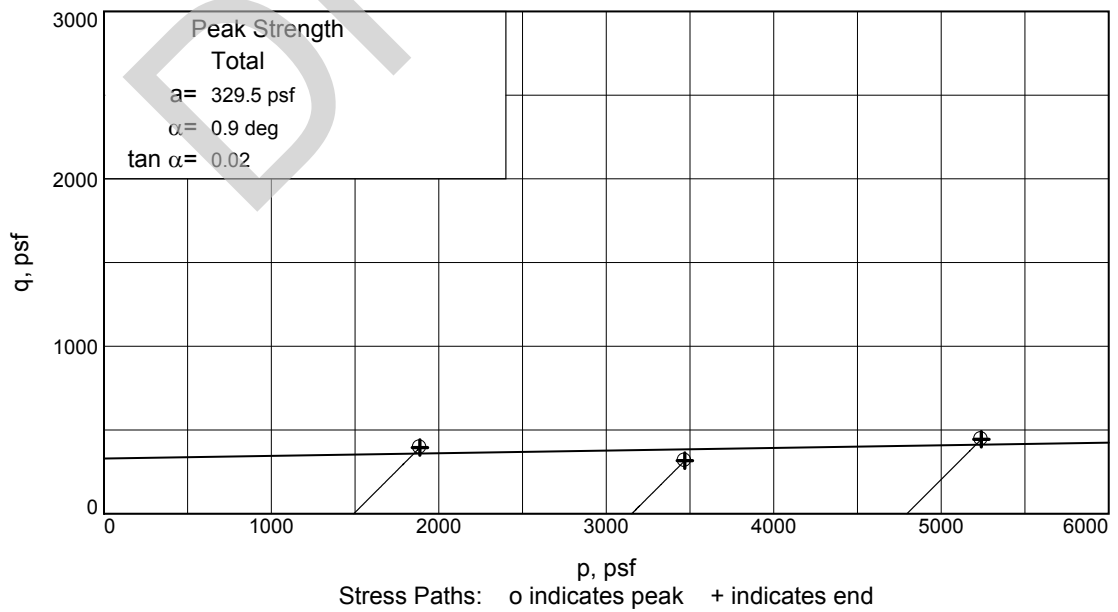
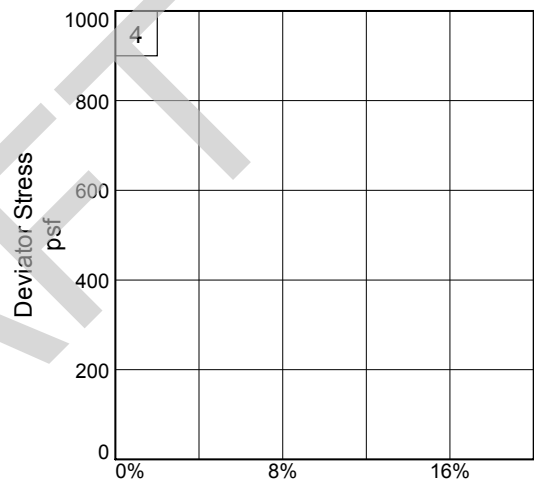
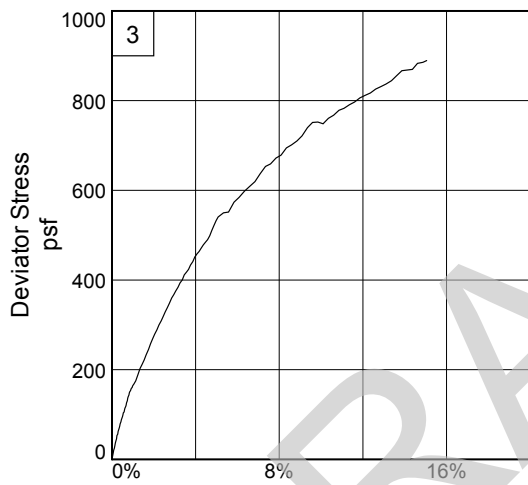
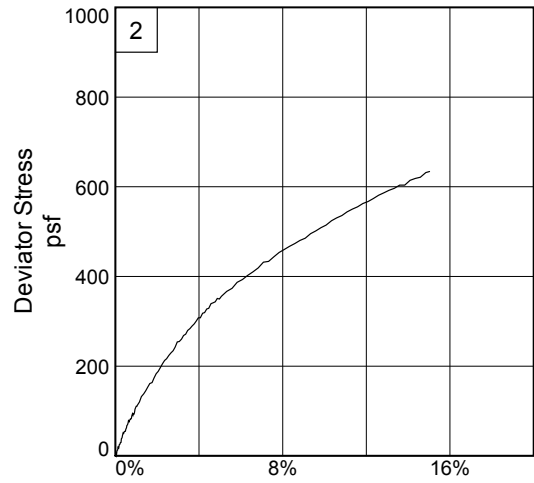
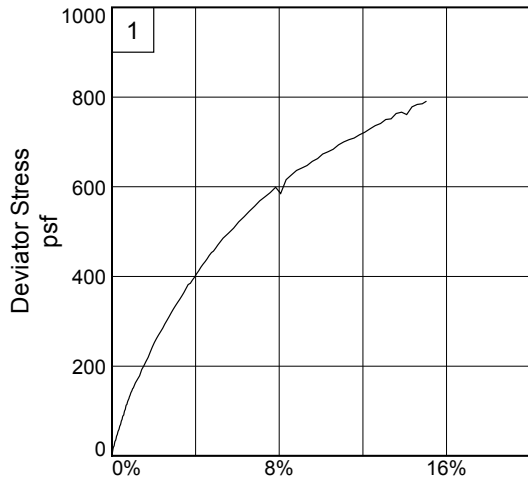
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 31-31.3

Proj. No.: B13-018 **Date Sampled:** 6/5/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: NL-6A
Project No.: B13-018

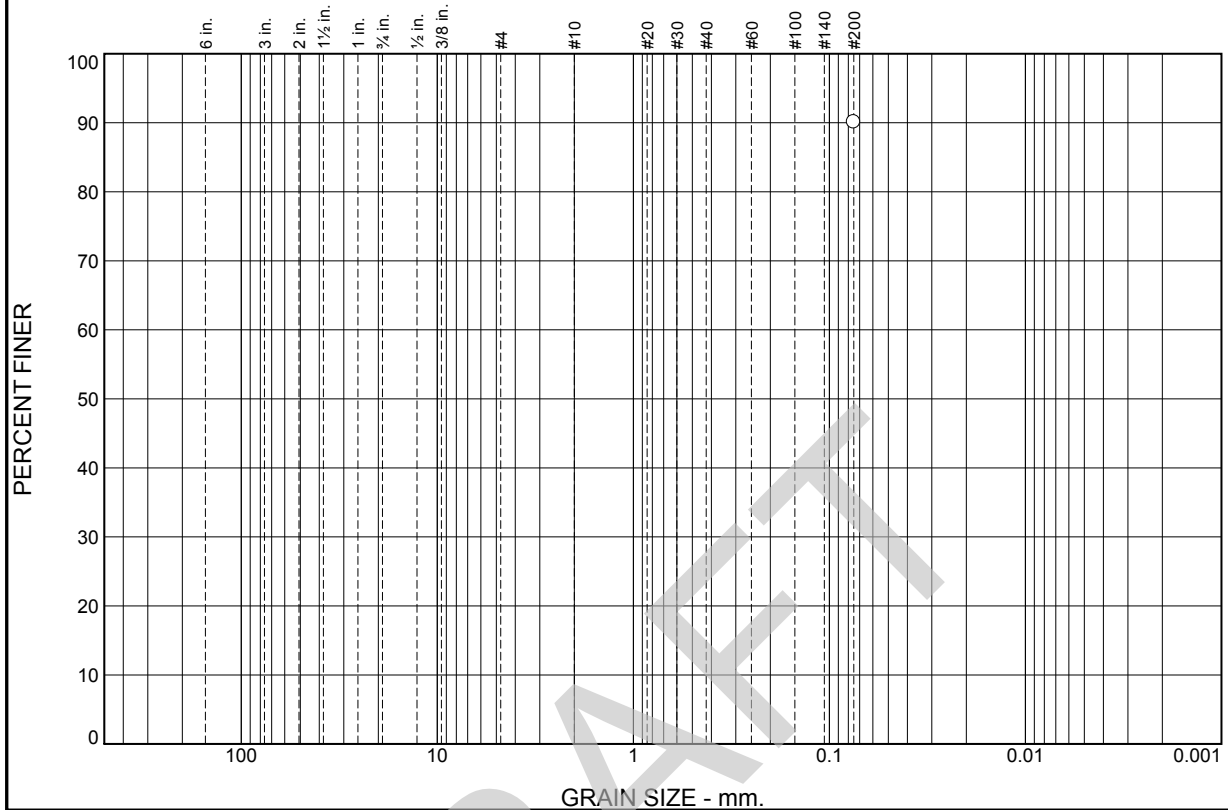
Depth: 31-31.3

Figure _____

Southern Earth Sciences, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						90.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#200	90.1		

Material Description

So, Alternating layers and lenses Silty CLAY, Sandy SILT, Silty SAND

Atterberg Limits

PL= 25 LL= 43 PI= 18

Classification

USCS= (CL4) AASHTO=

Remarks

Moisture Content: 33.1%

* (no specification provided)

Source of Sample: NL-6A

Depth: 33-33.6

Date: 6/5/13

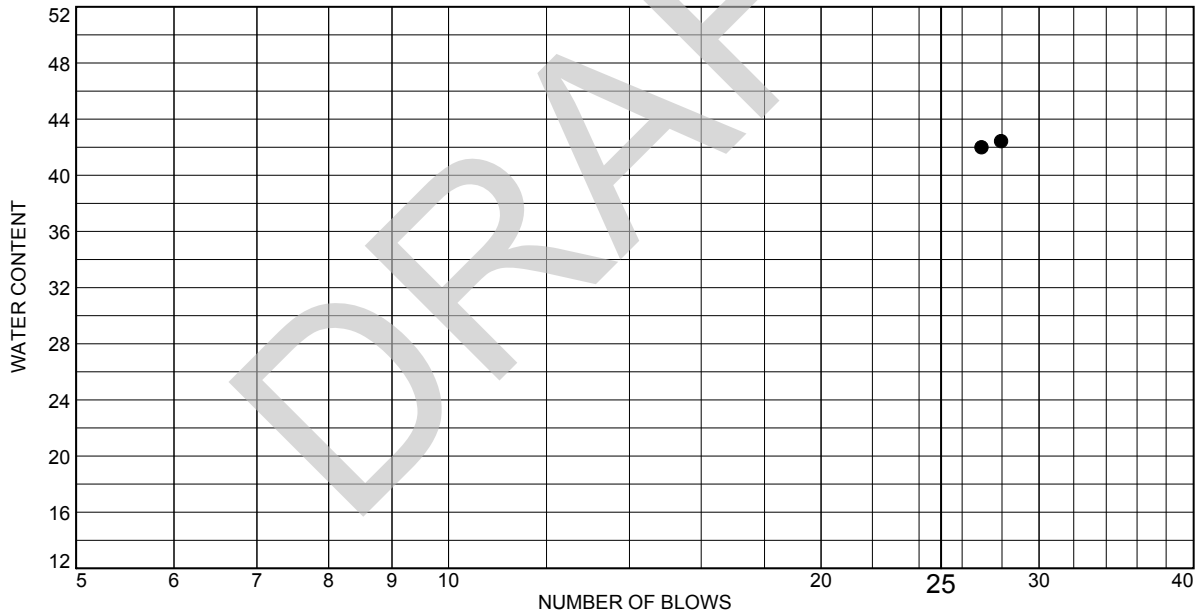
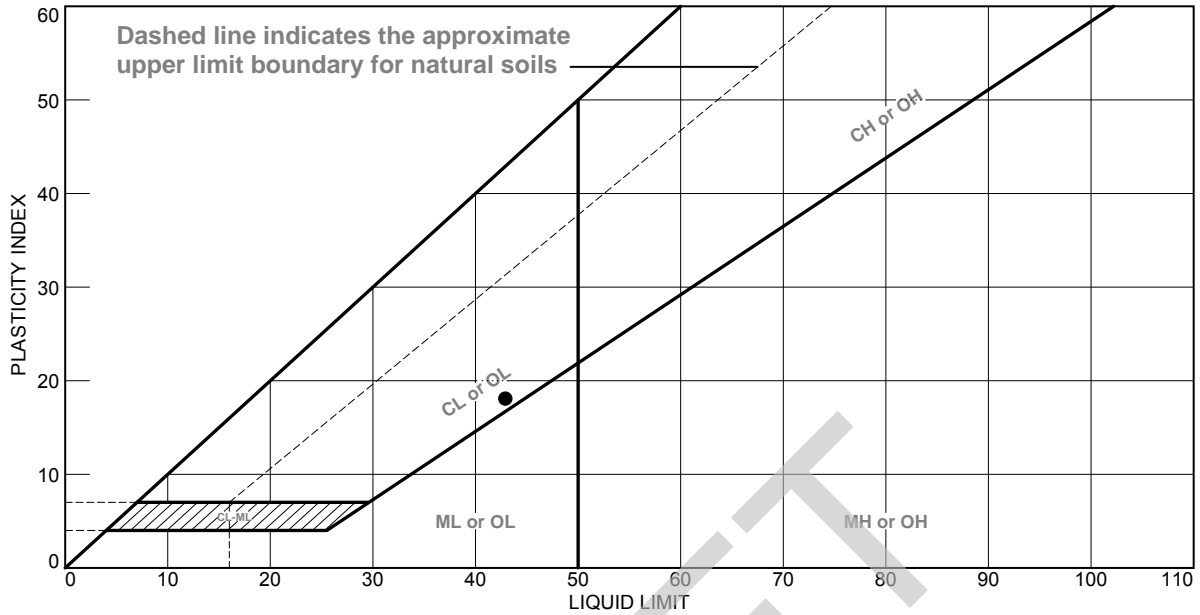
Southern Earth Sciences, Inc.
Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



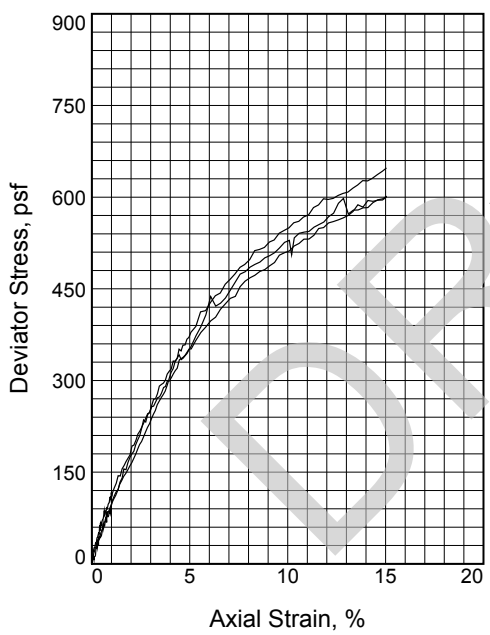
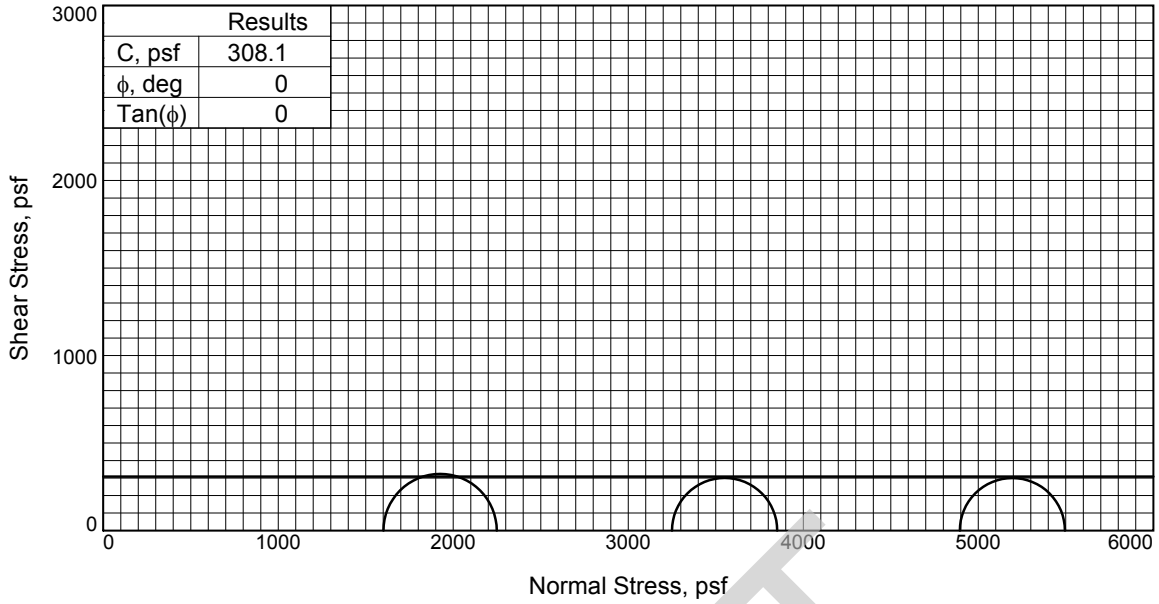
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
So, Alternating layers and lenses Silty CLAY, Sandy SILT, Silty SAND	43	25	18		90.1	(CL)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 33-33.6

Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	33.1	43.2	42.9
	Dry Density, pcf	91.7	78.6	82.4
	Saturation, %	109.0	103.7	112.8
	Void Ratio	0.8046	1.1038	1.0085
	Diameter, in.	1.349	1.391	1.376
	Height, in.	2.803	2.803	2.803
At Test	Water Content, %	30.4	41.7	38.1
	Dry Density, pcf	91.7	78.6	82.4
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.8046	1.1038	1.0085
	Diameter, in.	1.349	1.391	1.376
	Height, in.	2.803	2.803	2.803
Strain rate, in./min.	1.000	1.000	15.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	11.120	22.570	33.990	
Fail. Stress, psf	647.3	601.2	600.3	
Strain, %	15.0	15.0	15.0	
Ult. Stress, psf				
Strain, %	15.0			
σ_1 Failure, psf	2248.6	3851.3	5494.9	
σ_3 Failure, psf	1601.3	3250.1	4894.6	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: So, Alternating layers and lenses
Silty CLAY, Sandy SILT, Silty SAND

LL= 43 PL= 25 PI= 18

Assumed Specific Gravity= 2.65

Remarks: Failure Type:
Bulge
All Samples Slumping Under Own Weight

Client: GeoEngineers

Project: Mid Baratara Diversion

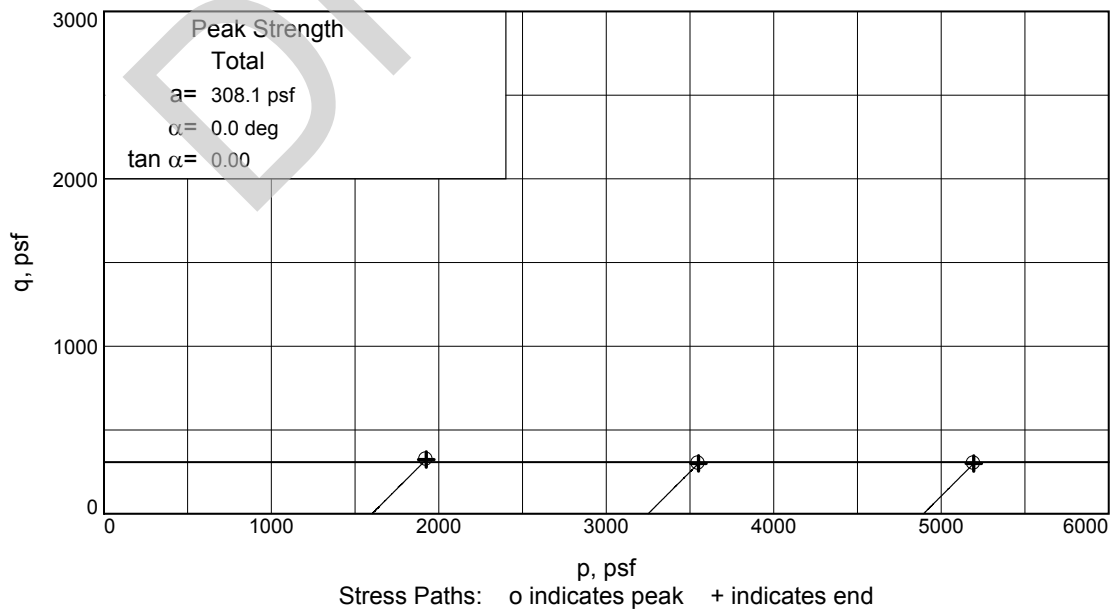
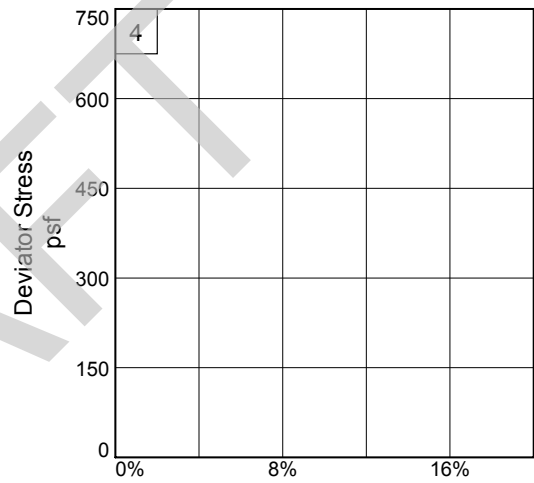
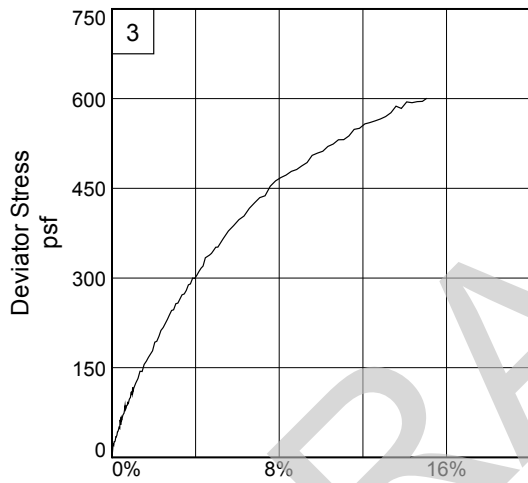
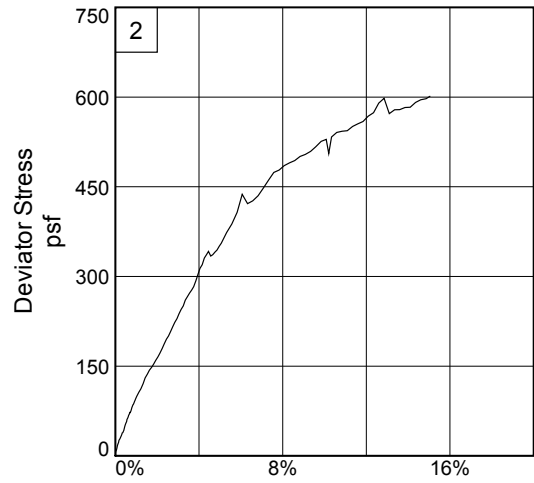
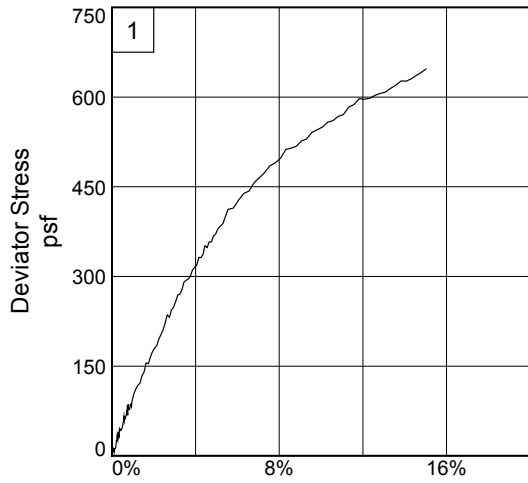
Source of Sample: NL-6A **Depth:** 33-33.6

Proj. No.: B13-018 **Date Sampled:** 6/5/13

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: NL-6A

Depth: 33-33.6

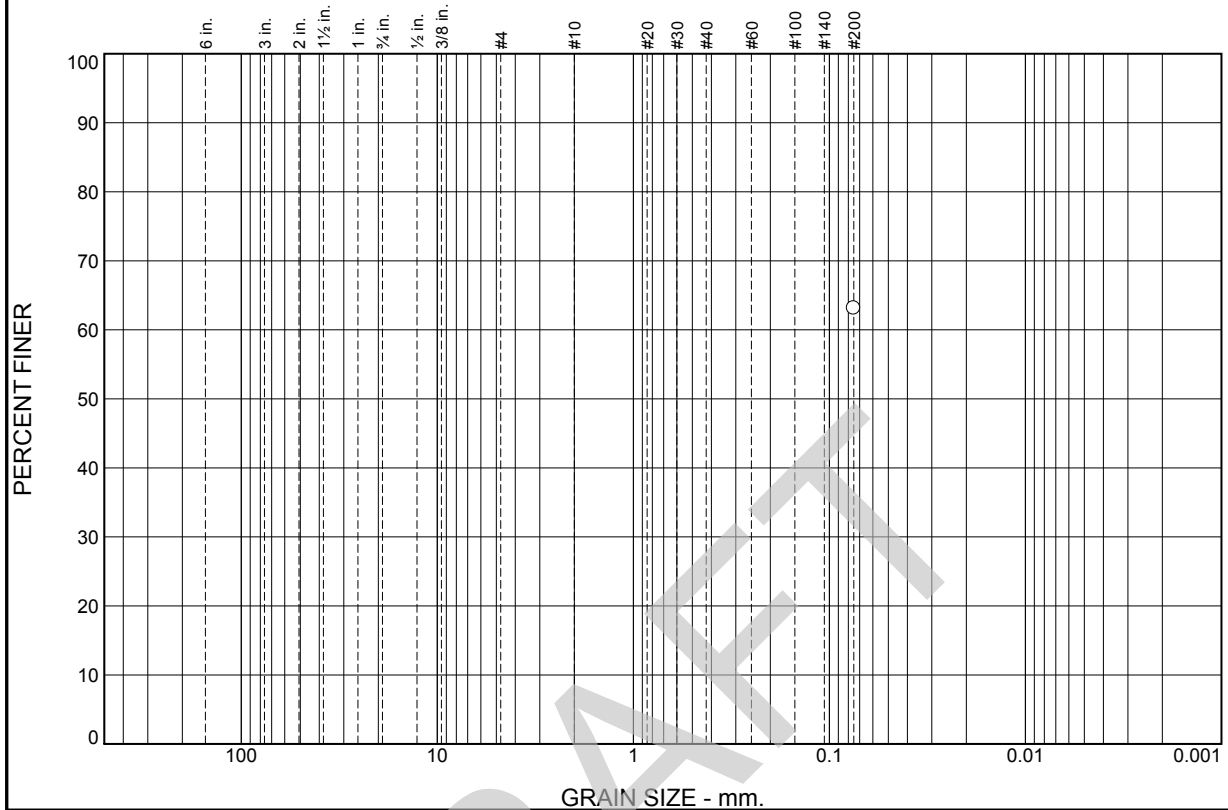
Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

"Confidential Information; Privileged & Confidential Work Product"

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						63.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	63.1		

Material Description
Gr Silty SAND with O pockets and tr clay

Atterberg Limits
PL= NP LL= NP PI= NP

Classification
USCS= (SM) AASHTO=

Remarks
Moisture Content: 27.4%

* (no specification provided)

Source of Sample: NL-6A

Depth: 37-38

Date: 6/5/13

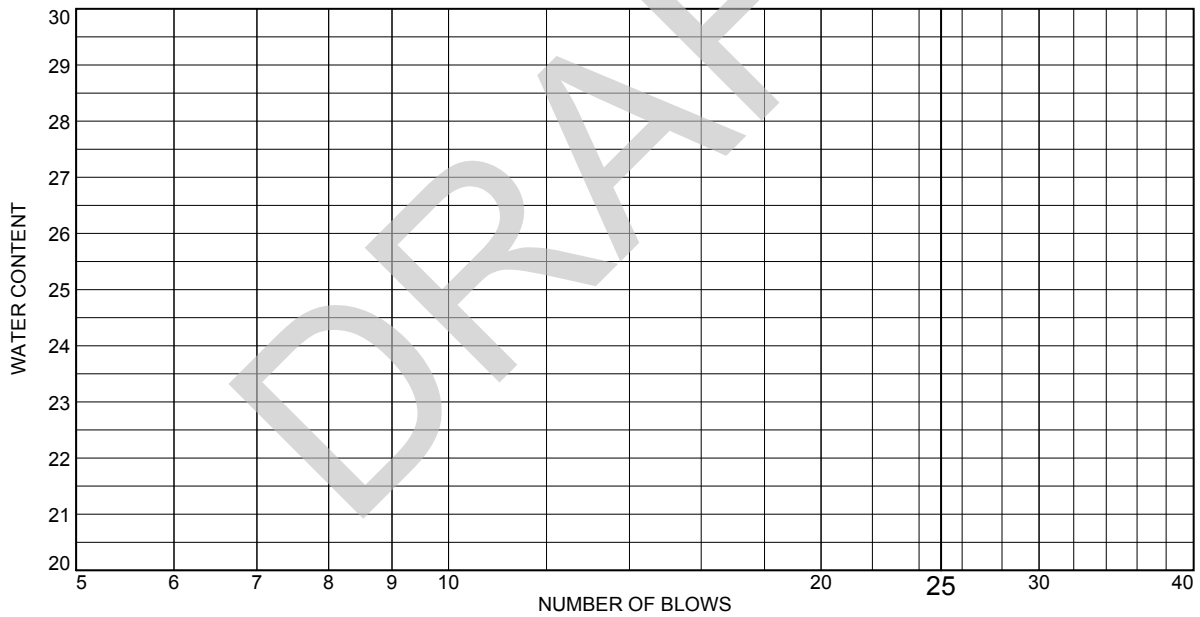
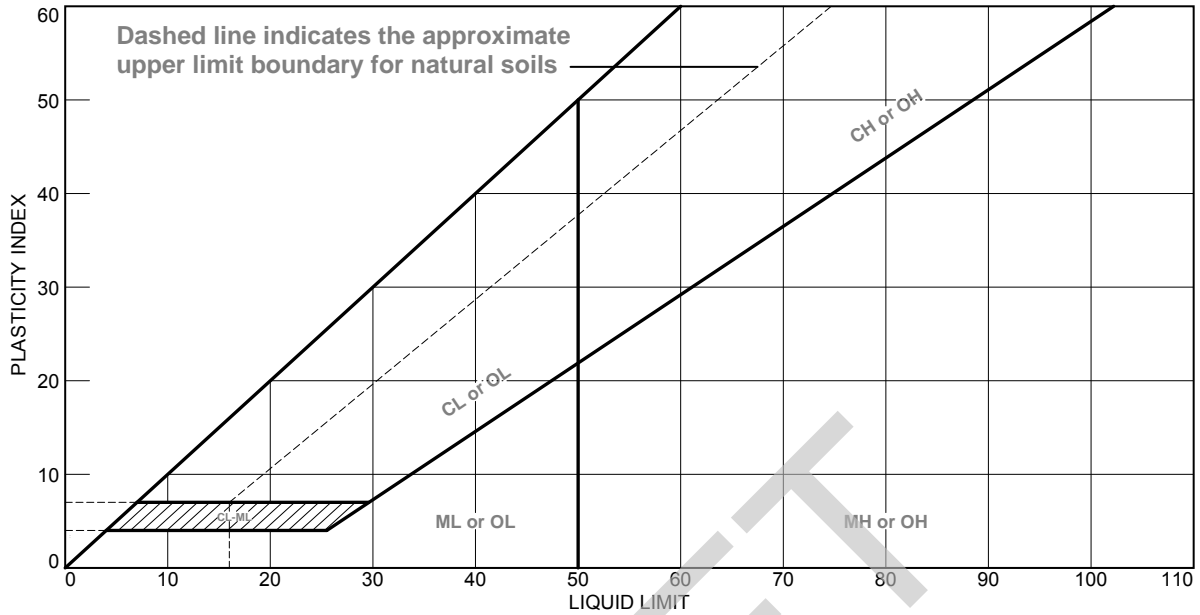
Southern Earth Sciences, Inc.
Baton Rouge, LA

Client: GeoEngineers
Project: Mid Barataria Diversion

Project No: B13-018

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT

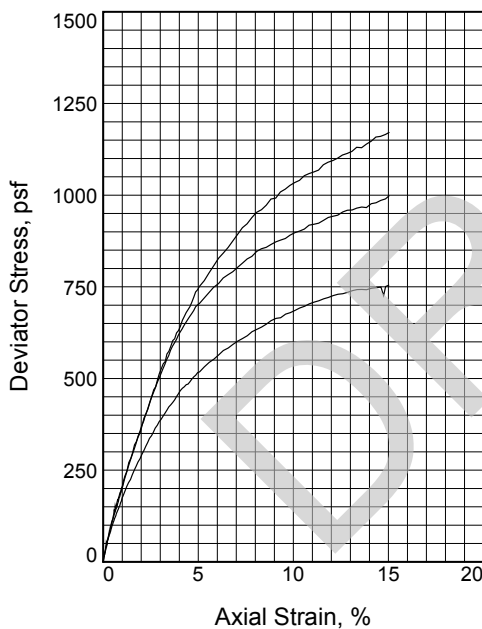
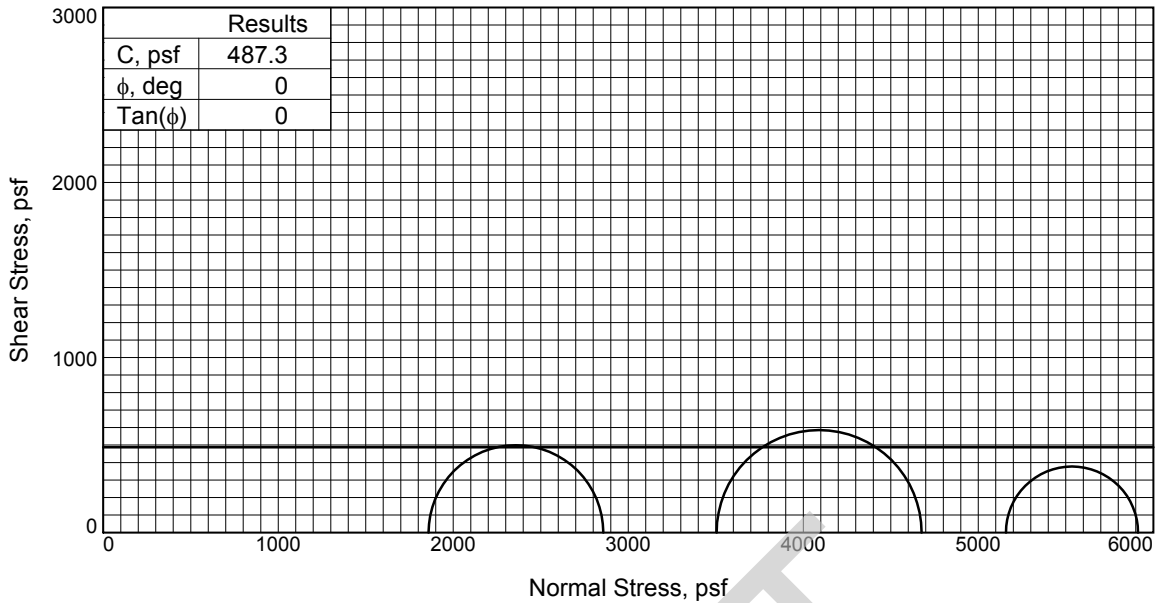


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Gr Silty SAND with O pockets and tr clay	NP	NP	NP		63.1	(SM)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: NL-6A **Depth:** 37-38
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3
Initial			
Water Content, %	40.3	38.9	38.9
Dry Density, pcf	83.5	85.4	82.9
Saturation, %	108.8	110.0	103.7
Void Ratio	0.9811	0.9367	0.9949
Diameter, in.	1.378	1.378	1.378
Height, in.	2.803	2.803	2.803
At Test			
Water Content, %	37.0	35.3	37.5
Dry Density, pcf	83.5	85.4	82.9
Saturation, %	100.0	100.0	100.0
Void Ratio	0.9811	0.9367	0.9949
Diameter, in.	1.378	1.378	1.378
Height, in.	2.803	2.803	2.803
Strain rate, in./min.	1.000	1.000	1.000
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	12.910	24.340	35.820
Fail. Stress, psf	998.1	1170.9	754.6
Strain, %	15.0	15.0	15.0
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	2857.2	4675.8	5912.7
σ_3 Failure, psf	1859.0	3505.0	5158.1

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: So Alternating layers of CLAY, Silty CLAY, Clayey SILT with O pockets (CL4)

Assumed Specific Gravity= 2.65

Remarks: Failure Type:

- 1 Bulge
- 2 Bulge
- 3 Bulge

Figure _____

Client: GeoEngineers

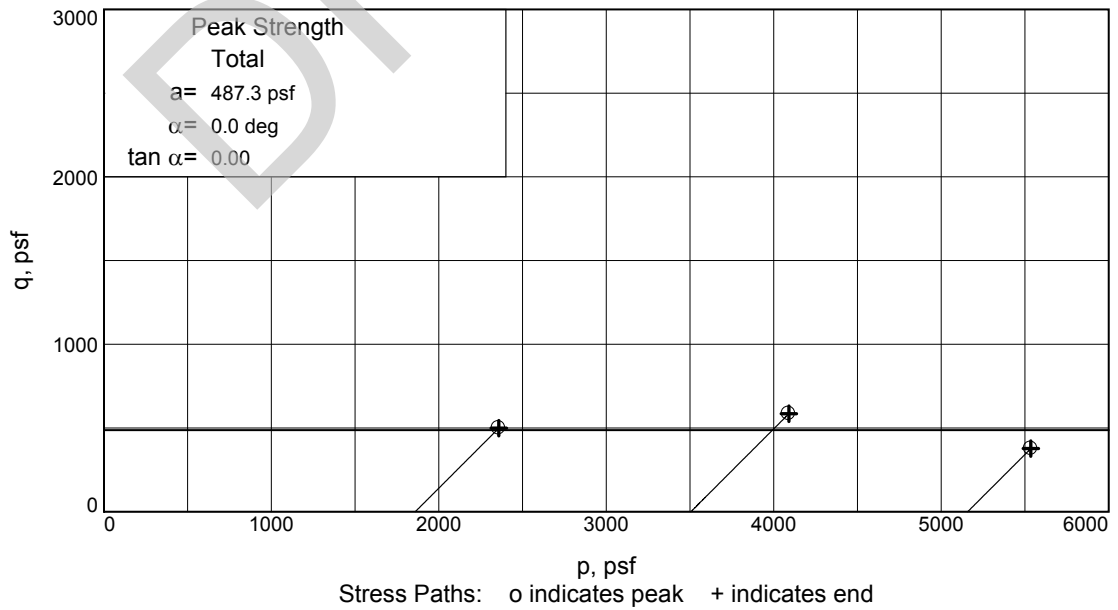
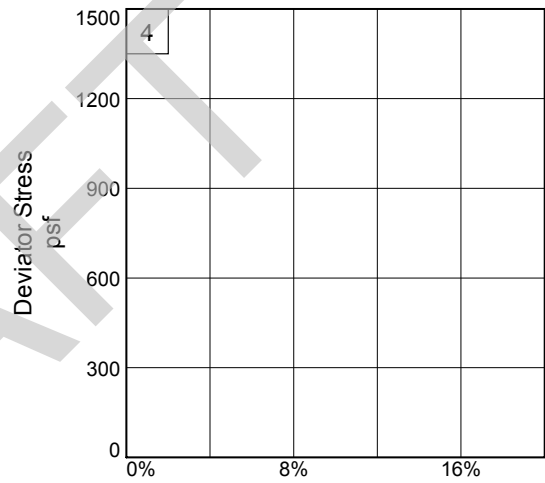
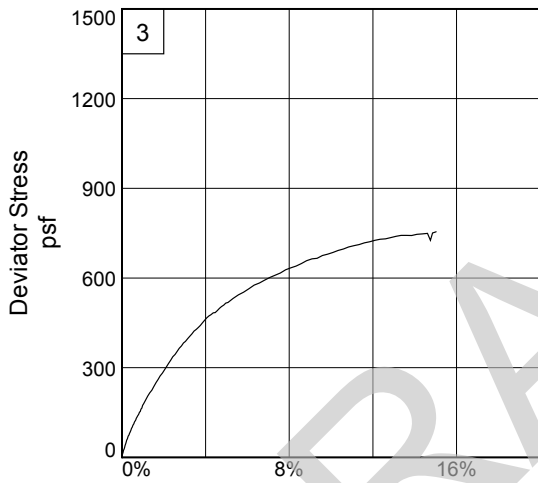
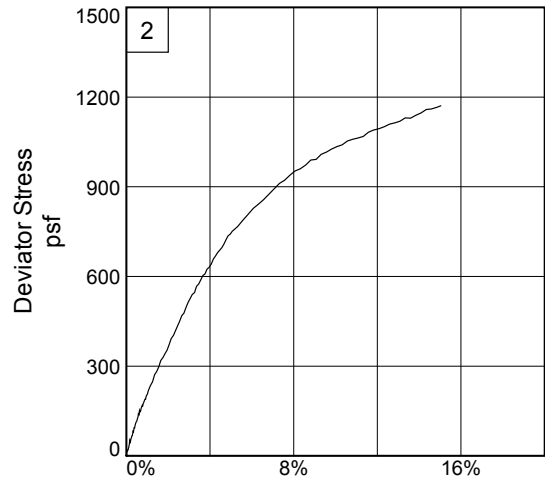
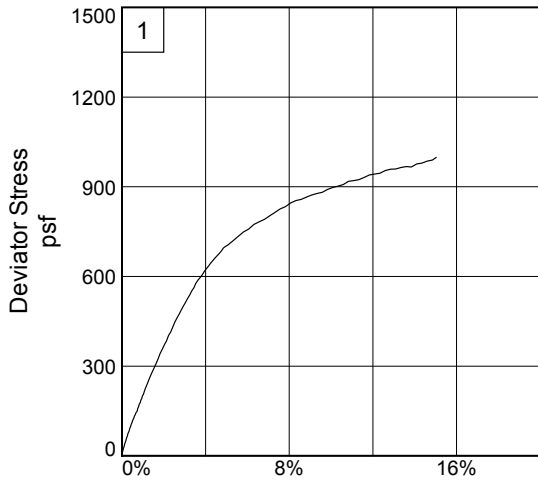
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 38-39

Proj. No.: B13-018 **Date Sampled:** 6/5/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



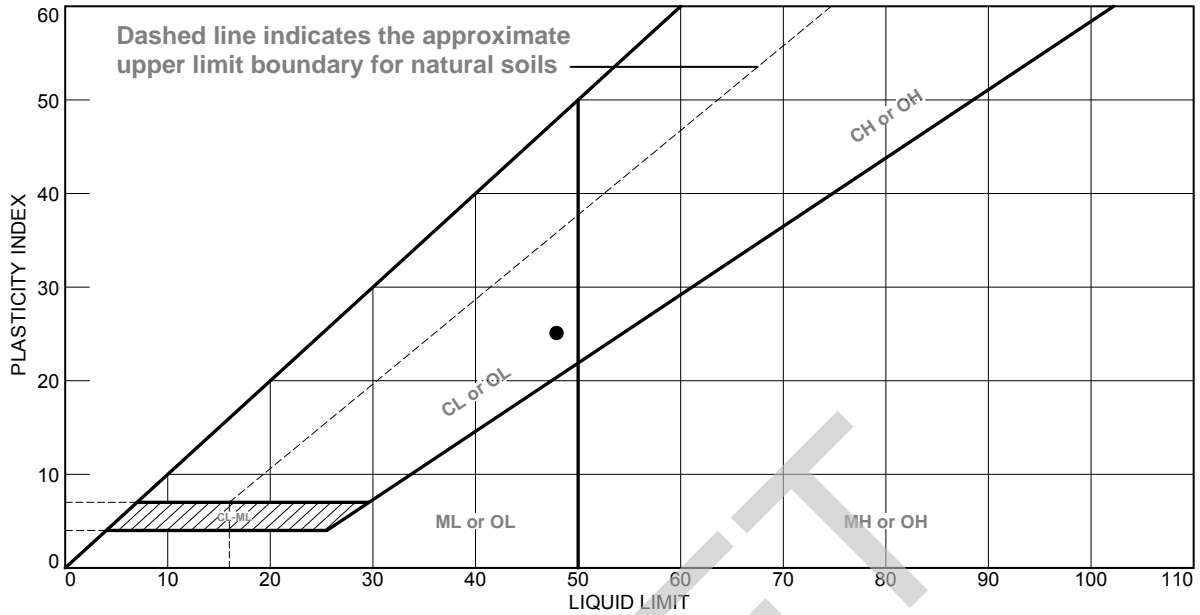
Client: GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 38-39

Figure _____

Southern Earth Sciences, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT



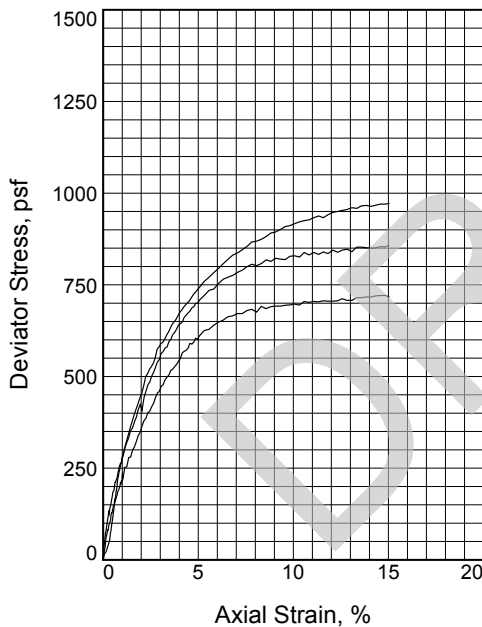
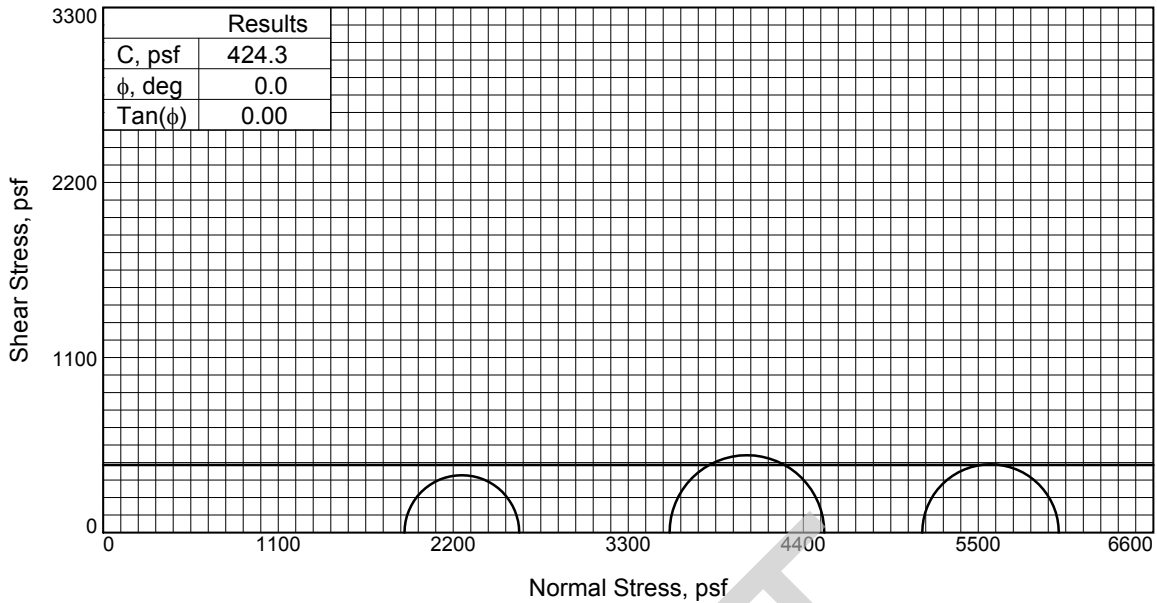
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
So, Gr Lean CLAY	48	23	25			(CL6)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 39-40
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	45.2	38.0	44.1
	Dry Density, pcf	77.6	81.4	79.7
	Saturation, %	104.1	95.9	106.9
	Void Ratio	1.1719	1.0703	1.1148
	Diameter, in.	1.379	1.389	1.382
	Height, in.	2.803	2.803	2.803
At Test	Water Content, %	43.4	39.6	41.3
	Dry Density, pcf	77.6	81.4	79.7
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.1719	1.0703	1.1148
	Diameter, in.	1.379	1.389	1.382
	Height, in.	2.803	2.803	2.803
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	13.150	24.720	35.750	
Fail. Stress, psf	720.9	972.2	857.7	
Strain, %	14.8	15.0	15.0	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	2614.5	4531.8	6005.7	
σ_3 Failure, psf	1893.6	3559.7	5148.0	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: So, Gr Lean CLAY (CL6)

LL= 48 **PL=** 23 **PI=** 25

Assumed Specific Gravity= 2.70

Remarks: Failure Type:

- 1 Bulge
- 2 Bulge
- 3 Bulge

Figure _____

Client: GeoEngineers

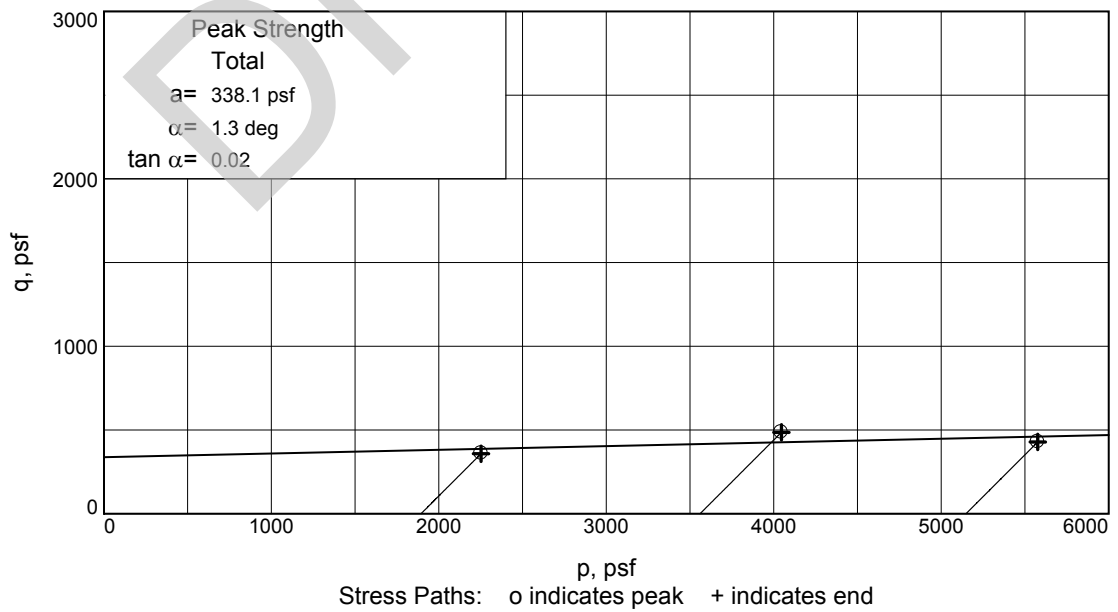
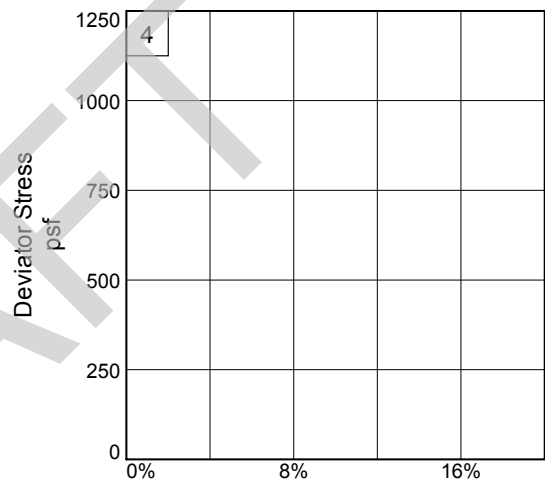
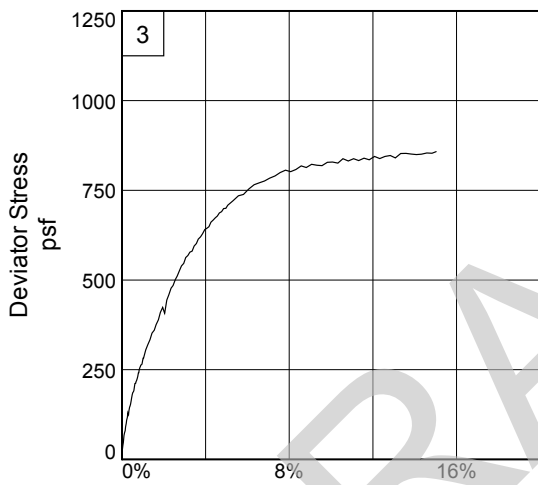
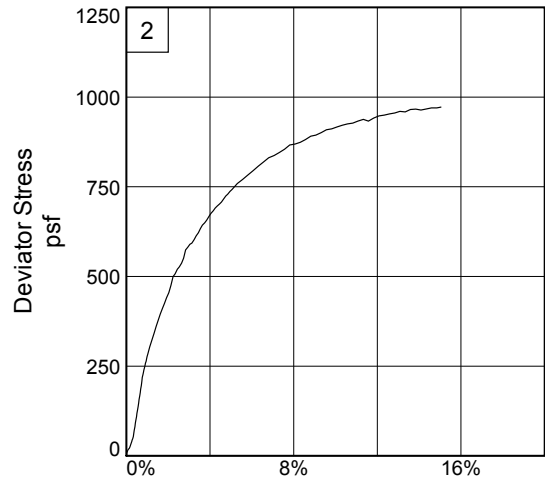
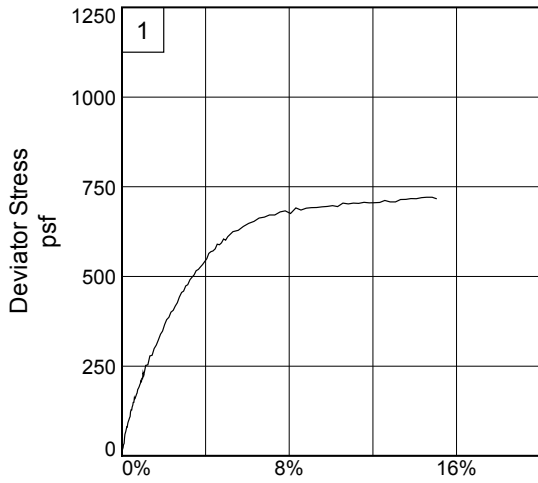
Project: Mid Baratara Diversion

Source of Sample: NL-6A **Depth:** 39-40

Proj. No.: B13-018 **Date Sampled:** 6/5/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-6A

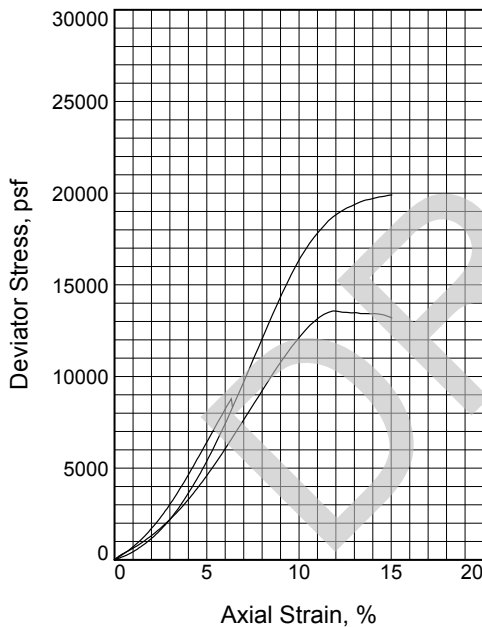
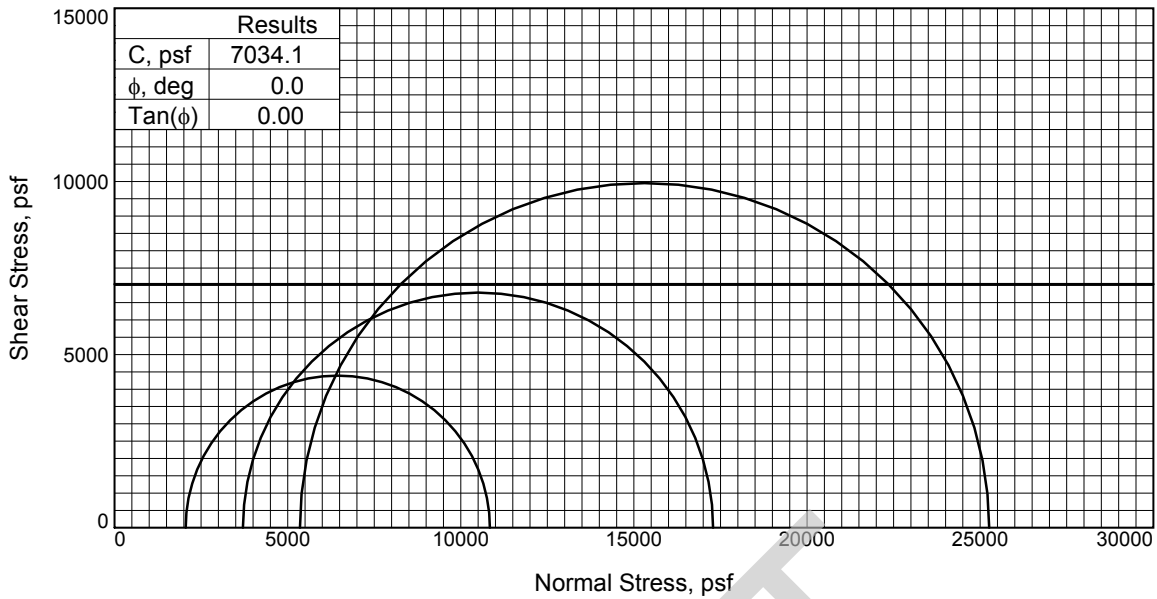
Depth: 39-40

Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

"Confidential Information; Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	25.3	25.0	24.7
	Dry Density, pcf	102.3	101.9	107.0
	Saturation, %	112.1	109.8	124.2
	Void Ratio	0.5861	0.5928	0.5176
	Diameter, in.	1.375	1.374	1.340
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	22.5	22.8	19.9
	Dry Density, pcf	102.3	101.9	107.0
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.5861	0.5928	0.5176
Ult. Stress, psf	Diameter, in.	1.375	1.374	1.340
	Height, in.	2.803	2.803	2.803
	Strain rate, in./min.	1.000	1.000	1.000
Fail. Stress, psf	Back Pressure, psi	0.000	0.000	0.000
	Cell Pressure, psi	14.260	25.750	37.180
	Fail. Stress, psf	8786.6	13577.6	19906.2
Strain, %	Strain, %	6.3	11.8	15.0
	Ult. Stress, psf			
	Strain, %			
σ_1 Failure, psf	σ_1 Failure, psf	10840.0	17285.6	25260.2
	σ_3 Failure, psf	2053.4	3708.0	5353.9

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: Gr Silty SAND with clay pockets (SM)

Assumed Specific Gravity= 2.60

Remarks: Sample 1: Maxed out 100 lb ring

Failure Type:

2 45 Degree Shear

3 Bulge

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-6A

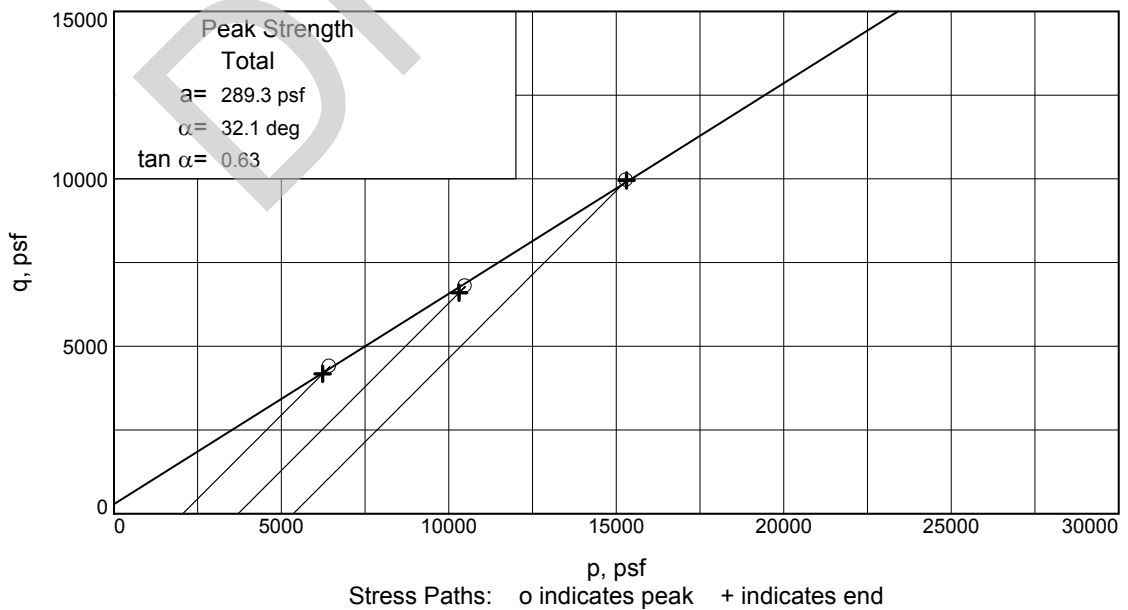
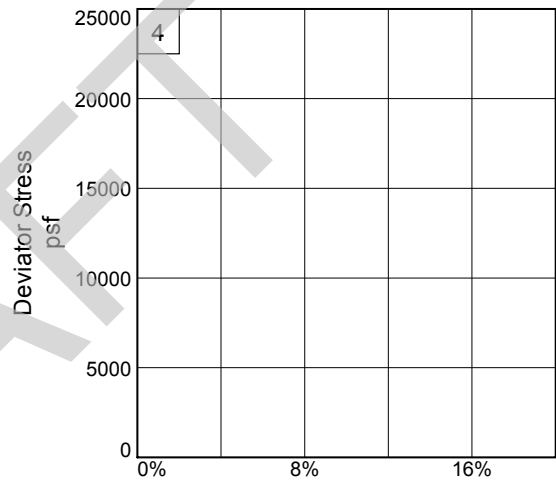
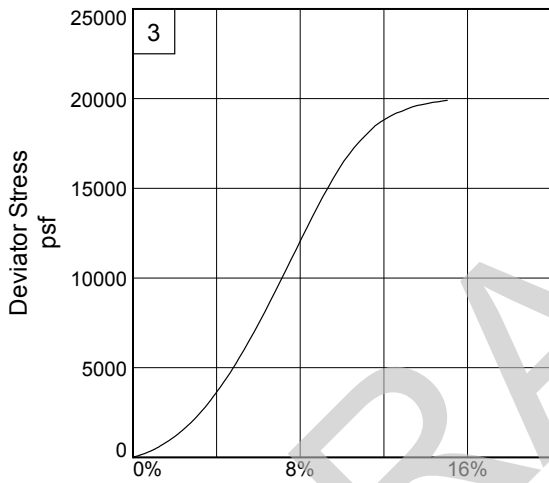
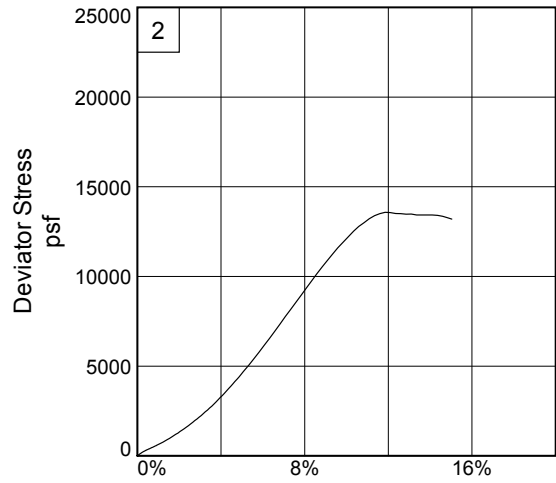
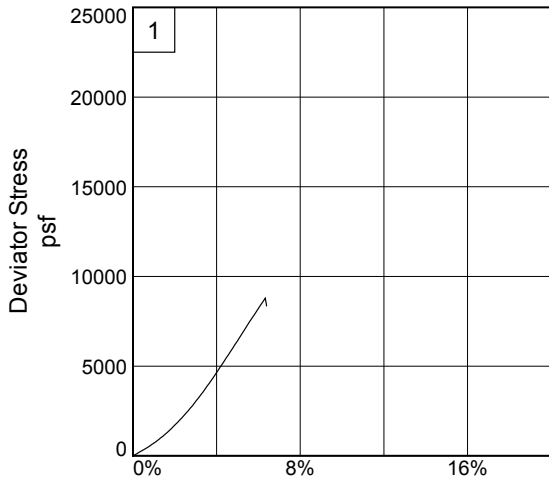
Depth: 42-42.3

Proj. No.: B13-018

Date Sampled: 6/5/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-6A

Depth: 42-42.3

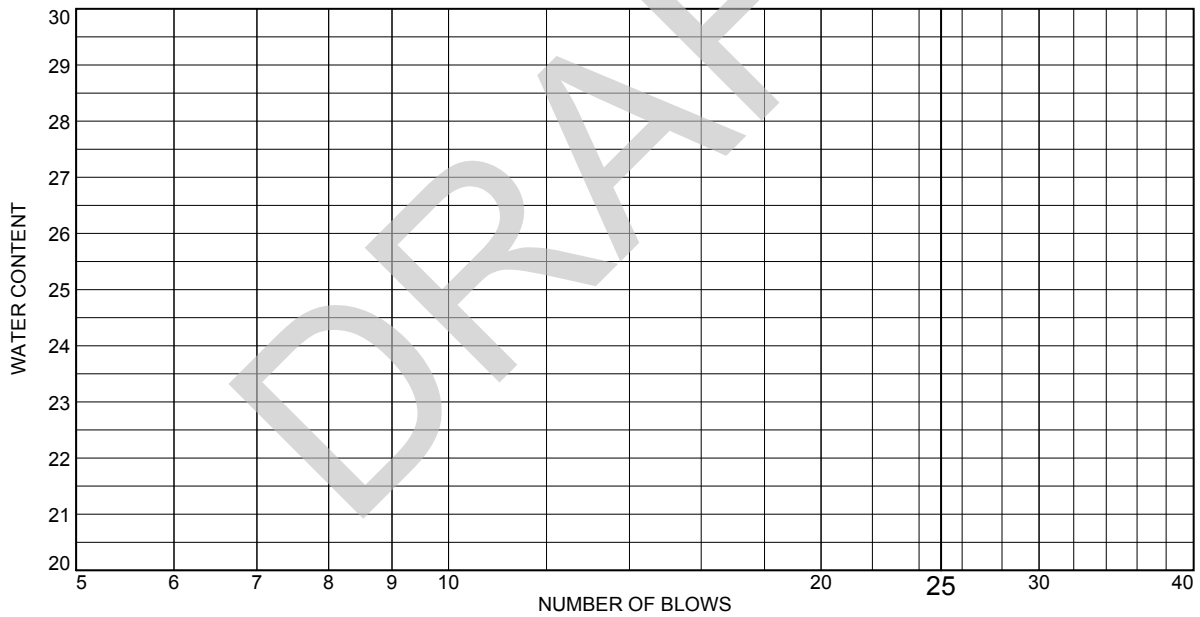
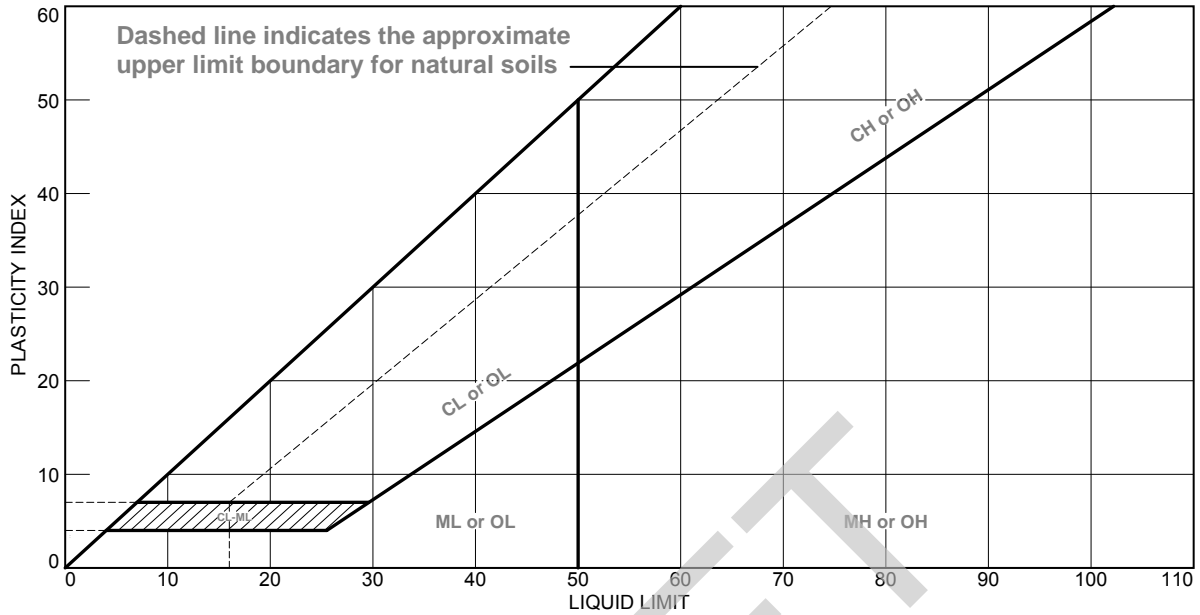
Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

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LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Gr Silty SAND with tr O	NP	NP	NP			(SM)

Project No. B13-018 Client: GeoEngineers
 Project: Mid Barataria Diversion
 Source of Sample: NL-6A Depth: 43-44

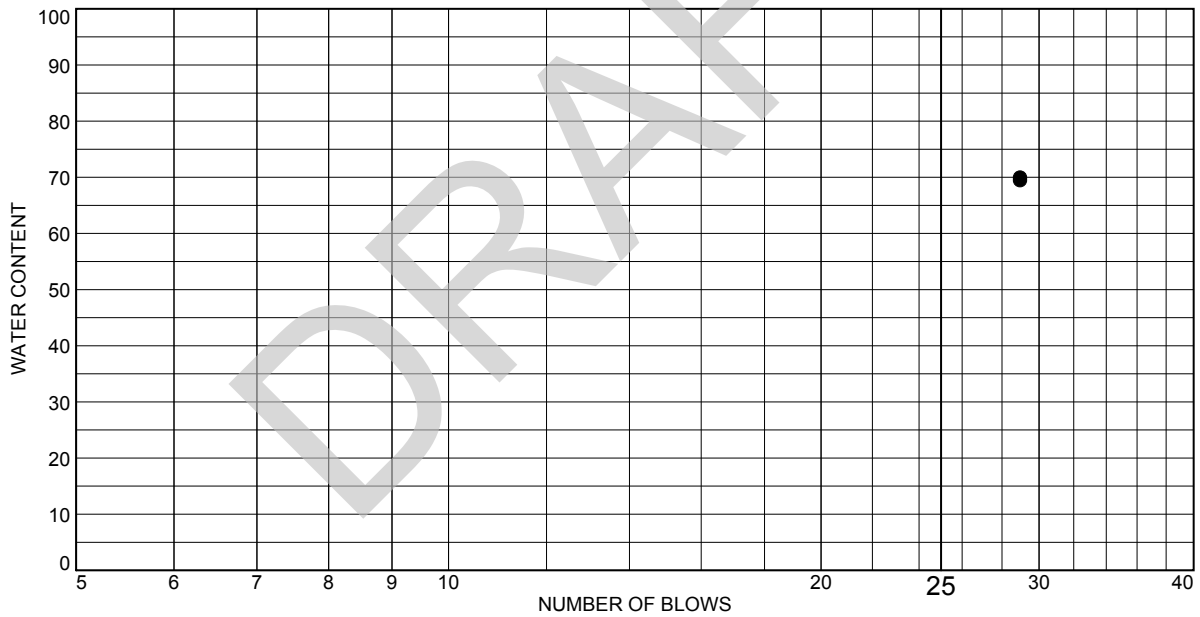
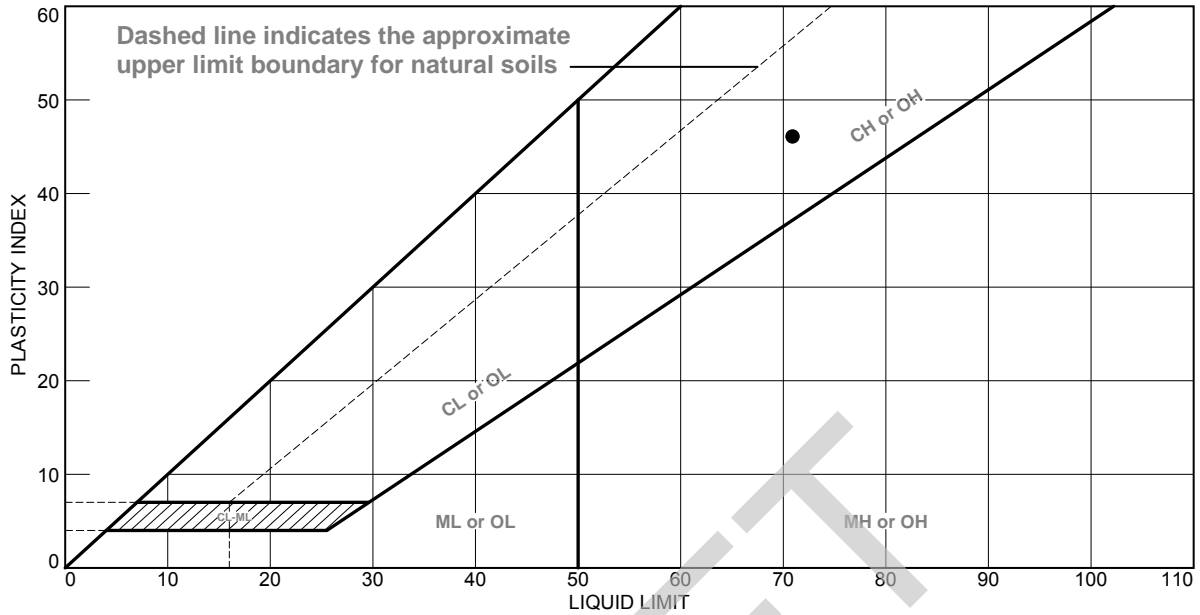
Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT

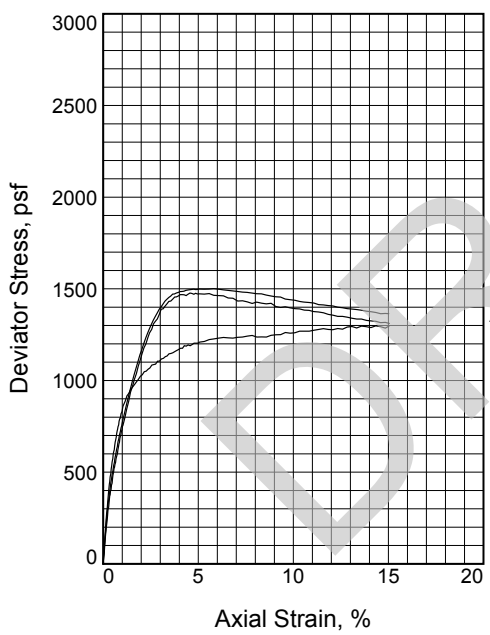
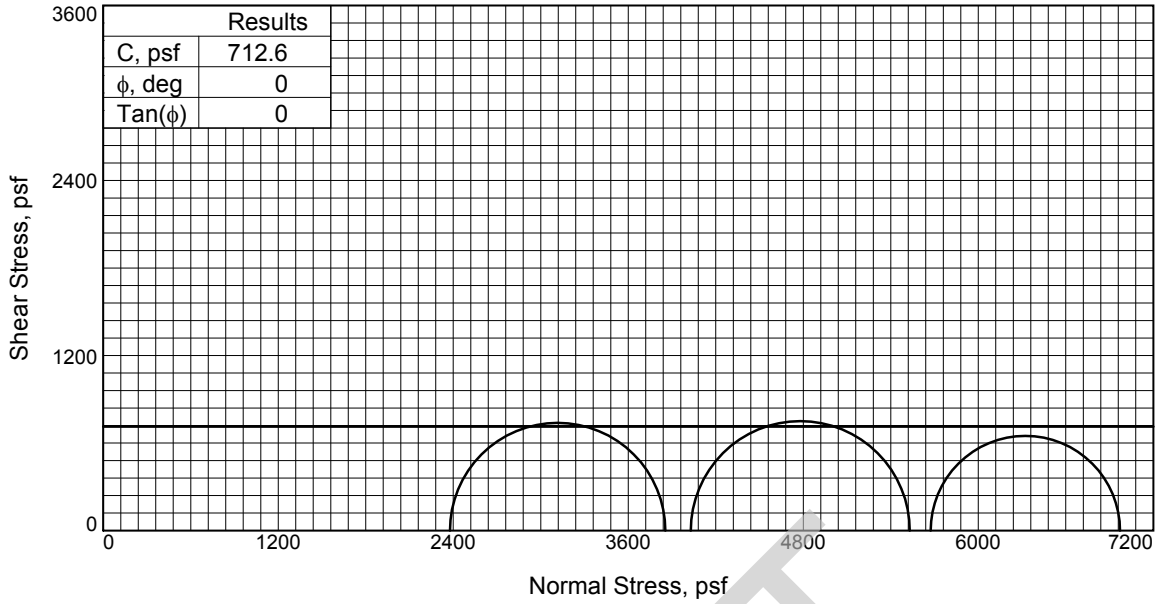


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
M, Gr Fat CLAY	71	25	46			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 48.4-49
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



	1	2	3	
Sample No.	1	2	3	
Initial	Water Content, %	49.5	45.6	52.1
	Dry Density, pcf	72.7	75.8	70.4
	Saturation, %	98.5	97.9	98.3
	Void Ratio	1.4059	1.3050	1.4842
	Diameter, in.	1.399	1.399	1.401
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	50.2	46.6	53.0
	Dry Density, pcf	72.7	75.8	70.4
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.4059	1.3050	1.4842
Diameter, in.	1.399	1.399	1.401	
Height, in.	2.803	2.803	2.803	
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	16.510	27.980	39.400	
Fail. Stress, psf	1476.6	1500.7	1298.1	
Strain, %	4.6	5.8	14.3	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	3854.1	5529.9	6971.7	
σ_3 Failure, psf	2377.4	4029.1	5673.6	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Fat CLAY (CH4)

LL= 71 PL= 25 PI= 46

Assumed Specific Gravity= 2.80

Remarks: Failure Type:
1 Bulge
2 Bulge
3 45 Degree Shear

Figure _____

Client: GeoEngineers

Project: Mid Baratara Diversion

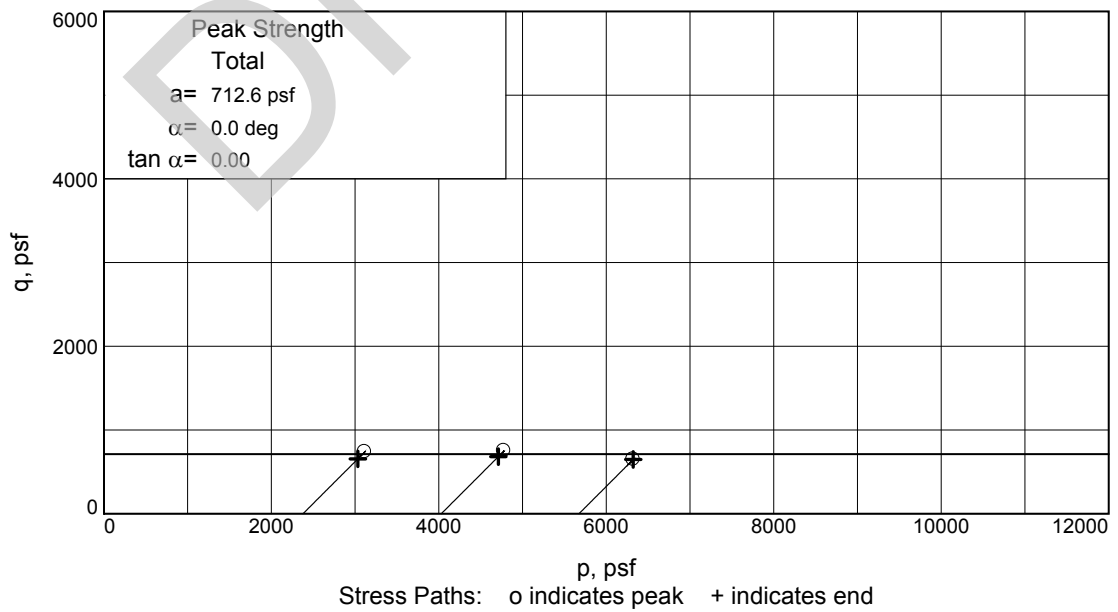
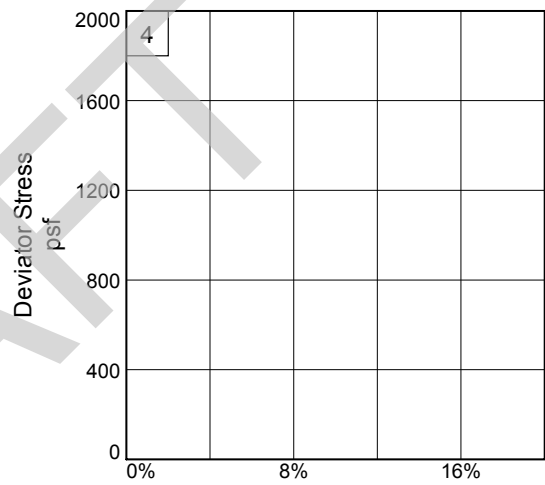
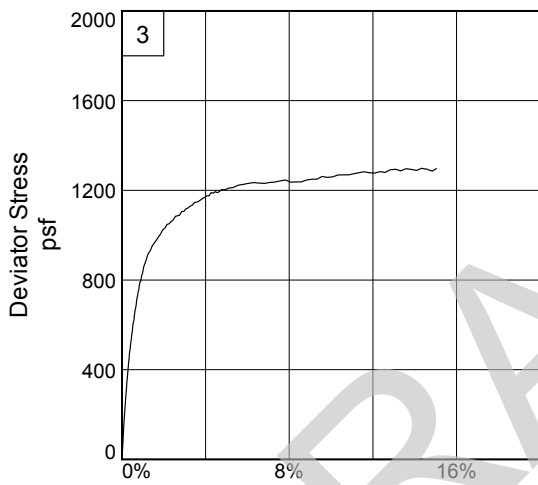
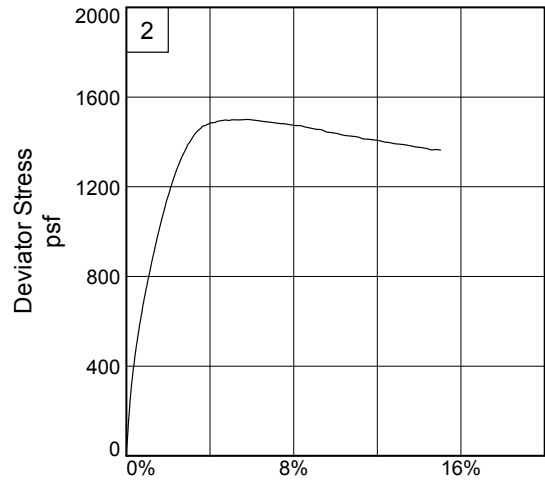
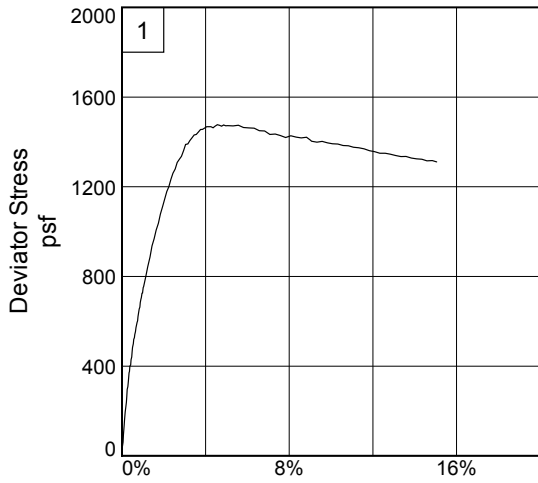
Source of Sample: NL-6A **Depth:** 48.4-49

Proj. No.: B13-018 **Date Sampled:** 6/5/13

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

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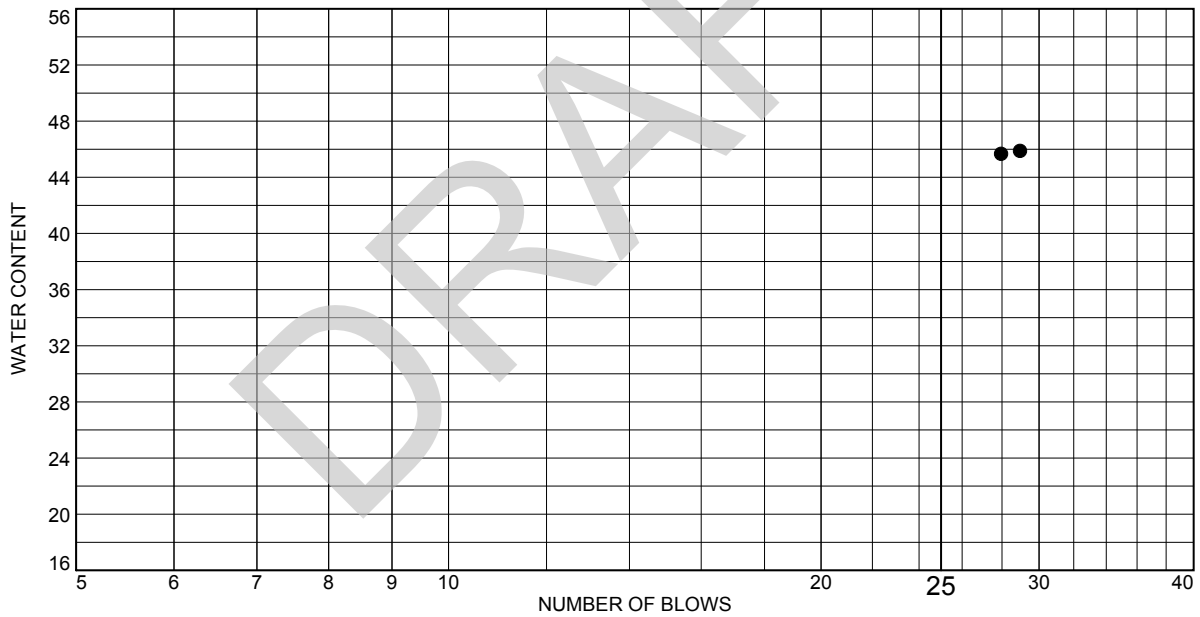
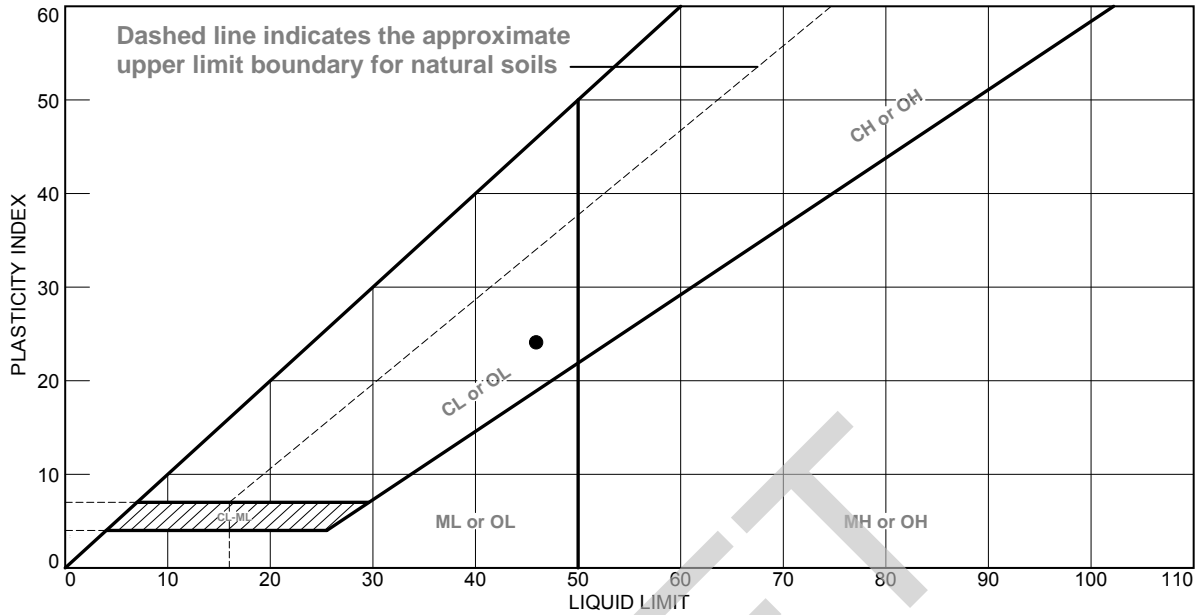
Client: GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 48.4-49

Figure _____

Southern Earth Sciences, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT



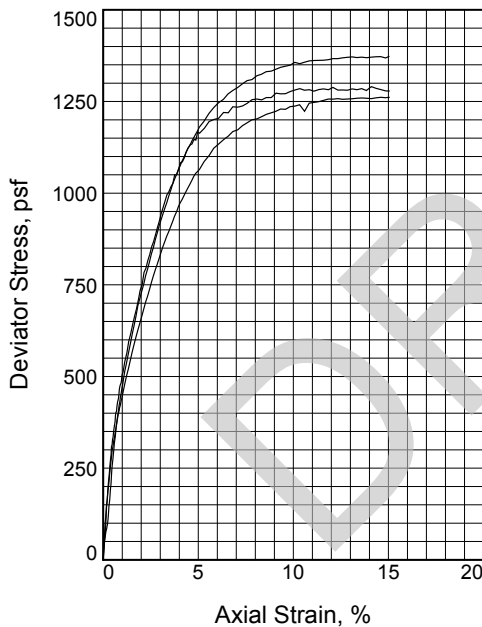
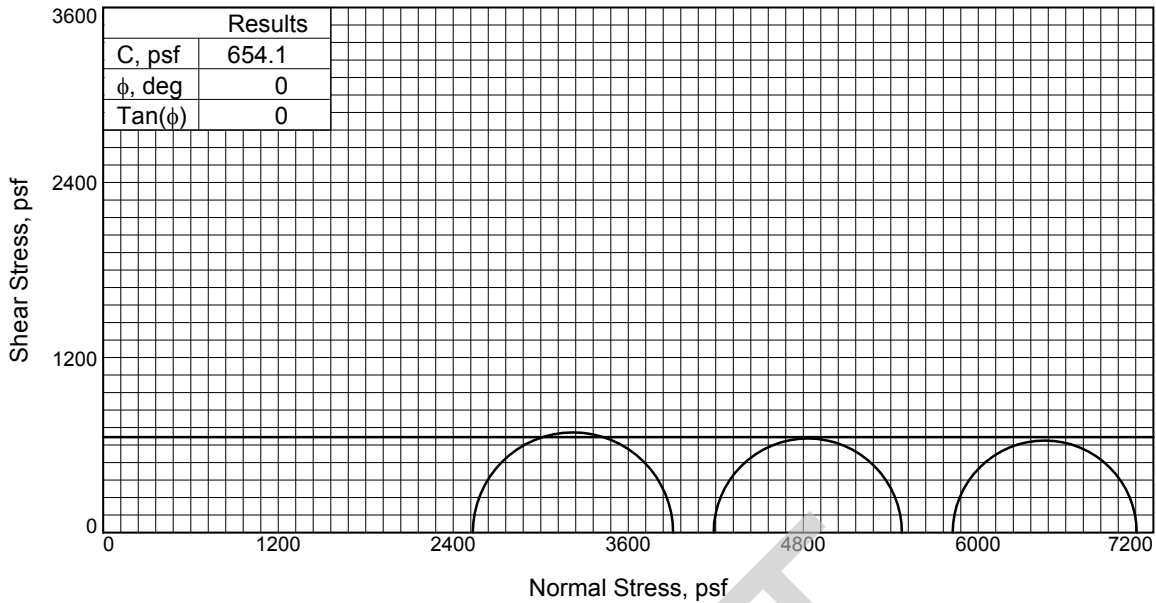
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
M, Gr Lean CLAY with silt pockets and lenses	46	22	24			(CL6)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 51-51.7
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3
Initial			
Water Content, %	41.7	42.5	41.7
Dry Density, pcf	80.8	80.0	78.5
Saturation, %	101.9	102.0	96.7
Void Ratio	1.1254	1.1461	1.1860
Diameter, in.	1.377	1.391	1.390
Height, in.	2.803	2.803	2.803
At Test			
Water Content, %	40.9	41.7	43.1
Dry Density, pcf	80.8	80.0	78.5
Saturation, %	100.0	100.0	100.0
Void Ratio	1.1254	1.1461	1.1860
Diameter, in.	1.377	1.391	1.390
Height, in.	2.803	2.803	2.803
Strain rate, in./min.	1.000	1.000	1.000
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	17.600	29.070	40.450
Fail. Stress, psf	1372.9	1290.3	1261.4
Strain, %	15.0	14.1	15.0
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	3907.3	5476.4	7086.2
σ_3 Failure, psf	2534.4	4186.1	5824.8

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Lean CLAY with silt pockets and lenses (CL6)

LL= 46 PL= 22 PI= 24

Assumed Specific Gravity= 2.75

Remarks: Failure Type:

- 1 Bulge
- 2 Bulge
- 3 Bulge

Figure _____

Client: GeoEngineers

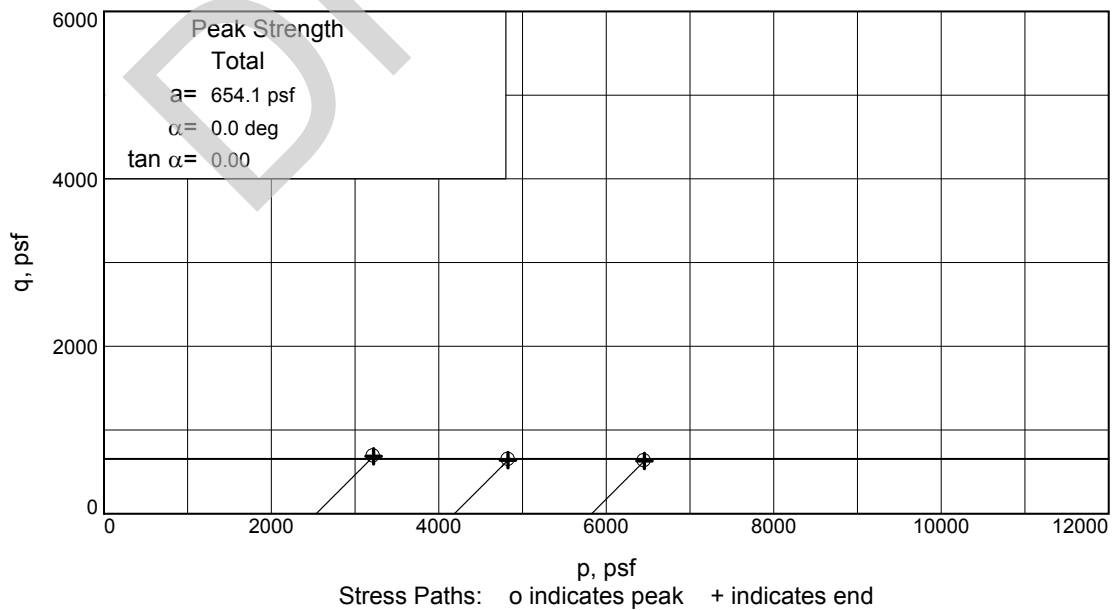
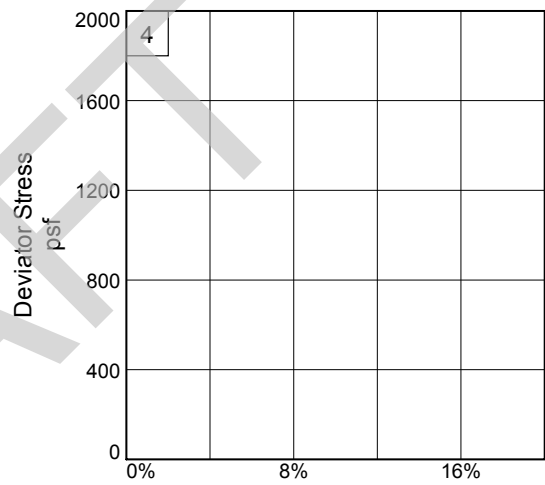
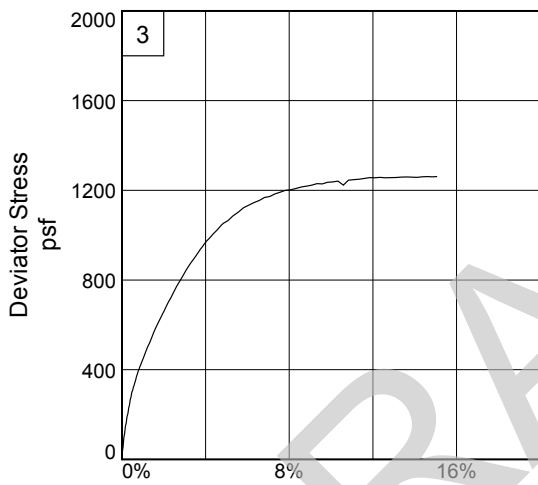
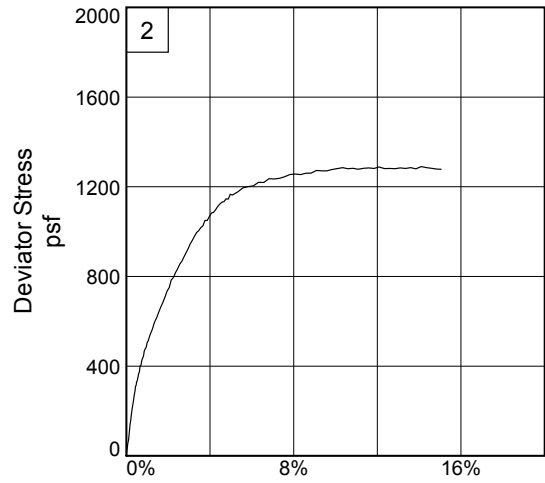
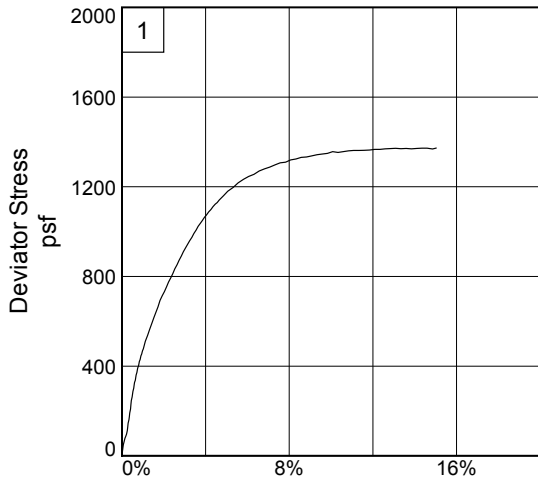
Project: Mid Baratara Diversion

Source of Sample: NL-6A **Depth:** 51-51.7

Proj. No.: B13-018 **Date Sampled:** 6/5/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product

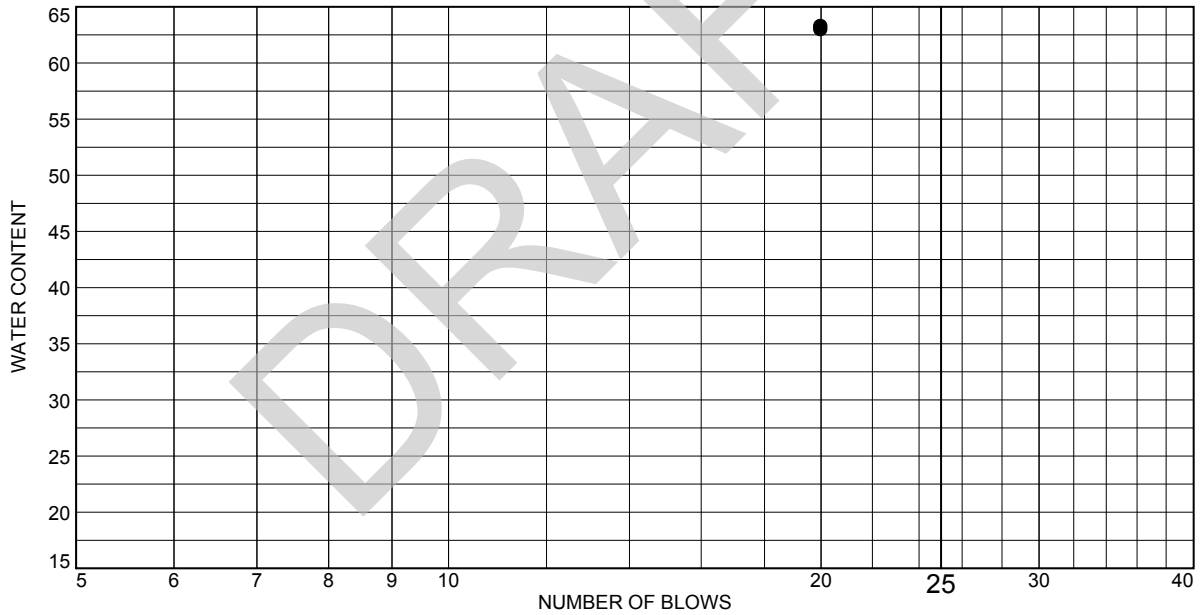
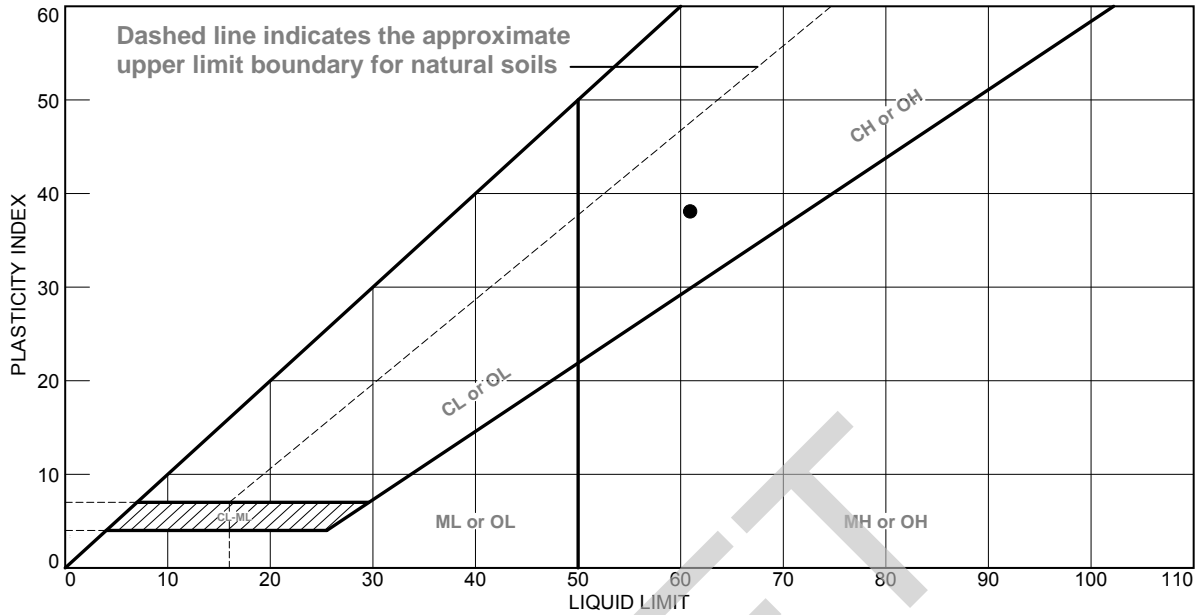


Client: GeoEngineers
Project: Mid Baratara Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 51-51.7
Figure _____

Southern Earth Sciences, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT



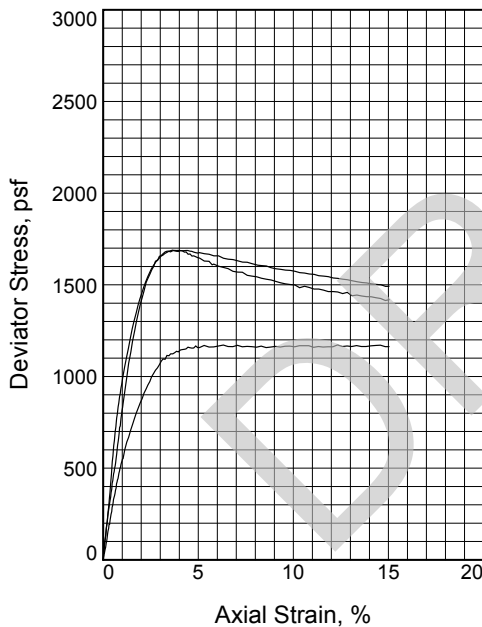
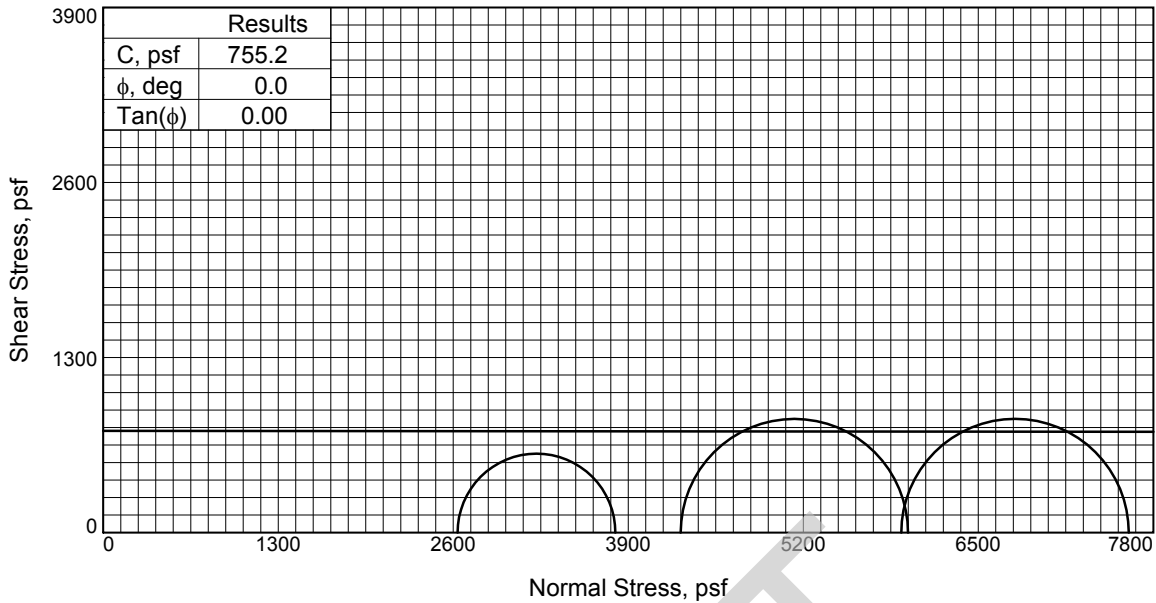
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
M, Gr Fat CLAY with silt lenses	61	23	38			(CH3)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 53-54
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

Confidential Information: Privileged & Confidential Work Product



Sample No.	1	2	3	
Initial	Water Content, %	46.3	46.6	45.3
	Dry Density, pcf	75.9	77.1	75.8
	Saturation, %	99.4	103.0	97.2
	Void Ratio	1.3043	1.2668	1.3061
	Diameter, in.	1.397	1.384	1.397
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	46.6	45.2	46.6
	Dry Density, pcf	75.9	77.1	75.8
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.3043	1.2668	1.3061
Strain rate, in./min.	Diameter, in.	1.397	1.384	1.397
	Height, in.	2.803	2.803	2.803
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	18.280	29.790	41.170	
Fail. Stress, psf	Strain, %	1171.9	1687.9	1689.2
	Strain, %	12.3	3.9	3.7
Ult. Stress, psf	Strain, %			
	Strain, %			
σ_1 Failure, psf	3804.2	5977.7	7617.7	
σ_3 Failure, psf	2632.3	4289.8	5928.5	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Fat CLAY with silt lenses (CH3)

LL= 61 **PL=** 23 **PI=** 38

Assumed Specific Gravity= 2.80

Remarks: Failure Type:

- 1 45 Degree Shear
- 2 45 Degree Shear and Bulge
- 3 Bulge

Figure _____

Client: GeoEngineers

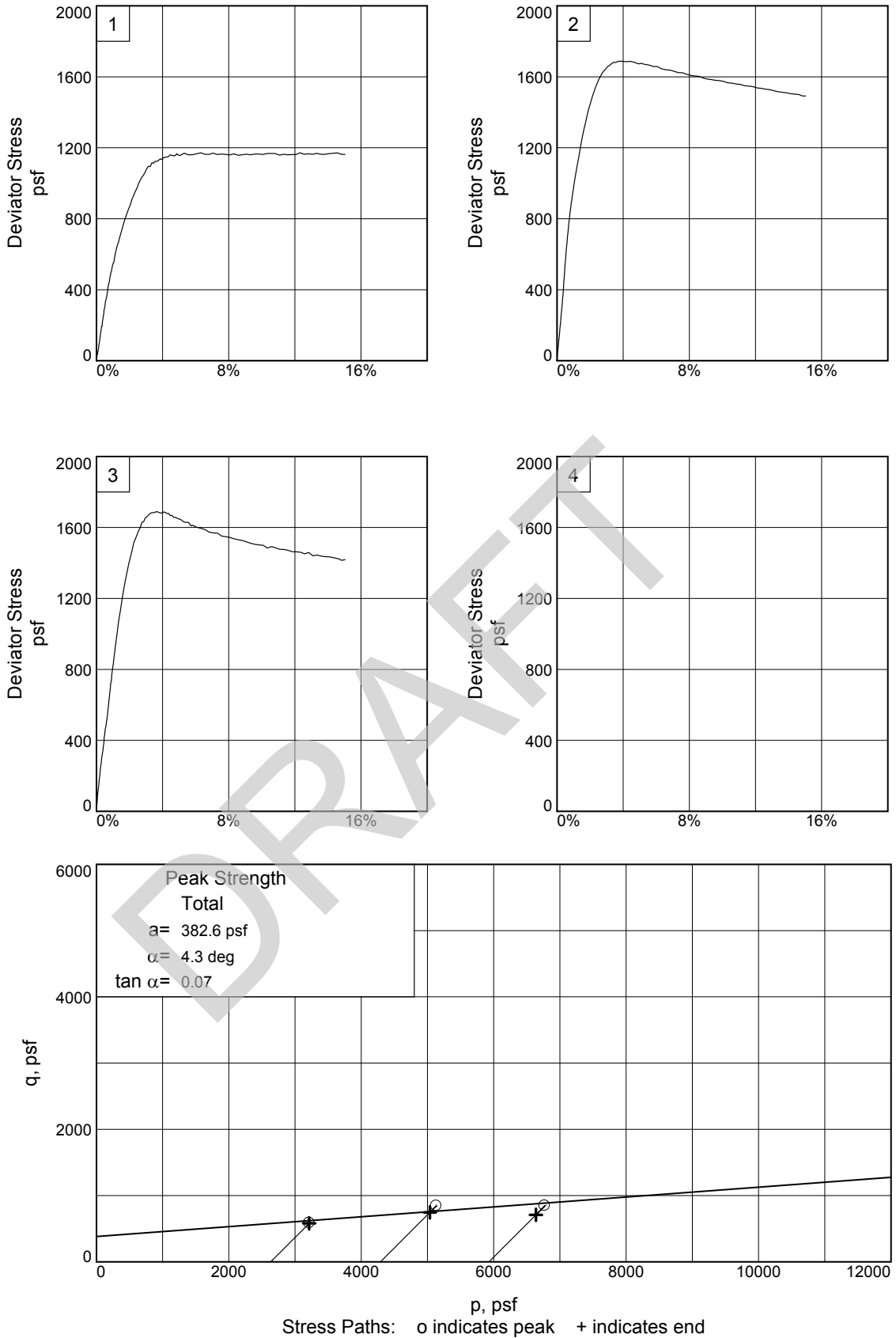
Project: Mid Baratara Diversion

Source of Sample: NL-6A **Depth:** 53-54

Proj. No.: B13-018 **Date Sampled:** 6/4/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product

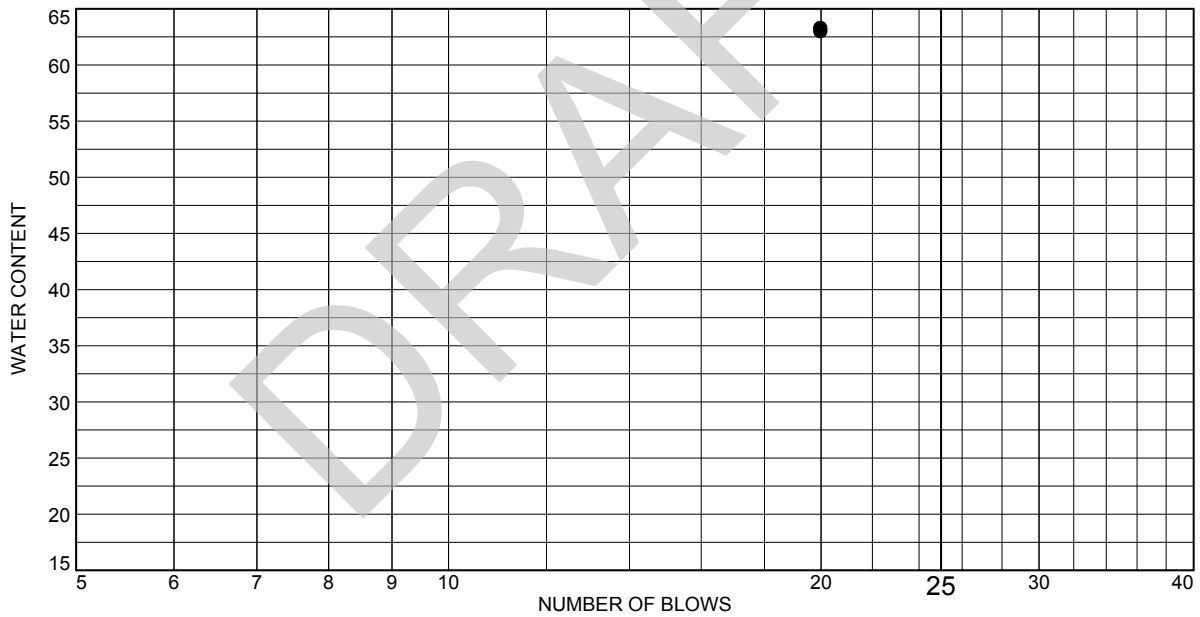
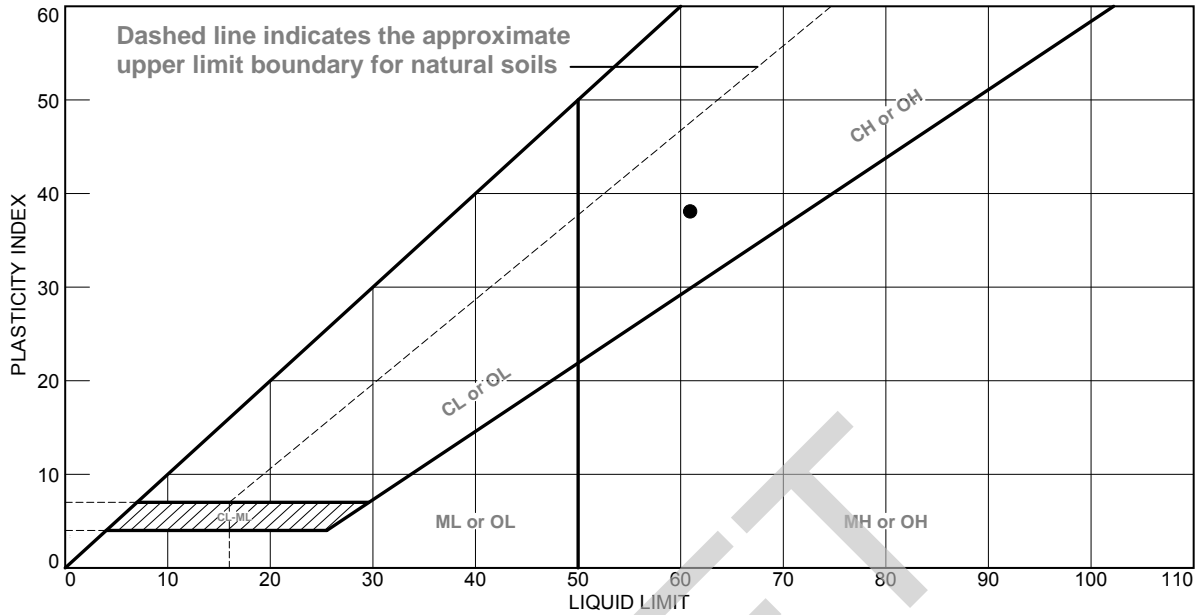


Client: GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 53-54
Figure _____

Southern Earth Sciences, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT



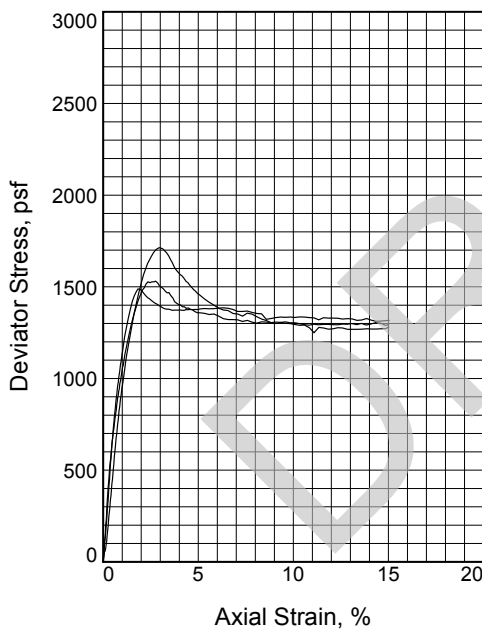
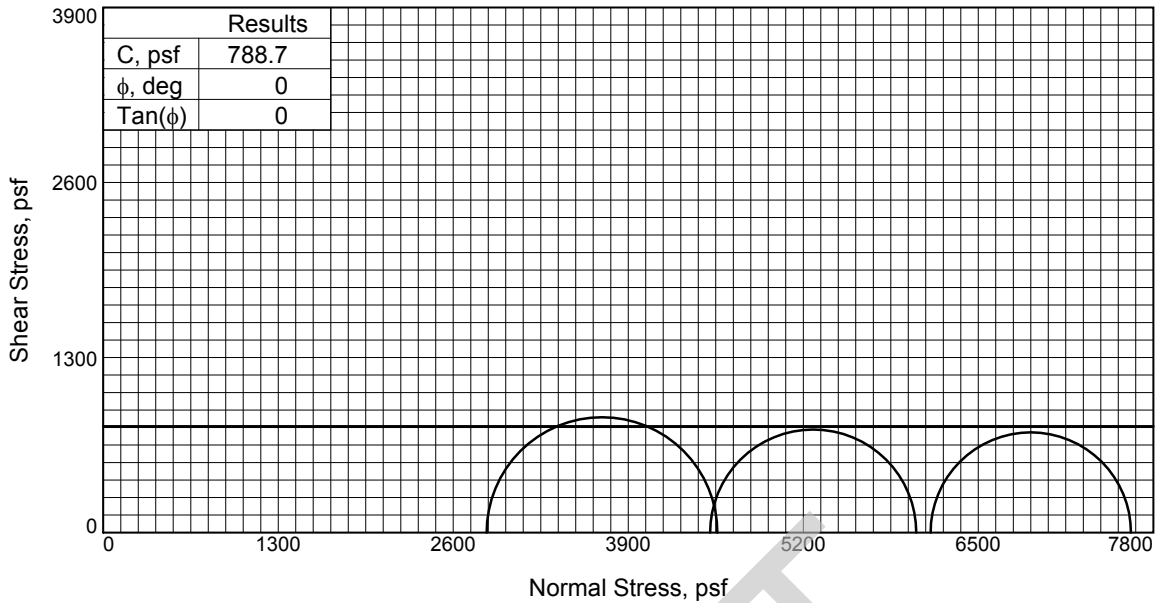
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
M, Gr Fat CLAY with silt lenses	61	23	38			(CH3)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 53-54
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

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Sample No.	1	2	3	
Initial	Water Content, %	52.5	48.0	52.8
	Dry Density, pcf	70.4	73.5	68.6
	Saturation, %	99.1	97.6	95.5
	Void Ratio	1.4840	1.3767	1.5463
	Diameter, in.	1.388	1.389	1.394
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	53.0	49.2	55.2
	Dry Density, pcf	70.4	73.5	68.6
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.4840	1.3767	1.5463
Strain rate, in./min.	Diameter, in.	1.388	1.388	1.394
	Height, in.	2.803	2.803	2.803
	Strain rate, in./min.	1.000	1.000	1.000
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	19.780	31.310	42.680	
Fail. Stress, psf	Strain, %	1713.5	1530.7	1488.1
	Strain, %	2.9	2.8	1.9
Ult. Stress, psf	Strain, %			
	Strain, %			
σ_1 Failure, psf	4561.8	6039.3	7634.0	
σ_3 Failure, psf	2848.3	4508.6	6145.9	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Fat CLAY (CH2)

LL= 50 PL= 23 PI= 27

Assumed Specific Gravity= 2.80

Remarks: Failure Type:

- 1 45 Degree Shear (SLS)
- 2 45 Degree Shear (SLS)
- 3 45 Degree Shear (SLS)

Figure _____

Client: GeoEngineers

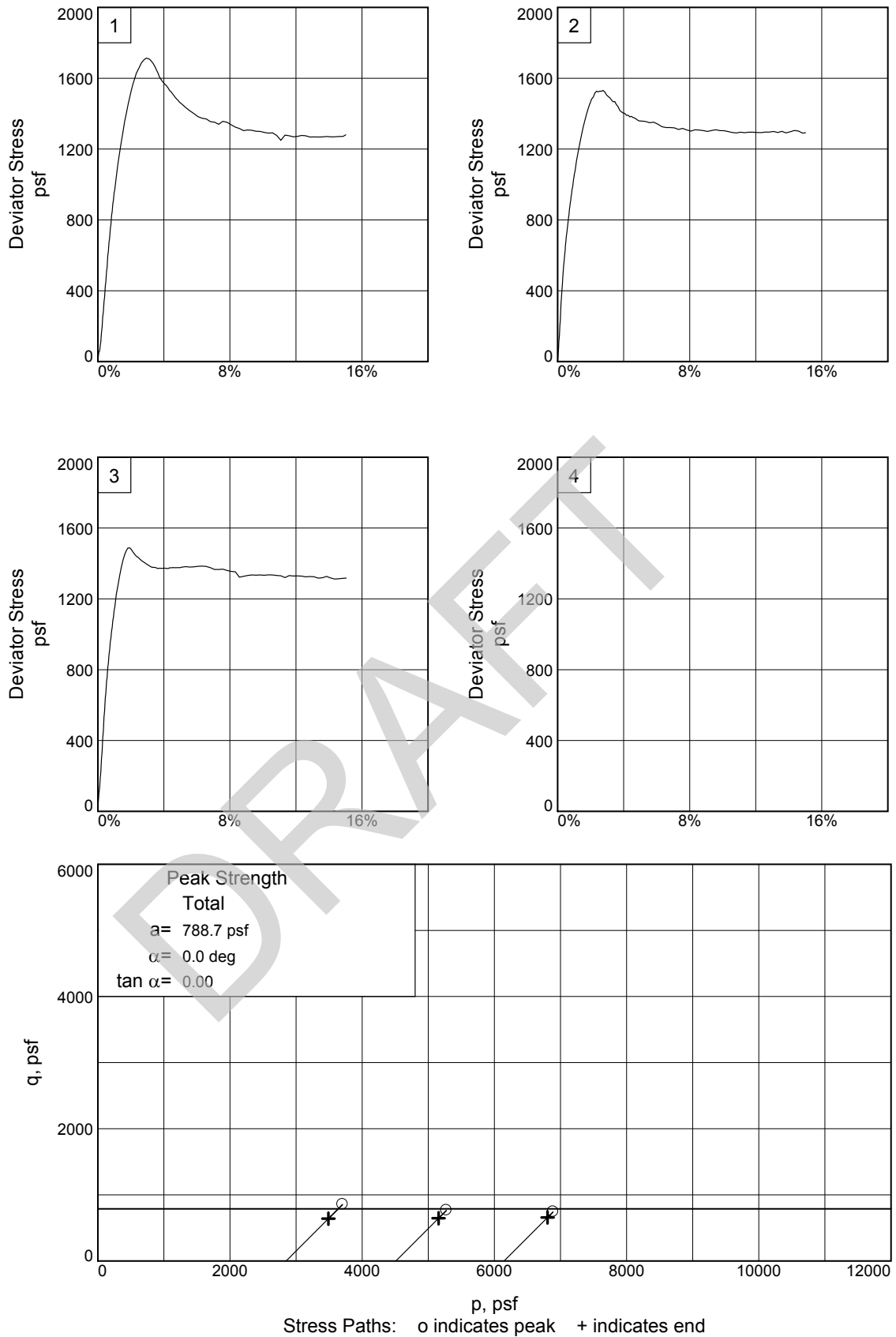
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 57-58

Proj. No.: B13-018 **Date Sampled:** 6/5/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

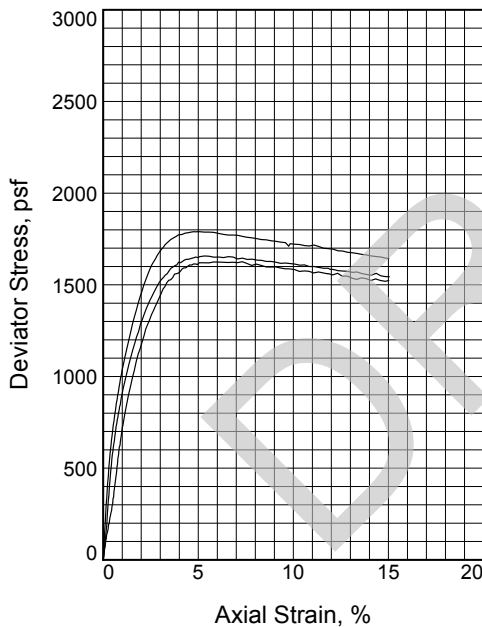
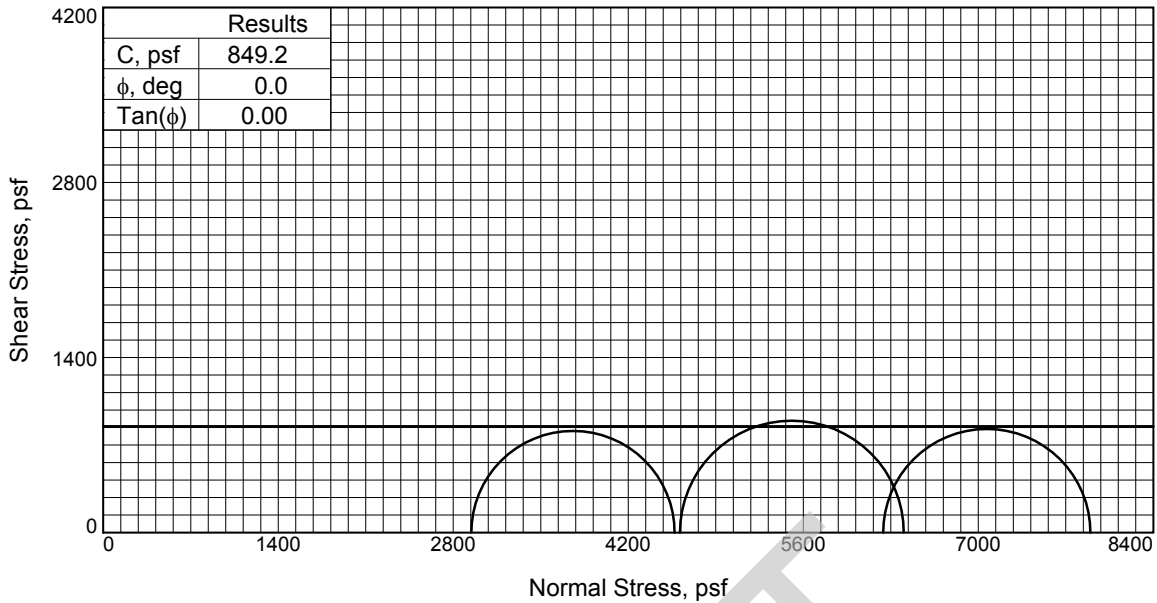
Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 57-58
Figure _____

Southern Earth Sciences, Inc.



Sample No.	1	2	3	
Initial	Water Content, %	44.4	44.0	43.7
	Dry Density, pcf	77.5	76.8	77.0
	Saturation, %	99.1	96.6	96.5
	Void Ratio	1.2547	1.2748	1.2699
	Diameter, in.	1.394	1.398	1.397
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	44.8	45.5	45.4
	Dry Density, pcf	77.5	76.8	77.0
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.2547	1.2748	1.2699
Strain rate, in./min.	Diameter, in.	1.394	1.398	1.397
	Height, in.	2.803	2.803	2.803
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	20.450	32.040	43.330	
Fail. Stress, psf	1625.7	1789.9	1657.6	
Strain, %	7.3	5.0	5.3	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	4570.5	6403.7	7897.1	
σ_3 Failure, psf	2944.8	4613.8	6239.5	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Fat CLAY (CH4)

Assumed Specific Gravity= 2.80

Remarks: Failure Type:

- 1 Bulge
- 2 Bulge
- 3 Bulge

Figure _____

Client: GeoEngineers

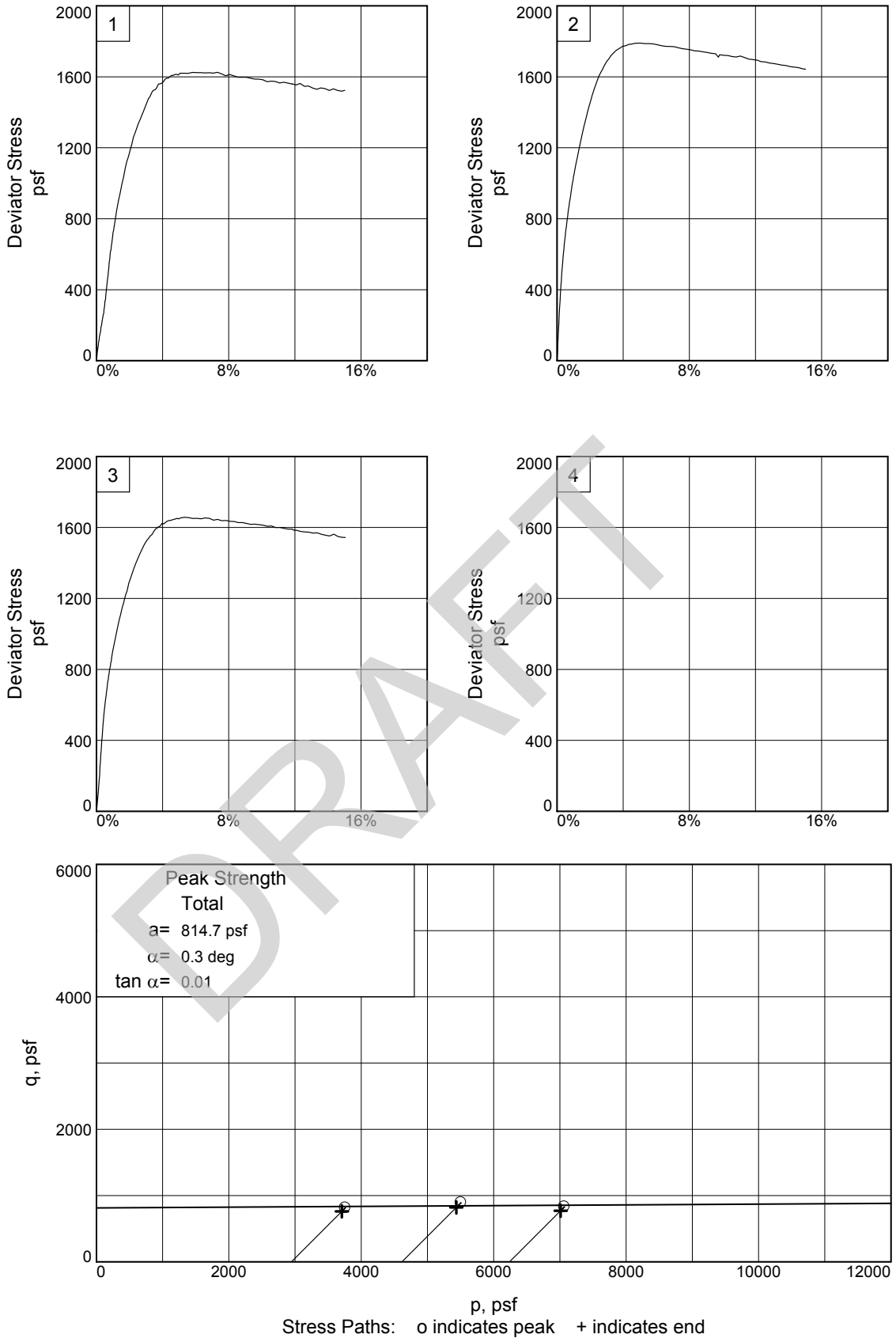
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 59-60

Proj. No.: B13-018 **Date Sampled:** 6/5/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
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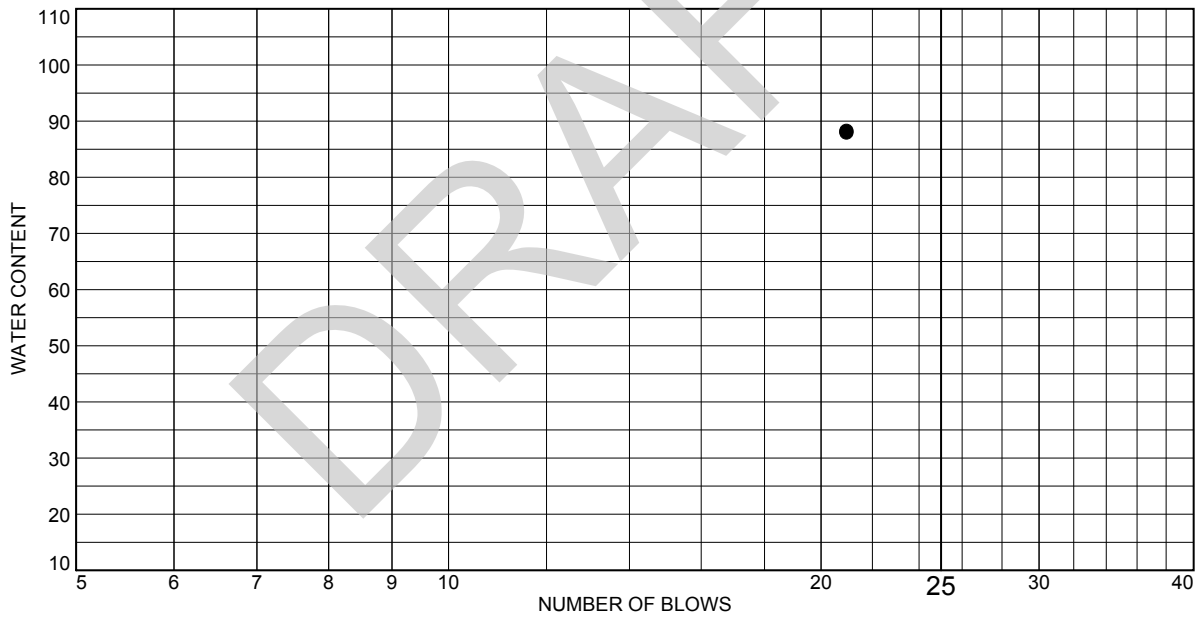
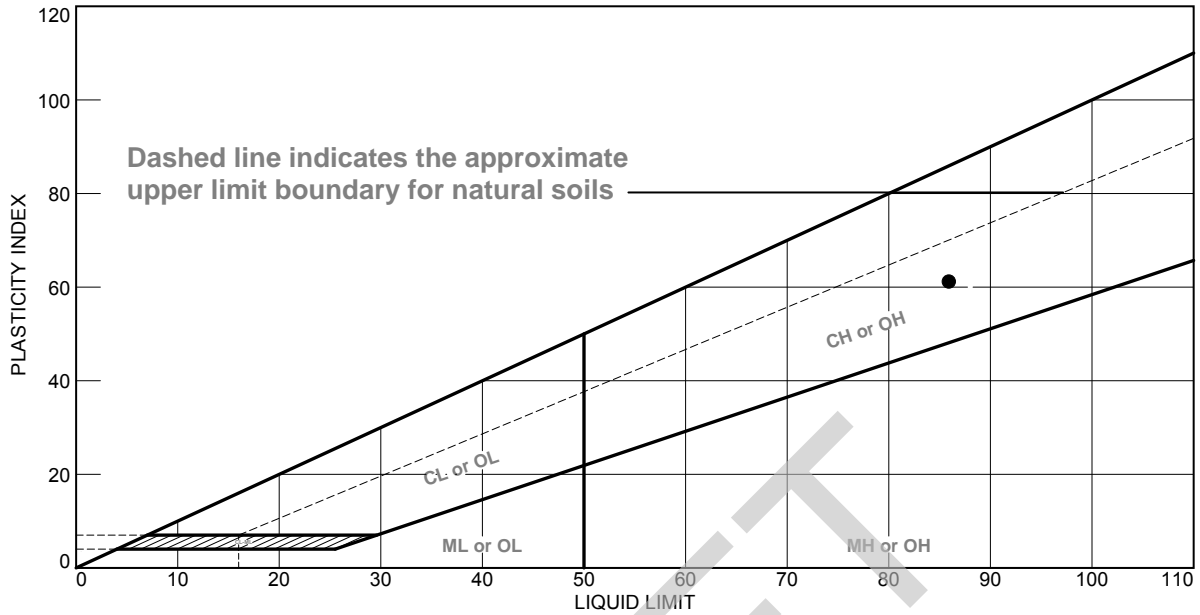
Client: GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 59-60

Figure _____

Southern Earth Sciences, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT

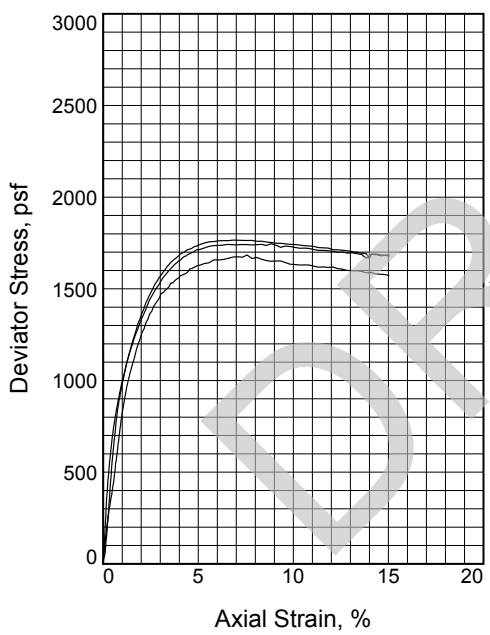
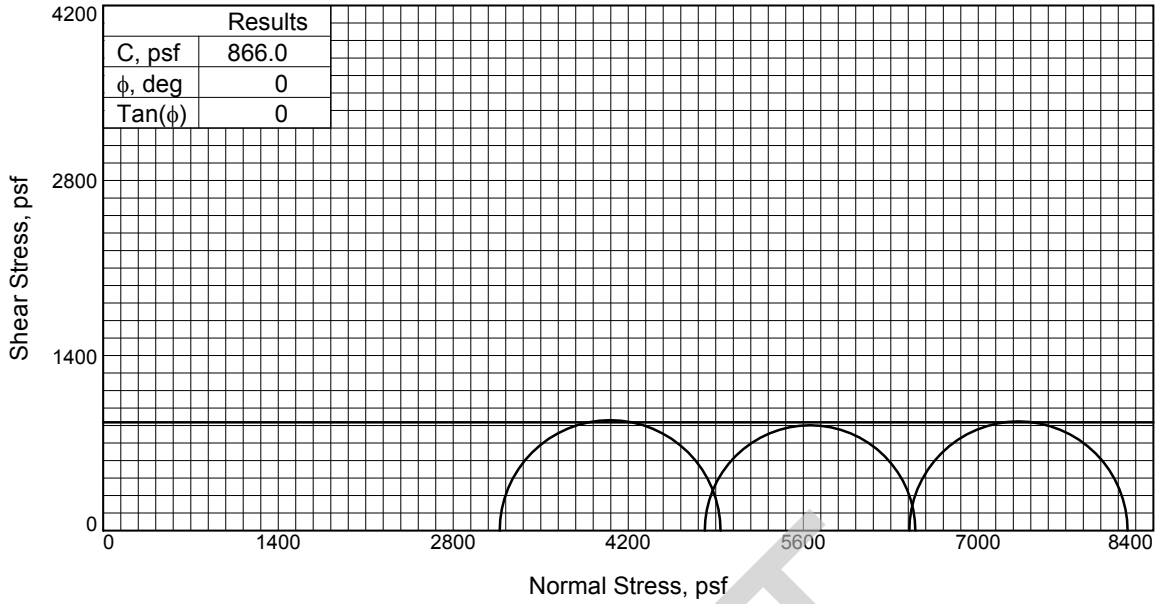


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● M, Gr Fat CLAY	86	25	61			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 63-63.6
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	51.8	52.2	52.4
	Dry Density, pcf	70.1	70.0	69.8
	Saturation, %	97.1	97.5	97.6
	Void Ratio	1.4930	1.4983	1.5040
	Diameter, in.	1.397	1.397	1.397
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	53.3	53.5	53.7
	Dry Density, pcf	70.1	70.0	69.8
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.4930	1.4983	1.5040
Diameter, in.	1.397	1.397	1.397	
Height, in.	2.803	2.803	2.803	
Strain rate, in./min.	1.000	1.000	20.033	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	22.030	33.420	44.780	
Fail. Stress, psf	1765.8	1684.3	1745.7	
Strain, %	6.8	7.6	8.8	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	4938.2	6496.8	8194.0	
σ_3 Failure, psf	3172.3	4812.5	6448.3	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Fat CLAY (CH4)

LL= 86 **PL=** 25 **PI=** 61

Assumed Specific Gravity= 2.80

Remarks: Failure Type:

- 1 Bulge
- 2 45 Degree Shear
- 3 45 Degree Shear

Figure _____

Client: GeoEngineers

Project: Mid Baratara Diversion

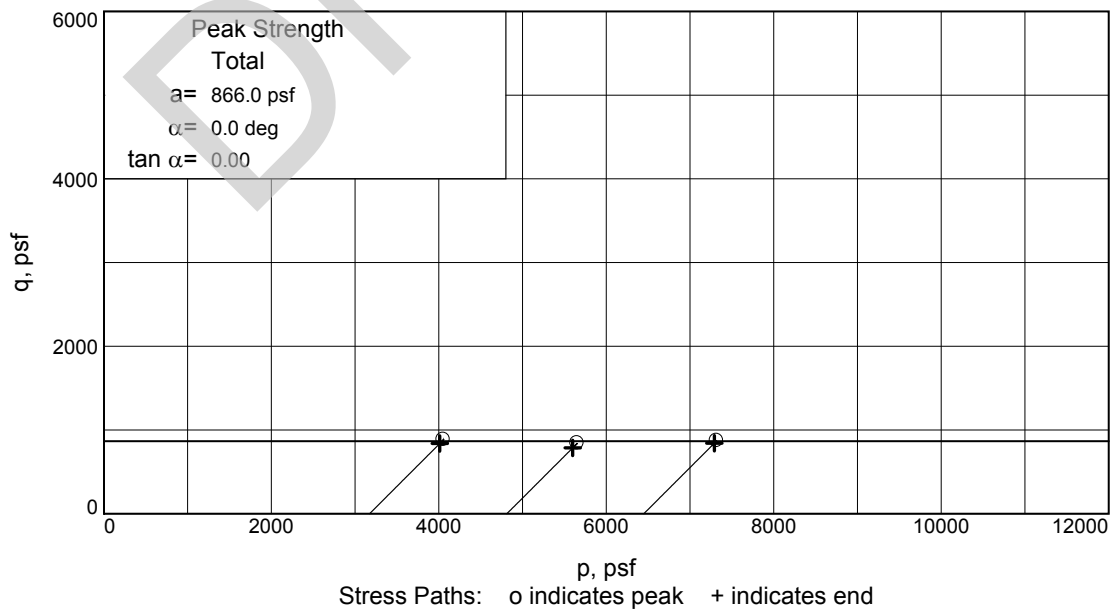
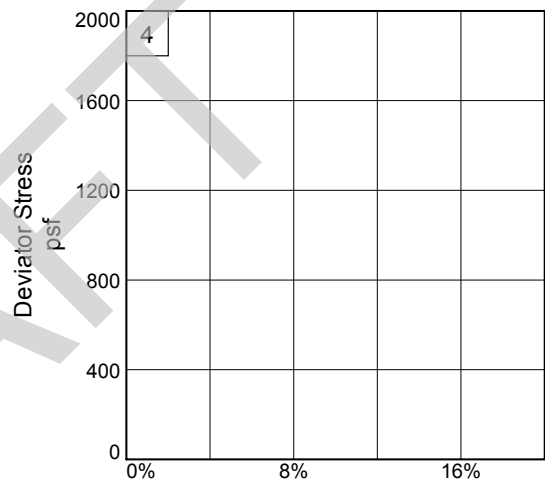
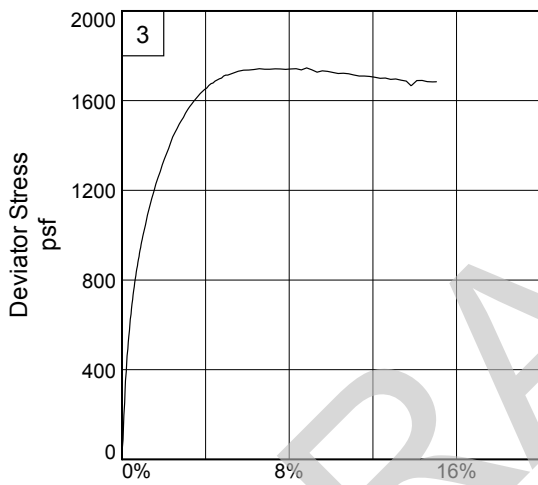
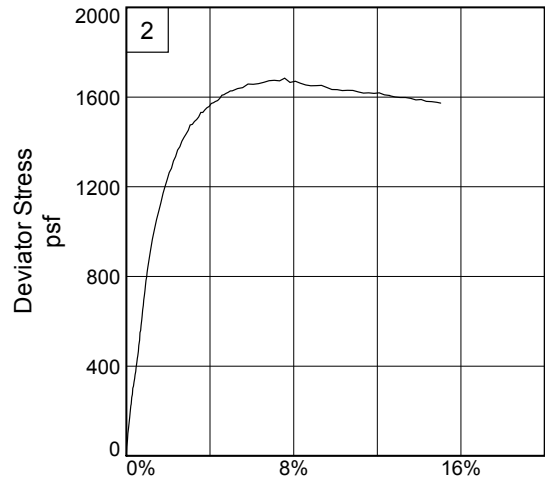
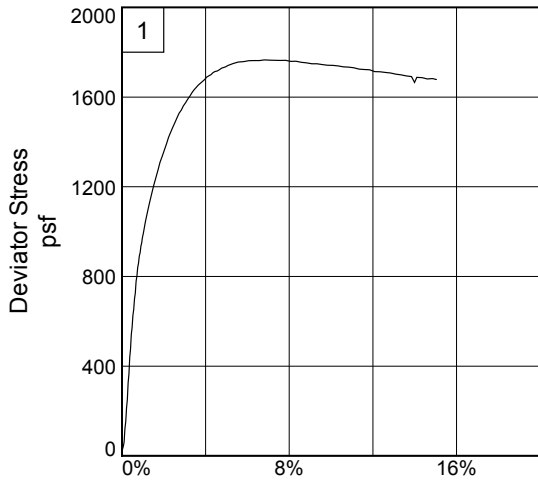
Source of Sample: NL-6A **Depth:** 63-63.6

Proj. No.: B13-018 **Date Sampled:** 6/5/13

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

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Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-6A

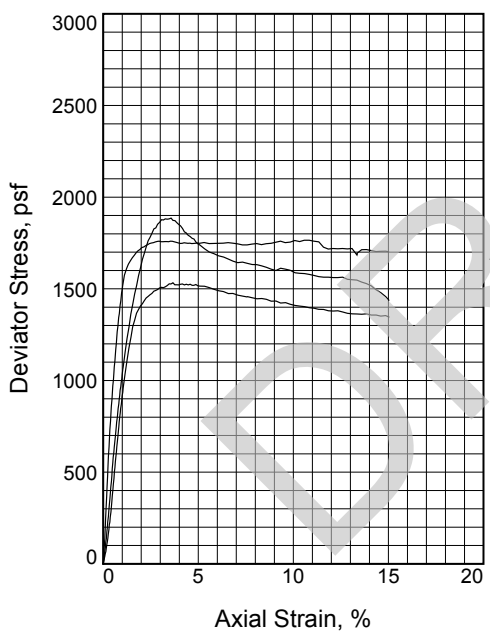
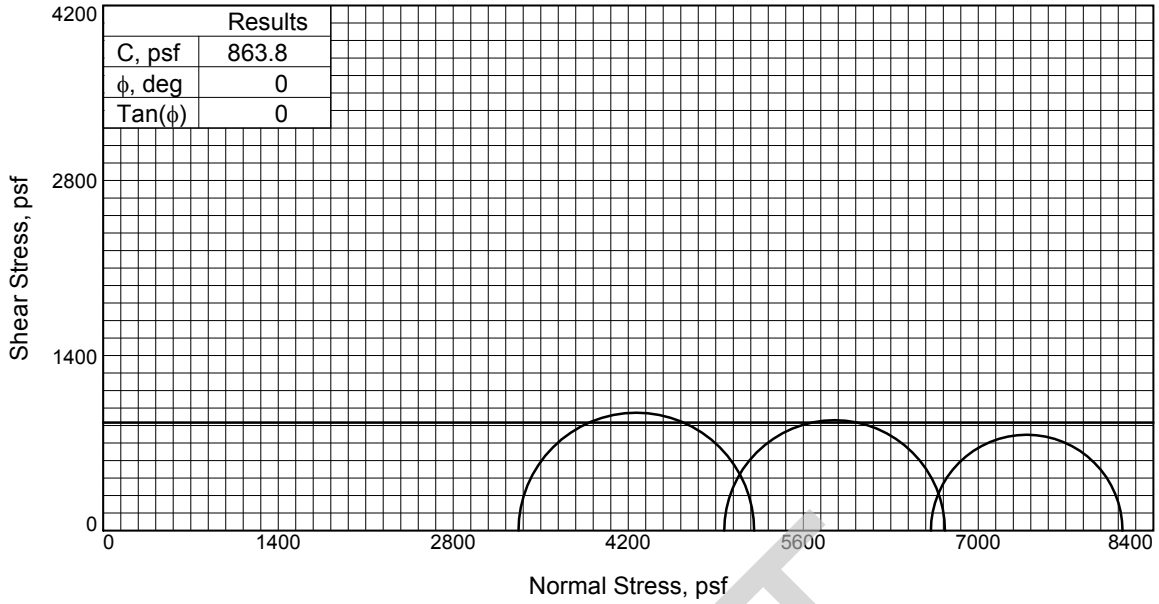
Depth: 63-63.6

Project No.: B13-018

Figure _____

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	1	2	3	
Sample No.				
Initial	Water Content, %	55.9	54.6	52.5
	Dry Density, pcf	66.6	67.1	68.3
	Saturation, %	96.3	95.4	94.3
	Void Ratio	1.6244	1.6044	1.5577
	Diameter, in.	1.401	1.401	1.401
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	58.0	57.3	55.6
	Dry Density, pcf	66.6	67.1	68.3
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.6244	1.6044	1.5577
Diameter, in.	1.401	1.401	1.401	
Height, in.	2.803	2.803	2.803	
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	23.070	34.500	45.980	
Fail. Stress, psf	1885.3	1765.0	1532.7	
Strain, %	3.6	10.8	3.7	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	5207.4	6733.0	8153.8	
σ_3 Failure, psf	3322.1	4968.0	6621.1	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Fat CLAY (CH4)

Assumed Specific Gravity= 2.80

Remarks: Failure Type:
 1 45 Degree Shear
 2 45 Degree Shear
 3 45 Degree Shear

Figure _____

Client: GeoEngineers

Project: Mid Baratara Diversion

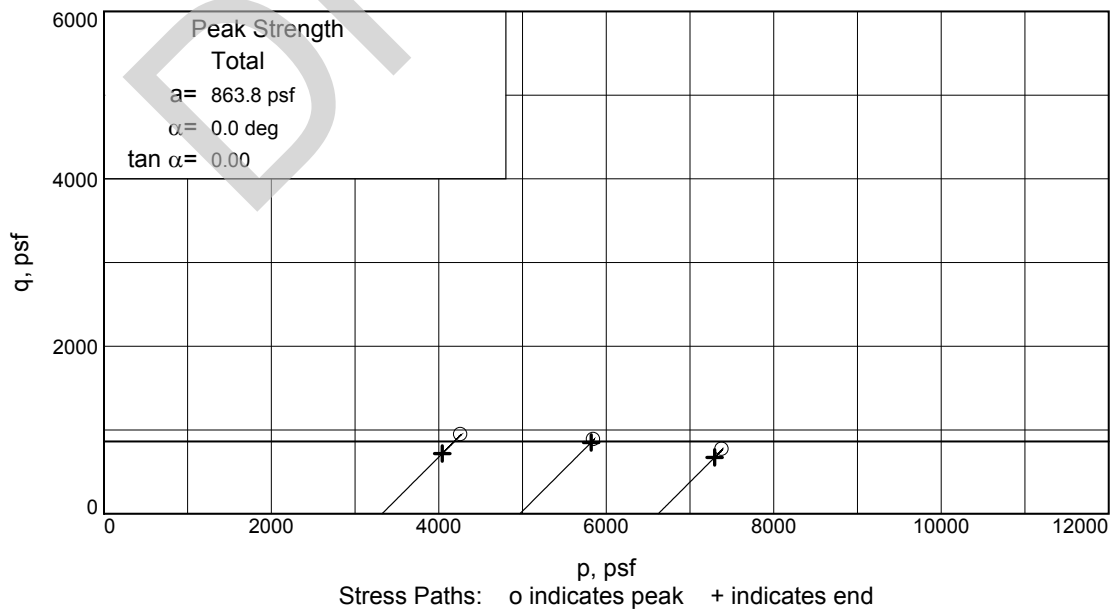
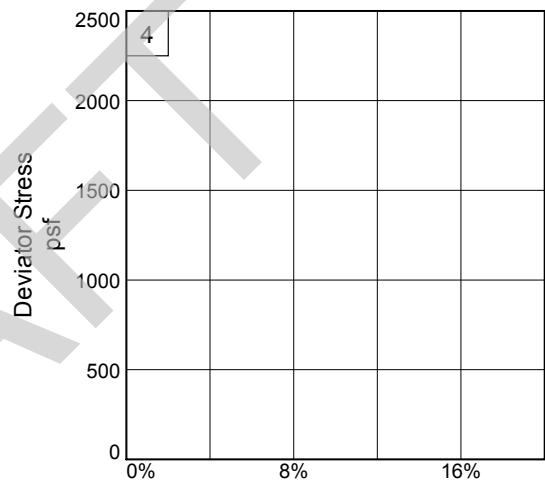
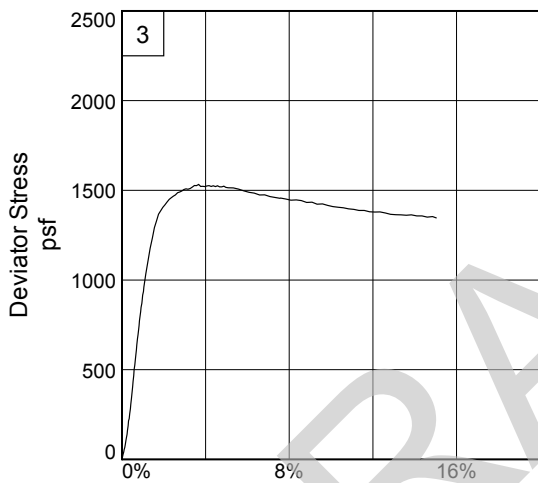
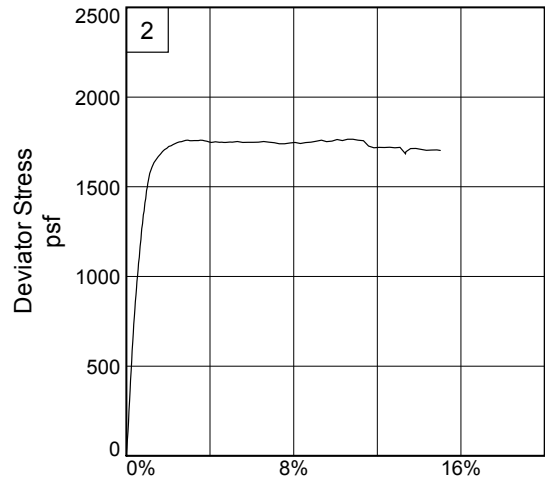
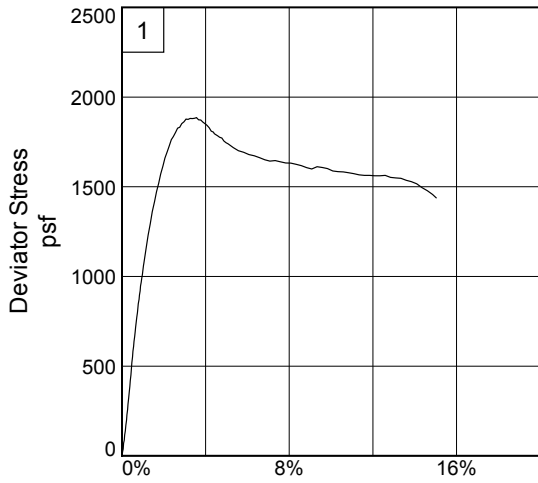
Source of Sample: NL-6A **Depth:** 66-67

Proj. No.: B13-018 **Date Sampled:** 6/5/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product

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Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-6A

Depth: 66-67

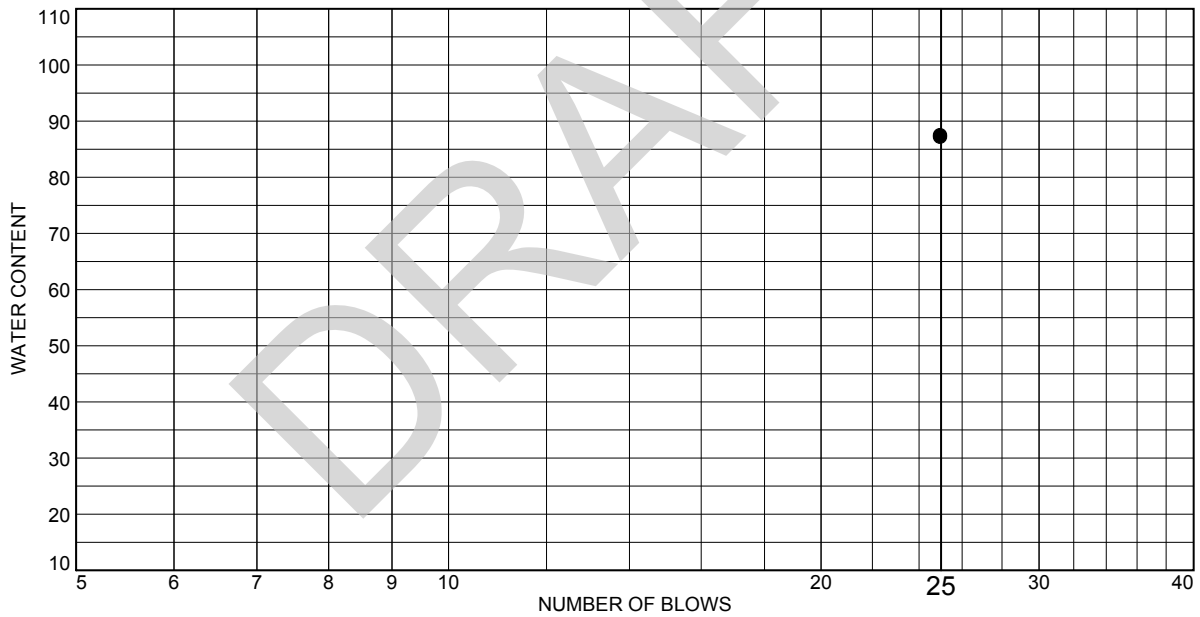
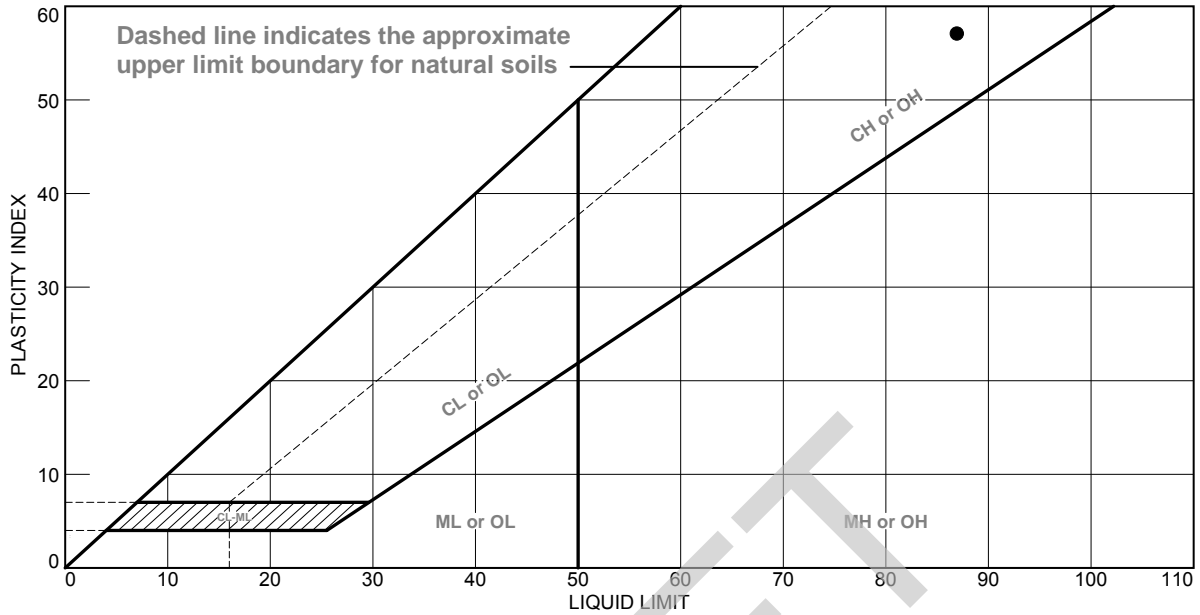
Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

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LIQUID AND PLASTIC LIMITS TEST REPORT

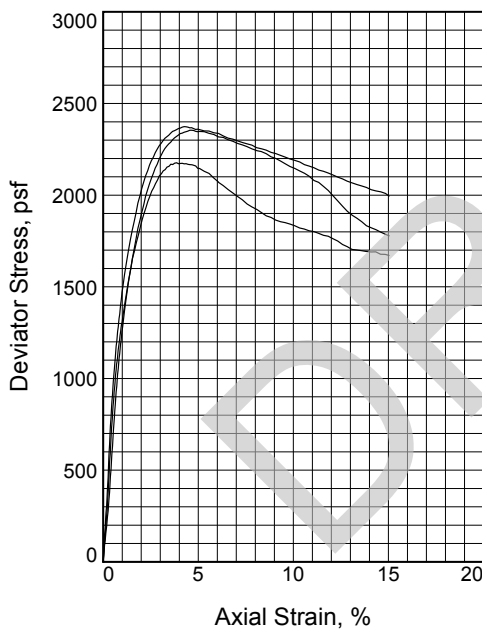
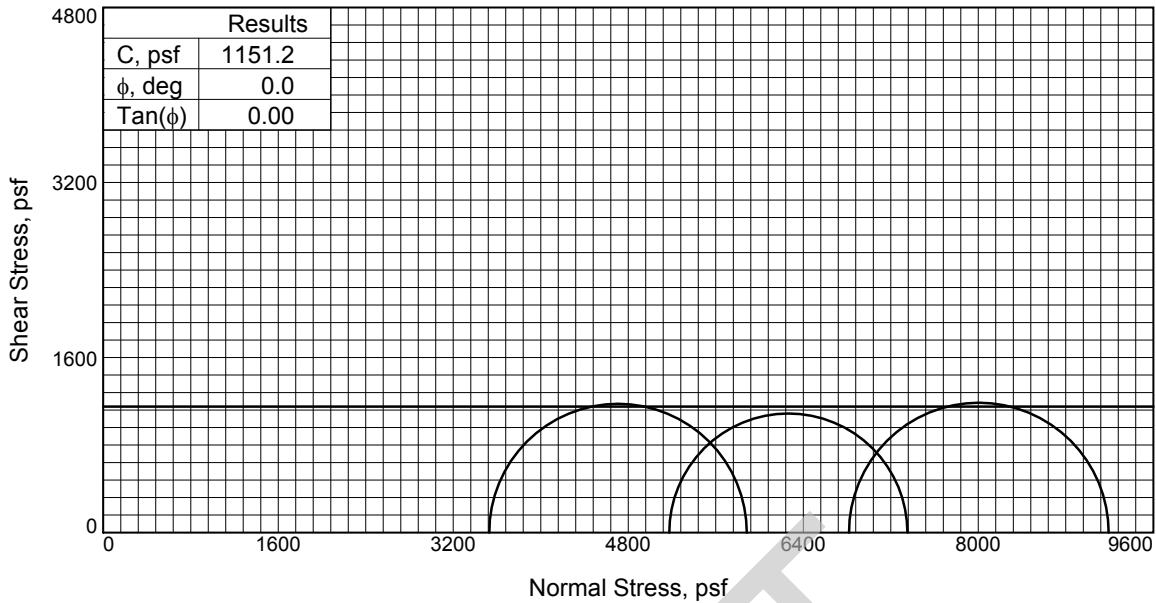


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
St, Gr Fat CLAY	87	30	57			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 70-71
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	53.4	55.3	52.4
	Dry Density, pcf	69.4	68.5	69.8
	Saturation, %	98.5	99.8	97.4
	Void Ratio	1.5191	1.5500	1.5055
	Diameter, in.	1.398	1.398	1.398
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	54.3	55.4	53.8
	Dry Density, pcf	69.4	68.5	69.8
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.5191	1.5500	1.5055
Diameter, in.	1.398	1.398	1.398	
Height, in.	2.803	2.803	2.803	
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	24.510	35.940	47.350	
Fail. Stress, psf	2354.0	2176.7	2373.3	
Strain, %	4.7	3.9	4.3	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	5883.5	7352.1	9191.7	
σ_3 Failure, psf	3529.4	5175.4	6818.4	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY (CH4)

LL= 87 **PL=** 30 **PI=** 57

Assumed Specific Gravity= 2.80

Remarks: Failure Type:

- 1 45 Degree Shear
- 2 45 Degree Shear
- 3 Bulge

Figure _____

Client: GeoEngineers

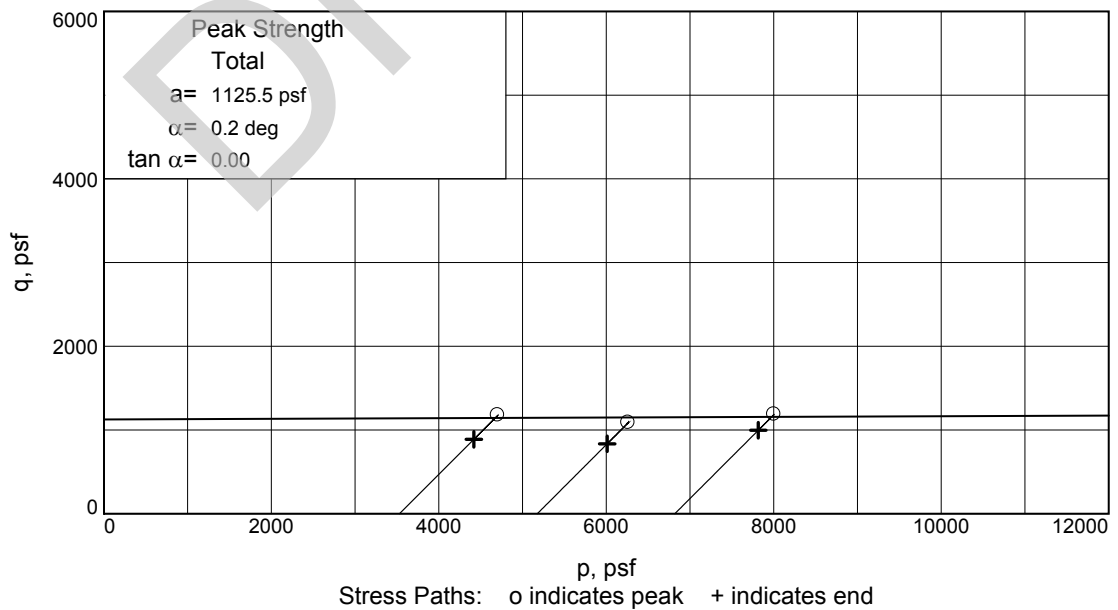
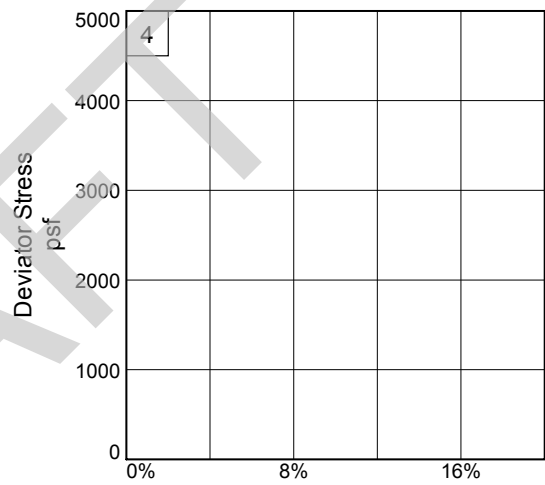
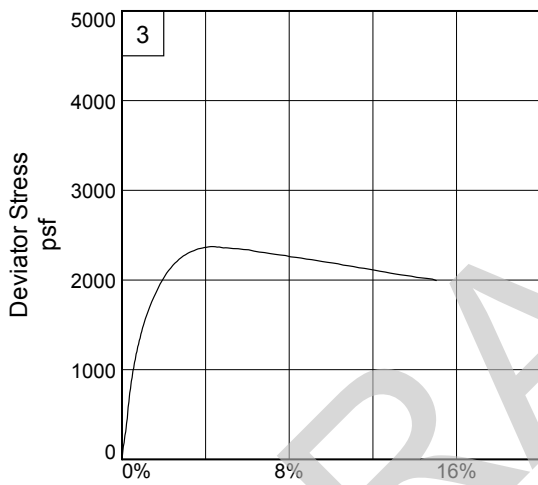
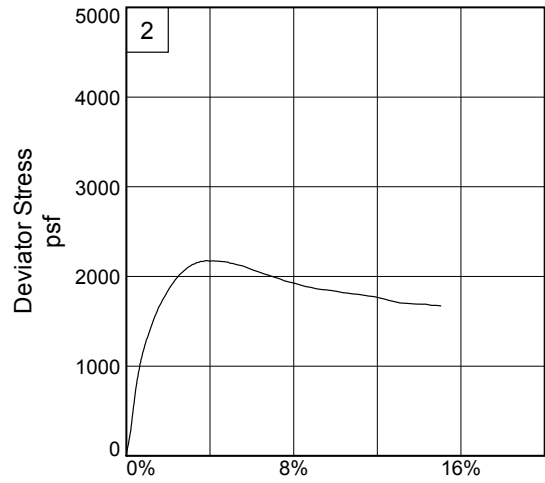
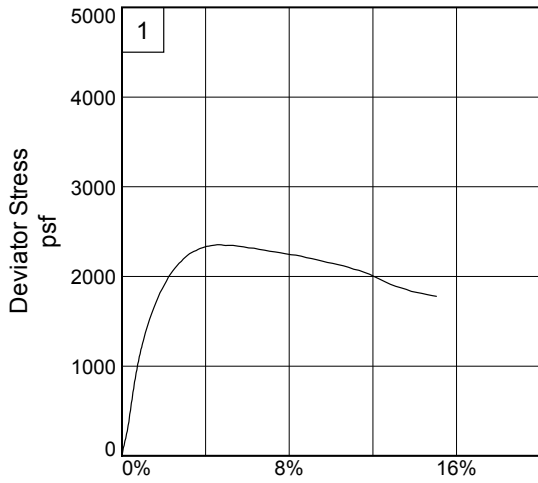
Project: Mid Baratara Diversion

Source of Sample: NL-6A **Depth:** 70-71

Proj. No.: B13-018 **Date Sampled:** 6/5/13

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-6A

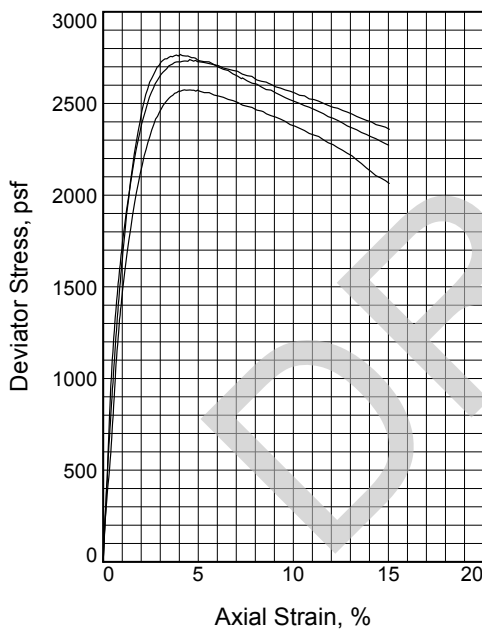
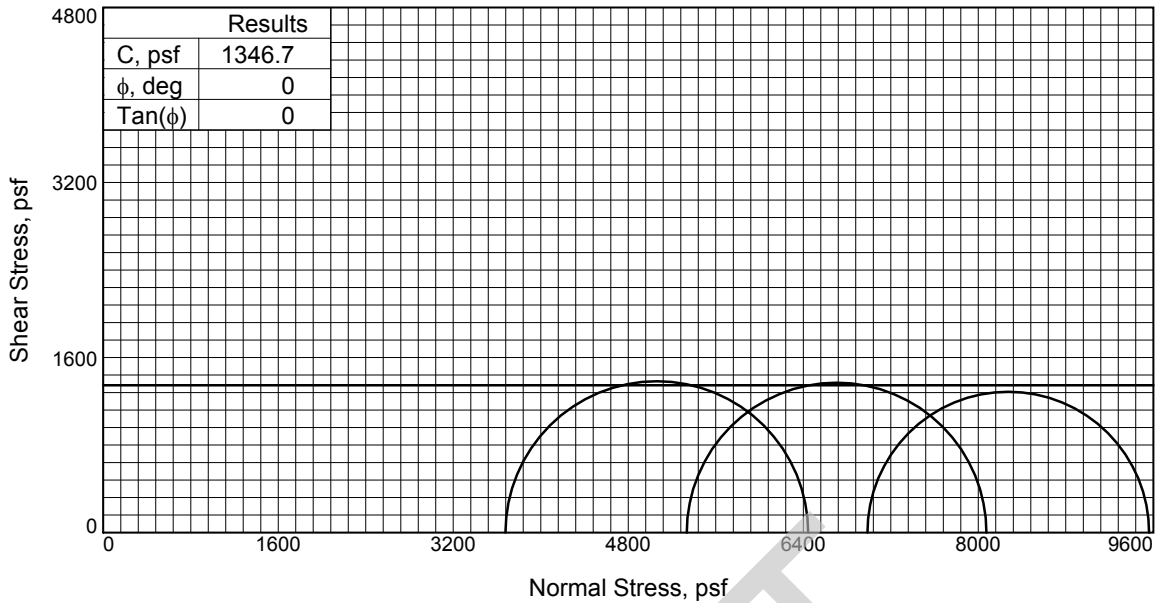
Depth: 70-71

Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

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Sample No.	1	2	3
Initial			
Water Content, %	50.5	50.4	49.2
Dry Density, pcf	71.5	71.6	72.2
Saturation, %	97.9	96.5	97.0
Void Ratio	1.4438	1.4923	1.4194
Diameter, in.	1.398	1.398	1.398
Height, in.	2.803	2.803	2.803
At Test			
Water Content, %	51.6	52.2	50.7
Dry Density, pcf	71.5	71.6	72.2
Saturation, %	100.0	100.0	100.0
Void Ratio	1.4438	1.4923	1.4194
Diameter, in.	1.398	1.398	1.398
Height, in.	2.803	2.803	2.803
Strain rate, in./min.	1.000	0.999	1.000
Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	25.540	37.050	48.520
Fail. Stress, psf	2766.7	2739.1	2574.6
Strain, %	4.0	4.6	4.3
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	6444.4	8074.3	9561.4
σ_3 Failure, psf	3677.8	5335.2	6986.9

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY (CH4)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

Multi Shear

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-6A

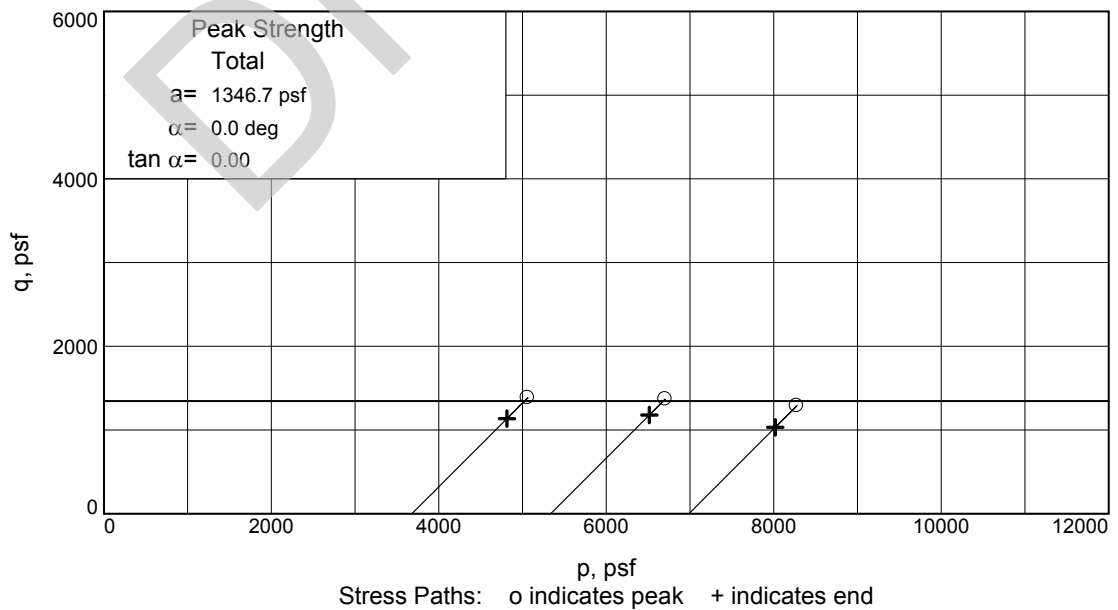
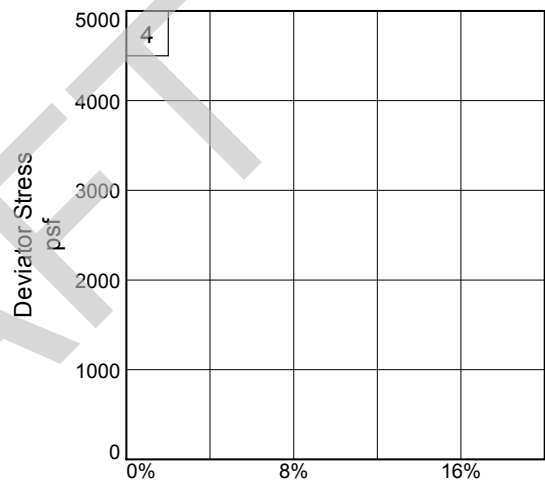
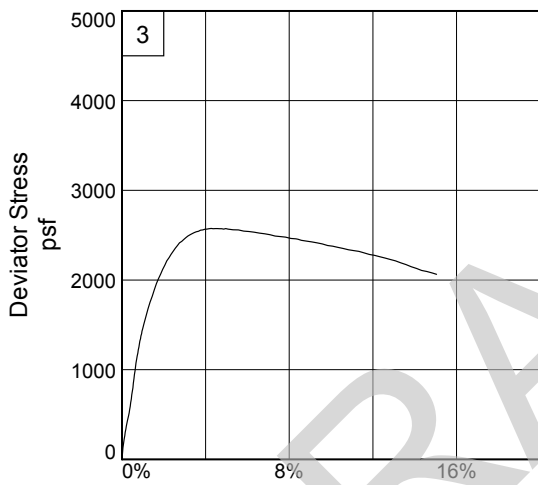
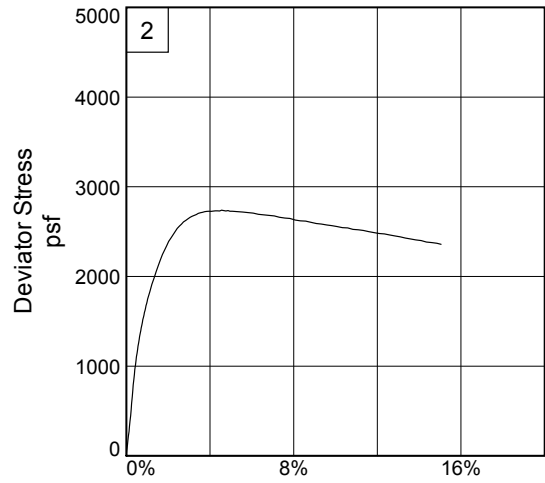
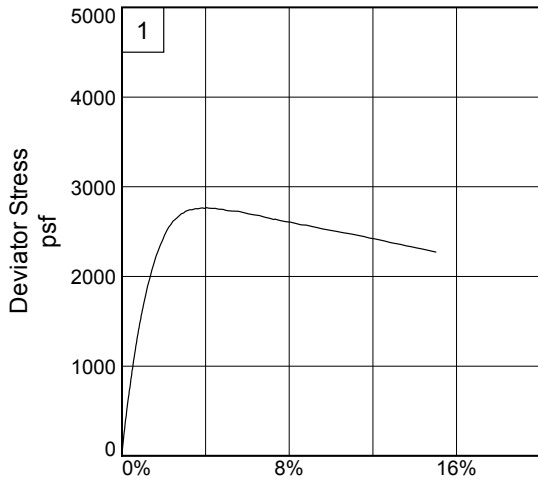
Depth: 73.1-74

Proj. No.: B13-018

Date Sampled:

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-6A

Depth: 73.1-74

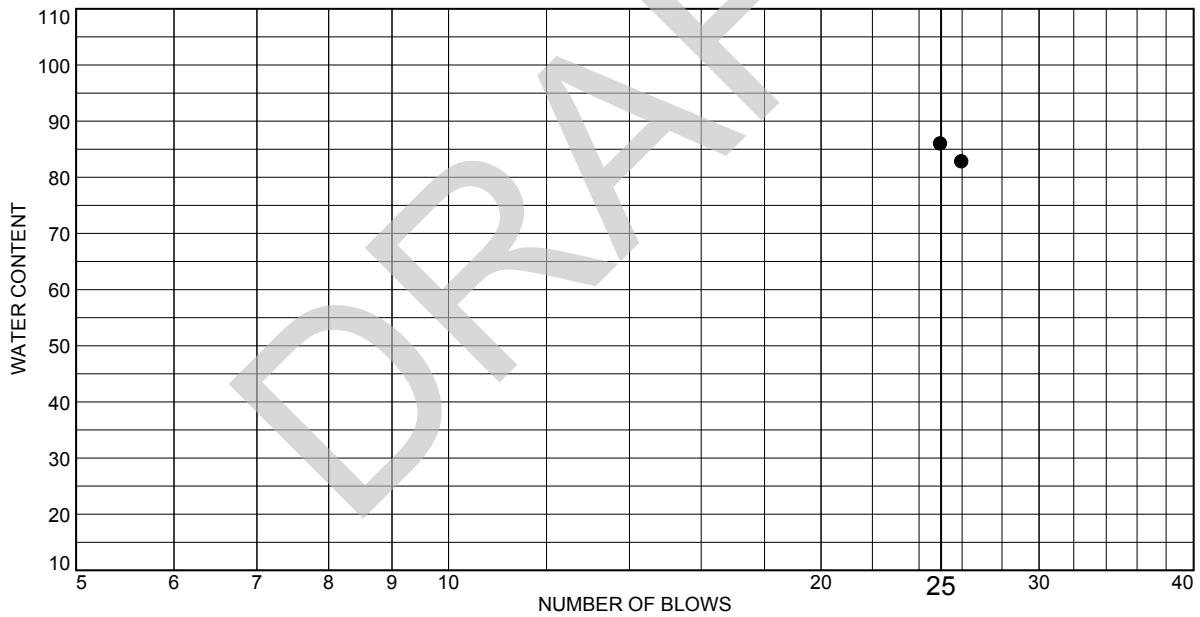
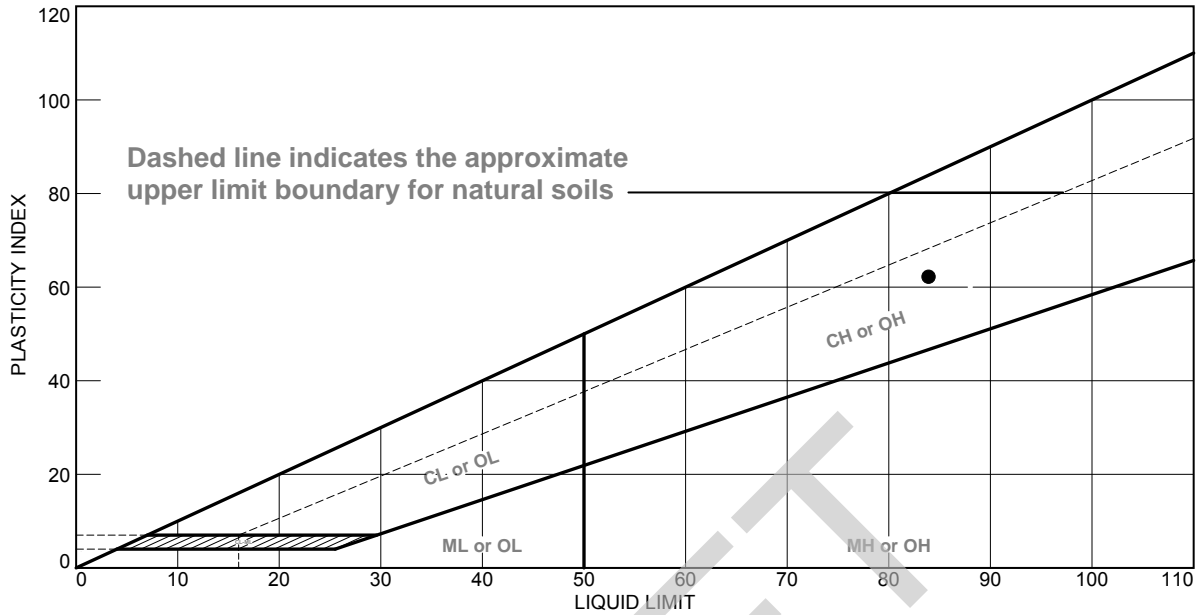
Project No.: B13-018

Figure _____

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"Confidential Information; Privileged & Confidential Work Product"

LIQUID AND PLASTIC LIMITS TEST REPORT

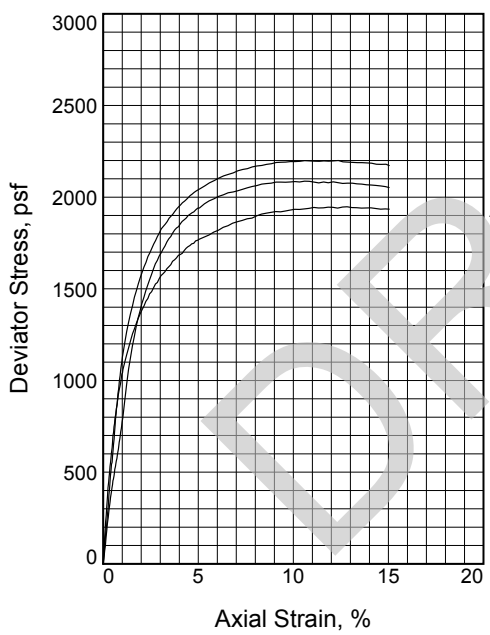
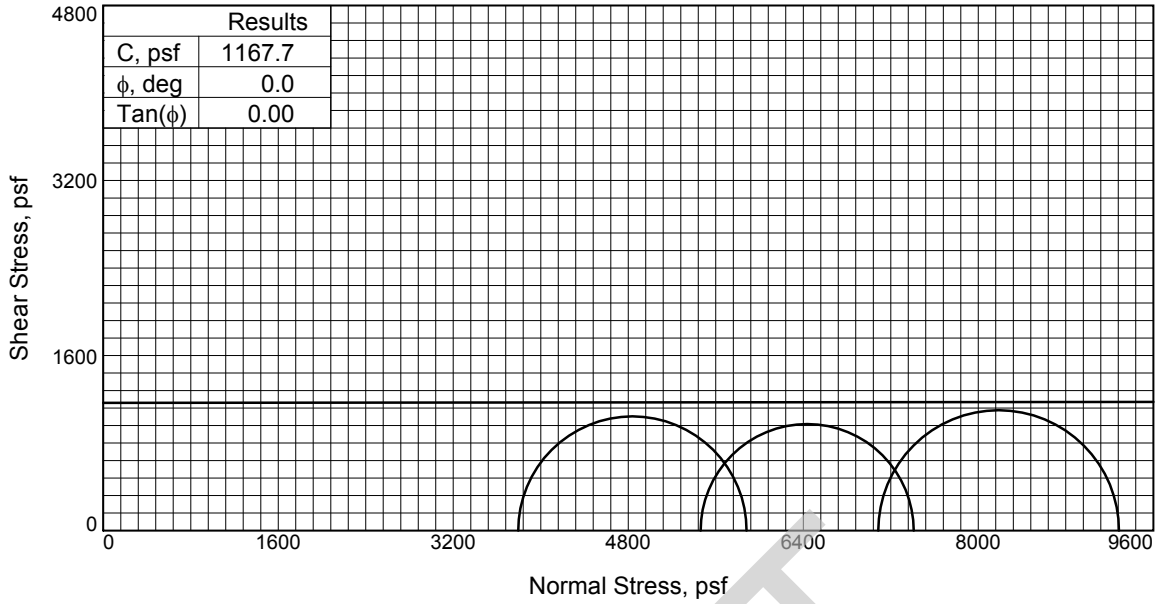


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
St, Gr Fat CLAY	84	22	62			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 75-76
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



	1	2	3	
Sample No.	1	2	3	
Initial	Water Content, %	50.7	50.6	48.2
	Dry Density, pcf	71.3	71.5	72.2
	Saturation, %	97.9	98.1	94.9
	Void Ratio	1.4511	1.4442	1.4209
	Diameter, in.	1.392	1.392	1.391
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	51.8	51.6	50.7
	Dry Density, pcf	71.3	71.5	72.2
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.4511	1.4442	1.4209
Ult. Stress, psf	Diameter, in.	1.392	1.392	1.391
	Height, in.	2.803	2.803	2.803
	Strain rate, in./min.	1.001	1.000	0.999
Fail. Stress, psf	Back Pressure, psi	0.000	0.000	0.000
	Cell Pressure, psi	26.350	37.930	49.210
Strain, %	Fail. Stress, psf	2087.3	1947.7	2200.0
	Strain, %	10.6	12.8	12.4
σ_1 Failure, psf	Ult. Stress, psf			
	Strain, %			
σ_3 Failure, psf	σ_1 Failure, psf	5881.7	7409.6	9286.2
	σ_3 Failure, psf	3794.4	5461.9	7086.2

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY (CH4)

LL= 84 PL= 22 PI= 62

Assumed Specific Gravity= 2.80

Remarks: Type Failure:
45 degree shear on sample 1
Bulge on sample 2 & 3

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

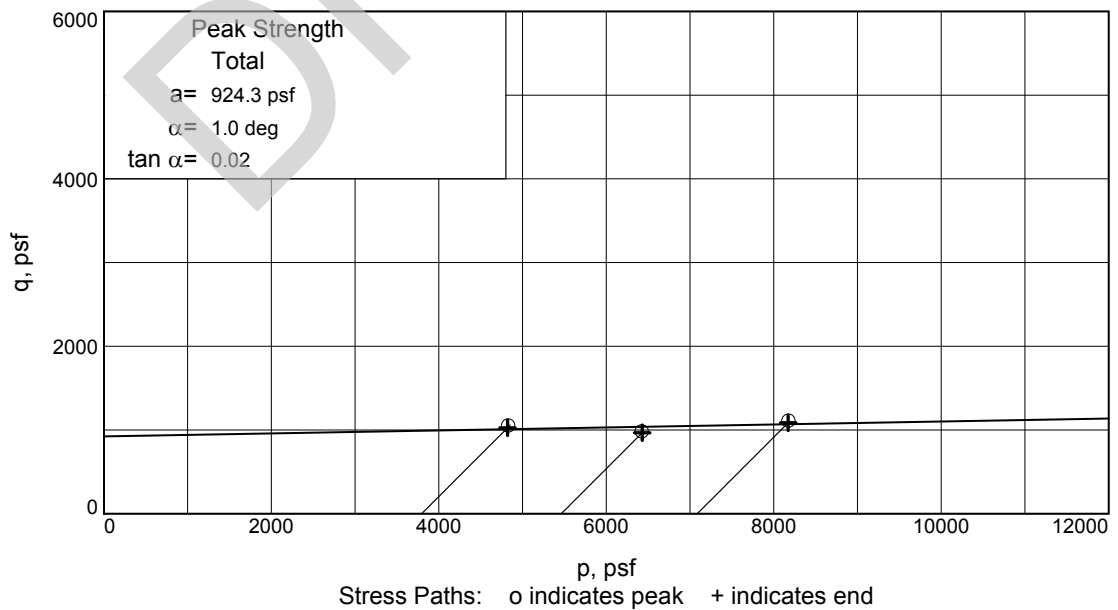
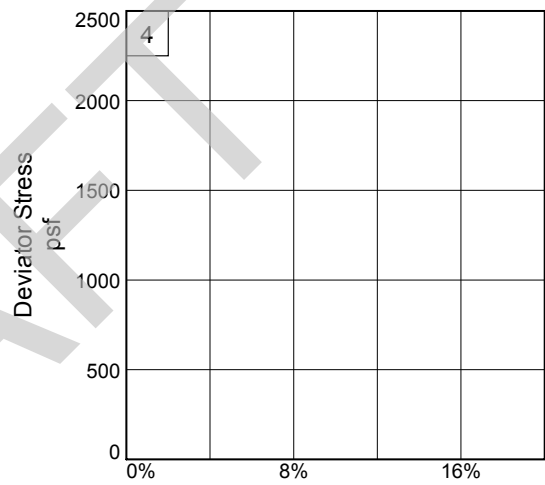
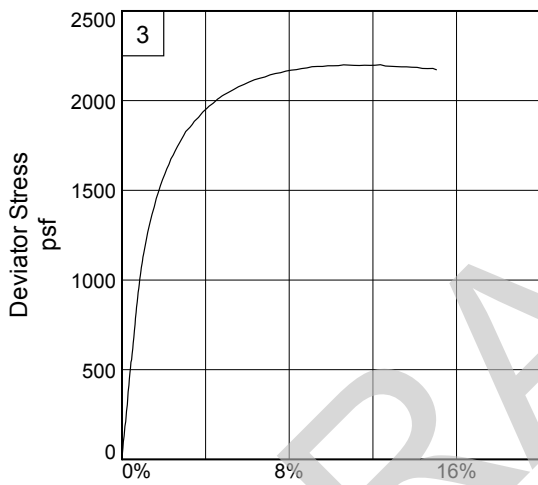
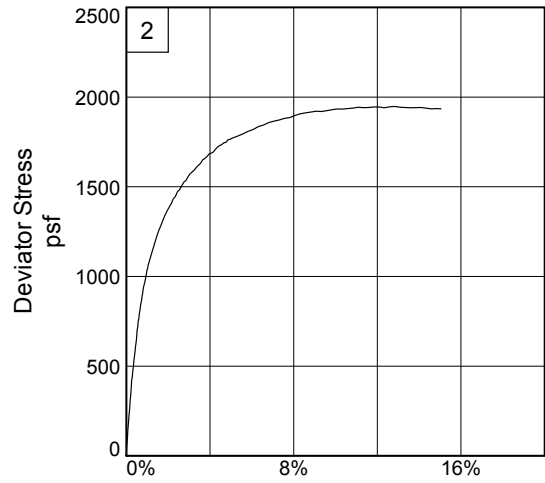
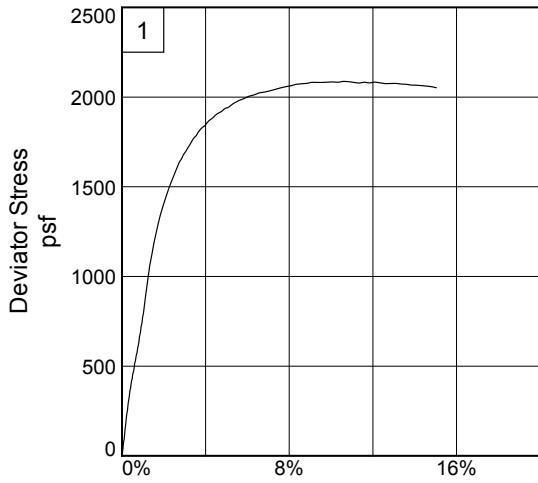
Source of Sample: NL-6A **Depth:** 75-76

Proj. No.: B13-018 **Date Sampled:**

TRIAxIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

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Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-6A

Depth: 75-76

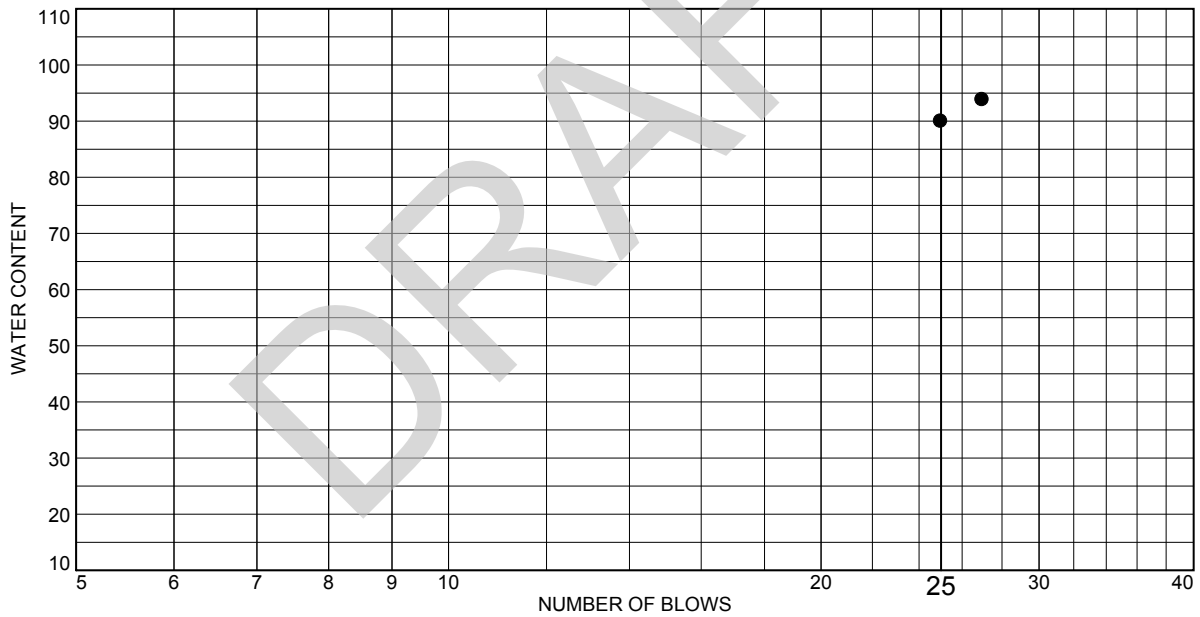
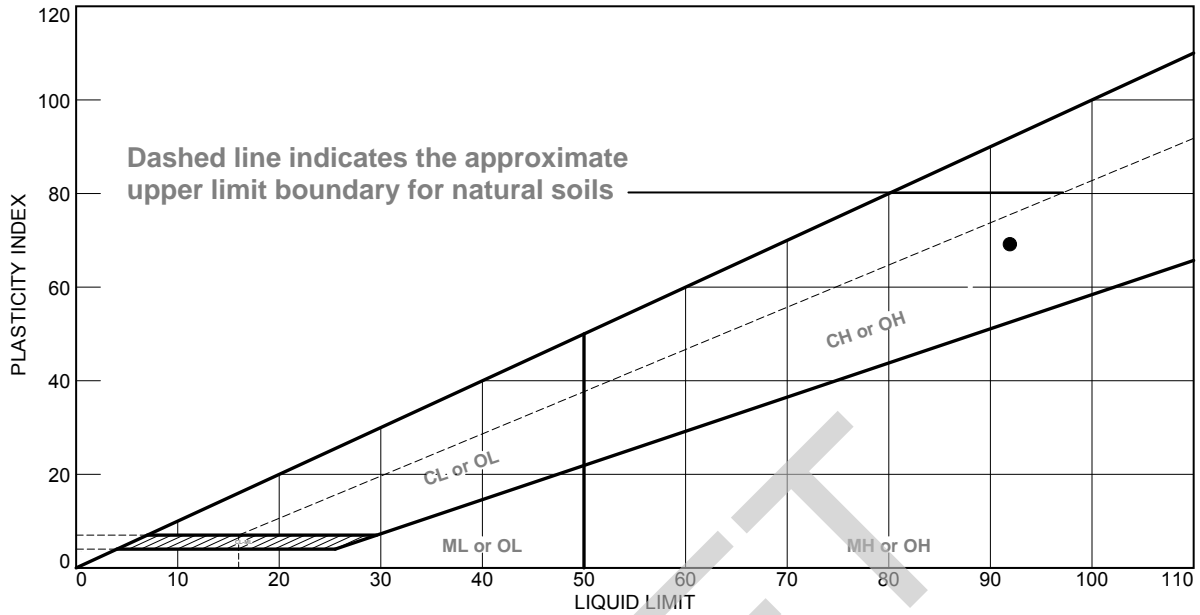
Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

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LIQUID AND PLASTIC LIMITS TEST REPORT

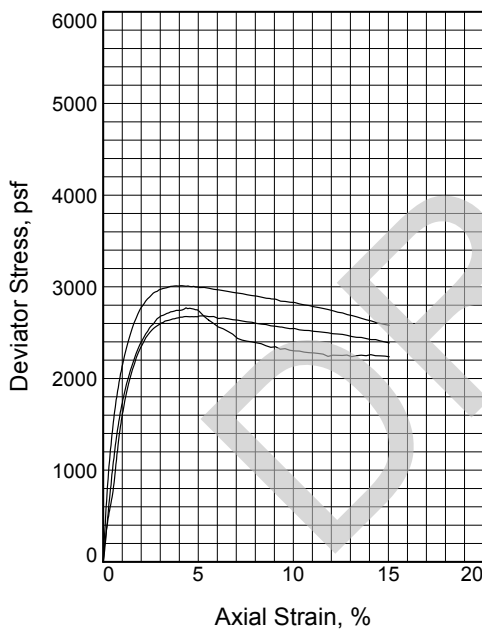
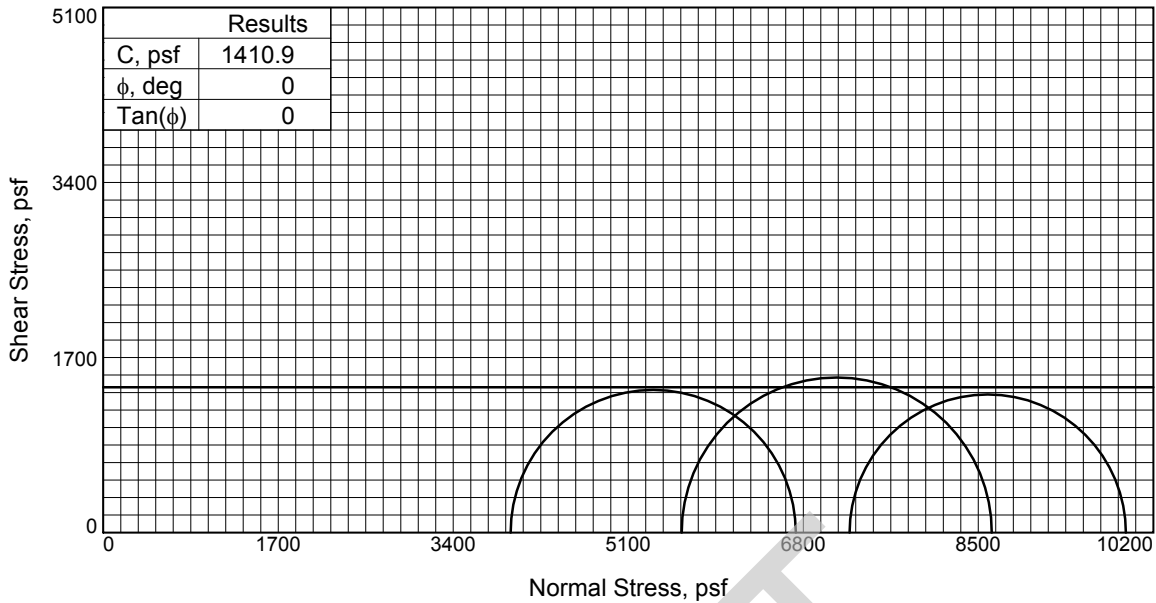


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
St, Gr Fat CLAY	92	23	69			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 78-79
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	47.7	46.4	48.4
	Dry Density, pcf	73.8	74.7	73.1
	Saturation, %	97.7	96.9	97.4
	Void Ratio	1.3674	1.3392	1.3908
	Diameter, in.	1.388	1.388	1.388
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	48.8	47.8	49.7
	Dry Density, pcf	73.8	74.7	73.1
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.3674	1.3392	1.3908
Strain rate, in./min.	Diameter, in.	1.388	1.388	1.388
	Height, in.	2.803	2.803	2.803
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	27.480	39.020	50.350	
Fail. Stress, psf	Strain, %	4.4	4.1	5.3
	Ult. Stress, psf	2770.3	3012.0	2682.9
Strain, %	σ_1 Failure, psf	6727.4	8630.9	9933.3
	σ_3 Failure, psf	3957.1	5618.9	7250.4

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY (CH4)

LL= 92 PL= 23 PI= 69

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

45 Degree Shear on sample 1

Multi Shear on sample 2

Figure _____

Client: GeoEngineers

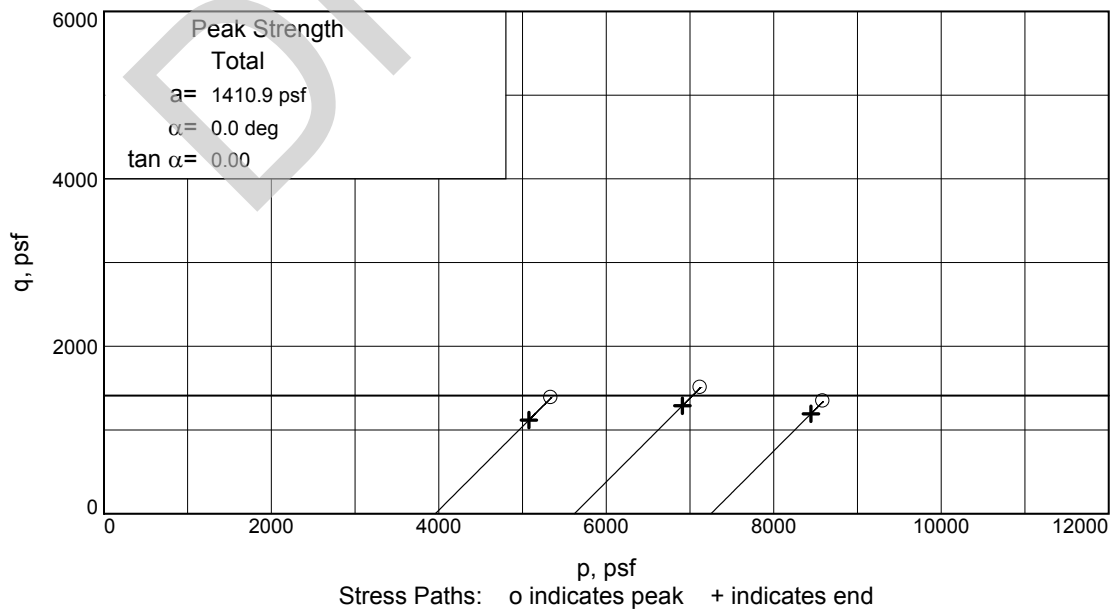
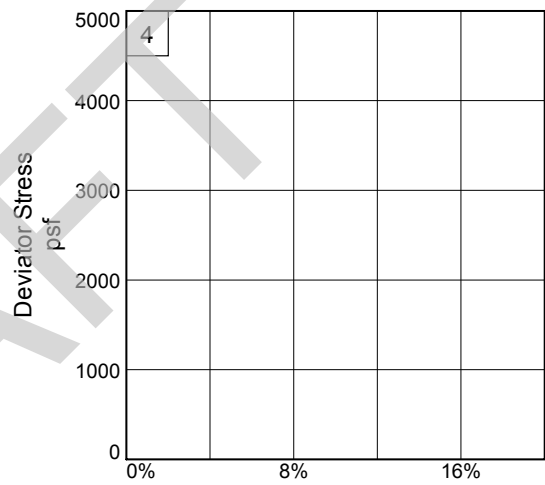
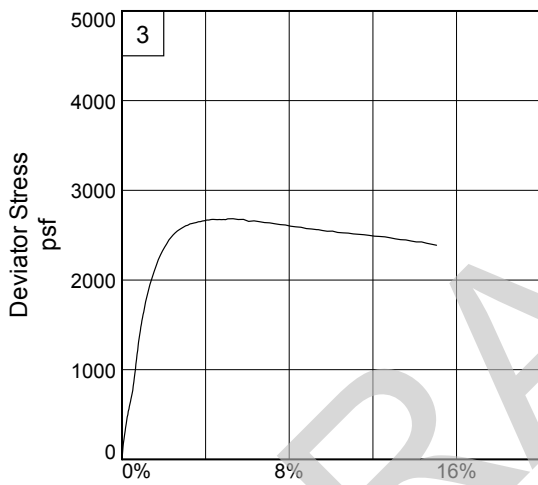
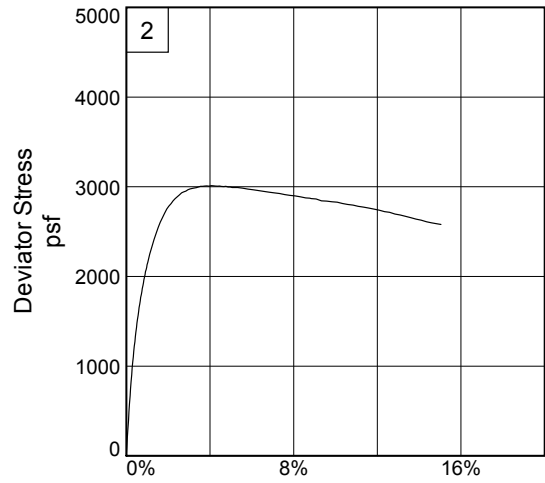
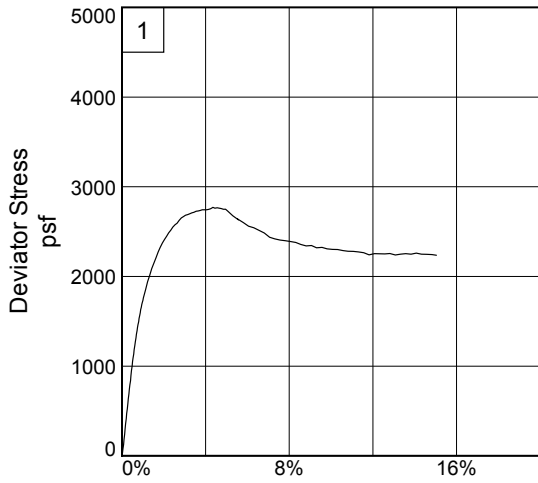
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 78-79

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-6A

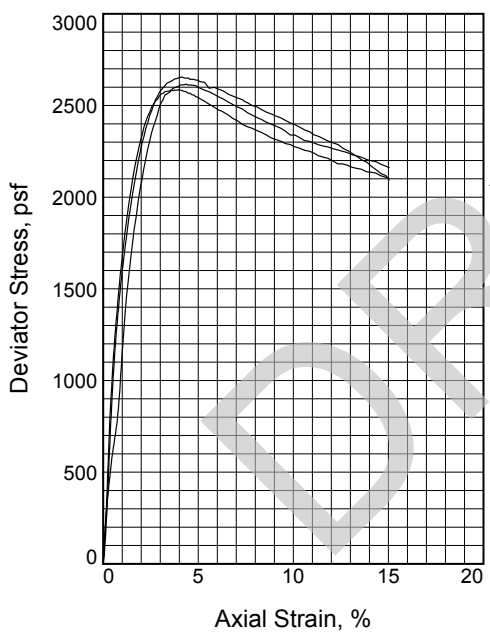
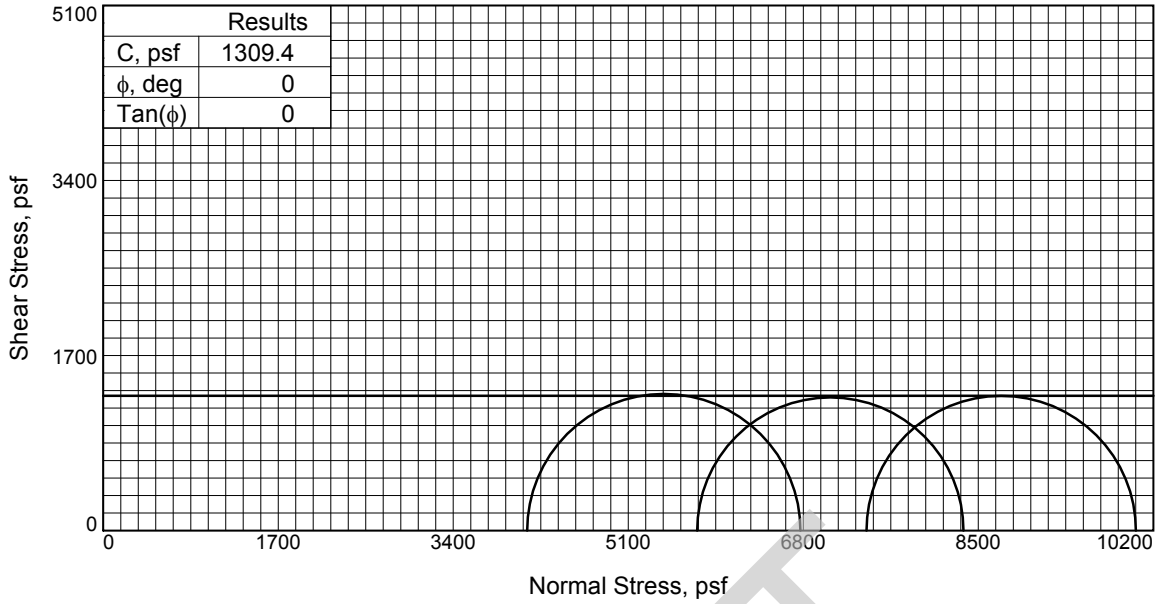
Depth: 78-79

Project No.: B13-018

Figure _____

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Sample No.	1	2	3	
Initial	Water Content, %	55.2	57.1	51.9
	Dry Density, pcf	69.3	67.5	70.0
	Saturation, %	101.4	100.6	97.0
	Void Ratio	1.5240	1.5893	1.4984
	Diameter, in.	1.389	1.389	1.389
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	54.4	56.8	53.5
	Dry Density, pcf	69.3	67.5	70.0
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.5240	1.5893	1.4984
Strain rate, in./min.	Diameter, in.	1.390	1.389	1.389
	Height, in.	2.803	2.803	2.803
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	28.600	40.070	51.490	
Fail. Stress, psf	Strain, %	2654.0	2585.9	2616.4
	Strain, %	4.2	4.0	4.4
Ult. Stress, psf	Strain, %			
	σ_1 Failure, psf	6772.4	8355.9	10031.0
σ_3 Failure, psf	4118.4	5770.1	7414.6	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY with silt lenses (CH4)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:
45 degree Shear on sample 1
Bulge on sample 2 and 3

Client: GeoEngineers

Project: Mid Barataria Diversion

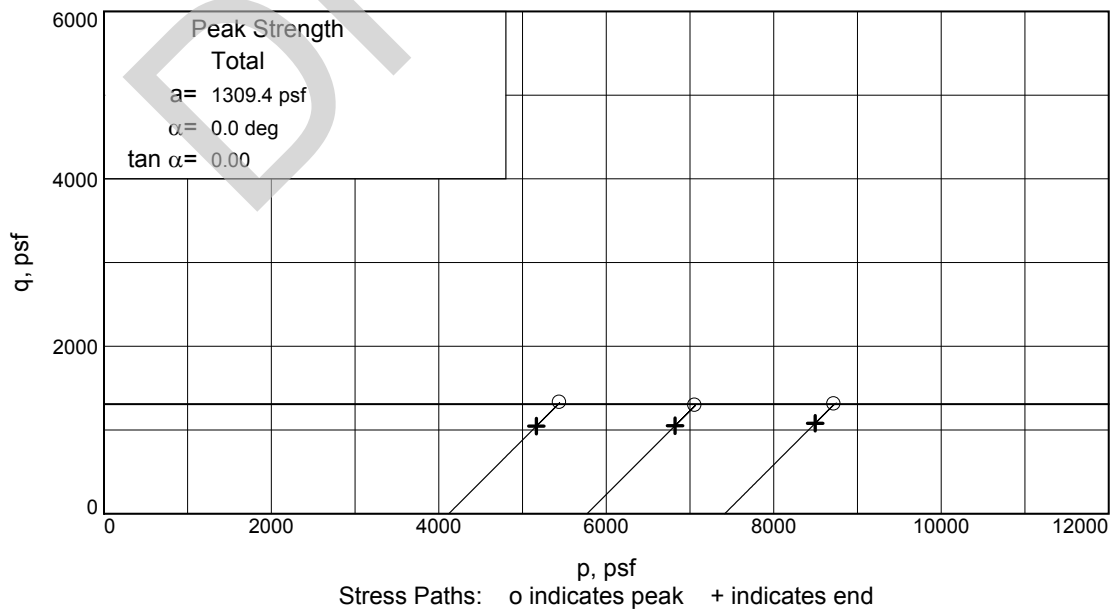
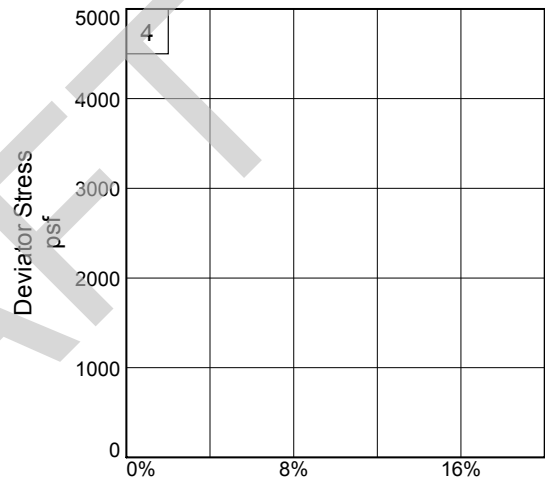
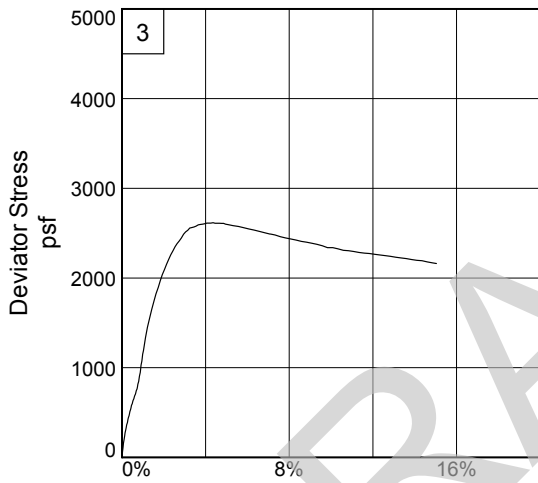
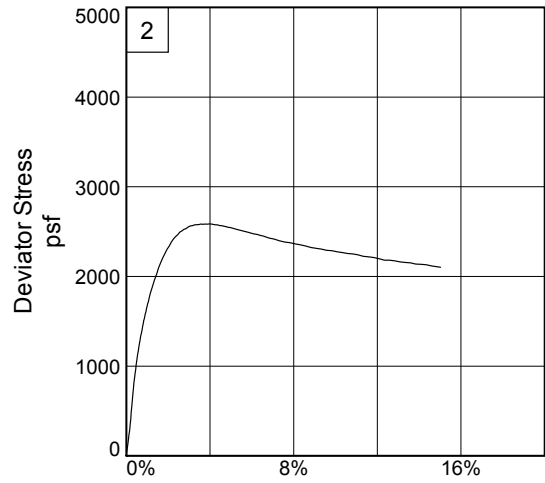
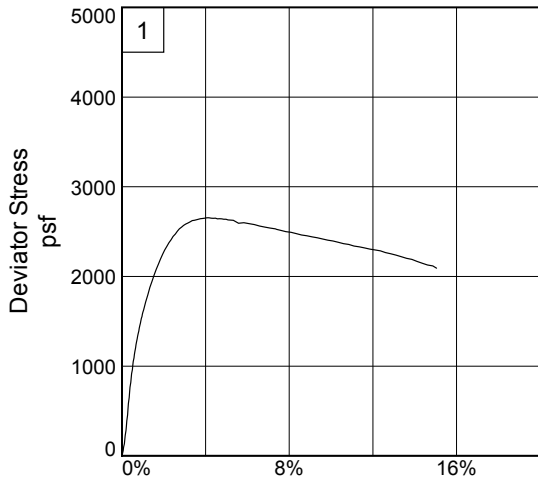
Source of Sample: NL-6A **Depth:** 81-82

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

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Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-6A

Depth: 81-82

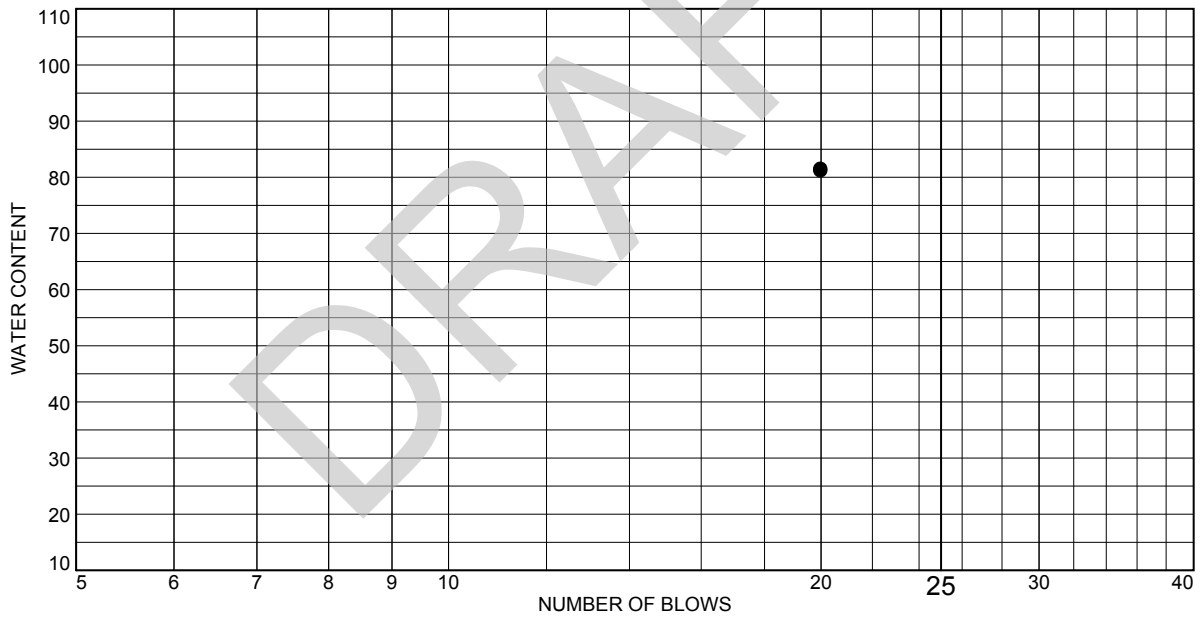
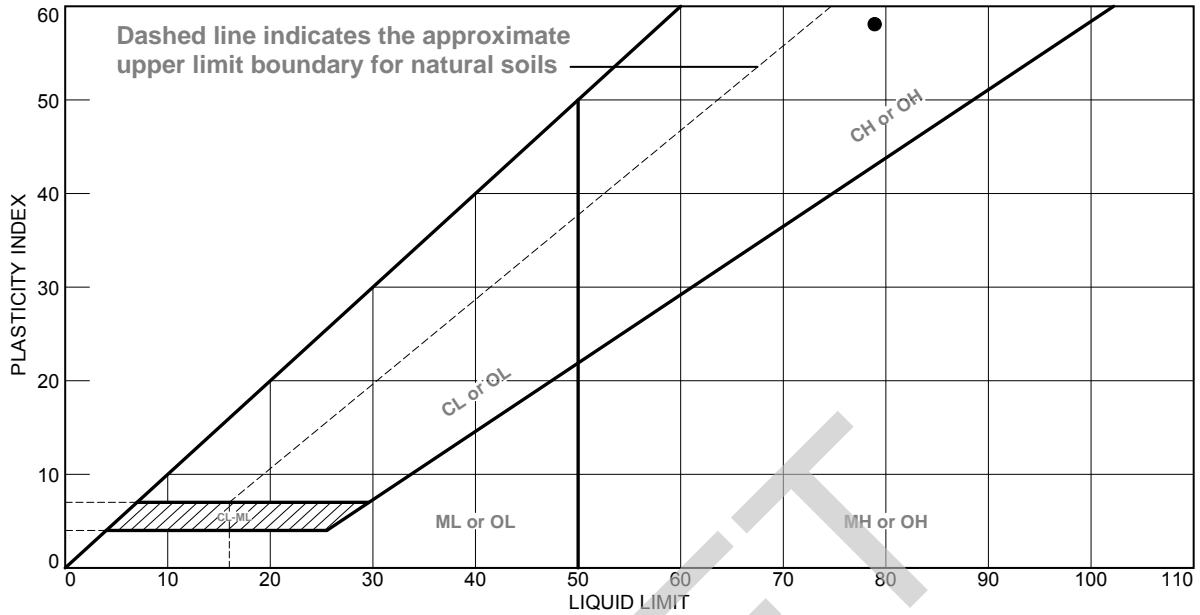
Project No.: B13-018

Figure _____

Southern Earth Sciences, Inc.

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LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
M, Gr Fat CLAY with SIS	79	21	58			(CH4)

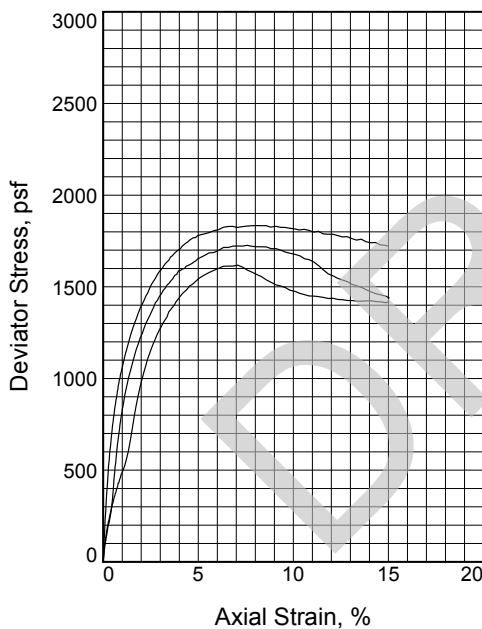
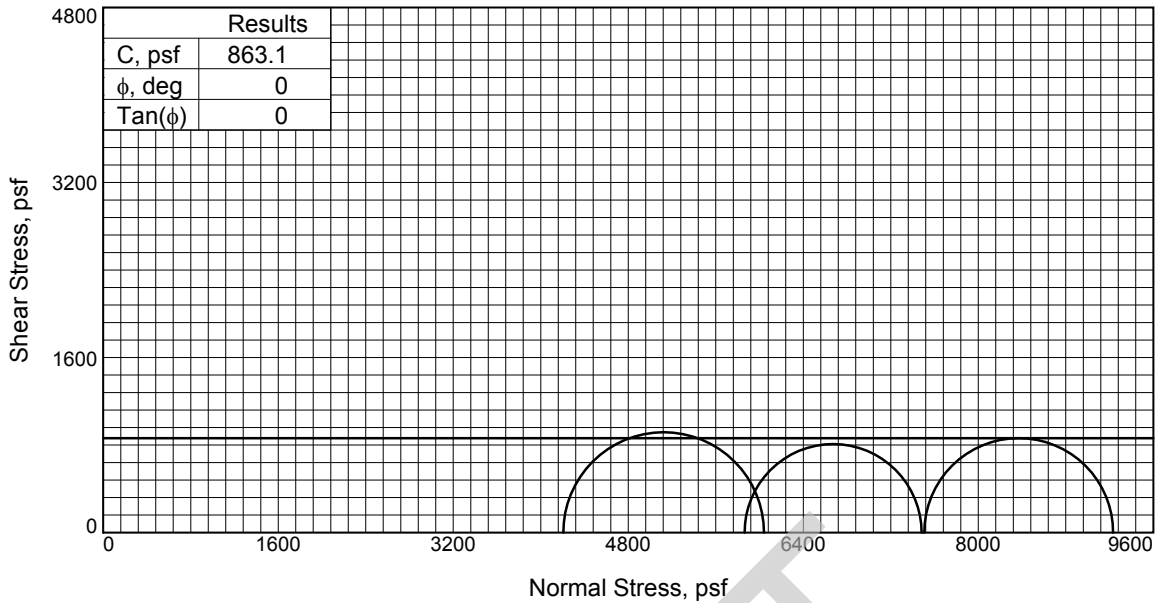
Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 83.5-84

Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	56.1	54.7	56.3
	Dry Density, pcf	66.6	67.3	66.2
	Saturation, %	96.7	95.9	96.2
	Void Ratio	1.6245	1.5983	1.6391
	Diameter, in.	1.399	1.399	1.399
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	58.0	57.1	58.5
	Dry Density, pcf	66.6	67.3	66.2
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.6245	1.5983	1.6391
Strain rate, in./min.	Diameter, in.	1.399	1.399	1.399
	Height, in.	2.803	2.803	2.803
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	29.210	40.720	52.130	
Fail. Stress, psf	Strain, %	1834.3	1618.0	1726.0
	Strain, %	8.6	7.1	7.6
Ult. Stress, psf	Strain, %			
	Strain, %			
σ_1 Failure, psf	6040.6	7481.6	9232.8	
σ_3 Failure, psf	4206.2	5863.7	7506.7	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Fat CLAY with SIS (CH4)

LL= 79 PL= 21 PI= 58

Assumed Specific Gravity= 2.80

Remarks: Type Failure:
45 degree Shear

Client: GeoEngineers

Project: Mid Barataria Diversion

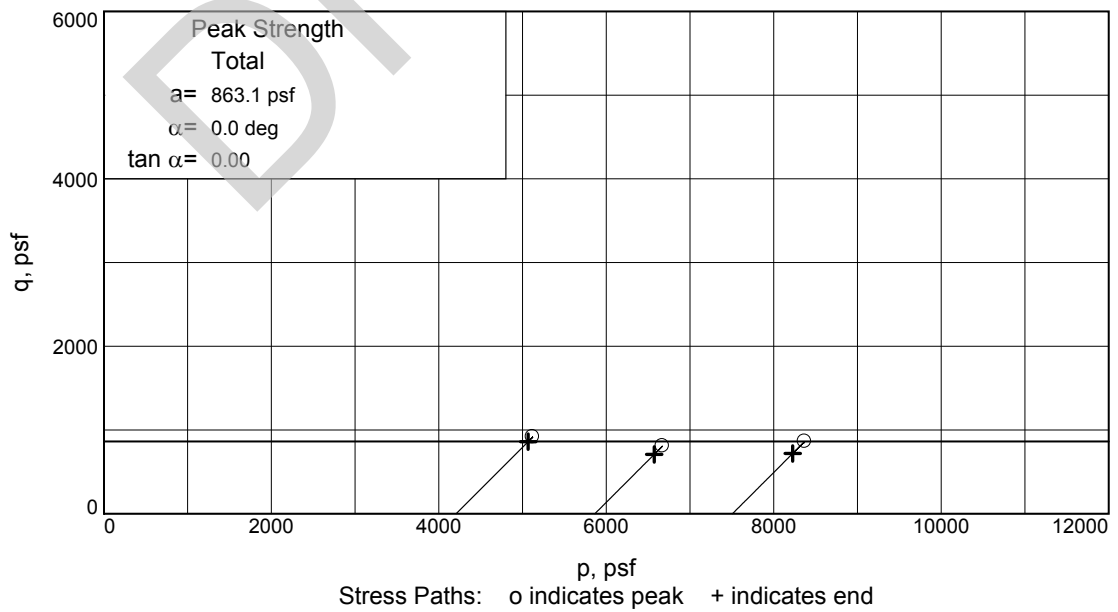
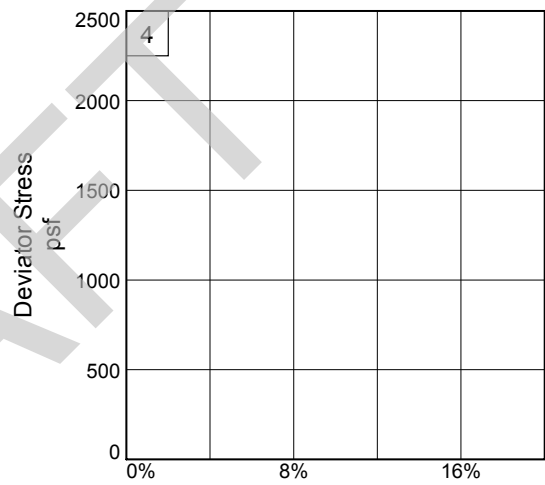
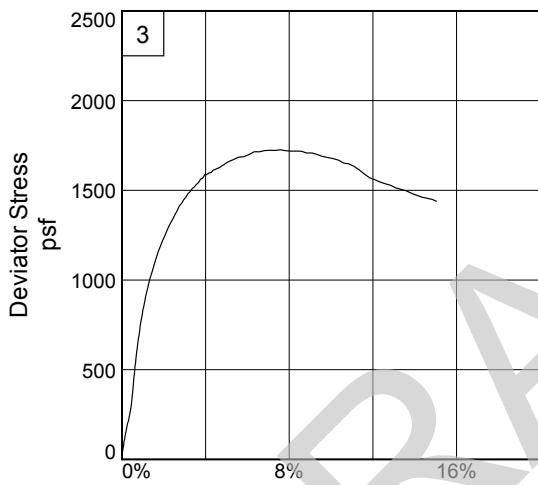
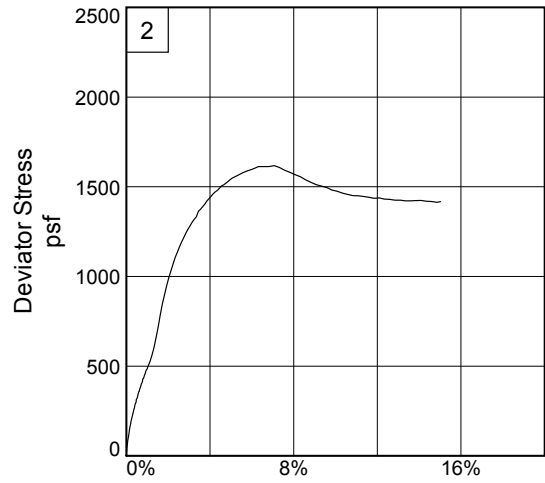
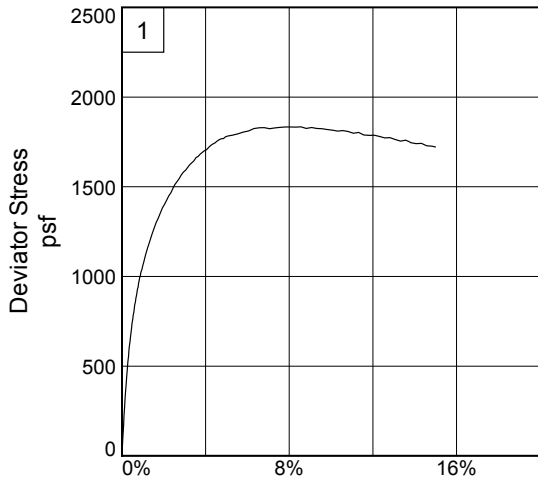
Source of Sample: NL-6A **Depth:** 83.5-84

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Figure _____

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-6A

Depth: 83.5-84

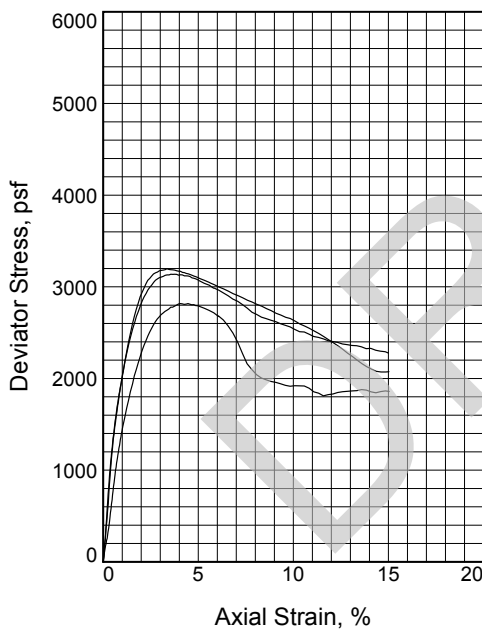
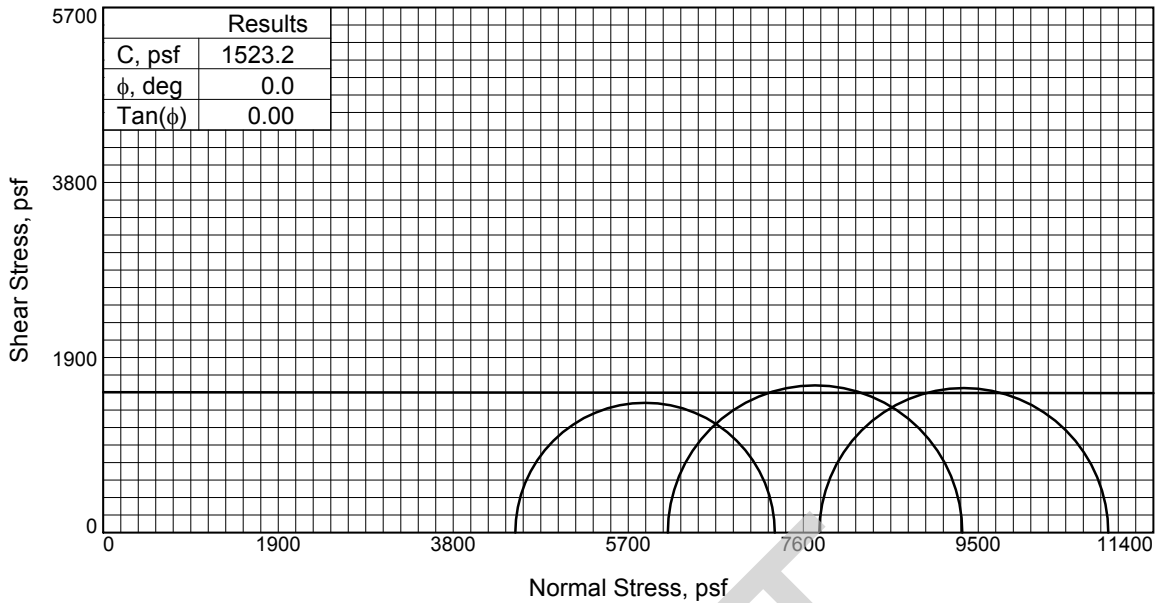
Project No.: B13-018

Figure _____

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	1	2	3	
Sample No.	1	2	3	
Initial	Water Content, %	59.8	50.8	59.9
	Dry Density, pcf	65.6	70.1	65.4
	Saturation, %	100.7	95.2	100.3
	Void Ratio	1.6634	1.4934	1.6717
	Diameter, in.	1.397	1.387	1.397
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	59.4	53.3	59.7
	Dry Density, pcf	65.6	70.1	65.4
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.6634	1.4934	1.6717
Strain rate, in./min.	Diameter, in.	1.397	1.387	1.397
	Height, in.	2.803	2.803	2.803
Back Pressure, psi	1.001	1.001	1.000	
Cell Pressure, psi	0.000	0.000	0.000	
Fail. Stress, psf	31.070	42.570	53.990	
	Strain, %	2817.0	3196.0	3136.6
Ult. Stress, psf	Strain, %	4.1	3.3	3.6
	σ_1 Failure, psf	7291.0	9326.1	10911.2
σ_3 Failure, psf	4474.1	6130.1	7774.6	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY with SIS (CH4)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

- 45 degree Shear on sample 1 and 2
- Bulge and 45 degree Shear on sample 3
- Void at bottom on sample 1

Figure _____

Client: GeoEngineers

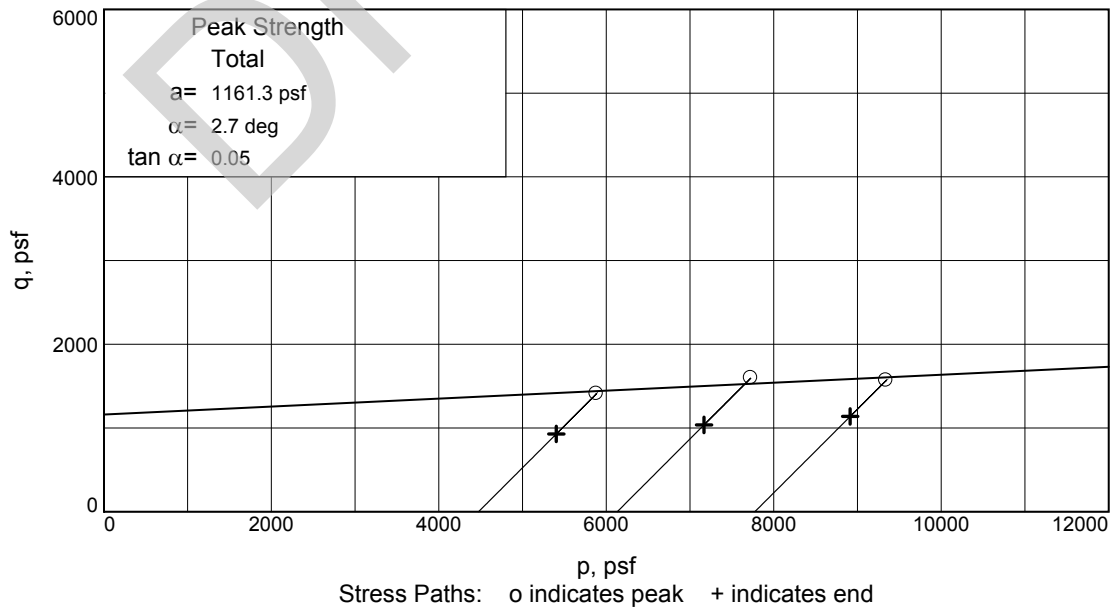
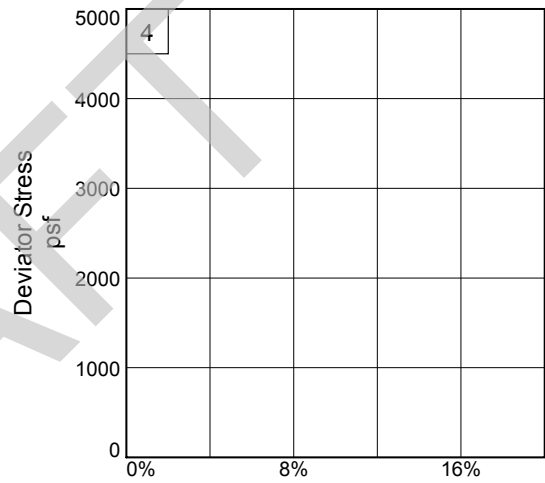
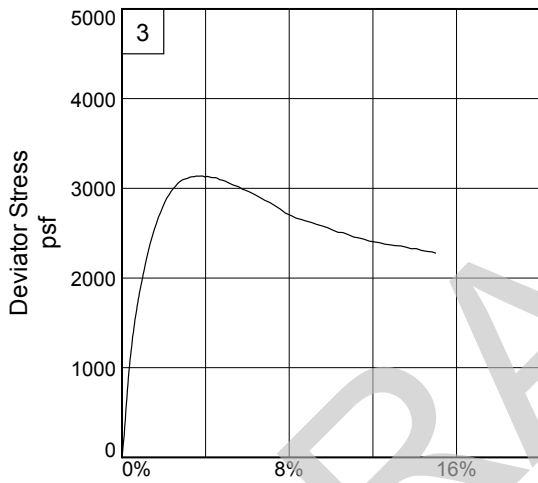
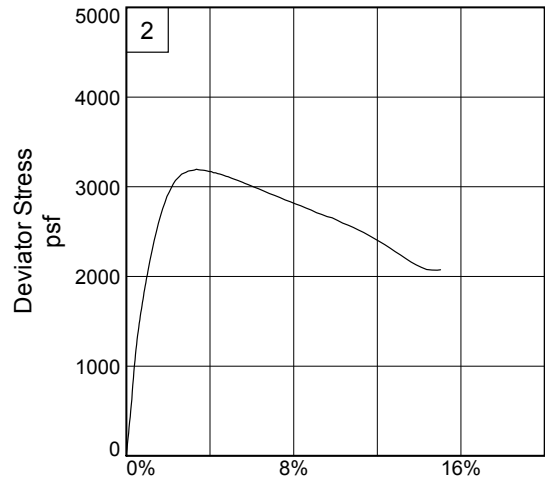
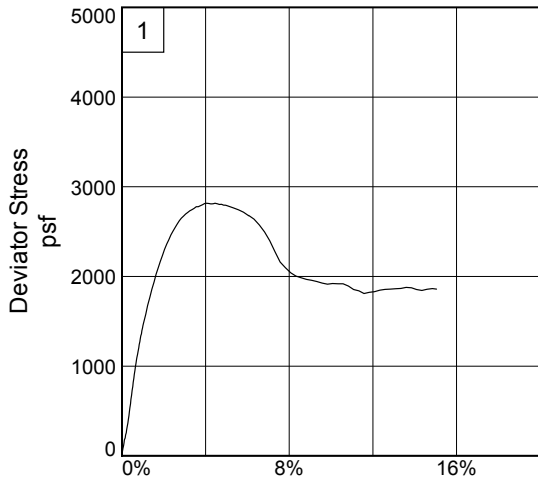
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 88-89

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product



Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-6A

Depth: 88-89

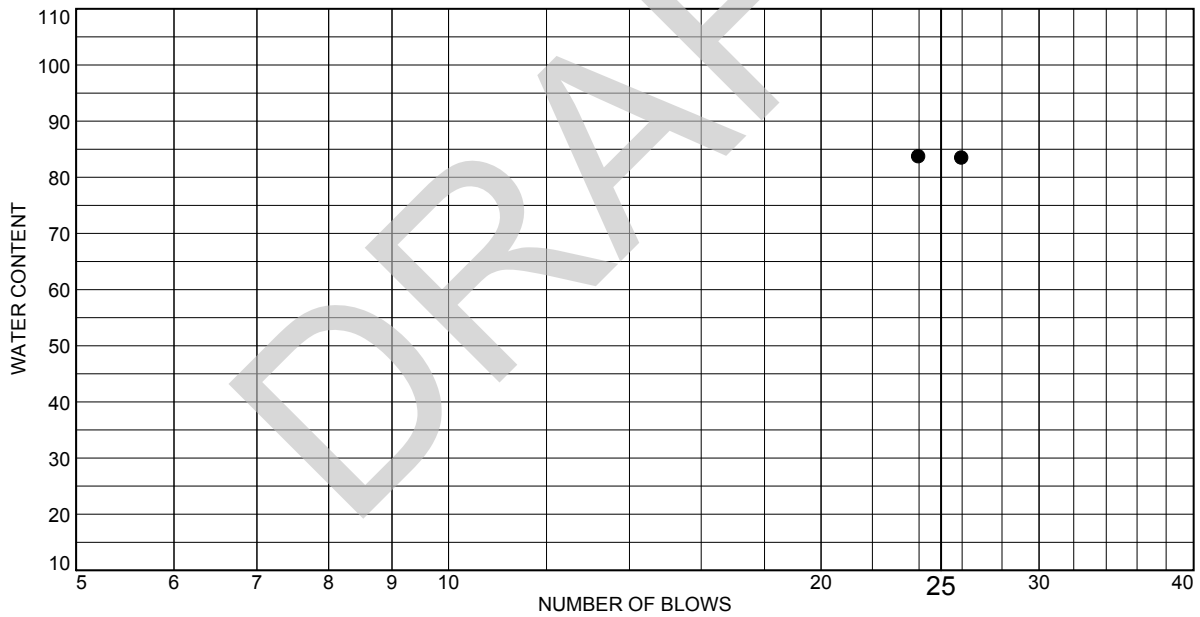
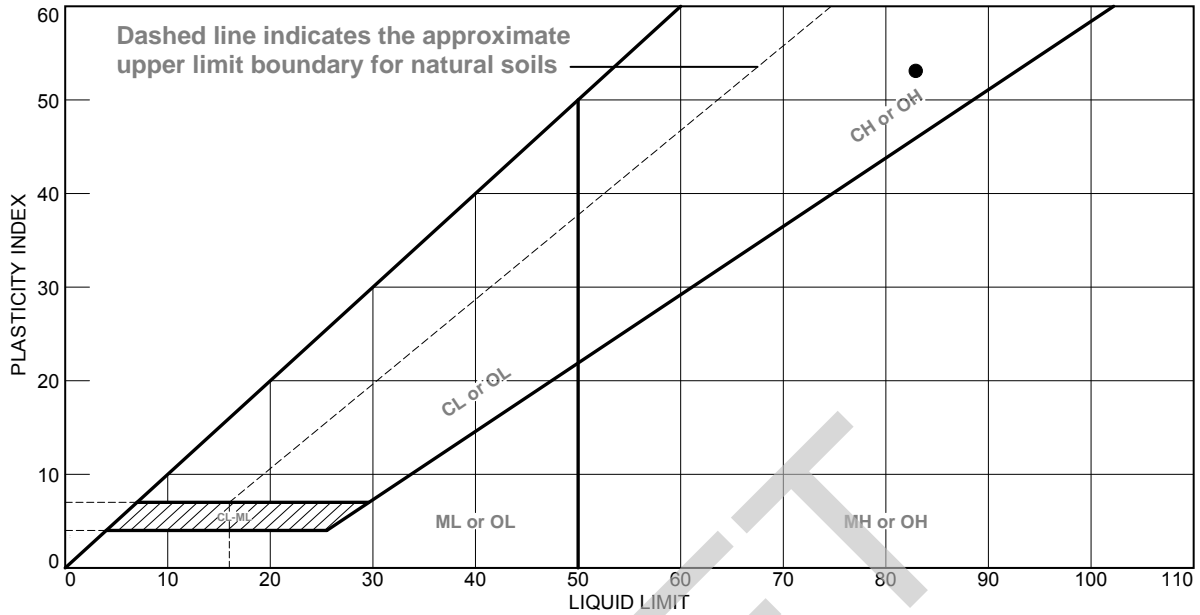
Project No.: B13-018

Figure _____

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LIQUID AND PLASTIC LIMITS TEST REPORT



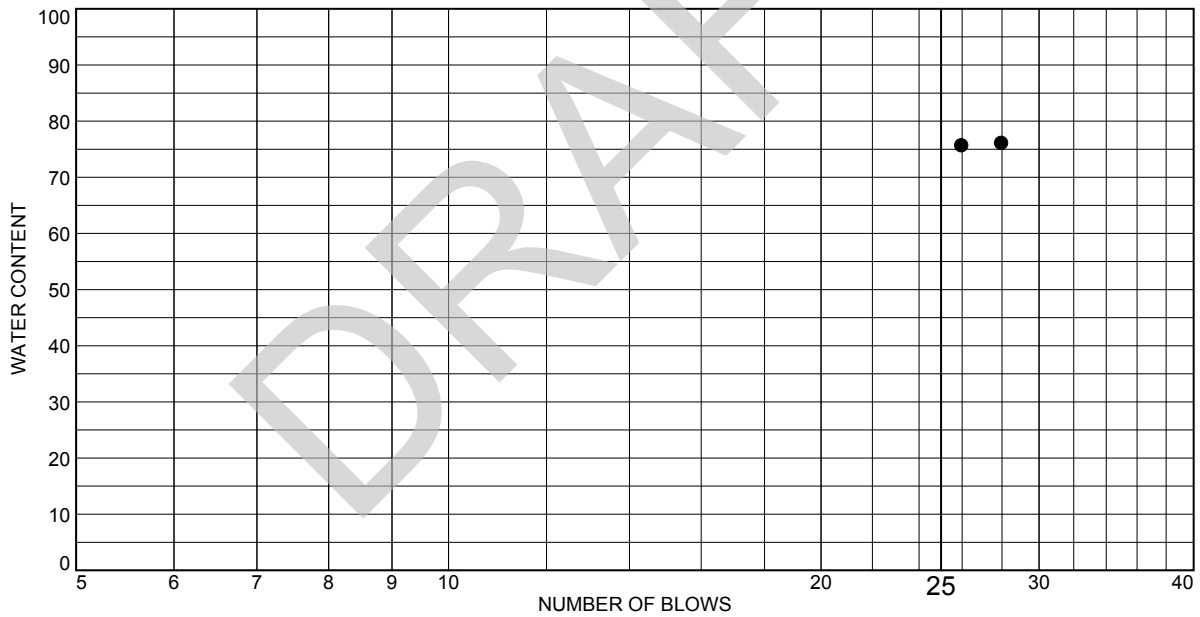
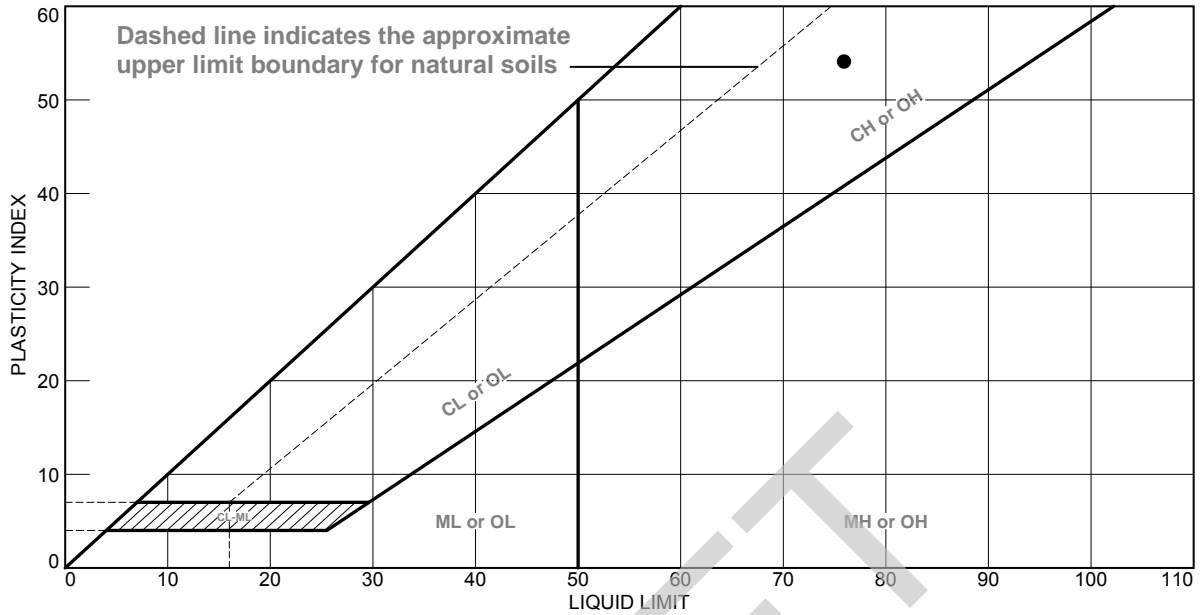
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
St, Gr Fat CLAY with SIS	83	30	53			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 89-90
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT

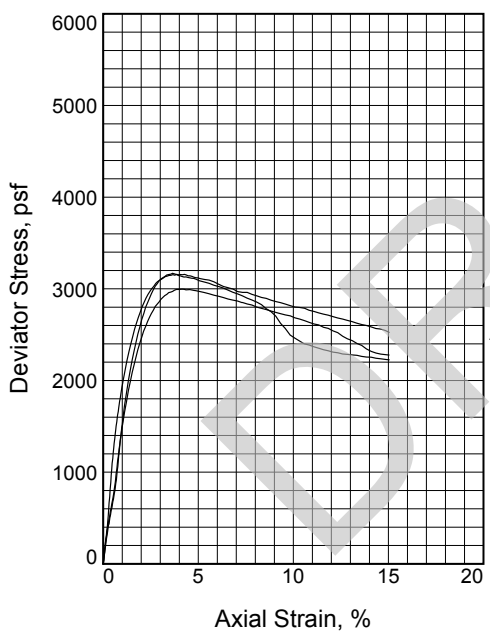
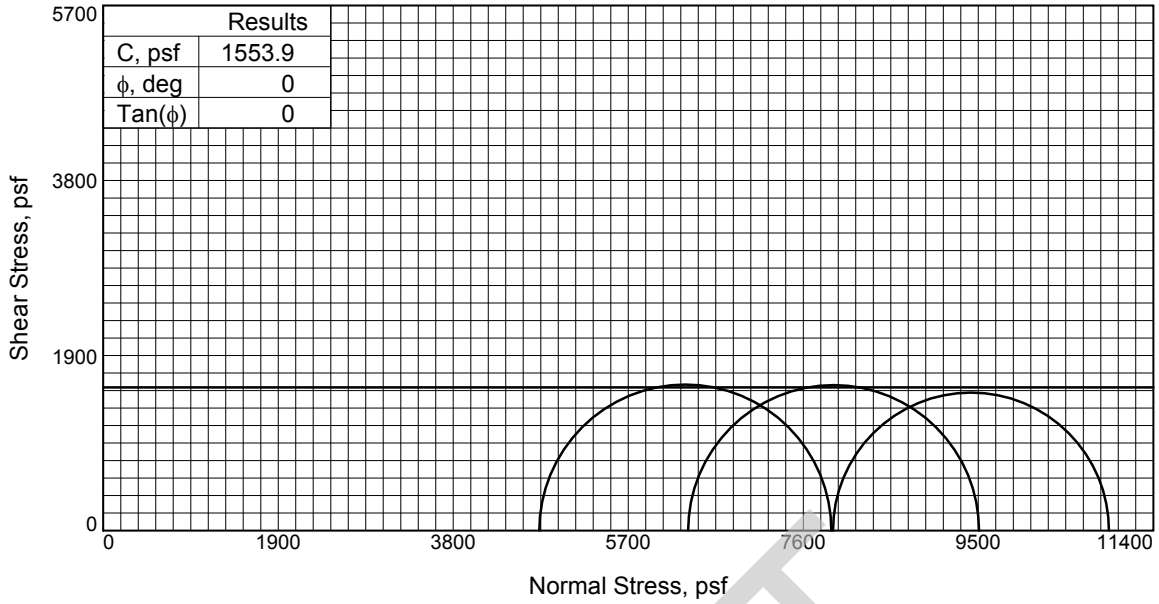


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● St, Gr Fat CLAY with SIS	76	22	54			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 93-94
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



	1	2	3	
Sample No.	1	2	3	
Initial	Water Content, %	57.2	55.6	56.6
	Dry Density, pcf	67.3	69.1	67.4
	Saturation, %	100.4	101.7	99.4
	Void Ratio	1.5958	1.5294	1.5926
	Diameter, in.	1.400	1.400	1.400
Height, in.	2.803	2.803	2.803	
At Test	Water Content, %	57.0	54.6	56.9
	Dry Density, pcf	67.3	69.1	67.4
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.5958	1.5294	1.5926
	Diameter, in.	1.400	1.400	1.400
Height, in.	2.803	2.803	2.803	
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	32.880	44.100	55.020	
Fail. Stress, psf	3169.7	3157.7	2996.1	
Strain, %	3.6	4.3	4.1	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	7904.4	9508.1	10919.0	
σ_3 Failure, psf	4734.7	6350.4	7922.9	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY with SIS (CH4)

LL= 76 PL= 22 PI= 54

Assumed Specific Gravity= 2.80

Remarks: Type Failure:
Multi Shear on sample 1
45 degree Shear on sample 2 and 3

Client: GeoEngineers

Project: Mid Barataria Diversion

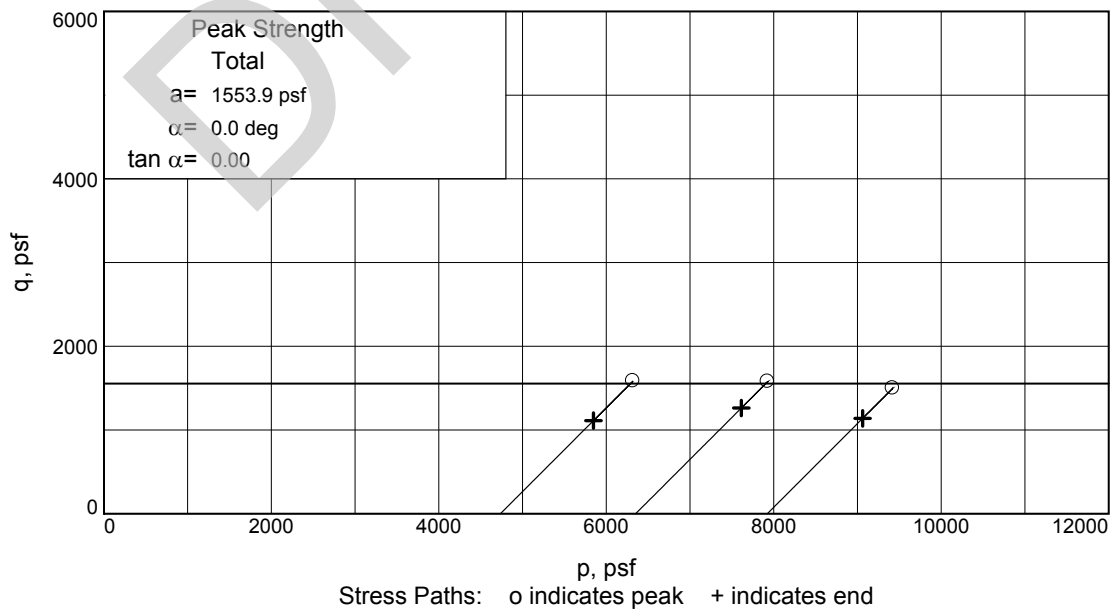
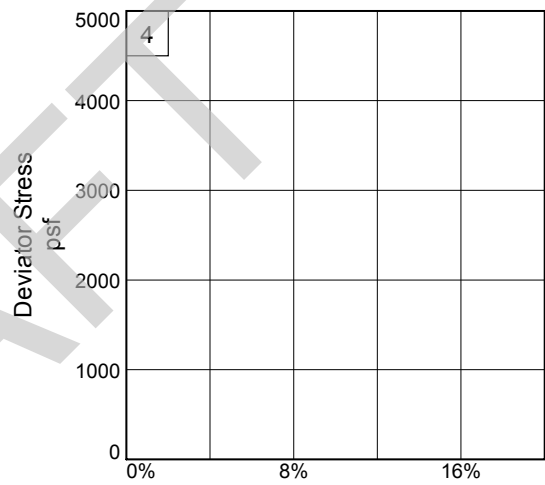
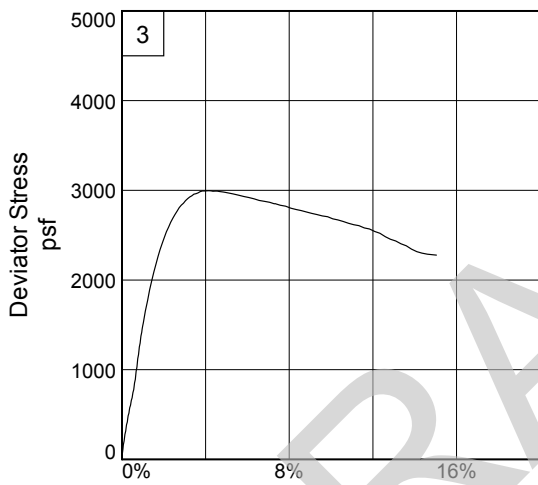
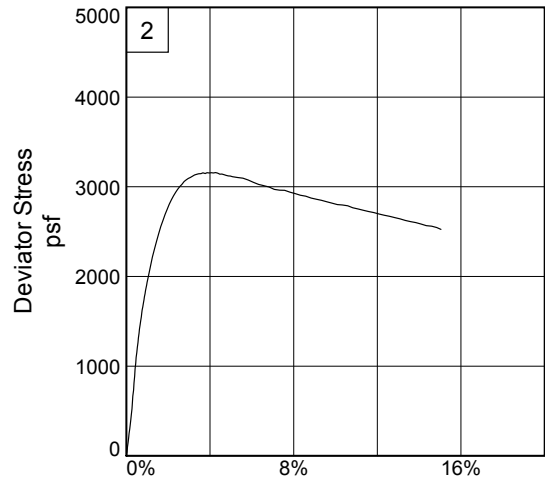
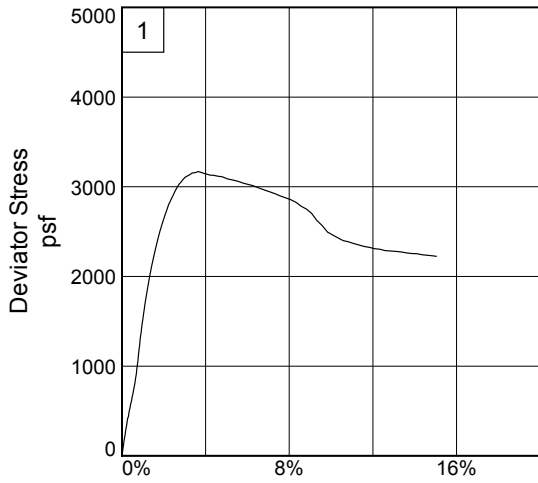
Source of Sample: NL-6A **Depth:** 93-94

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
Baton Rouge, LA

Confidential Information: Privileged & Confidential Work Product

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Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: NL-6A

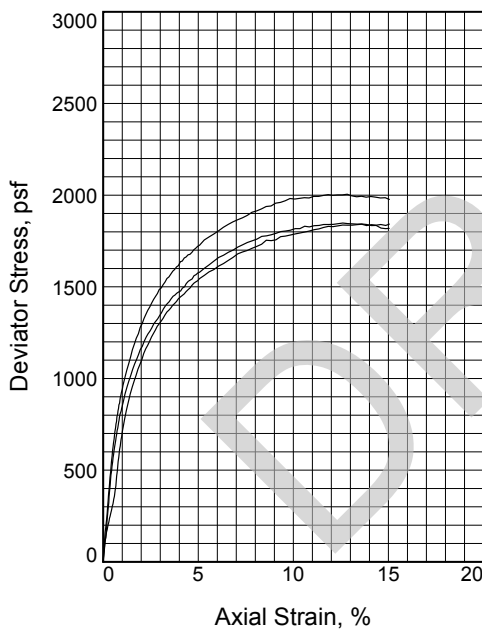
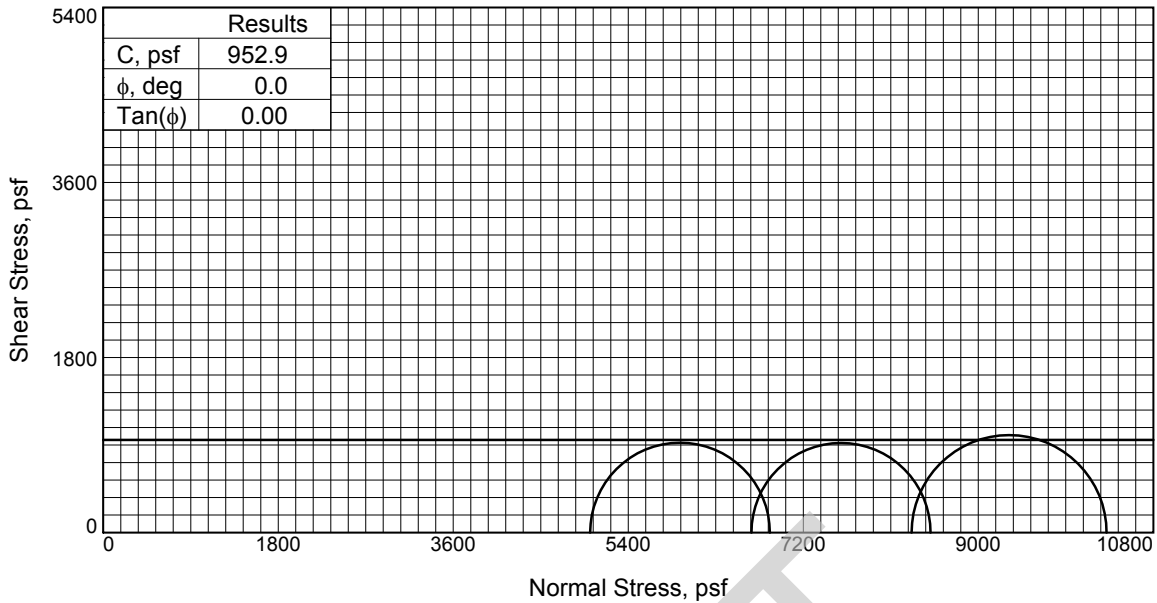
Depth: 93-94

Project No.: B13-018

Figure _____

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Sample No.	1	2	3	
Initial	Water Content, %	54.6	54.6	53.8
	Dry Density, pcf	67.1	67.0	67.5
	Saturation, %	95.1	95.0	94.8
	Void Ratio	1.6067	1.6099	1.5899
	Diameter, in.	1.412	1.412	1.412
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	57.4	57.5	56.8
	Dry Density, pcf	67.1	67.0	67.5
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.6067	1.6099	1.5899
Strain rate, in./min.	1.000	1.000	1.000	
	Back Pressure, psi	0.000	0.000	0.000
	Cell Pressure, psi	34.780	46.300	57.740
Fail. Stress, psf	1847.7	1841.8	2004.8	
	Strain, %	12.6	15.0	12.8
Ult. Stress, psf				
	Strain, %			
σ_1 Failure, psf	6856.0	8509.0	10319.4	
σ_3 Failure, psf	5008.3	6667.2	8314.6	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: M, Gr Fat CLAY with SIS (CH4)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

Bulge on sample 2 and 3

Figure _____

Client: GeoEngineers

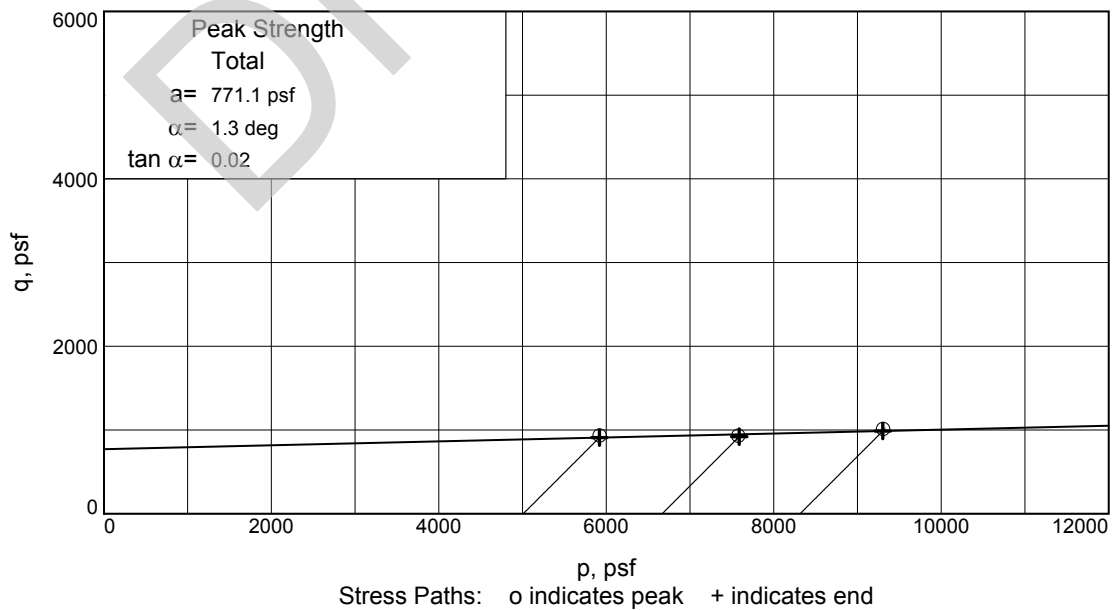
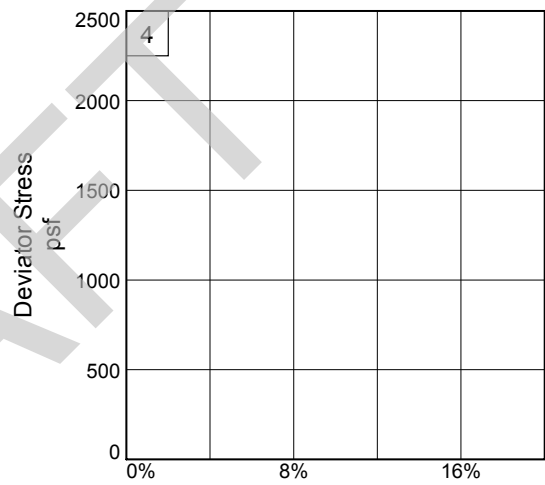
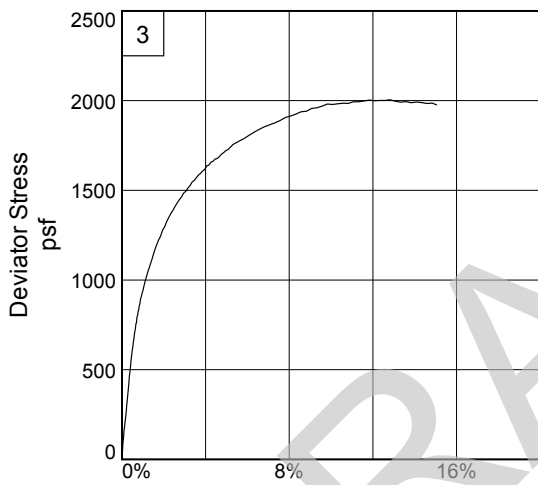
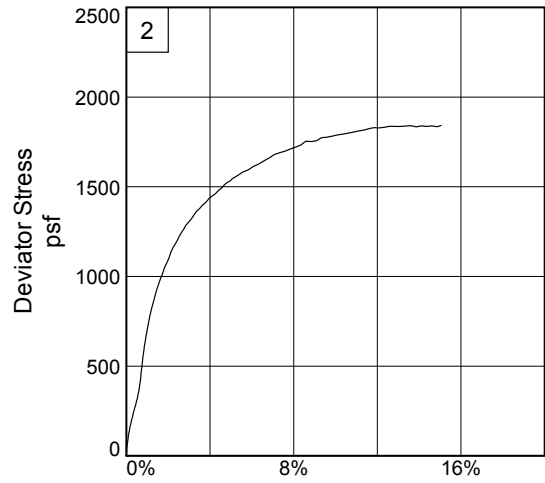
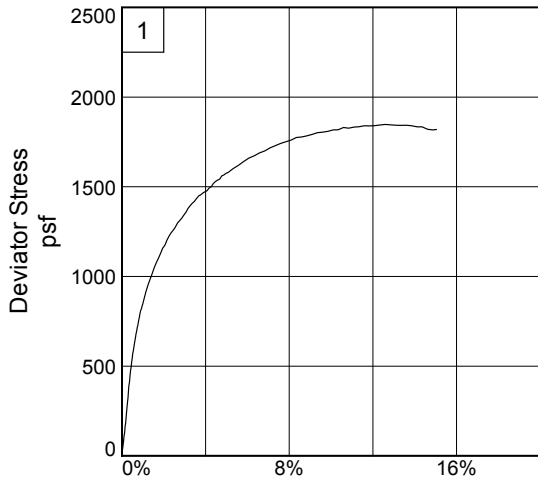
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 98-99

Proj. No.: B13-018 **Date Sampled:**

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 Southern Earth Sciences, Inc.
 Baton Rouge, LA

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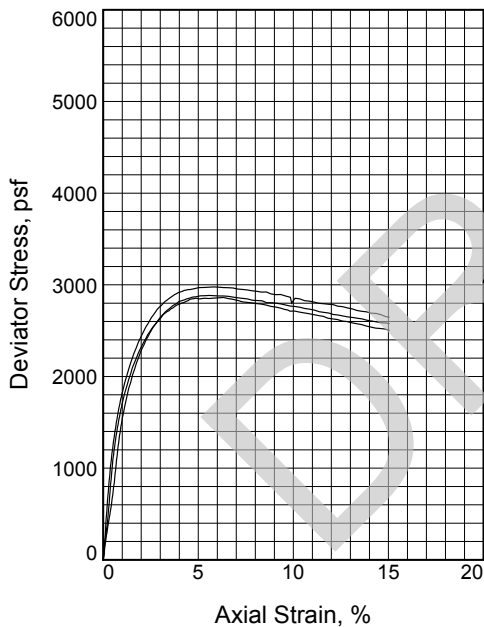
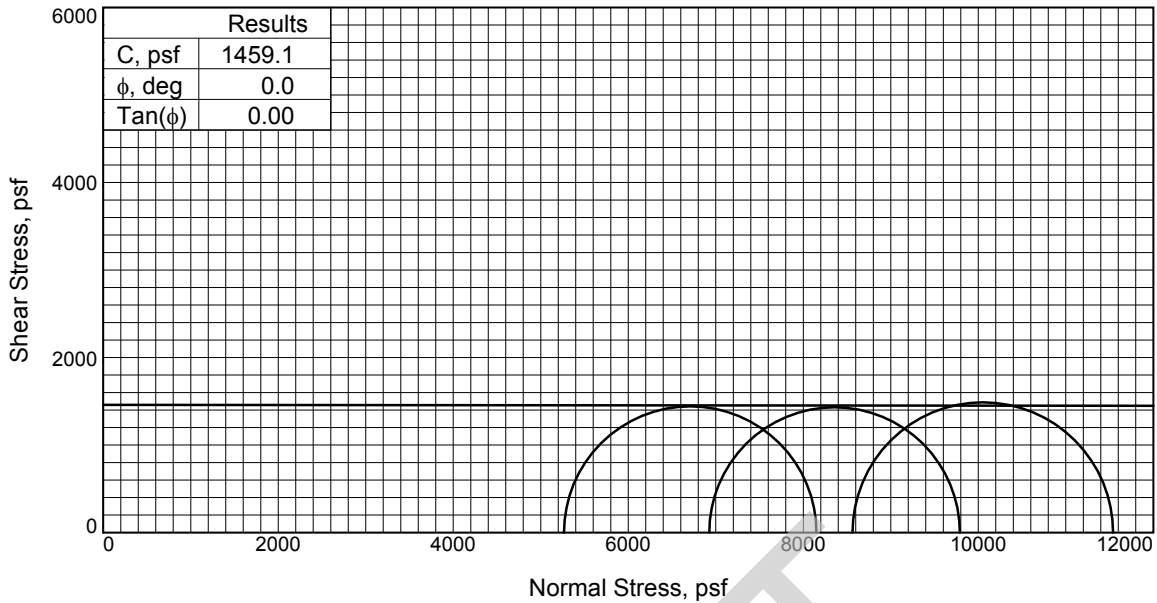
Client: GeoEngineers
Project: Mid Baratara Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 98-99

Figure _____

Southern Earth Sciences, Inc.

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	1	2	3	
Sample No.	1	2	3	
Initial	Water Content, %	53.3	52.2	52.5
	Dry Density, pcf	69.8	70.4	69.9
	Saturation, %	99.2	98.6	97.9
	Void Ratio	1.5051	1.4836	1.4999
	Diameter, in.	1.400	1.400	1.400
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	53.8	53.0	53.6
	Dry Density, pcf	69.8	70.4	69.9
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.5051	1.4836	1.4999
Strain rate, in./min.	Diameter, in.	1.400	1.400	1.400
	Height, in.	2.803	2.803	2.803
	Back Pressure, psi	1.001	1.000	1.000
	Cell Pressure, psi	0.000	0.000	0.000
	Fail. Stress, psf	36.570	48.100	59.470
Strain, %	Fail. Stress, psf	2884.6	2862.9	2976.8
	Strain, %	5.6	6.3	5.8
Ult. Stress, psf	Ult. Stress, psf			
	Strain, %			
σ_1 Failure, psf	σ_1 Failure, psf	8150.7	9789.3	11540.5
	σ_3 Failure, psf	5266.1	6926.4	8563.7

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY with SIS (CH4)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

Bulge

Figure _____

Client: GeoEngineers

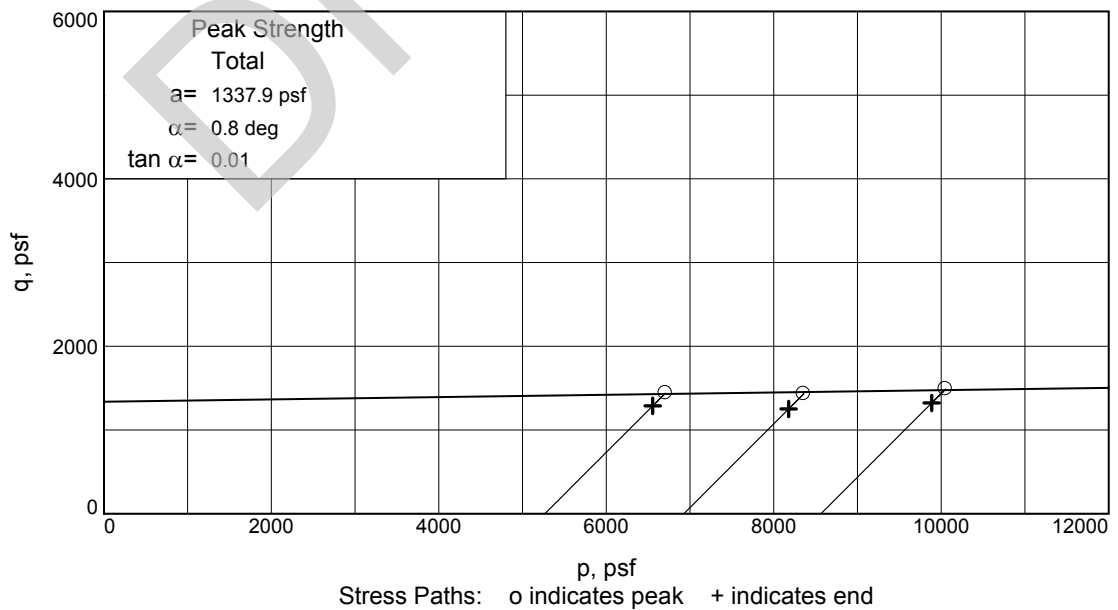
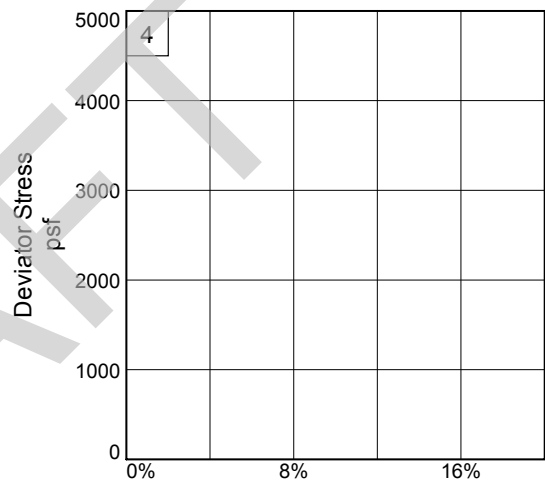
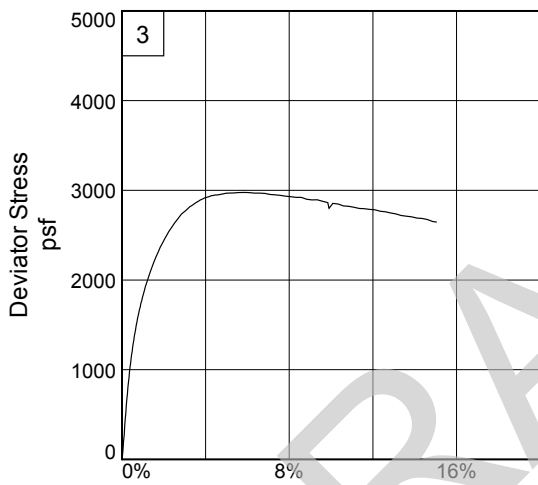
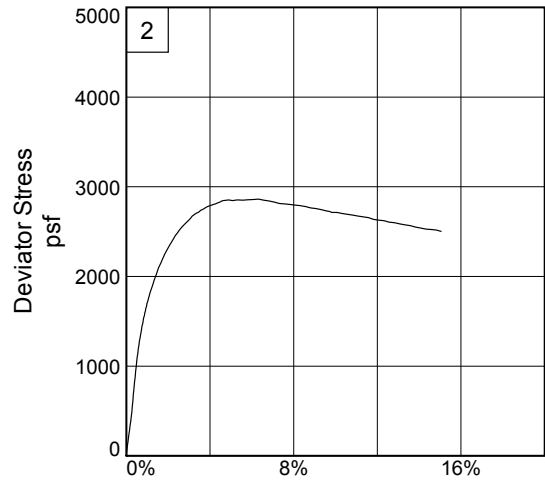
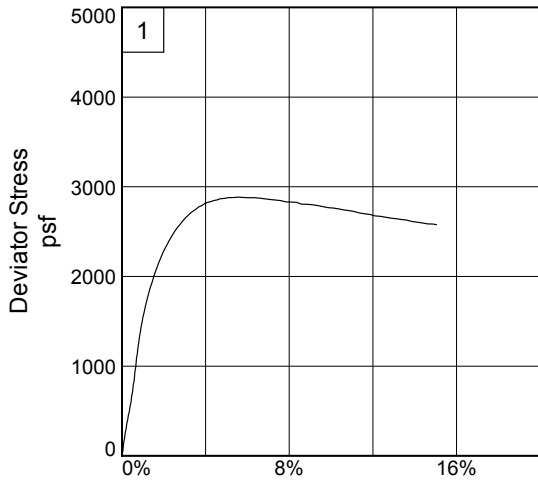
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 103-104

Proj. No.: B13-018 **Date Sampled:**

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 Southern Earth Sciences, Inc.
 Baton Rouge, LA

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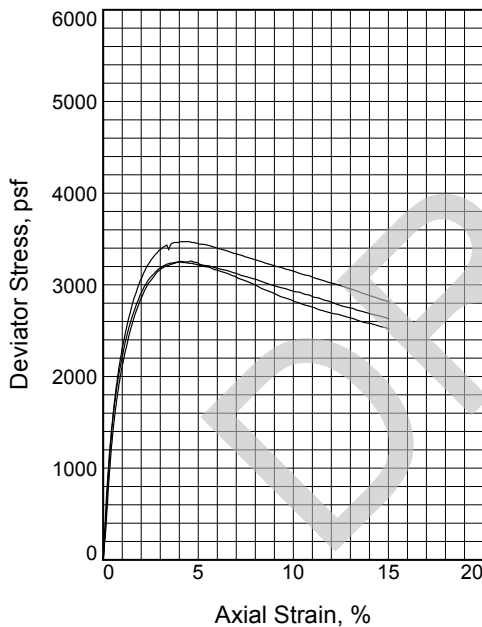
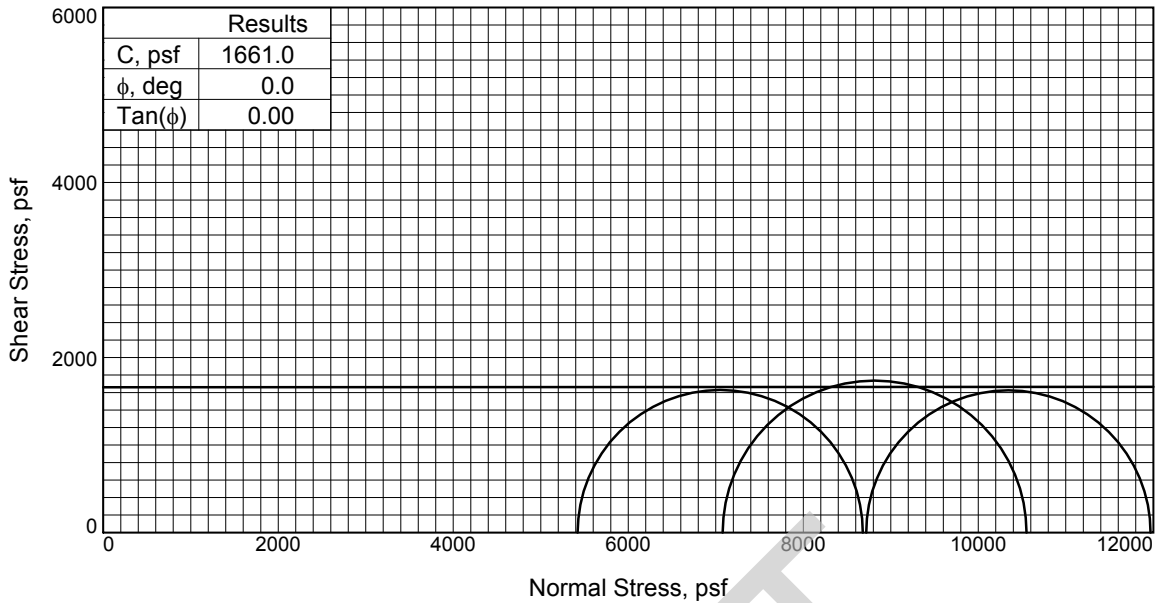


Client: GeoEngineers
Project: Mid Baratara Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 103-104

Figure _____

Southern Earth Sciences, Inc.



Sample No.	1	2	3	
Initial	Water Content, %	51.4	51.0	52.9
	Dry Density, pcf	69.9	70.5	69.5
	Saturation, %	95.8	96.6	97.7
	Void Ratio	1.5014	1.4799	1.5157
	Diameter, in.	1.407	1.407	1.407
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	53.6	52.9	54.1
	Dry Density, pcf	69.9	70.5	69.5
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.5014	1.4799	1.5157
Strain rate, in./min.	Diameter, in.	1.407	1.407	1.407
	Height, in.	2.803	2.803	2.803
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	37.650	49.160	60.550	
Fail. Stress, psf	Strain, %	3258.2	3471.8	3249.5
	Strain, %	4.7	4.4	4.1
Ult. Stress, psf	Strain, %			
	σ_1 Failure, psf	8679.8	10550.9	11968.7
σ_3 Failure, psf	5421.6	7079.0	8719.2	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY with SIS (CH4)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

Bulge on sample 1 and 3

45 degree Shear on sample 2

Figure _____

Client: GeoEngineers

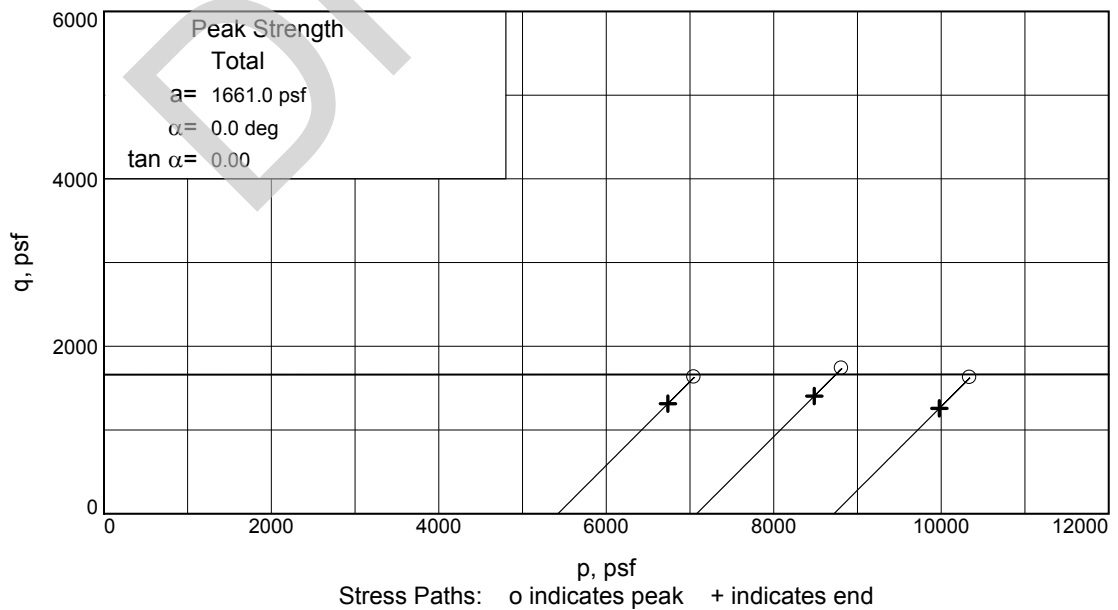
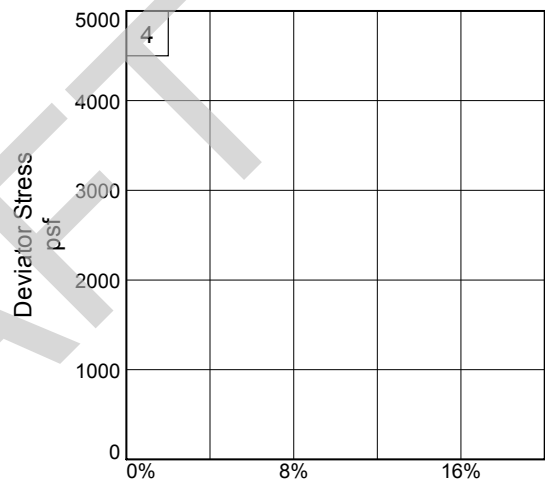
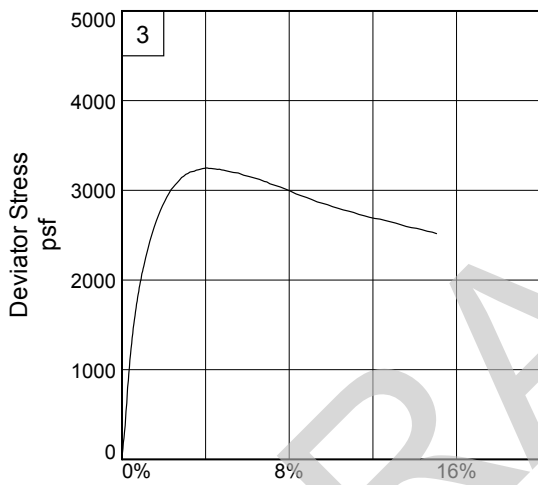
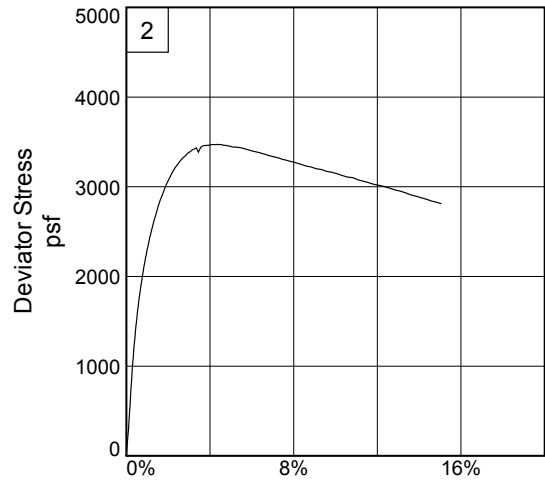
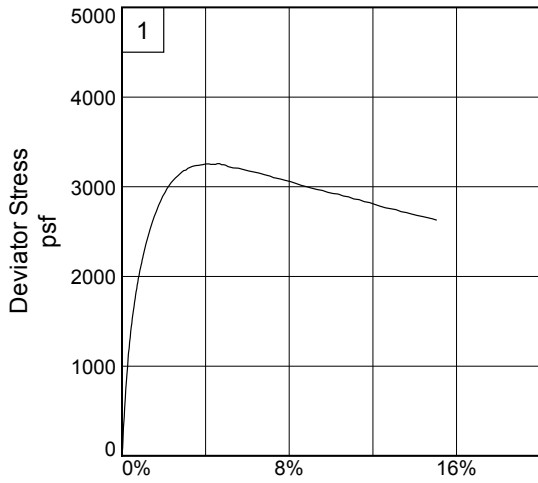
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 106-107

Proj. No.: B13-018 **Date Sampled:**

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 Baton Rouge, LA

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Client: GeoEngineers

Project: Mid Baratara Diversion

Source of Sample: NL-6A

Depth: 106-107

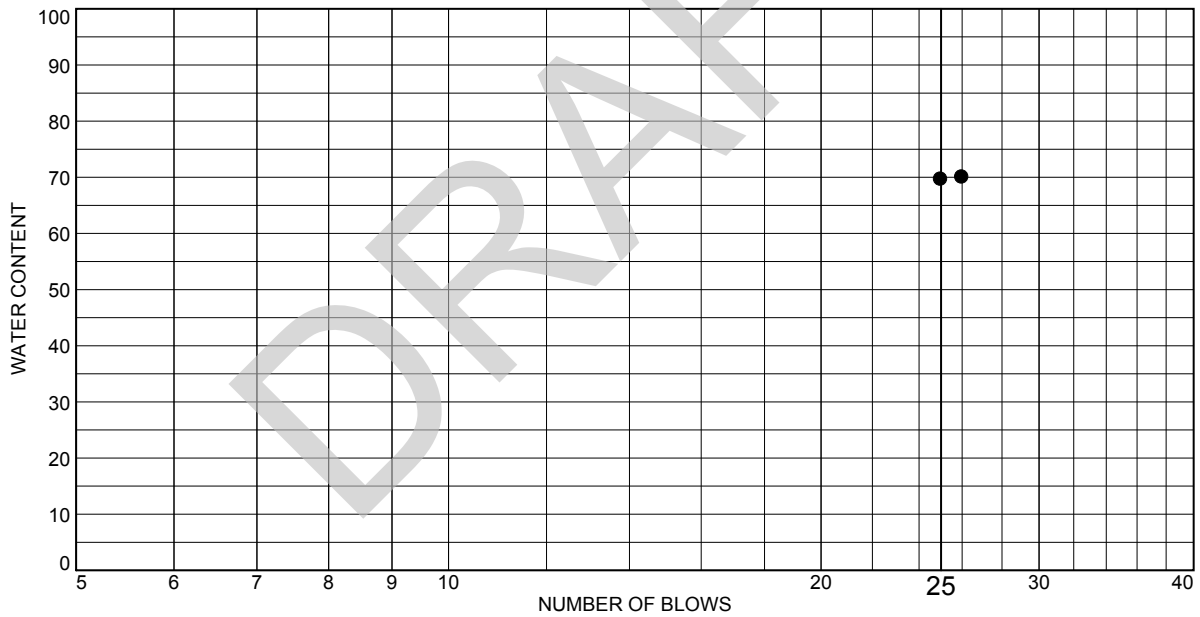
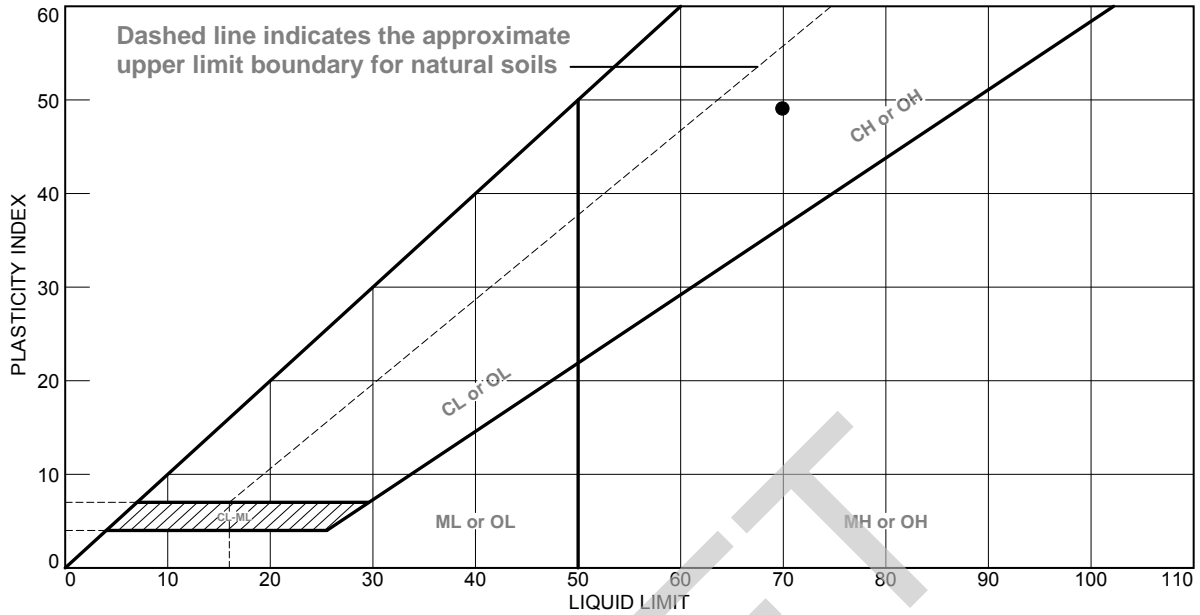
Project No.: B13-018

Figure _____

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LIQUID AND PLASTIC LIMITS TEST REPORT



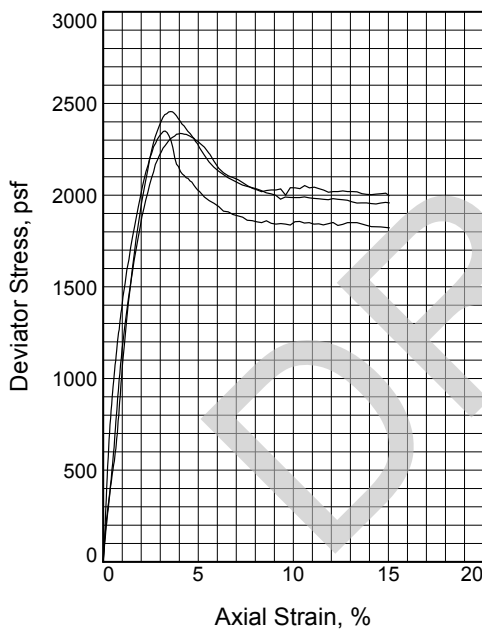
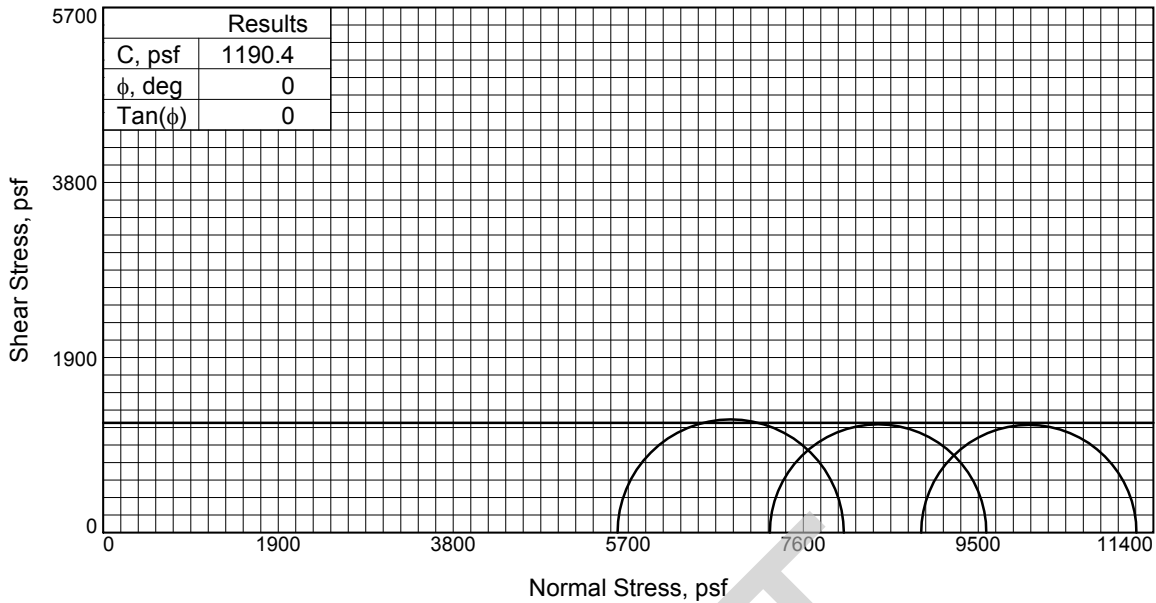
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● St, Gr Fat CLAY with sand pockets and shells	70	21	49			(CH3)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 109-109.3
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure

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	1	2	3	
Sample No.	1	2	3	
Initial	Water Content, %	74.3	58.1	54.5
	Dry Density, pcf	58.5	65.8	68.2
	Saturation, %	104.8	98.1	97.7
	Void Ratio	1.9866	1.6579	1.5632
	Diameter, in.	1.411	1.411	1.411
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	70.9	59.2	55.8
	Dry Density, pcf	58.5	65.8	68.2
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.9866	1.6579	1.5632
Diameter, in.	1.411	1.411	1.411	
Height, in.	2.803	2.803	2.803	
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	38.780	50.260	61.670	
Fail. Stress, psf	2455.8	2349.9	2336.9	
Strain, %	3.5	3.3	4.1	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	8040.1	9587.4	11217.3	
σ_3 Failure, psf	5584.3	7237.4	8880.5	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY with sand pockets and shells (CH3)

LL= 70 **PL=** 21 **PI=** 49

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

45 degree Shear on sample 1 and 3

Multi Shear on sample 2

Some voids due to shell pockets on sample 1

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

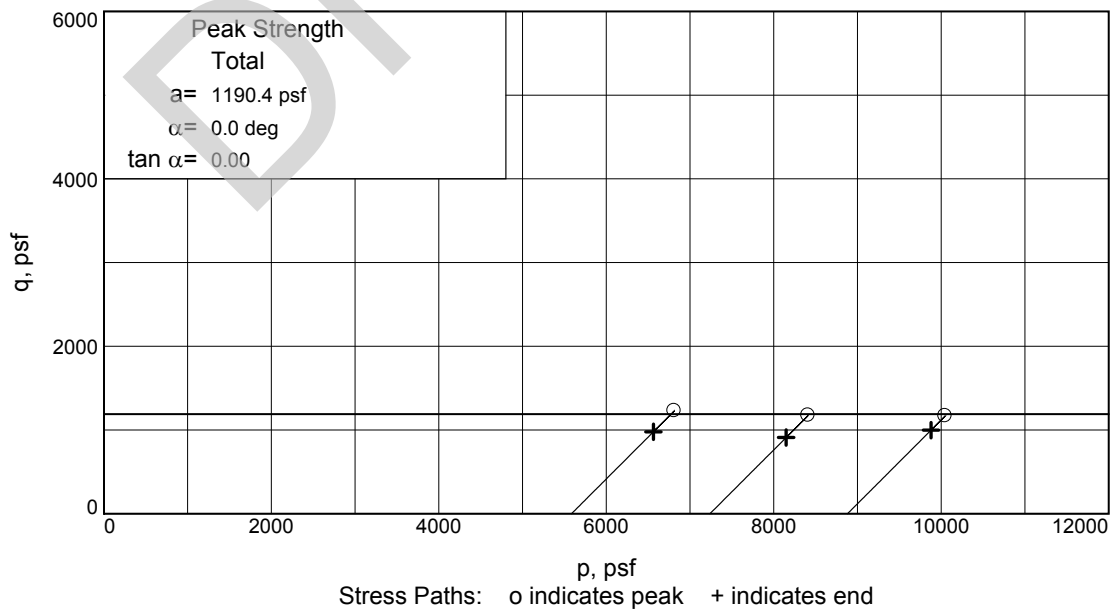
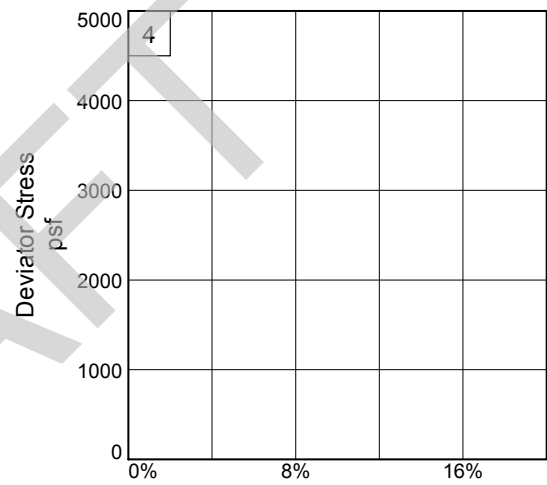
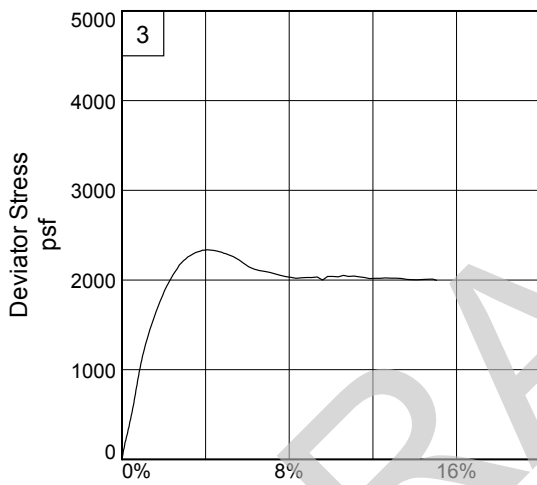
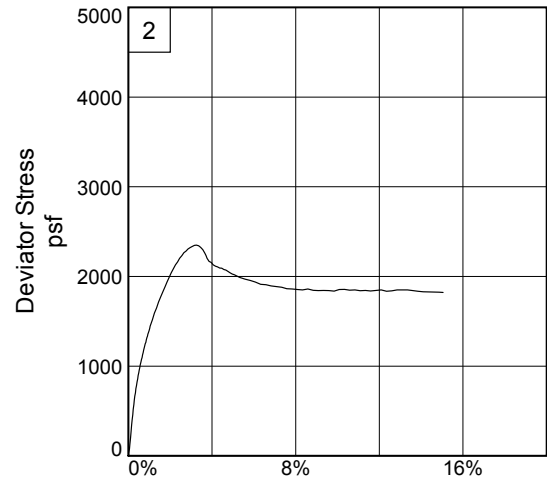
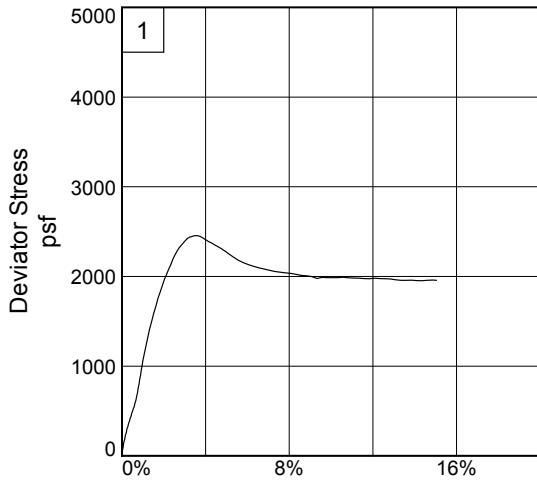
Source of Sample: NL-6A **Depth:** 109-109.3

Proj. No.: B13-018

Date Sampled:

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 Baton Rouge, LA

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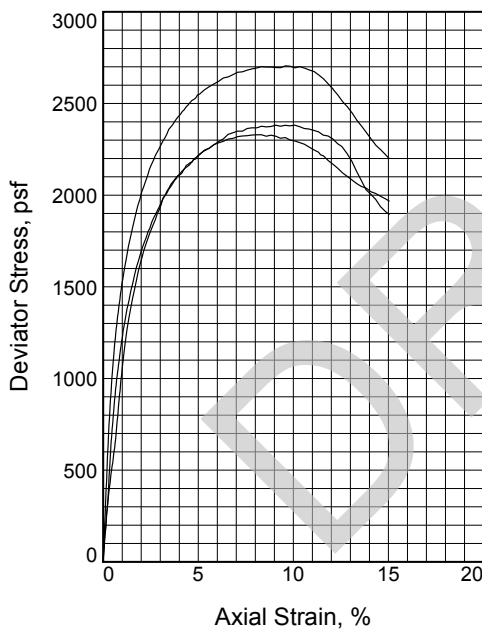
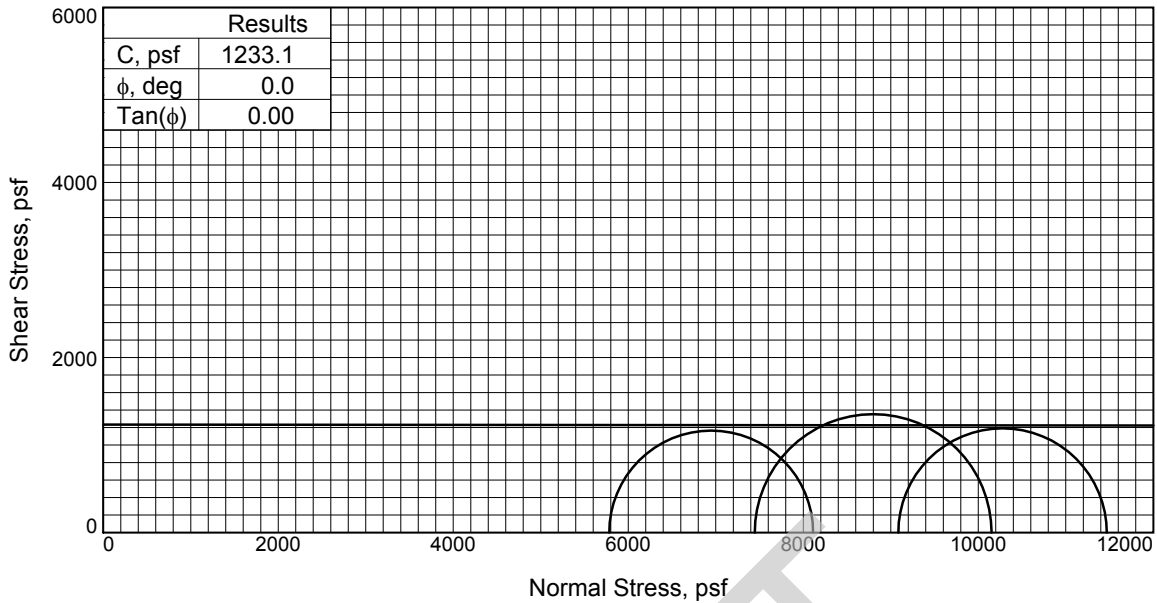
Client: GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 109-109.3

Figure _____

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	1	2	3	
Sample No.				
Initial	Water Content, %	54.0	53.5	53.4
	Dry Density, pcf	68.1	68.2	67.9
	Saturation, %	96.4	95.7	95.0
	Void Ratio	1.5672	1.5647	1.5726
	Diameter, in.	1.414	1.414	1.414
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	56.0	55.9	56.2
	Dry Density, pcf	68.1	68.2	67.9
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.5672	1.5647	1.5726
Diameter, in.	1.414	1.414	1.414	
Height, in.	2.803	2.803	2.803	
Strain rate, in./min.	1.000	1.000	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	40.160	51.710	63.100	
Fail. Stress, psf	2329.4	2705.3	2381.8	
Strain, %	8.3	9.6	9.1	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	8112.5	10151.5	11468.2	
σ_3 Failure, psf	5783.0	7446.2	9086.4	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY (CH4)

Assumed Specific Gravity= 2.80

Remarks: Type Failure:

45 degree Shear

Figure _____

Client: GeoEngineers

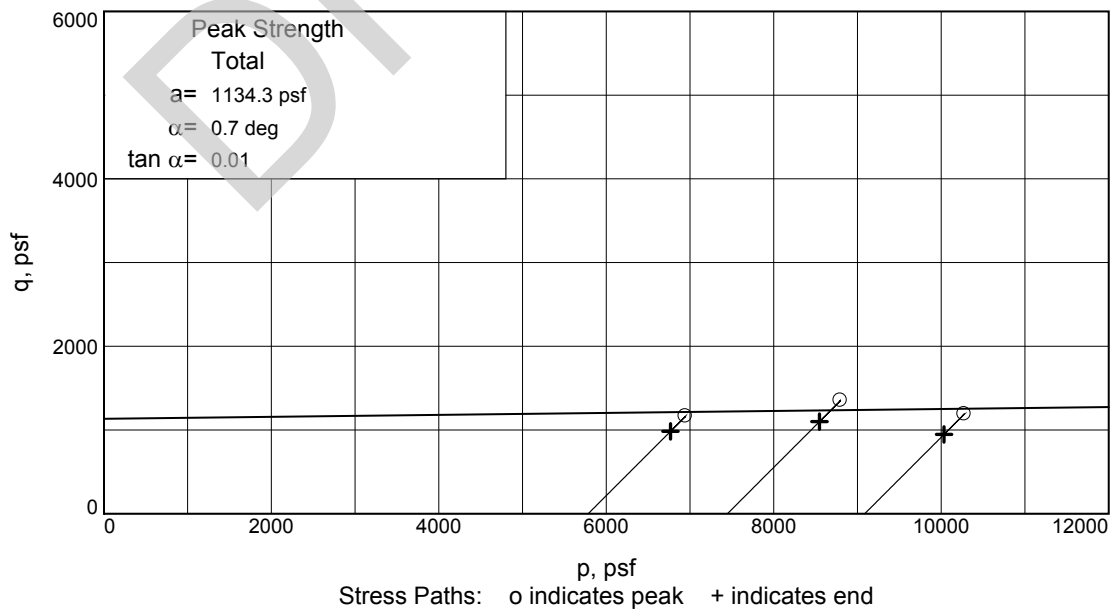
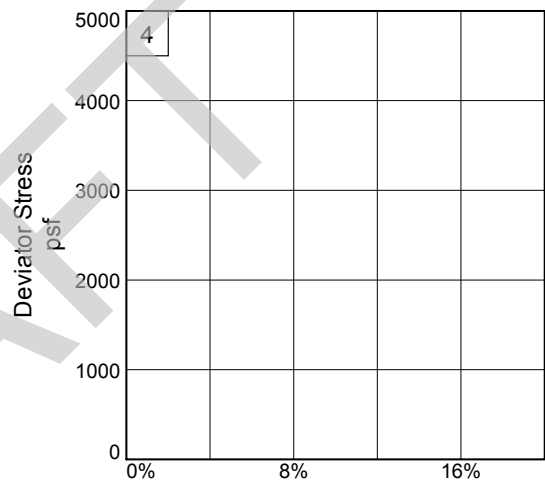
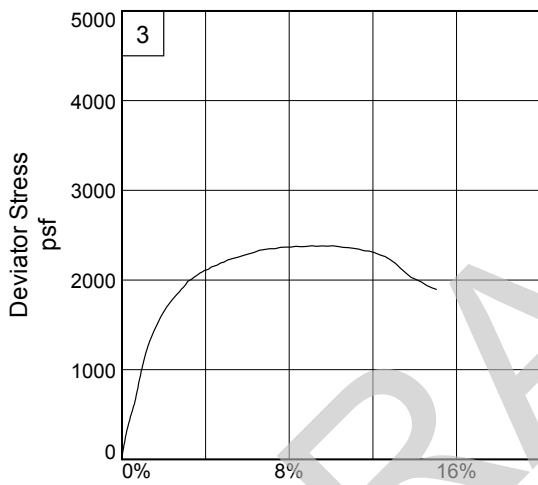
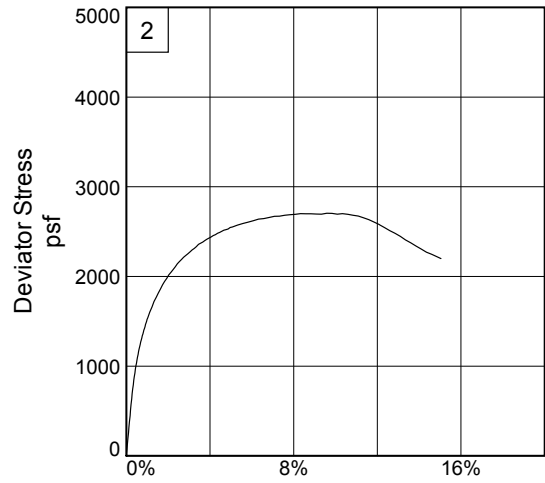
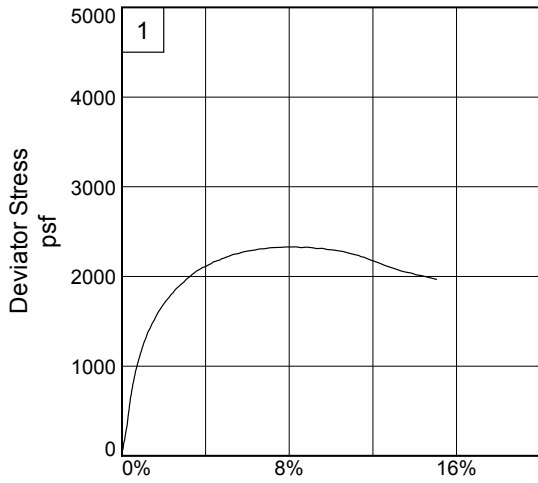
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 113-114

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
 Southern Earth Sciences, Inc.
 Baton Rouge, LA

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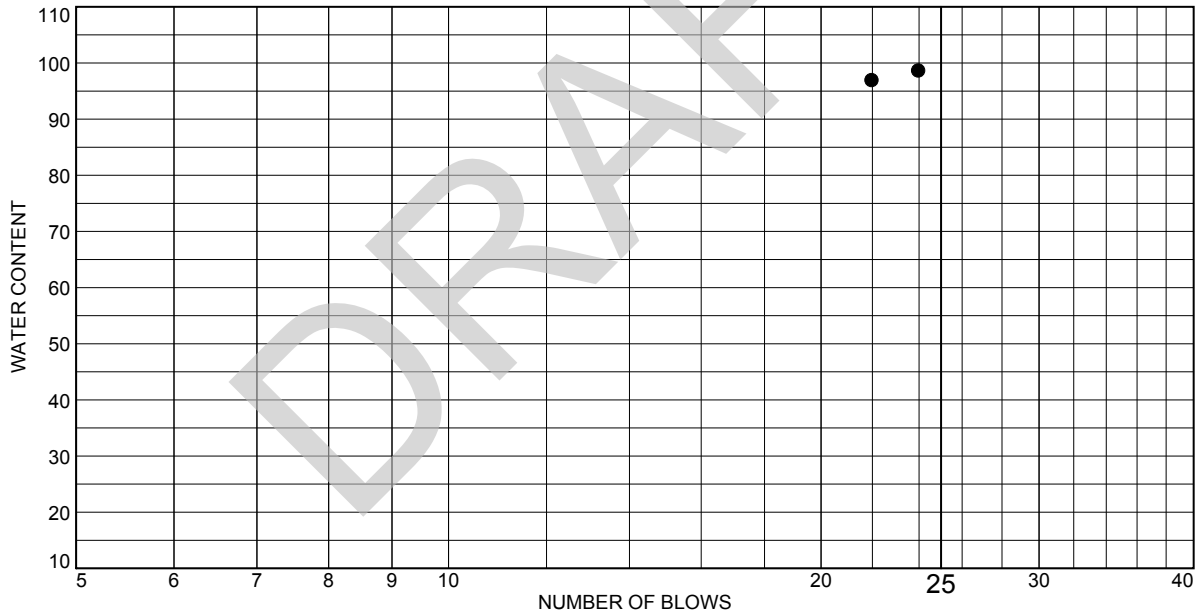
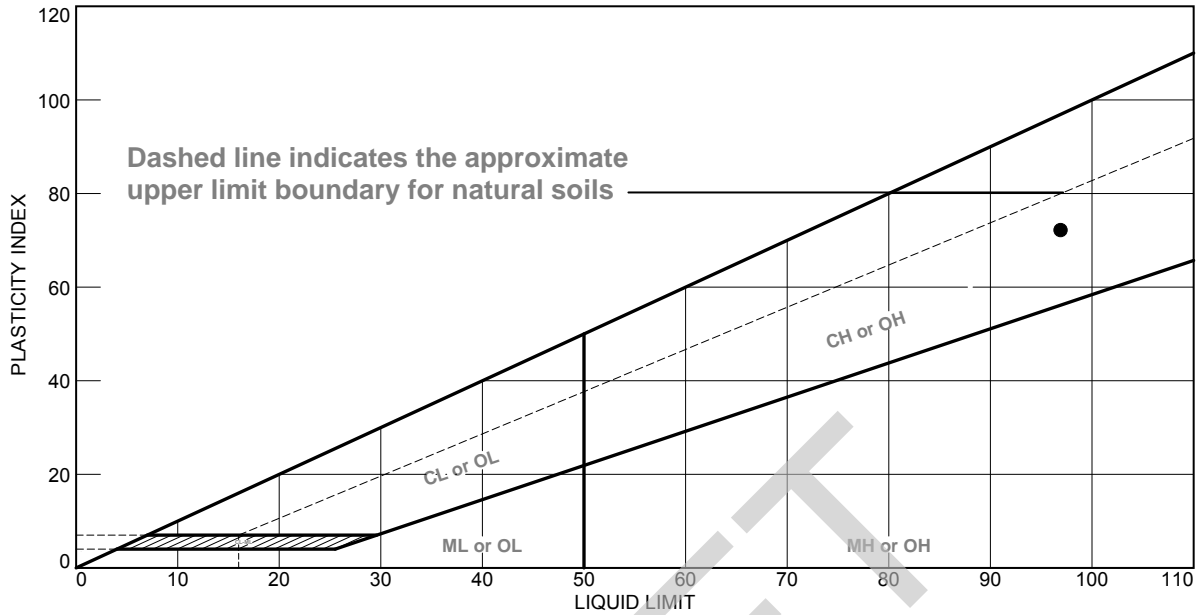
Client: GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 113-114

Figure _____

Southern Earth Sciences, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT

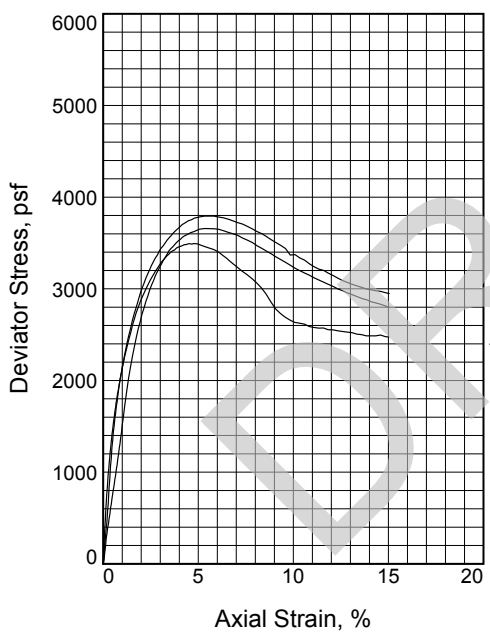
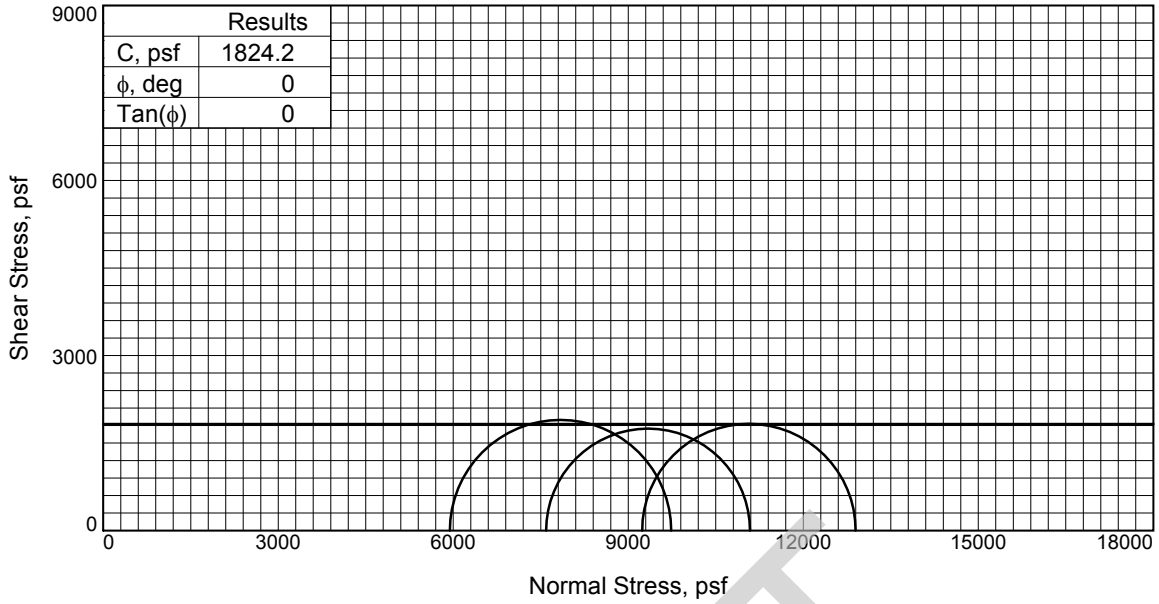


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
St, Gr Fat CLAY with SIS and tr shells	97	25	72			(CH4)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 116.3-117
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	56.1	56.1	56.1
	Dry Density, pcf	67.0	66.7	66.7
	Saturation, %	97.7	97.1	97.0
	Void Ratio	1.6074	1.6189	1.6195
	Diameter, in.	1.414	1.414	1.414
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	57.4	57.8	57.8
	Dry Density, pcf	67.0	66.7	66.7
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.6074	1.6189	1.6195
Strain rate, in./min.	Diameter, in.	1.414	1.414	1.414
	Height, in.	2.803	2.803	2.803
	Back Pressure, psi	0.000	0.000	0.000
Cell Pressure, psi	41.260	52.730	64.160	
Fail. Stress, psf	Strain, %	3793.8	3493.5	3658.1
	Strain, %	5.6	4.8	5.3
Ult. Stress, psf	Strain, %			
	Strain, %			
σ_1 Failure, psf	9735.2	11086.6	12897.1	
σ_3 Failure, psf	5941.4	7593.1	9239.0	

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: St, Gr Fat CLAY with SIS and tr shells

LL= 97 PL= 25 PI= 72

Assumed Specific Gravity= 2.80

Remarks: Type Failure:
Multi Shear on sample 1
45 degree Shear on sample 2
45 degree Shear and bulge on sample 3

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

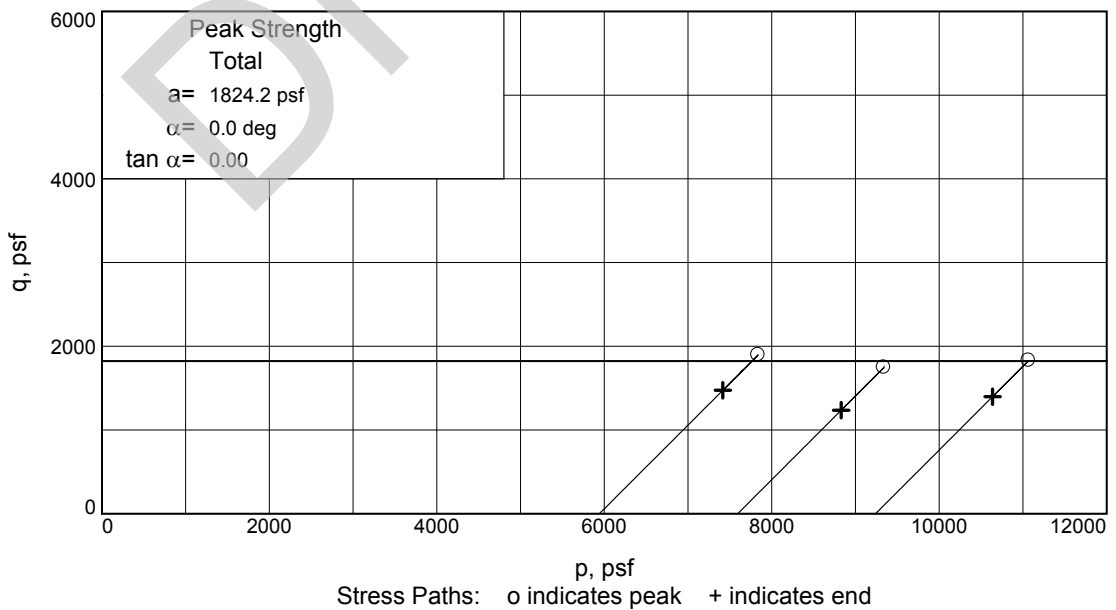
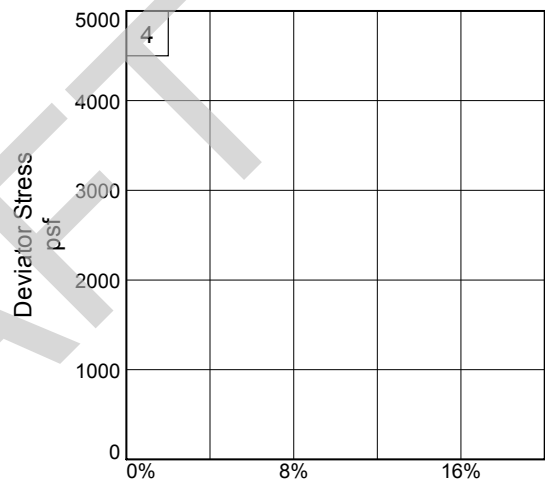
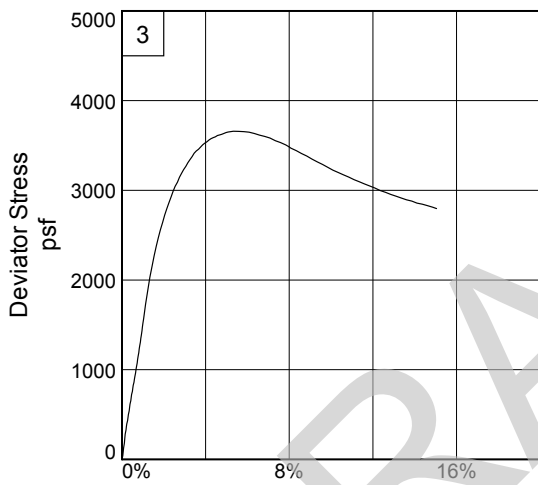
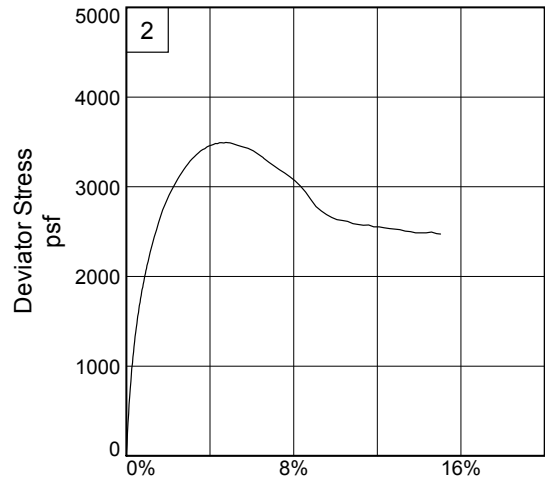
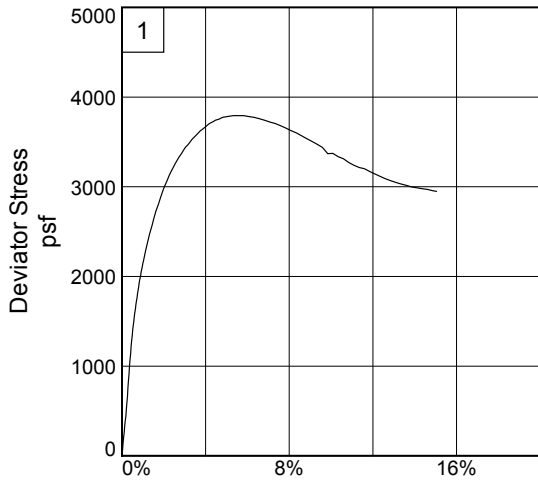
Source of Sample: NL-6A **Depth:** 116.3-117

Proj. No.: B13-018 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Southern Earth Sciences, Inc.
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Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-6A

Depth: 116.3-117

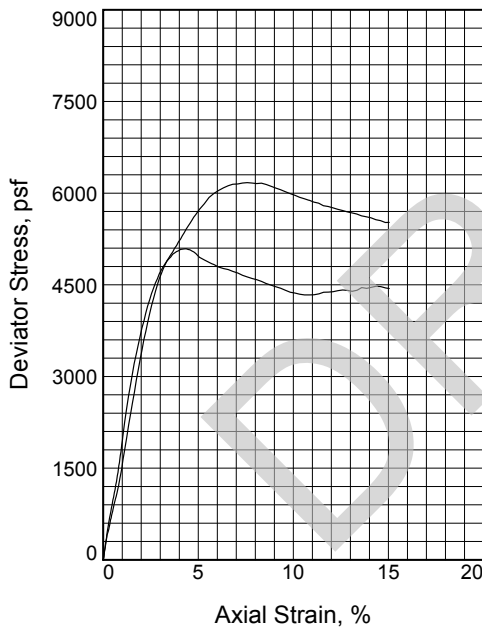
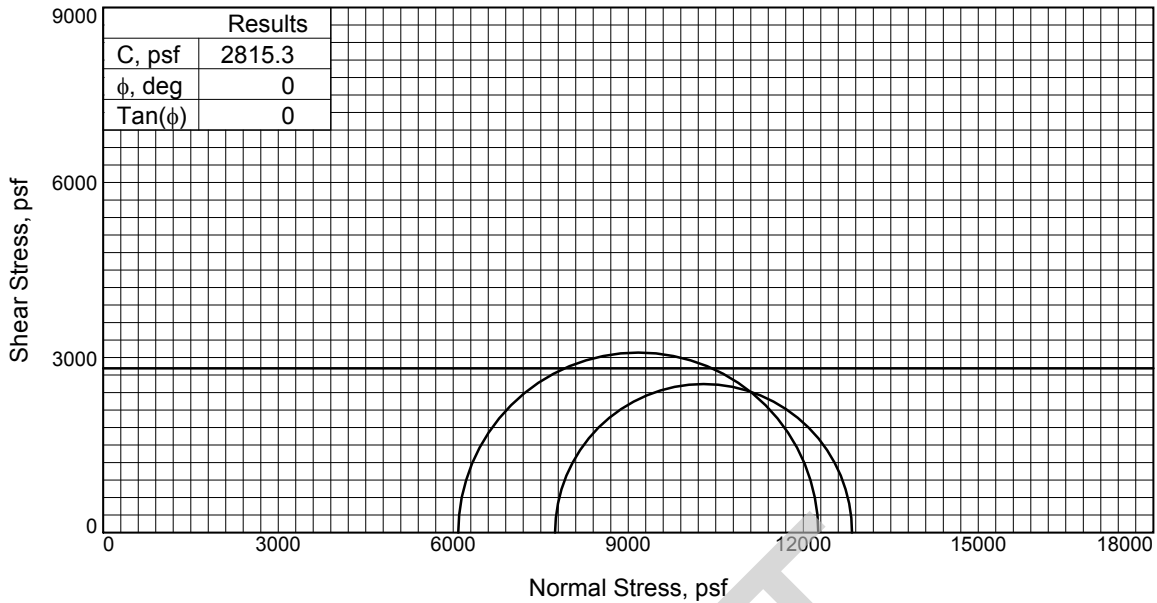
Project No.: B13-018

Figure _____

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Confidential Information: Privileged & Confidential Work Product



	1	2	
Sample No.	1	2	
Initial	Water Content, %	30.6	30.0
	Dry Density, pcf	93.5	93.0
	Saturation, %	100.6	97.5
	Void Ratio	0.8365	0.8466
	Diameter, in.	1.426	1.421
At Test	Height, in.	2.391	2.803
	Water Content, %	30.4	30.8
	Dry Density, pcf	93.5	93.0
	Saturation, %	100.0	100.0
	Void Ratio	0.8365	0.8466
Diameter, in.	1.426	1.421	
	Height, in.	2.391	2.803
Strain rate, in./min.	1.000	1.000	
Back Pressure, psi	0.000	0.000	
Cell Pressure, psi	42.270	53.790	
Fail. Stress, psf	6170.9	5090.3	
Strain, %	7.6	4.4	
Ult. Stress, psf			
Strain, %			
σ_1 Failure, psf	12257.8	12836.1	
σ_3 Failure, psf	6086.9	7745.8	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: vSt, Gr Lean CLAY with SIS and layers (CL6)

Assumed Specific Gravity= 2.75

Remarks: Type Failure:

Multi Shear on sample 1

60 degree Shear on sample 2

Brittle, less than 2:1 ratio sample 1, Brittle

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

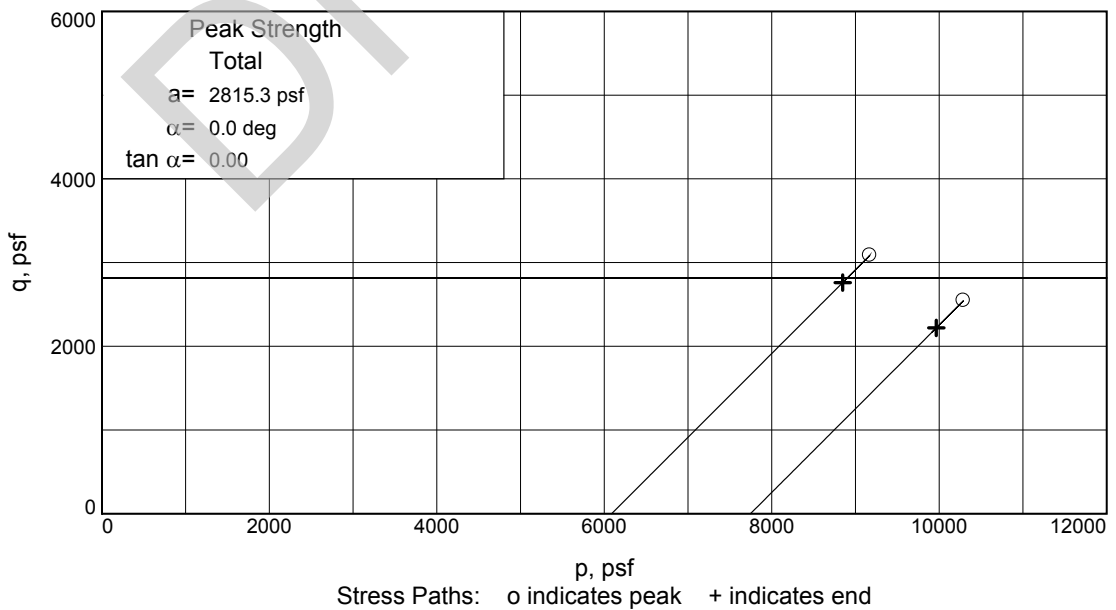
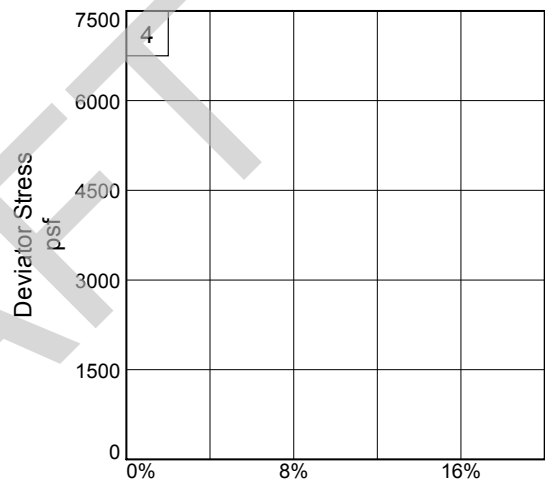
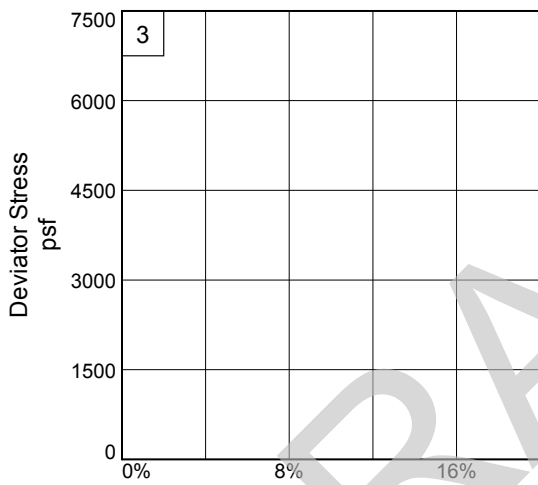
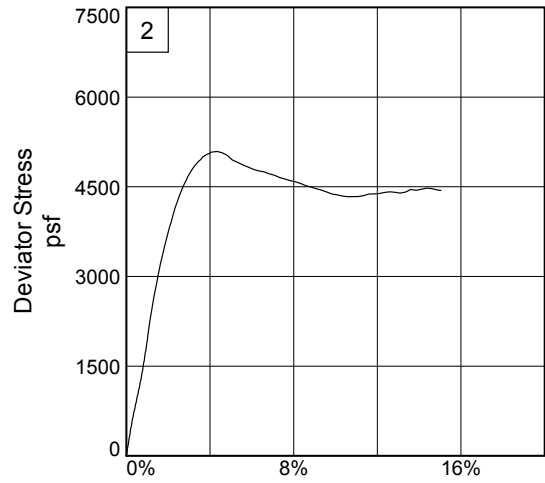
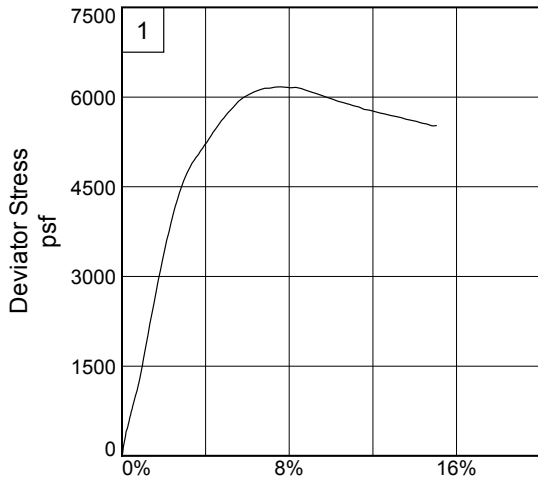
Source of Sample: NL-6A **Depth:** 119-120

Proj. No.: B13-018

Date Sampled:

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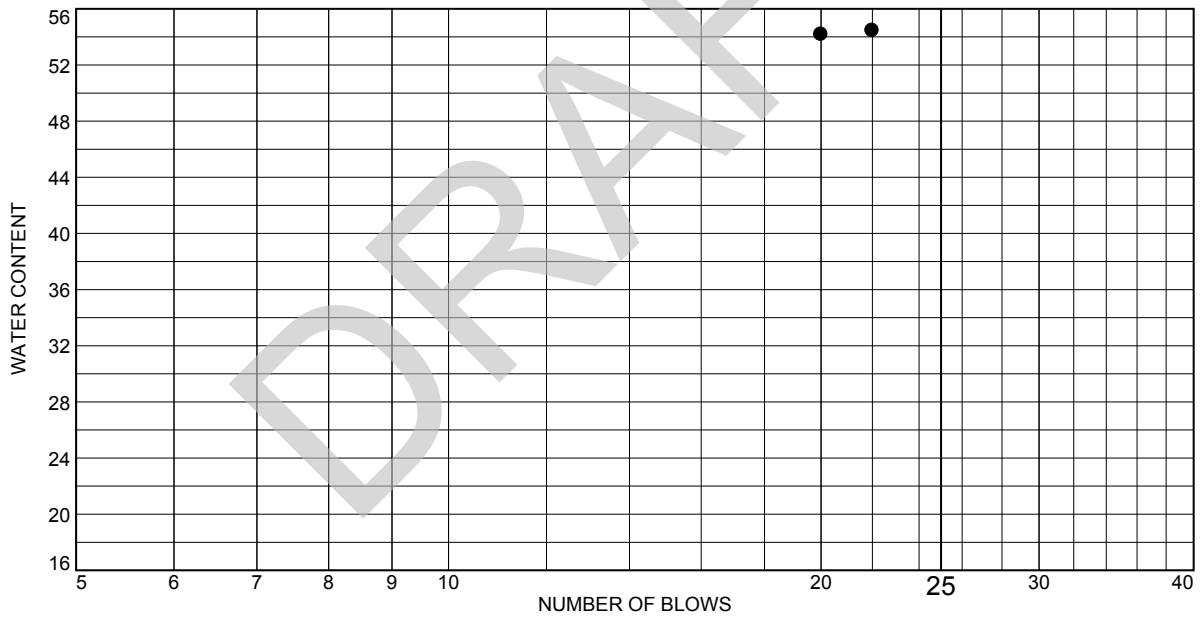
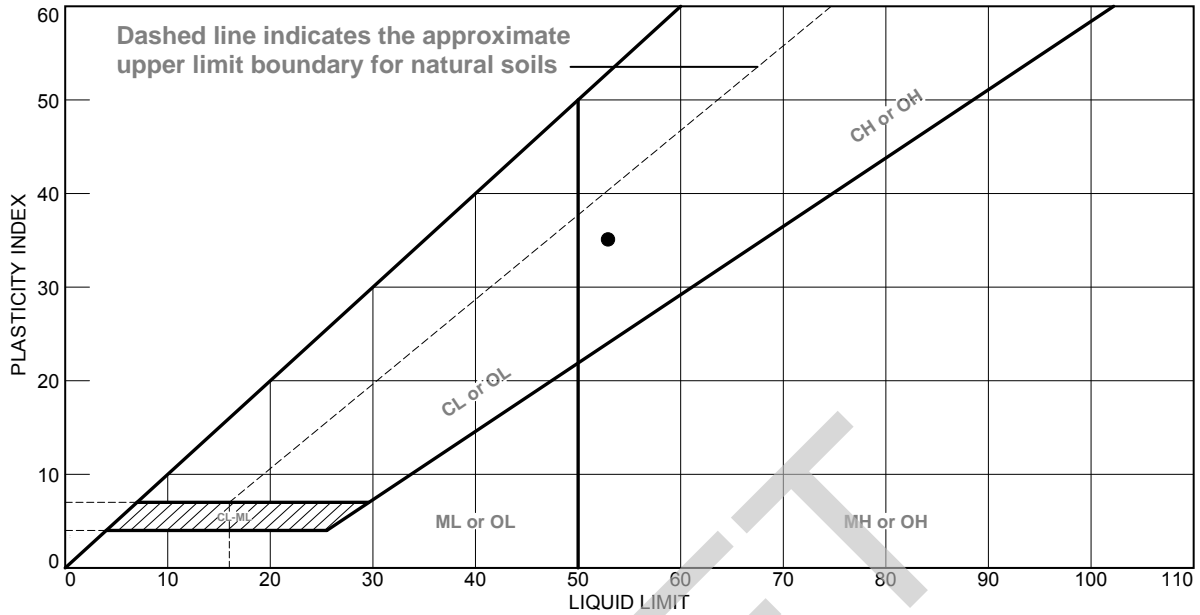
Client: GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 119-120

Figure _____

Southern Earth Sciences, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT

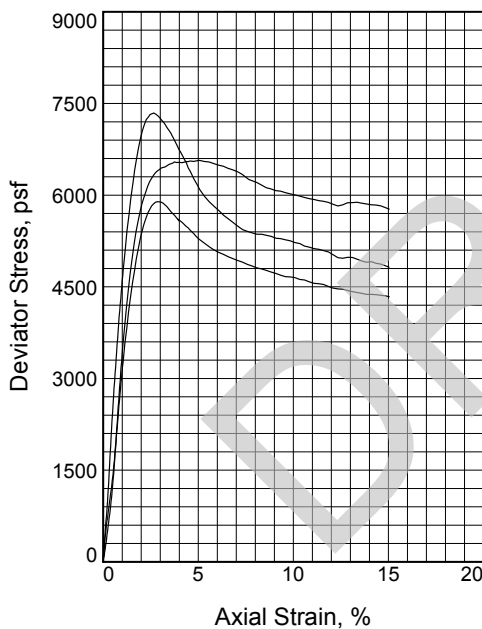
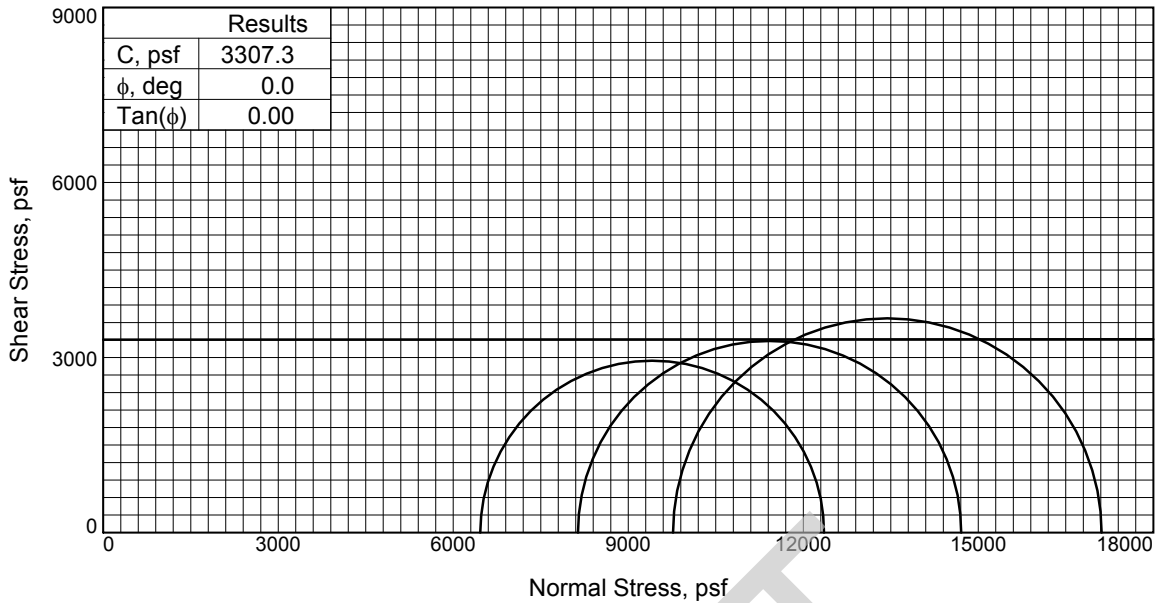


MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Alternating layers and lenses of vSt to St, gnGr and IGr Fat to Lean CLAY with silty clay and S Silt	53	18	35			(CH2)

Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 121-122
Southern Earth Sciences, Inc.
Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	36.2	36.1	36.3
	Dry Density, pcf	83.8	86.3	87.2
	Saturation, %	94.9	100.3	103.2
	Void Ratio	1.0491	0.9890	0.9680
	Diameter, in.	1.389	1.399	1.403
	Height, in.	2.803	2.803	2.803
At Test	Water Content, %	38.1	36.0	35.2
	Dry Density, pcf	83.8	86.3	87.2
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.0491	0.9890	0.9680
	Diameter, in.	1.389	1.399	1.403
	Height, in.	2.803	2.803	2.803
Strain rate, in./min.	1.000	1.001	1.000	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	44.890	56.520	67.840	
Fail. Stress, psf	5891.8	6569.2	7344.1	
Strain, %	2.9	5.1	2.7	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	12356.0	14708.1	17113.1	
σ_3 Failure, psf	6464.2	8138.9	9769.0	

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: vSt, Brittle, gnGr and IGr Fat
CLAY with jointed S SIS (CH3)

Assumed Specific Gravity= 2.75

Remarks: Type Failure:

- Multi Shear on sample 1 and 2
- Jointed and Slicken Sides on sample 3
- Brittle & Jointed samples, Erratic Perimeter

Figure _____

Client: GeoEngineers

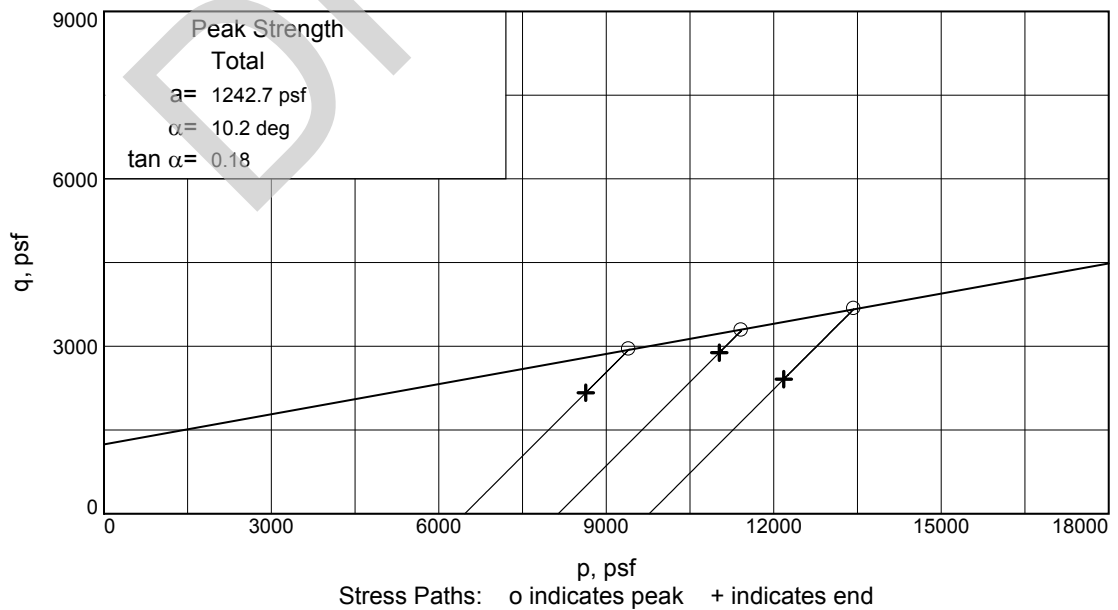
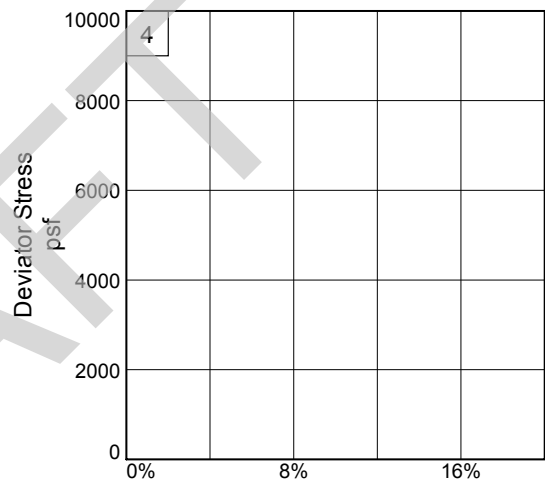
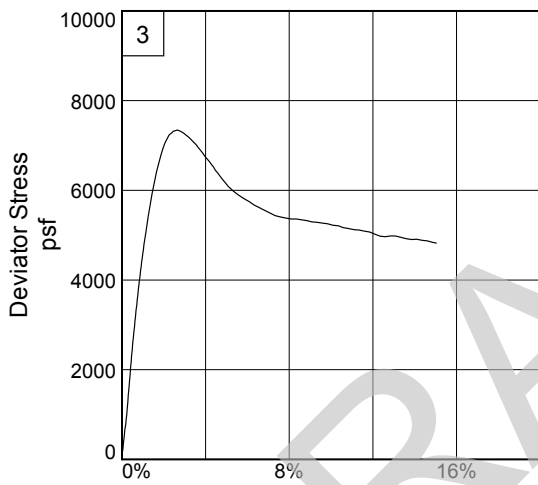
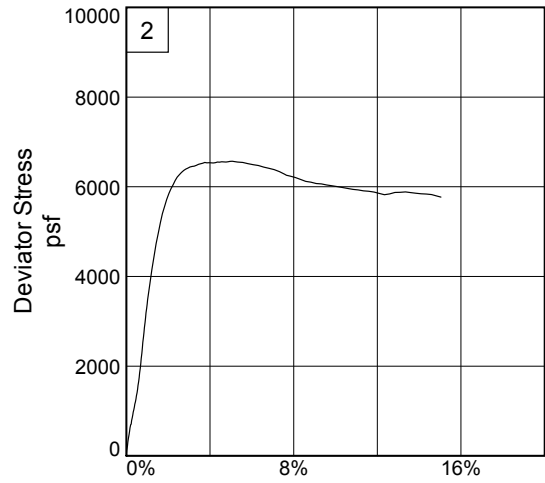
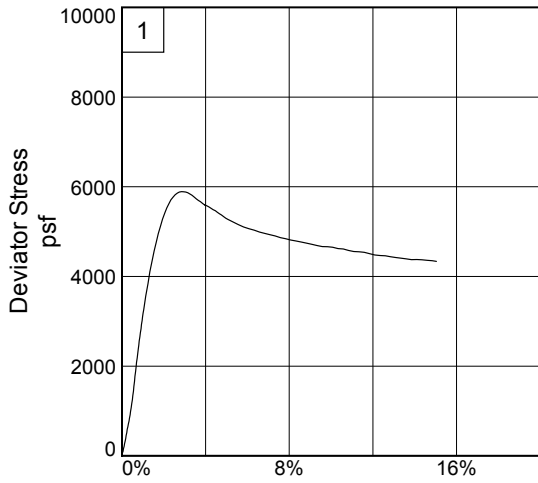
Project: Mid Barataria Diversion

Source of Sample: NL-6A **Depth:** 126-127

Proj. No.: B13-018 **Date Sampled:**

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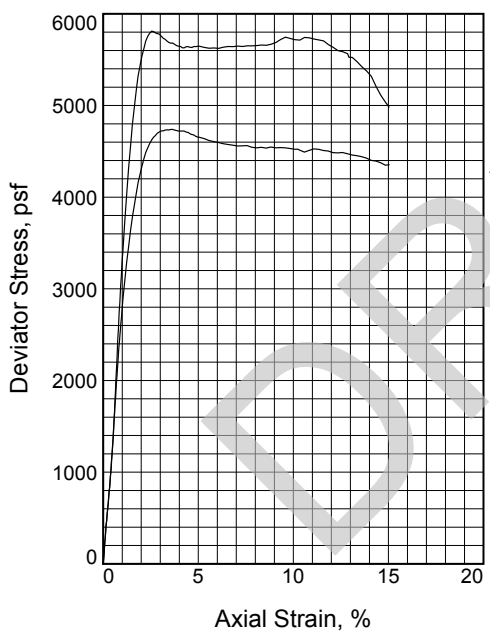
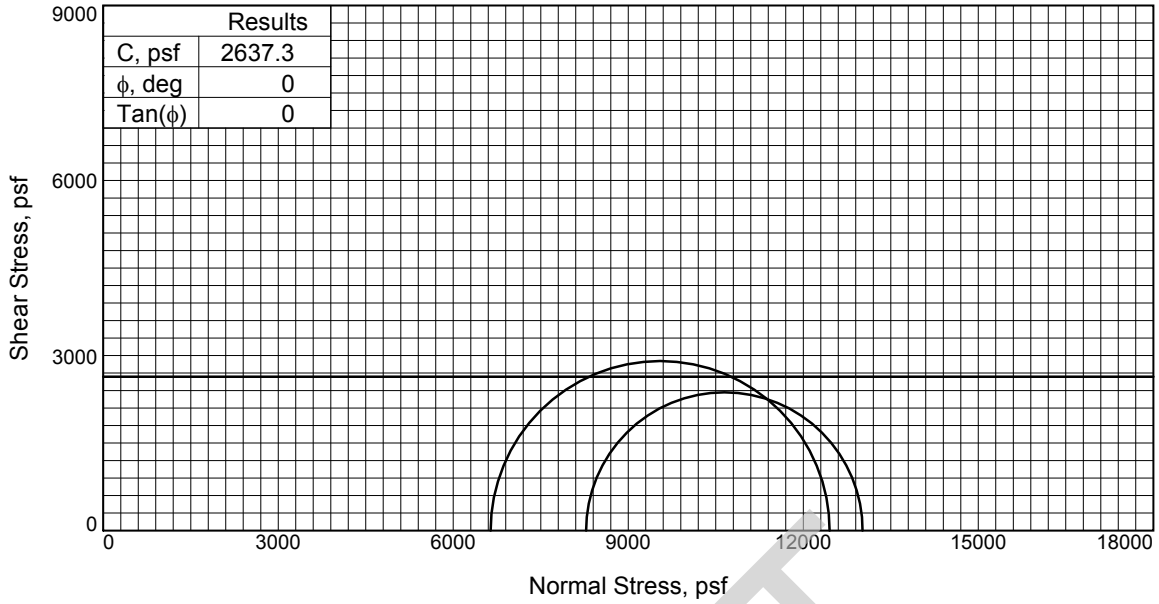


Client: GeoEngineers
Project: Mid Baratara Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 126-127

Figure _____

Southern Earth Sciences, Inc.



	1	2	
Sample No.	1	2	
Initial	Water Content, %	35.2	34.1
	Dry Density, pcf	87.3	87.1
	Saturation, %	100.0	96.7
	Void Ratio	0.9667	0.9705
	Diameter, in.	1.421	1.391
At Test	Height, in.	2.803	2.803
	Water Content, %	35.2	35.3
	Dry Density, pcf	87.3	87.1
	Saturation, %	100.0	100.0
	Void Ratio	0.9667	0.9705
Strain rate, in./min.	1.000	1.000	
	Back Pressure, psi	0.000	0.000
Cell Pressure, psi	46.120	57.490	
	Fail. Stress, psf	5810.6	4738.4
Strain, %	2.5	3.6	
	Ult. Stress, psf		
Strain, %			
	σ_1 Failure, psf	12451.9	13017.0
σ_3 Failure, psf	6641.3	8278.6	

Type of Test:
Unconsolidated Undrained

Sample Type: undisturbed

Description: vSt, Brittle, gnGr and IGr Fat CLAY with jointed SIS and layers (CH3)

Assumed Specific Gravity= 2.75

Remarks: Type Failure:
Multi Shear and Bulge on sample 1
60 degree Shear and Bulge on sample 2
Brittle and Jointed samples

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

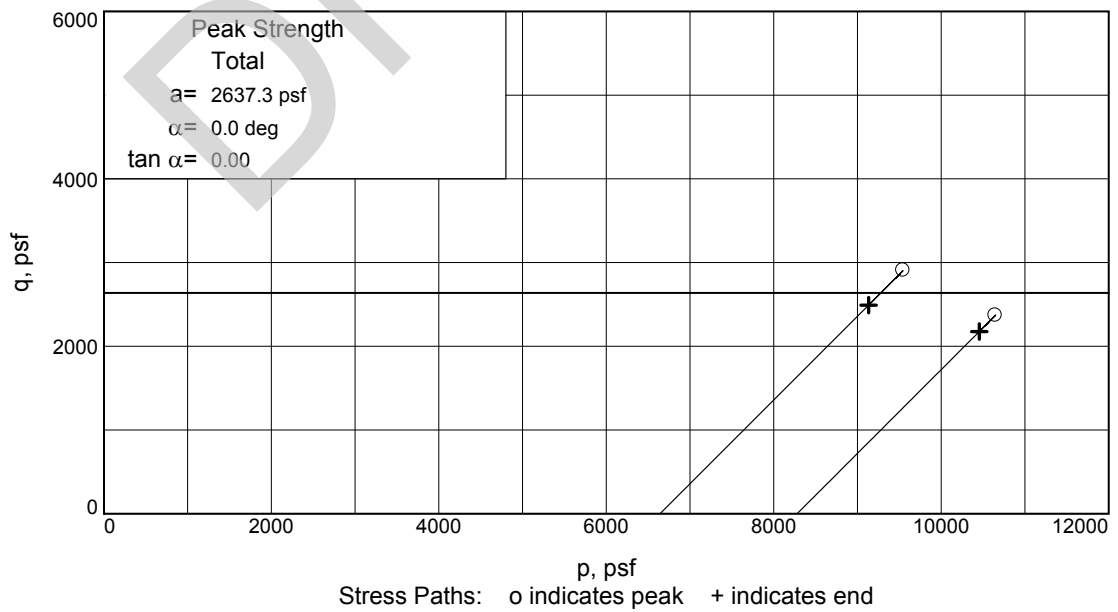
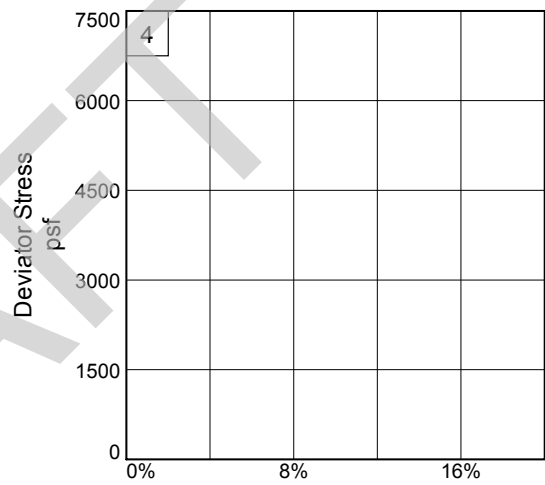
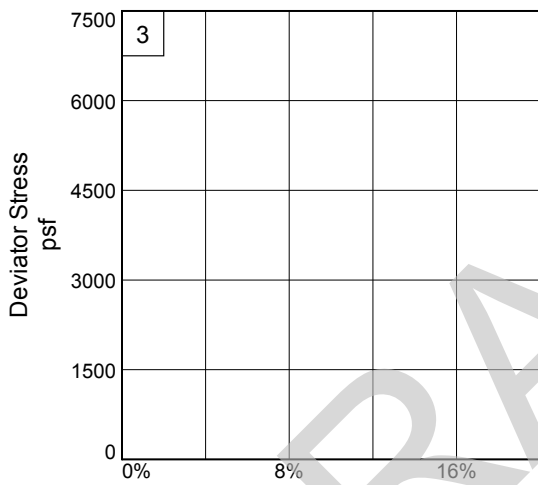
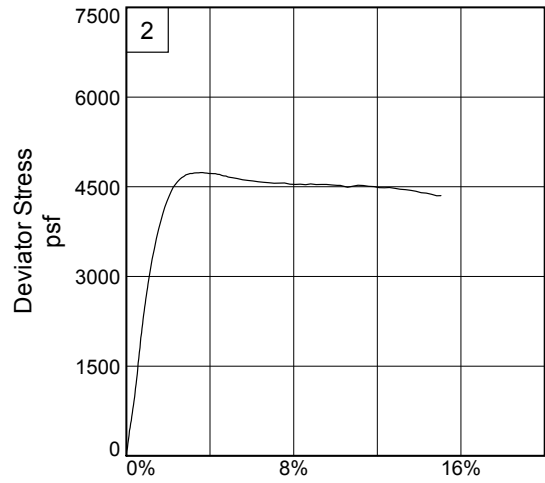
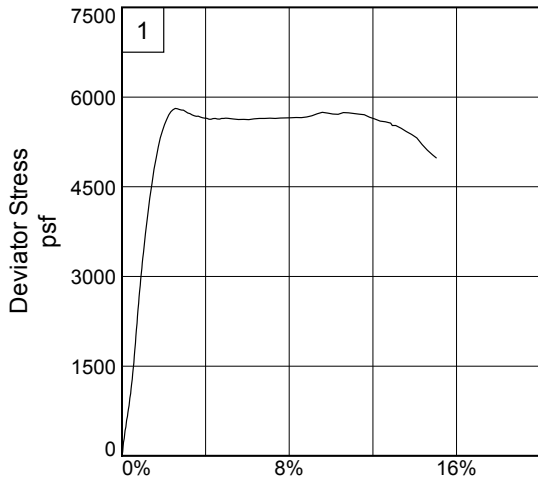
Source of Sample: NL-6A **Depth:** 129-130

Proj. No.: B13-018 **Date Sampled:**

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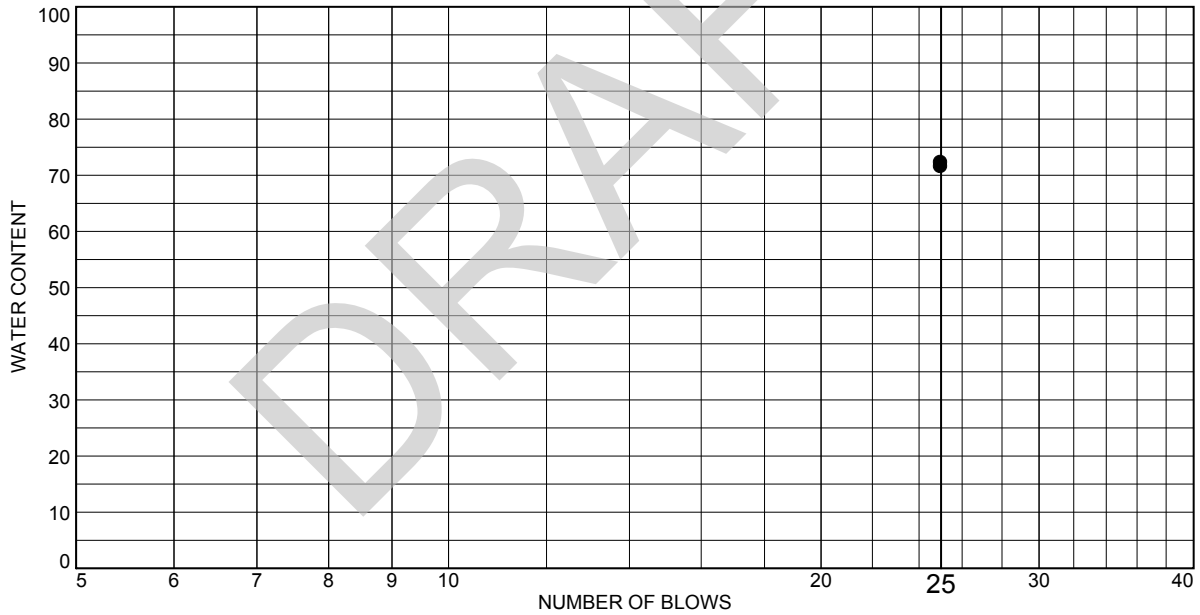
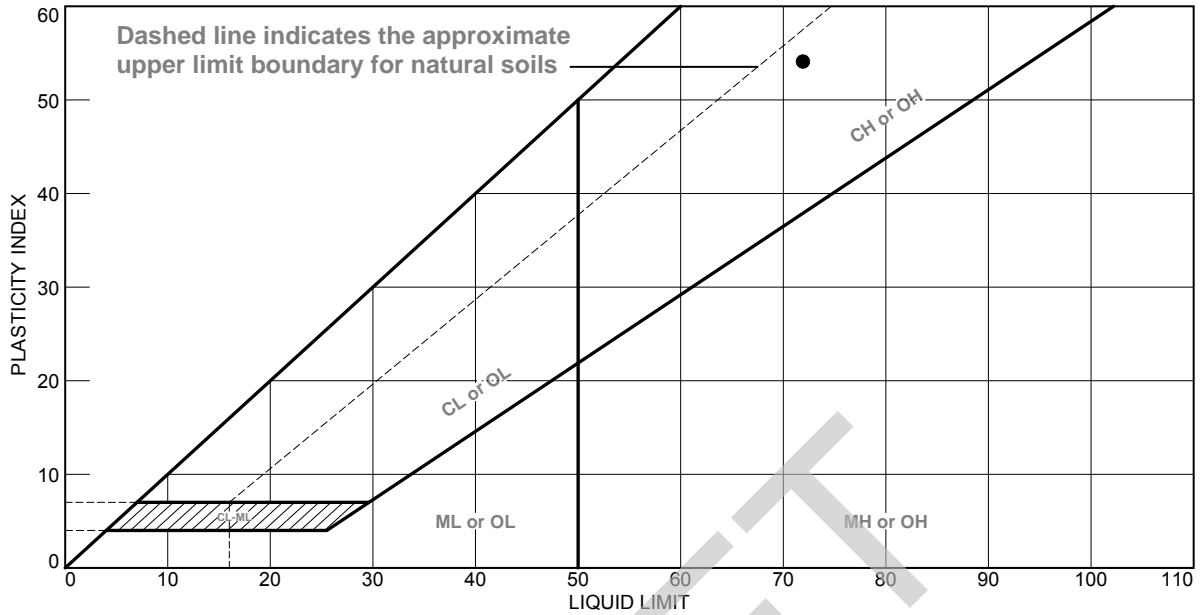
Client: GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 129-130

Figure _____

Southern Earth Sciences, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
Alternating layers of vSt, Brittle, gnGr and lGr Fat CLAY with jointed silty SS and pockets	72	18	54			(CH3)

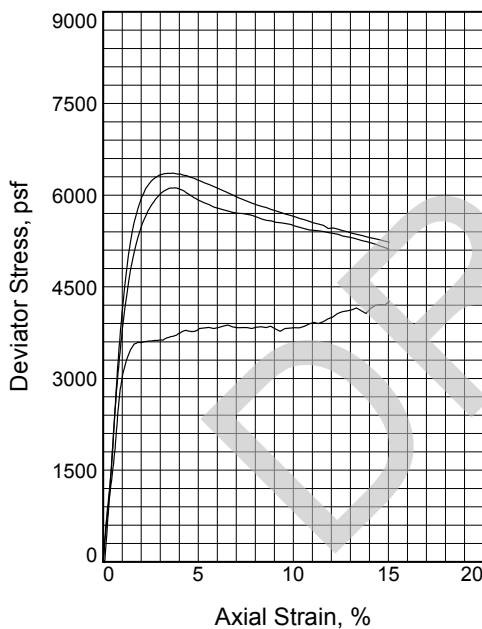
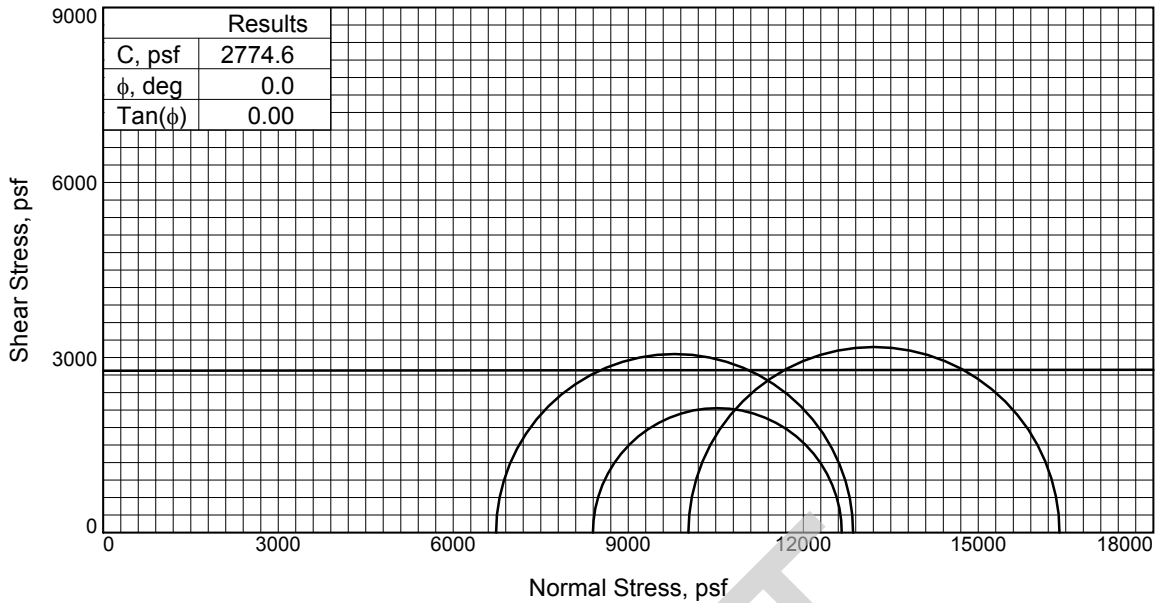
Project No. B13-018 **Client:** GeoEngineers
Project: Mid Barataria Diversion
Source of Sample: NL-6A **Depth:** 131-132

Southern Earth Sciences, Inc.

Baton Rouge, LA

Remarks:

Figure



Sample No.	1	2	3	
Initial	Water Content, %	35.9	36.0	35.5
	Dry Density, pcf	87.1	87.1	87.6
	Saturation, %	101.6	101.8	101.7
	Void Ratio	0.9714	0.9712	0.9591
	Diameter, in.	1.405	1.409	1.425
At Test	Height, in.	2.803	2.803	2.803
	Water Content, %	35.3	35.3	34.9
	Dry Density, pcf	87.1	87.1	87.6
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.9714	0.9712	0.9591
Diameter, in.	1.405	1.409	1.425	
Height, in.	2.803	2.803	2.803	
Strain rate, in./min.	1.000	0.999	0.999	
Back Pressure, psi	0.000	0.000	0.000	
Cell Pressure, psi	46.770	58.300	69.660	
Fail. Stress, psf	6119.4	4265.2	6361.2	
Strain, %	3.8	15.0	3.6	
Ult. Stress, psf				
Strain, %				
σ_1 Failure, psf	12854.3	12660.4	16392.2	
σ_3 Failure, psf	6734.9	8395.2	10031.0	

Type of Test:

Unconsolidated Undrained

Sample Type: Undrained

Description: Alternating layers of vSt, Brittle, gnGr and lGr Fat CLAY with jointed silty

LL= 72 PL= 18 PI= 54

Assumed Specific Gravity= 2.75

Remarks: Type Failure:

- 60 degree Shear on sample 1
- 45 degree Shear and Slicked Sides on sample 2

Figure _____

Client: GeoEngineers

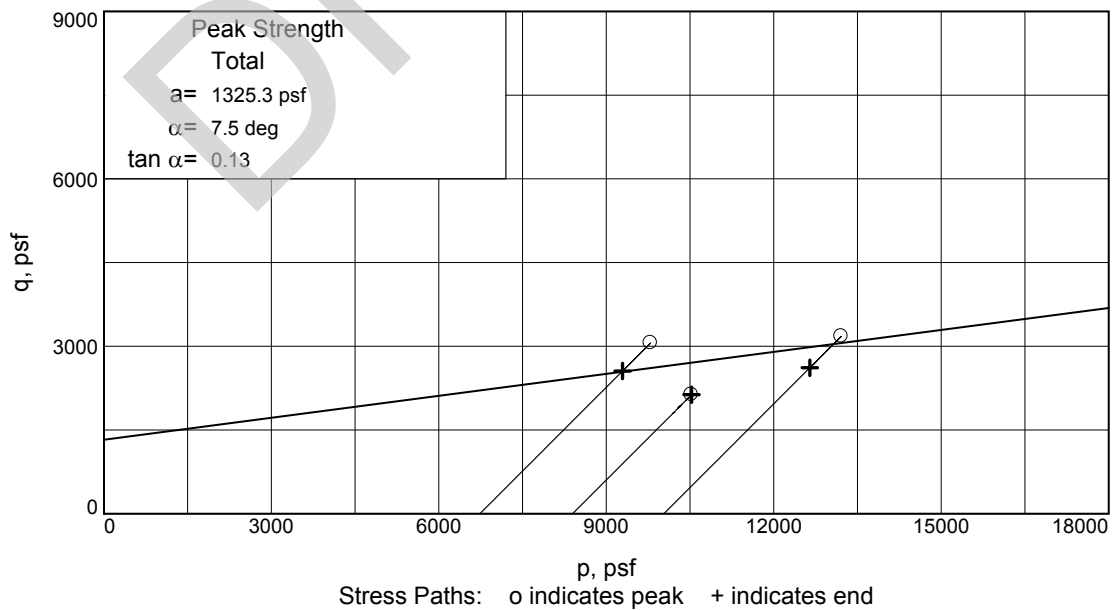
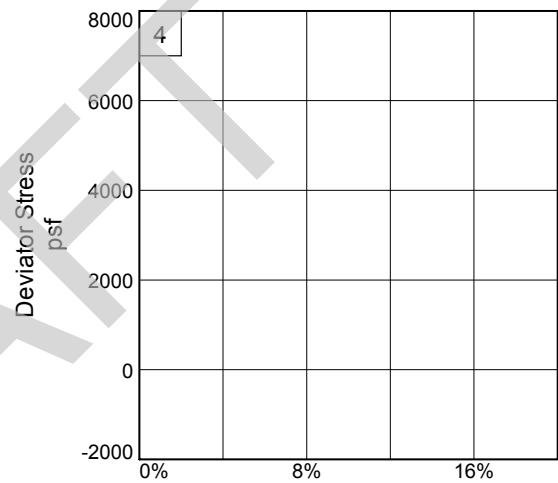
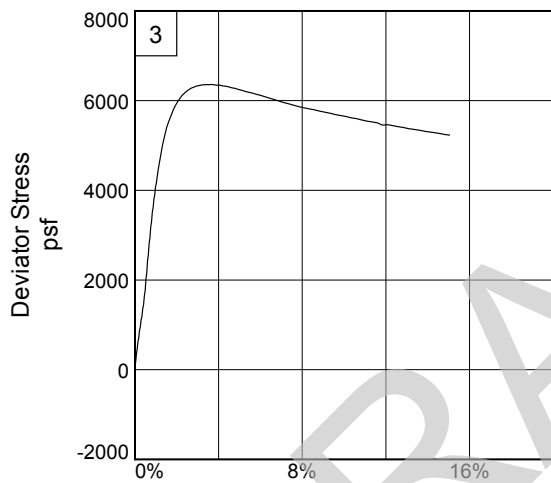
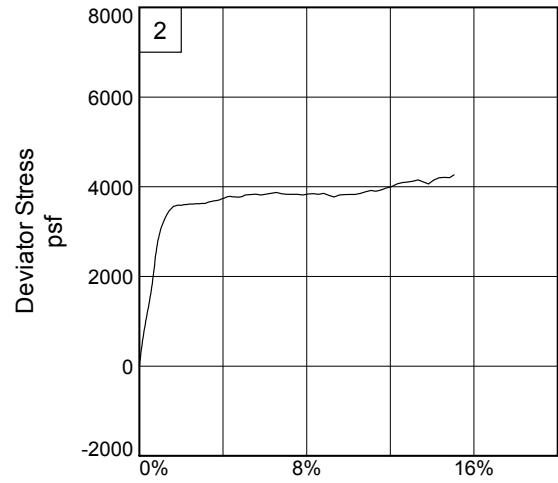
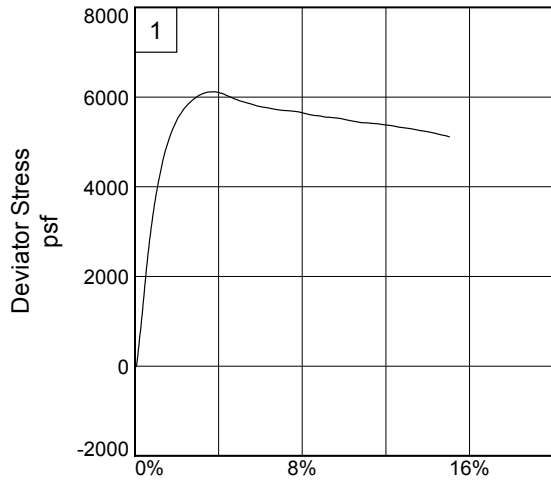
Project: Mid Baratara Diversion

Source of Sample: NL-6A **Depth:** 131-132

Proj. No.: B13-018 **Date Sampled:**

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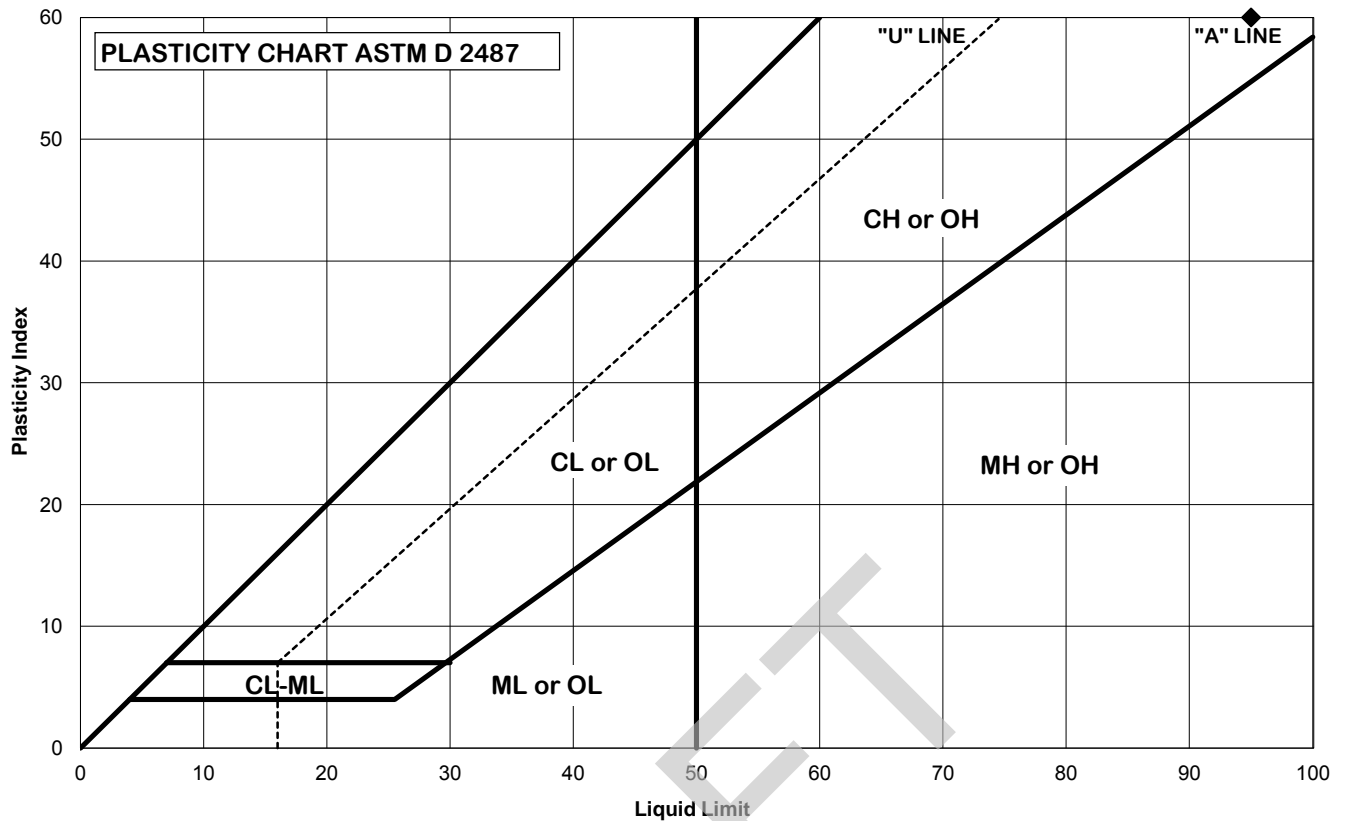
Client: GeoEngineers
Project: Mid Baratavia Diversion
Source of Sample: NL-6A
Project No.: B13-018

Depth: 131-132

Figure _____

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ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	NL-8A	Natural WC:	#DIV/0!
Depth, ft.	83 - 84	Preparation:	Air Dried
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff gray clay (CH3)		


Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	95
Plastic Limit =	35
Plasticity Index =	60

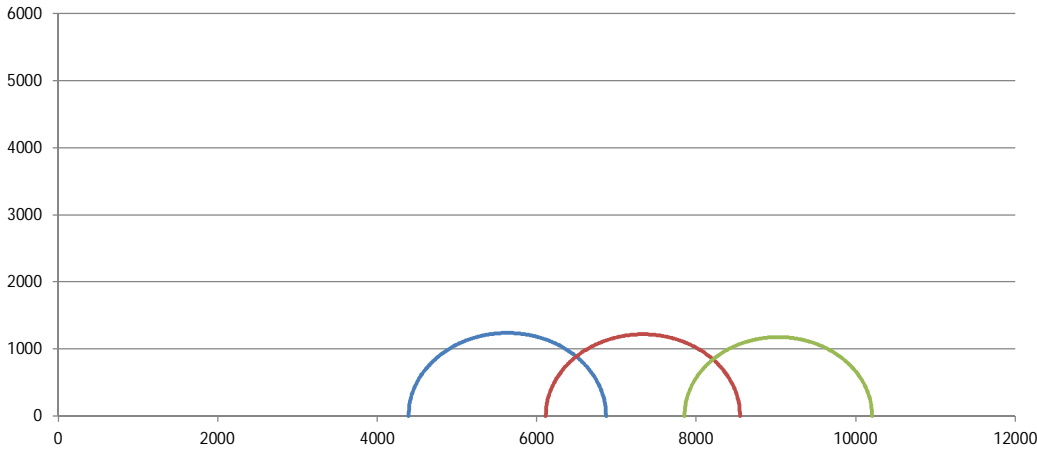
Date:	9/4/2013
Tested By:	BH
Checked By:	SC

NOTES:

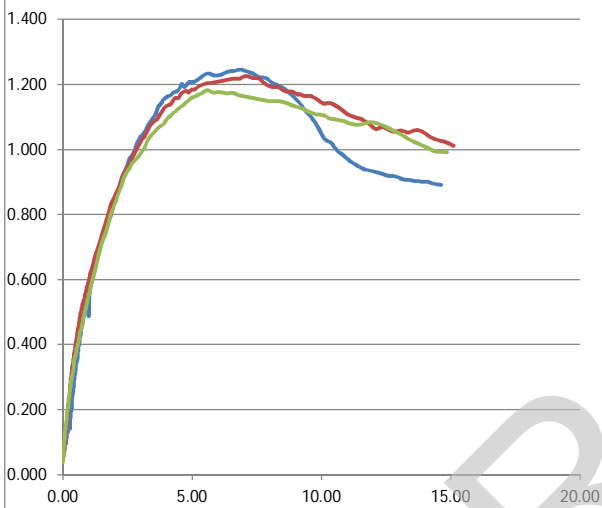
NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	1219
Sample 1 Failure	SLS 60°
Sample 2 Failure	SLS
Sample 3 Failure	SLS
Sample 4 Failure	#N/A



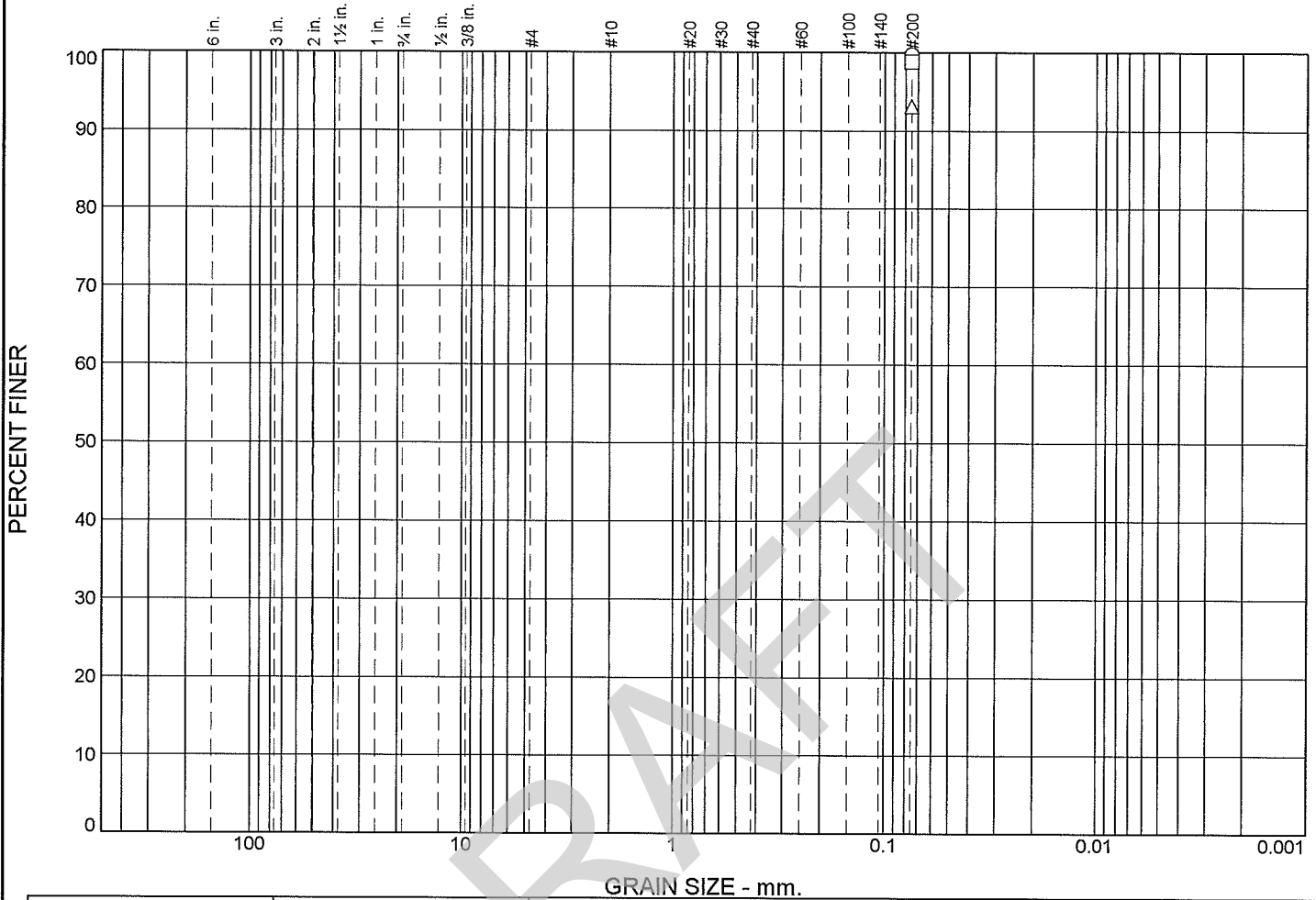
Specimen No.	1	2	3
INITIAL			
WATER CONTENT %	55.60	54.56	55.46
DRY DENSITY, PCF	68.36	68.48	67.40
WET DENSITY, PCF	106.37	105.84	104.78
SATURATION %	103.23	101.58	100.53
VOID RATIO	1.44	1.43	1.47
AT TEST			
WATER CONTENT %	53.25	54.06	53.80
DRY DENSITY, PCF	106.37	105.84	104.78
WET DENSITY, PCF	163.02	163.05	161.15
SATURATION %	101.46	101.20	99.30
VOID RATIO	1.40	1.43	1.45

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.04	3.02	3.05
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.39	1.40	1.39
				CELL PRESSURE, PSI	30.50	42.50	54.50
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1239.00	1219.00	1177.00
REMARKS	0			STRAIN, %	6.86	7.08	5.57
				ULTIMATE STRESS, %	0.01	0.01	0.01
				σ_1 FAILURE, PSF	6870.00	8550.80	10206.32
				σ_3 FAILURE, PSF	4392.00	6112.80	7852.32

SAMPLE DESCRIPTION	Stiff gray clay (CH3)						
BORING NO.	NL-8A	SAMPLE NO.	21	TEST TYPE	UU-USACE		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	6/12/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	83 - 84				
TESTED BY	JRK/GM/JRK/GM/JRK/GM		CHECKED BY	SC/SC/SC/			

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Particle Size Distribution Report



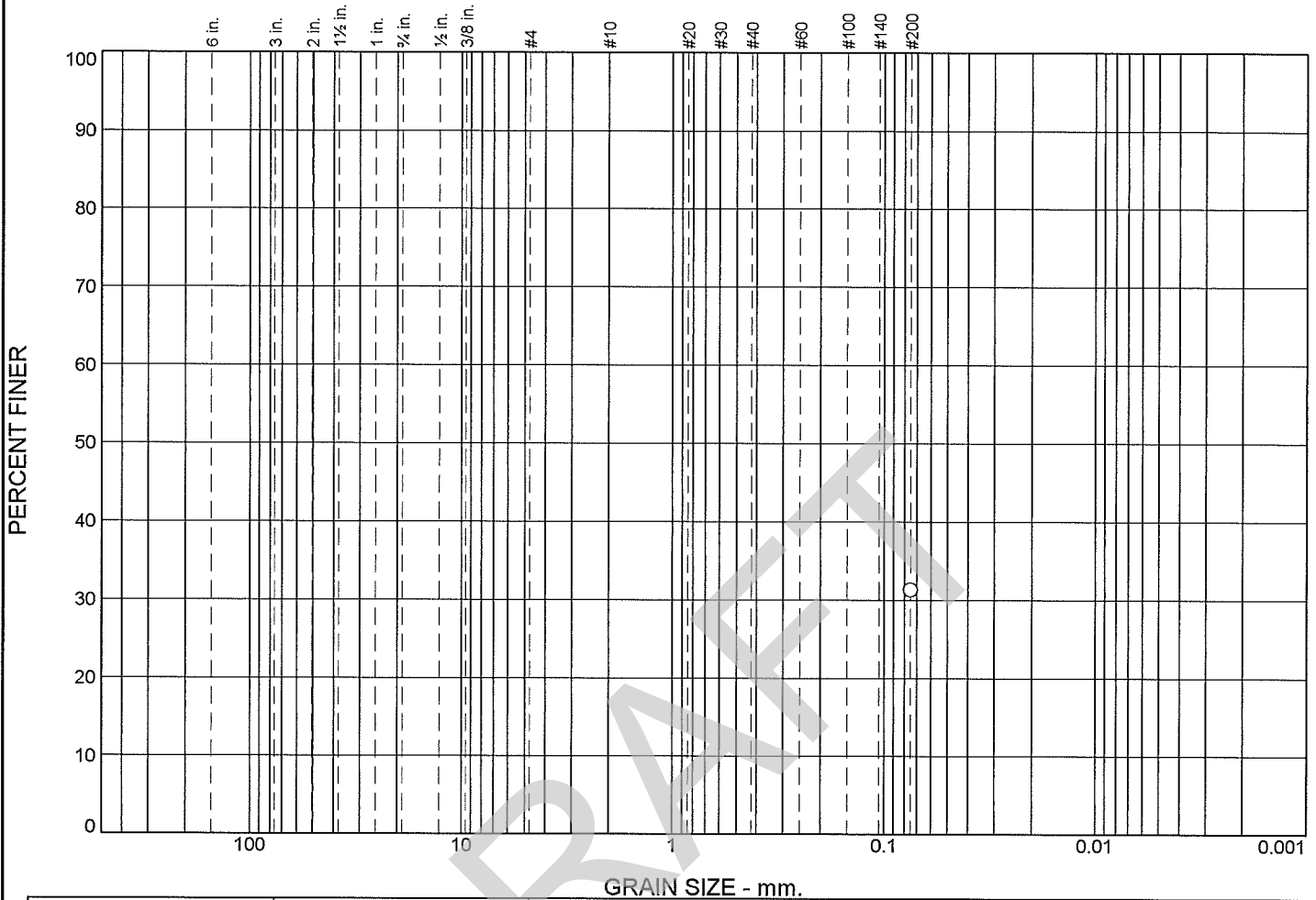
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		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
<input type="radio"/>								99.8	
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<input type="triangle-up"/>								93.1	
LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
<input type="radio"/>									
<input type="checkbox"/>									
<input type="triangle-up"/>									

Material Description	USCS	AASHTO
<input type="radio"/> GR CH2	CH2	
<input type="checkbox"/> GR CH2	CH2	
<input type="triangle-up"/> GR CL4	CL4	

Project No. 04.55124092 Client: GeoEngineers Project: Mid Barataria Diversion	Remarks: Δ "Confidential Information: Privileged & Confidential Work Product"
<input type="radio"/> Source of Sample: NL-8A Depth: 13.3 Sample Number: NA <input type="checkbox"/> Source of Sample: NL-8A Depth: 24.5 Sample Number: NA <input type="triangle-up"/> Source of Sample: NL-8A Depth: 32.8 Sample Number: NA	
Fugro Consultants, Inc. Baton Rouge, LA	

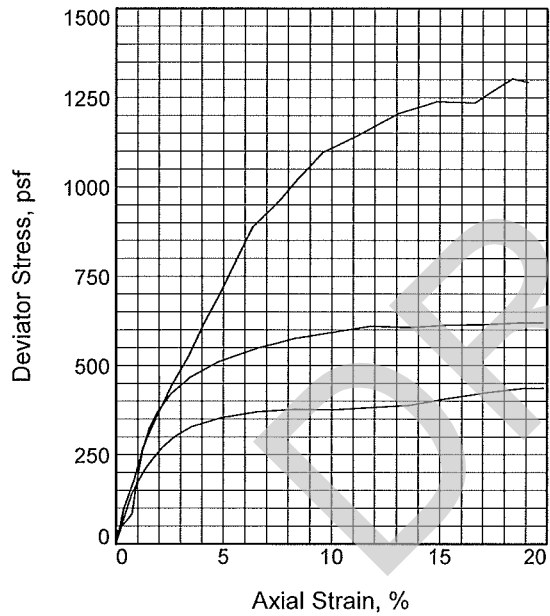
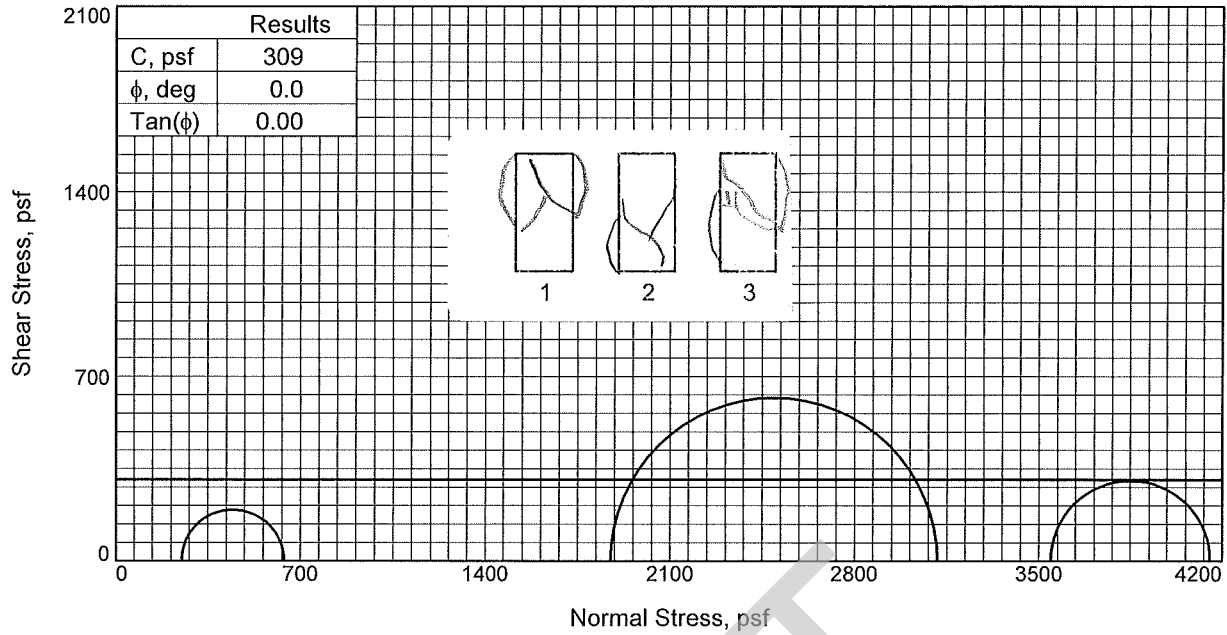
Figure

Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines		
			Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
○								31.3		
⊗	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○										
Material Description								USCS	AASHTO	
○ GR SM								SM		

<p>Project No. 04.55124092 Client: GeoEngineers</p> <p>Project: Mid Barataria Diversion</p> <p>○ Source of Sample: NL-8A Depth: 115 Sample Number: NA</p>	<p>Remarks:</p> <p>○ "Confidential Information: Privileged & Confidential Work Product"</p>
<p>Fugro Consultants, Inc.</p> <p>Baton Rouge, LA</p>	
<p>Figure</p>	



Sample No.	1	2	3
Initial			
Water Content, %	42.7	30.8	39.2
Dry Density, pcf	76.1	90.1	81.3
Saturation, %	95.4	96.5	99.3
Void Ratio	1.1991	0.8559	1.0570
Diameter, in.	1.43	1.41	1.42
Height, in.	3.03	3.14	3.15
At Test			
Water Content, %	42.7	30.8	39.2
Dry Density, pcf	76.1	90.1	81.3
Saturation, %	95.4	96.5	99.3
Void Ratio	1.1991	0.8559	1.0570
Diameter, in.	1.43	1.41	1.42
Height, in.	3.03	3.14	3.15
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	1.74	13.02	24.61
Fail. Stress, psf	389	1239	611
Strain, %	13.6	14.9	11.8
Ult. Stress, psf	389	1239	607
Strain, %	13.6	14.9	13.6
σ_1 Failure, psf	639	3114	4155
σ_3 Failure, psf	251	1875	3544

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO BR & GR CH2 W/ ARS SP

LL= 51 PL= 21 PI= 30

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A **Depth:** 5.3

Sample Number: NA

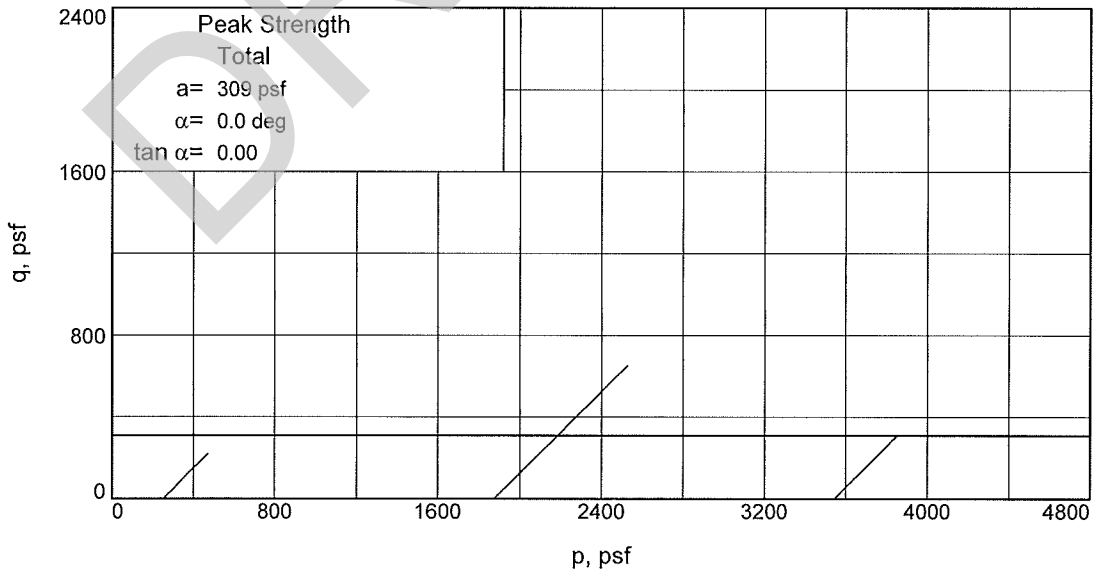
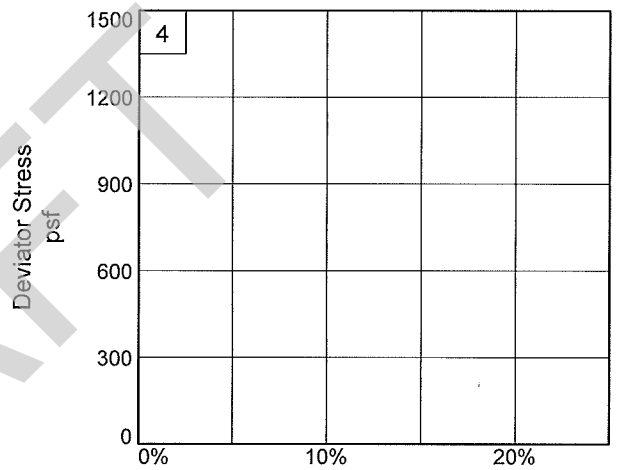
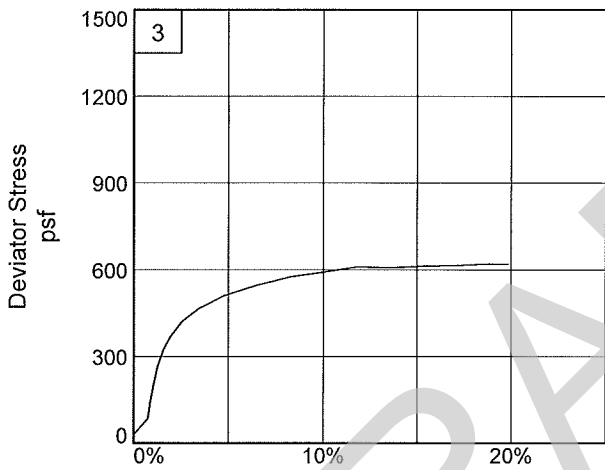
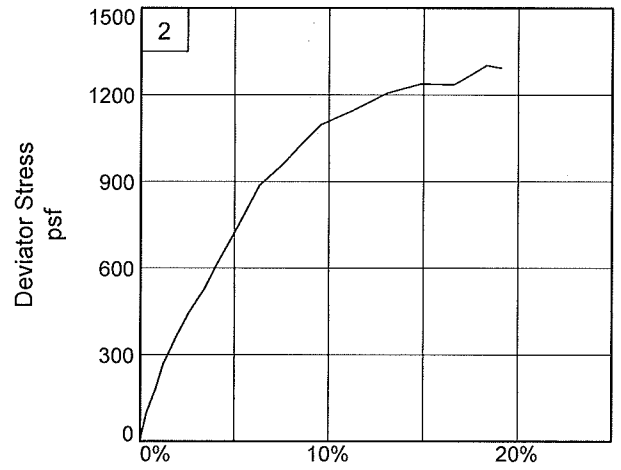
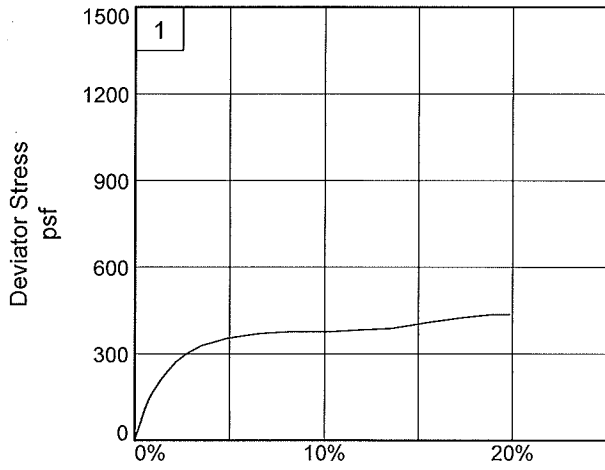
Proj. No.: 04.55124092

Date Sampled: 6/27/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 5.3

Sample Number: NA

Project No.: 04.55124092

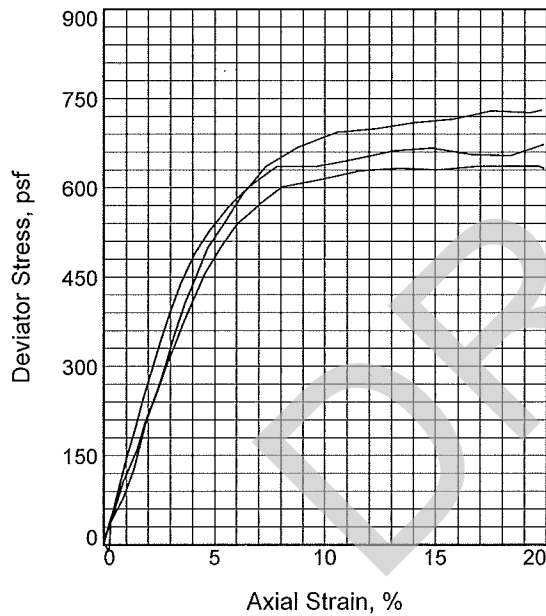
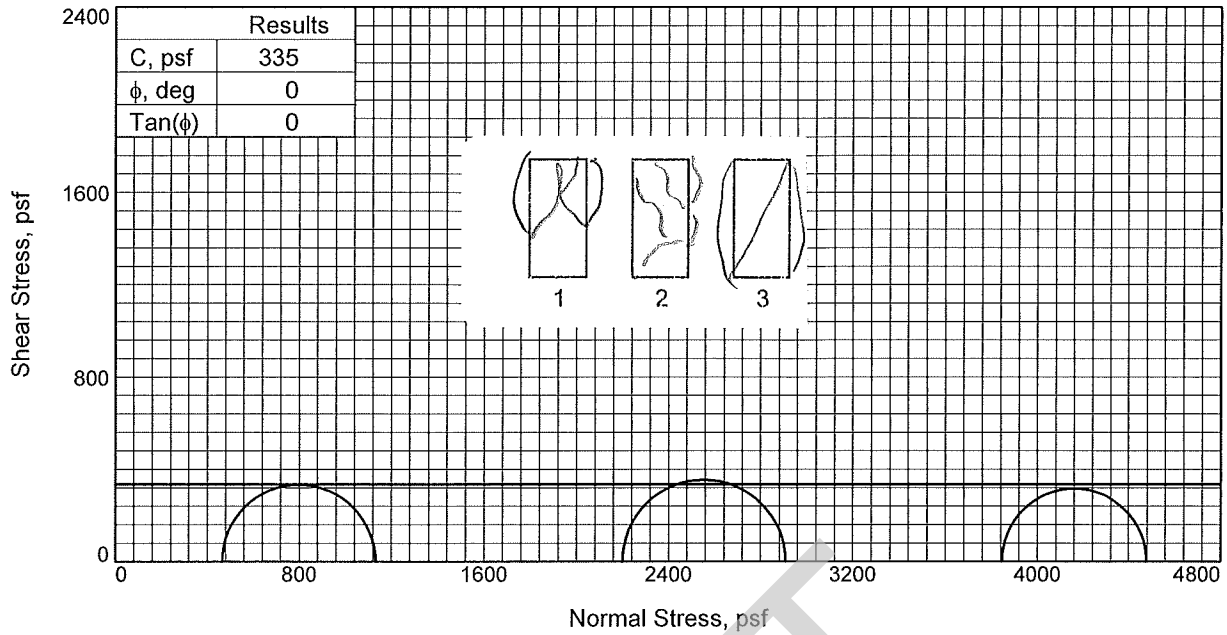
Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	39.5	38.6	43.8
	Dry Density, pcf	82.4	83.8	78.2
	Saturation, %	102.8	103.9	102.9
	Void Ratio	1.0299	0.9958	1.1398
	Diameter, in.	1.41	1.43	1.41
	Height, in.	3.03	2.92	3.10
At Test	Water Content, %	39.5	38.6	43.8
	Dry Density, pcf	82.4	83.8	78.2
	Saturation, %	102.8	103.9	102.9
	Void Ratio	1.0299	0.9958	1.1398
	Diameter, in.	1.41	1.43	1.41
	Height, in.	3.03	2.92	3.10
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	3.23	15.27	26.70	
Fail. Stress, psf	667	710	633	
Strain, %	14.8	14.0	13.3	
Ult. Stress, psf	667	710	633	
Strain, %	14.8	14.0	13.3	
σ_1 Failure, psf	1132	2909	4478	
σ_3 Failure, psf	465	2199	3845	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO BR & GR CL4 W/ O

LL= 42 PL= 22 PI= 20

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A **Depth:** 11

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/27/13

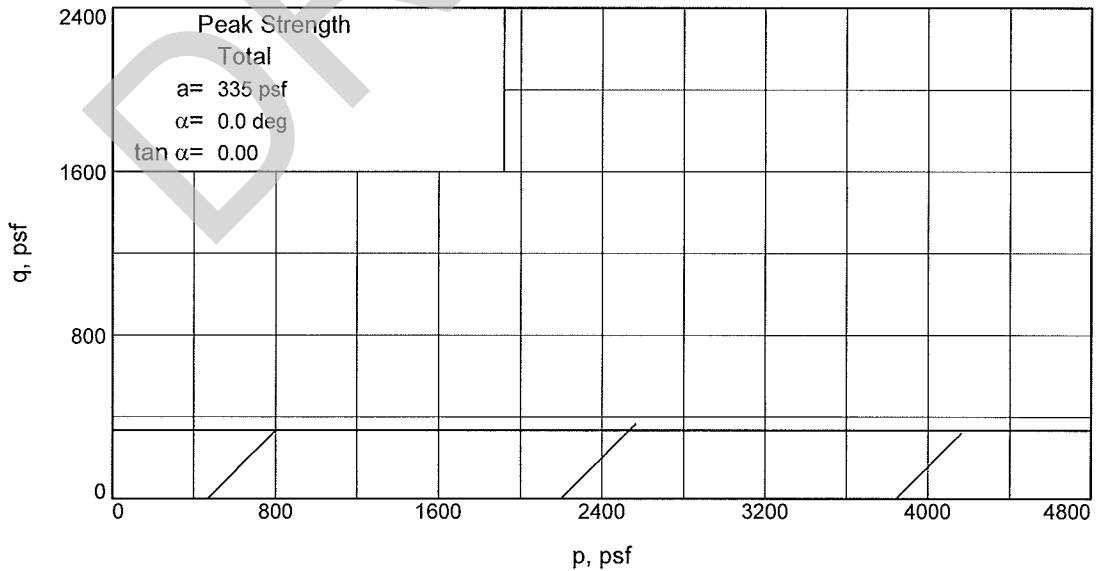
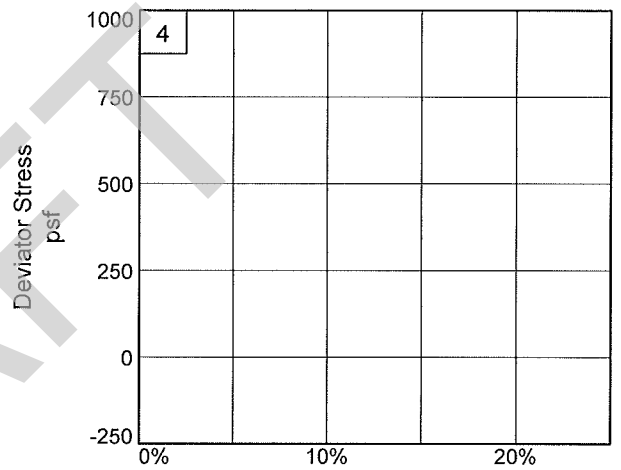
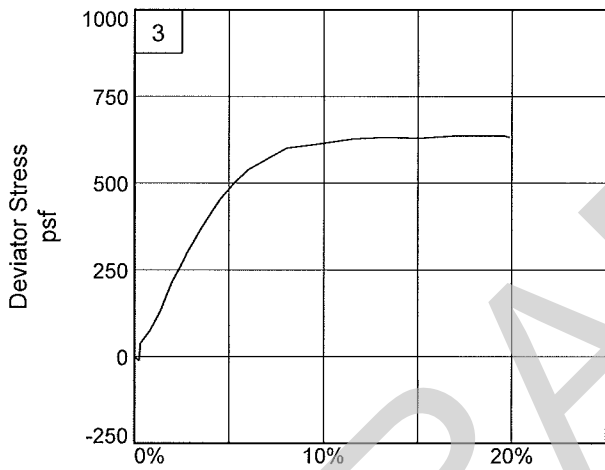
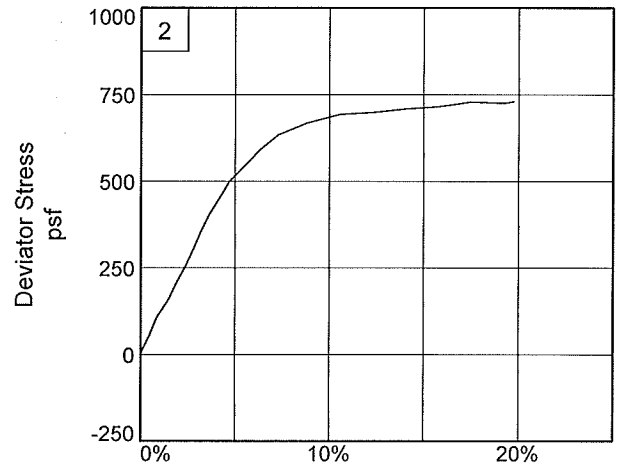
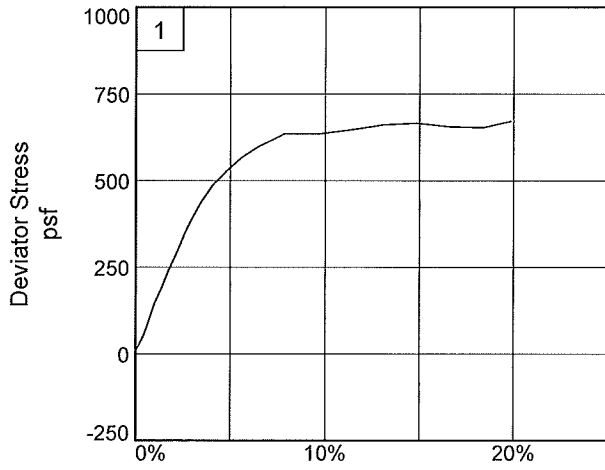
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Fugro Consultants, Inc.

Baton Rouge, LA

Tested By: PN

Checked By: KA
 "Confidential Information, Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 11

Sample Number: NA

Project No.: 04.55124092

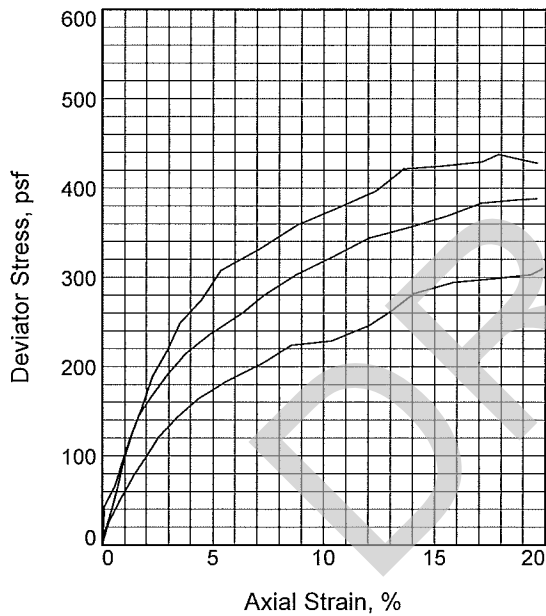
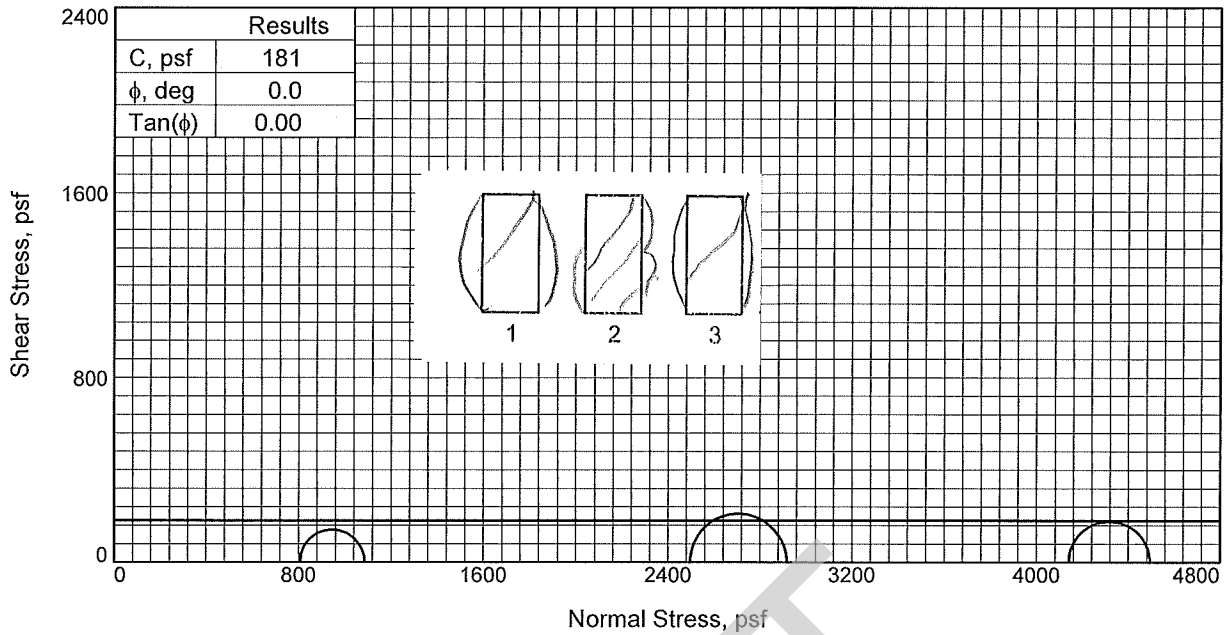
Figure _____

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Checked By: KA

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Sample No.	1	2	3	
Initial	Water Content, %	47.5	51.8	52.7
	Dry Density, pcf	71.4	71.2	70.5
	Saturation, %	94.8	103.0	103.0
	Void Ratio	1.3437	1.3492	1.3719
	Diameter, in.	1.45	1.43	1.42
	Height, in.	2.90	3.07	3.10
At Test	Water Content, %	47.5	51.8	52.7
	Dry Density, pcf	71.4	71.2	70.5
	Saturation, %	94.8	103.0	103.0
	Void Ratio	1.3437	1.3492	1.3719
	Diameter, in.	1.45	1.43	1.42
	Height, in.	2.90	3.07	3.10
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	5.59	17.33	28.74	
Fail. Stress, psf	282	422	356	
Strain, %	14.1	13.6	13.8	
Ult. Stress, psf	282	422	356	
Strain, %	14.1	13.6	13.8	
σ_1 Failure, psf	1087	2917	4494	
σ_3 Failure, psf	805	2496	4139	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: VSO GR CH2 W/ LYS ML

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 17.2

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/30/13

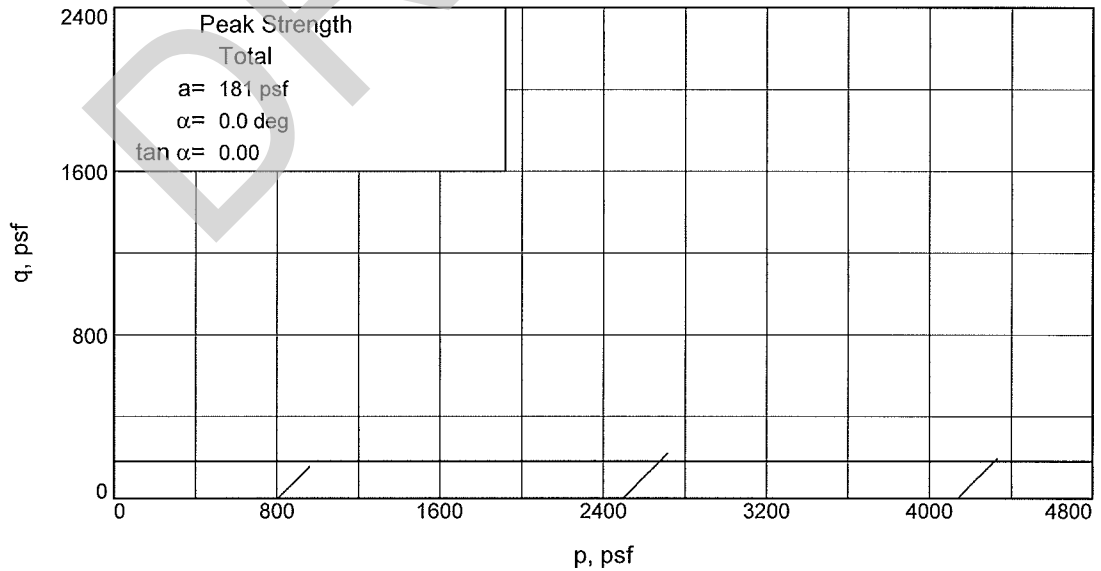
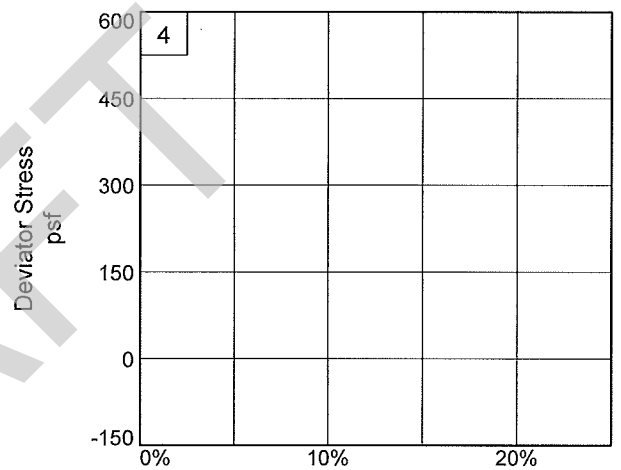
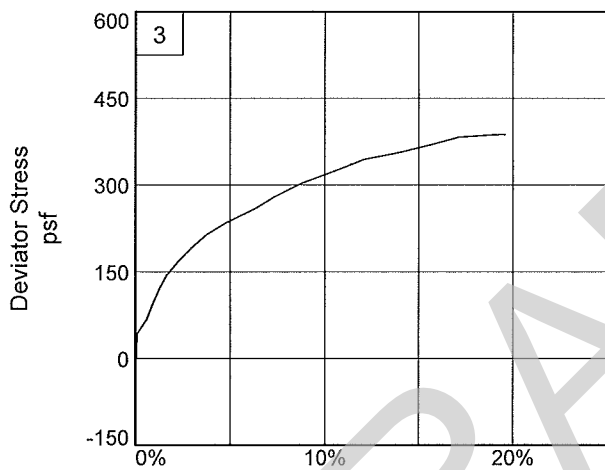
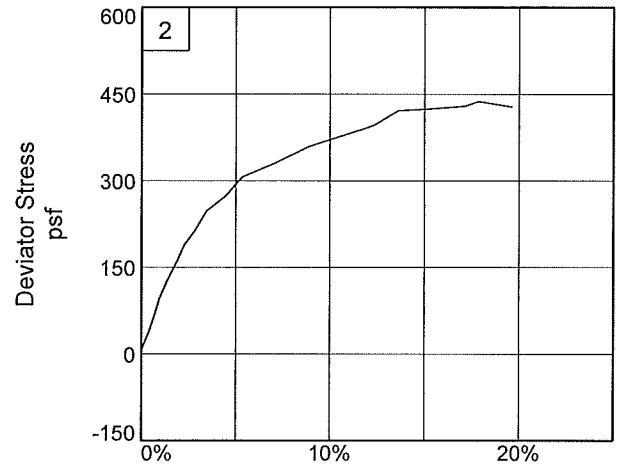
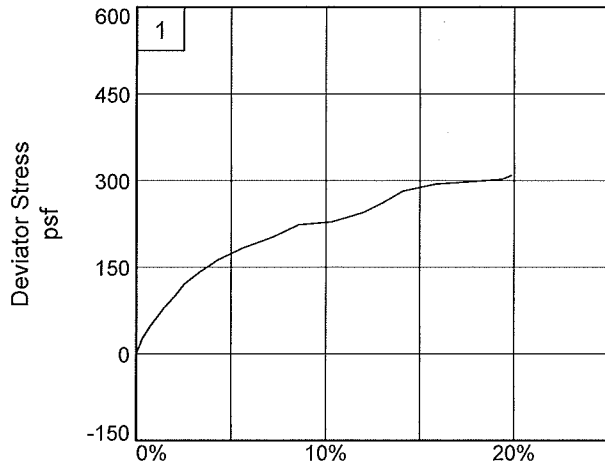
TRIAxIAL SHEAR TEST REPORT

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Baton Rouge, LA

Tested By: PN

Checked By: KA
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Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 17.2

Sample Number: NA

Project No.: 04.55124092

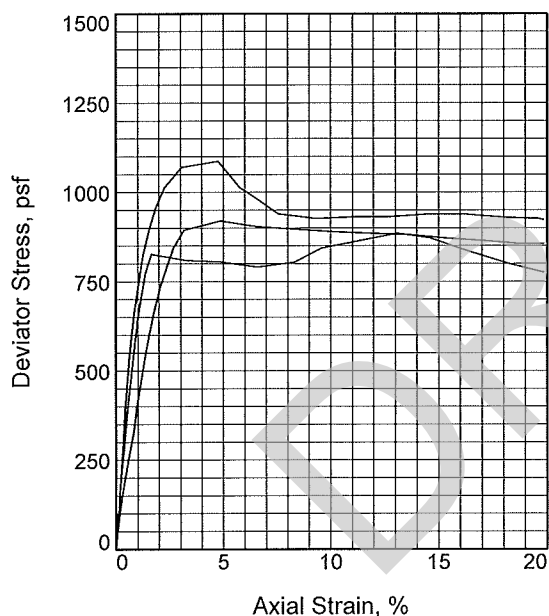
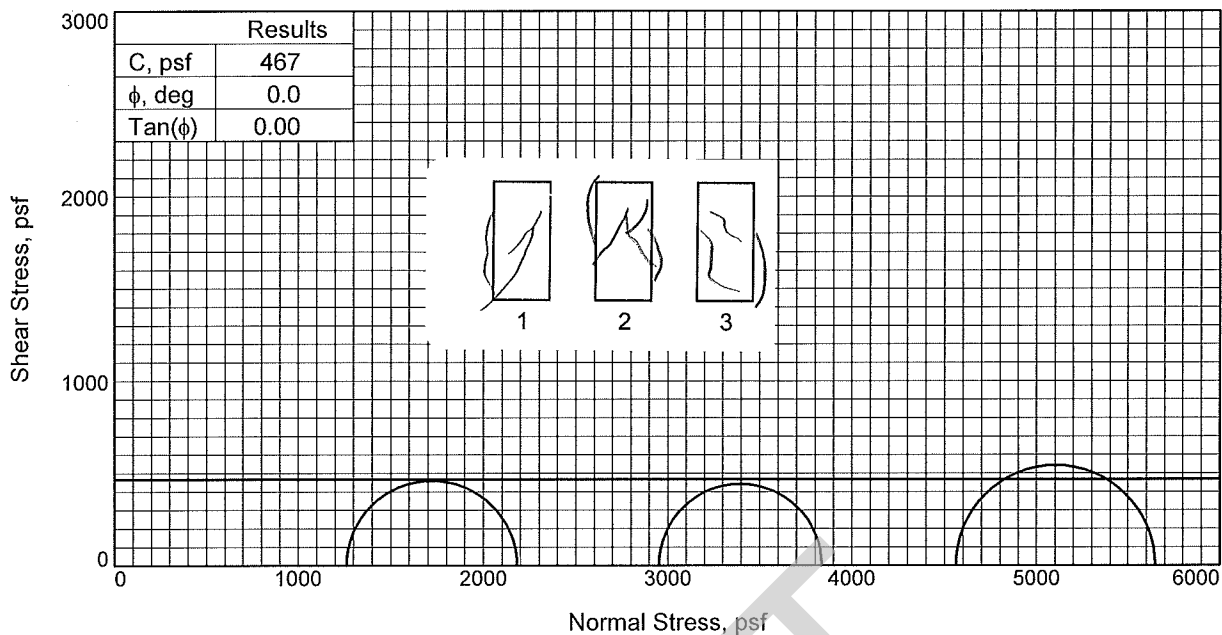
Figure _____

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Sample No.	1	2	3
Initial			
Water Content, %	51.6	50.6	48.5
Dry Density, pcf	70.6	70.8	72.7
Saturation, %	100.3	98.9	99.4
Void Ratio	1.3878	1.3808	1.3181
Diameter, in.	1.41	1.42	1.42
Height, in.	3.01	3.11	3.10
At Test			
Water Content, %	51.6	50.6	48.5
Dry Density, pcf	70.6	70.8	72.7
Saturation, %	100.3	98.9	99.4
Void Ratio	1.3878	1.3808	1.3181
Diameter, in.	1.41	1.42	1.41
Height, in.	3.01	3.11	3.10
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	8.76	20.50	31.67
Fail. Stress, psf	921	885	1087
Strain, %	4.9	13.1	4.8
Ult. Stress, psf	882	873	926
Strain, %	13.6	14.6	9.3
σ_1 Failure, psf	2182	3837	5648
σ_3 Failure, psf	1261	2952	4560

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO GR CH3 W/ LNS ML

LL= 62 PL= 19 PI= 43

Assumed Specific Gravity= 2.70

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A **Depth:** 26

Sample Number: NA

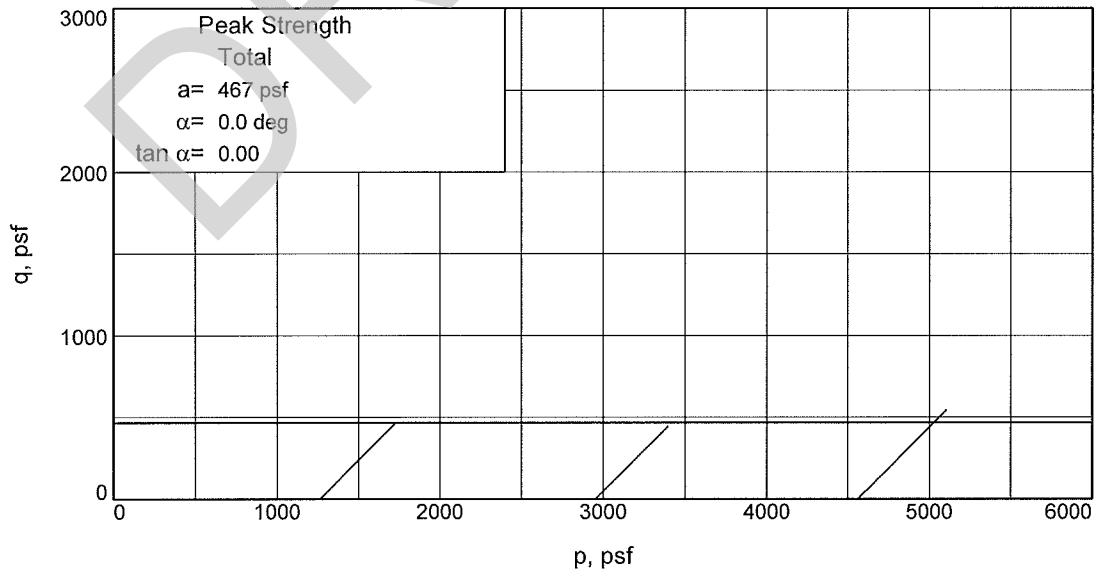
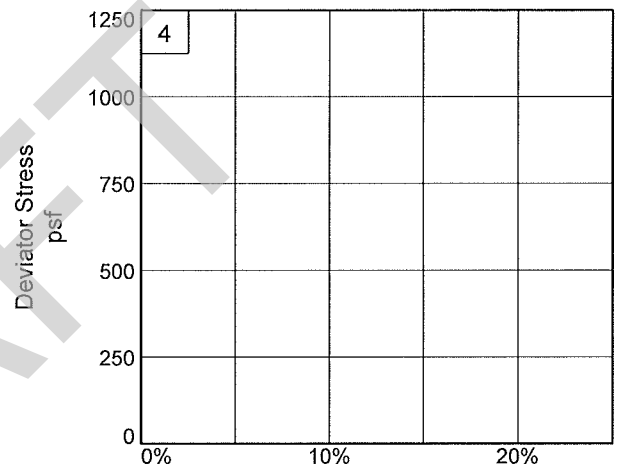
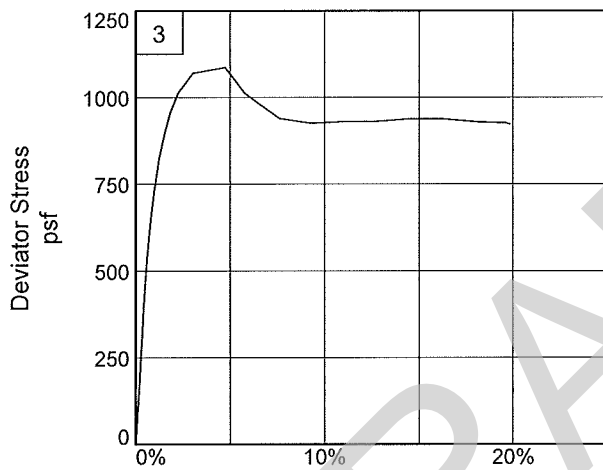
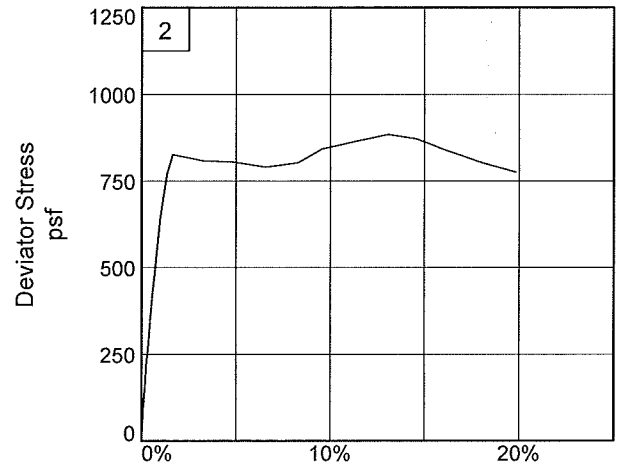
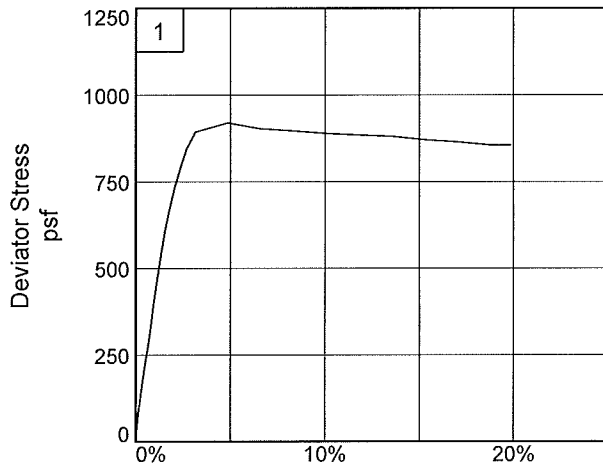
Proj. No.: 04.55124092

Date Sampled: 7/5/13

TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 26

Sample Number: NA

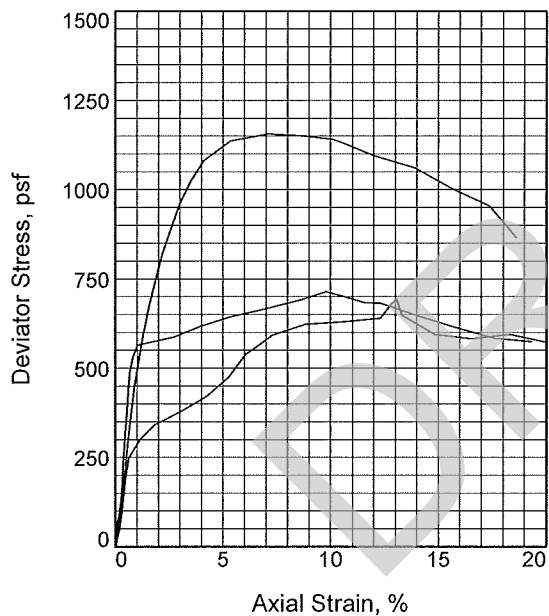
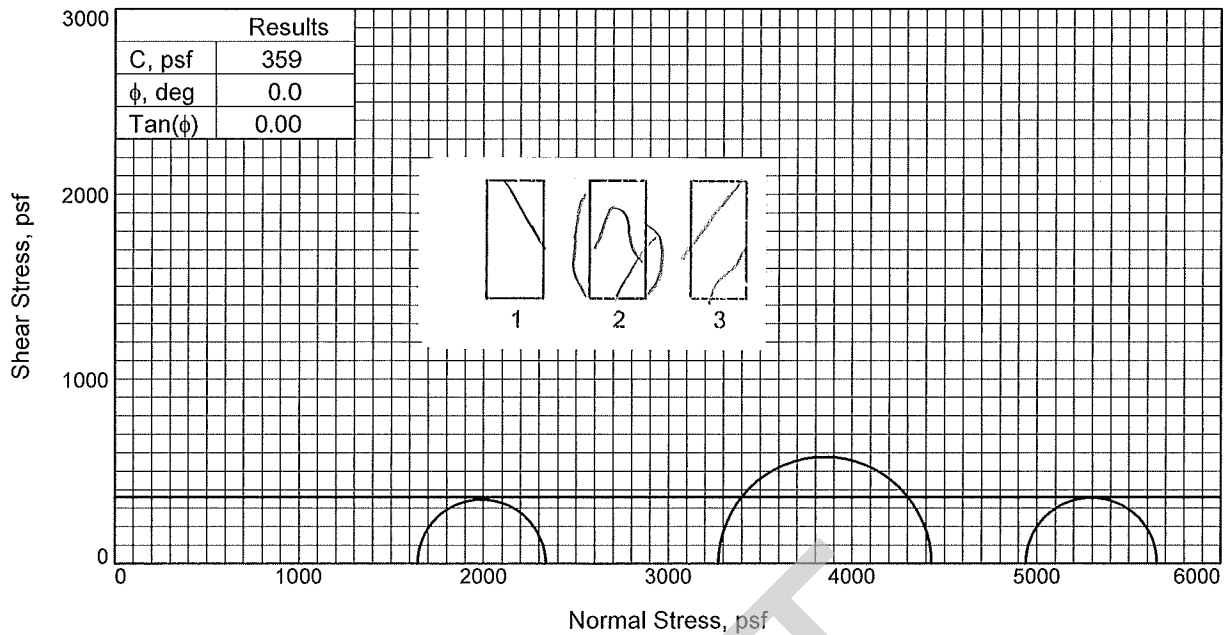
Project No.: 04.55124092

Figure _____

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Tested By: PN

Checked By: KA
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Sample No.	1	2	3
Initial			
Water Content, %	69.6	41.9	65.4
Dry Density, pcf	58.4	78.7	61.8
Saturation, %	99.5	98.8	102.2
Void Ratio	1.8955	1.1488	1.7359
Diameter, in.	1.42	1.40	1.41
Height, in.	3.03	3.04	3.02
At Test			
Water Content, %	69.6	41.9	65.4
Dry Density, pcf	58.4	78.7	61.8
Saturation, %	99.5	98.8	102.2
Void Ratio	1.8955	1.1488	1.7359
Diameter, in.	1.42	1.40	1.41
Height, in.	3.03	3.04	3.02
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	11.41	22.73	34.30
Fail. Stress, psf	694	1157	715
Strain, %	13.1	7.1	9.8
Ult. Stress, psf	595	1062	647
Strain, %	14.8	13.9	14.1
σ_1 Failure, psf	2337	4430	5654
σ_3 Failure, psf	1643	3273	4939

Type of Test:
Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: SO BR & GR CH4 W/ LYS ML

LL= 73 PL= 20 PI= 53

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barataria Diversion

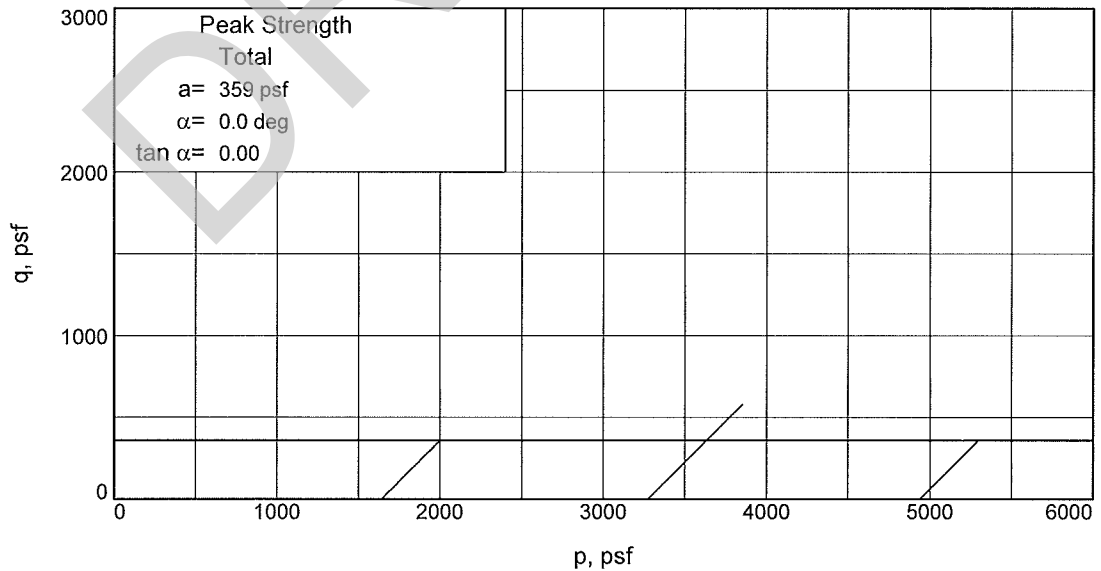
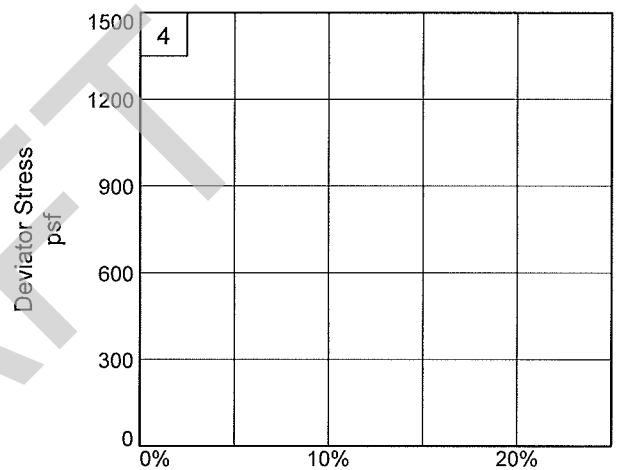
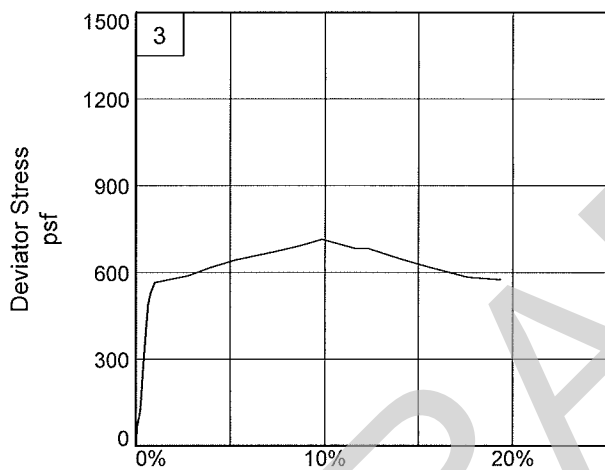
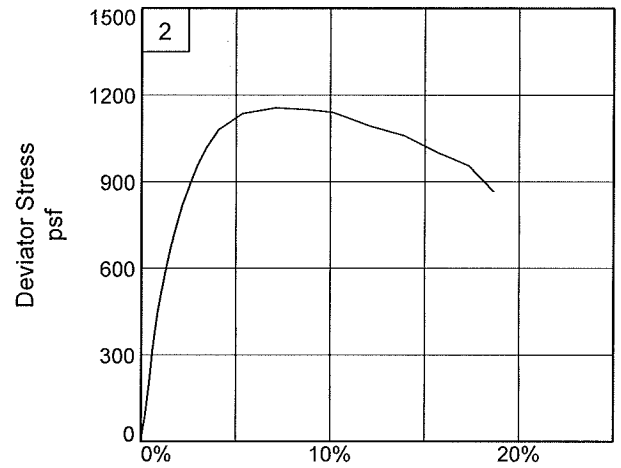
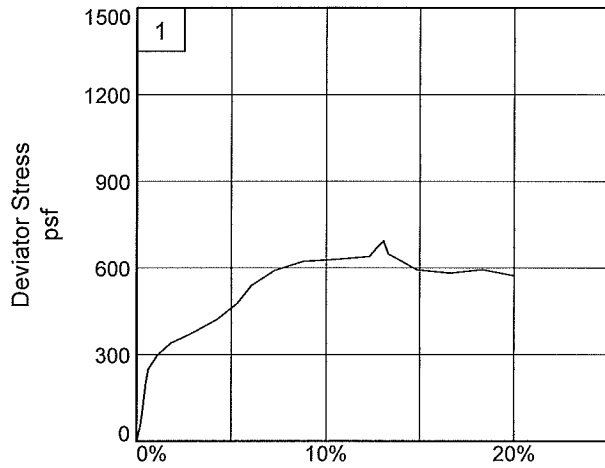
Source of Sample: NL-8A **Depth:** 34

Sample Number: NA

Proj. No.: 04.55124092 **Date Sampled:** 6/30/13

TRIAxIAL SHEAR TEST REPORT
Fugro Consultants, Inc.
Baton Rouge, LA

Figure _____



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 34

Sample Number: NA

Project No.: 04.55124092

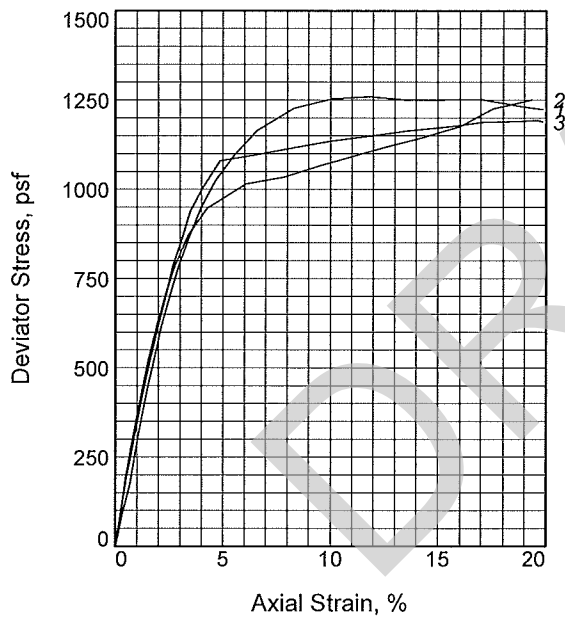
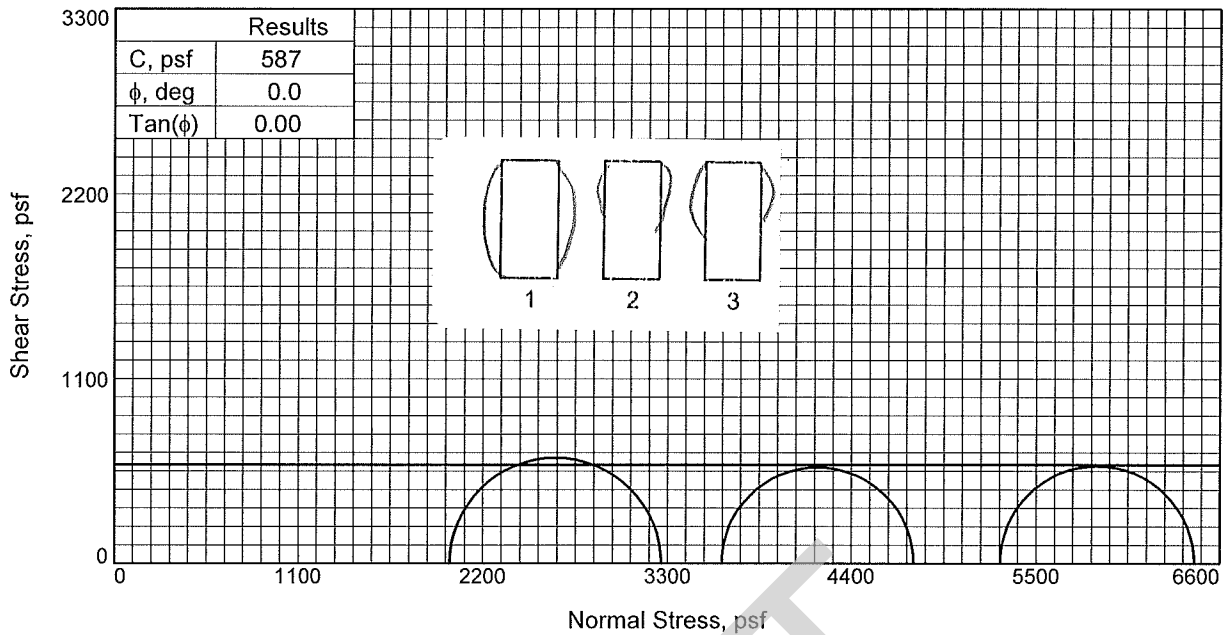
Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	33.3	32.5	38.1
	Dry Density, pcf	90.3	90.0	84.6
	Saturation, %	104.6	101.3	104.2
	Void Ratio	0.8531	0.8593	0.9785
	Diameter, in.	1.39	1.41	1.41
	Height, in.	3.05	3.12	3.06
At Test	Water Content, %	33.3	32.5	38.1
	Dry Density, pcf	90.3	90.0	84.6
	Saturation, %	104.6	101.3	104.2
	Void Ratio	0.8531	0.8593	0.9785
	Diameter, in.	1.39	1.41	1.41
	Height, in.	3.05	3.12	3.06
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	13.90	25.18	36.69	
Fail. Stress, psf	1260	1146	1164	
Strain, %	11.8	14.3	13.6	
Ult. Stress, psf	1250	1146	1164	
Strain, %	13.6	14.3	13.6	
σ_1 Failure, psf	3262	4772	6447	
σ_3 Failure, psf	2002	3626	5283	

Type of Test:
Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M BR CL6 W/ LNS & ARS SP

LL= 43 PL= 17 PI= 26

Assumed Specific Gravity= 2.68

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Client: GeoEngineers

Project: Mid Barataria Diversion

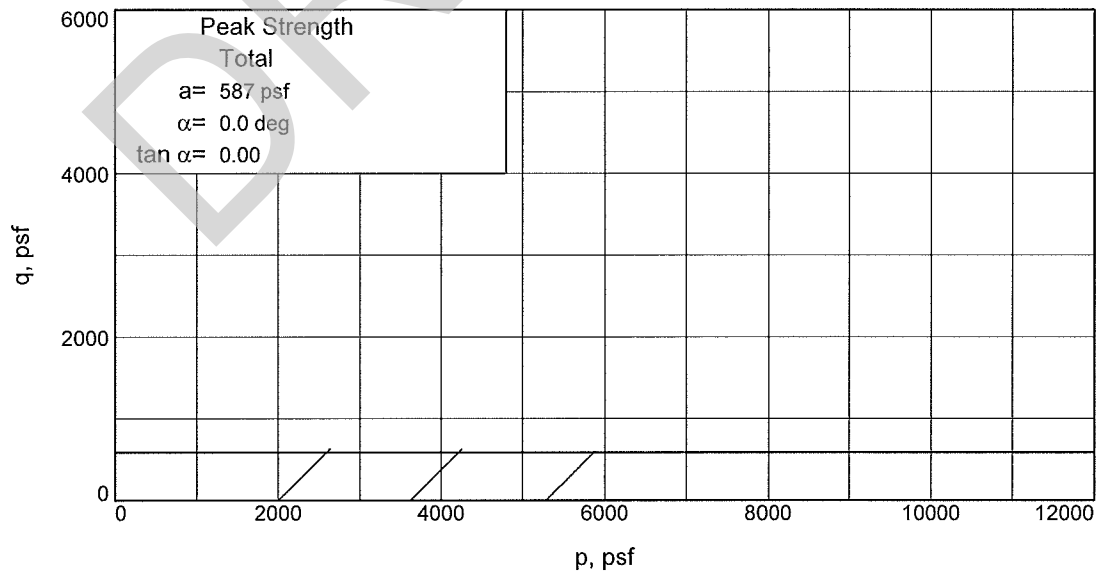
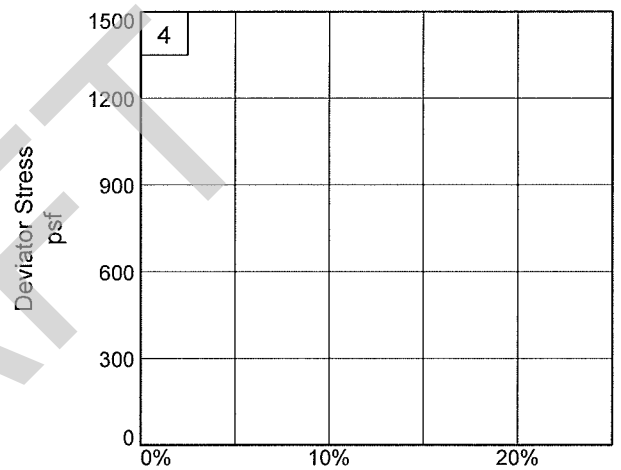
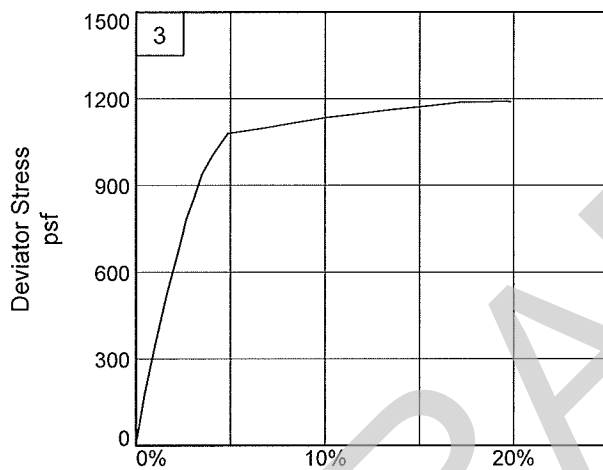
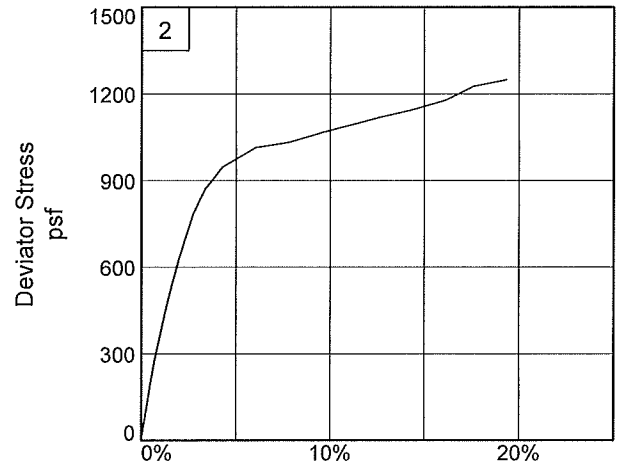
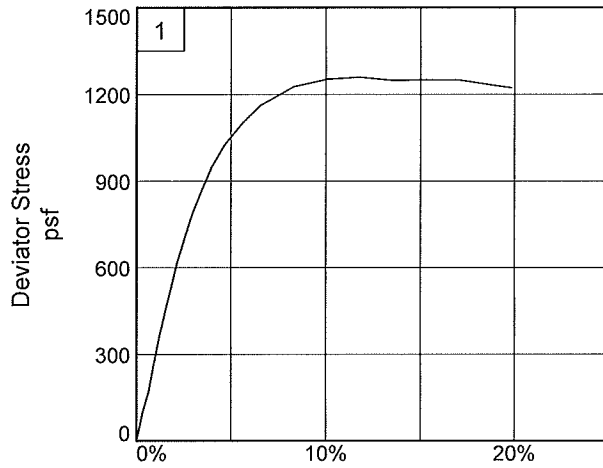
Source of Sample: NL-8A **Depth:** 41

Sample Number: NA

Proj. No.: 04.55124092 **Date Sampled:** 7/5/13

TRIAxIAL SHEAR TEST REPORT
Fugro Consultants, Inc.
Baton Rouge, LA

Figure _____



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 41

Sample Number: NA

Project No.: 04.55124092

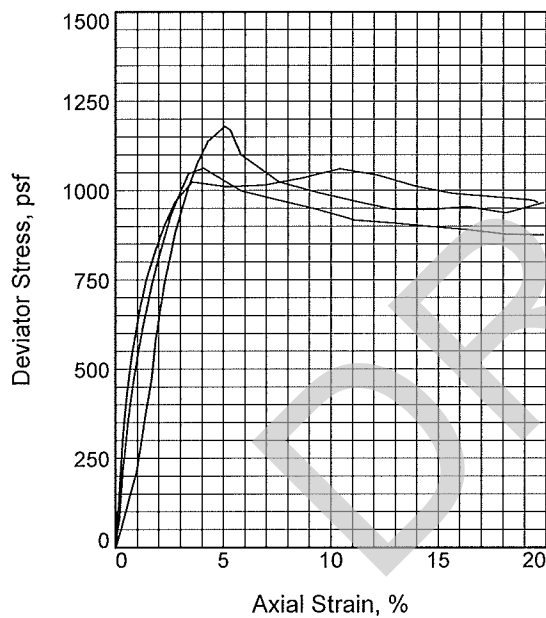
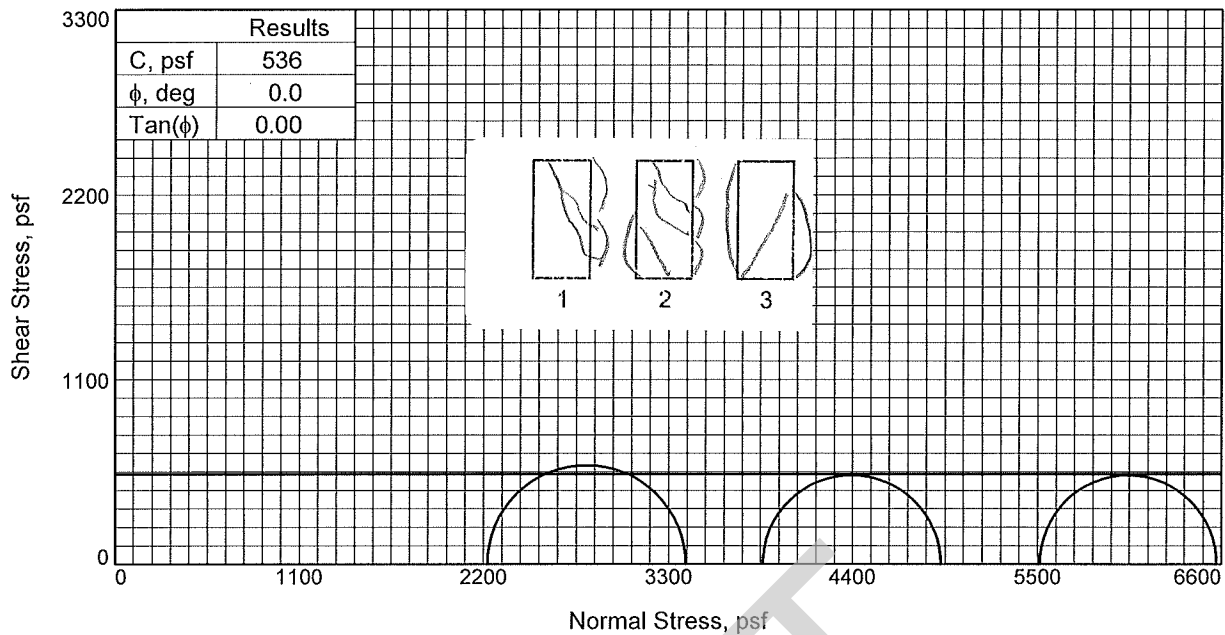
Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	55.3	55.8	54.9
Dry Density, pcf	67.6	68.3	67.6
Saturation, %	100.1	102.6	99.3
Void Ratio	1.4929	1.4687	1.4927
Diameter, in.	1.42	1.42	1.41
Height, in.	3.09	3.07	3.12
At Test			
Water Content, %	55.3	55.8	54.9
Dry Density, pcf	67.6	68.3	67.6
Saturation, %	100.1	102.6	99.3
Void Ratio	1.4929	1.4687	1.4927
Diameter, in.	1.42	1.42	1.41
Height, in.	3.09	3.07	3.12
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	15.43	26.83	38.27
Fail. Stress, psf	1180	1063	1061
Strain, %	5.1	4.1	10.4
Ult. Stress, psf	946	900	1013
Strain, %	14.6	14.6	13.9
σ_1 Failure, psf	3402	4927	6572
σ_3 Failure, psf	2222	3864	5511

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CH3 W/ LNS ML

Assumed Specific Gravity= 2.70

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 45

Sample Number: NA

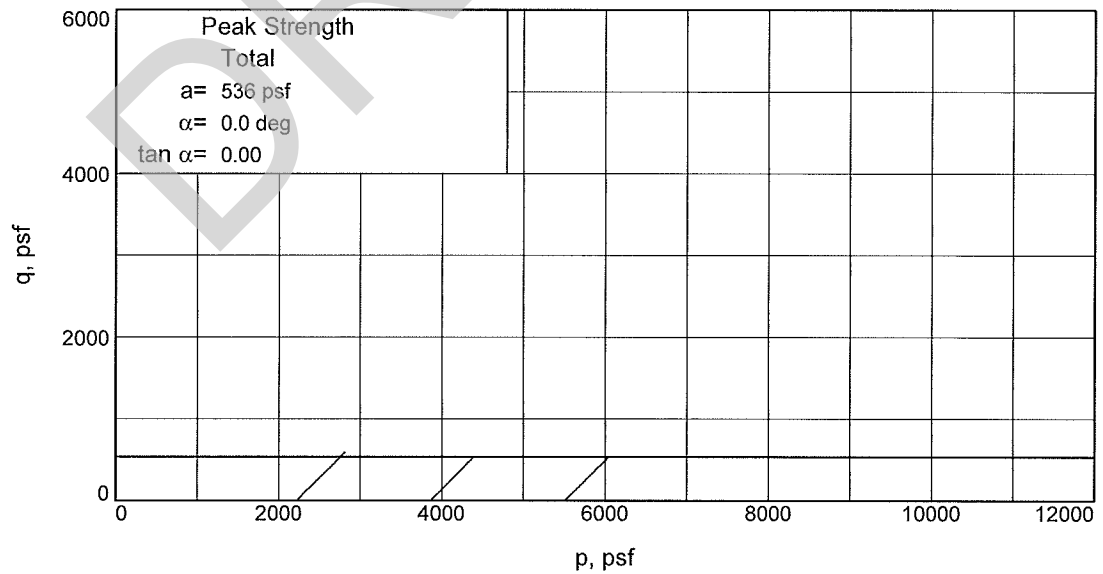
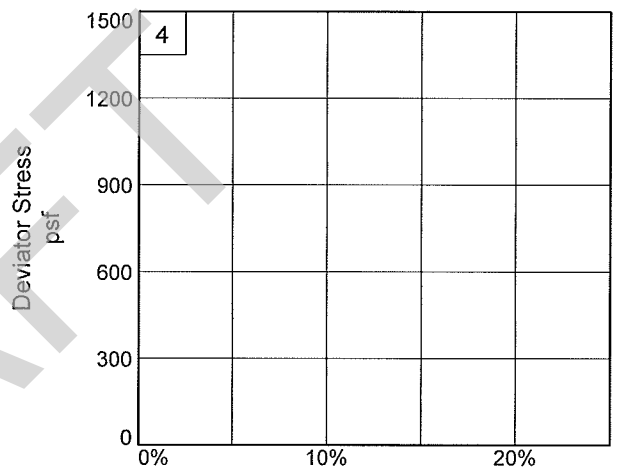
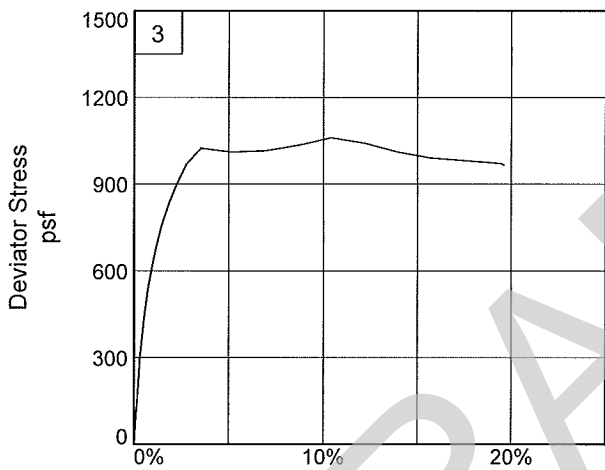
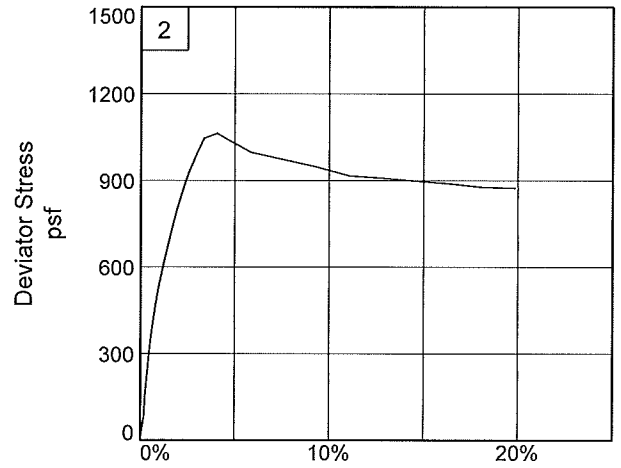
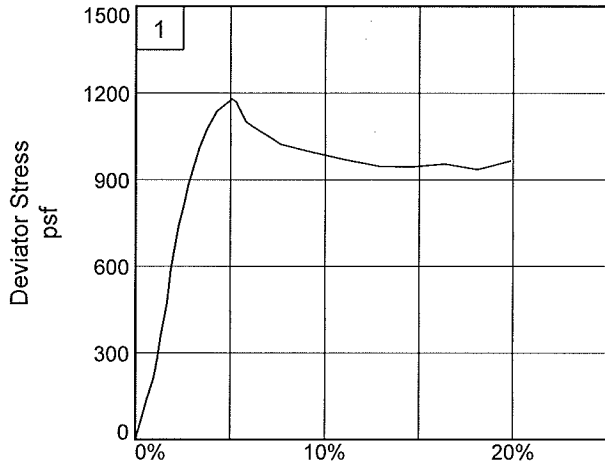
Proj. No.: 04.55124092

Date Sampled: 6/30/13

TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 45

Sample Number: NA

Project No.: 04.55124092

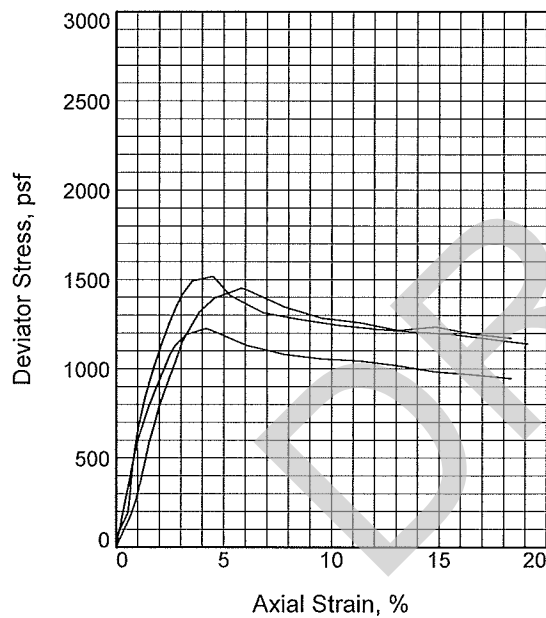
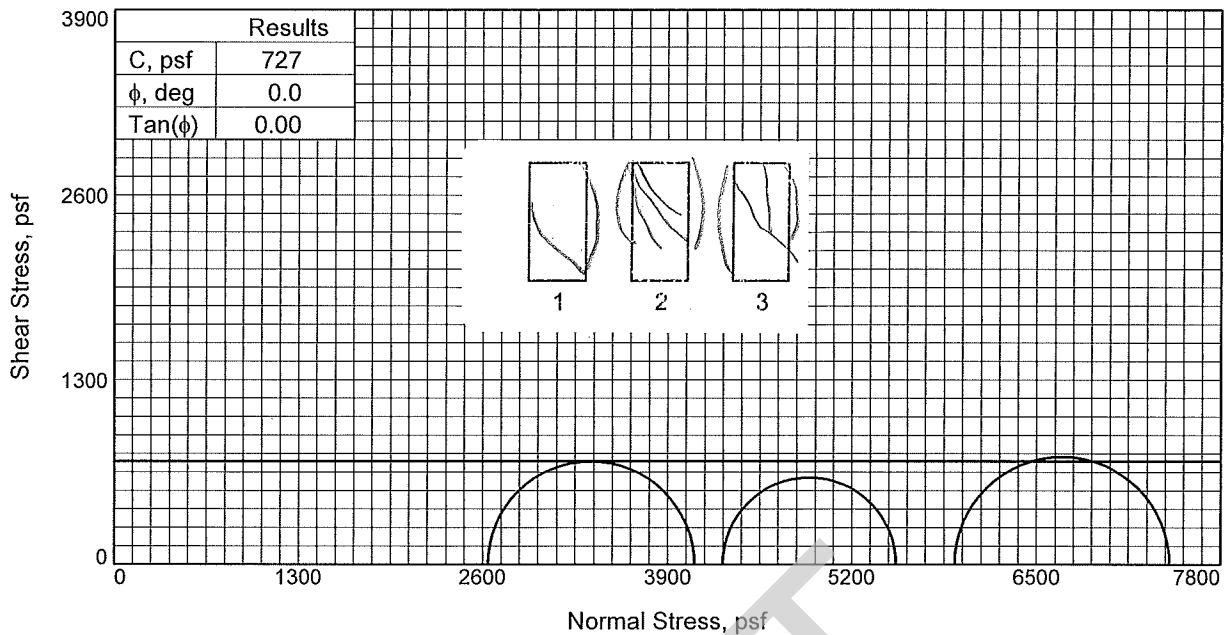
Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	49.3	50.6	49.2
Dry Density, pcf	72.2	71.3	72.7
Saturation, %	99.8	100.2	100.5
Void Ratio	1.3343	1.3648	1.3200
Diameter, in.	1.42	1.43	1.42
Height, in.	3.05	3.09	3.09
At Test			
Water Content, %	49.3	50.6	49.2
Dry Density, pcf	72.2	71.3	72.7
Saturation, %	99.8	100.2	100.5
Void Ratio	1.3343	1.3648	1.3200
Diameter, in.	1.42	1.43	1.42
Height, in.	3.05	3.09	3.09
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	18.31	29.77	41.14
Fail. Stress, psf	1452	1226	1517
Strain, %	5.8	4.2	4.5
Ult. Stress, psf	1215	984	1206
Strain, %	13.1	14.8	13.8
σ_1 Failure, psf	4089	5513	7441
σ_3 Failure, psf	2637	4287	5924

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CH3 W/ LYS ML

LL= 64

PL= 23

PI= 41

Assumed Specific Gravity= 2.70

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 53

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 6/30/13

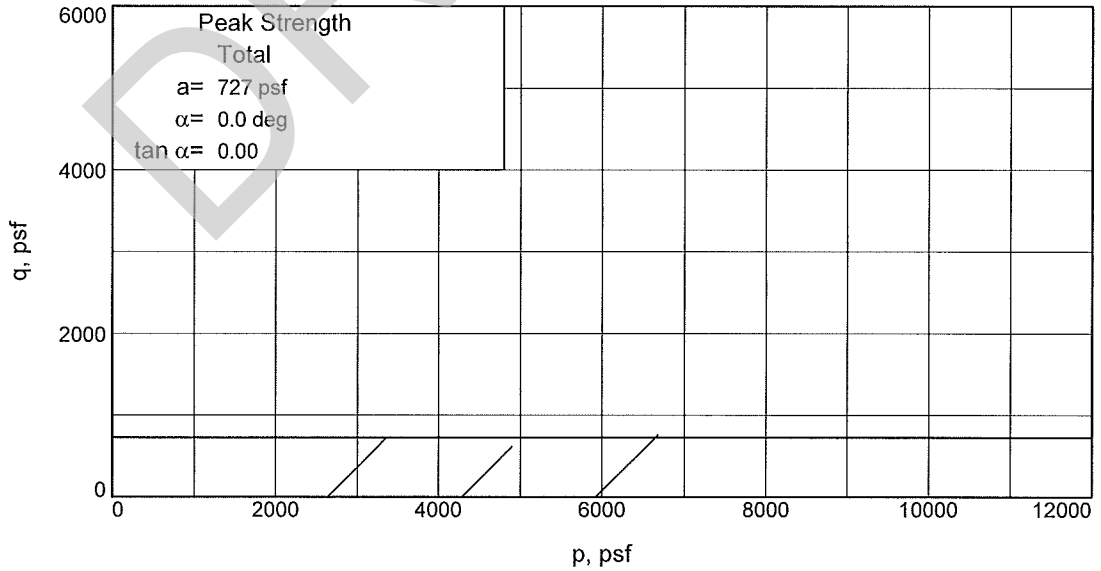
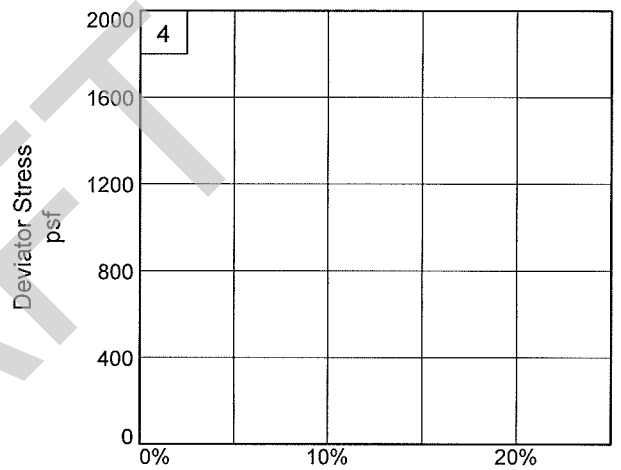
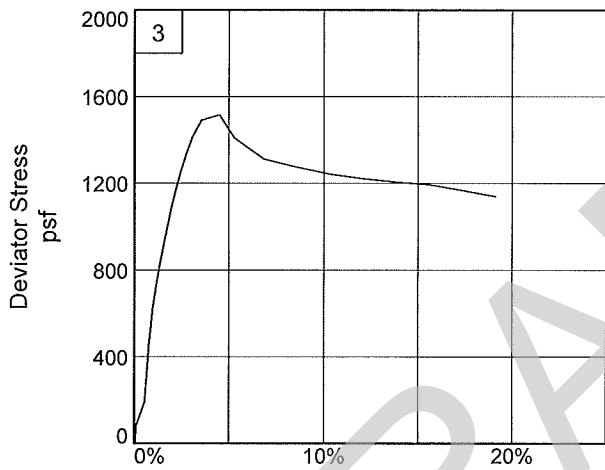
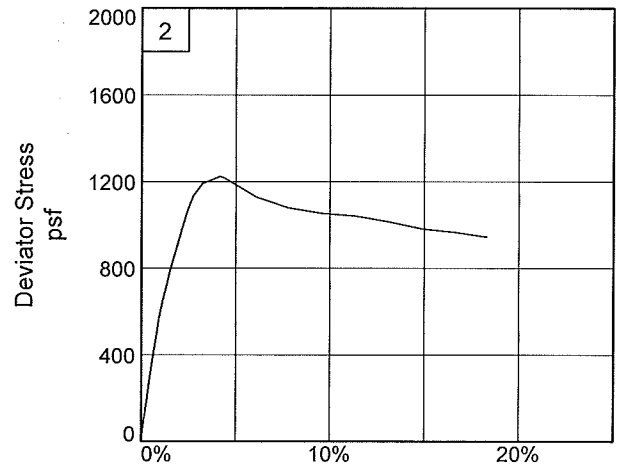
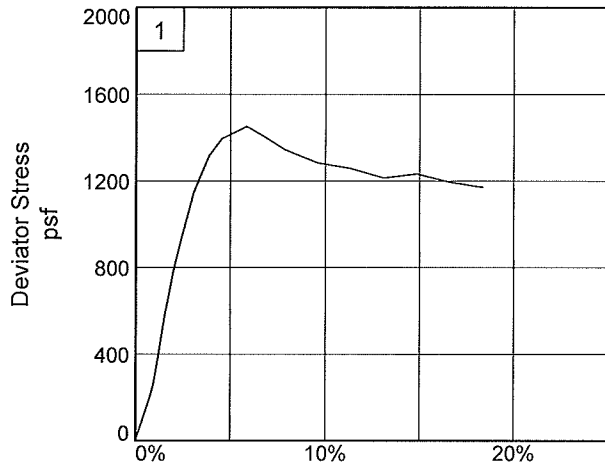
TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA

Tested By: PN

Checked By: KA
 "Confidential Information: Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 53

Sample Number: NA

Project No.: 04.55124092

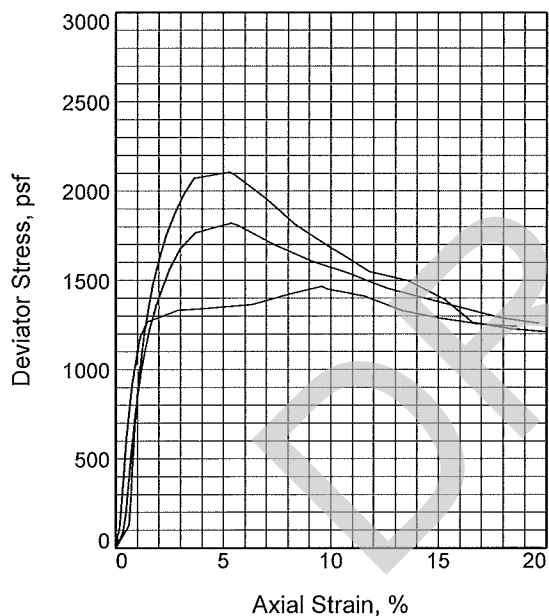
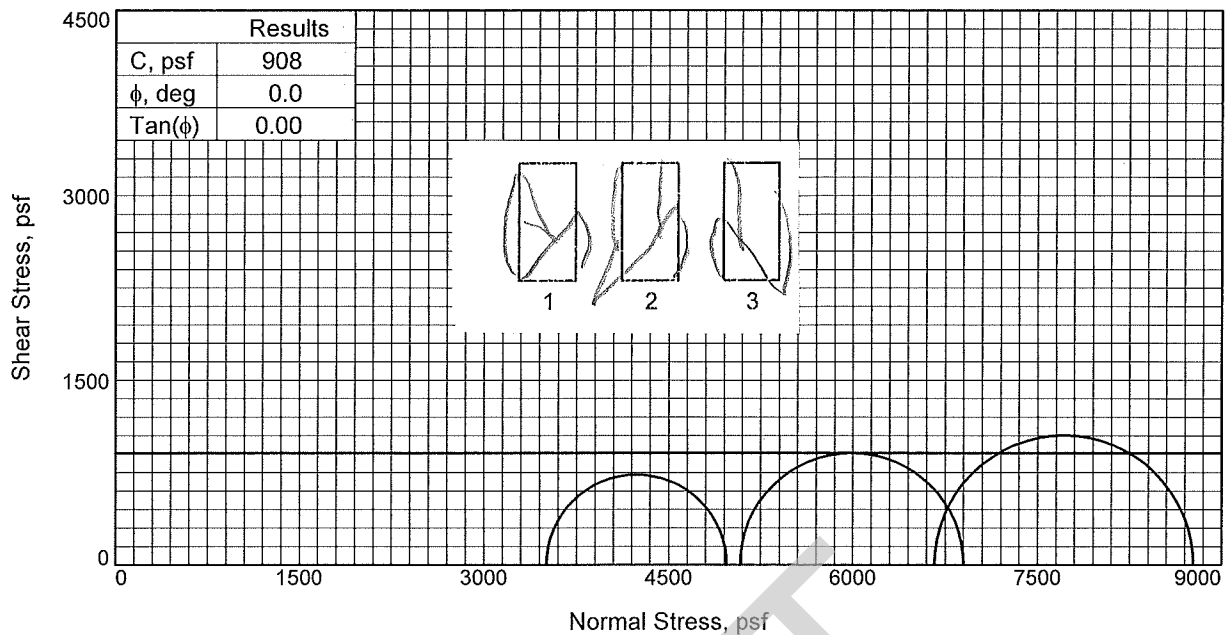
Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	58.6	58.3	58.7
Dry Density, pcf	65.3	65.6	64.1
Saturation, %	99.7	99.9	97.1
Void Ratio	1.5917	1.5801	1.6394
Diameter, in.	1.43	1.43	1.43
Height, in.	3.00	3.05	3.03
At Test			
Water Content, %	58.6	58.3	58.7
Dry Density, pcf	65.3	65.6	64.1
Saturation, %	99.7	99.9	97.1
Void Ratio	1.5917	1.5801	1.6394
Diameter, in.	1.43	1.43	1.43
Height, in.	3.00	3.05	3.03
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	24.34	35.29	46.27
Fail. Stress, psf	1468	1820	2106
Strain, %	9.6	5.4	5.3
Ult. Stress, psf	1331	1401	1499
Strain, %	13.3	14.4	13.6
σ_1 Failure, psf	4973	6902	8769
σ_3 Failure, psf	3505	5082	6663

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CH4

LL= 89 PL= 31 PI= 58

Assumed Specific Gravity: 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A **Depth:** 67

Sample Number: NA

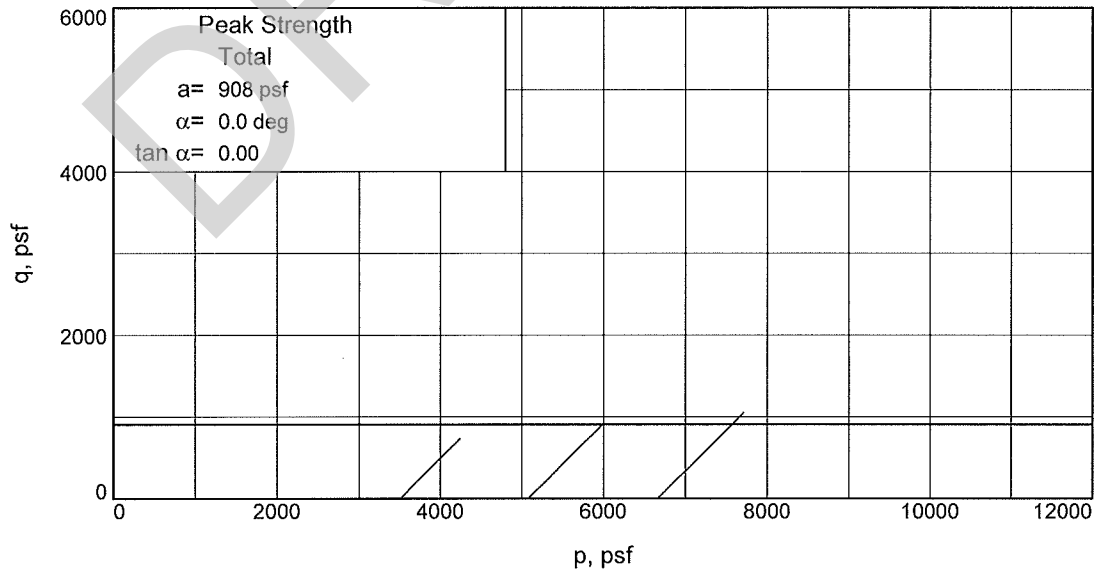
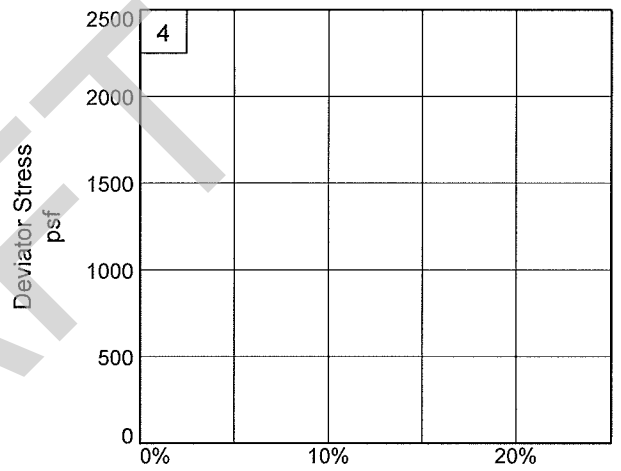
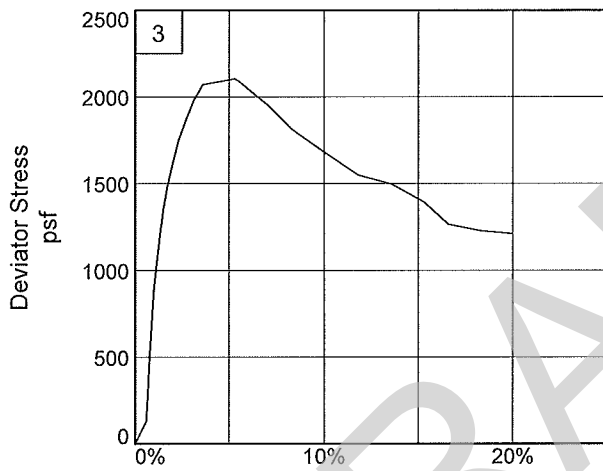
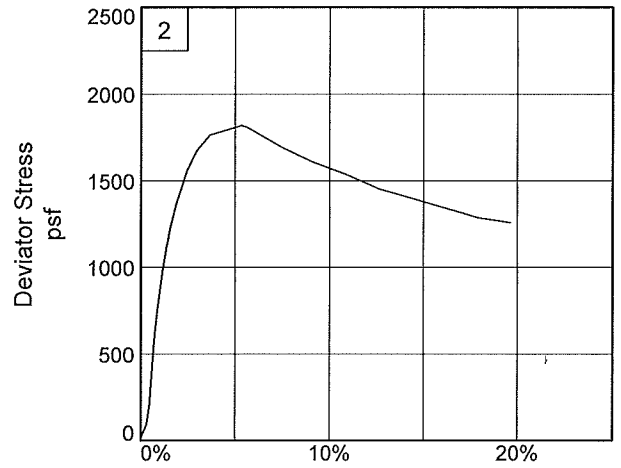
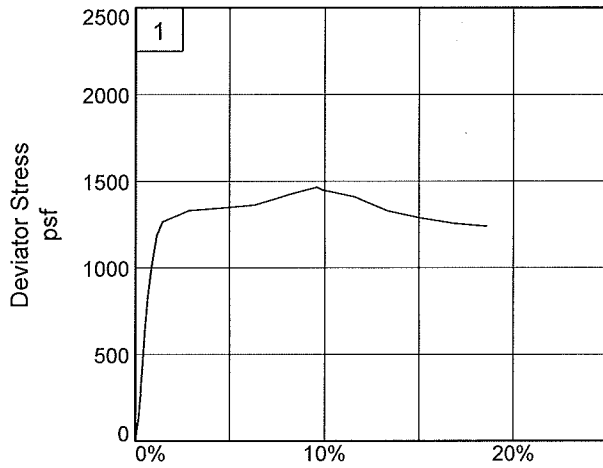
Proj. No.: 04.55124092

Date Sampled: 7/1/13

TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 67

Sample Number: NA

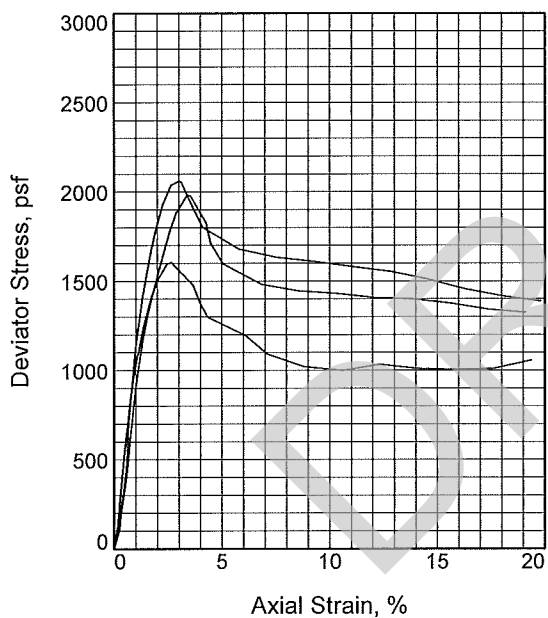
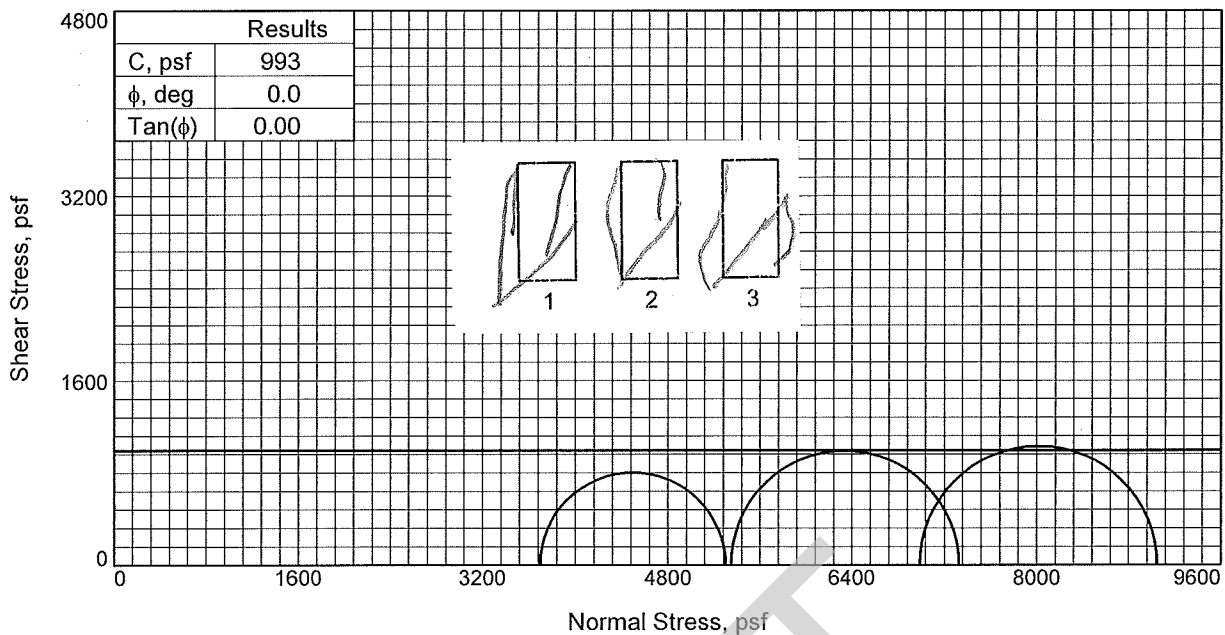
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA "Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	56.5	52.9	52.7
Dry Density, pcf	67.5	70.1	69.2
Saturation, %	101.7	101.4	98.8
Void Ratio	1.5046	1.4129	1.4444
Diameter, in.	1.43	1.42	1.42
Height, in.	3.08	3.00	3.09
At Test			
Water Content, %	56.5	52.9	52.7
Dry Density, pcf	67.5	70.1	69.2
Saturation, %	101.7	101.4	98.8
Void Ratio	1.5046	1.4129	1.4444
Diameter, in.	1.43	1.42	1.42
Height, in.	3.08	3.00	3.09
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	25.66	37.12	48.52
Fail. Stress, psf	1606	1982	2063
Strain, %	2.7	3.5	3.0
Ult. Stress, psf	1000	1400	1511
Strain, %	10.6	13.8	14.6
σ_1 Failure, psf	5301	7327	9049
σ_3 Failure, psf	3695	5345	6987

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CH4

LL= 85 PL= 31 PI= 54

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A **Depth:** 73

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 7/1/13

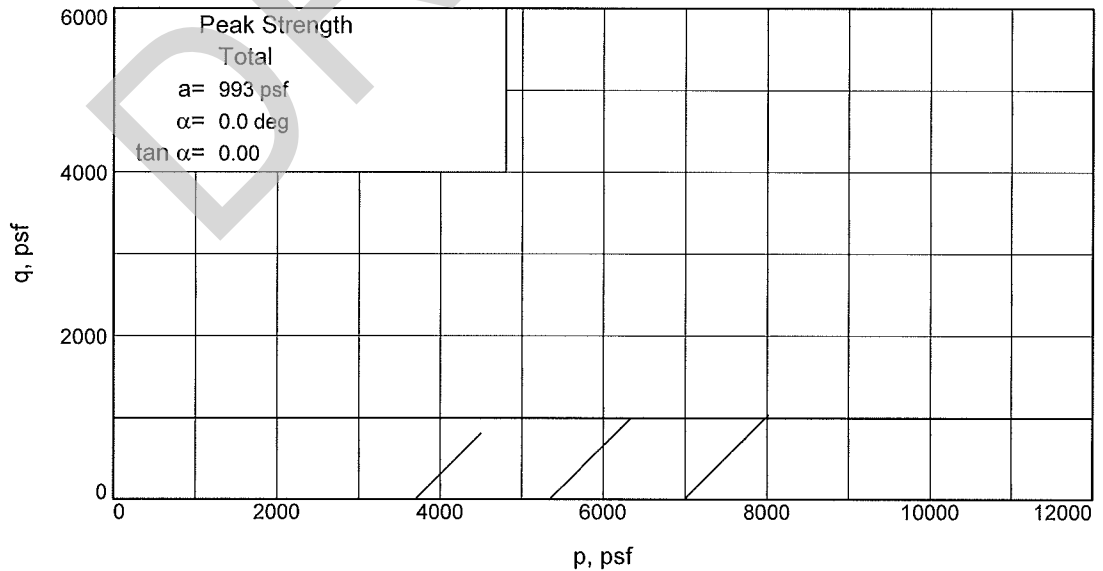
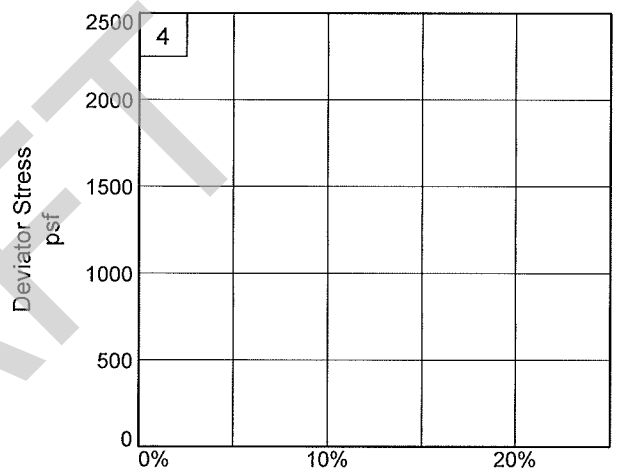
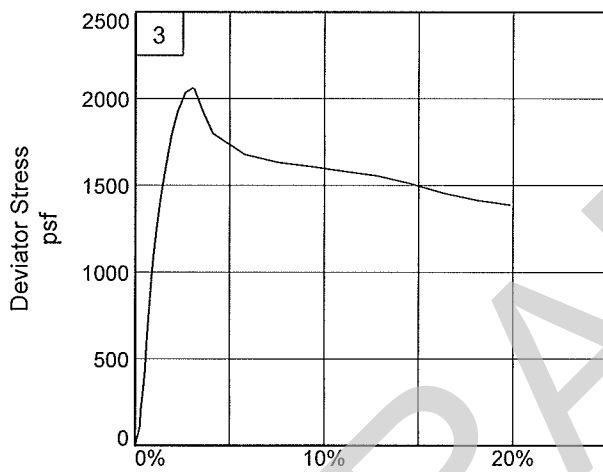
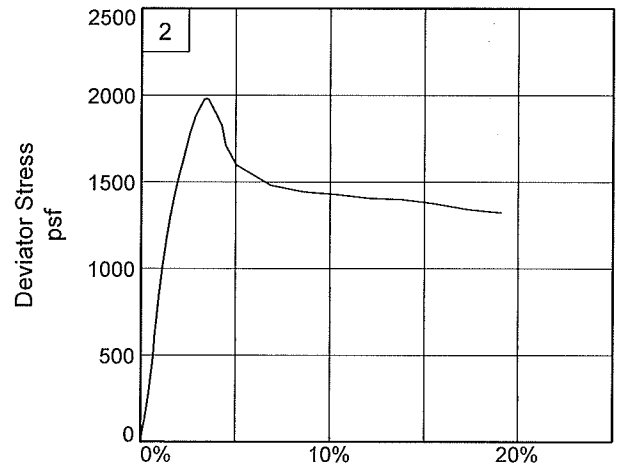
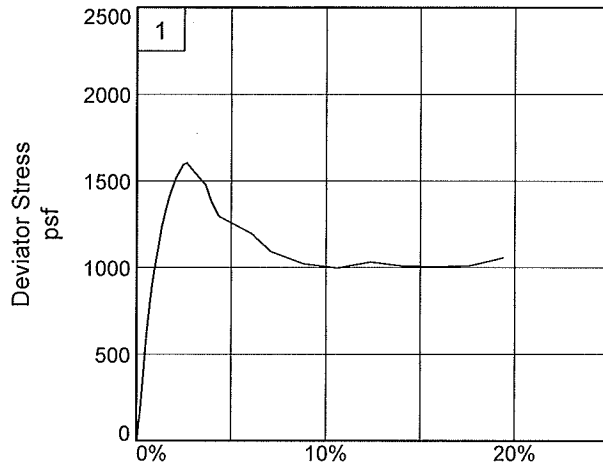
TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA

Tested By: PN

Checked By: KA "Confidential Information: Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 73

Sample Number: NA

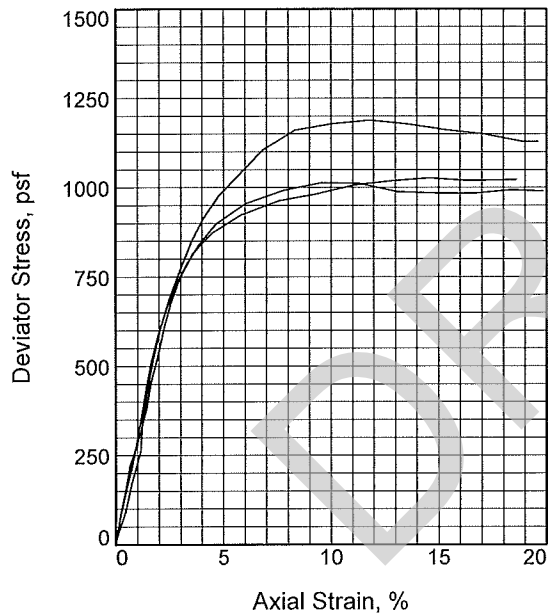
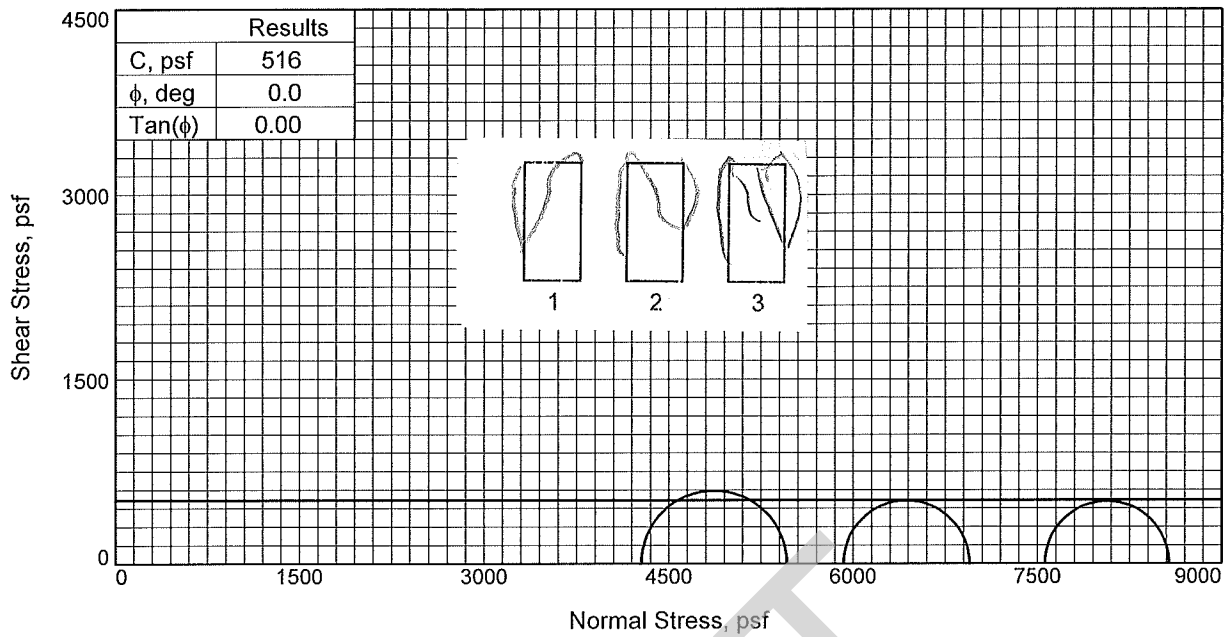
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA
 "Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	59.1	59.9	61.2
	Dry Density, pcf	63.3	63.8	62.2
	Saturation, %	95.9	98.3	96.4
	Void Ratio	1.6707	1.6516	1.7206
	Diameter, in.	1.42	1.41	1.41
	Height, in.	2.95	2.92	2.93
At Test	Water Content, %	59.1	59.9	61.2
	Dry Density, pcf	63.3	63.8	62.2
	Saturation, %	95.9	98.3	96.4
	Void Ratio	1.6707	1.6516	1.7206
	Diameter, in.	1.42	1.41	1.41
	Height, in.	2.95	2.92	2.93
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	29.68	41.12	52.50	
Fail. Stress, psf	1189	1028	1014	
Strain, %	11.8	14.6	9.6	
Ult. Stress, psf	1178	1028	985	
Strain, %	13.6	14.6	14.8	
σ_1 Failure, psf	5462	6949	8574	
σ_3 Failure, psf	4274	5921	7560	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: M GR CH4 W/ SHELLS

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A **Depth:** 84

Sample Number: NA

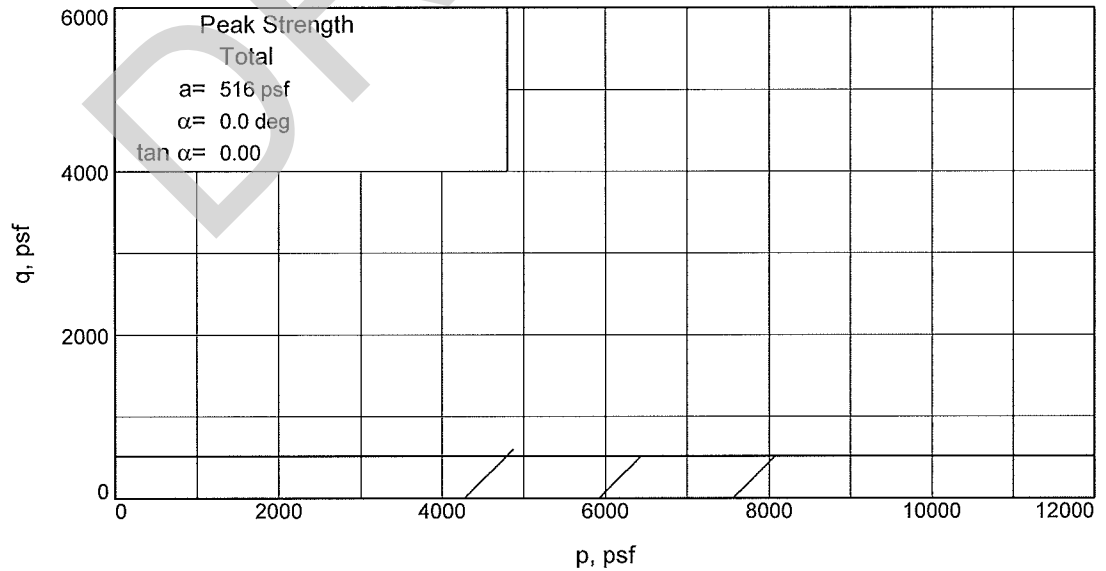
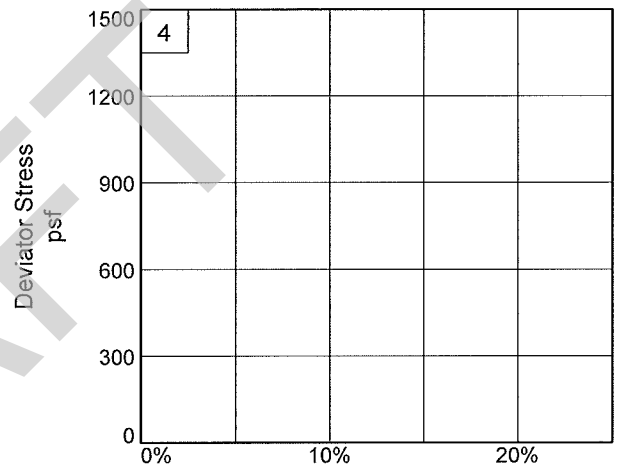
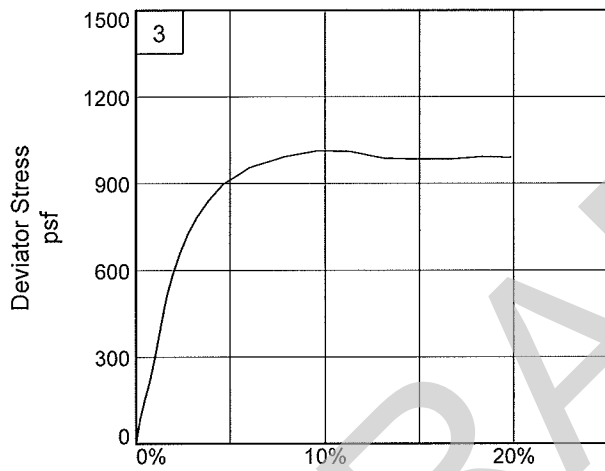
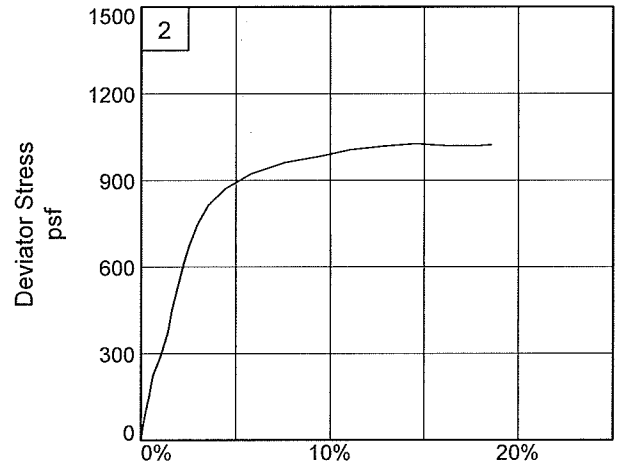
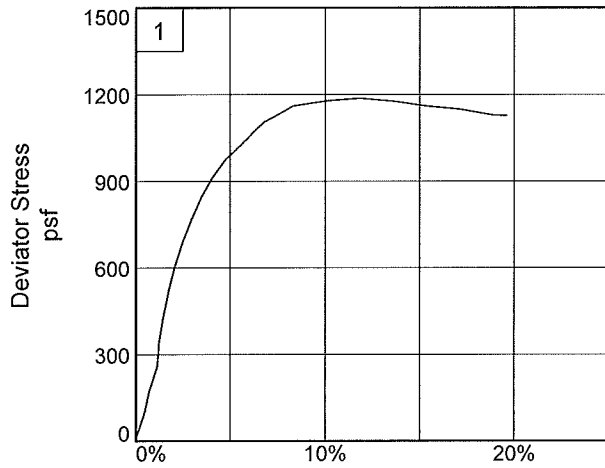
Proj. No.: 04.55124092

Date Sampled: 7/8/13

TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 84

Sample Number: NA

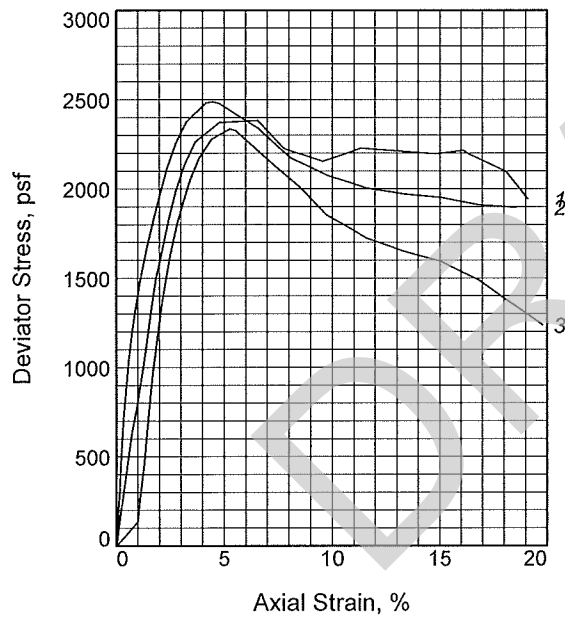
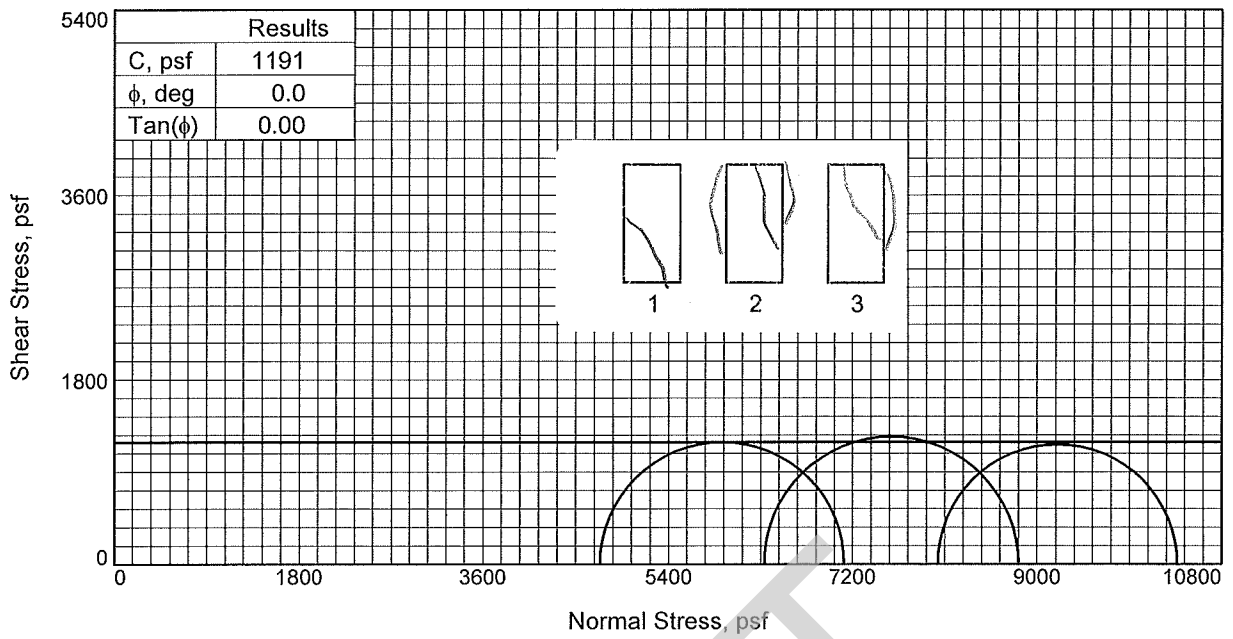
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: IK

Checked By: KA "Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	50.5	50.3	54.3
Dry Density, pcf	71.7	70.8	68.8
Saturation, %	100.6	98.2	100.9
Void Ratio	1.3596	1.3892	1.4574
Diameter, in.	1.42	1.42	1.42
Height, in.	3.01	3.02	3.04
At Test			
Water Content, %	50.5	50.3	54.3
Dry Density, pcf	71.7	70.8	68.8
Saturation, %	100.6	98.2	100.9
Void Ratio	1.3596	1.3892	1.4574
Diameter, in.	1.42	1.42	1.42
Height, in.	3.01	3.02	3.04
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	32.88	43.98	55.77
Fail. Stress, psf	2383	2489	2337
Strain, %	6.6	4.5	5.3
Ult. Stress, psf	2155	1972	1652
Strain, %	9.6	13.3	13.3
σ_1 Failure, psf	7118	8822	10368
σ_3 Failure, psf	4735	6333	8031

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: ST GR CH4 W/ LYS ML

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A **Depth:** 93

Sample Number: NA

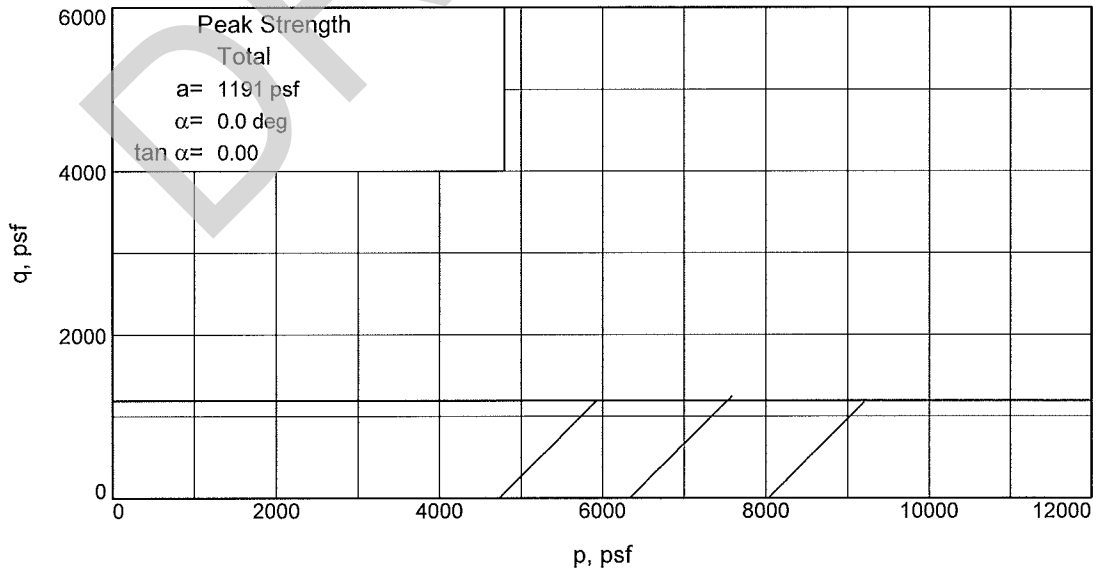
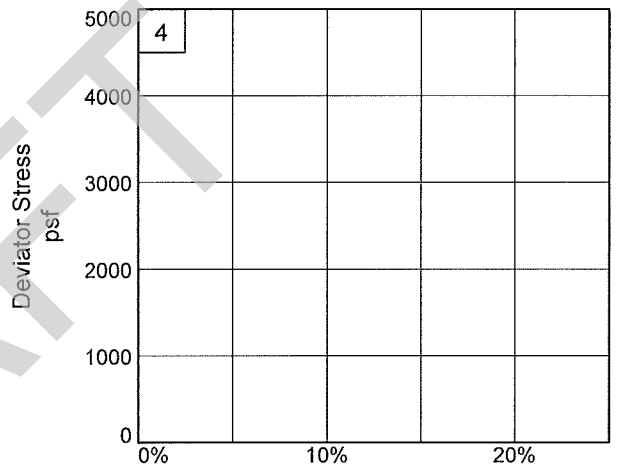
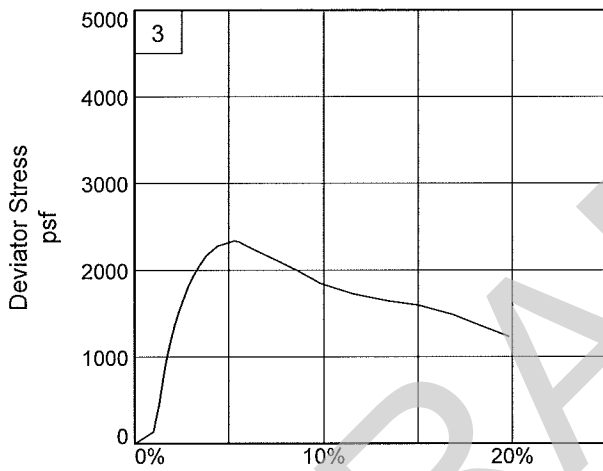
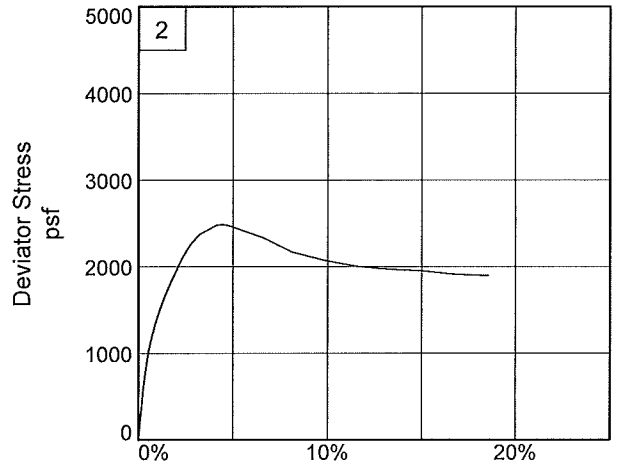
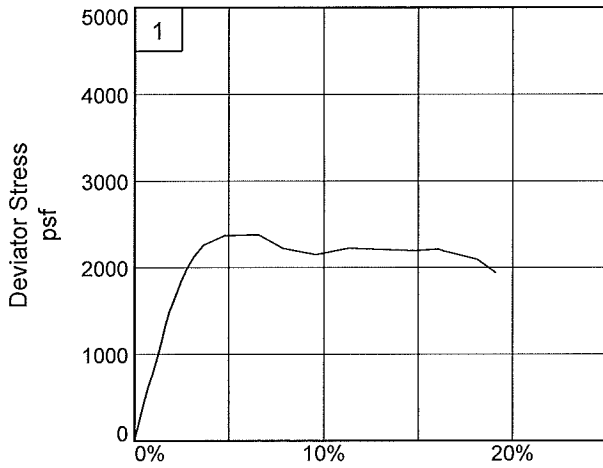
Proj. No.: 04.55124092

Date Sampled: 7/1/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 93

Sample Number: NA

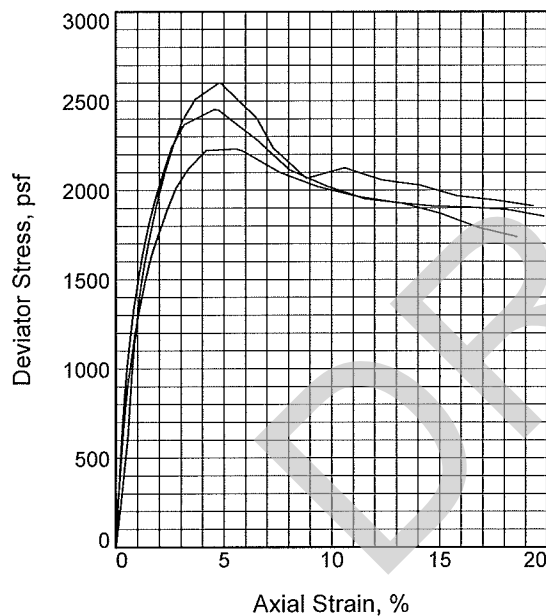
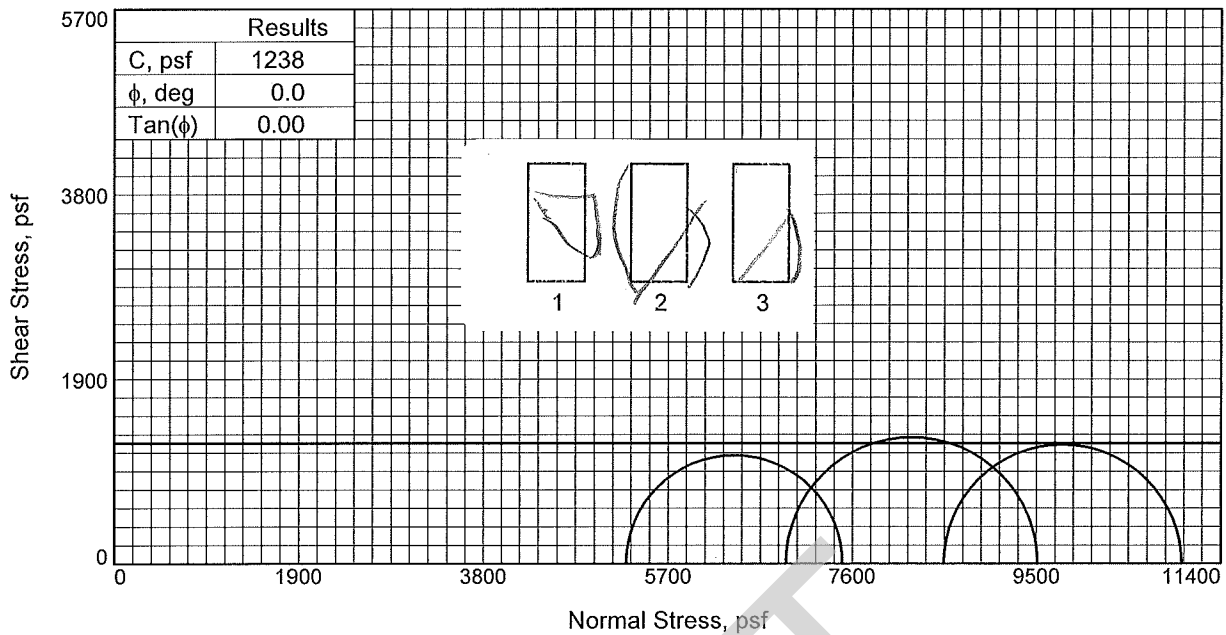
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA "Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	53.4	54.1	54.4
	Dry Density, pcf	68.1	69.0	67.3
	Saturation, %	97.4	101.0	97.5
	Void Ratio	1.4854	1.4509	1.5121
	Diameter, in.	1.43	1.42	1.43
	Height, in.	3.02	3.05	3.02
At Test	Water Content, %	53.4	54.1	54.4
	Dry Density, pcf	68.1	69.0	67.3
	Saturation, %	97.4	101.0	97.5
	Void Ratio	1.4854	1.4509	1.5121
	Diameter, in.	1.43	1.42	1.43
	Height, in.	3.02	3.05	3.02
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	36.57	48.00	59.32	
Fail. Stress, psf	2232	2602	2454	
Strain, %	5.6	4.8	4.5	
Ult. Stress, psf	1913	2030	1928	
Strain, %	14.6	14.1	13.3	
σ_1 Failure, psf	7498	9514	10996	
σ_3 Failure, psf	5266	6912	8542	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: ST GR CH4 W/ LNS ML

LL= 84 PL= 30 PI= 54

Assumed Specific Gravity: 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A **Depth:** 103

Sample Number: NA

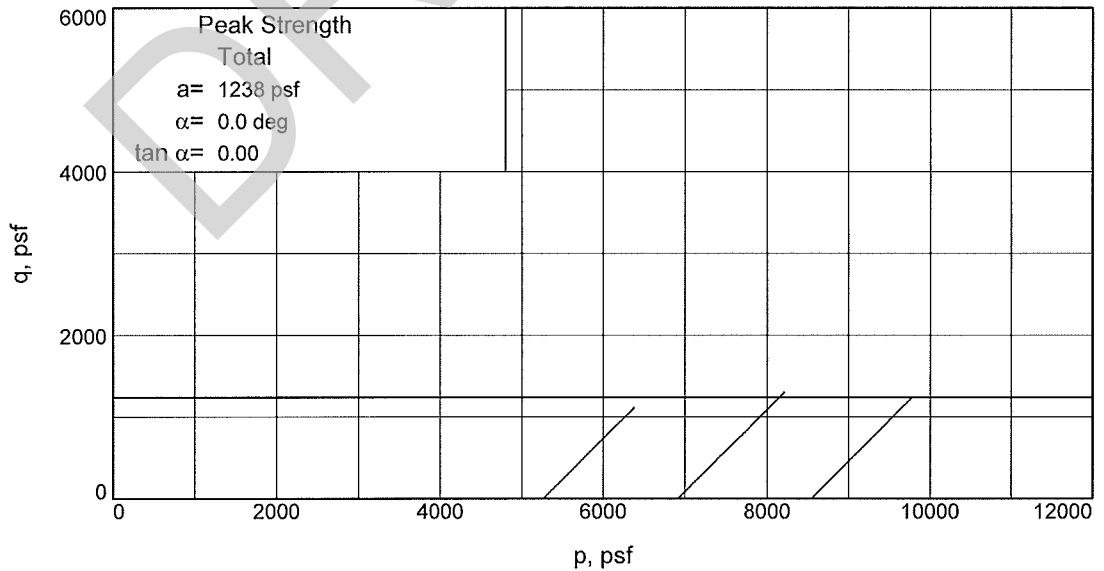
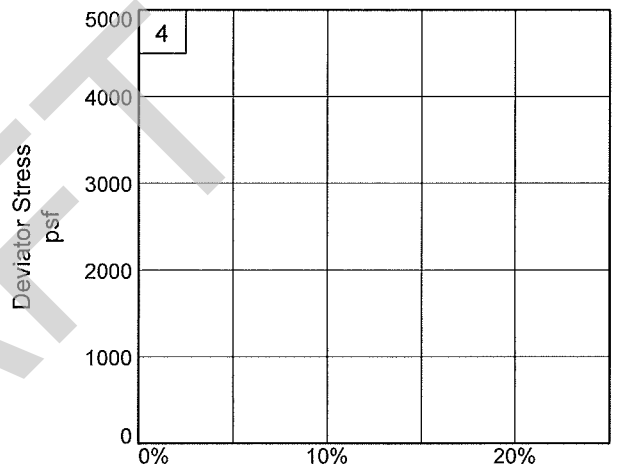
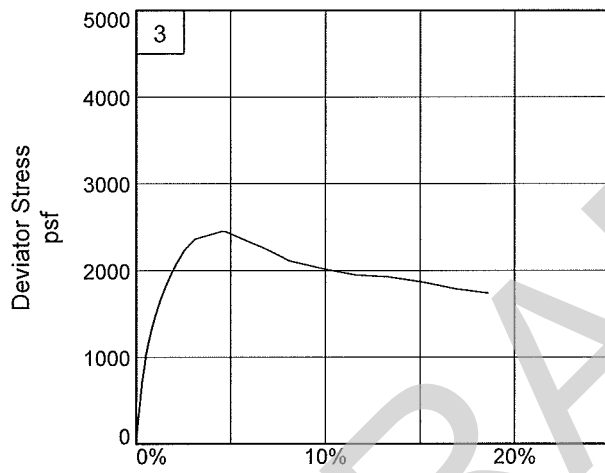
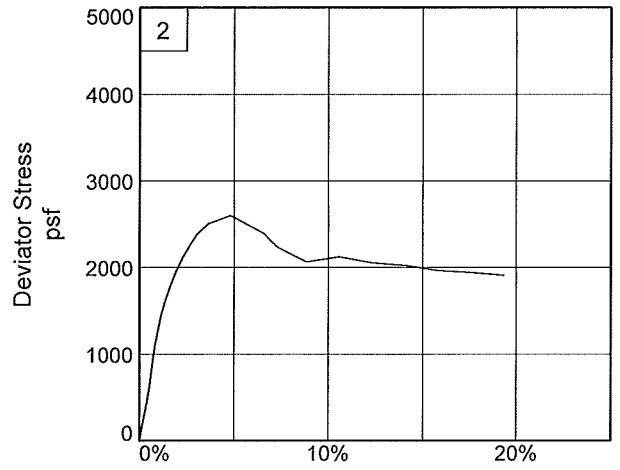
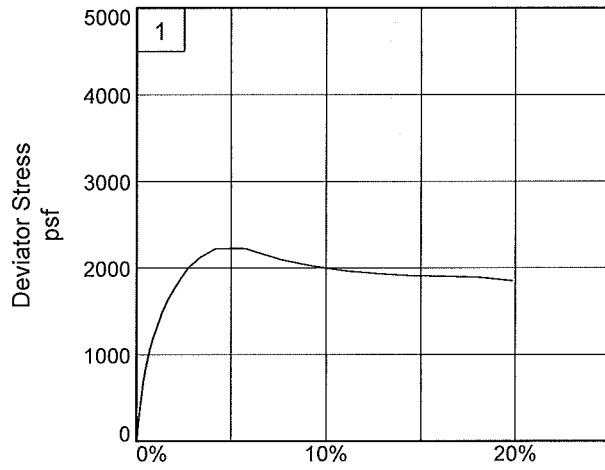
Proj. No.: 04.55124092

Date Sampled: 7/3/13

TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 103

Sample Number: NA

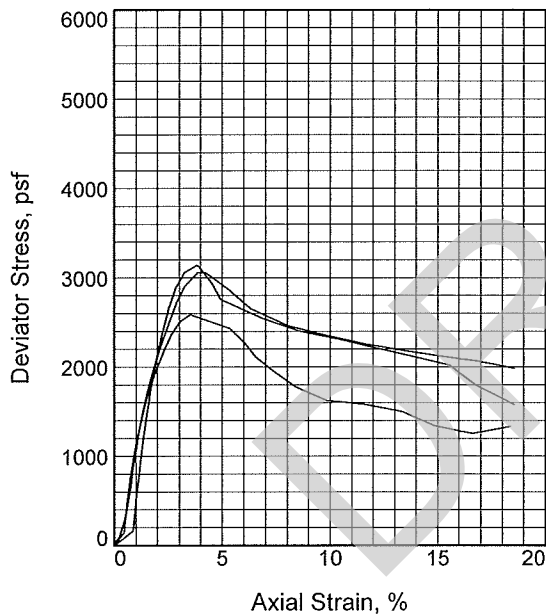
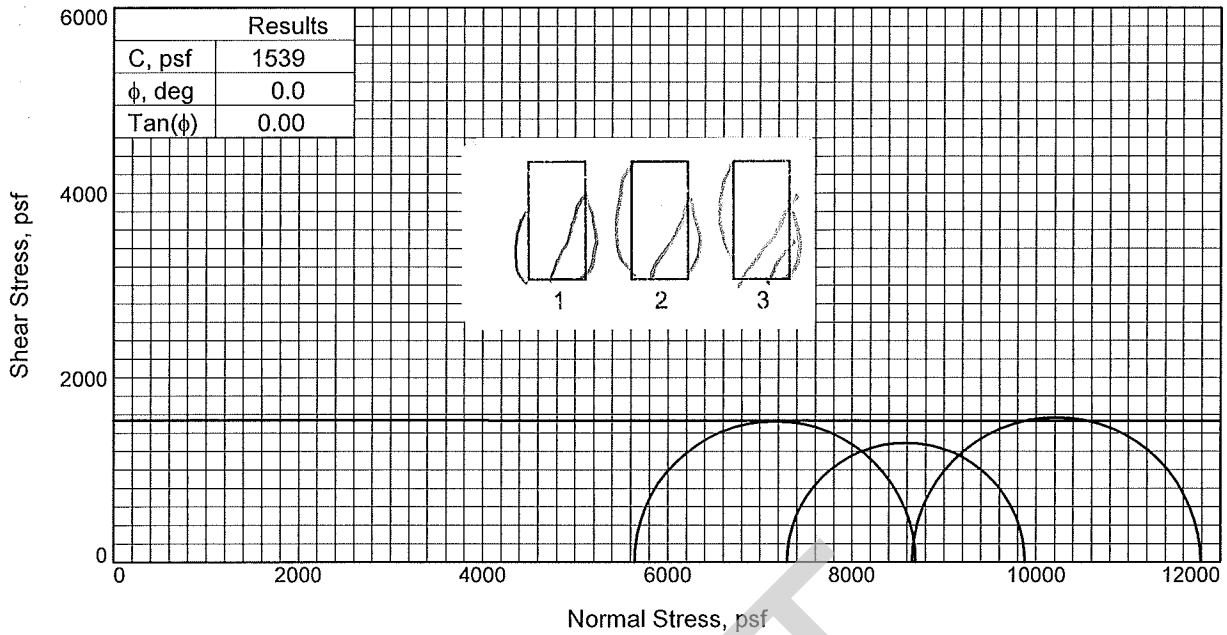
Project No.: 04.55124092

Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA "Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3	
Initial	Water Content, %	55.2	57.6	53.9
	Dry Density, pcf	69.0	67.0	67.3
	Saturation, %	103.1	102.3	96.4
	Void Ratio	1.4509	1.5254	1.5154
	Diameter, in.	1.43	1.42	1.44
	Height, in.	3.16	3.04	3.00
At Test	Water Content, %	55.2	57.6	53.9
	Dry Density, pcf	69.0	67.0	67.3
	Saturation, %	103.1	102.3	96.4
	Void Ratio	1.4509	1.5254	1.5154
	Diameter, in.	1.43	1.42	1.44
	Height, in.	3.16	3.04	3.00
Strain rate, in./min.	1.00	1.00	1.00	
Back Pressure, psi	0.00	0.00	0.00	
Cell Pressure, psi	39.14	50.63	60.07	
Fail. Stress, psf	3057	2588	3139	
Strain, %	4.2	3.5	3.8	
Ult. Stress, psf	2191	1344	2122	
Strain, %	13.3	14.9	13.8	
σ_1 Failure, psf	8693	9879	11789	
σ_3 Failure, psf	5636	7291	8650	

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: ST GR CH4 W/ LNS ML

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 110

Sample Number: NA

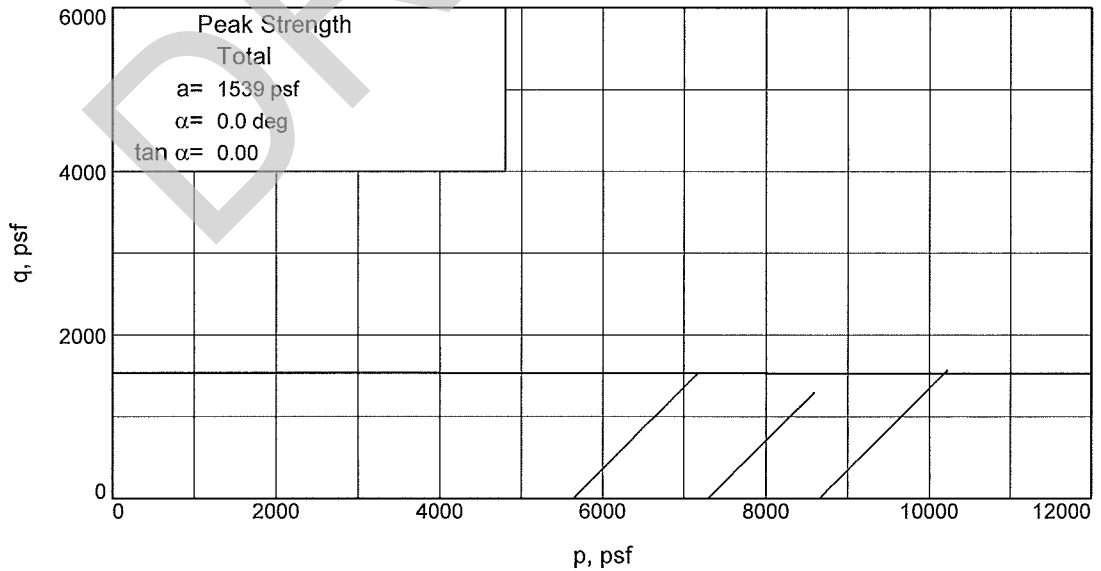
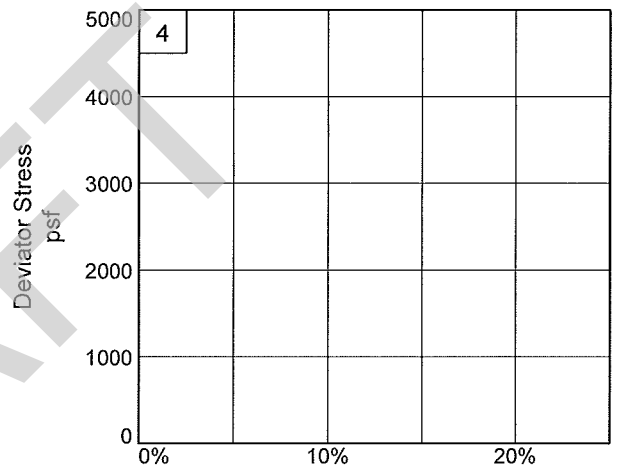
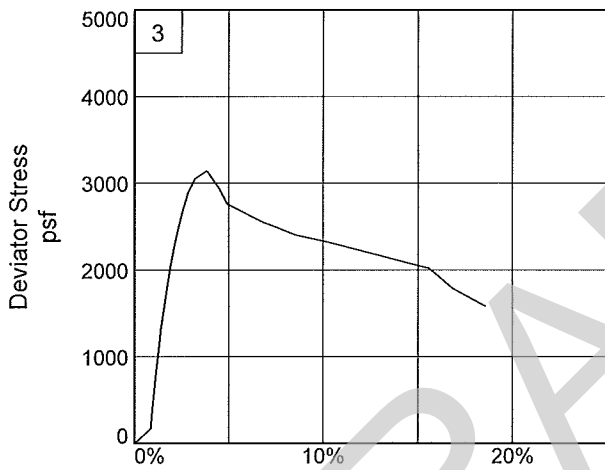
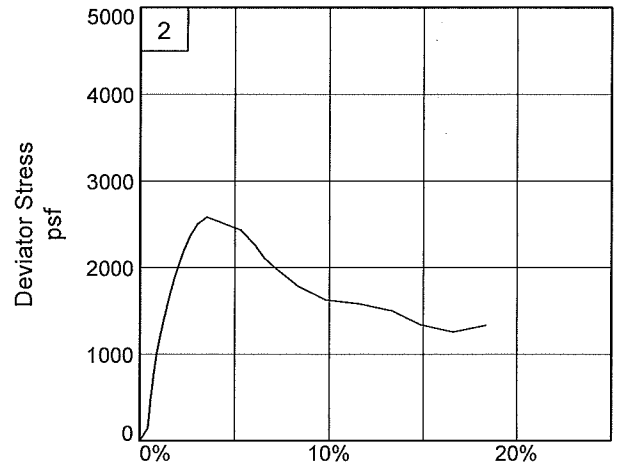
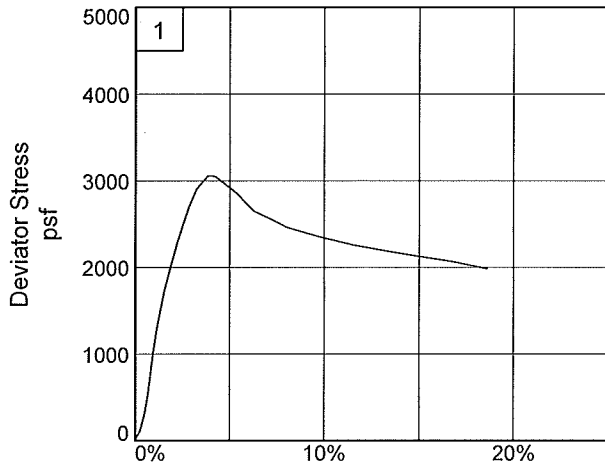
Proj. No.: 04.55124092

Date Sampled: 7/3/13

TRIAxIAL SHEAR TEST REPORT

Fugro Consultants, Inc.

Baton Rouge, LA



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 110

Sample Number: NA

Project No.: 04.55124092

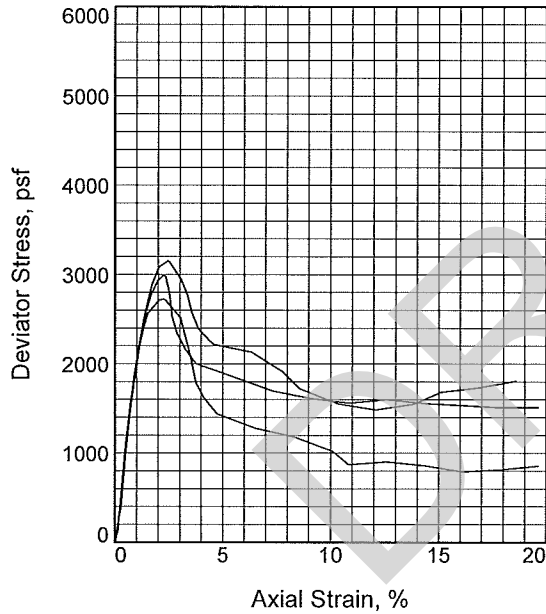
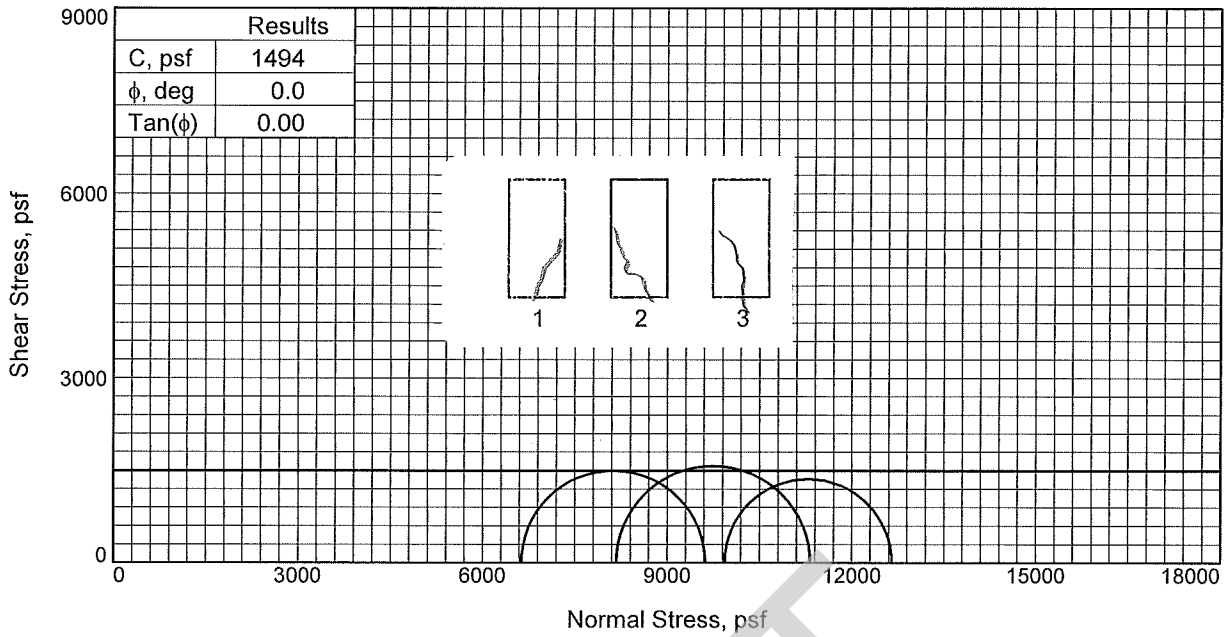
Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA

"Confidential Information, Privileged & Confidential Work Product"



Sample No.	1	2	3
Initial			
Water Content, %	67.0	69.9	69.3
Dry Density, pcf	60.5	59.5	59.9
Saturation, %	101.1	102.7	103.1
Void Ratio	1.7955	1.8450	1.8224
Diameter, in.	1.43	1.43	1.42
Height, in.	3.09	3.10	3.02
At Test			
Water Content, %	67.0	69.9	69.3
Dry Density, pcf	60.5	59.5	59.9
Saturation, %	101.1	102.7	103.1
Void Ratio	1.7955	1.8450	1.8224
Diameter, in.	1.43	1.43	1.42
Height, in.	3.09	3.10	3.02
Strain rate, in./min.	1.00	1.00	1.00
Back Pressure, psi	0.00	0.00	0.00
Cell Pressure, psi	46.04	56.74	68.96
Fail. Stress, psf	2994	3153	2724
Strain, %	2.2	2.4	2.2
Ult. Stress, psf	1559	1485	860
Strain, %	14.4	12.1	14.3
σ_1 Failure, psf	9624	11323	12655
σ_3 Failure, psf	6630	8171	9930

Type of Test:

Unconsolidated Undrained

Sample Type: UNDISTURBED

Description: ST GR CH4 W/ LNS ML

Assumed Specific Gravity= 2.71

Remarks: "Confidential Information: Privileged & Confidential Work Product"

Figure _____

Client: GeoEngineers

Project: Mid Baratavia Diversion

Source of Sample: NL-8A

Depth: 129

Sample Number: NA

Proj. No.: 04.55124092

Date Sampled: 7/3/13

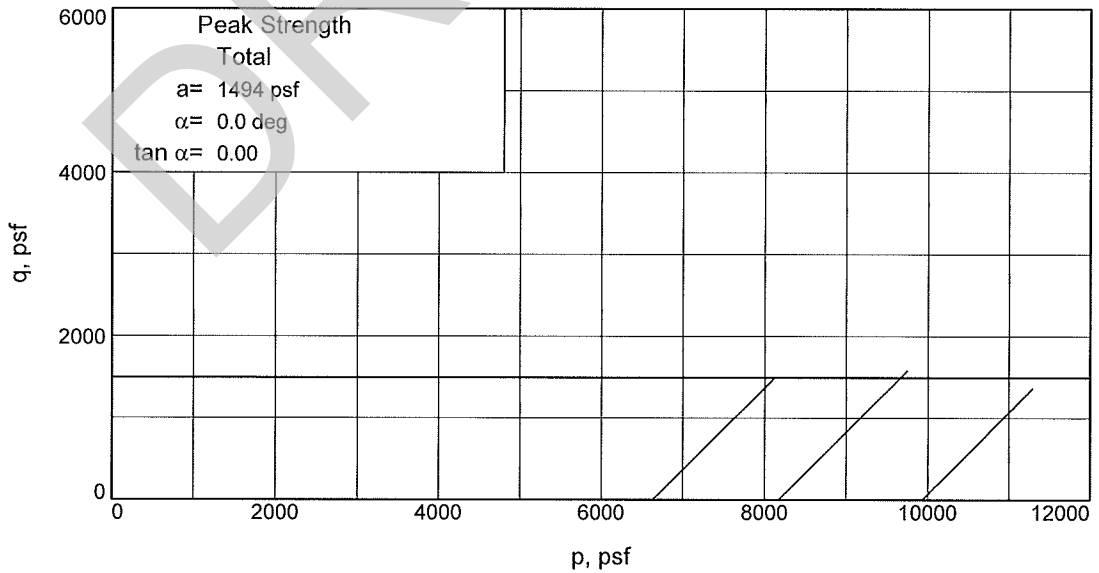
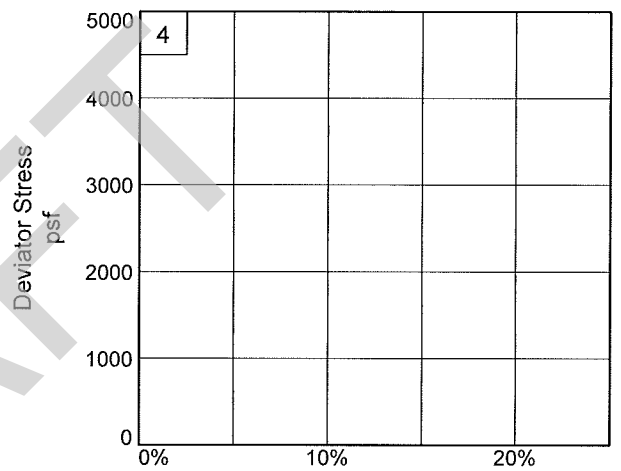
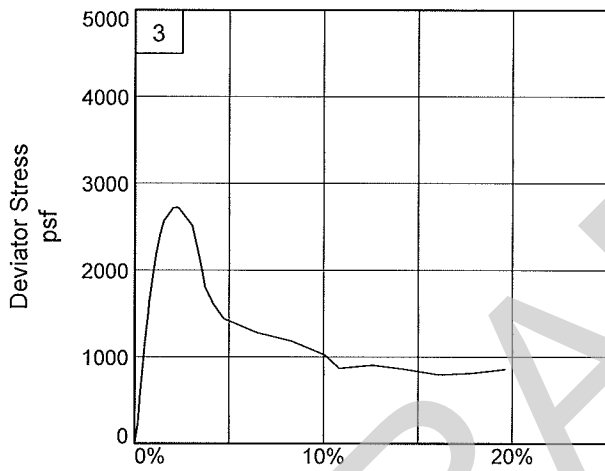
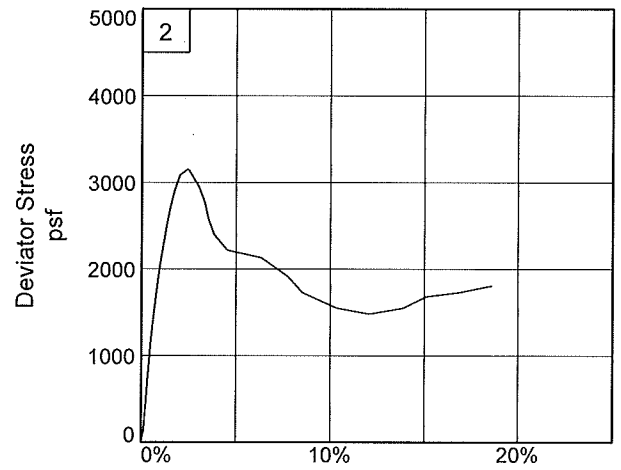
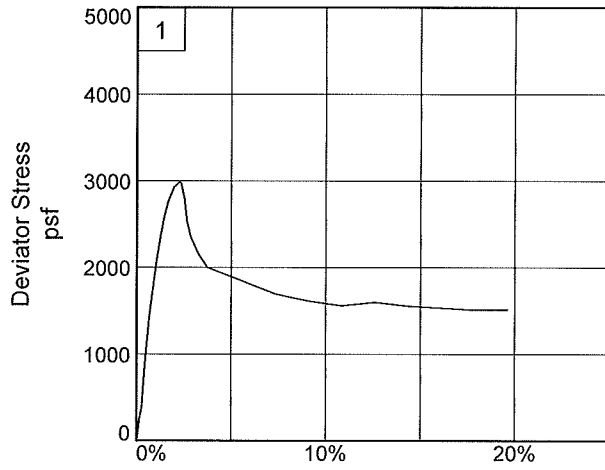
TRIAXIAL SHEAR TEST REPORT

Fugro Consultants, Inc.
Baton Rouge, LA

Tested By: PN

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



Client: GeoEngineers

Project: Mid Barataria Diversion

Source of Sample: NL-8A

Depth: 129

Sample Number: NA

Project No.: 04.55124092

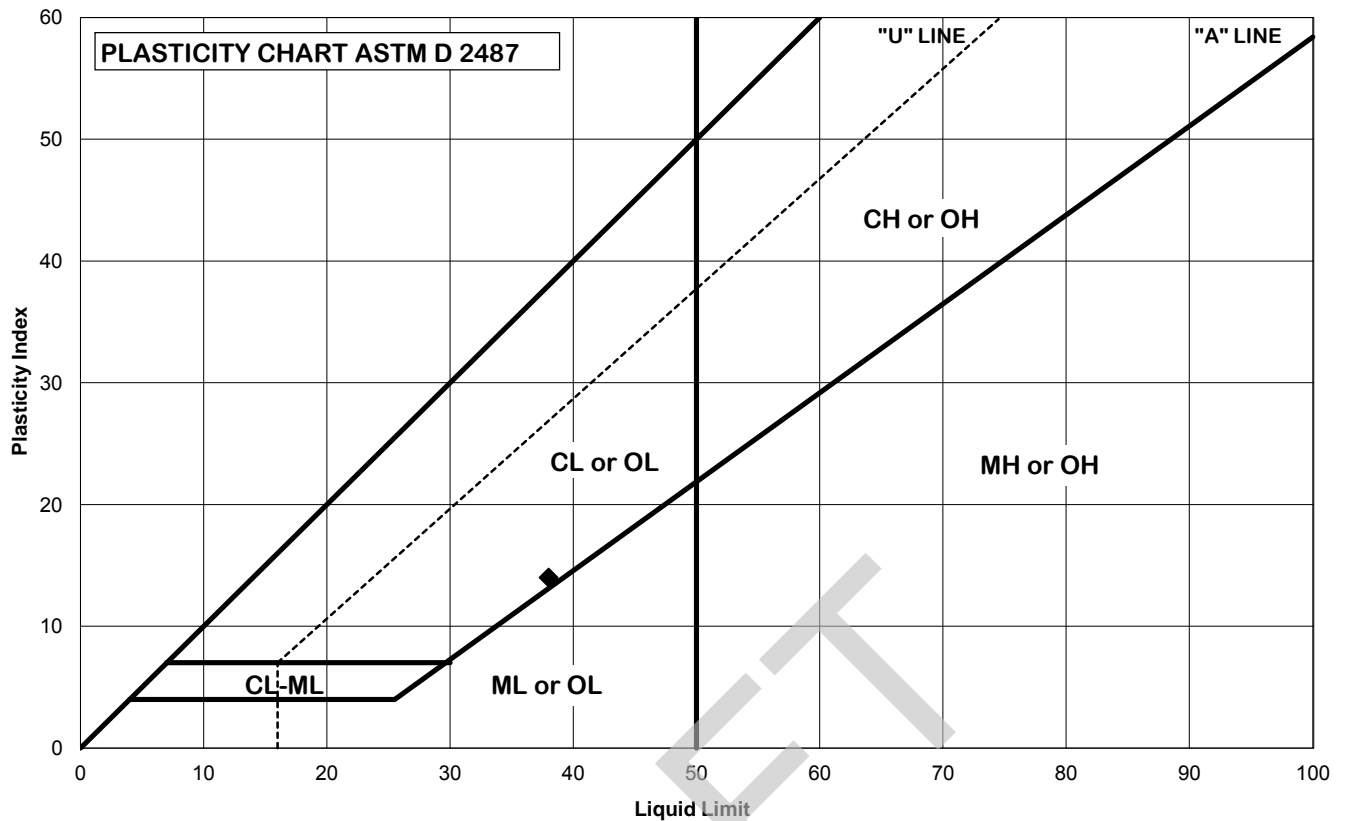
Figure _____

Fugro Consultants, Inc.

Tested By: PN

Checked By: KA

"Confidential Information; Privileged & Confidential Work Product"



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	NL-9A	Natural WC:	#DIV/0!
Depth, ft.	22.5 - 24	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay (CL4)		

Classification (fraction passing No. 40 sieve)
CL

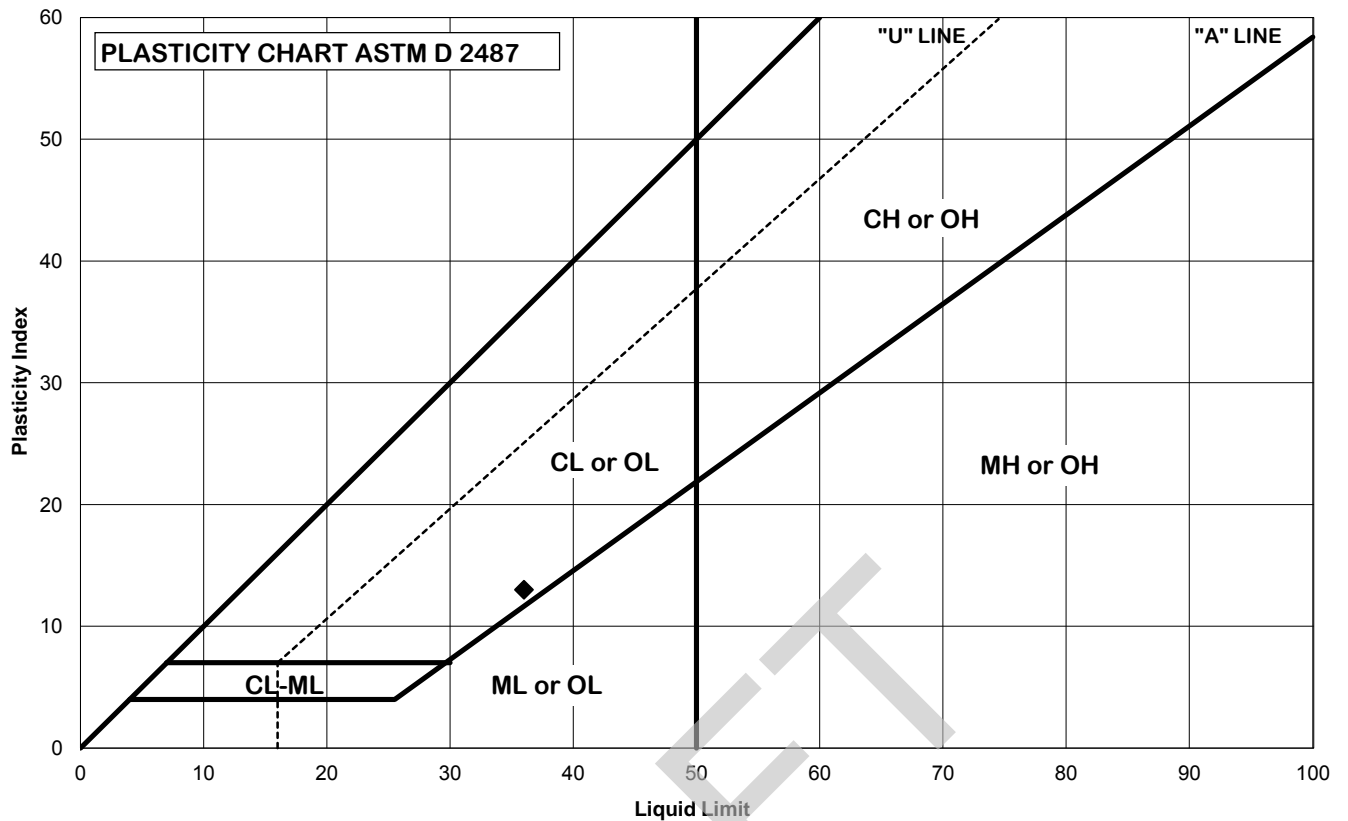
Liquid Limit =	38
Plastic Limit =	24
Plasticity Index =	14

Date:	7/1/2013
Tested By:	SC
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	NL-9A	Natural WC:	#DIV/0!
Depth, ft.	30 - 31.5	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay (CL4)		

Classification (fraction passing No. 40 sieve)
CL

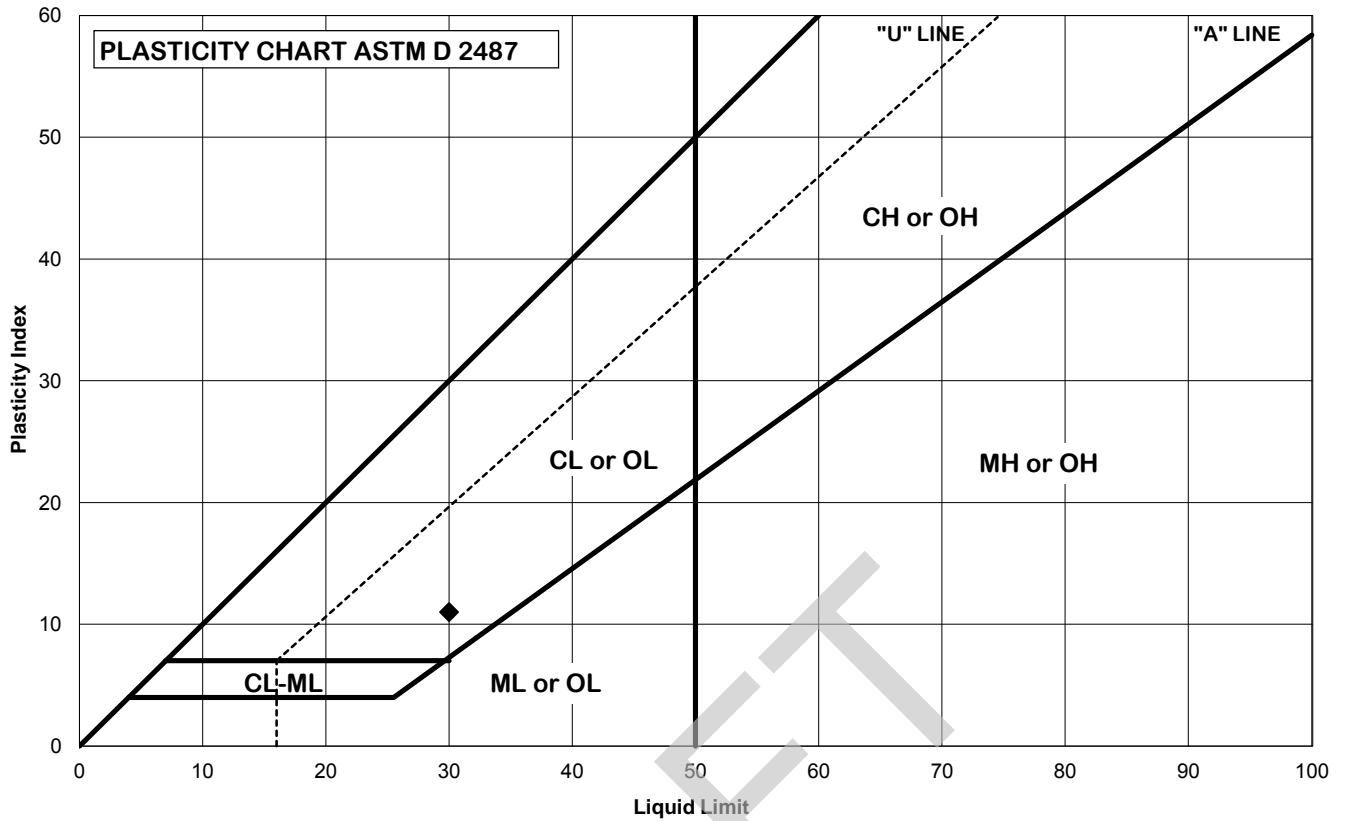
Liquid Limit =	36
Plastic Limit =	23
Plasticity Index =	13

Date:	7/1/2013
Tested By:	SC
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	NL-9A	Natural WC:	#DIV/0!
Depth, ft.	51 - 52.5	Preparation:	Wet (as-received)
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay with sand (CL4)		


Classification (fraction passing No. 40 sieve)
CL

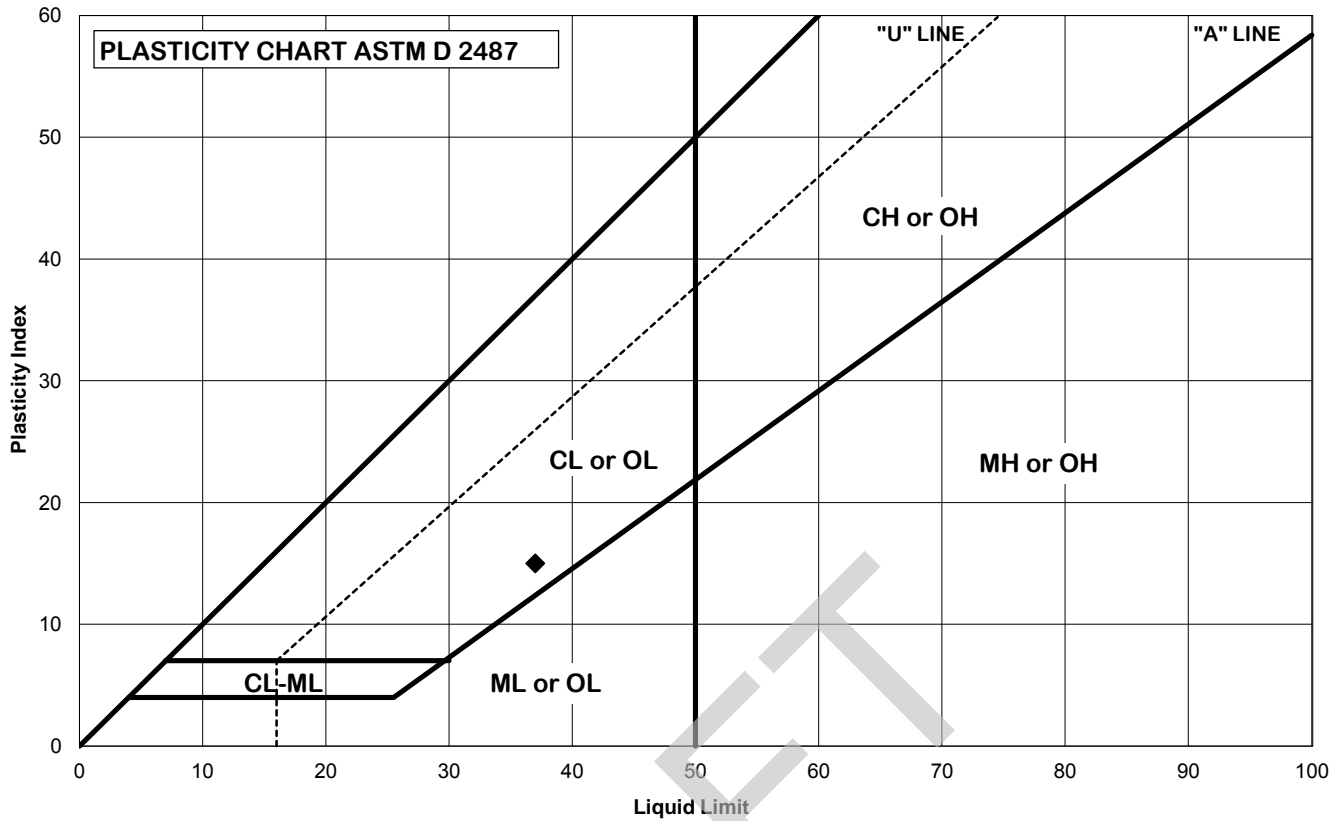
Liquid Limit =	30
Plastic Limit =	19
Plasticity Index =	11

Date:	7/25/2013
Tested By:	BH
Checked By:	RW

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	NL-9A	Natural WC:	#DIV/0!
Depth, ft.	83.5 - 85	Preparation:	Wet (as-received)
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff gray sandy clay (CL4)		


Classification (fraction passing No. 40 sieve)
CL

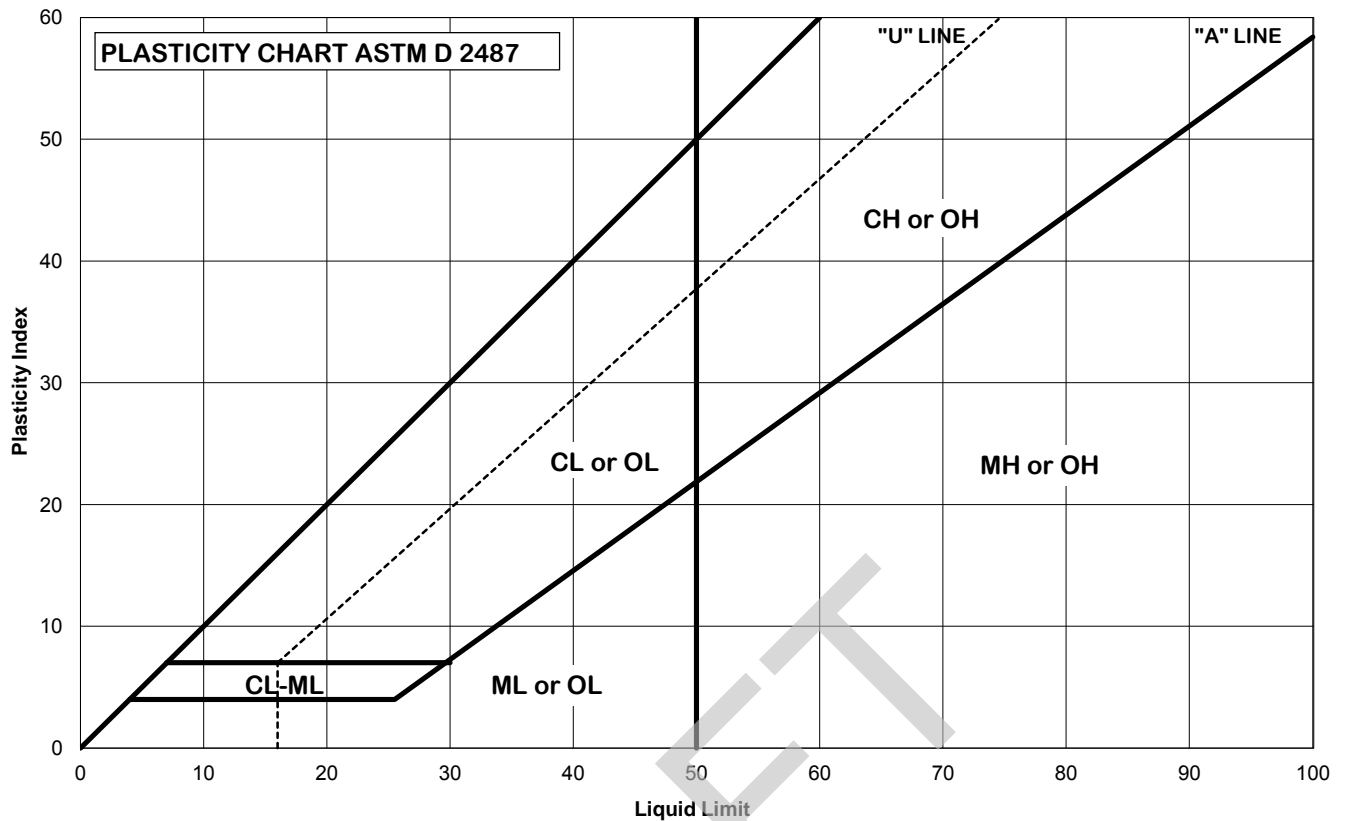
Liquid Limit =	37
Plastic Limit =	22
Plasticity Index =	15

Date:	7/1/2013
Tested By:	BH
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	NL-9A	Natural WC:	#DIV/0!
Depth, ft.	111 - 112.5	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very stiff brown and gray clay with 3" sand layer (CH4)		

Classification (fraction passing No. 40 sieve)
CH

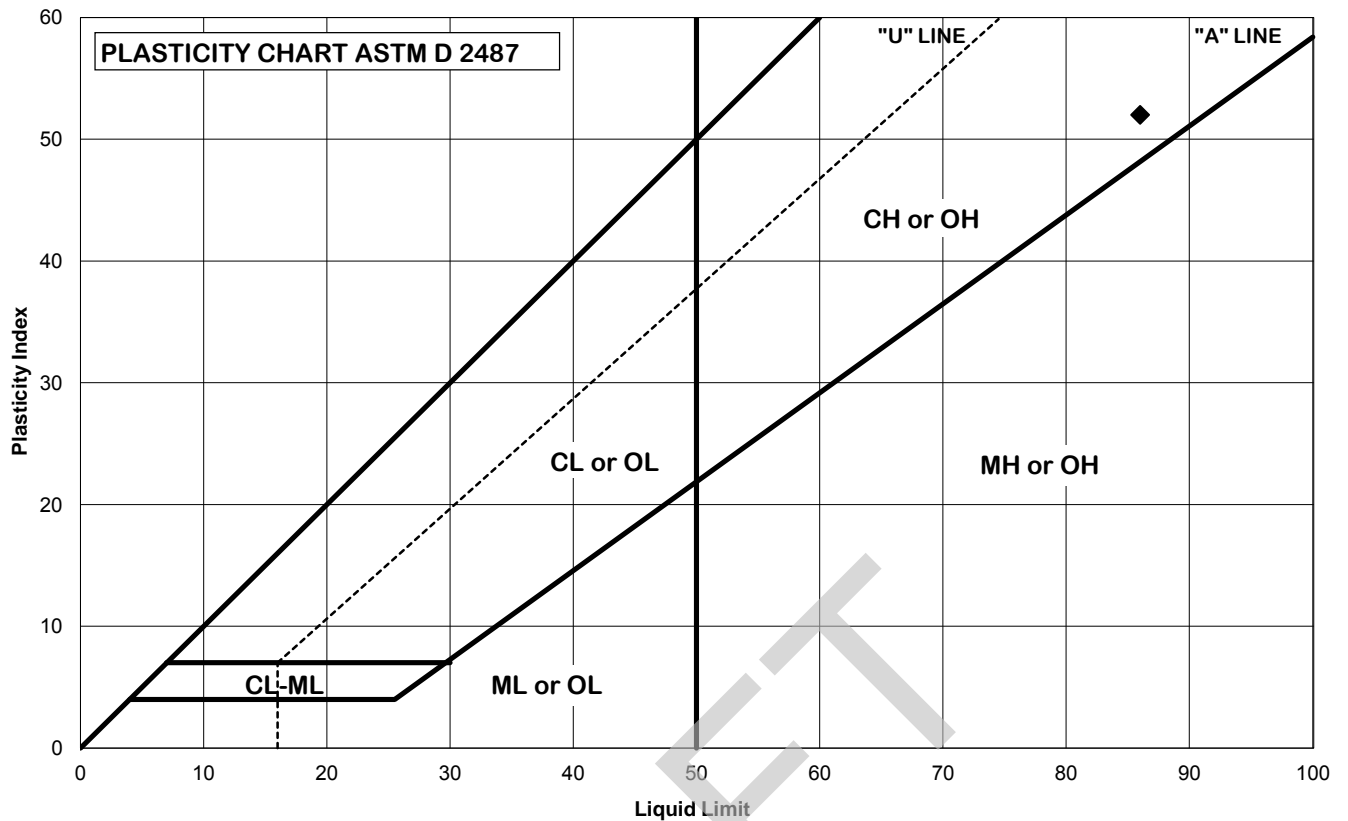
Liquid Limit =	89
Plastic Limit =	28
Plasticity Index =	61

Date:	7/1/2013
Tested By:	SC
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	NL-9A	Natural WC:	#DIV/0!
Depth, ft.	126 - 127.5	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff gray clay with shells (CH4)		

Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	86
Plastic Limit =	34
Plasticity Index =	52

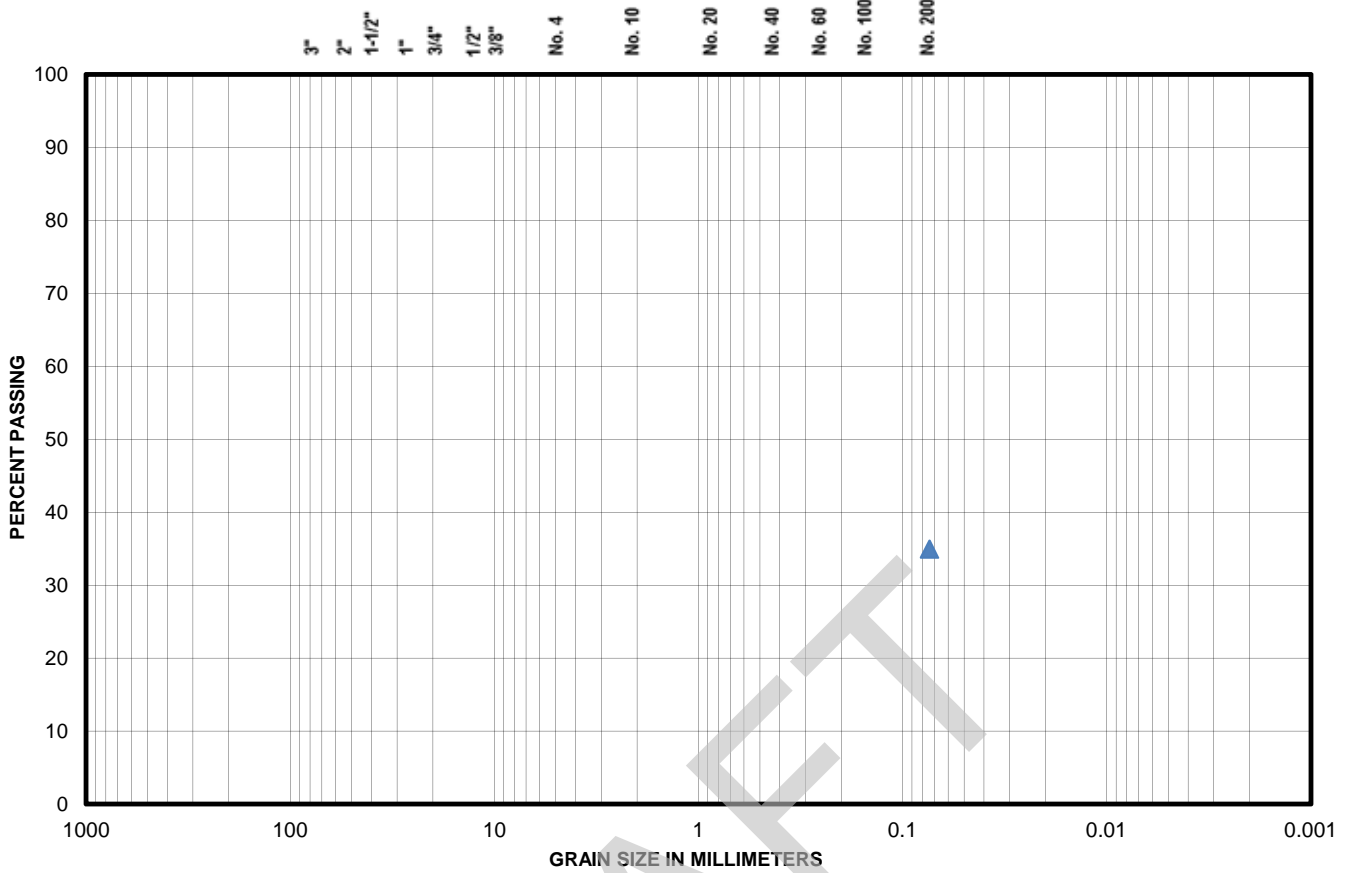
Date:	7/1/2013
Tested By:	BH
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	65.0
Coarse Sand %	0.0	Fines (Silt & Clay) %	35.0
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	35.0

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish	Date Tested	7/10/2013
Project No.	18274-001-00	Tested By	GOM
Boring No.	NL-9A	Checked By	SC
Source/Depth (feet)	41 - 42.5	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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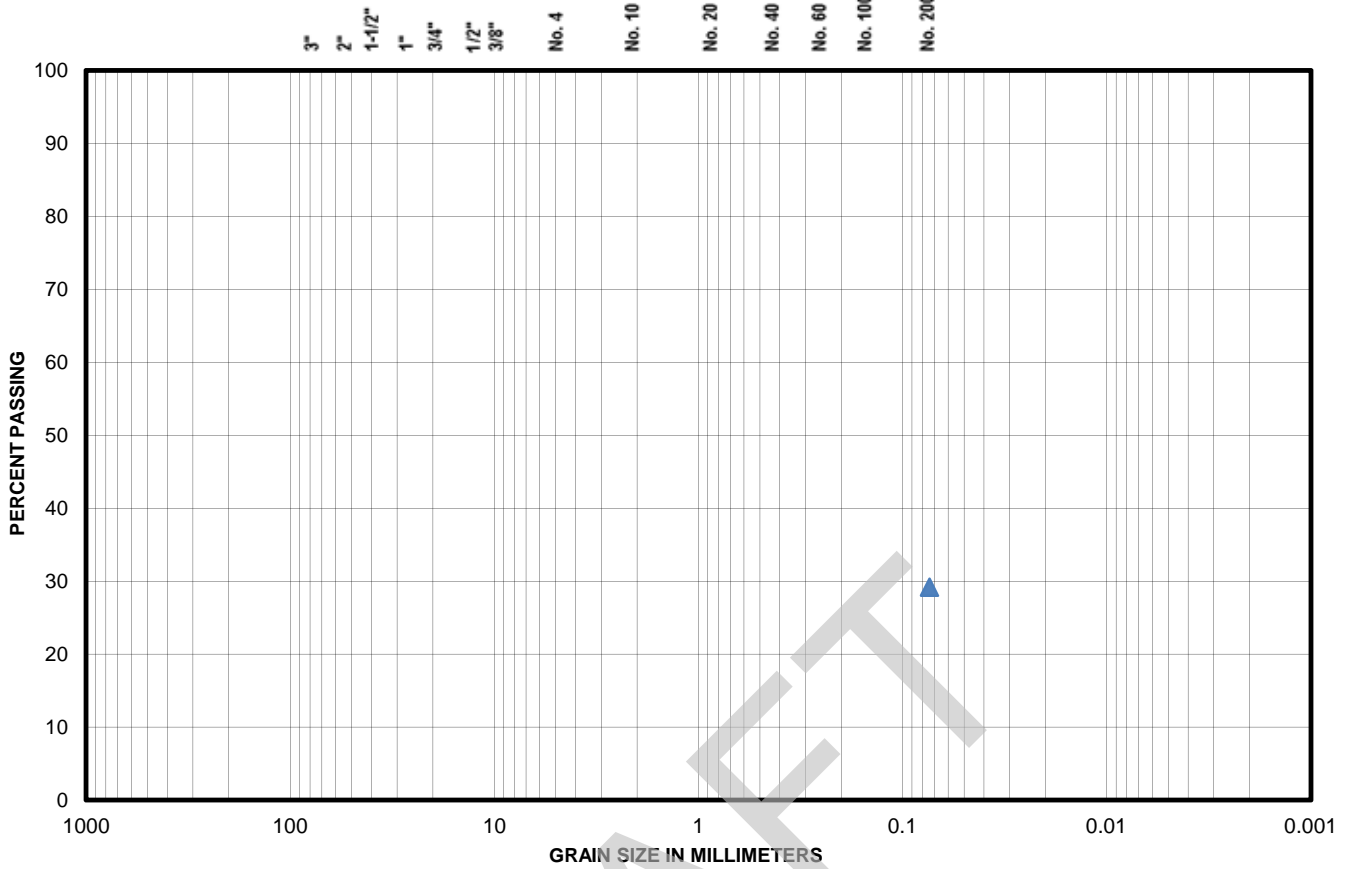
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00

"Confidential Information; Privileged & Confidential Work Product"

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	70.8
Coarse Sand %	0.0	Fines (Silt & Clay) %	29.2
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	29.2

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish	Date Tested	7/10/2013
Project No.	18274-001-00	Tested By	TC
Boring No.	NL-9A	Checked By	RW
Source/Depth (feet)	43.5 - 45	Sieve Type	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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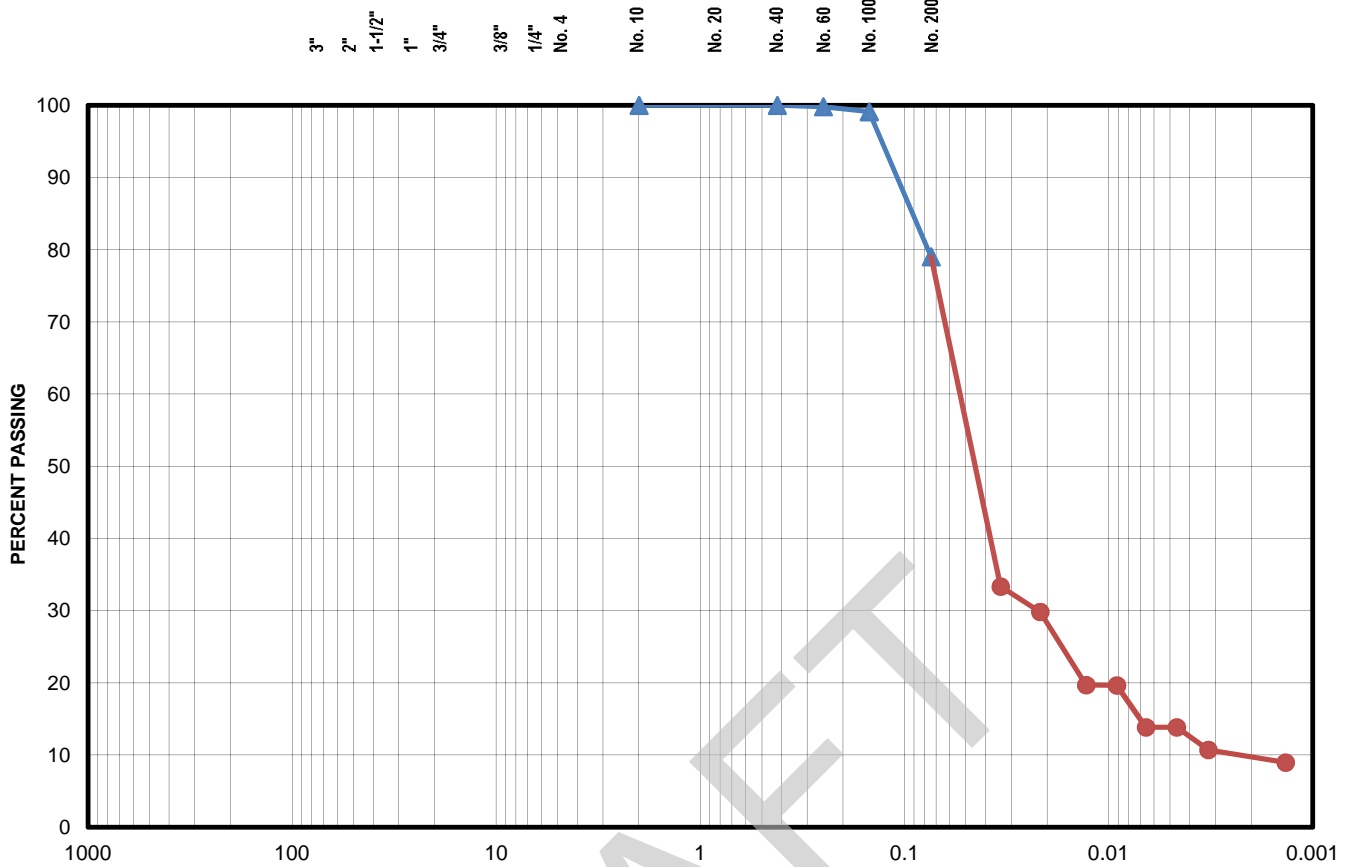
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00

"Confidential Information; Privileged & Confidential Work Product"

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Very loose gray sandy silt with clay (ML)
-----------------------------	---

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.8
3/8"	100.0	No. 100	99.1
1/4"	100.0	No. 200	79.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	1159

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	NL-9A	Checked By	RW
Source/Depth (feet)	46 - 47.5		

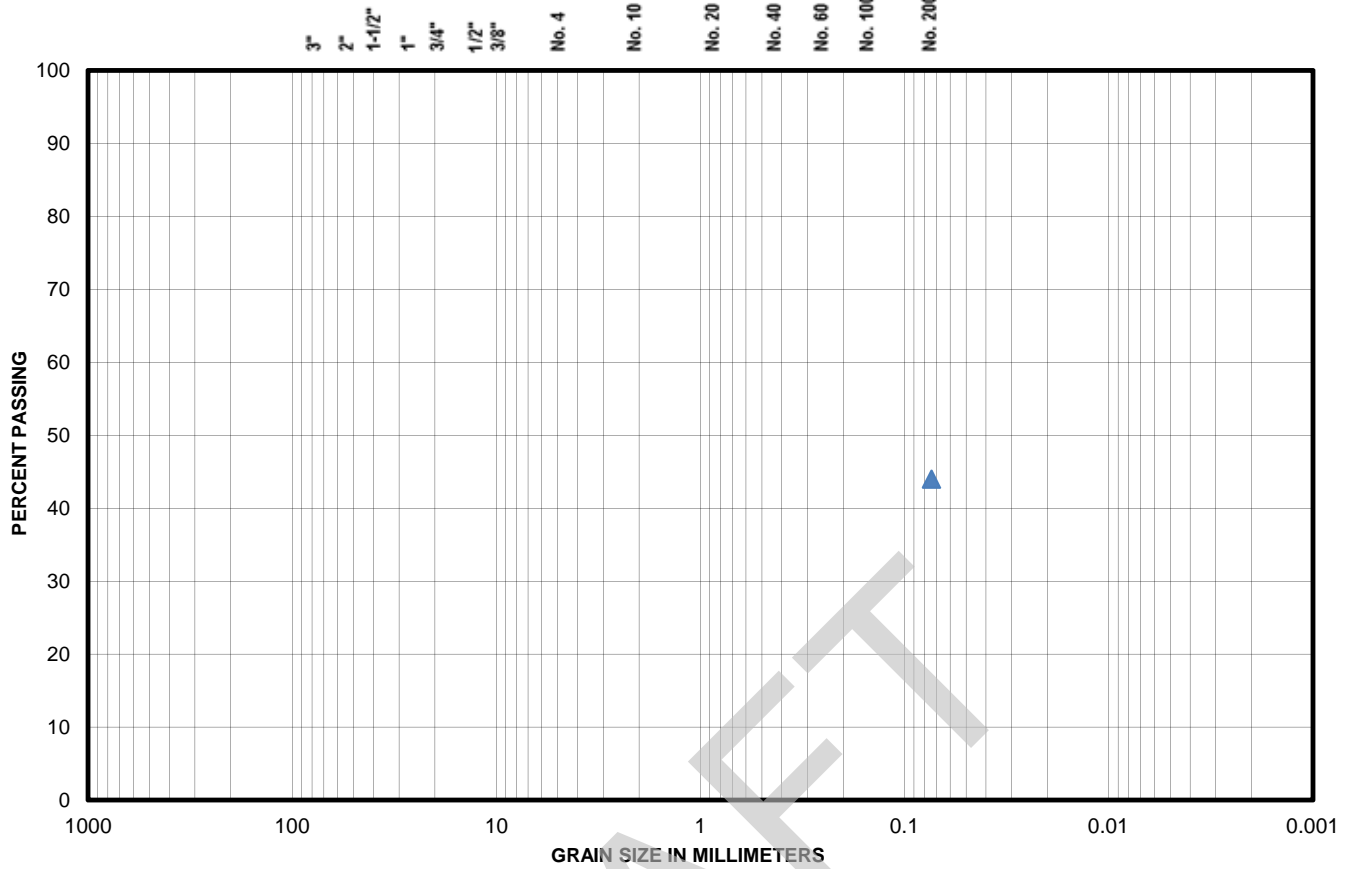
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	56.0
Coarse Sand %	0.0	Fines (Silt & Clay) %	44.0
USC Classification	SC	C _u	na
Description (D 2488)	Clayey sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	44.0

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	JB
Boring No.	NL-9A	Checked By	GOM
Source/Depth (feet)	51 - 52.5	Sieve Type	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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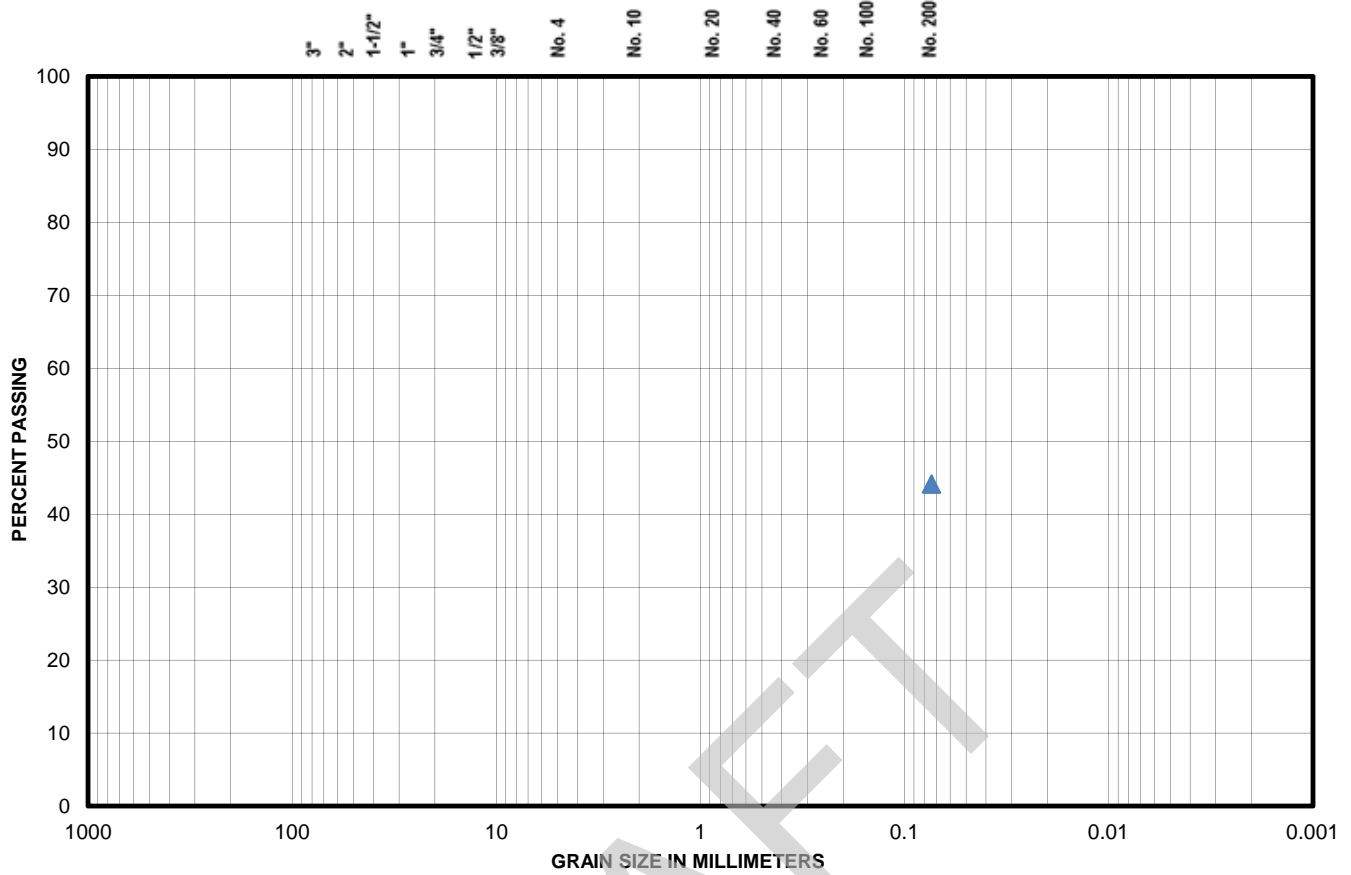
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00

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U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	55.9
Coarse Sand %	0.0	Fines (Silt & Clay) %	44.1
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	44.1

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	JB
Boring No.	NL-9A	Checked By	GOM
Source/Depth (feet)	53.5 - 55	Sieve Type	200 Wash

Method A was used for the 200 Wash

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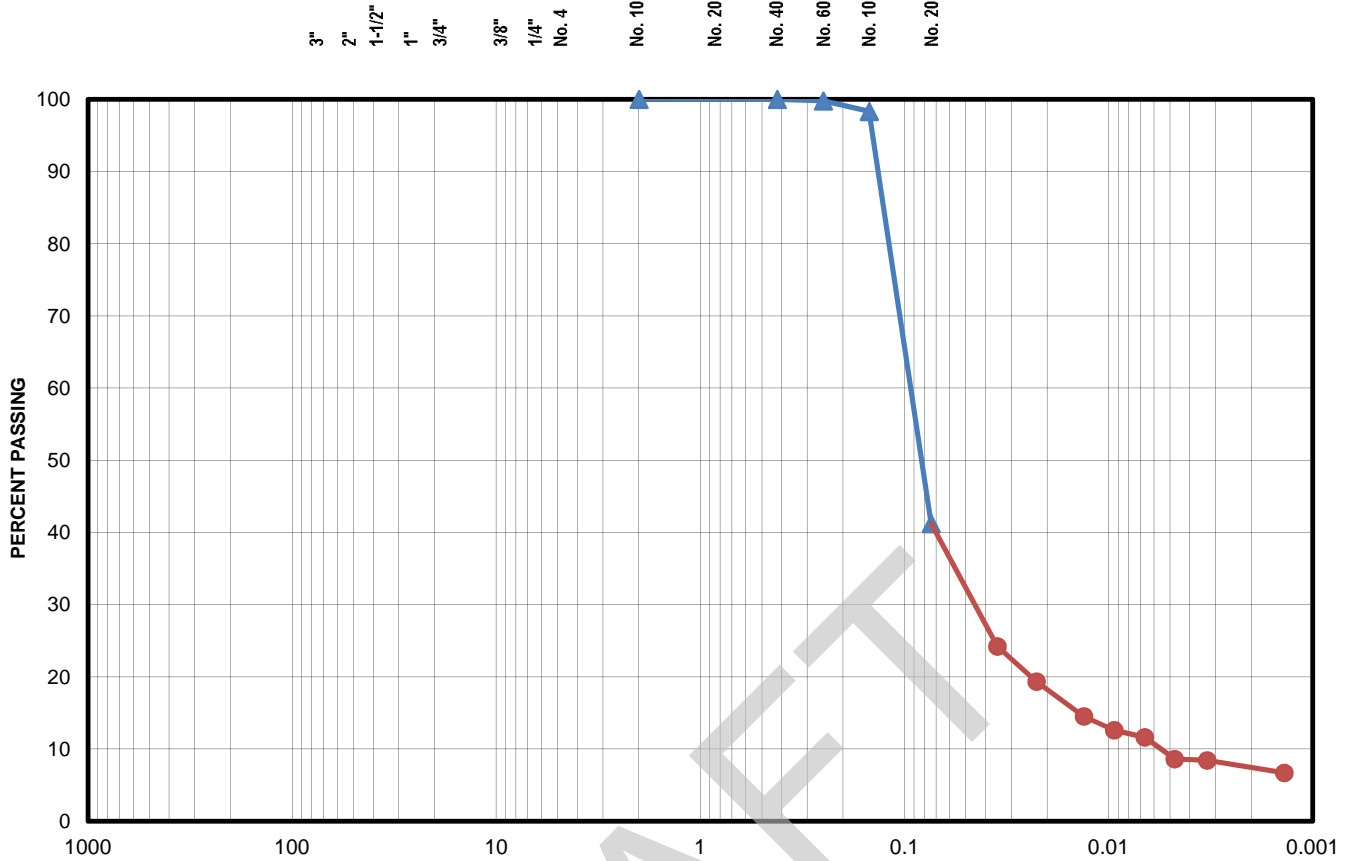
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00

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U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.8
3/8"	100.0	No. 100	98.3
1/4"	100.0	No. 200	64.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1157

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	NL-9A	Checked By	RW
Source/Depth (feet)	56 - 57.5		

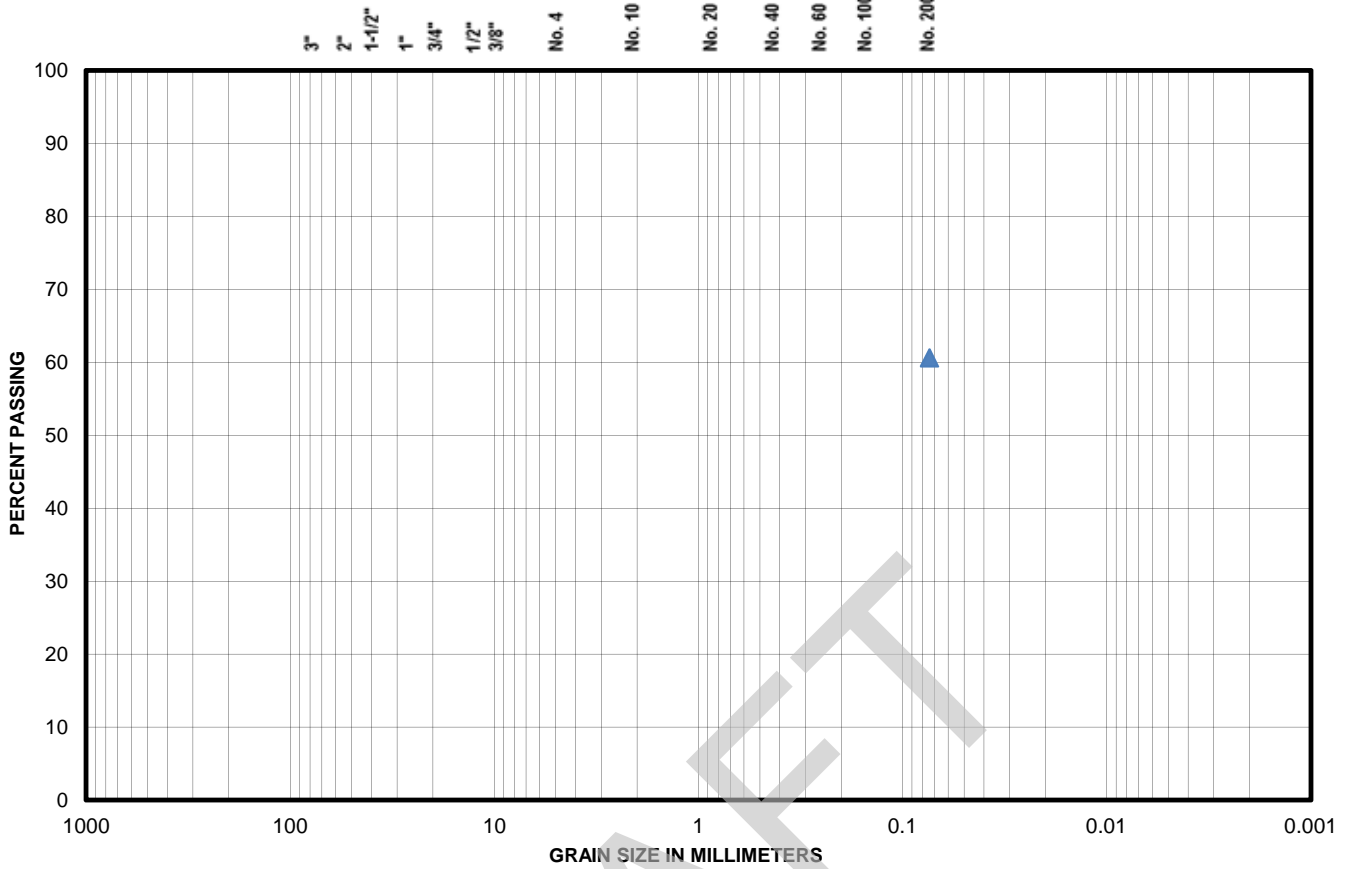
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	39.4
Coarse Sand %	0.0	Fines (Silt & Clay) %	60.6
USC Classification	x	C _u	na
Description (D 2488)	Firm gray sandy silt (SP-SM)		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	60.6

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	tc
Boring No.	NL-9A	Checked By	clp
Source/Depth (feet)	63.5 - 65	Sieve Type	200 Wash

Method A was used for the 200 Wash

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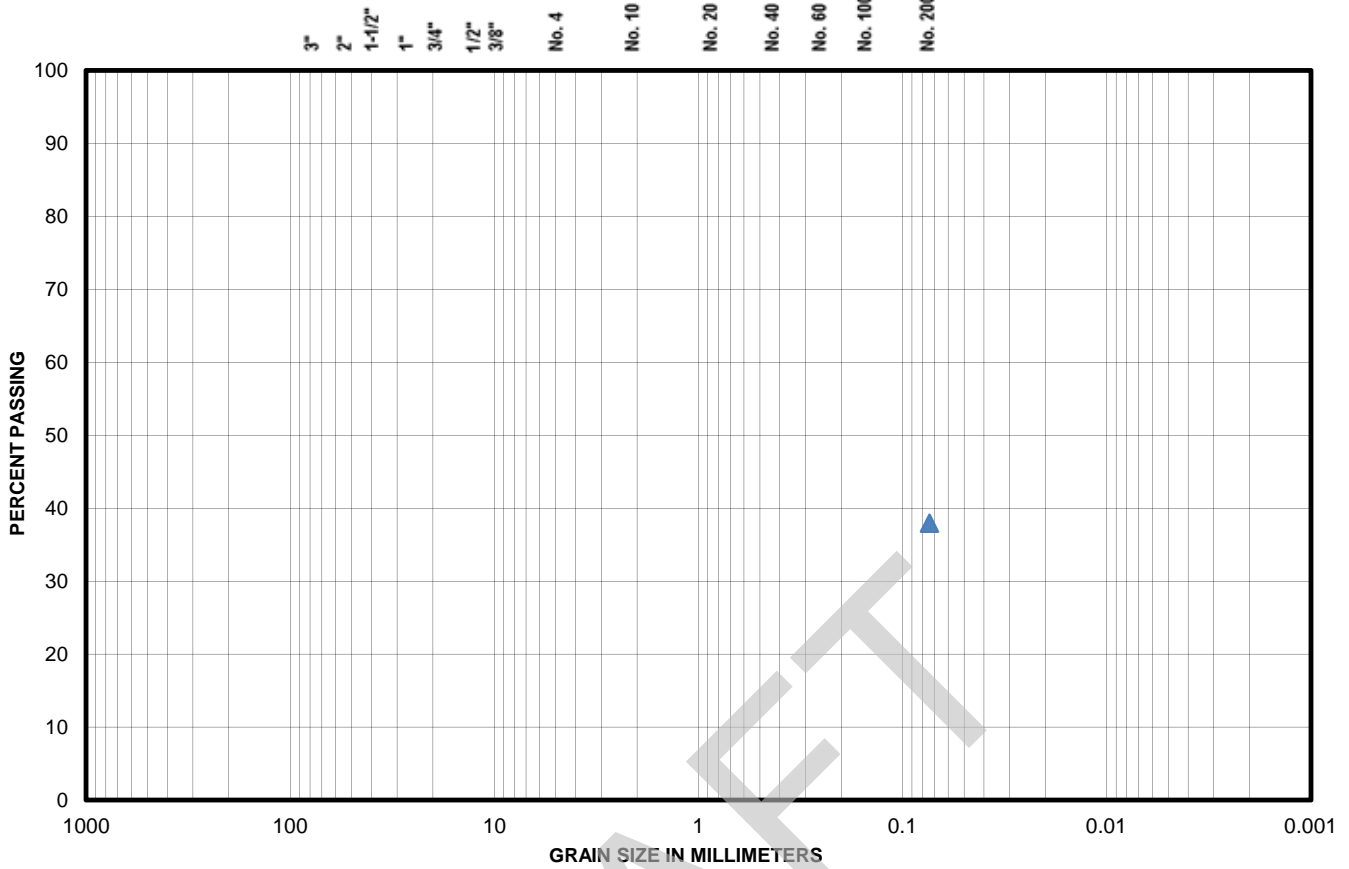
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00

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U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	62.0
Coarse Sand %	0.0	Fines (Silt & Clay) %	38.0
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	38.0

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	JB
Boring No.	NL-9A	Checked By	GOM
Source/Depth (feet)	68.5 - 70	Sieve Type	200 Wash

Method B was used for the 200 Wash

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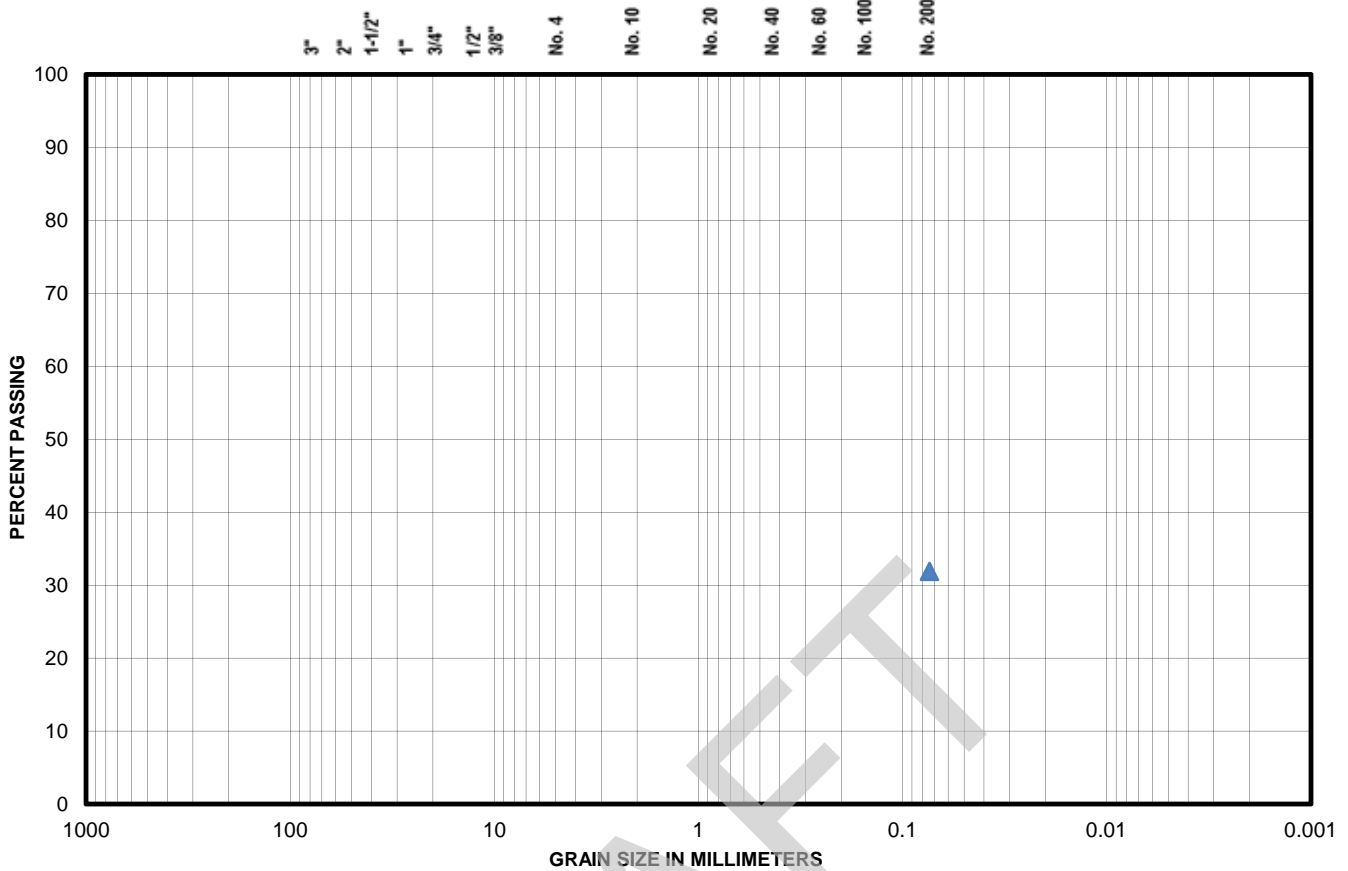
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00

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U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	68.1
Coarse Sand %	0.0	Fines (Silt & Clay) %	31.9
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	31.9

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	JB
Boring No.	NL-9A	Checked By	GOM
Source/Depth (feet)	73.5 - 75	Sieve Type	200 Wash

Method B was used for the 200 Wash

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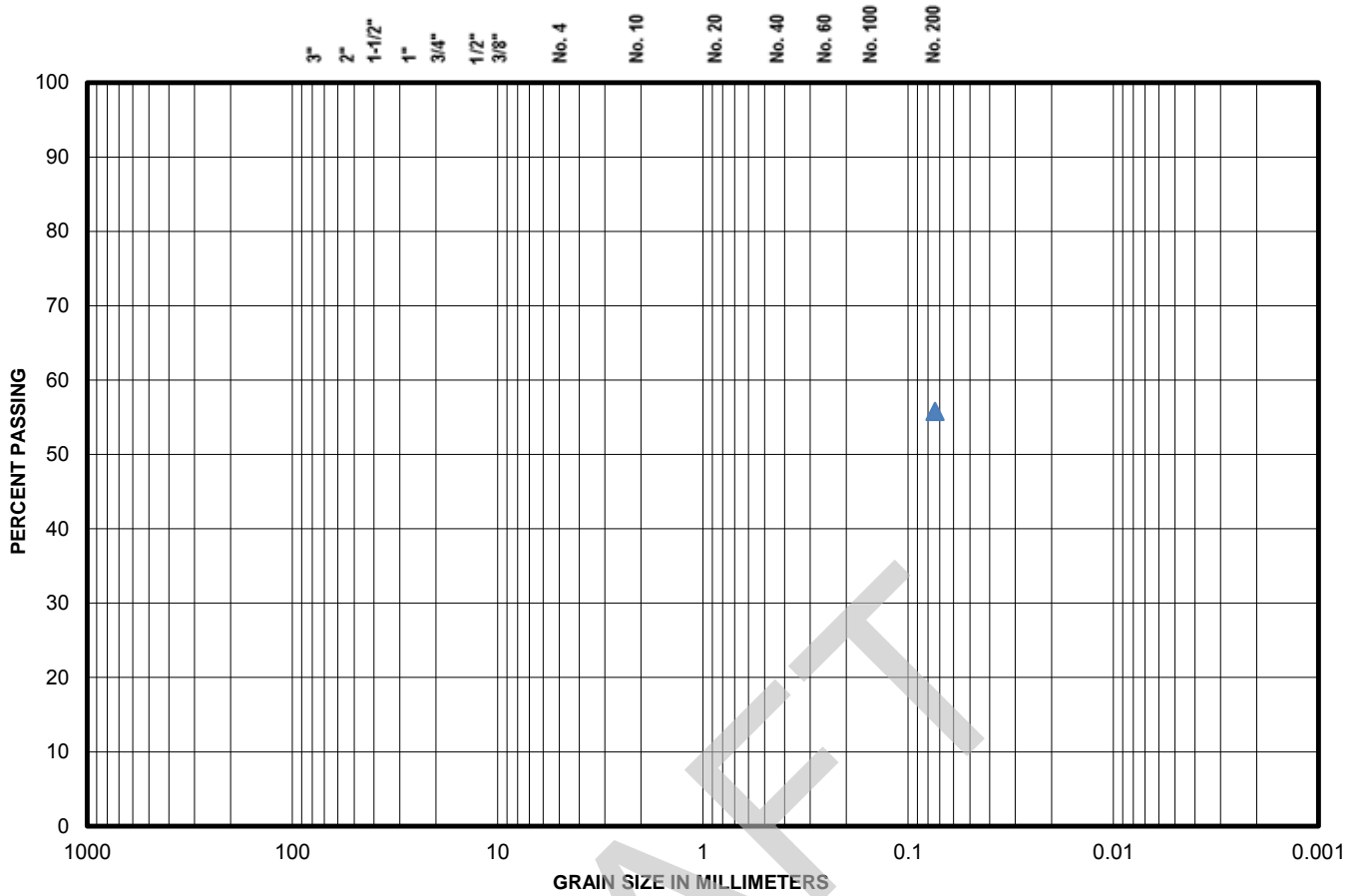
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00

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U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	44.2	Fines (Silt & Clay) %	55.8
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USC Classification	ML	C_u	na	C_c	na
Description (D 2488)	Medium dense gray sandy silt with 6" clayey silt layer (ML)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	55.8

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	JB
Boring No.	NL-9A	Checked By	GOM
Source/Depth (feet)	86 - 87.5	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



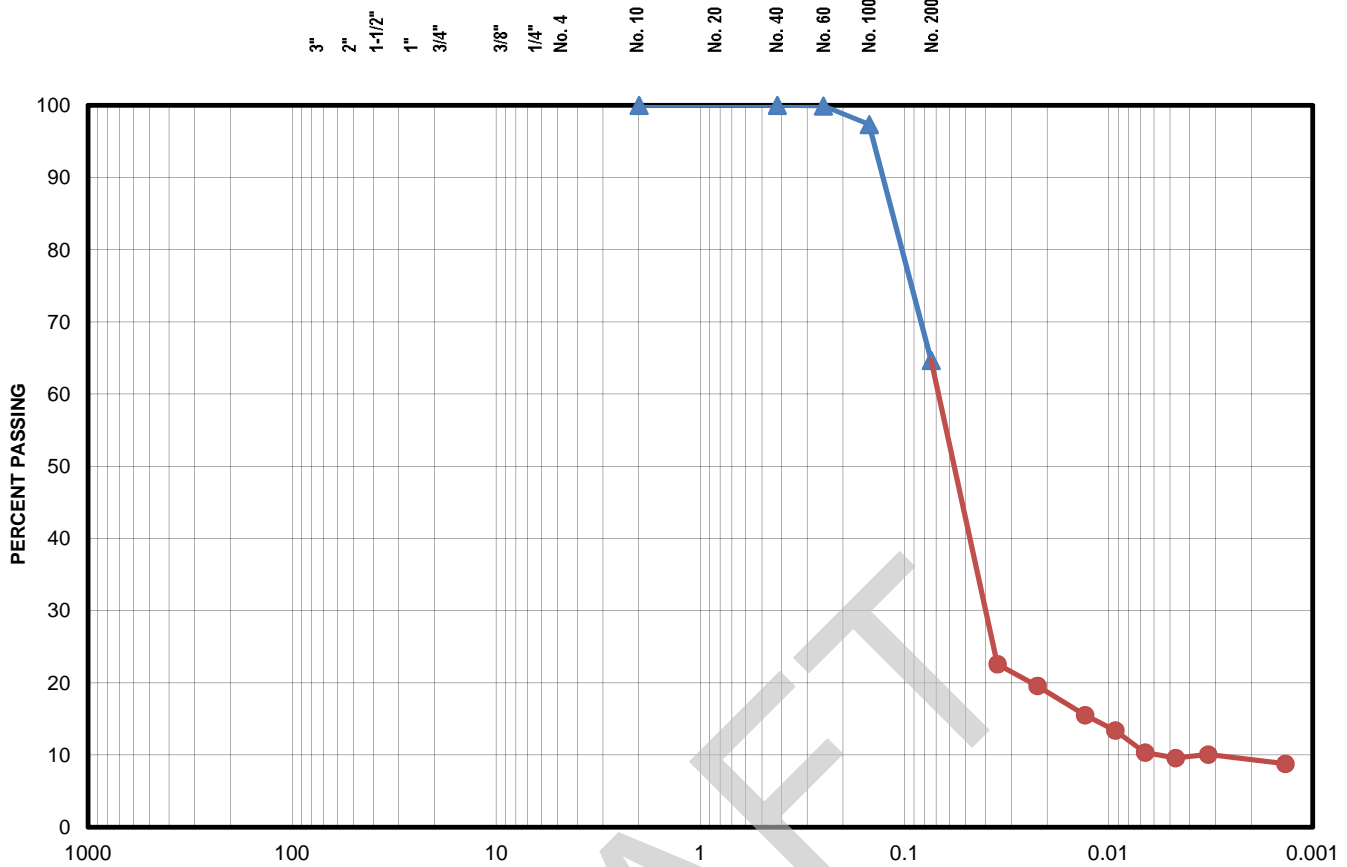
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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential Work Product 18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Loose gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	97.3
1/4"	100.0	No. 200	64.7

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	388172
Hydro jar ID:	1158

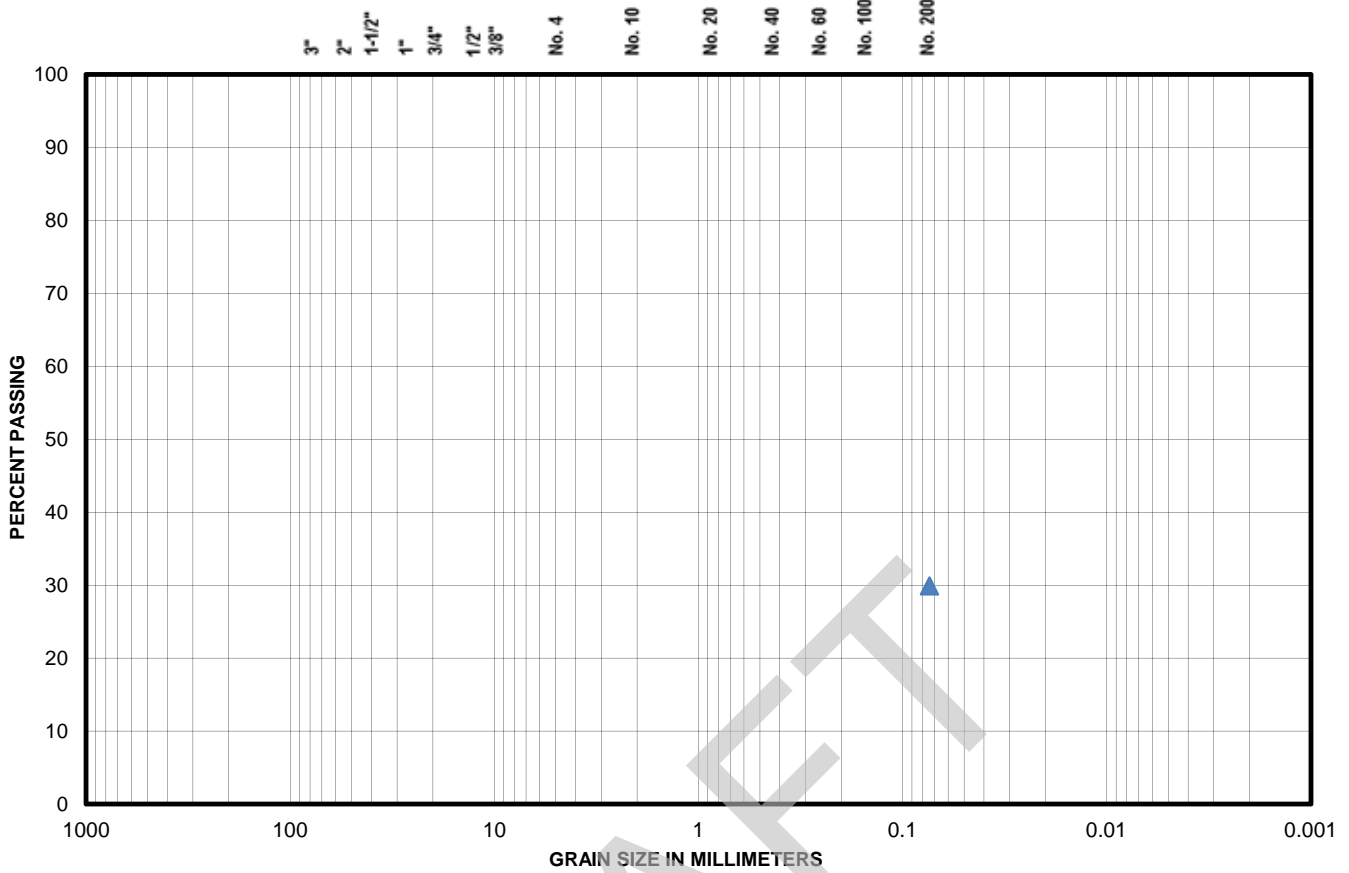
*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	7/23/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	NL-9A	Checked By	RW
Source/Depth (feet)	93.5 - 95		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %	0.0
Fine Gravel %	0.0	Fine Sand %	70.1
Coarse Sand %	0.0	Fines (Silt & Clay) %	29.9
USC Classification	SM	C _u	na
Description (D 2488)	Silty sand		

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	29.9

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	JB
Boring No.	NL-9A	Checked By	GOM
Source/Depth (feet)	98.5 - 100	Sieve Type	200 Wash

Method B was used for the 200 Wash

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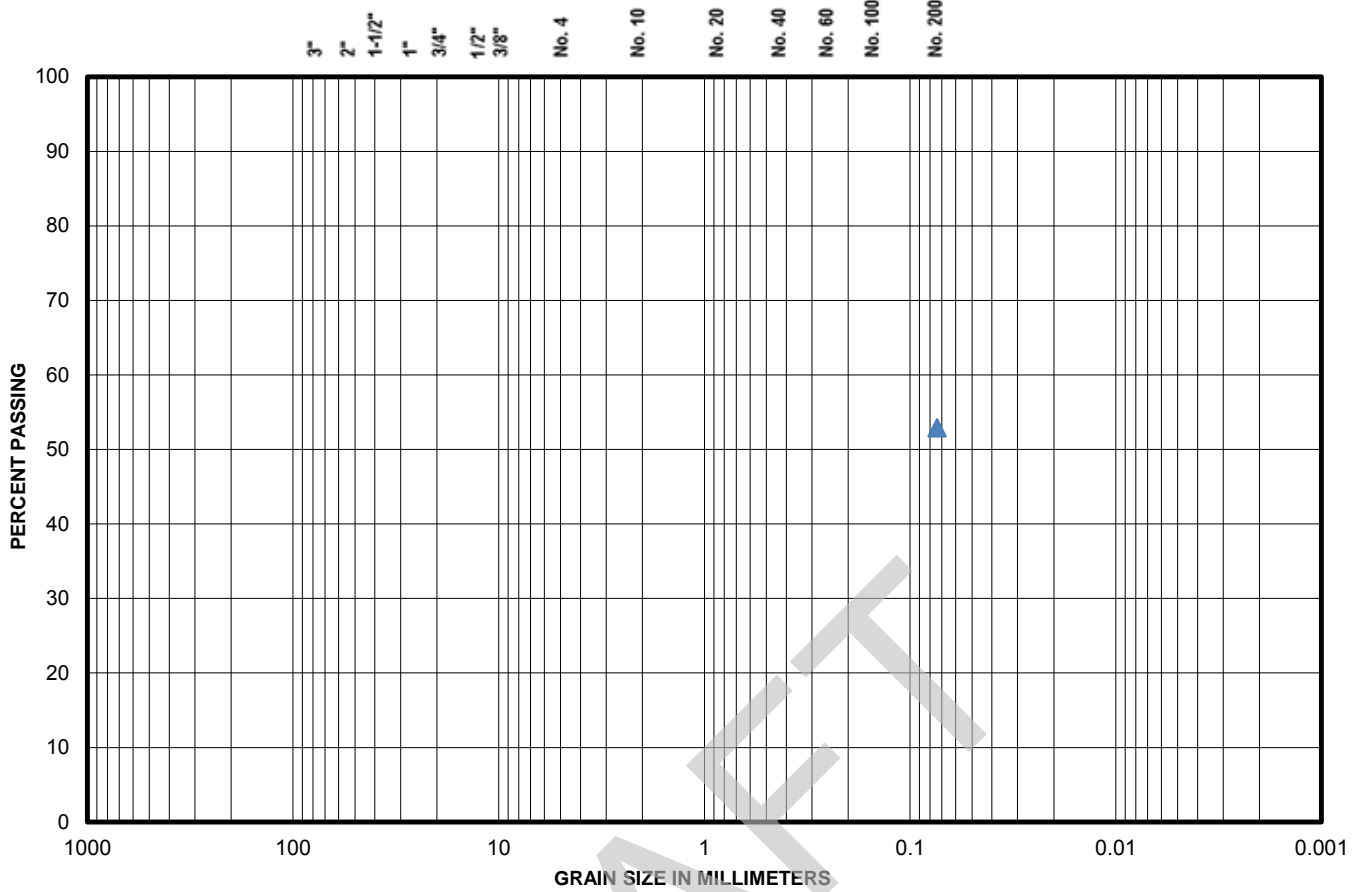
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00

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U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	47.1	Fines (Silt & Clay) %	52.9
---------------	------	----------------------------------	------

USC Classification	ML	C_u	na	C_c	na
Description (D 2488)	Medium dense gray sandy silt (ML)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	52.9

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	JB
Boring No.	NL-9A	Checked By	GOM
Source/Depth (feet)	106 - 107.5	Sieve Type	200 Wash

Method B was used for the 200 Wash

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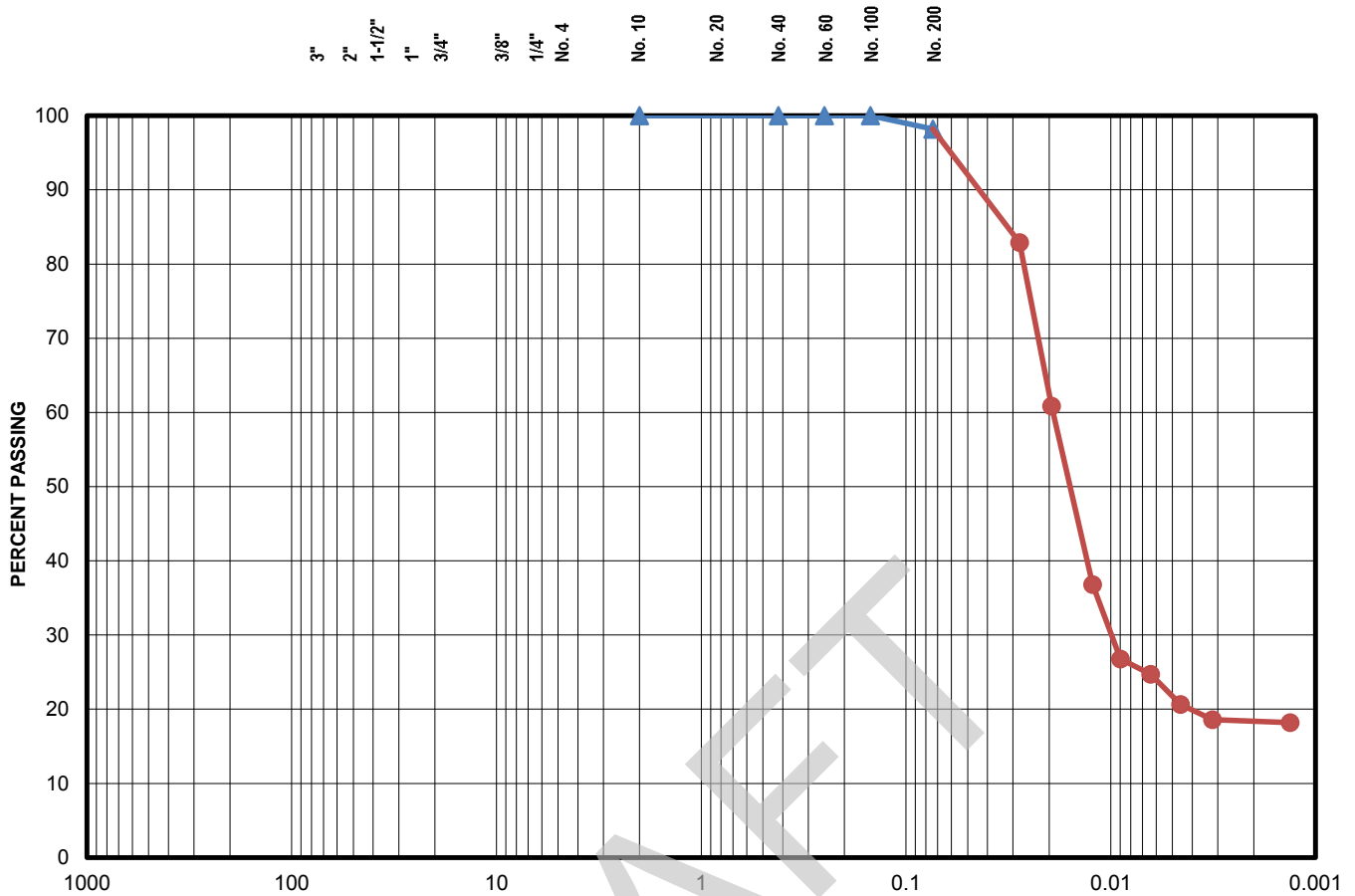
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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential Work Product 18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Dense gray clayey silt with sand (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	98.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1147
Hydro jar ID:	1157

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/4/2013
Project No.	18274-001-00	Tested By	BH
Sample ID.	PT-1 SA	Checked By	SC
Source/Depth (feet)	18 - 20		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



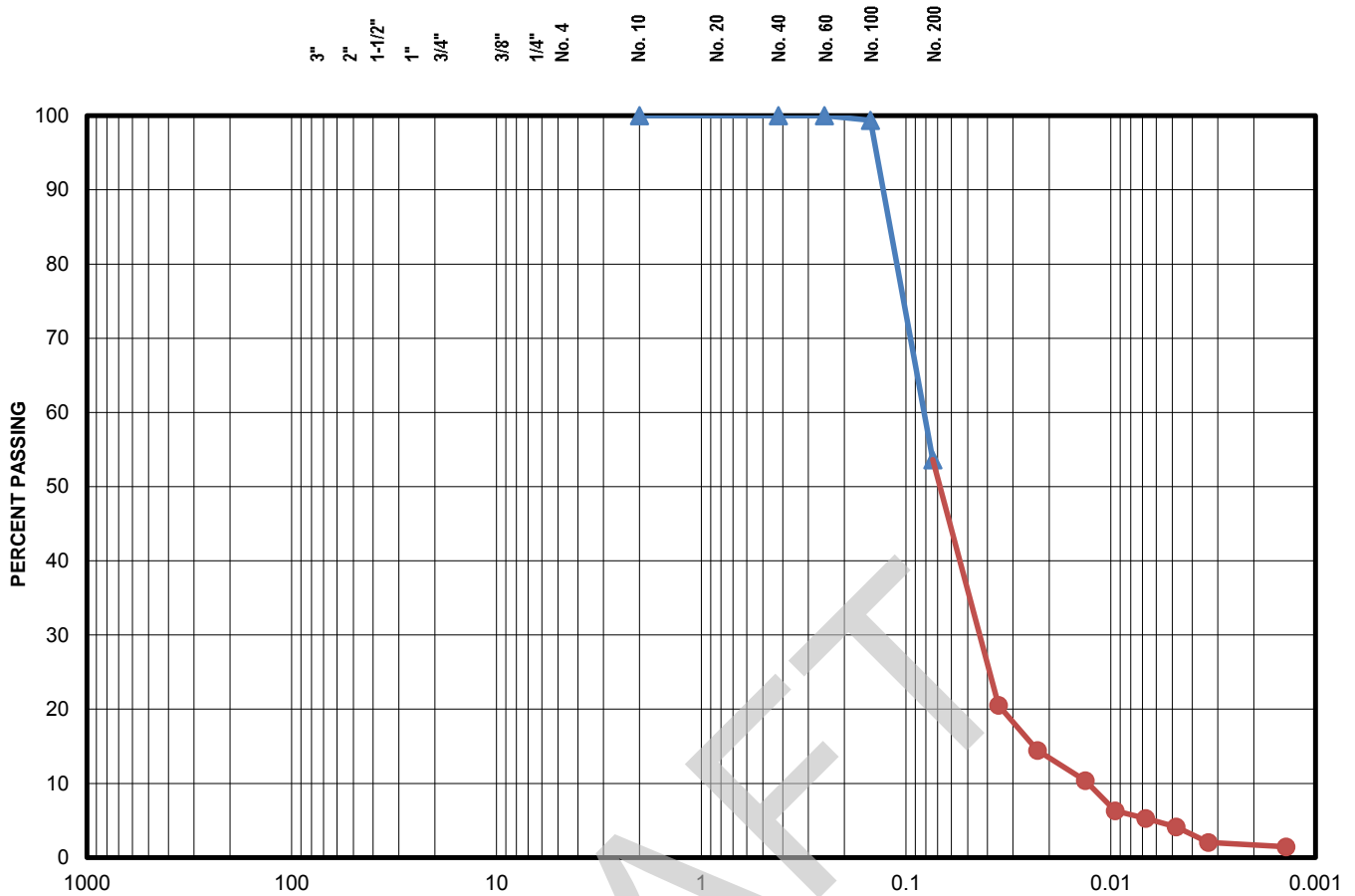
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.4
1/4"	100.0	No. 200	53.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	1154

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/4/2013
Project No.	18274-001-00	Tested By	BH
Sample ID.	PT-1 SB	Checked By	SC
Source/Depth (feet)	18 - 20		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



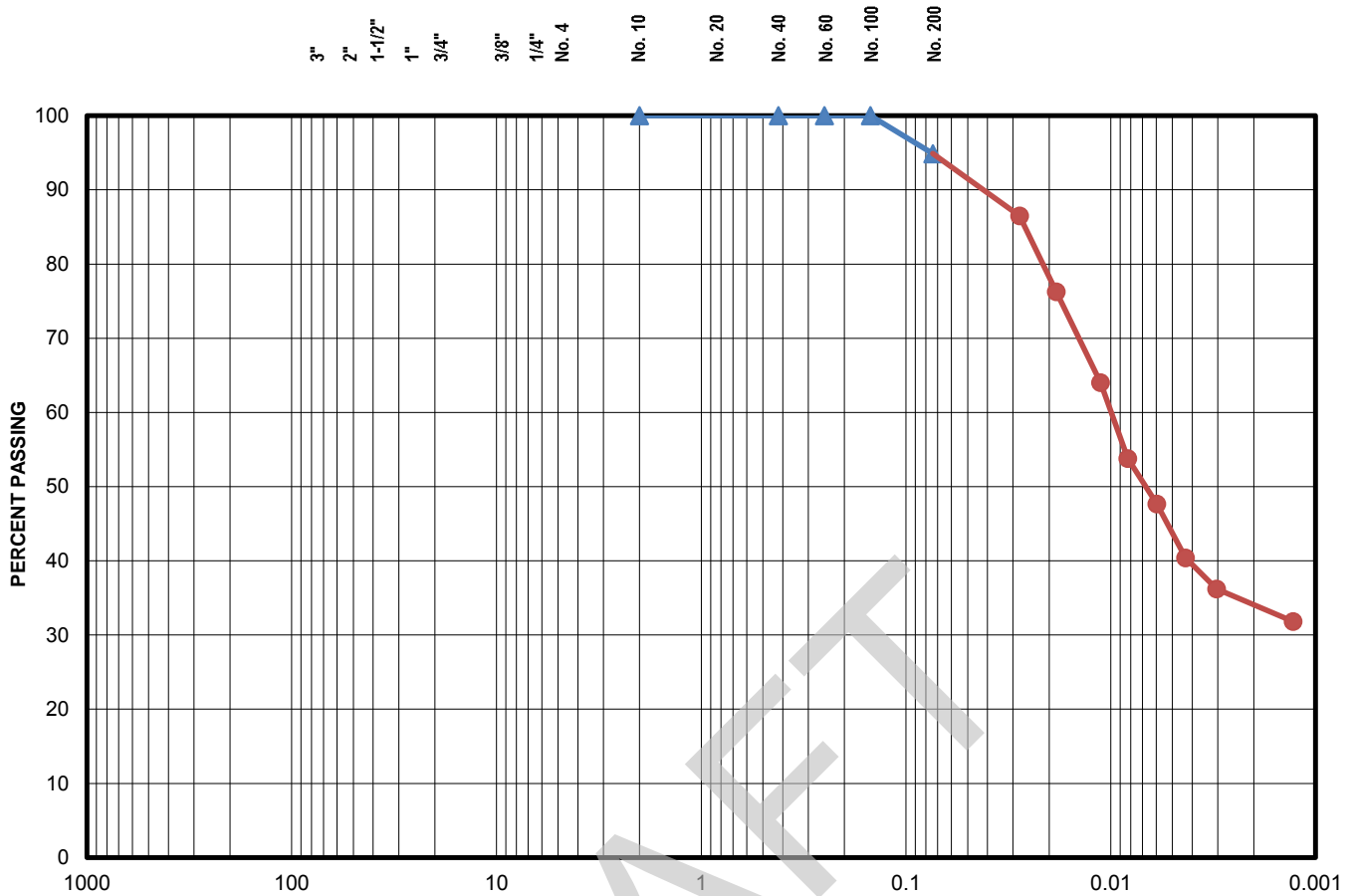
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium dense gray clayey silt (ML)
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Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	94.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1354

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/4/2013
Project No.	18274-001-00	Tested By	bh
Sample ID.	PT-1	Checked By	sc
Source/Depth (feet)	10 - 12		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



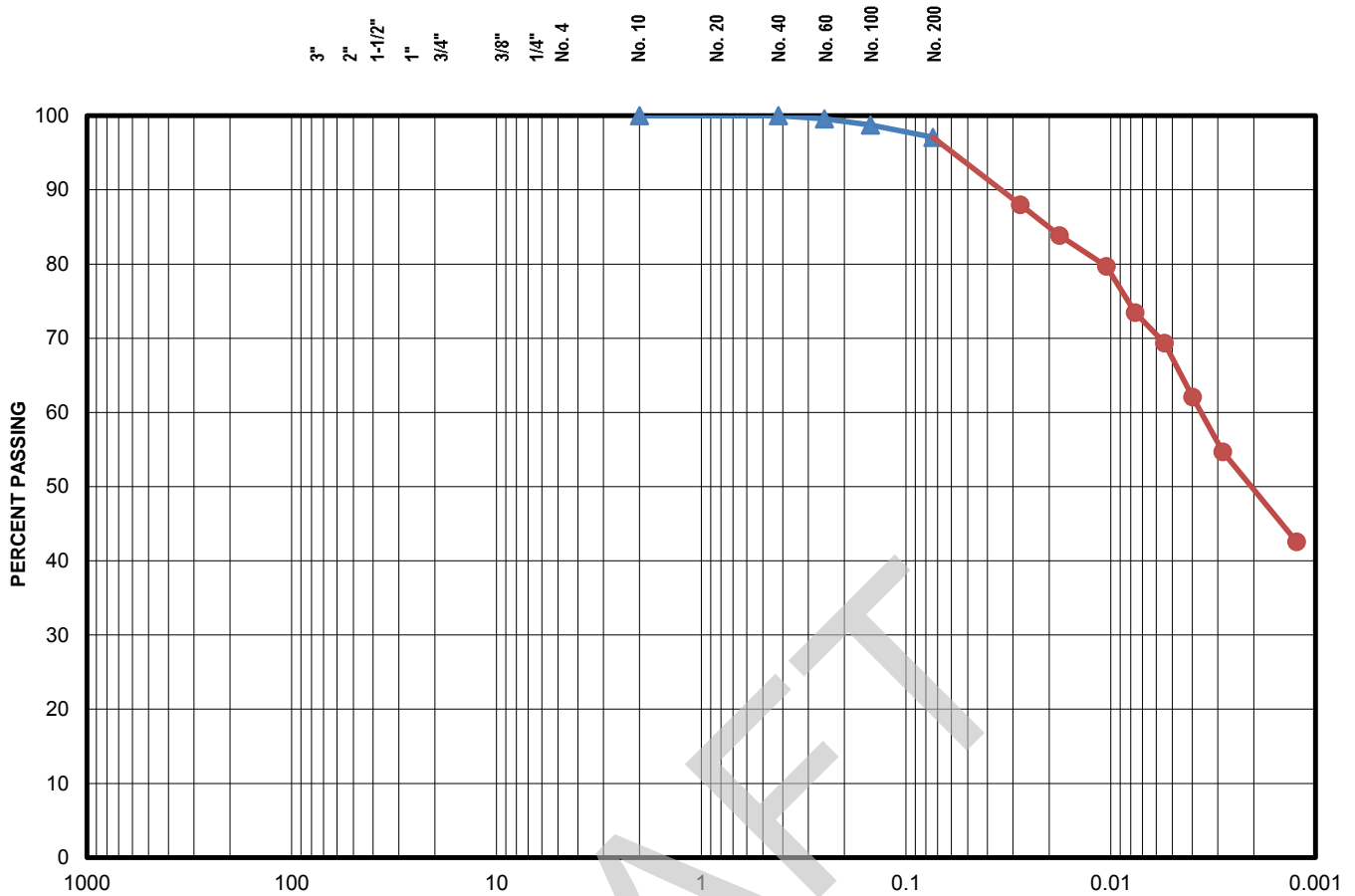
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Soft gray clay with sand (CL6)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.6
3/8"	100.0	No. 100	98.8
1/4"	100.0	No. 200	97.1

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	68515
Hydro jar ID:	1157

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/9/2013
Project No.	18274-001-00	Tested By	bh/lc
Sample ID.	PT-1	Checked By	sc
Source/Depth (feet)	12 - 14		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



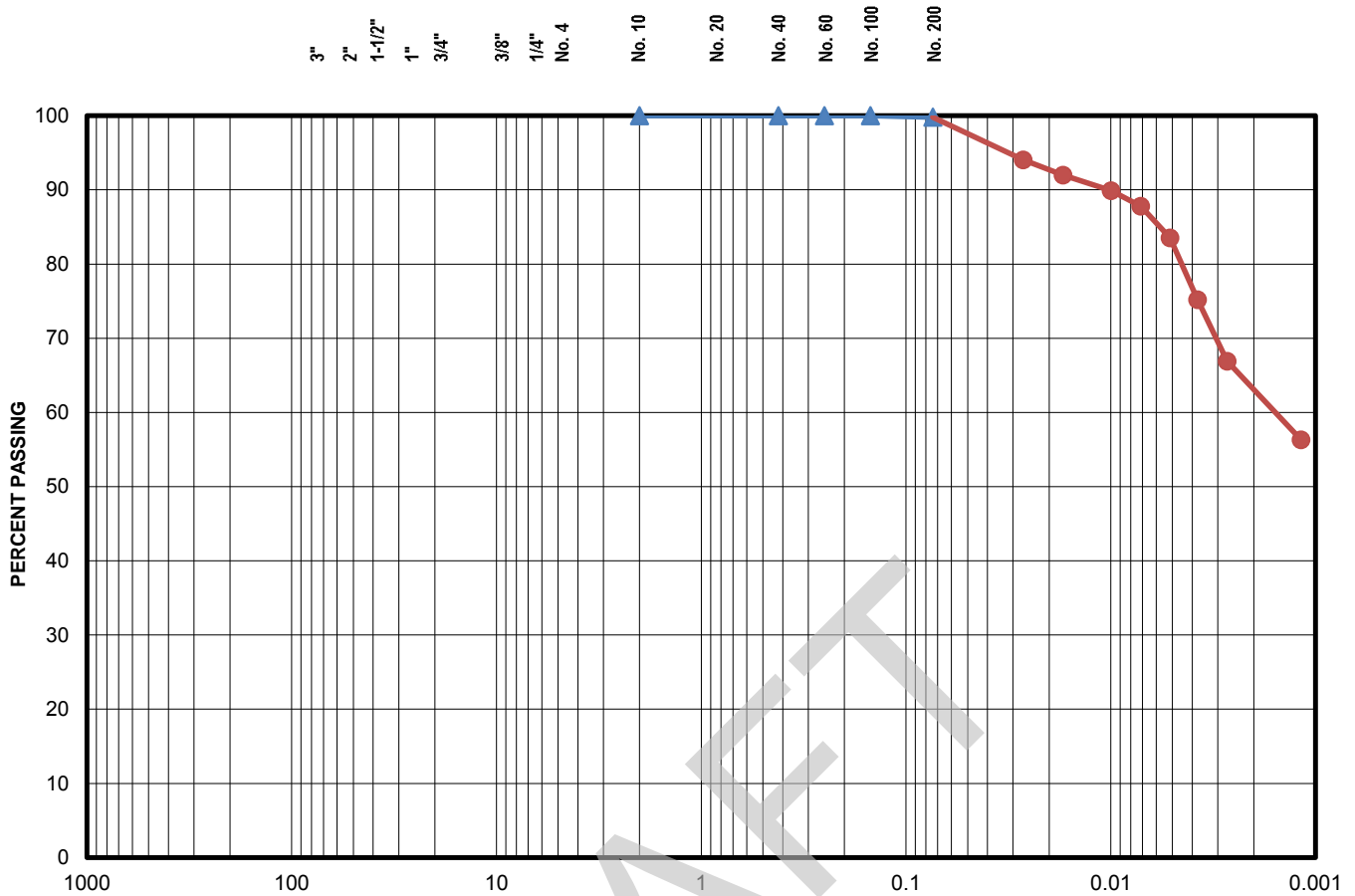
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Soft gray clay (CL6)
-----------------------------	----------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	99.8

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1146
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-153)	Date Tested	9/4/2013
Project No.	18274-001-00	Tested By	bh
Sample ID.	PT-1	Checked By	sc
Source/Depth (feet)	14 - 16		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



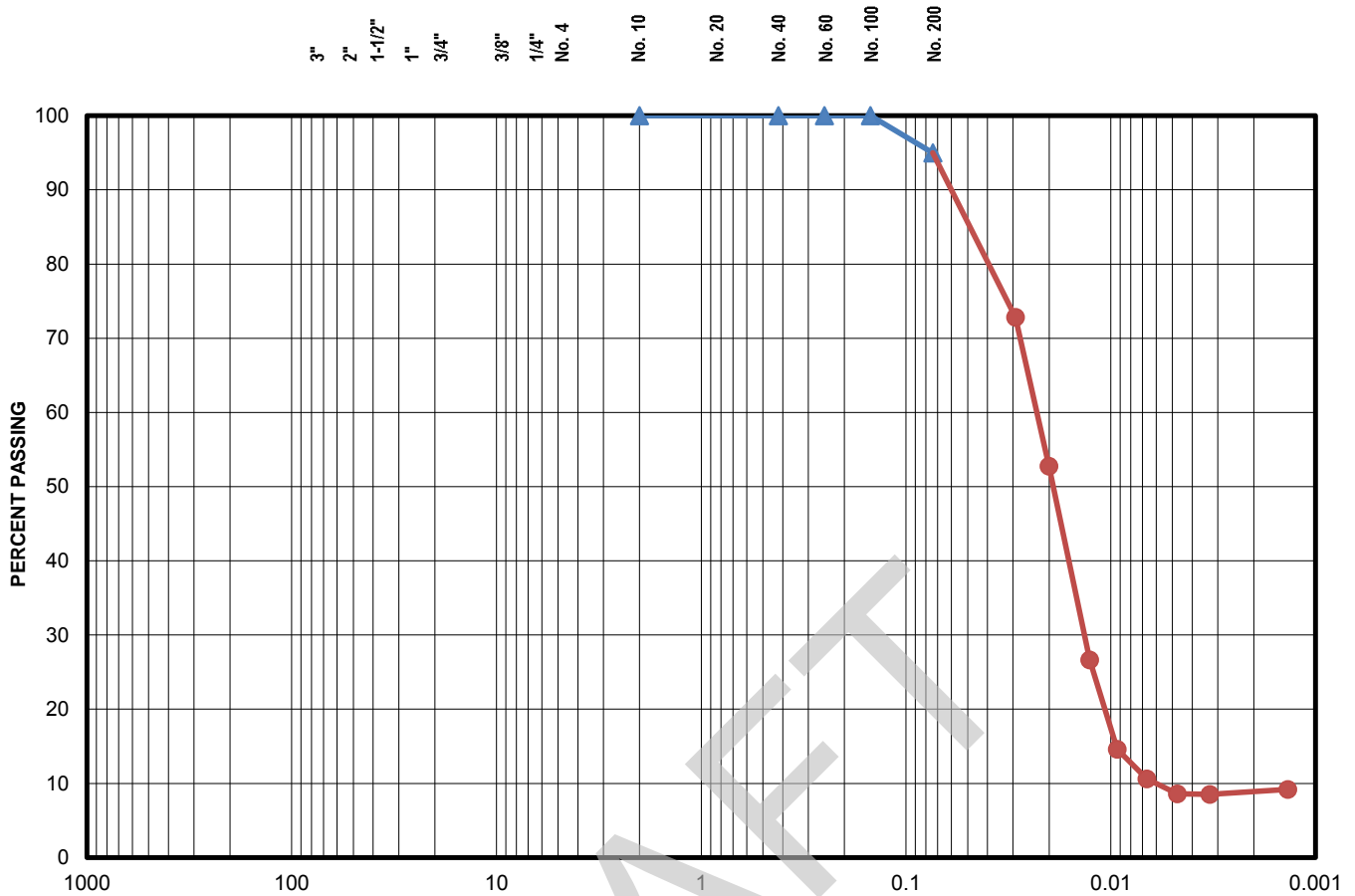
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Loose gray clayey silt with 1.5" sand layer (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	95.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	1158

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/4/2013
Project No.	18274-001-00	Tested By	BH
Sample ID.	PT-1	Checked By	SC
Source/Depth (feet)	24 - 26		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



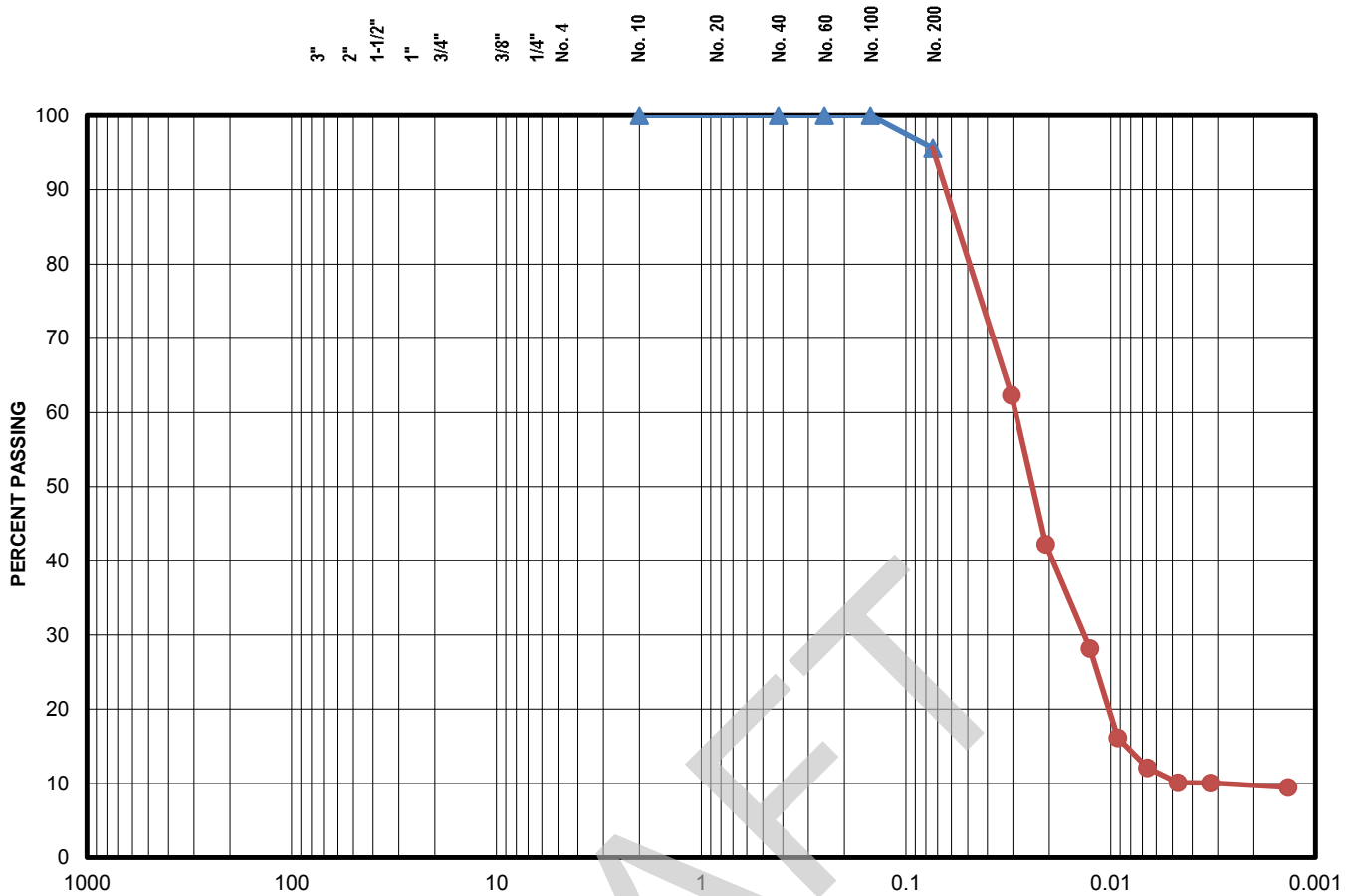
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Dense gray clayey silt with sand pockets (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	95.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1143
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/4/2013
Project No.	18274-001-00	Tested By	BH
Sample ID.	PT-1	Checked By	SC
Source/Depth (feet)	28 - 30		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



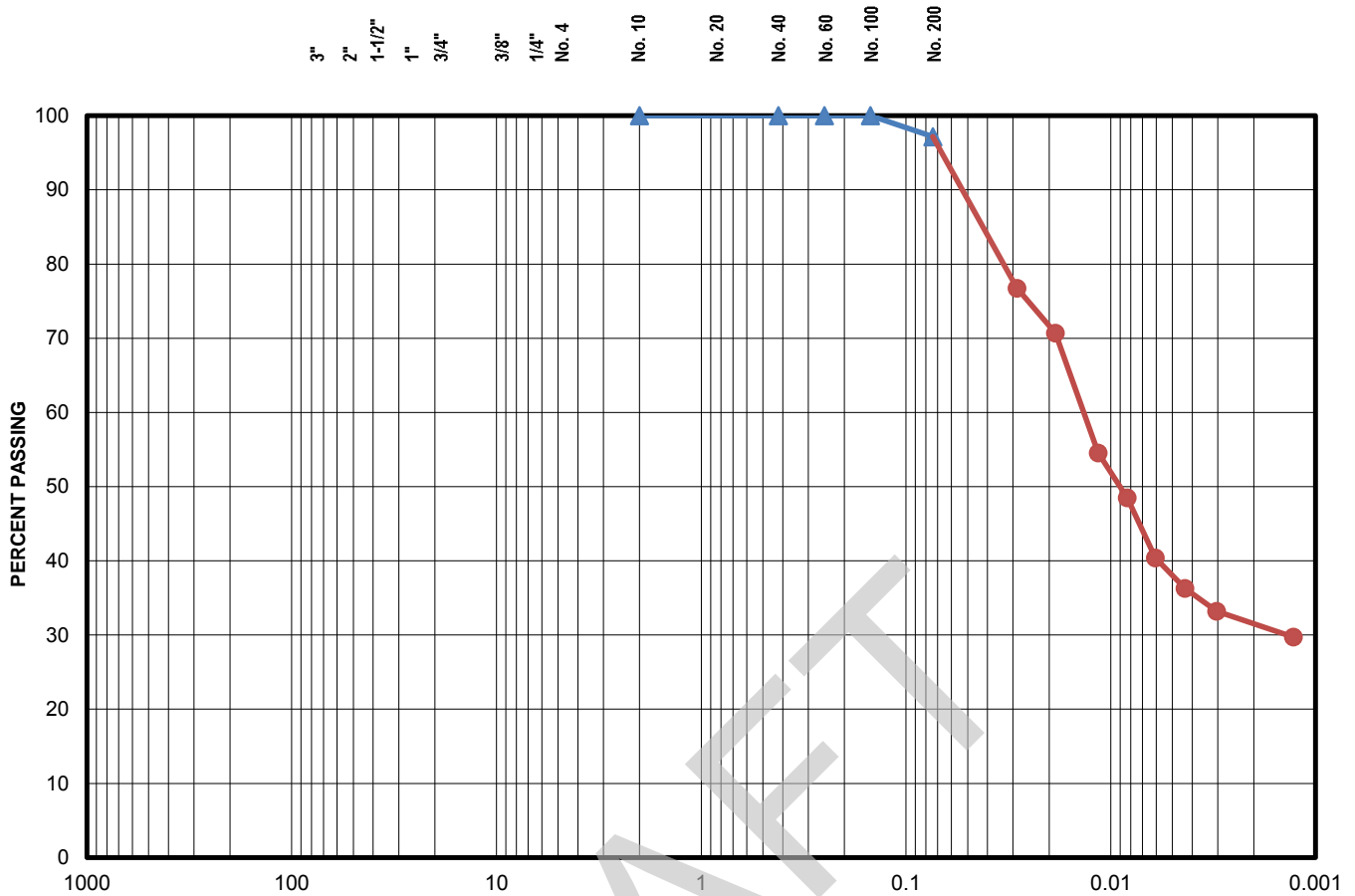
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray clayey silt with sand (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	97.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/4/2013
Project No.	18274-001-00	Tested By	bh
Sample ID.	PT-1	Checked By	sc
Source/Depth (feet)	32 - 34		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

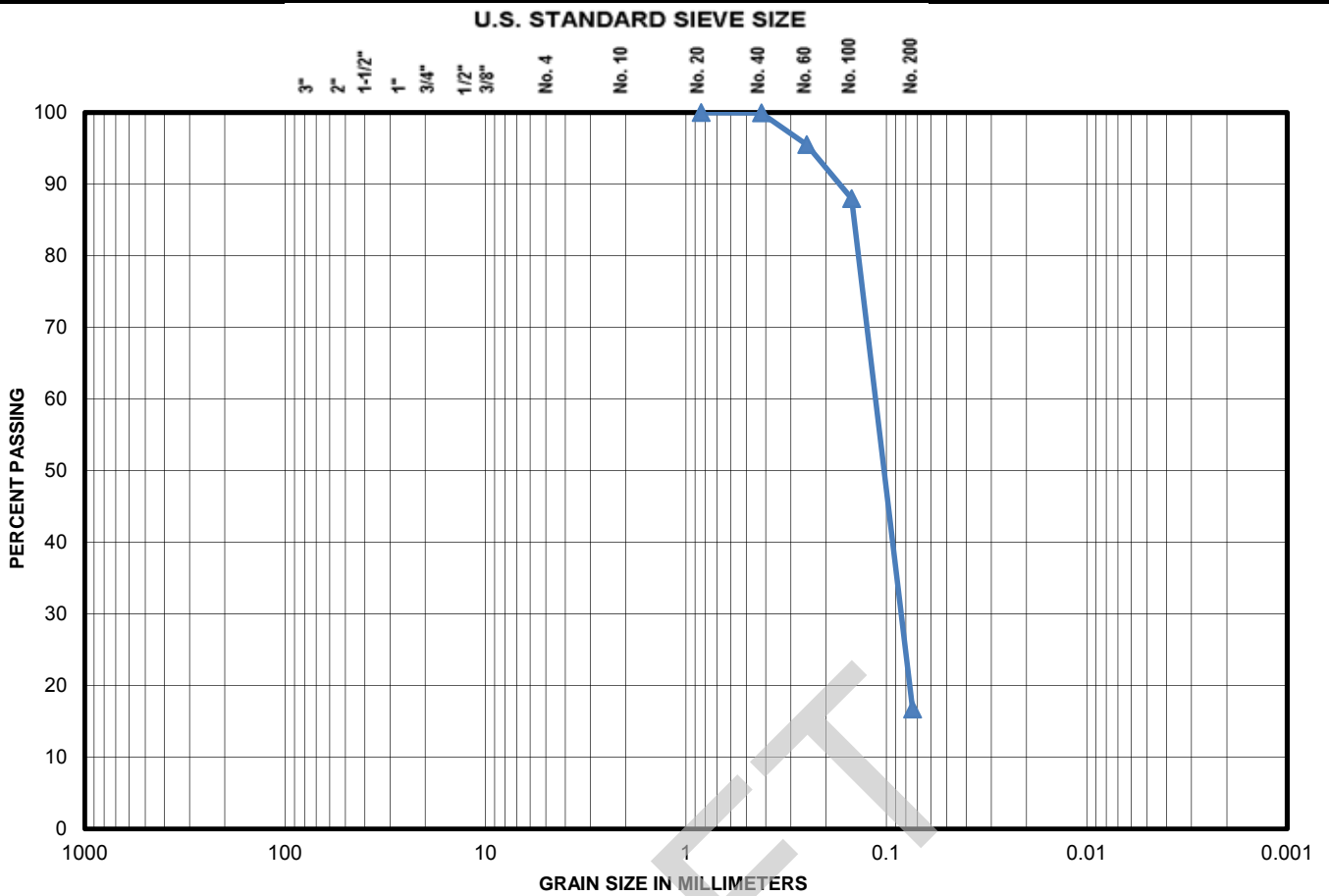


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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	83.3	Fines (Silt & Clay) %	16.7
--------	------	-----------------------	------

USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	100.0
1"	#N/A	No. 40	99.9
3/4"	#N/A	No. 60	95.5
1/2"	#N/A	No. 100	88.0
3/8"	#N/A	No. 200	16.7

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines	Date Tested	8/29/2013
Project No.	18274-001-00	Tested By	GOM
Boring No.	PT-1	Checked By	GOM
Source/Depth (feet)	14 - 16	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

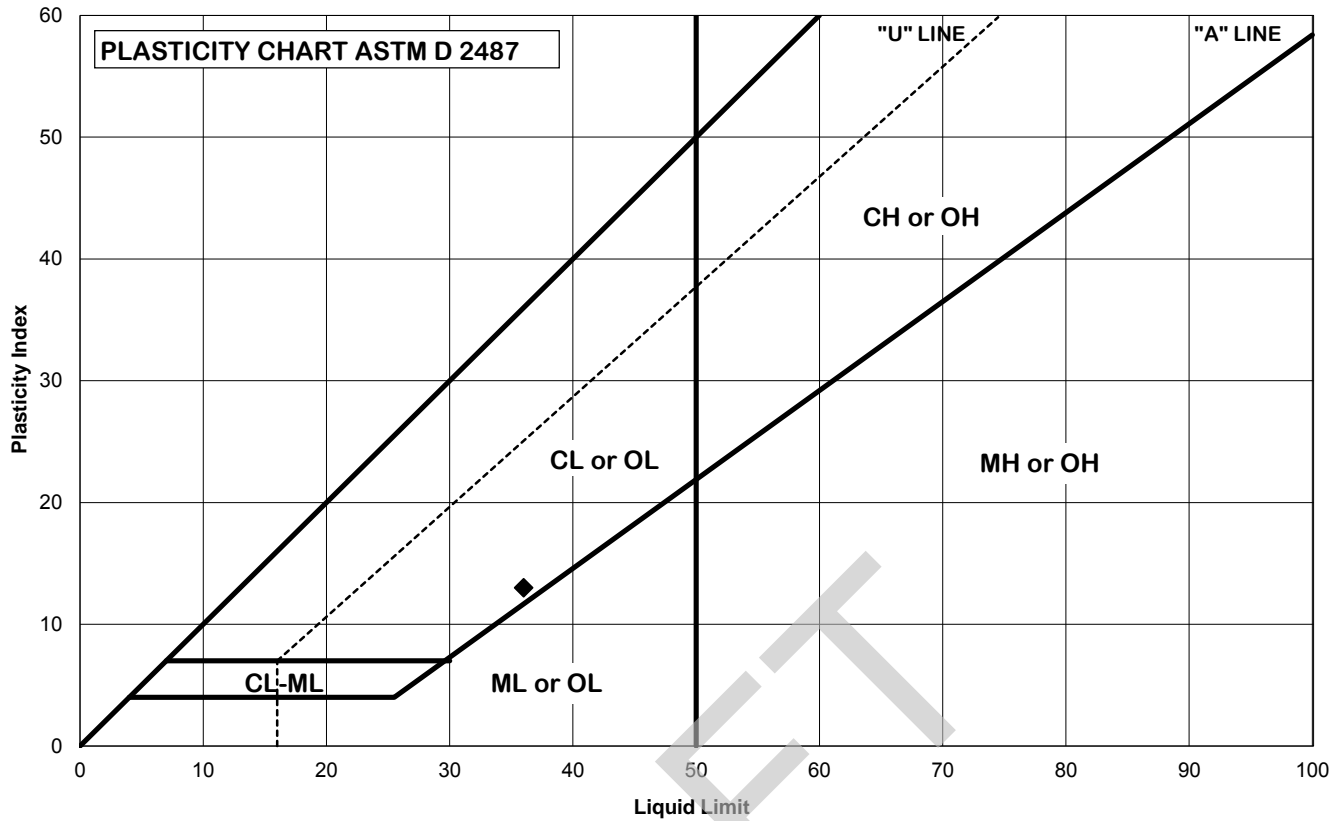


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PT-2	Natural WC:	#DIV/0!
Depth, ft.	3 - 5	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium gray clay with silt pockets (CL4)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	36
Plastic Limit =	23
Plasticity Index =	13

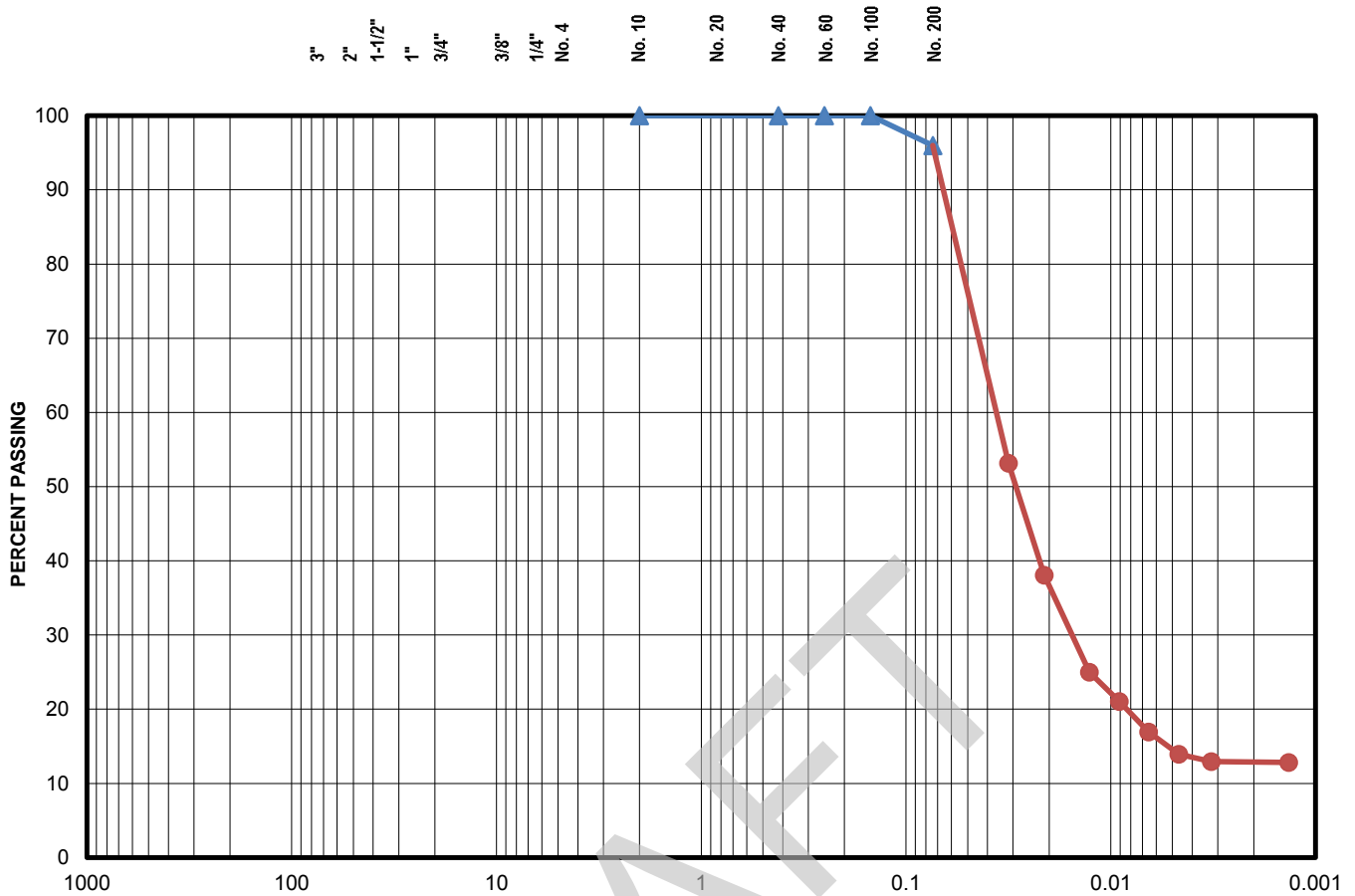
Date:	10/18/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose gray clayey silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	96.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1150

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/16/2013
Project No.	18274-001-00	Tested By	AB
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	8 - 10		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



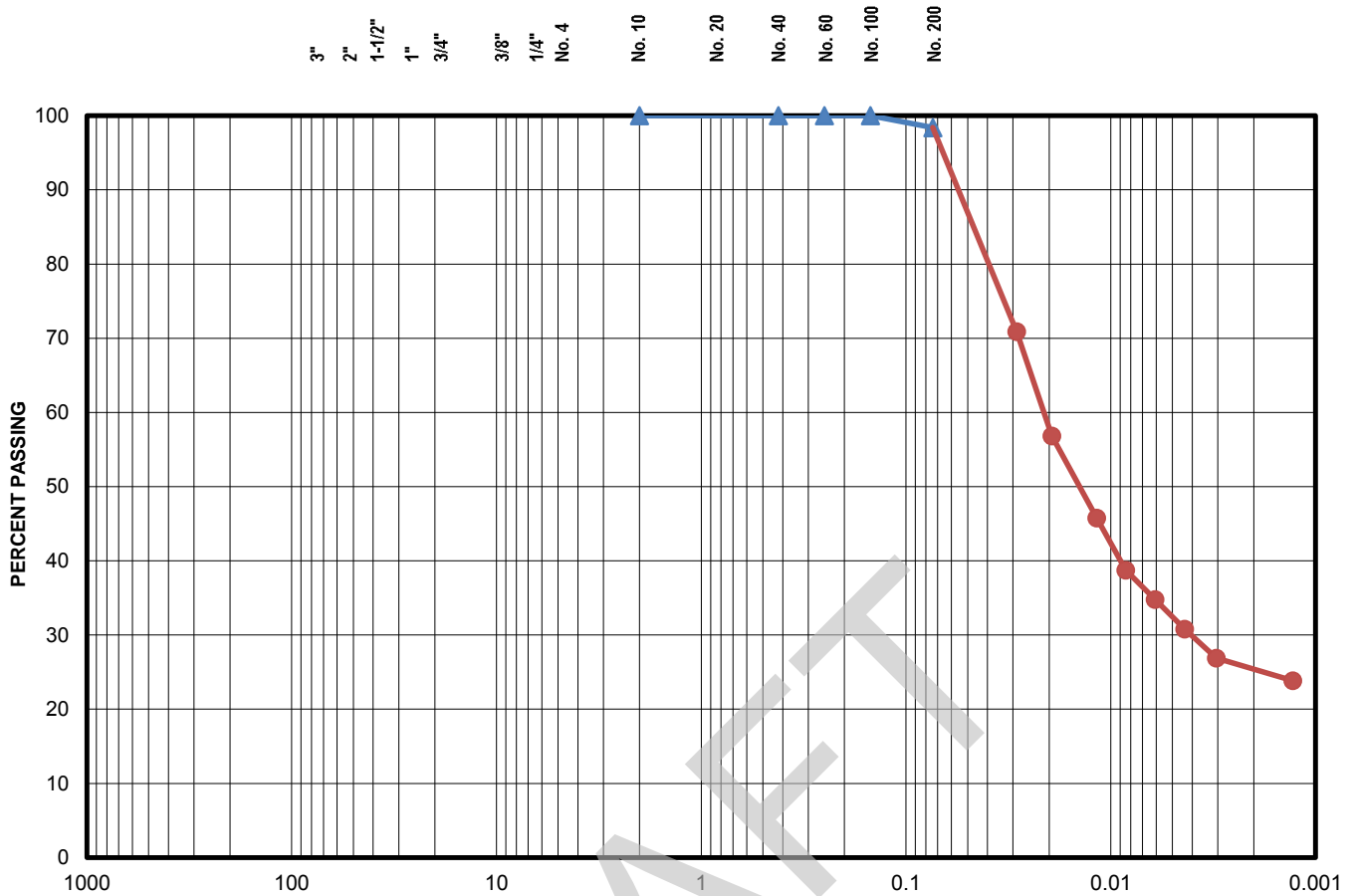
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Firm gray clayey silt (ML)
-----------------------------	----------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	98.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	1154

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/16/2013
Project No.	18274-001-00	Tested By	AB
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	13 - 15		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



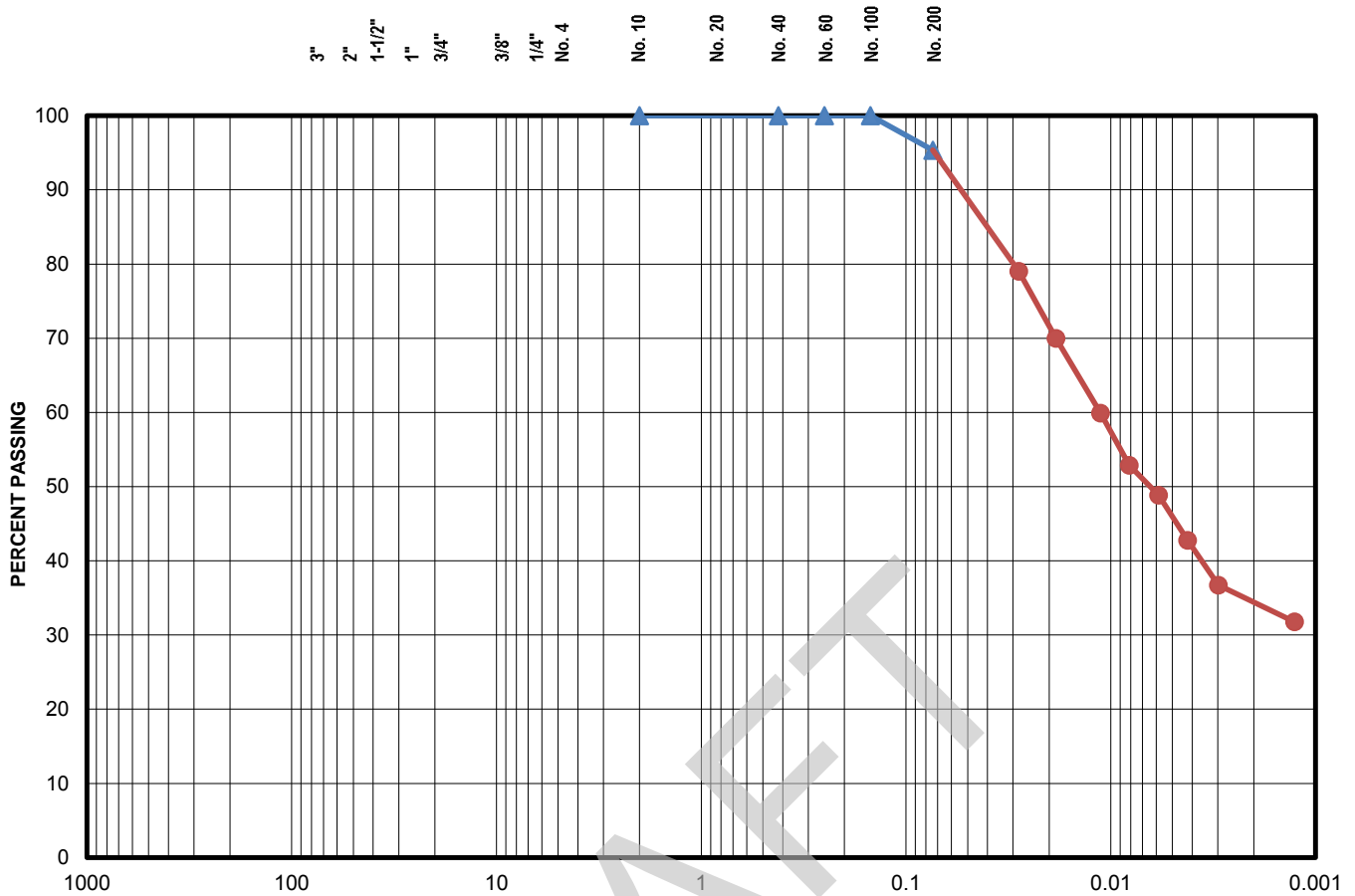
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose brown and gray clayey silt with trace shells (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	95.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	1161

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/18/2013
Project No.	18274-001-00	Tested By	SEF/TRC
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	18 - 20		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



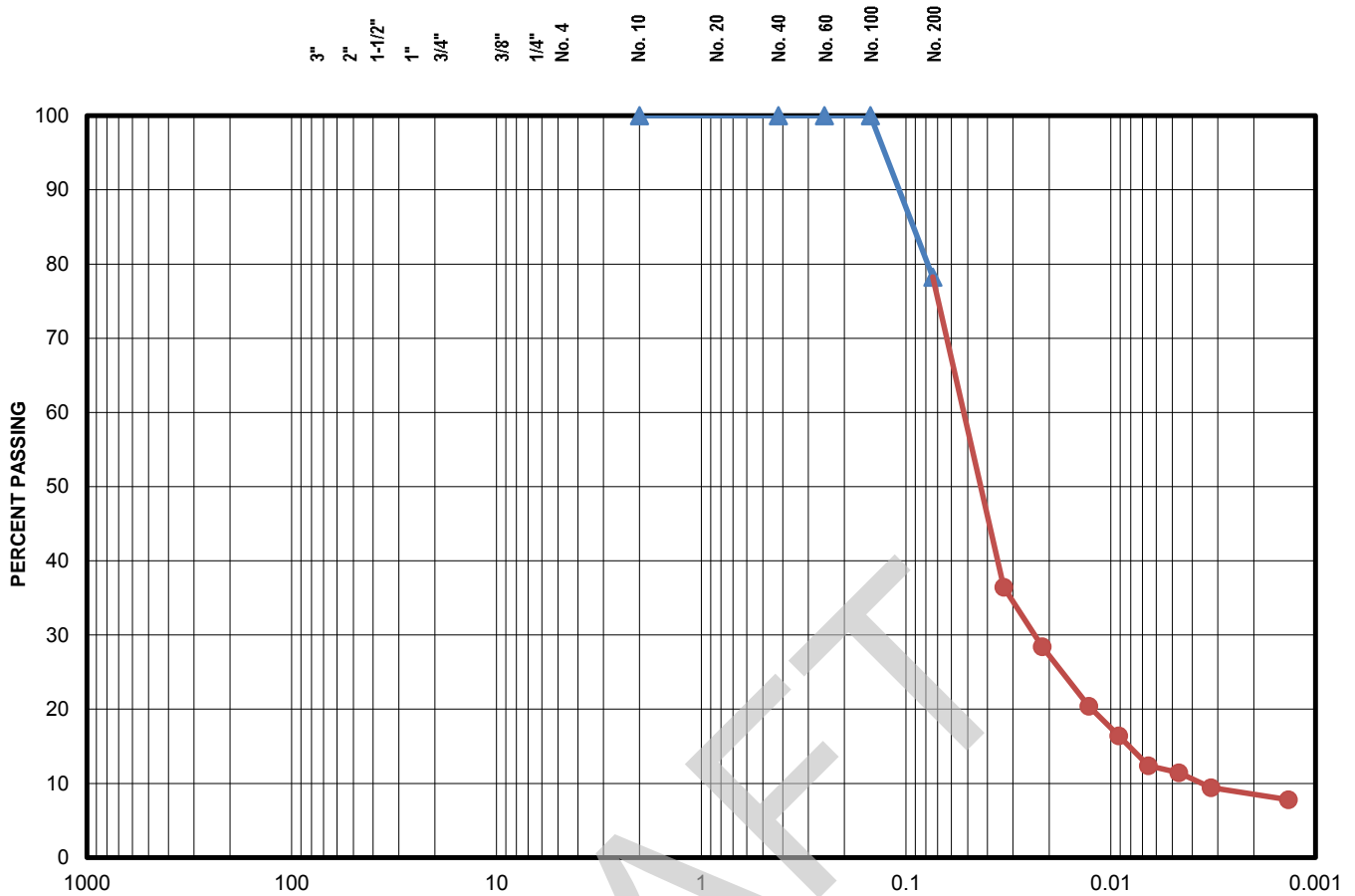
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	78.3

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	1154

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/16/2013
Project No.	18274-001-00	Tested By	AB
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	23 - 25		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



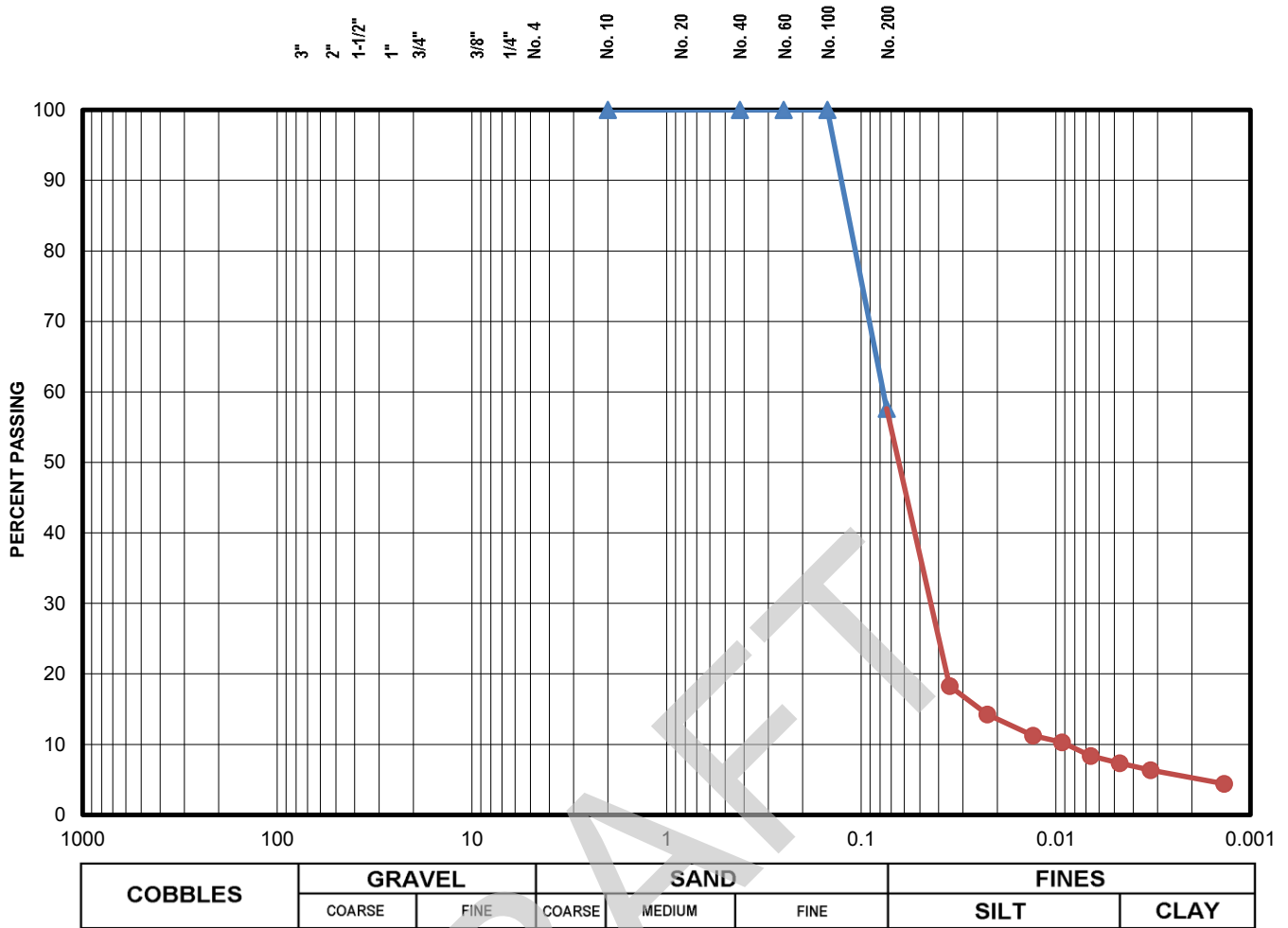
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



Description (D 2488) Very loose brown and gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	57.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	1163

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/18/2013
Project No.	18274-001-00	Tested By	SEF/TRC
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	28 - 30		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



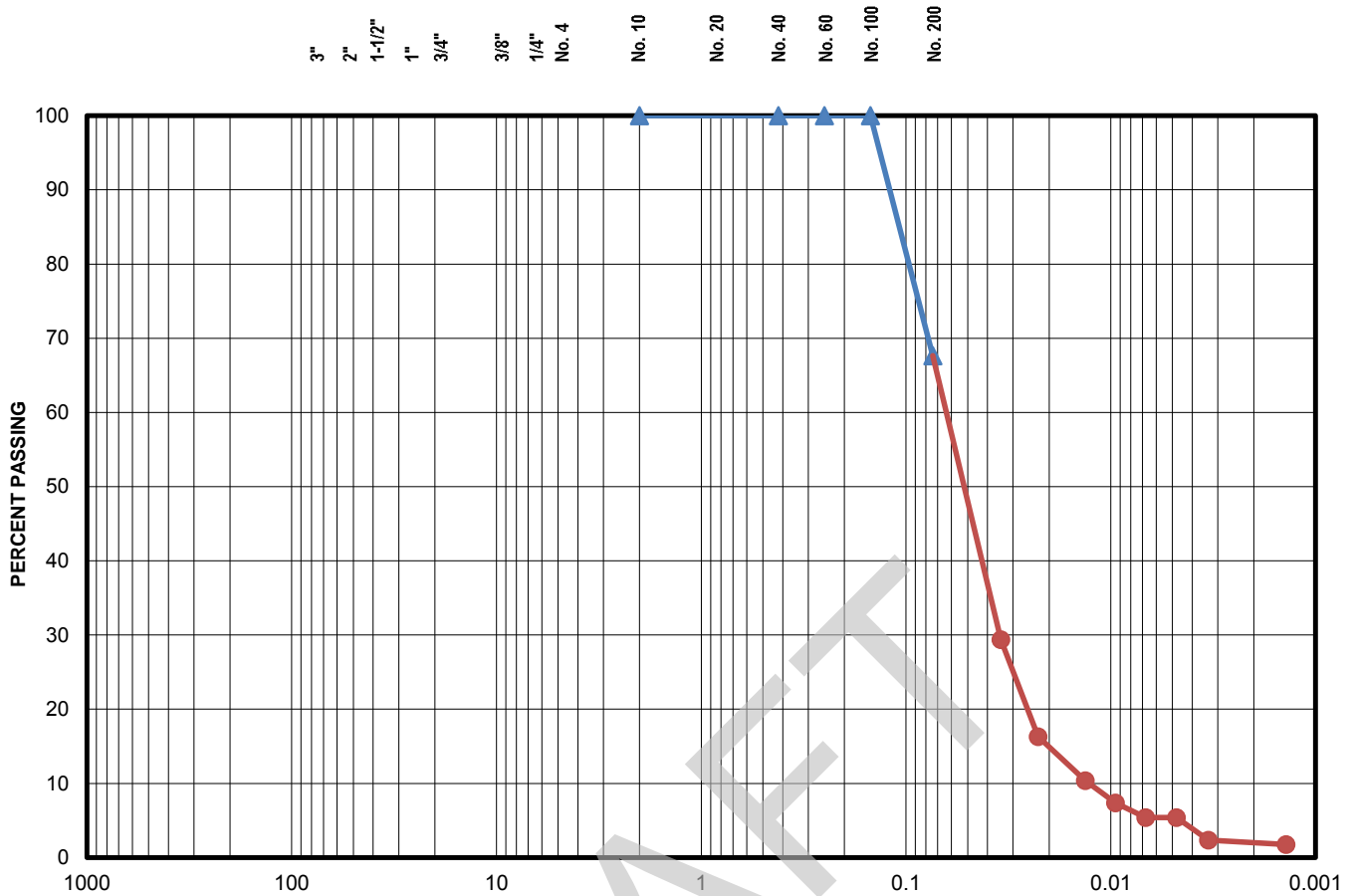
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Firm brown and gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	67.7

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	1161

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/18/2013
Project No.	18274-001-00	Tested By	AB/SEF
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	32 - 34		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



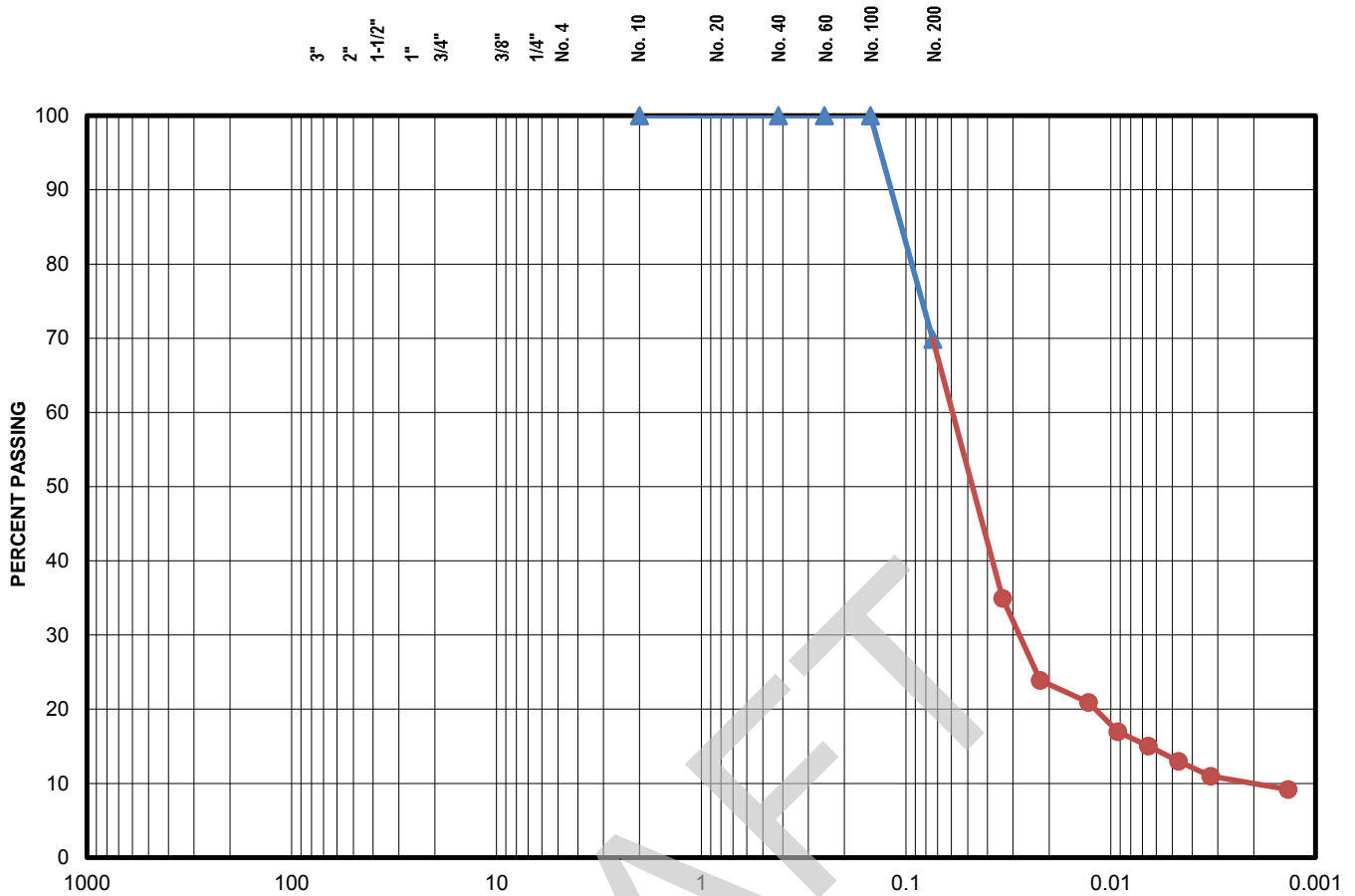
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose brown and gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	69.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1136
Hydro jar ID:	1158

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/18/2013
Project No.	18274-001-00	Tested By	SEF/TRC
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	36 - 38		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



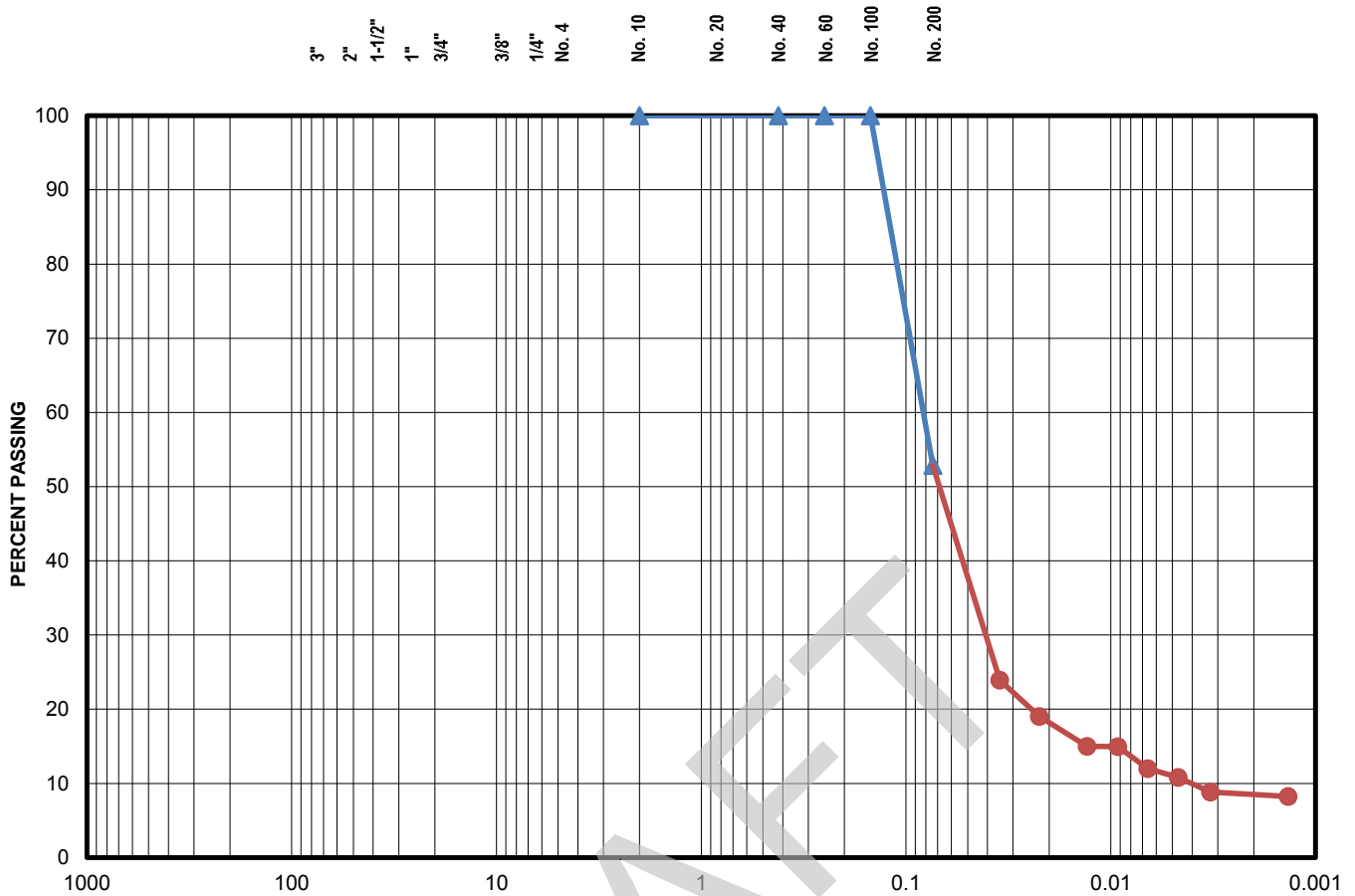
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose gray silty sand with clay and 1" sand layer (SM)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	52.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1156

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/18/2013
Project No.	18274-001-00	Tested By	SEF/TRC
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	40 - 42		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



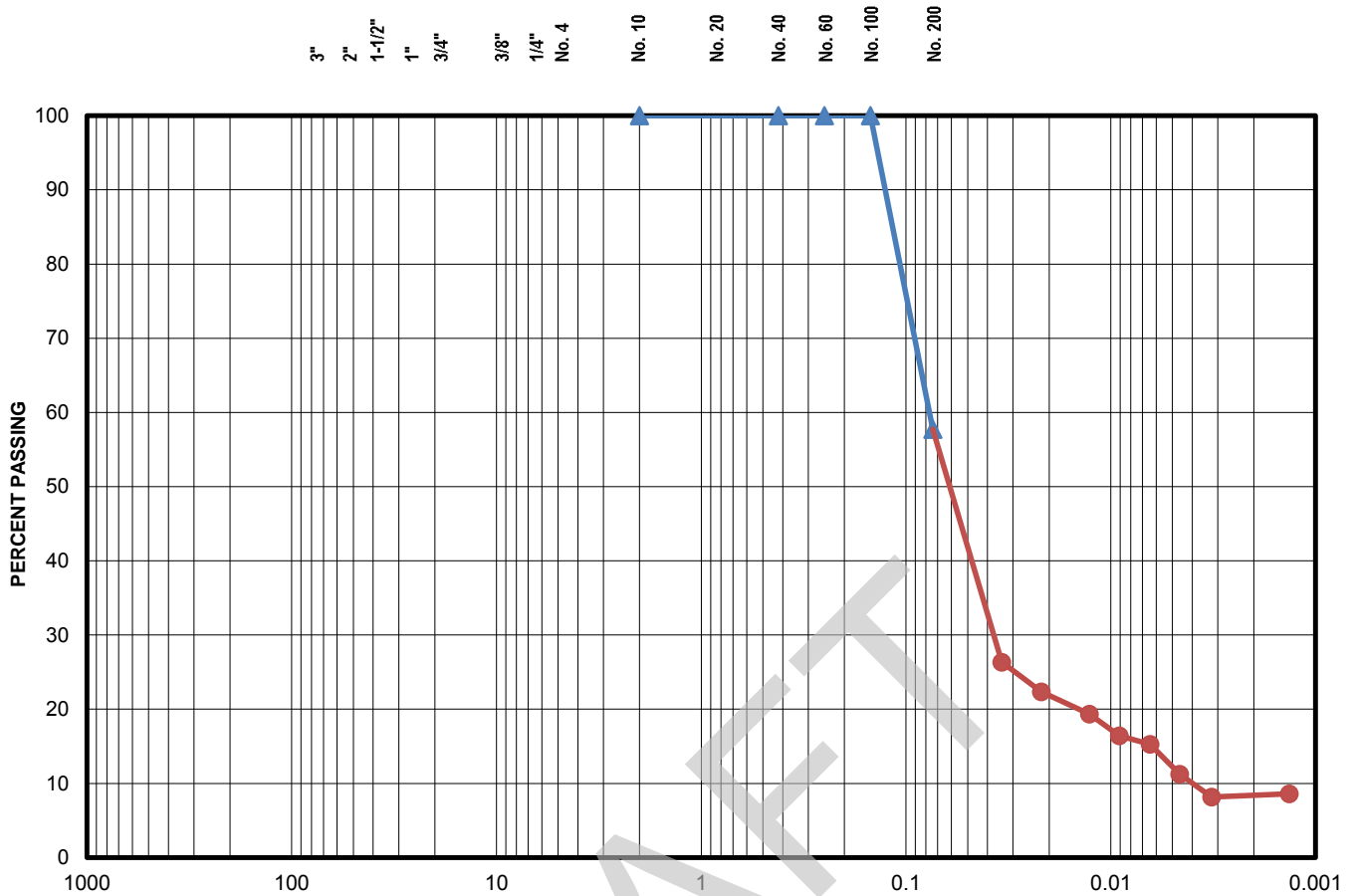
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Firm gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	57.8

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1150

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/18/2013
Project No.	18274-001-00	Tested By	SEF/TRC
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	44 - 46		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



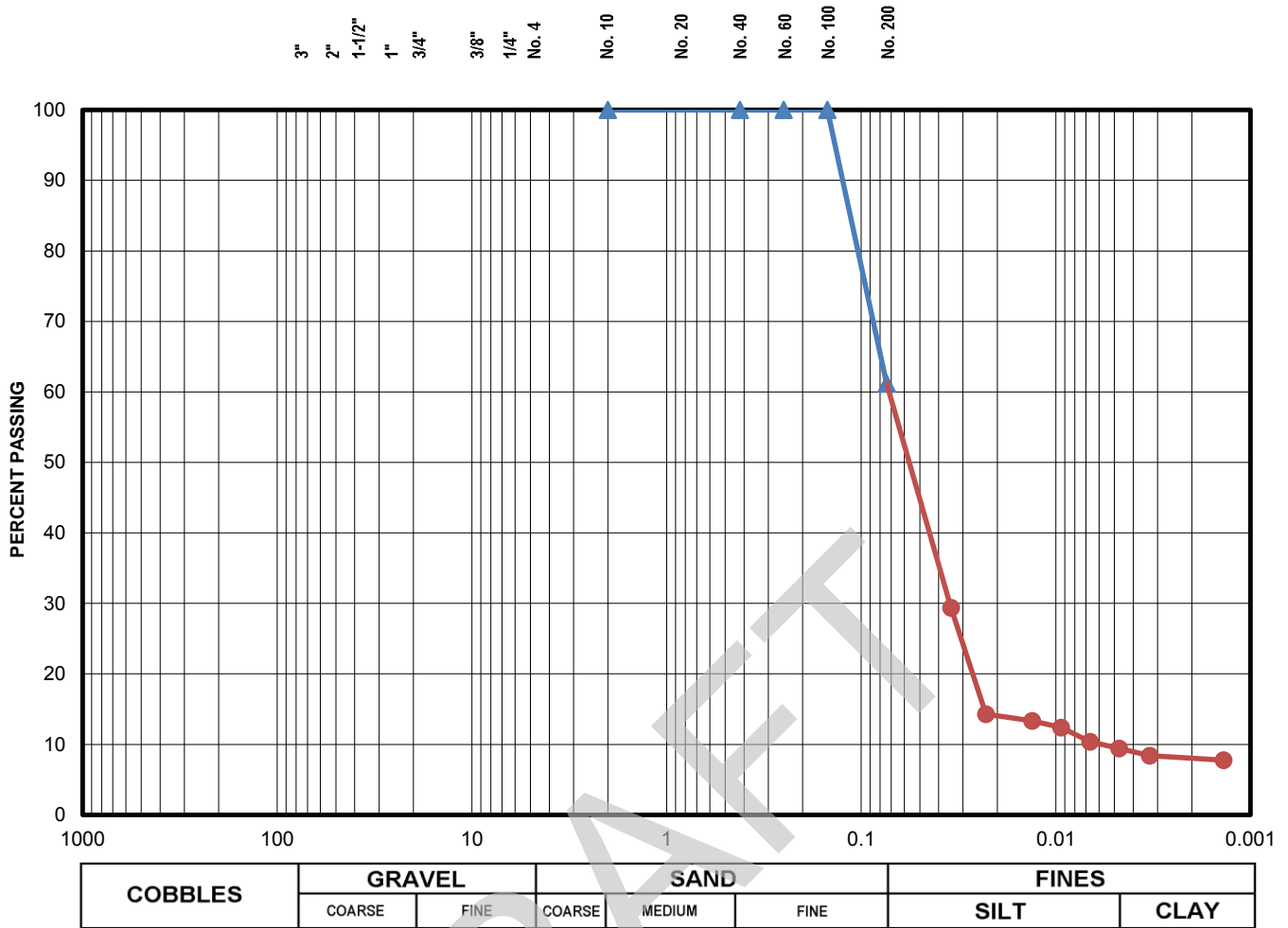
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



Description (D 2488) Loose gray sandy silt with clay and 1.5" sand layer (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	61.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	1357

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/18/2013
Project No.	18274-001-00	Tested By	AB/SEF
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	48 - 50		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



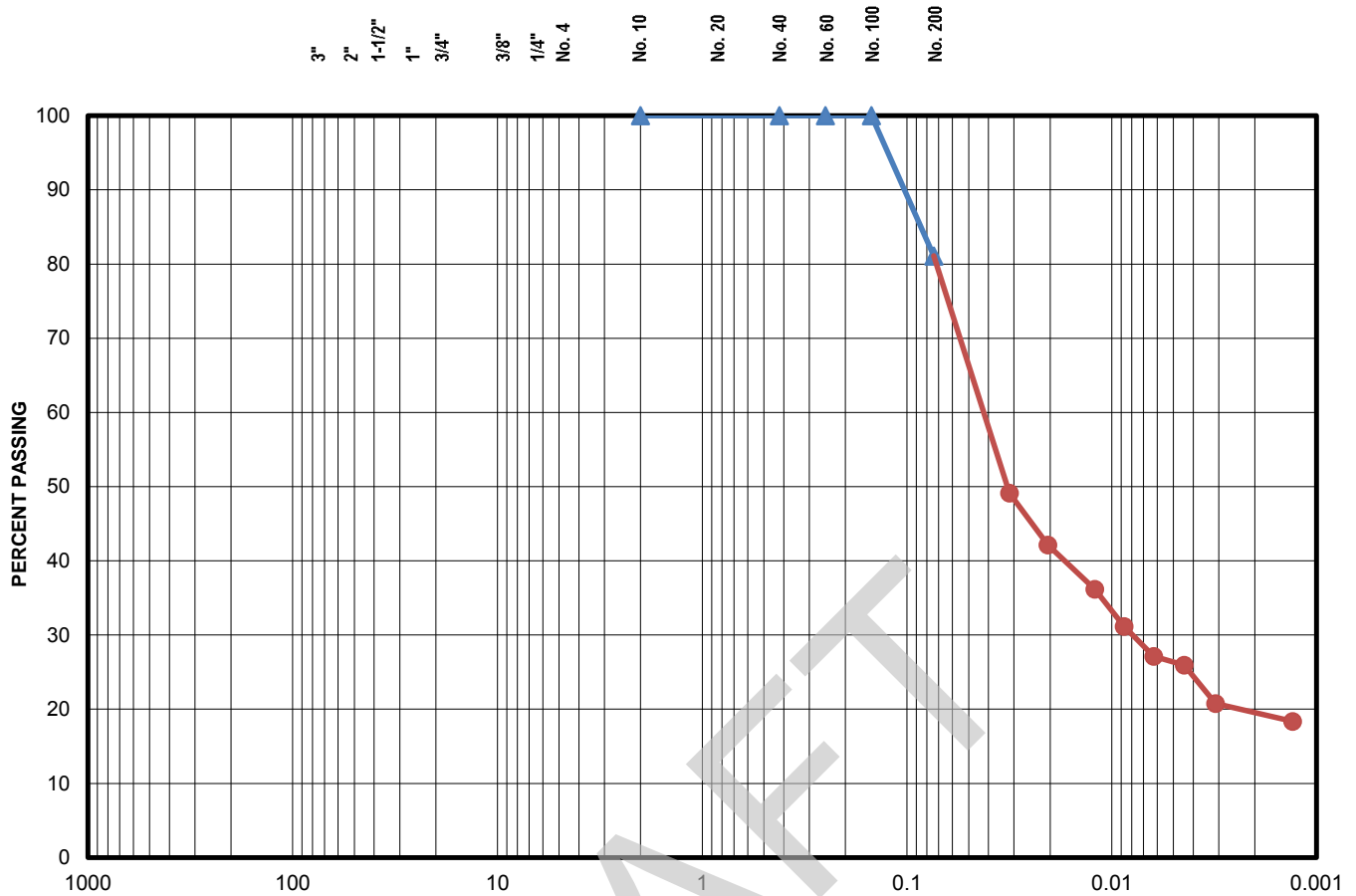
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Loose gray clayey silt with sand (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	81.1

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	1154

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/18/2013
Project No.	18274-001-00	Tested By	SEF/TRC
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	52 - 54		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



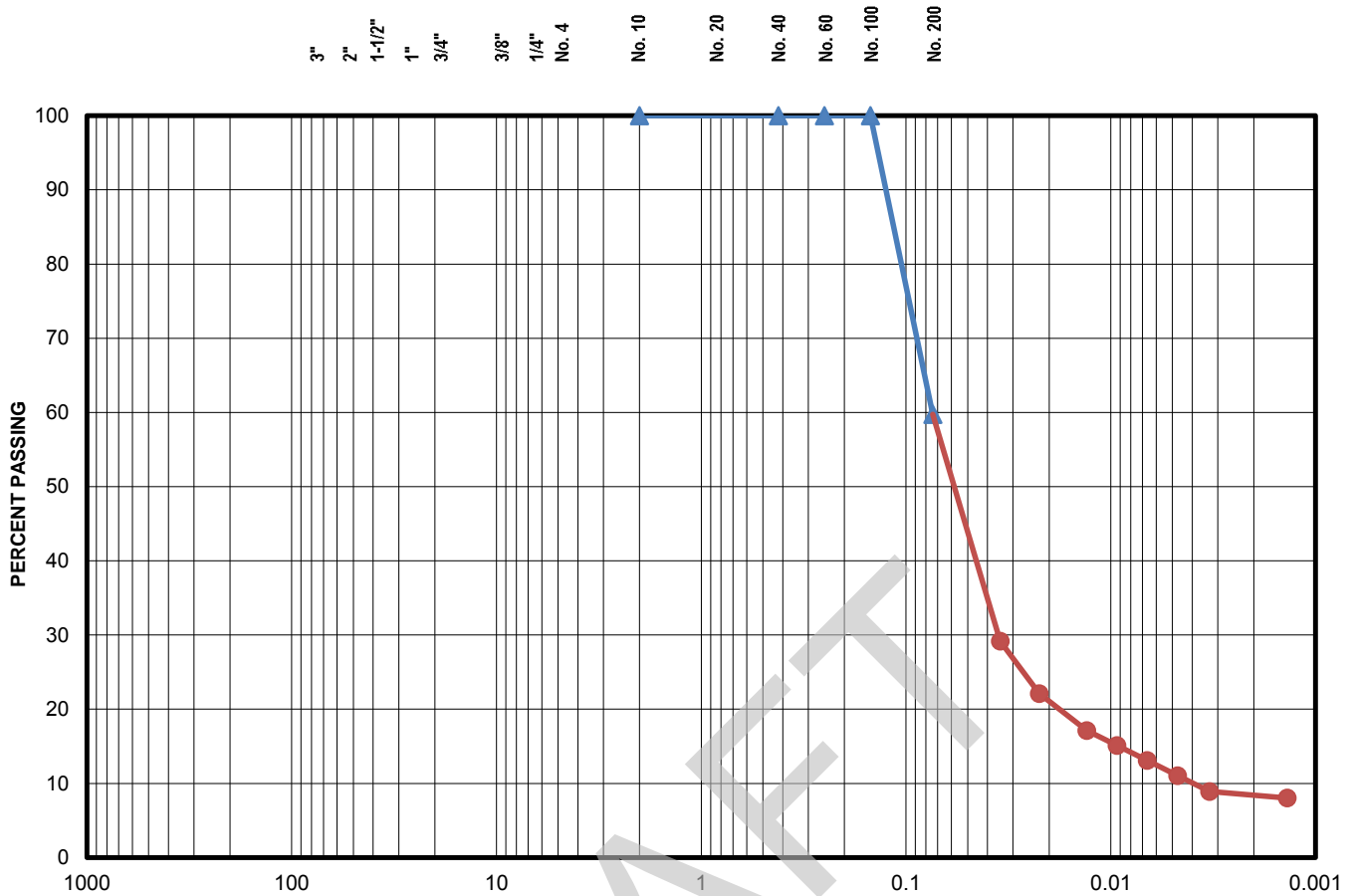
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Firm gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	59.7

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1146
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/18/2013
Project No.	18274-001-00	Tested By	SEF/TRC
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	56 - 58		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



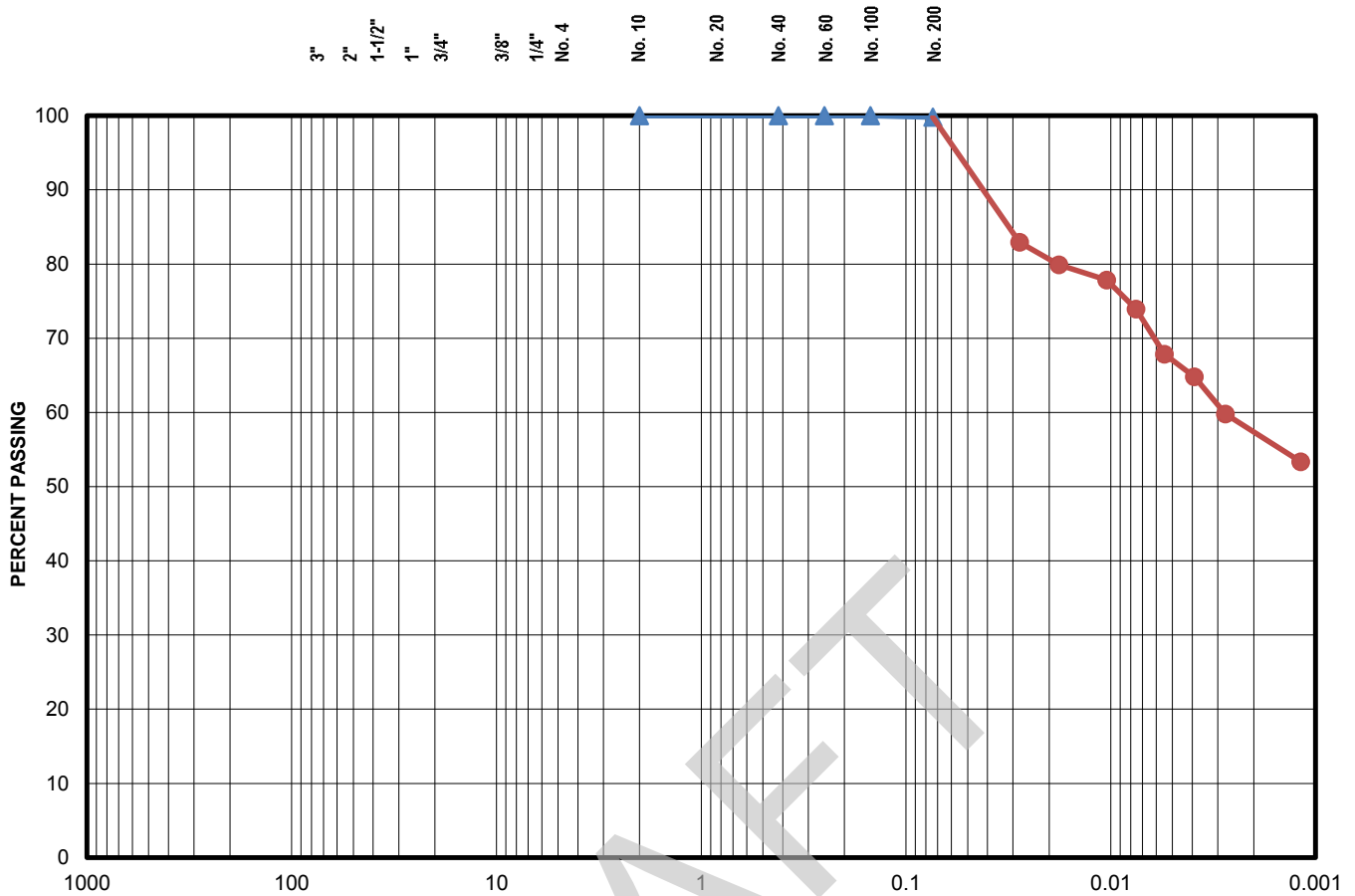
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Stiff gray clay with silt pockets (CL6)
-----------------------------	---

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	99.8

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1136
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/18/2013
Project No.	18274-001-00	Tested By	AB
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	62 - 64		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



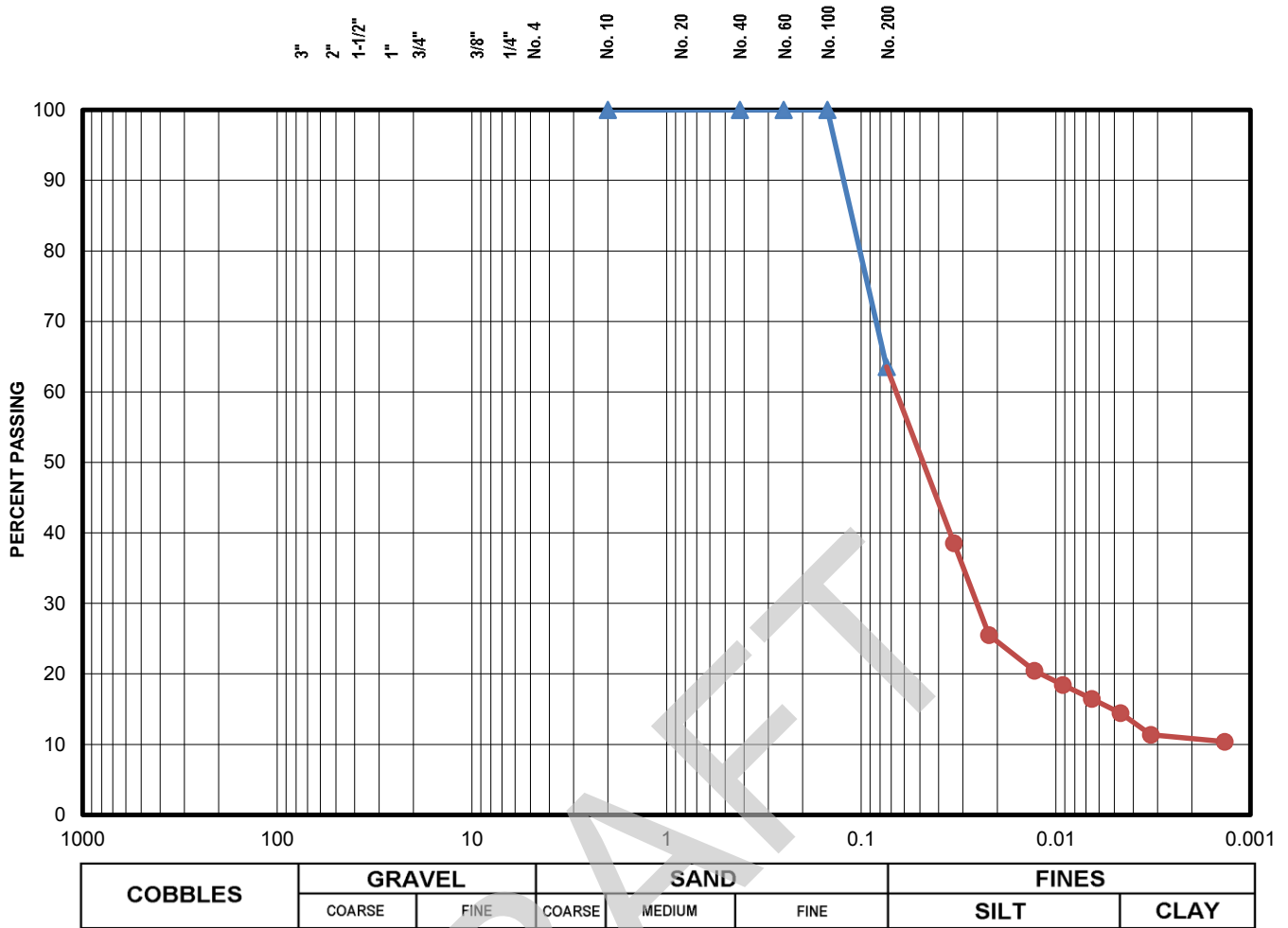
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



Description (D 2488) Firm gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	63.5

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/18/2013
Project No.	18274-001-00	Tested By	SEF/TRC
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	66 - 68		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



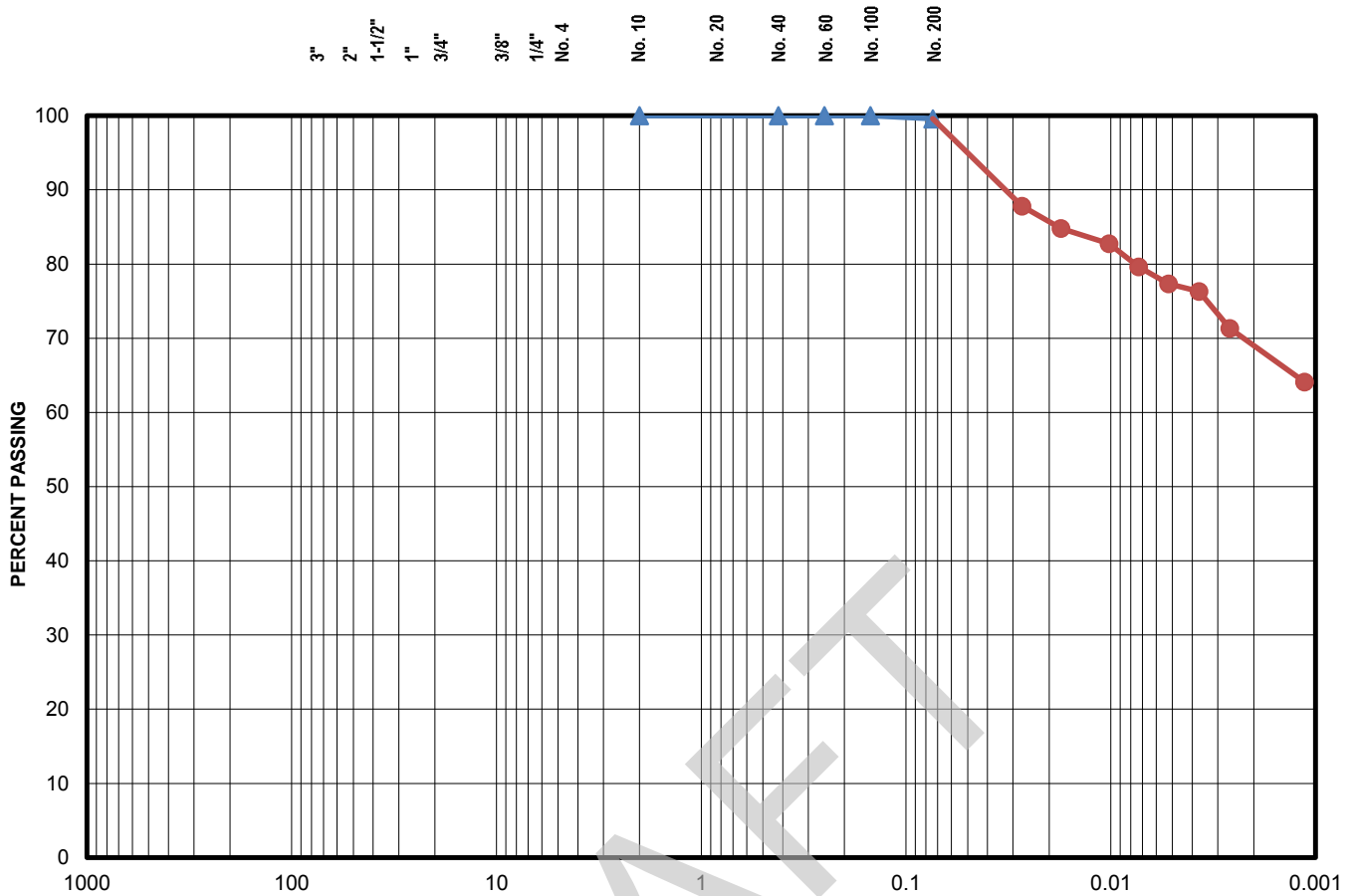
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium gray clay (CL4)
-----------------------------	------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	99.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1354

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/19/2013
Project No.	18274-001-00	Tested By	AB/TRC
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	70 - 72		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



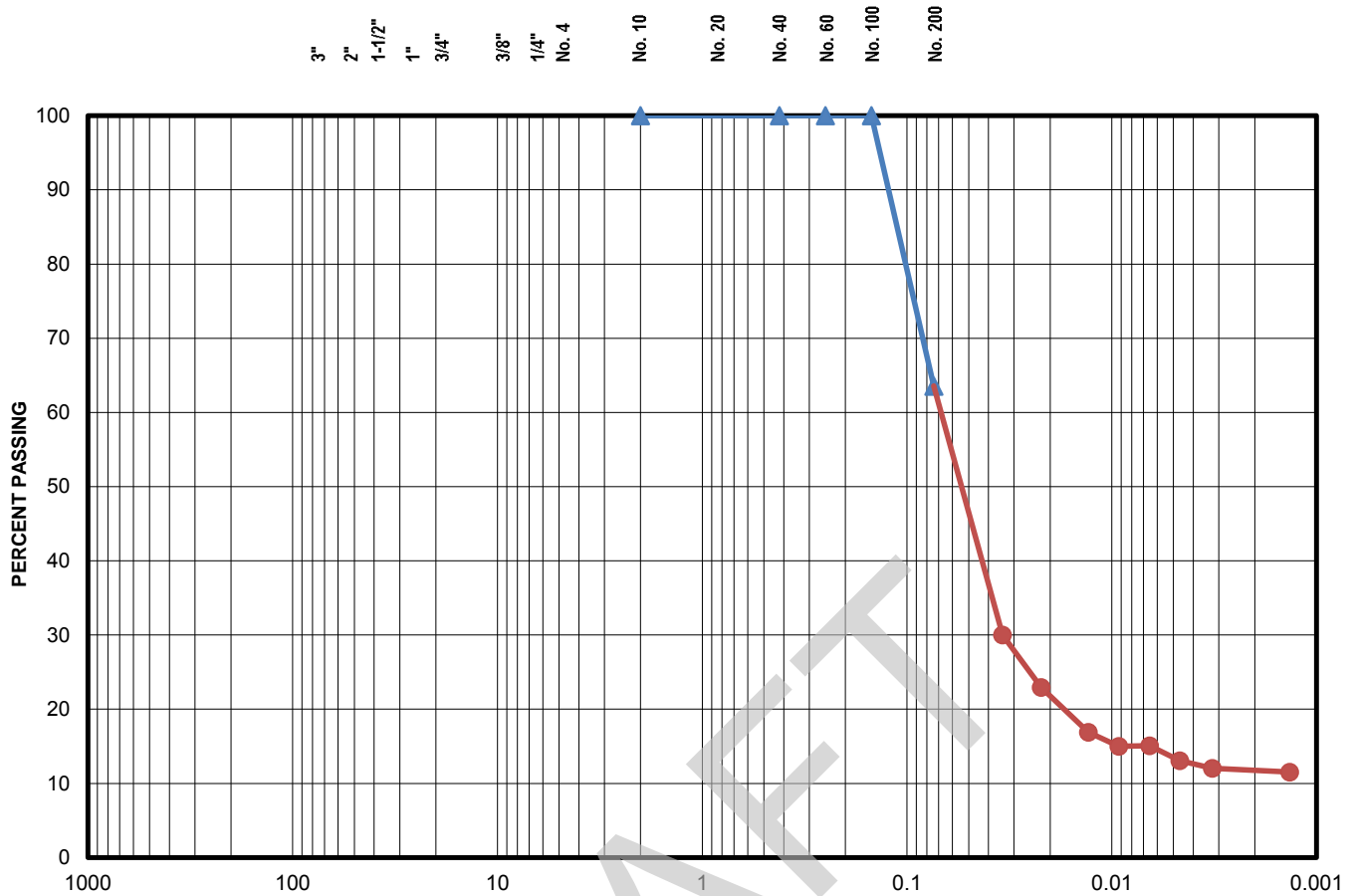
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Firm gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	63.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1146
Hydro jar ID:	1163

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/19/2013
Project No.	18274-001-00	Tested By	AB/TRC
Sample ID.	PT-2	Checked By	SLC
Source/Depth (feet)	74 - 76		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



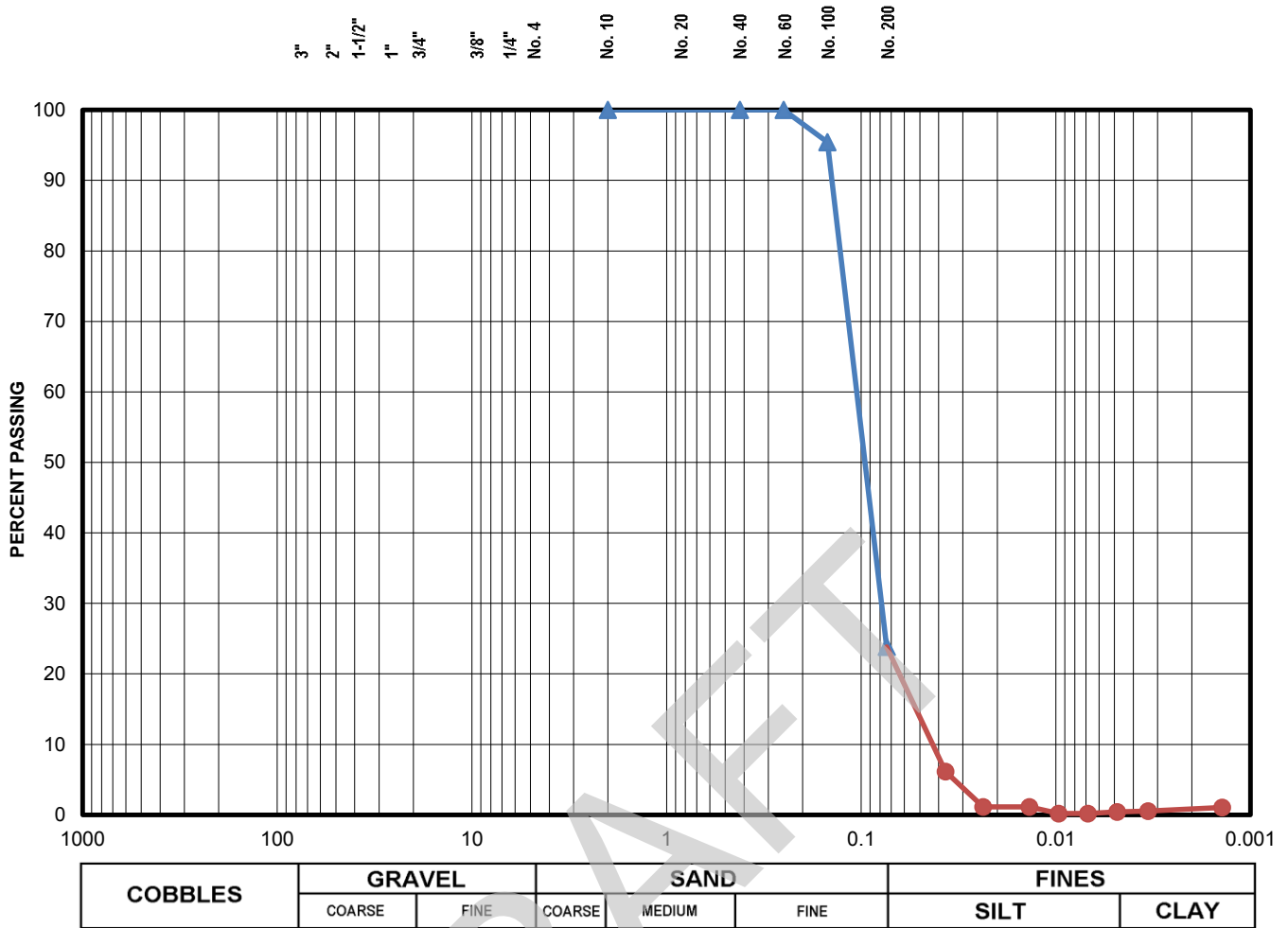
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



Description (D 2488) Medium dense gray silty fine sand (SM)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	95.4
1/4"	100.0	No. 200	23.8

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1147
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/12/2013
Project No.	18274-001-00	Tested By	bh
Sample ID.	PZ-1	Checked By	sc
Source/Depth (feet)	13 - 15		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



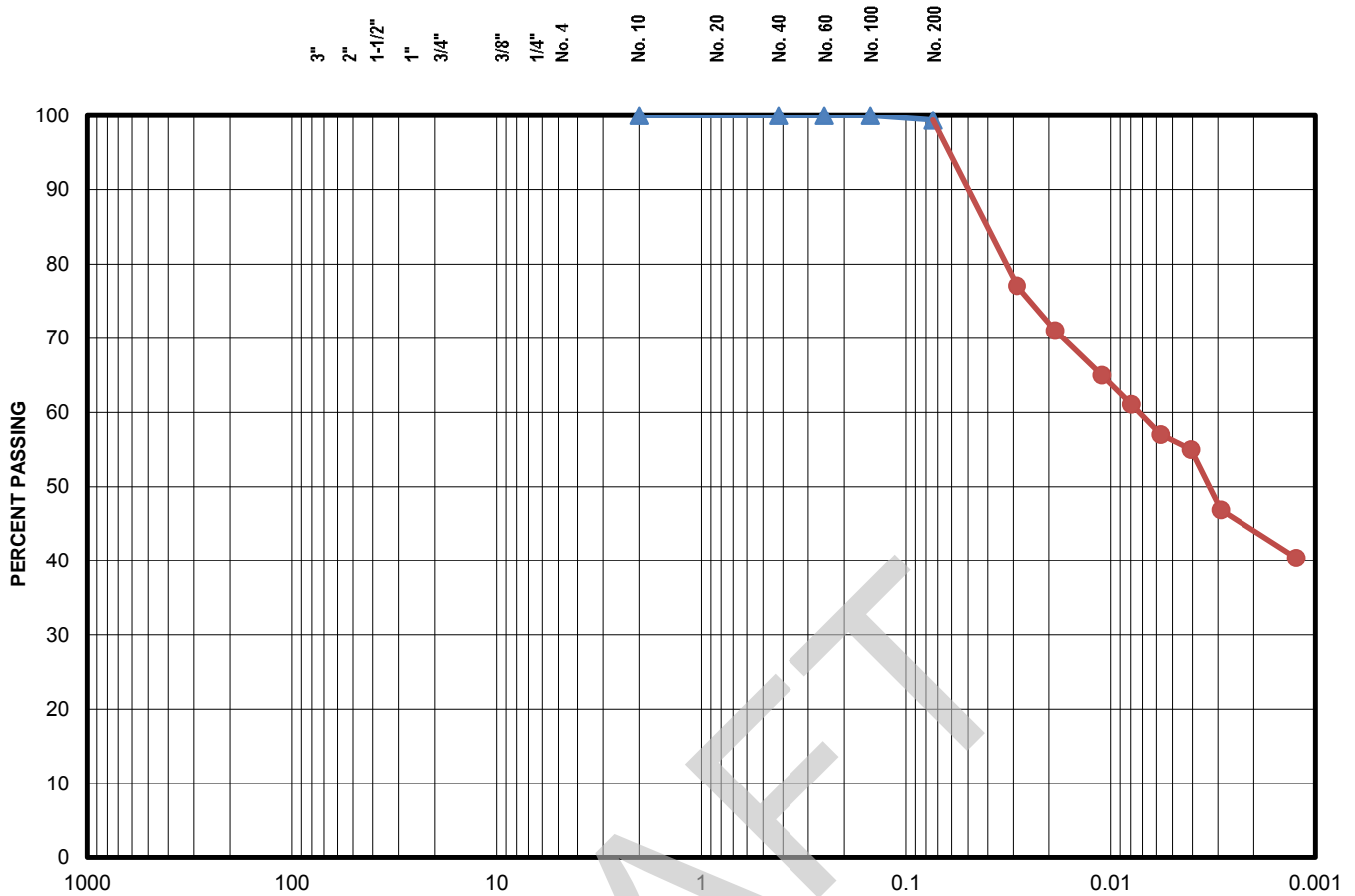
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Soft gray clay (CL4)
-----------------------------	----------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	99.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	199361
Hydro jar ID:	1154

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/9/2013
Project No.	18274-001-00	Tested By	bh/lc
Sample ID.	PZ-1	Checked By	sc
Source/Depth (feet)	18 - 20		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



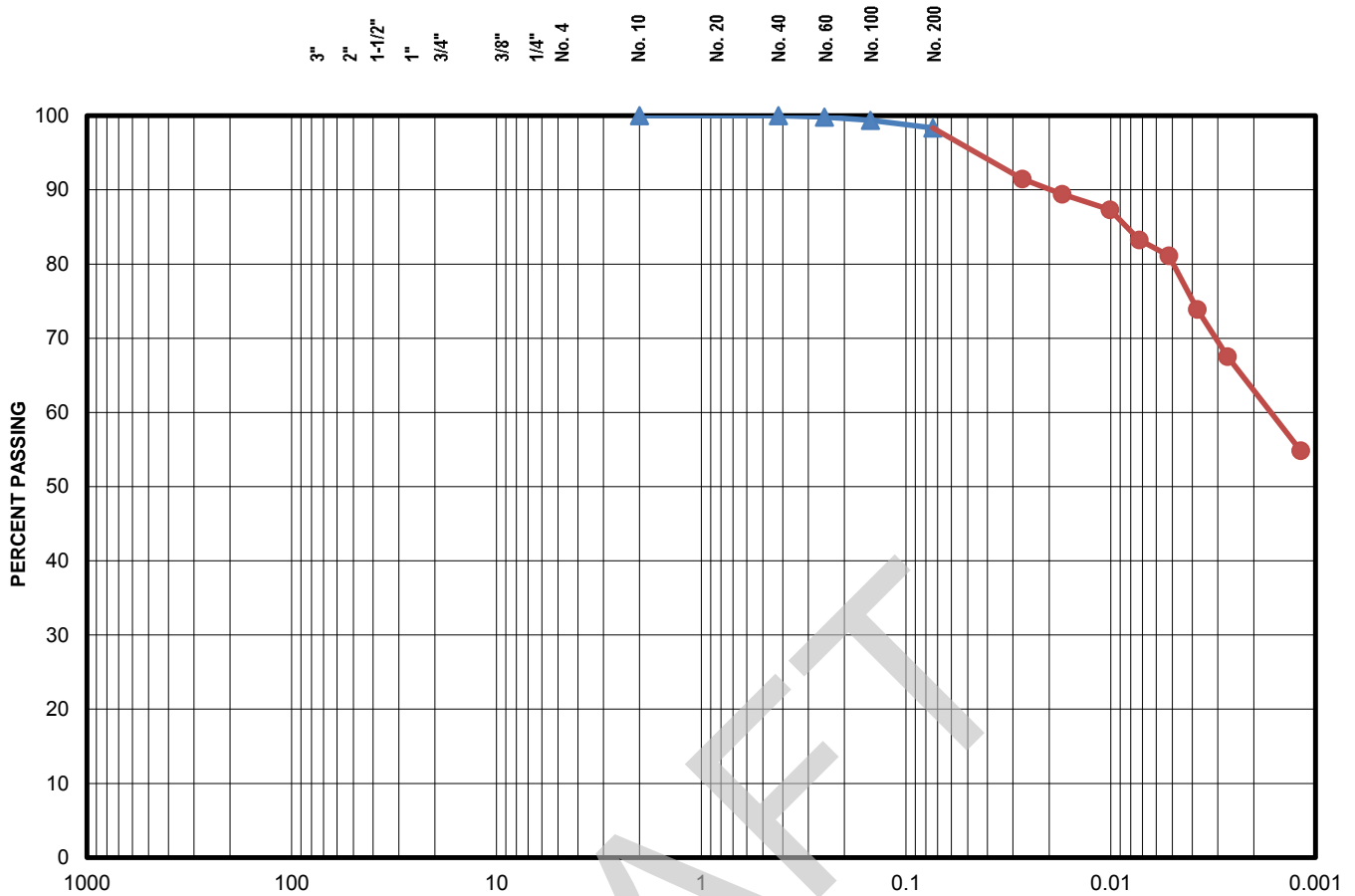
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Soft gray clay with peat and trace sand (CL6)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.8
3/8"	100.0	No. 100	99.4
1/4"	100.0	No. 200	98.3

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1147
Hydro jar ID:	1357

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/9/2013
Project No.	18274-001-00	Tested By	bh/lc
Sample ID.	PZ-1	Checked By	sc
Source/Depth (feet)	23 - 25		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



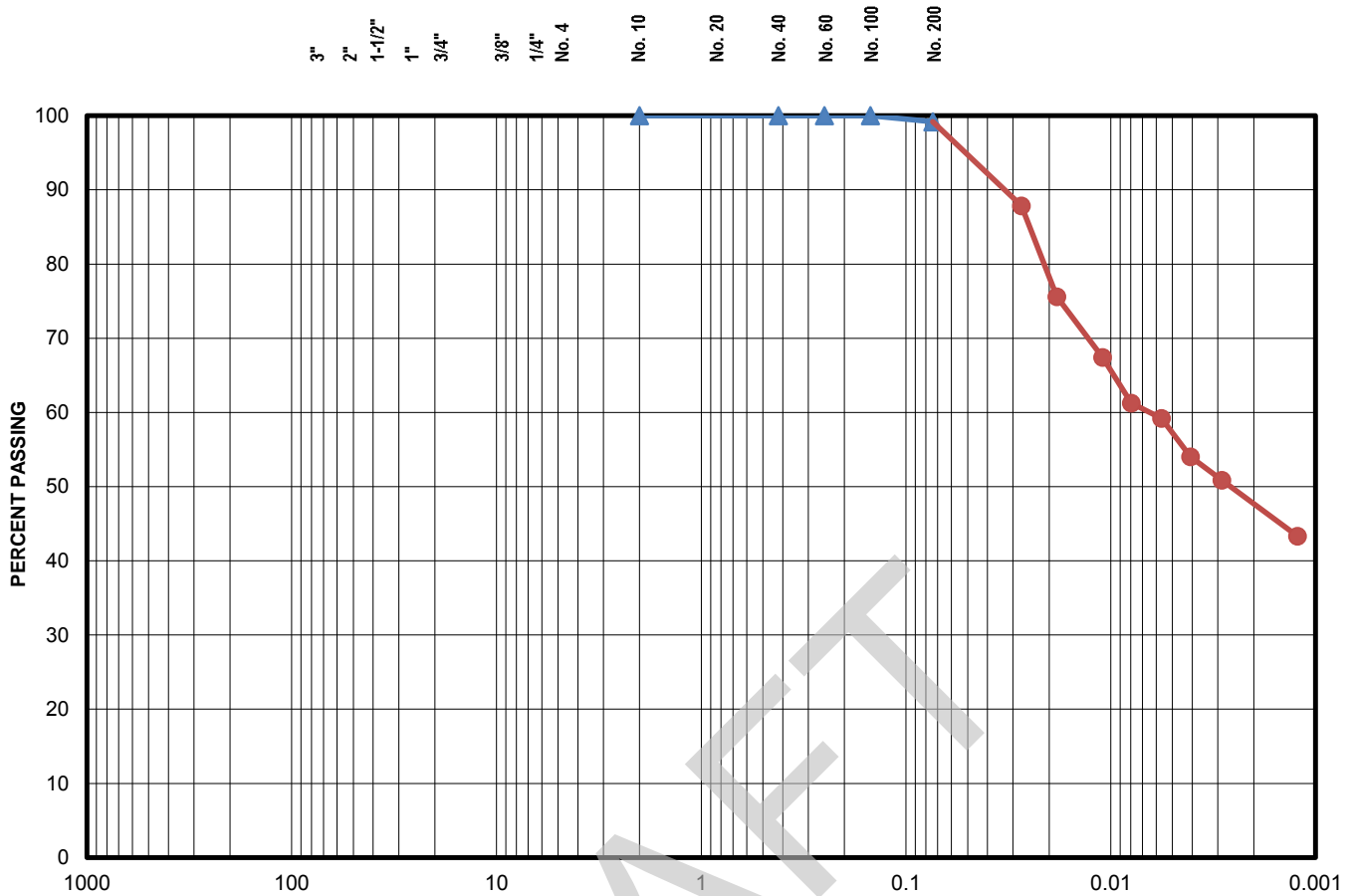
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium dark gray clay with silt lenses (CL4)
-----------------------------	--

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	99.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-153)	Date Tested	9/4/2013
Project No.	18274-001-00	Tested By	bh
Sample ID.	PZ-1	Checked By	sc
Source/Depth (feet)	33 - 35		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



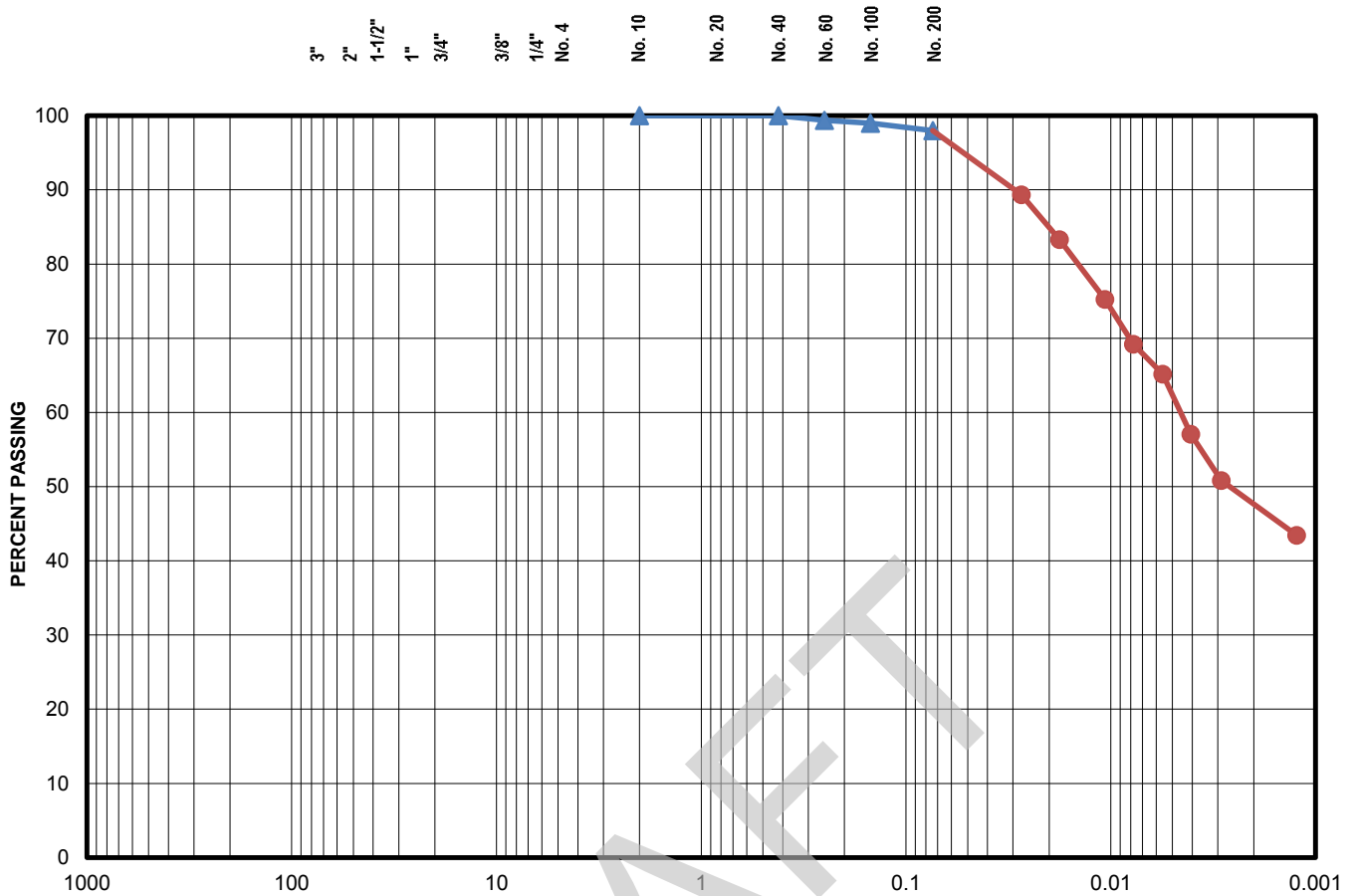
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Very soft gray clay (CL4)
-----------------------------	---------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.4
3/8"	100.0	No. 100	99.0
1/4"	100.0	No. 200	98.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	54355
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/9/2013
Project No.	18274-001-00	Tested By	bh/lc
Sample ID.	PZ-1-S4A	Checked By	sc
Source/Depth (feet)	13 - 15		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



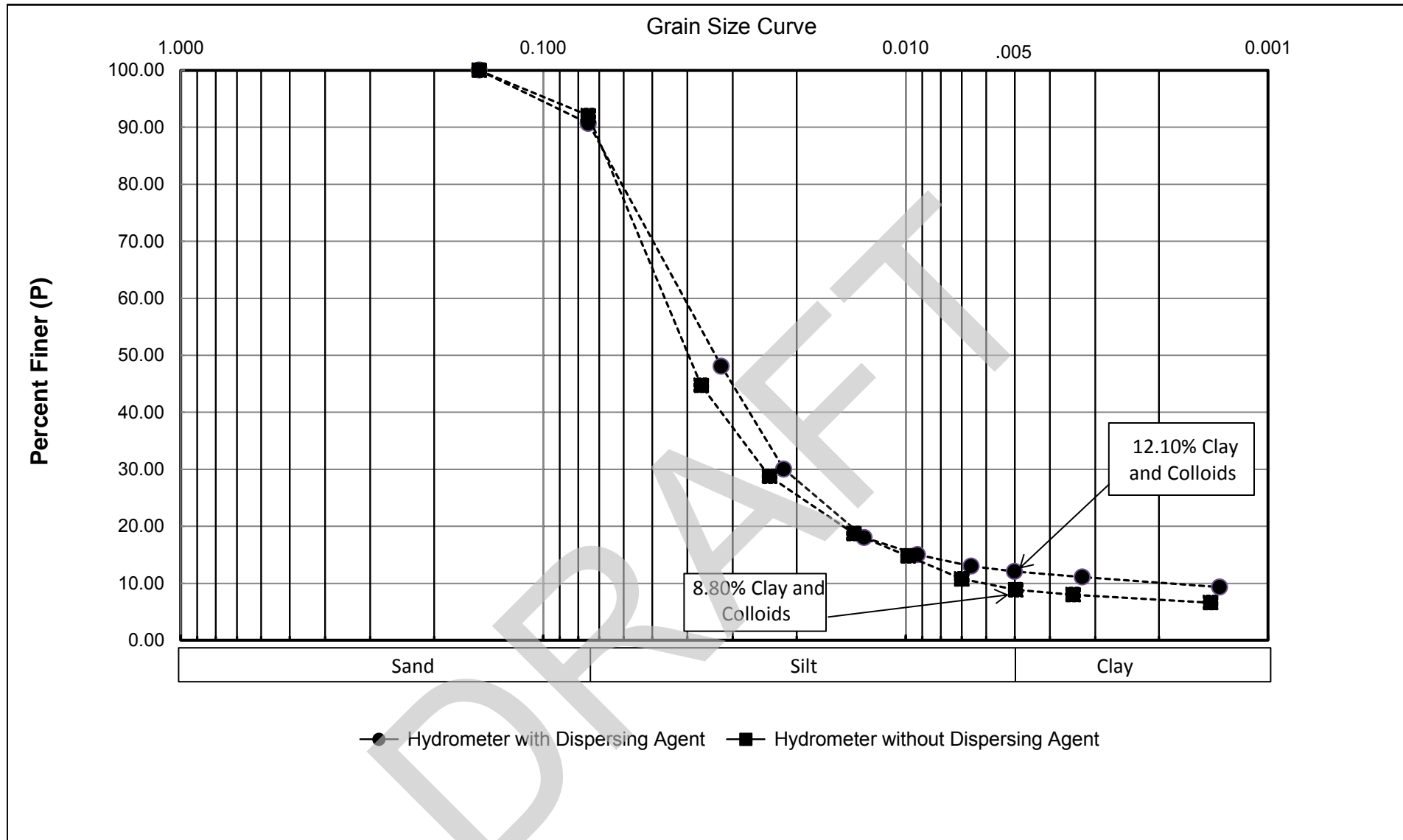
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

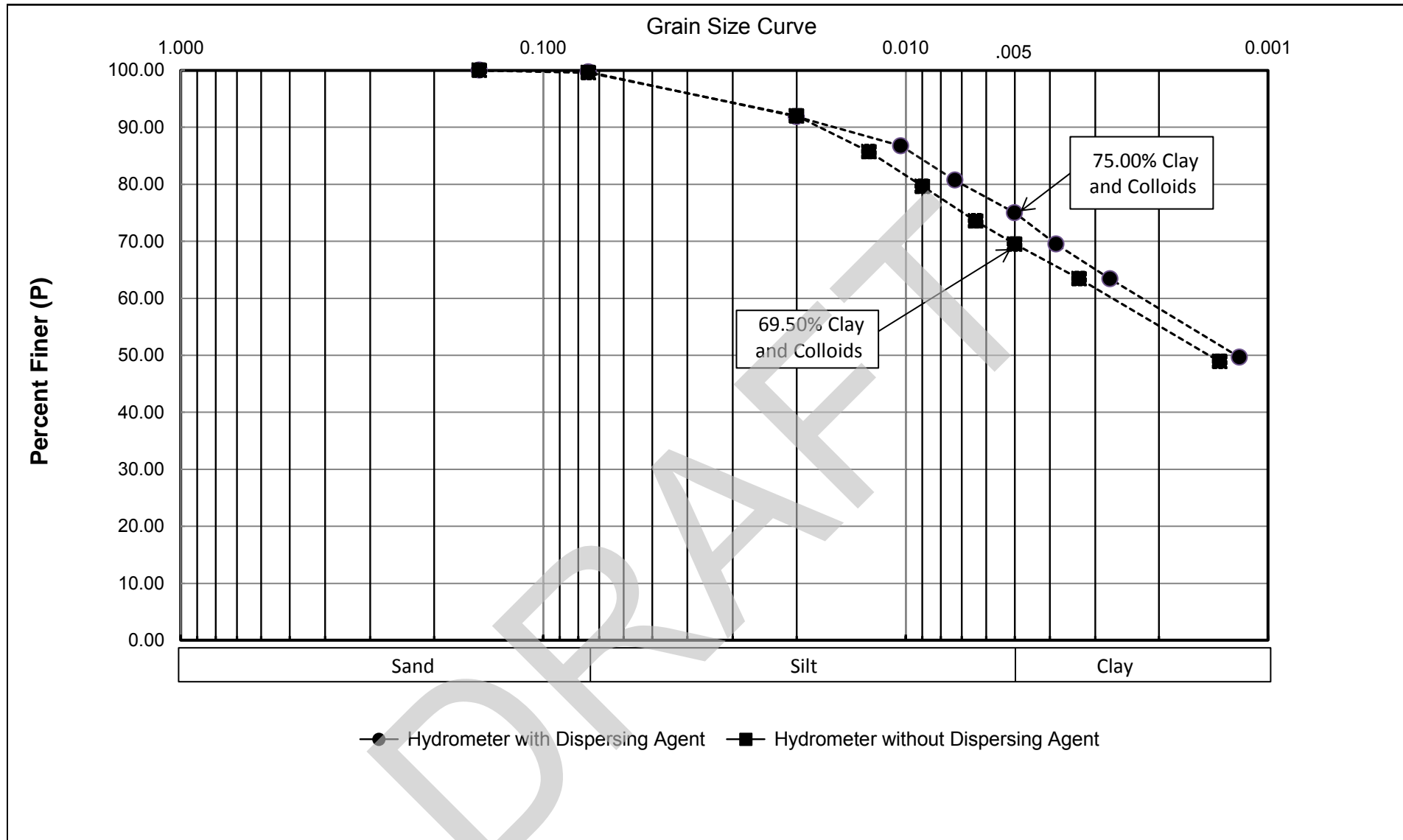
ASTM D4221 - 11 Standard Test Method for Dispersive Characteristics of Clay Soil by Double Hydrometer



Project Name.	Mid Brataria Div. (BA-152)	Hydrometer with Dispersing Agent		Hydrometer without Dispersing Agent		
		Project No..	18274-001-00	% Retained Number 40	0	
Sample Id.	PZ-1 (S-7)	% Retained Number 60	0	% Retained Number 60	0	
Depth	28-30	% Retained Number 100	0	% Retained Number 100	0	
Date	9-10-13	% Retained Number 200	9.30	% Retained Number 200	7.9	$\%D = \frac{\% \text{ Clay without Dispersant}}{\% \text{ Clay with Dispersant}} \times 100$
Type	Grain Size Analysis	% Sand (Total)	9.30	% Sand (Total)	7.9	
Material	M de gr sa si w/cl (ML)	% Silt	78.60	% Silt	83.30	%D= 8.8%/12.10%X100
Additive:	NA	% Clay and Colloids	12.10	% Clay and Colloids	8.80	%D= 72.7 Percent

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ASTM D4221 - 11 Standard Test Method for Dispersive Characteristics of Clay Soil by Double Hydrometer

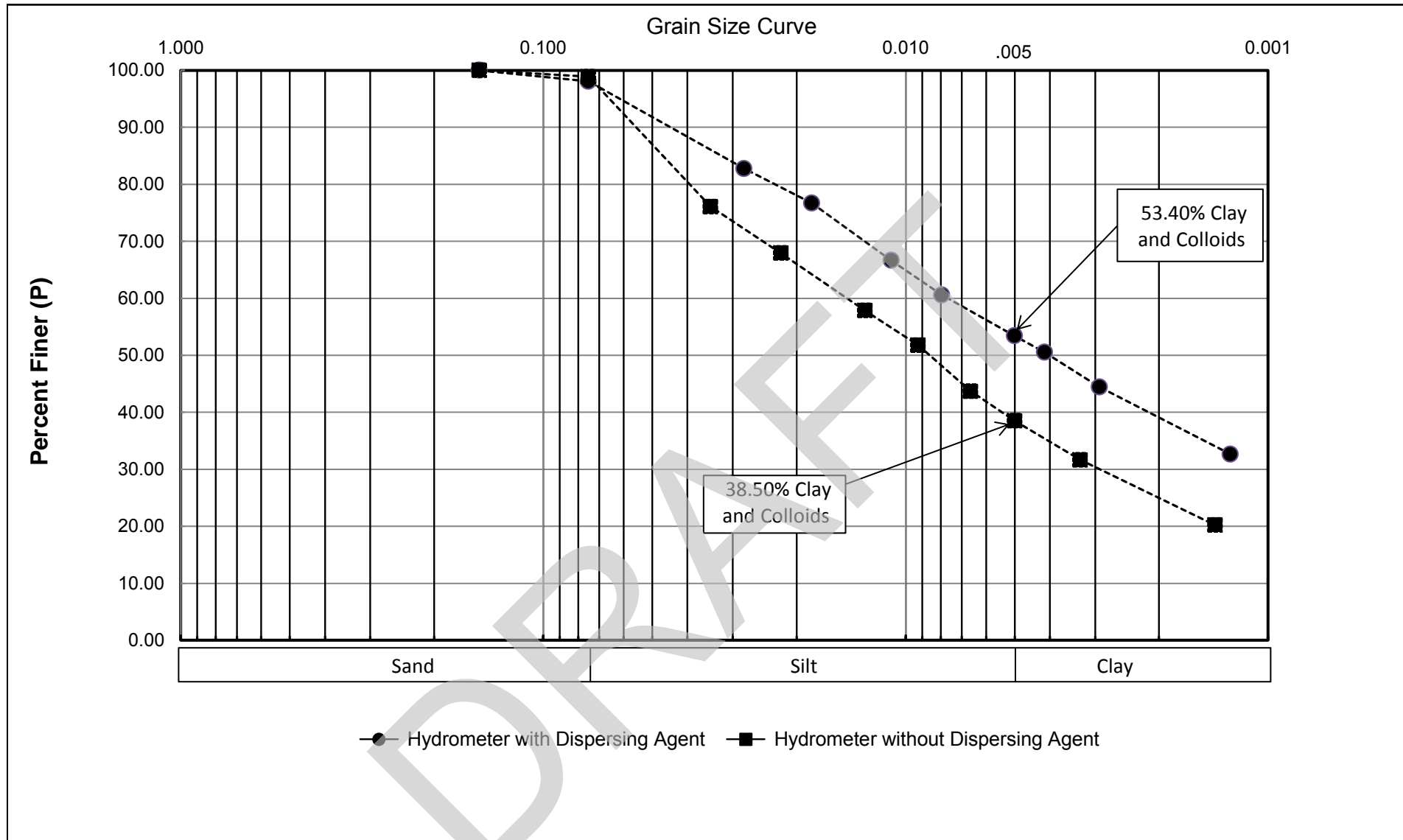


Project Name.	Mid Brataria Div. (BA-152)	Hydrometer with Dispersing Agent		Hydrometer without Dispersing Agent		
		Project No..	18274-001-00	% Retained Number 40	0	
Sample Id.	PZ-2 (S-8)	% Retained Number 60	0	% Retained Number 60	0	
Depth	33-35	% Retained Number 100	0	% Retained Number 100	0	
Date	9-10-13	% Retained Number 200	.30	% Retained Number 200	.40	
Type	Grain Size Analysis	% Sand (Total)	.30	% Sand (Total)	.40	
Material	So gr cl (CH4)	% Silt	24.70	% Silt	30.10	
Additive:	NA	% Clay and Colloids	75.00	% Clay and Colloids	69.50	

$\%D = \frac{\% \text{ Clay without Dispersant}}{\% \text{ Clay with Dispersant}} \times 100$	$\%D = \frac{69.50\%}{75.00\%} \times 100$
	$\%D = 92.7 \text{ Percent}$

GeoEngineers, Inc.

ASTM D4221 - 11 Standard Test Method for Dispersive Characteristics of Clay Soil by Double Hydrometer

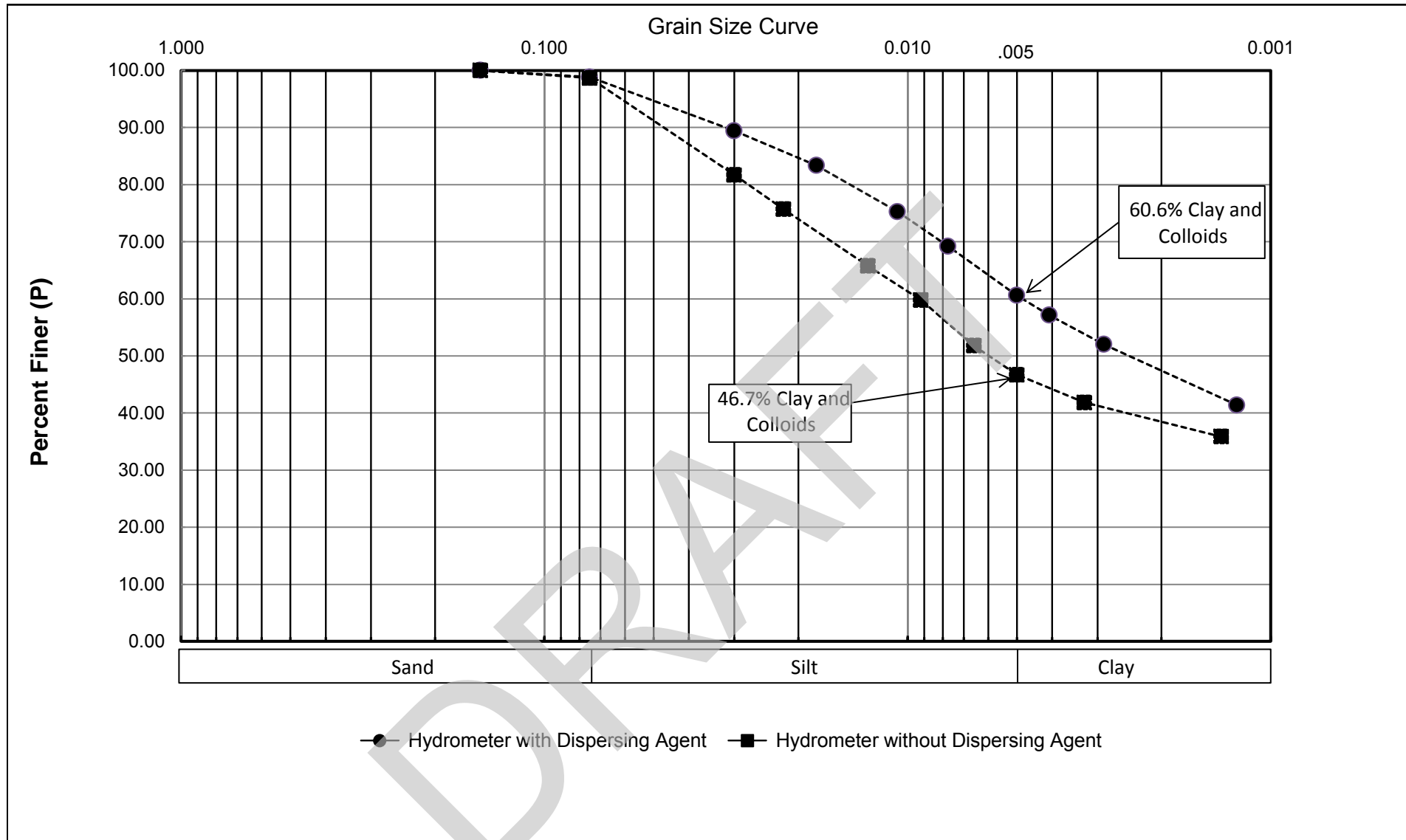


Project Name.	Mid Brataria Div. (BA-152)	Hydrometer with Dispersing Agent		Hydrometer without Dispersing Agent		
		Project No..	18274-001-00	% Retained Number 40	0	
Sample Id.	PZ-4 (S-3)	% Retained Number 60	0	% Retained Number 60	0	
Depth	8-10	% Retained Number 100	0	% Retained Number 100	0	
Date	9-10-13	% Retained Number 200	1.90	% Retained Number 200	1.10	
Type	Grain Size Analysis	% Sand (Total)	1.90	% Sand (Total)	1.10	
Material	V so gr cl (CL6)	% Silt	44.70	% Silt	60.40	
Additive:	NA	% Clay and Colloids	53.40	% Clay and Colloids	38.50	

$\%D = \frac{\% \text{ Clay without Dispersant}}{\% \text{ Clay with Dispersant}} \times 100$	$\%D = \frac{38.5\%}{53.4\%} \times 100$
	$\%D = 72.1 \text{ Percent}$

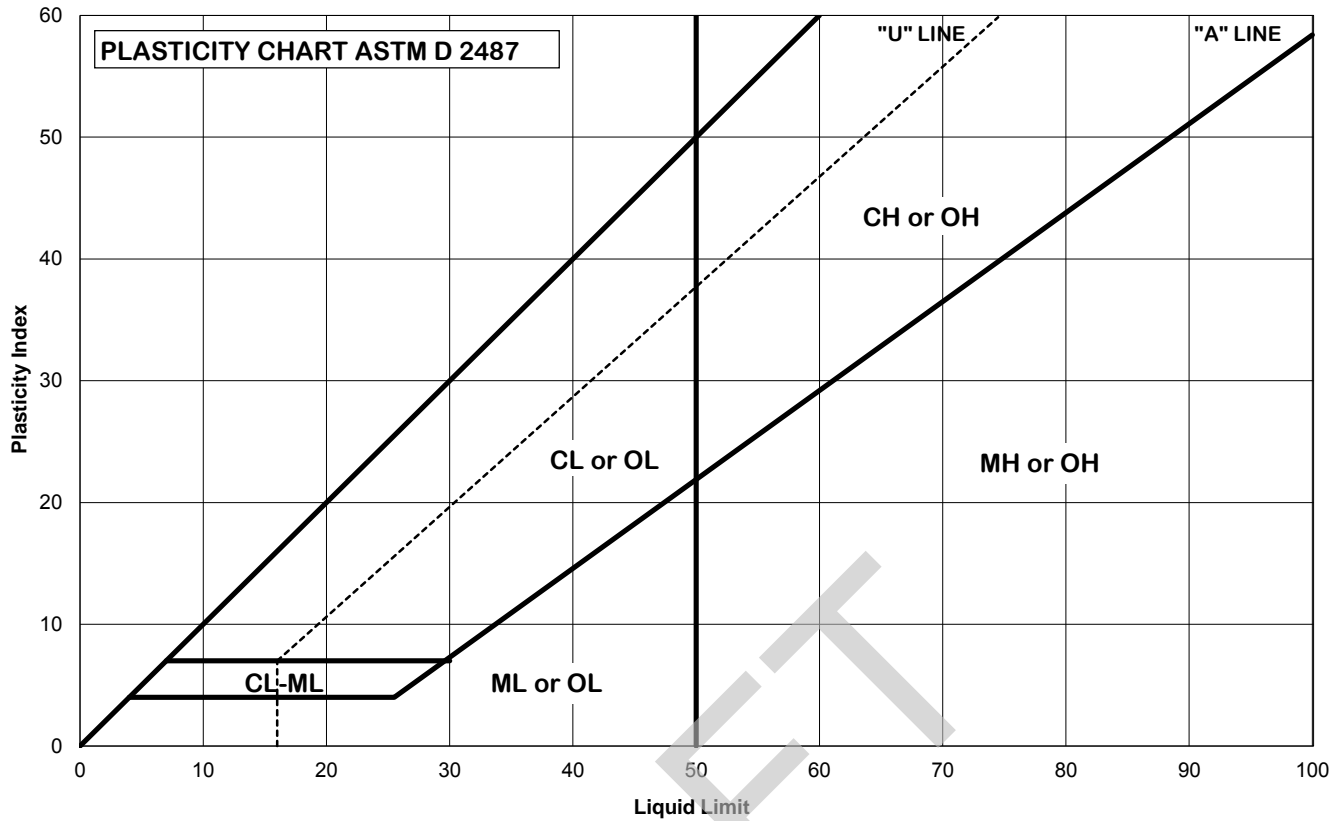
GeoEngineers, Inc.

ASTM D4221 - 11 Standard Test Method for Dispersive Characteristics of Clay Soil by Double Hydrometer



Project Name.	Mid Brataria Div. (BA-152)	Hydrometer with Dispersing Agent		Hydrometer without Dispersing Agent		
		Project No..	18274-001-00	% Retained Number 40	0	
Sample Id.	PZ-5 (S-5A)	% Retained Number 60	0	% Retained Number 60	0	
Depth	18-20	% Retained Number 100	0	% Retained Number 100	0	
Date	9-10-13	% Retained Number 200	1.20	% Retained Number 200	1.30	
Type	Grain Size Analysis	% Sand (Total)	1.20	% Sand (Total)	1.30	$\%D = \frac{\% \text{ Clay without Dispersant}}{\% \text{ Clay with Dispersant}} \times 100$
Material	V so gr cl (CH4)	% Silt	38.20	% Silt	52.00	
Additive:	NA	% Clay and Colloids	60.60	% Clay and Colloids	46.70	$\%D = 77.1 \text{ Percent}$

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ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-6	Natural WC:	#DIV/0!
Depth, ft.	13 - 15	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay (CH4)		

Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	92
Plastic Limit =	28
Plasticity Index =	64

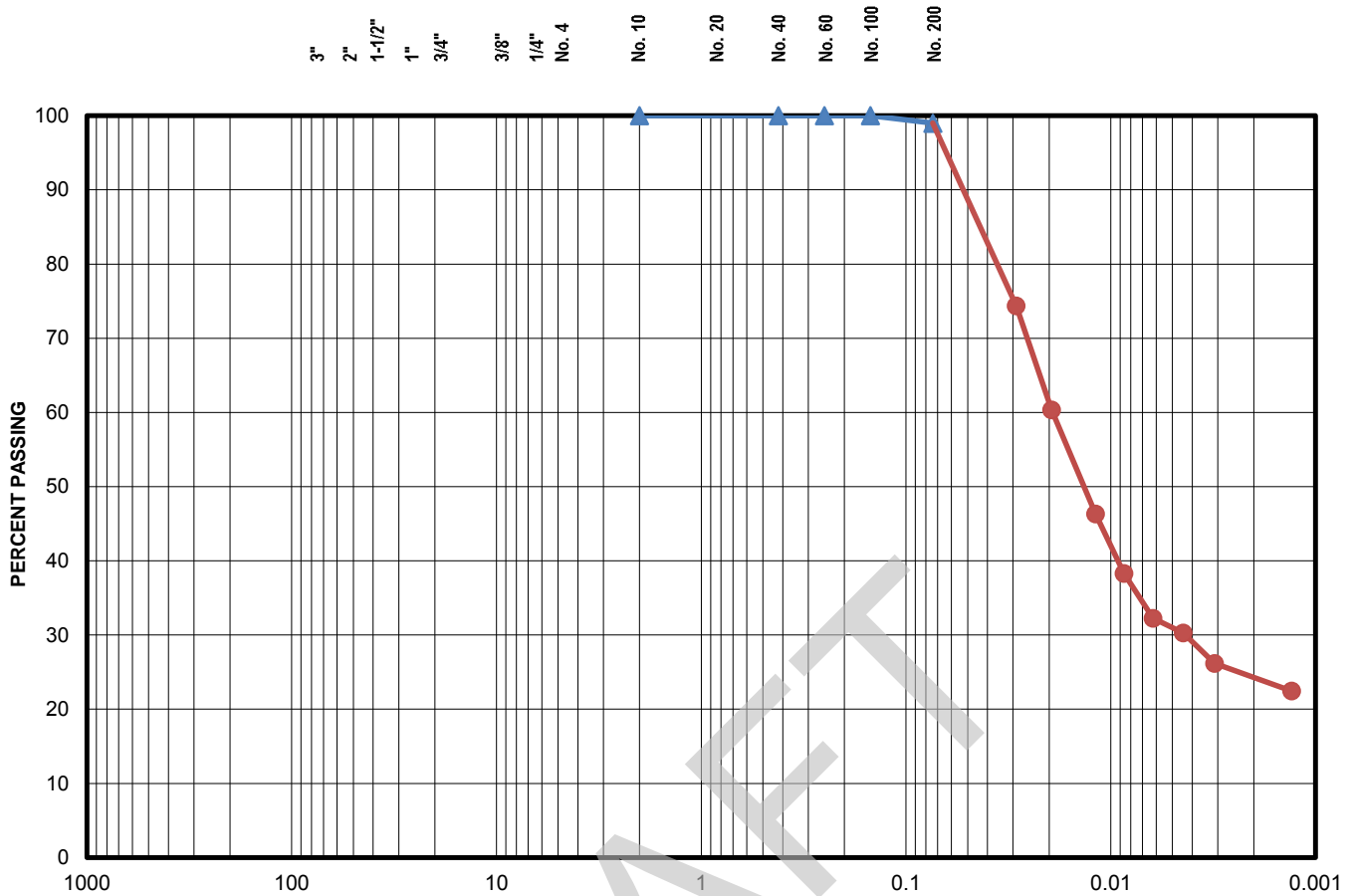
Date:	10/15/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray clayey silt with sand pockets (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	99.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	1163

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/9/2013
Project No.	18274-001-00	Tested By	bh/lc
Sample ID.	PZ-6-S7C	Checked By	sc
Source/Depth (feet)	28 - 30		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



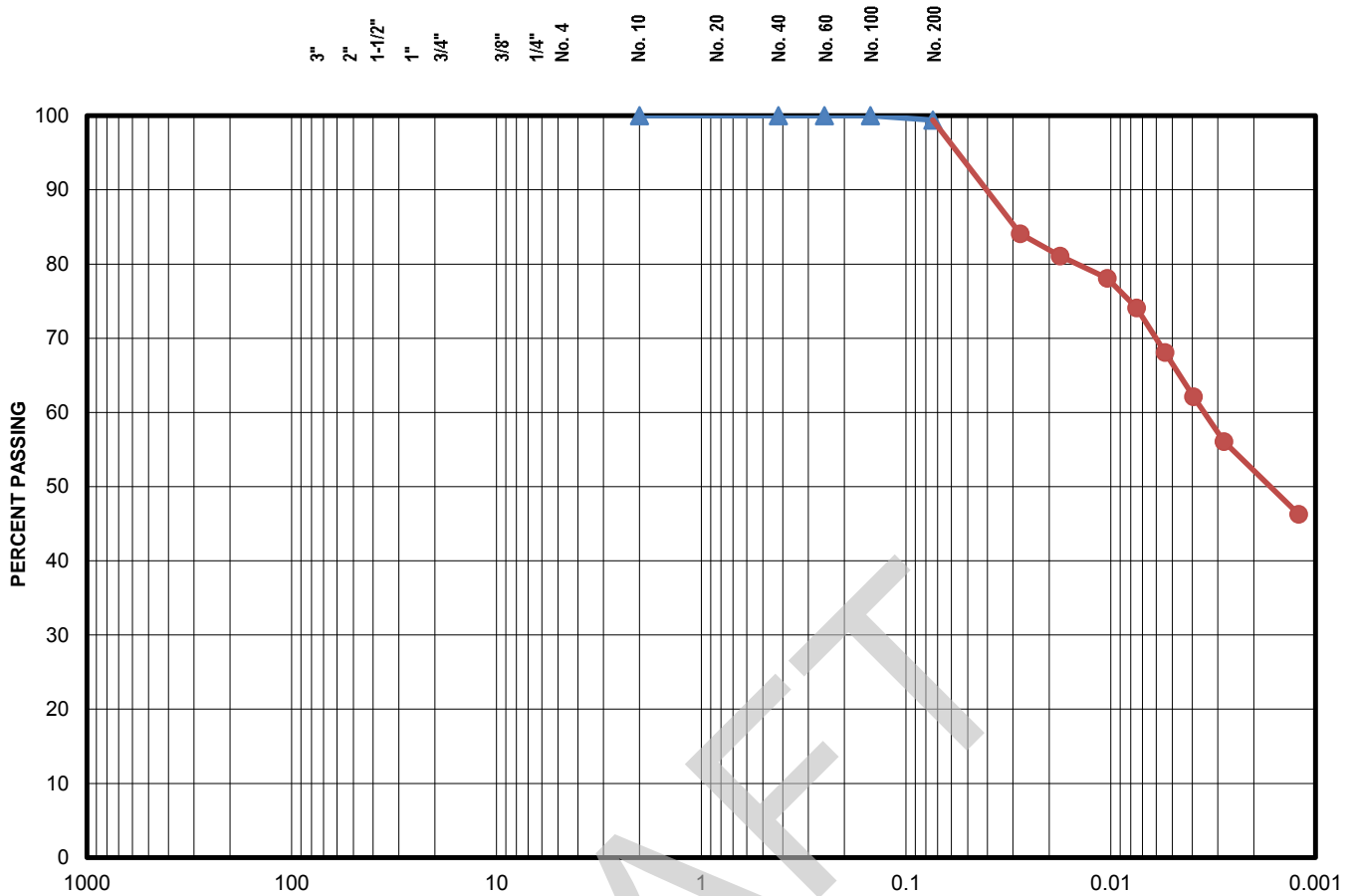
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Very soft gray clay (CL4)
-----------------------------	---------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	99.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1143
Hydro jar ID:	1158

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/9/2013
Project No.	18274-001-00	Tested By	bh/lc
Sample ID.	PZ-6	Checked By	sc
Source/Depth (feet)	18 - 20		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



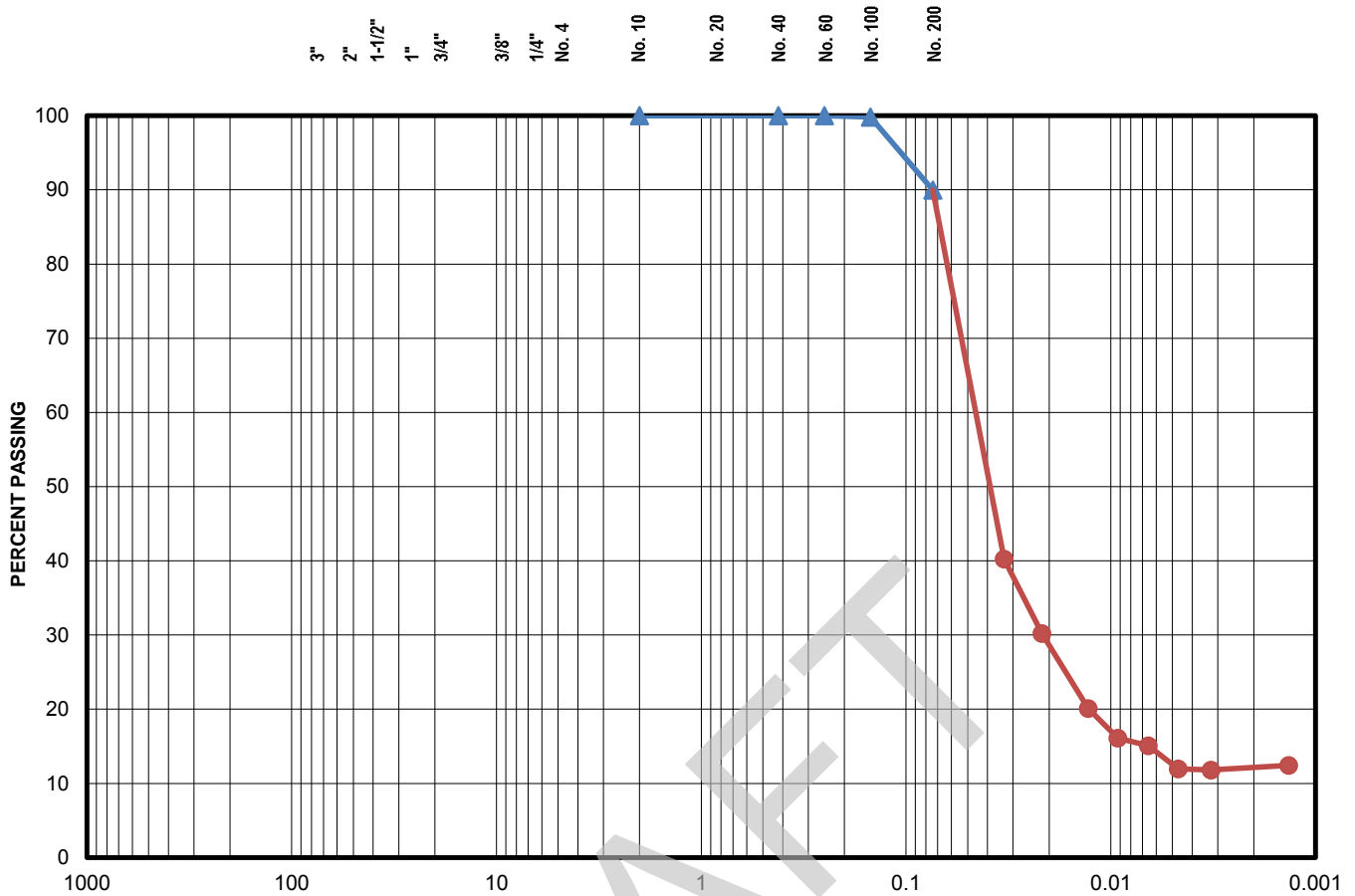
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray clayey silt with sand (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.8
1/4"	100.0	No. 200	90.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	1150

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/9/2013
Project No.	18274-001-00	Tested By	bh/lc
Sample ID.	PZ-6	Checked By	sc
Source/Depth (feet)	28 - 30		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



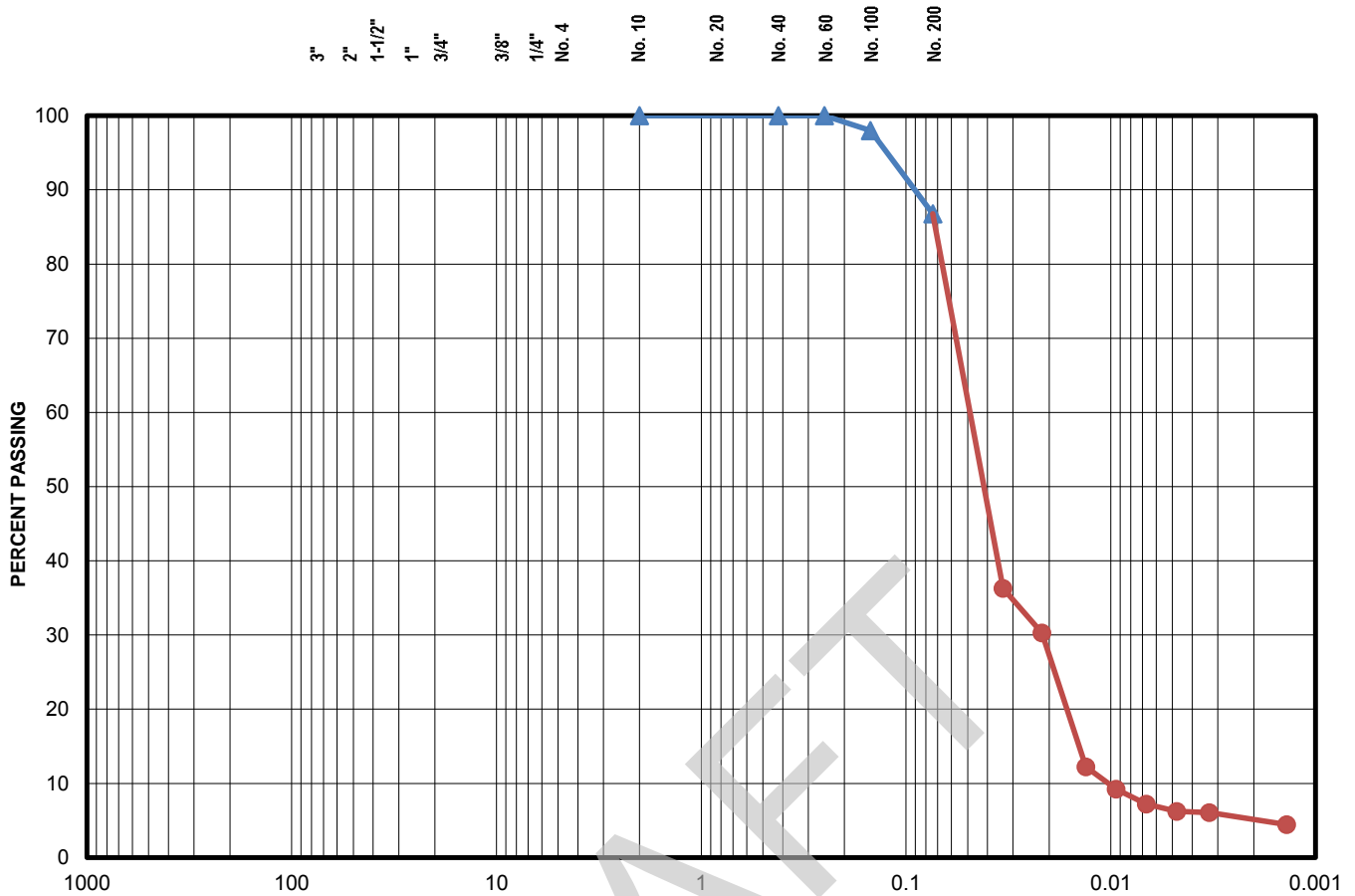
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	98.0
1/4"	100.0	No. 200	86.8

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1354

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/9/2013
Project No.	18274-001-00	Tested By	bh/lc
Sample ID.	PZ-6	Checked By	sc
Source/Depth (feet)	33 - 35		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



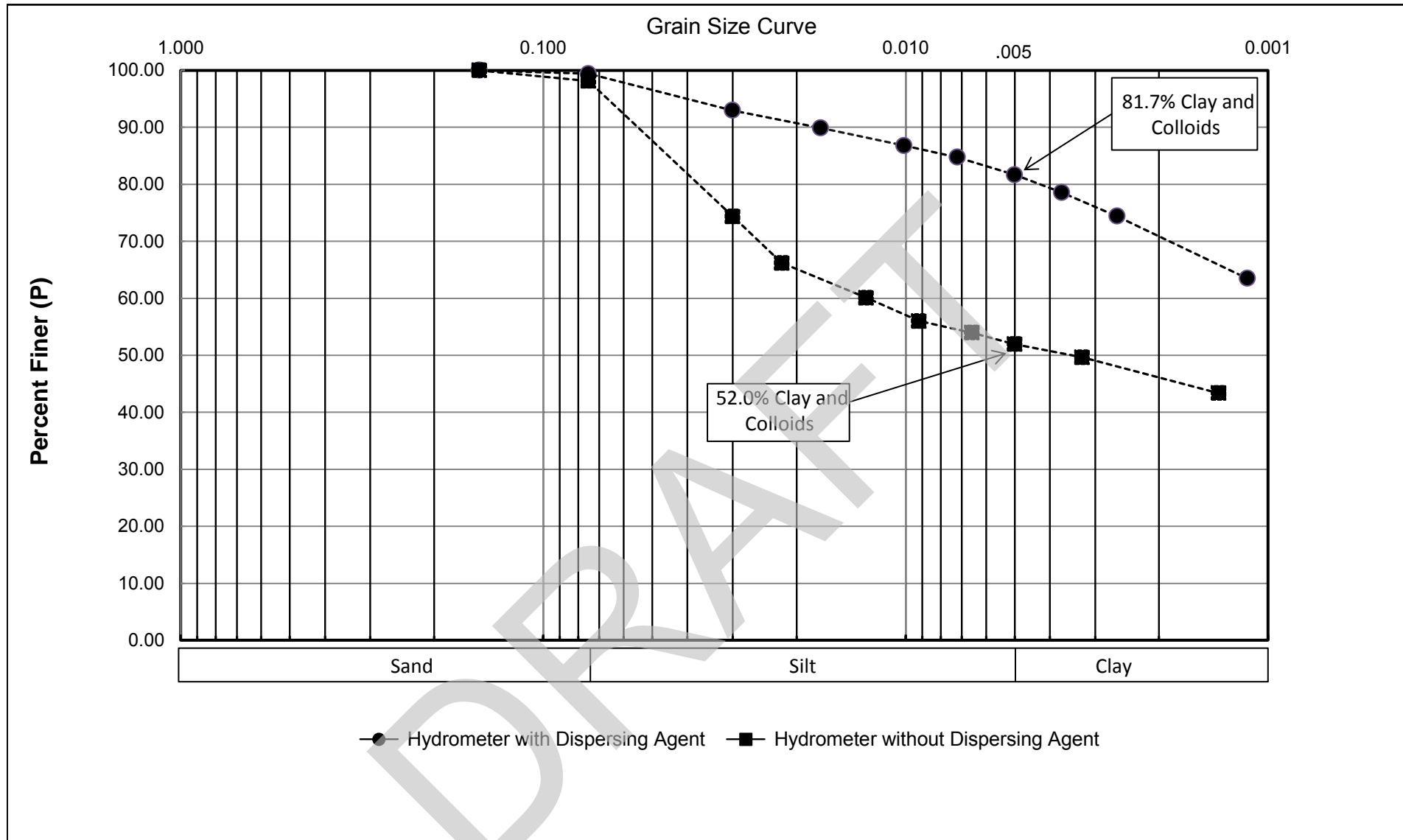
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

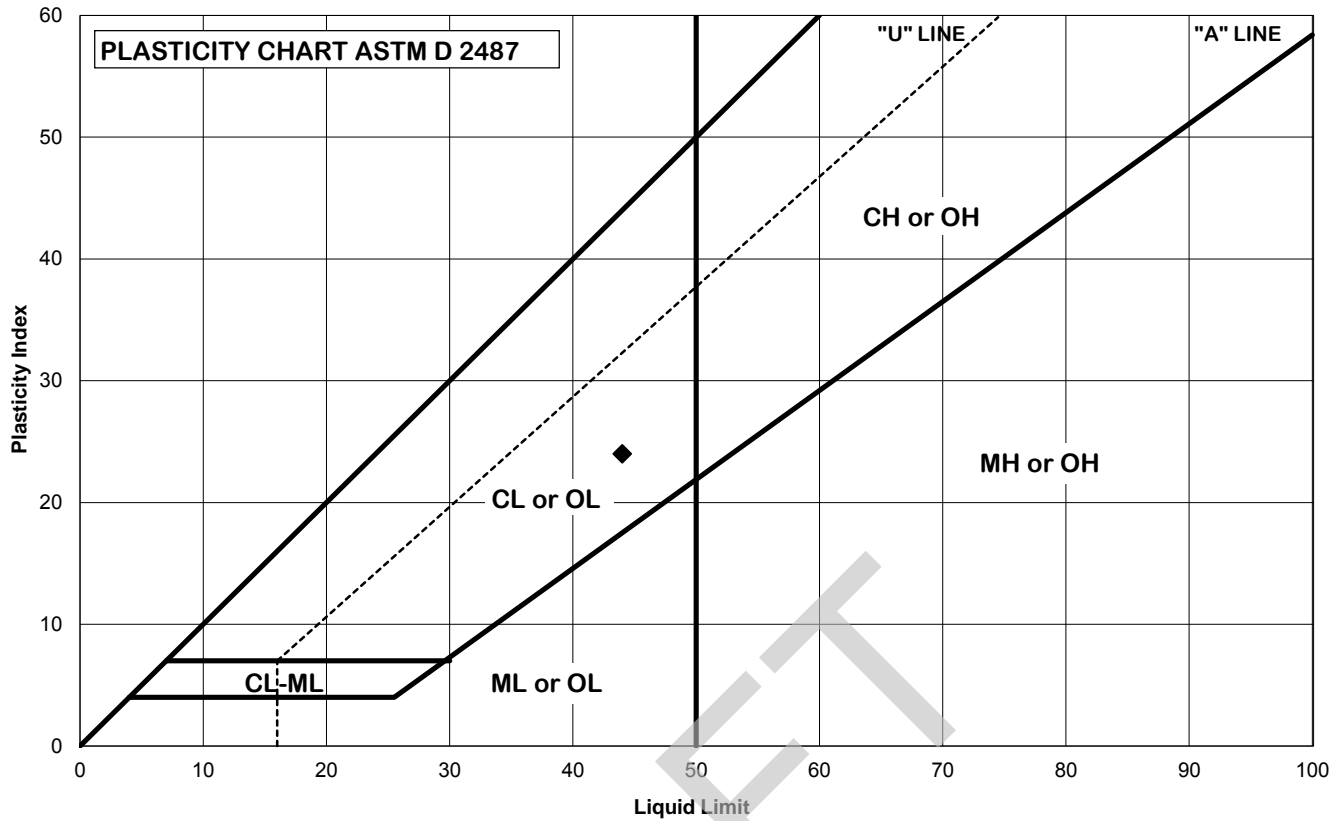
Confidential Information; Privileged & Confidential W/18274-001-00

ASTM D4221 - 11 Standard Test Method for Dispersive Characteristics of Clay Soil by Double Hydrometer



Project Name.	Mid Brataria Div. (BA-152)	Hydrometer with Dispersing Agent		Hydrometer without Dispersing Agent		
		Project No..	18274-001-00	% Retained Number 40	0	
Sample Id.	PZ-6 (S-6)	% Retained Number 60	0	% Retained Number 60	0	
Depth	23-25	% Retained Number 100	0	% Retained Number 100	0	
Date	9-10-13	% Retained Number 200	.60	% Retained Number 200	1.90	
Type	Grain Size Analysis	% Sand (Total)	.60	% Sand (Total)	1.90	$\%D = \frac{\% \text{ Clay without Dispersant}}{\% \text{ Clay with Dispersant}} \times 100$
Material	V so gr cl w/ o (CH4)	% Silt	17.70	% Silt	46.10	
Additive:	NA	% Clay and Colloids	81.70	% Clay and Colloids	52.00	$\%D = 63.6 \text{ Percent}$

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ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project			
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.			
18274-001-00			
Boring No.		Natural WC:	#DIV/0!
PZ-7		Preparation:	Wet (as-received)
Depth, ft.		No. Points:	
0 - 2			
Cup No.		No. Points:	
1356			
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:			
Medium brown clay with organic matter (CL6)			

Classification (fraction passing No. 40 sieve)
CL

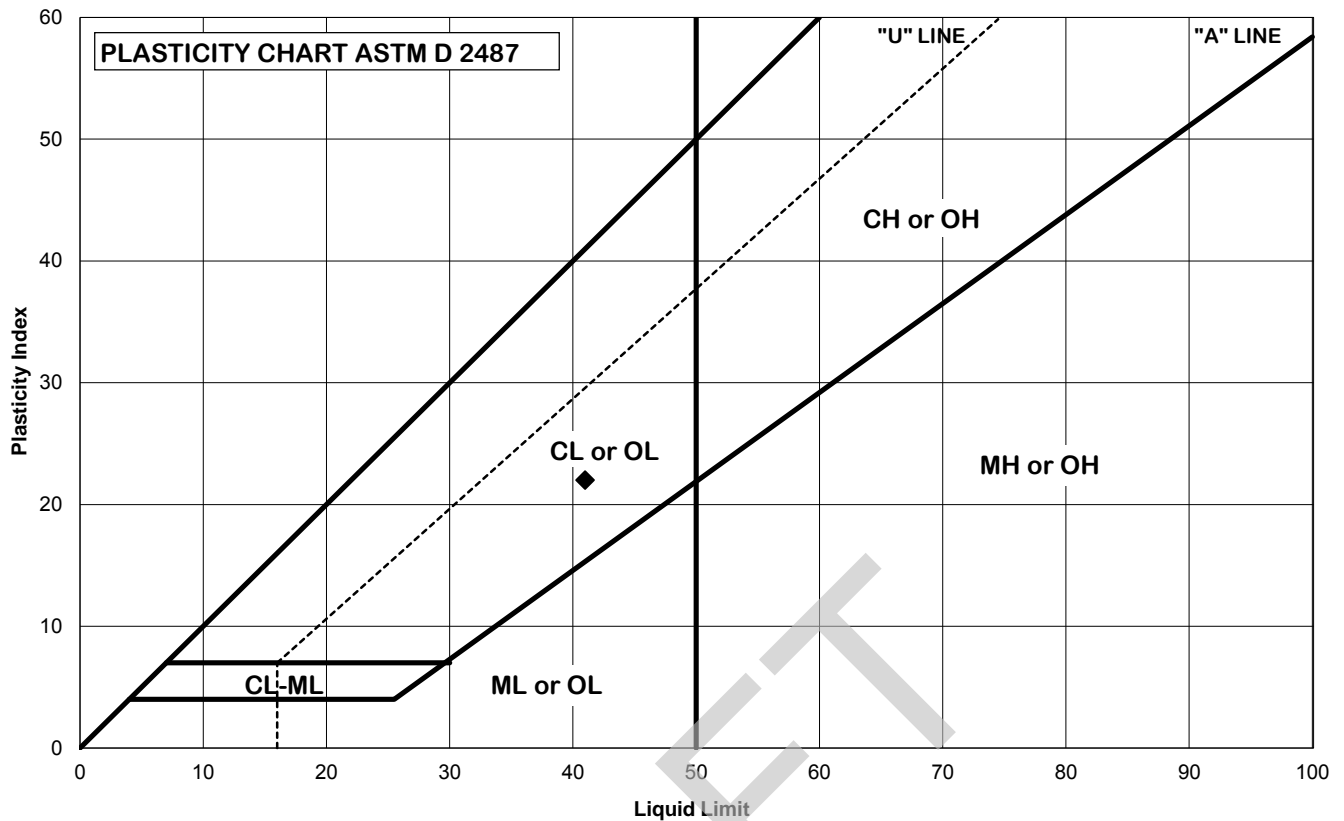
Liquid Limit =	44
Plastic Limit =	20
Plasticity Index =	24

Date:	10/18/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-7	Natural WC:	#DIV/0!
Depth, ft.	3 - 5	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium brown clay with organic matter and silt (CL4)		

Classification (fraction passing No. 40 sieve)
CL

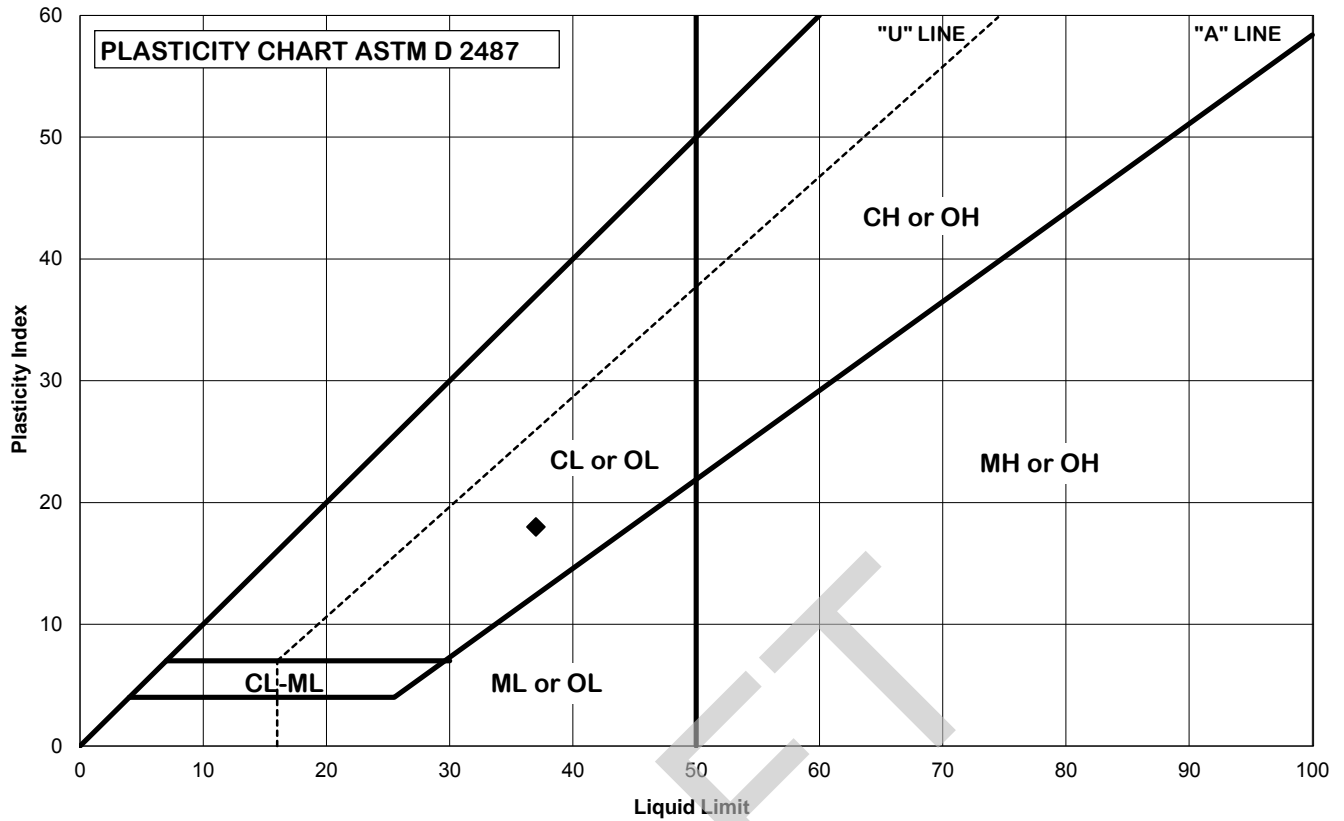
Liquid Limit =	41
Plastic Limit =	19
Plasticity Index =	22

Date:	10/18/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-7	Natural WC:	#DIV/0!
Depth, ft.	8 - 10	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay with organic matter and sand (CL4)		


Classification (fraction passing No. 40 sieve)
CL

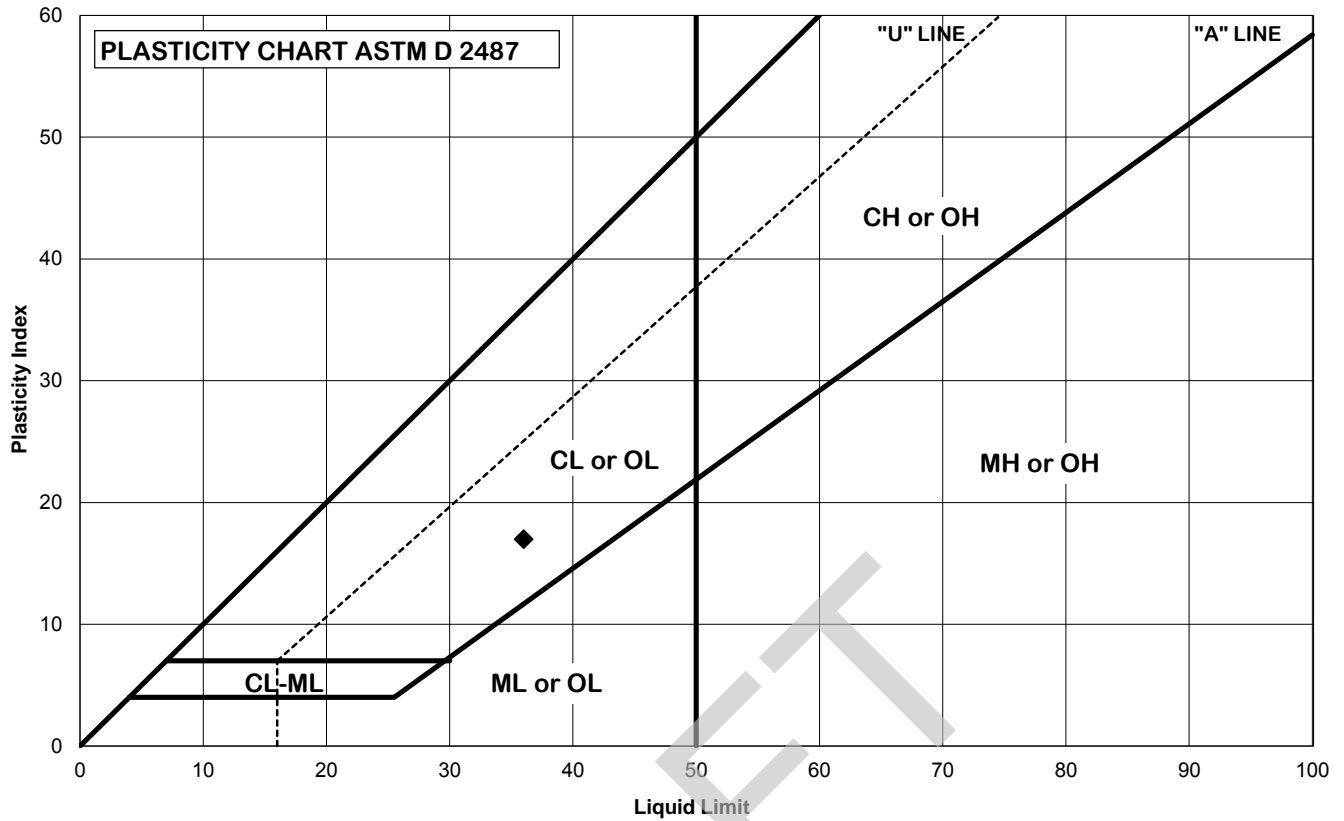
Liquid Limit =	37
Plastic Limit =	19
Plasticity Index =	18

Date:	10/18/2013
Tested By:	SC
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-7a	Natural WC:	#DIV/0!
Depth, ft.	13 - 15	Preparation:	Wet (as-received)
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay (CL4)		


Classification (fraction passing No. 40 sieve)
CL

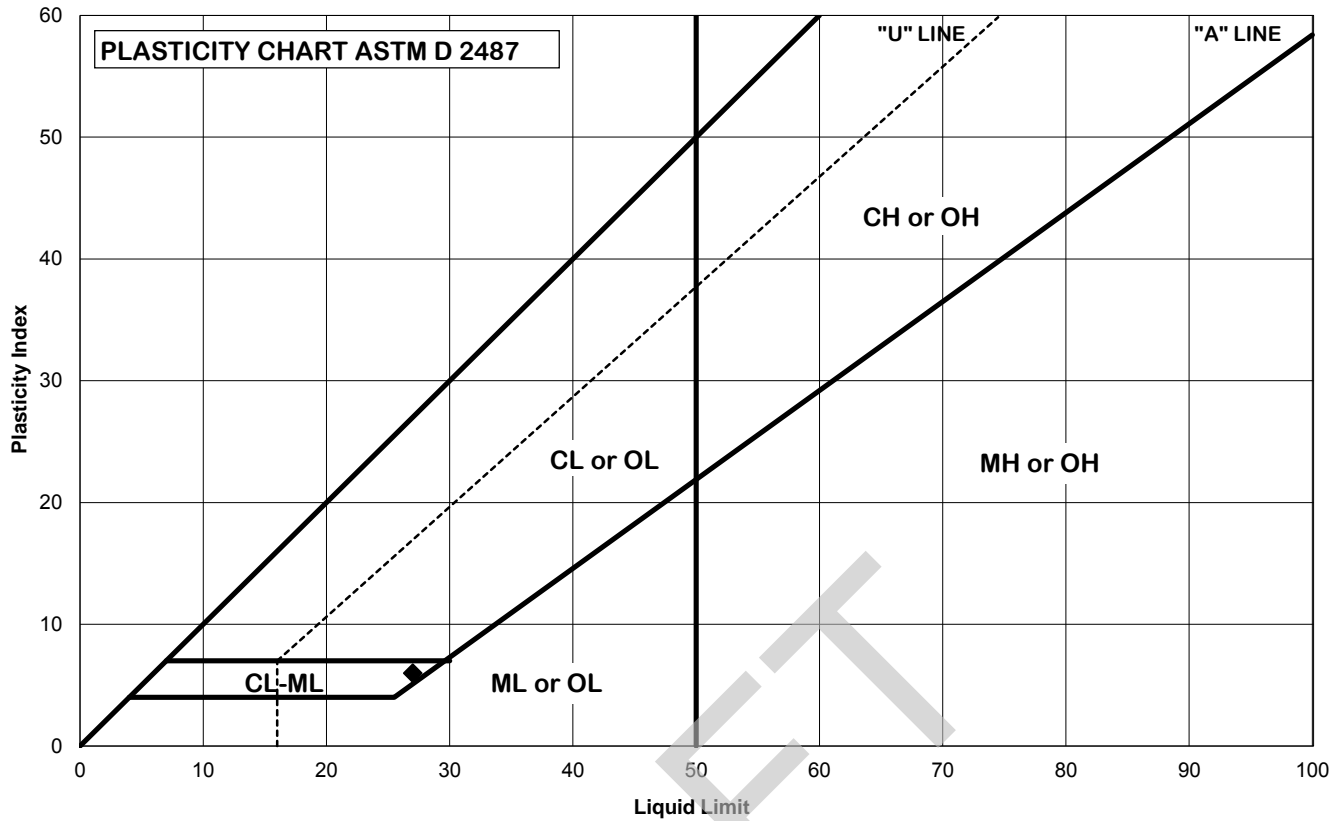
Liquid Limit =	36
Plastic Limit =	19
Plasticity Index =	17

Date:	10/18/2013
Tested By:	GOM
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-7b	Natural WC:	#DIV/0!
Depth, ft.	13 - 15	Preparation:	Wet (as-received)
Cup No.	1029	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Firm gray clayey silt with silt (ML)		

Classification (fraction passing No. 40 sieve)
CL-ML

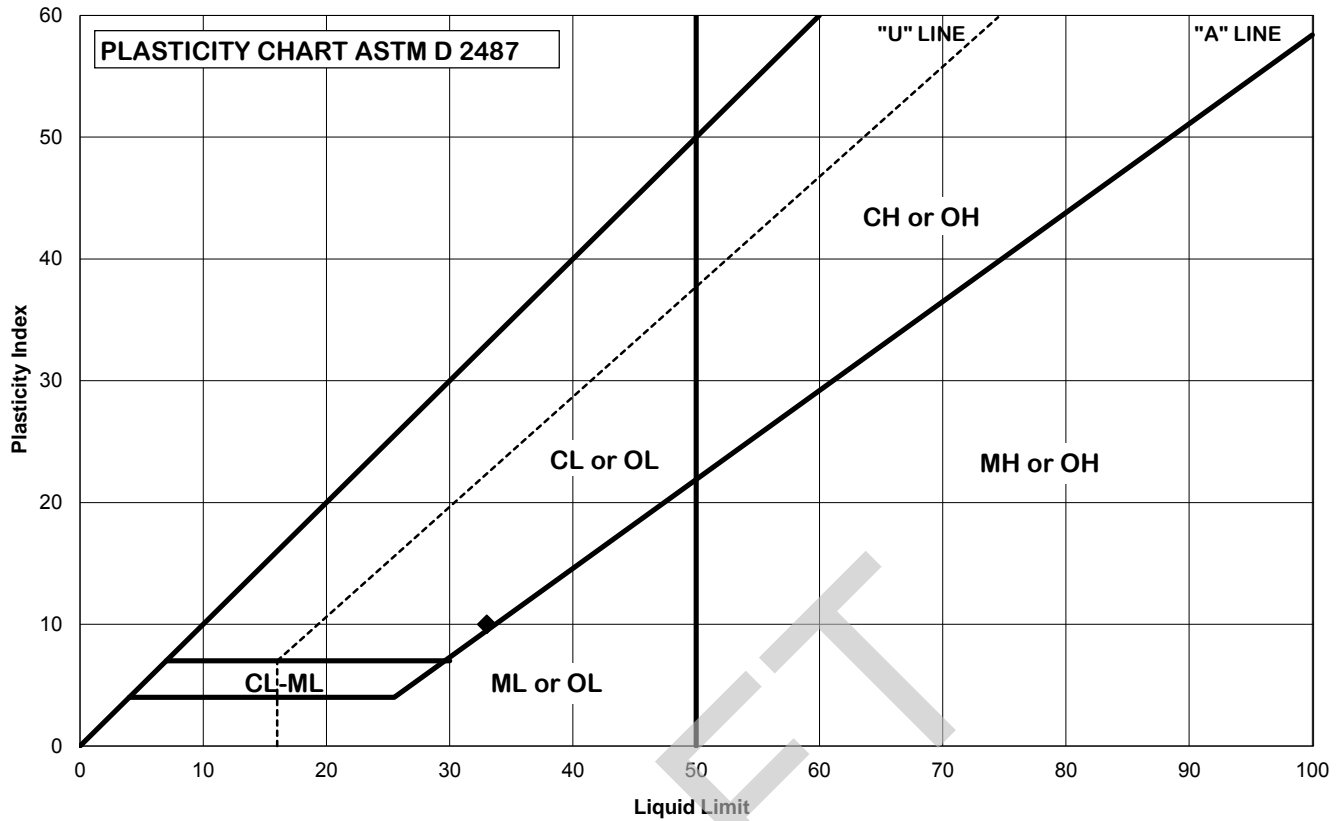
Liquid Limit =	27
Plastic Limit =	21
Plasticity Index =	6

Date:	10/18/2013
Tested By:	MSM
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project			
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.			
18274-001-00			
Boring No.		Natural WC:	#DIV/0!
PZ-7		Preparation:	Wet (as-received)
Depth, ft.		No. Points:	
18 - 20			
Cup No.		Percent Retained on No. 40	0
1356		Estimated or Tested	0.0
Original sample description:		Very soft gray clay (CL4)	

Classification (fraction passing No. 40 sieve)
CL

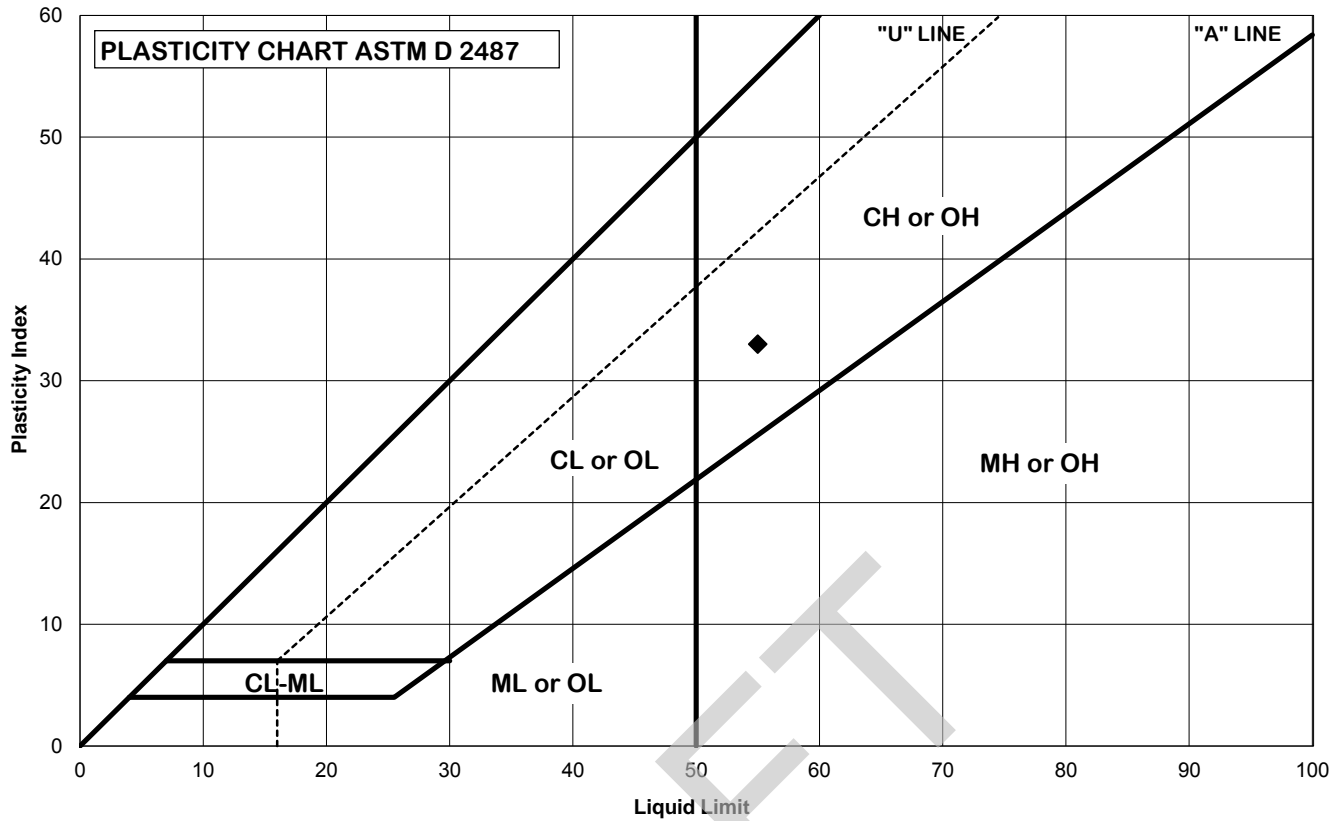
Liquid Limit =	33
Plastic Limit =	23
Plasticity Index =	10

Date:	10/18/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-7	Natural WC:	#DIV/0!
Depth, ft.	23 - 25	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium gray clay with 1" firm silty sand (CH3)		


Classification (fraction passing No. 40 sieve)
CH

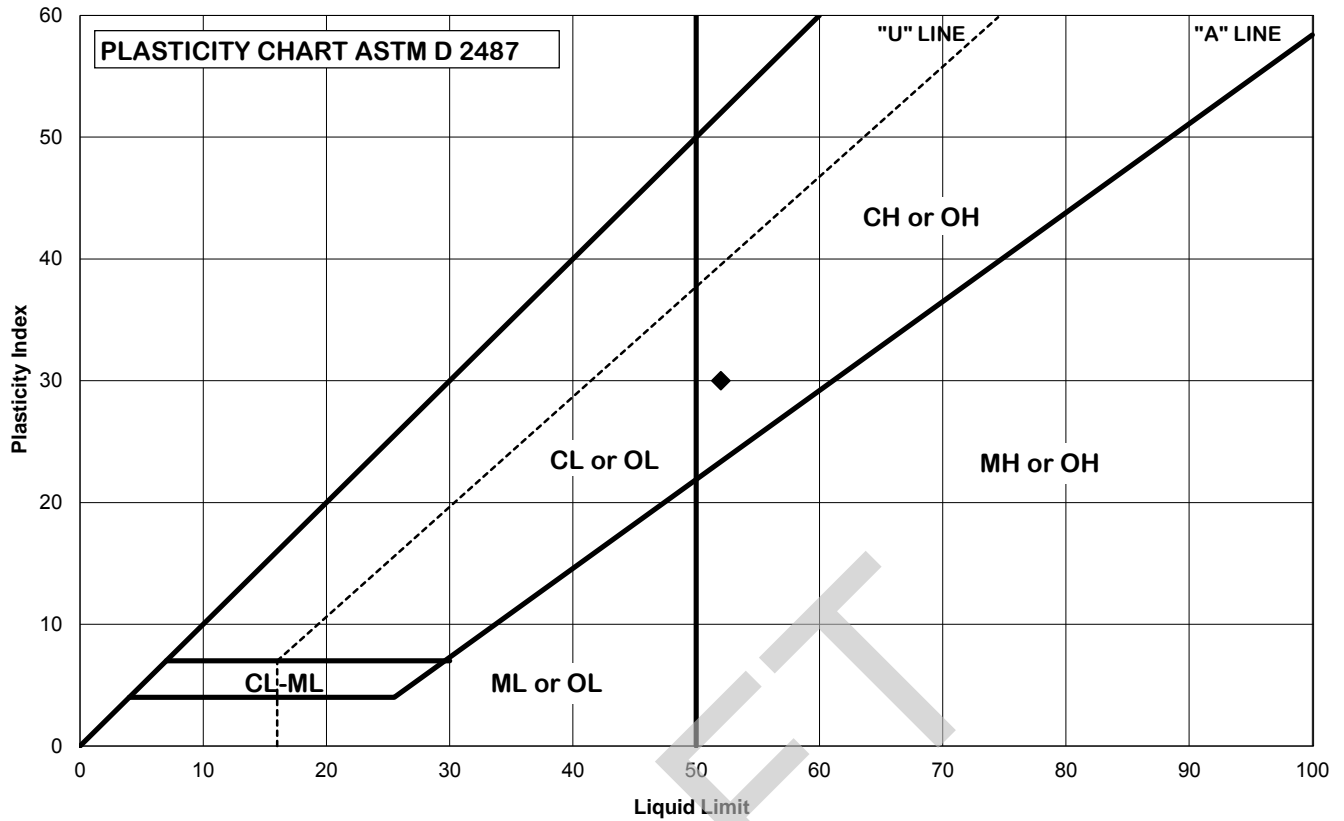
Liquid Limit =	55
Plastic Limit =	22
Plasticity Index =	33

Date:	10/18/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

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 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-8	Natural WC:	#DIV/0!
Depth, ft.	0 - 2	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff brown clay with sand (CH2)		

Classification (fraction passing No. 40 sieve)
CH

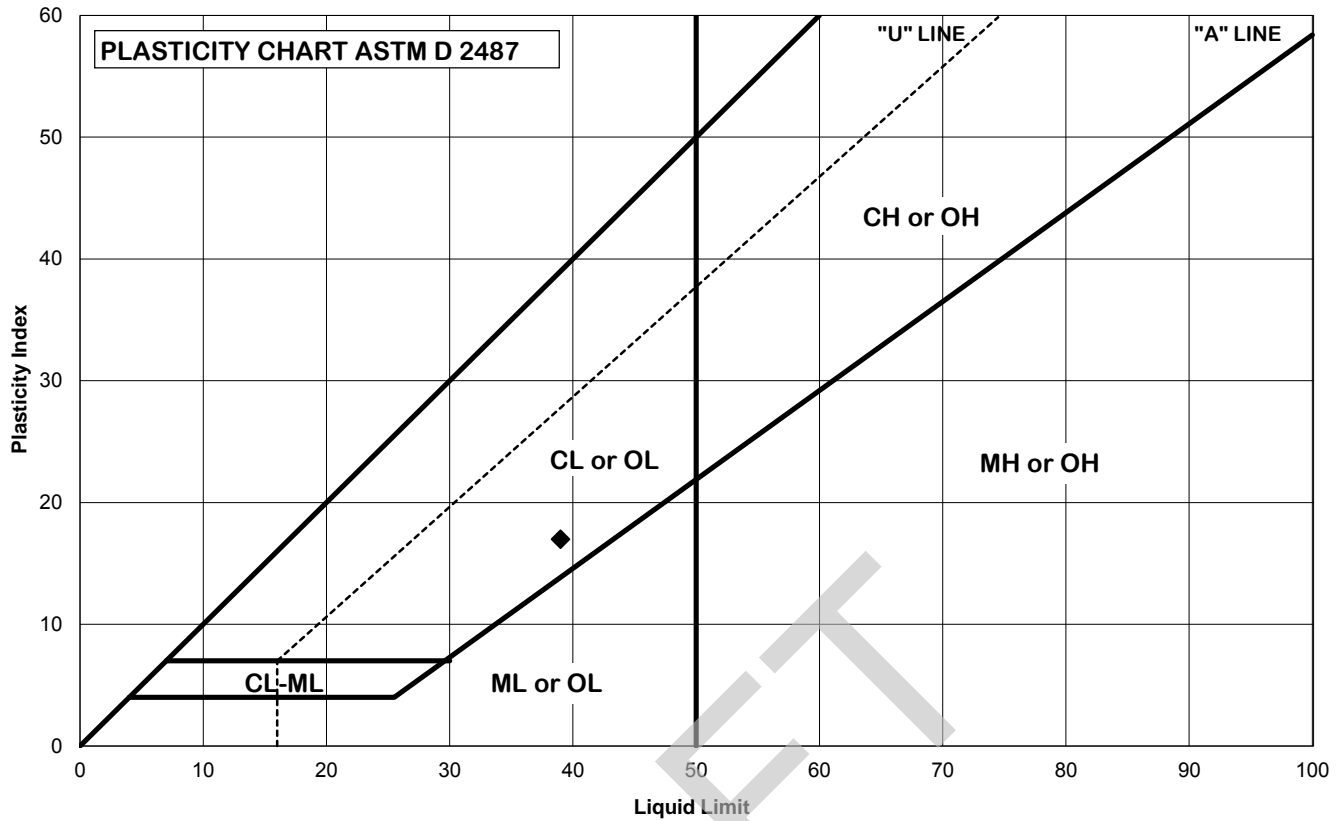
Liquid Limit =	52
Plastic Limit =	22
Plasticity Index =	30

Date:	10/18/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project			
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.			
18274-001-00			
Boring No.		Natural WC:	#DIV/0!
PZ-8		Preparation:	Wet (as-received)
Depth, ft.		No. Points:	
3 - 5			
Cup No.			
1355			
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description: Brown and gray clay (CL4)			

Classification (fraction passing No. 40 sieve)
CL

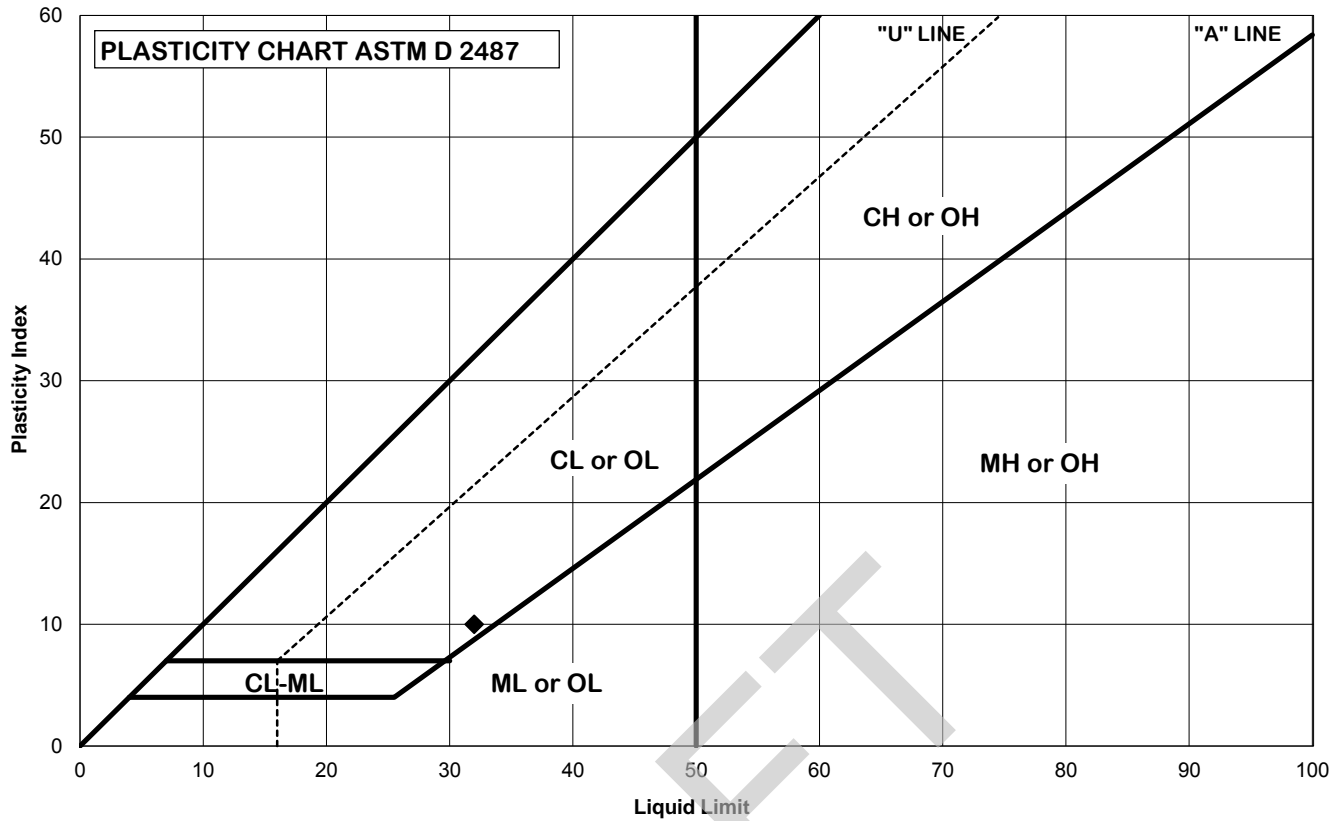
Liquid Limit =	39
Plastic Limit =	22
Plasticity Index =	17

Date:	10/18/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-8	Natural WC:	#DIV/0!
Depth, ft.	13 - 15	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Brown and gray clayey silt (ML)		

Classification (fraction passing No. 40 sieve)
CL

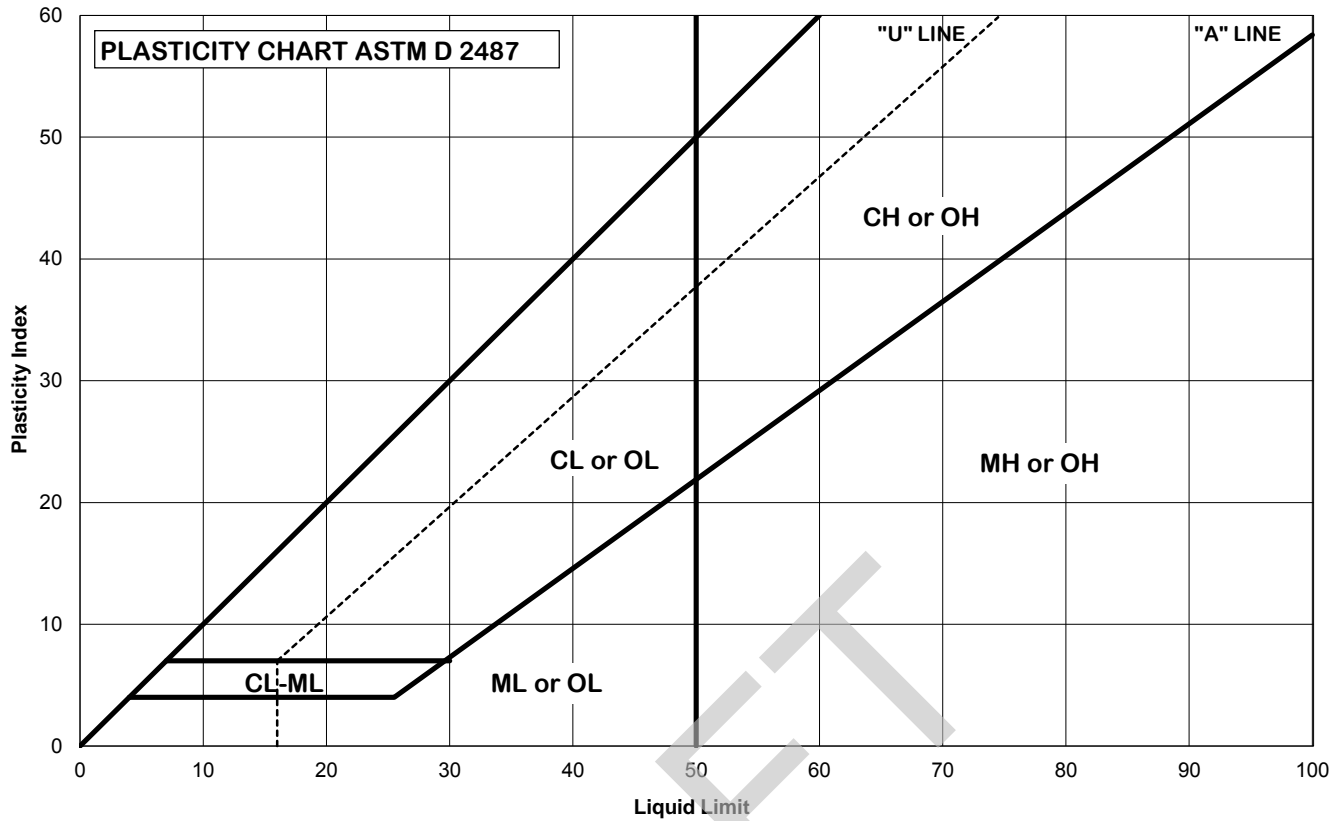
Liquid Limit =	32
Plastic Limit =	22
Plasticity Index =	10

Date:	10/18/2013
Tested By:	SC
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-8	Natural WC:	#DIV/0!
Depth, ft.	18 - 20	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Loose brown and gray sandy silt with clay (ML)		

Classification (fraction passing No. 40 sieve)
CL

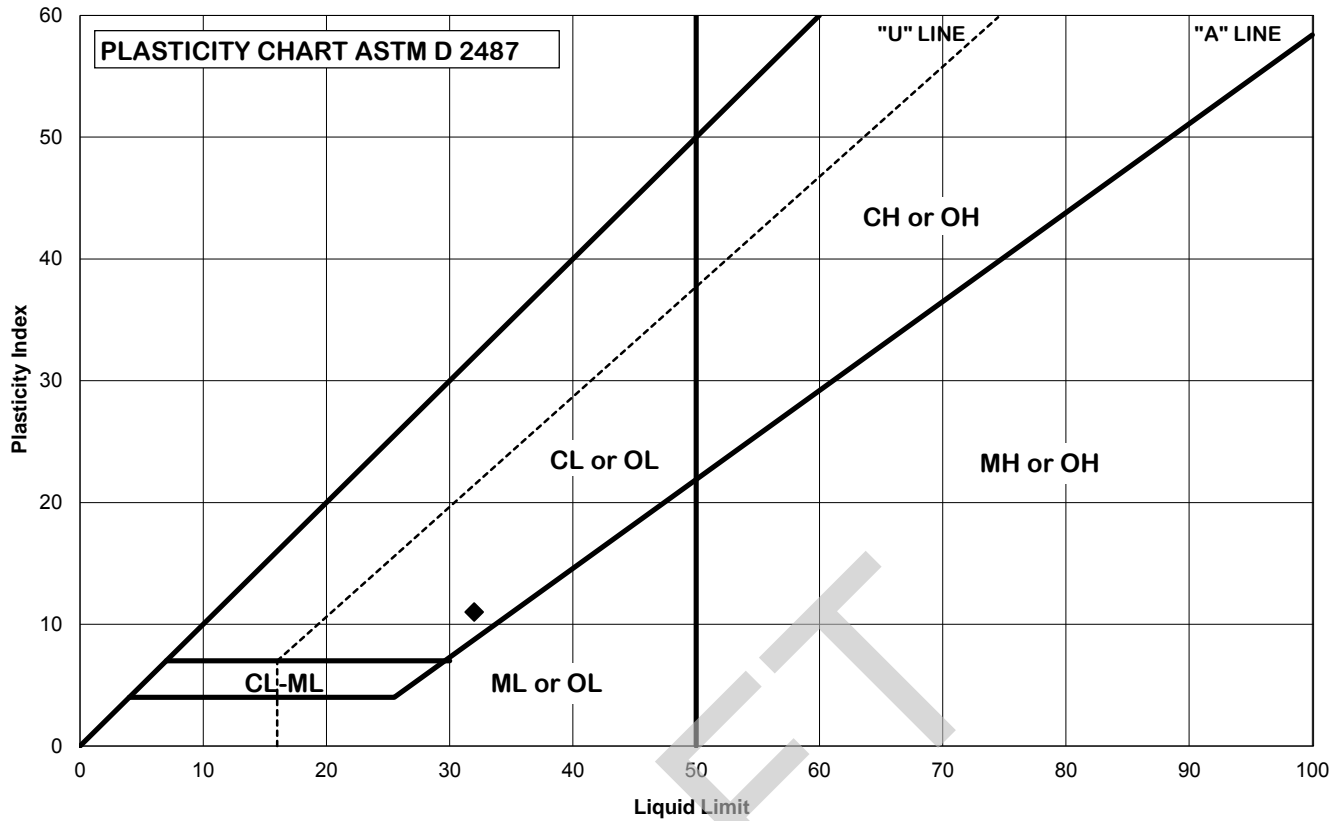
Liquid Limit =	44
Plastic Limit =	20
Plasticity Index =	24

Date:	10/18/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-8	Natural WC:	#DIV/0!
Depth, ft.	23 - 25	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Loose brown and gray sandy silt with clay (ML)		

Classification (fraction passing No. 40 sieve)
CL

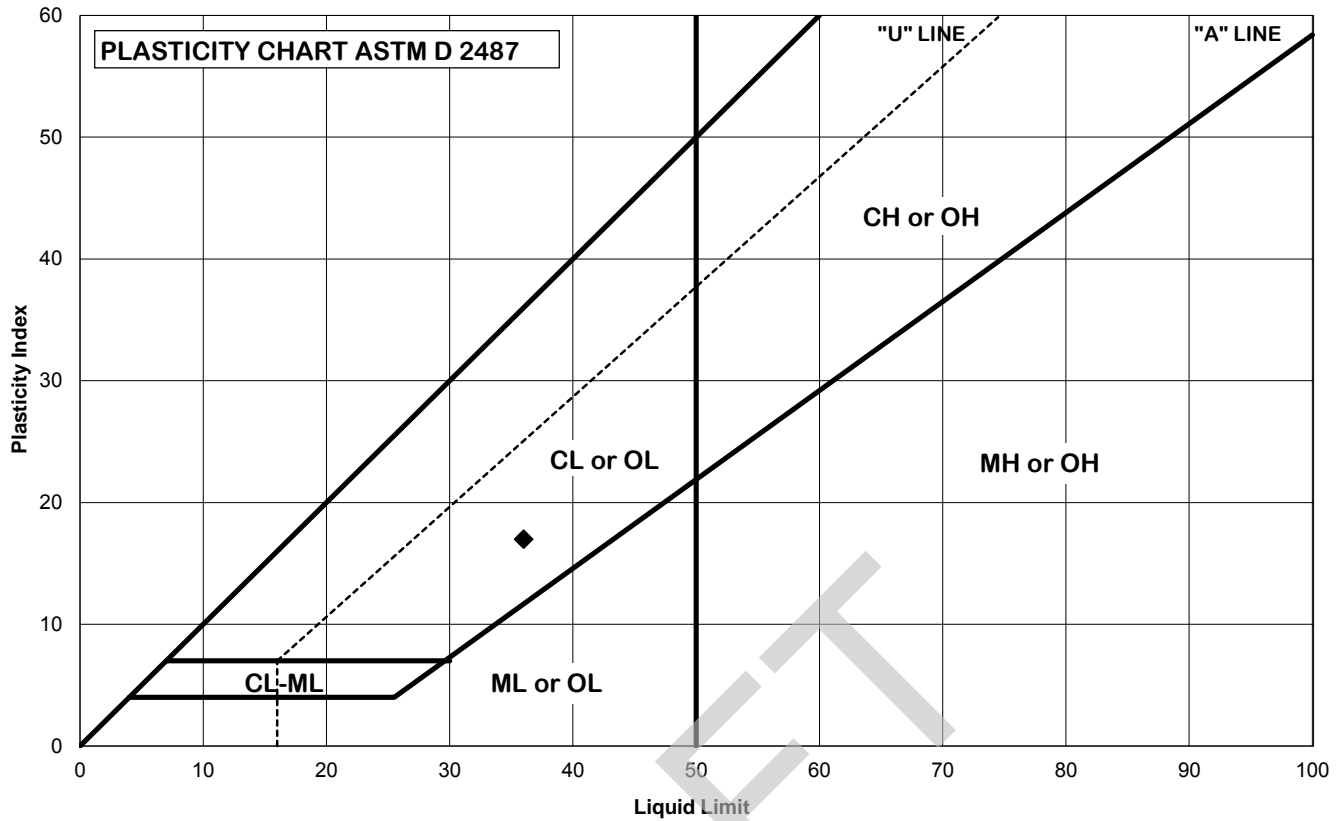
Liquid Limit =	32
Plastic Limit =	21
Plasticity Index =	11

Date:	10/18/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-8 SA	Natural WC:	#DIV/0!
Depth, ft.	8 - 10	Preparation:	Wet (as-received)
Cup No.	1029	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Brown and gray clay (CL4)		


Classification (fraction passing No. 40 sieve)
CL

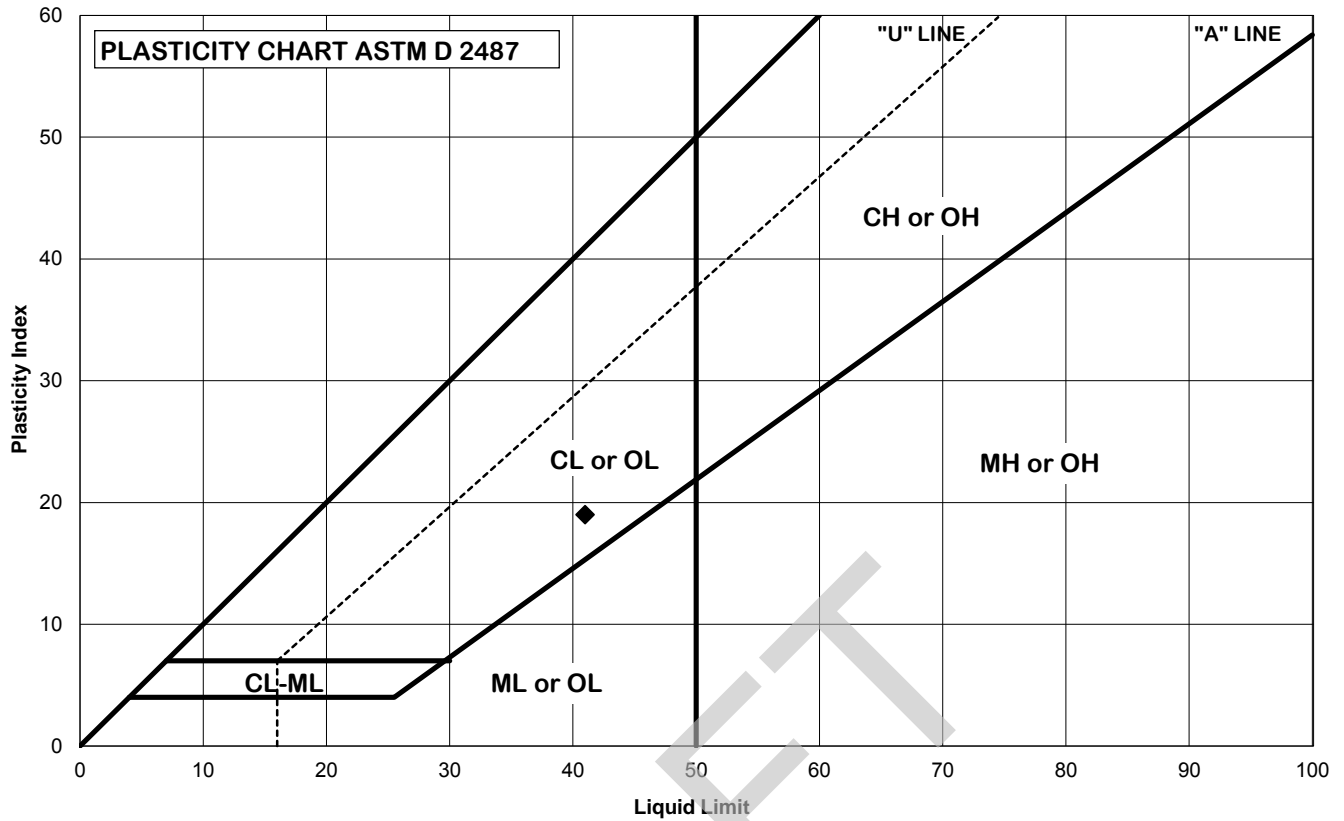
Liquid Limit =	36
Plastic Limit =	19
Plasticity Index =	17

Date:	10/18/2013
Tested By:	MSM
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project			
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.			
18274-001-00			
Boring No.		Natural WC:	#DIV/0!
PZ-8 SB		Preparation:	Wet (as-received)
Depth, ft.		No. Points:	
8 - 10			
Cup No.		Percent Retained on No. 40	0
1355		Estimated or Tested	0.0
Original sample description:		Brown and gray clayey silt (ML)	

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	41
Plastic Limit =	22
Plasticity Index =	19

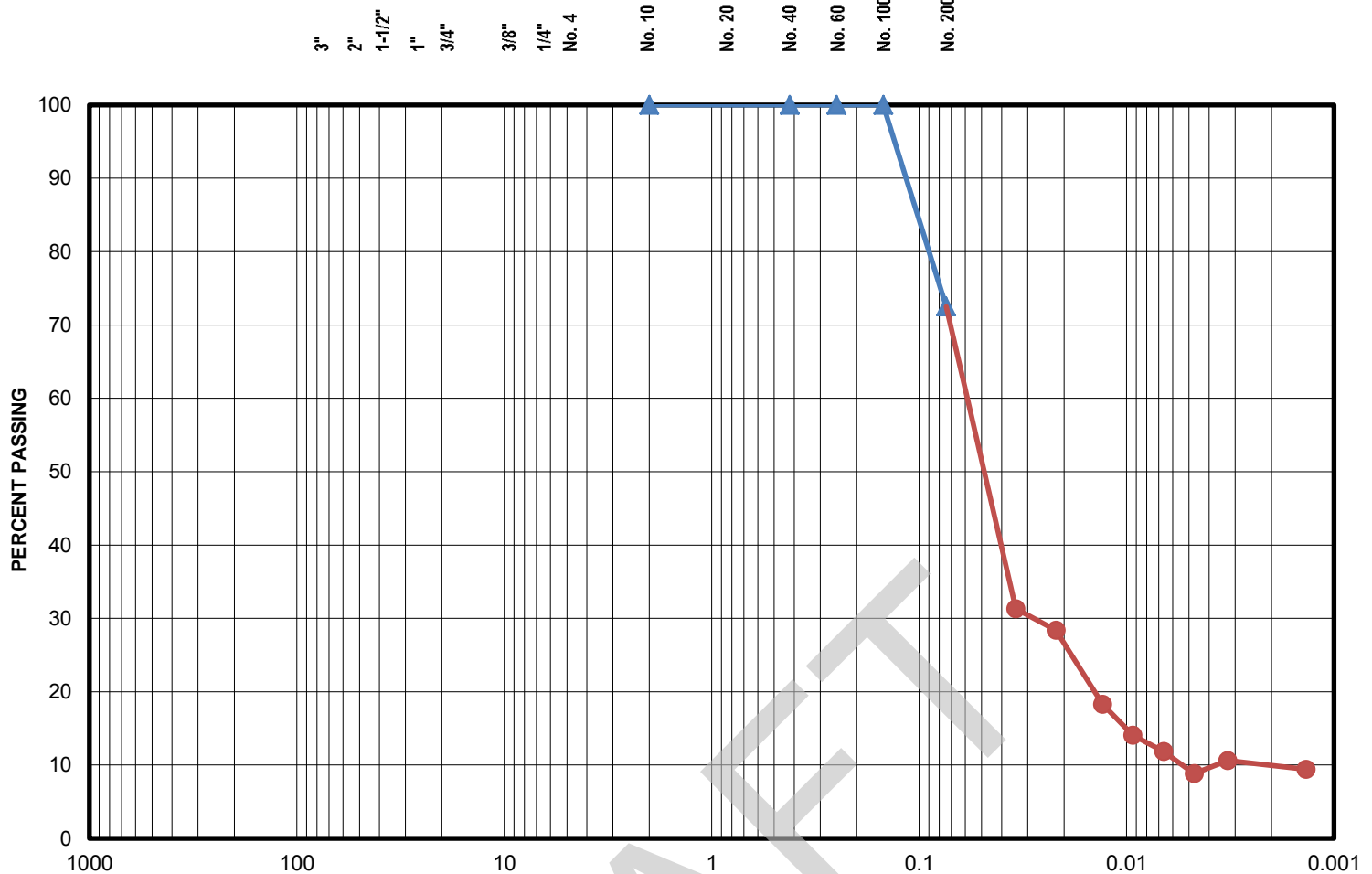
Date:	10/18/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Firm gray clayey sandy silt (ML)
-----------------------------	----------------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	72.5

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1156

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (B)	Date Tested	10/21/2013
Project No.	18274-001-00	Tested By	AB/SEF
Sample ID.	PZ-8 SA	Checked By	SLC
Source/Depth (feet)	28 - 30		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

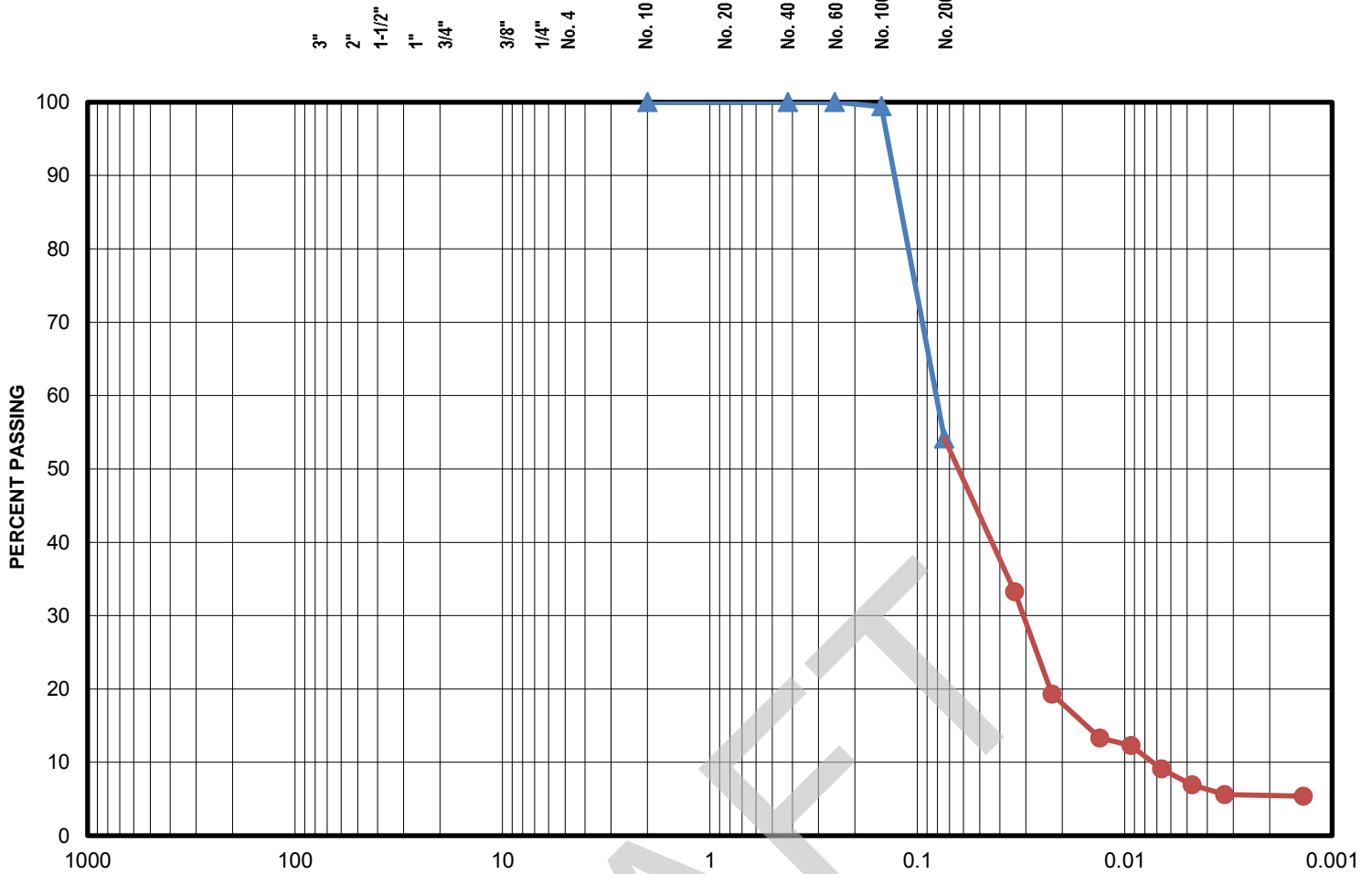


11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Dense gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.4
1/4"	100.0	No. 200	54.1

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1156

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (B)	Date Tested	10/22/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-8 SA	Checked By	SLC
Source/Depth (feet)	53 - 55		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



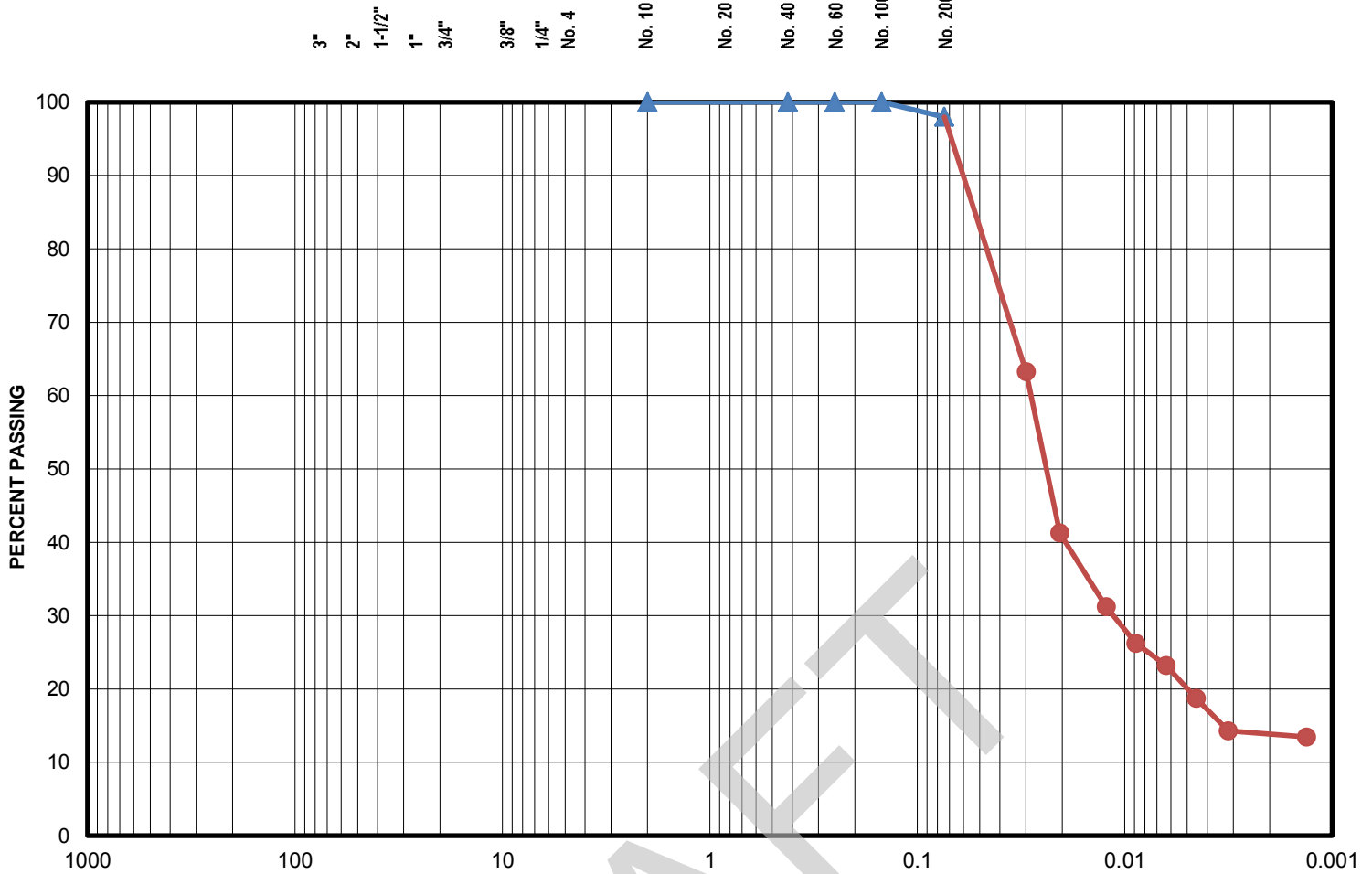
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Brown and gray clayey silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	98.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	1150

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (B)	Date Tested	10/22/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-8 SB	Checked By	SLC
Source/Depth (feet)	8 - 10		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

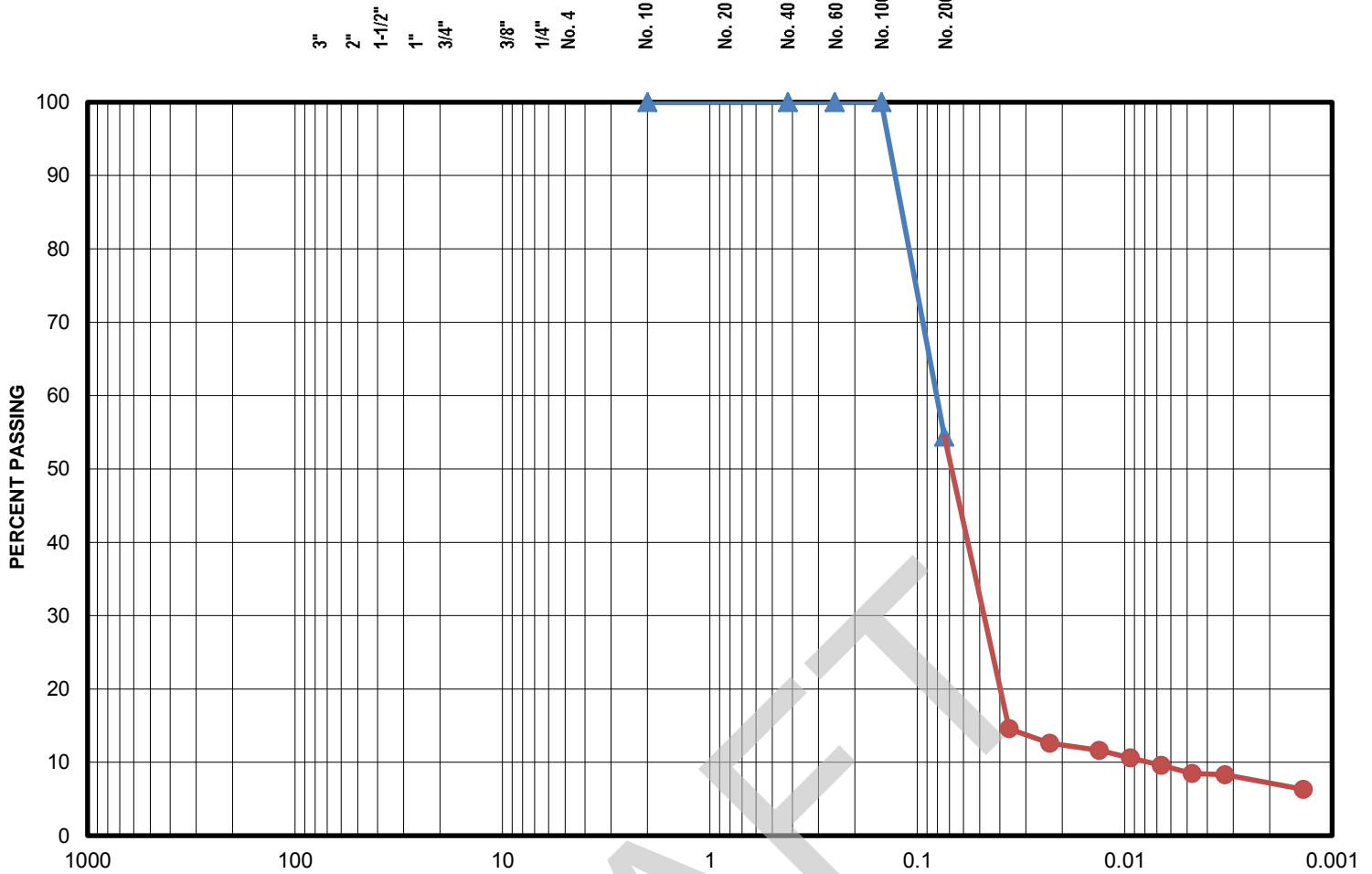


11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
 LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Firm gray sandy silt with clay (ML)
-----------------------------	-------------------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	54.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (B)	Date Tested	10/21/2013
Project No.	18274-001-00	Tested By	AB/SEF
Sample ID.	PZ-8 SB	Checked By	SLC
Source/Depth (feet)	43 - 45		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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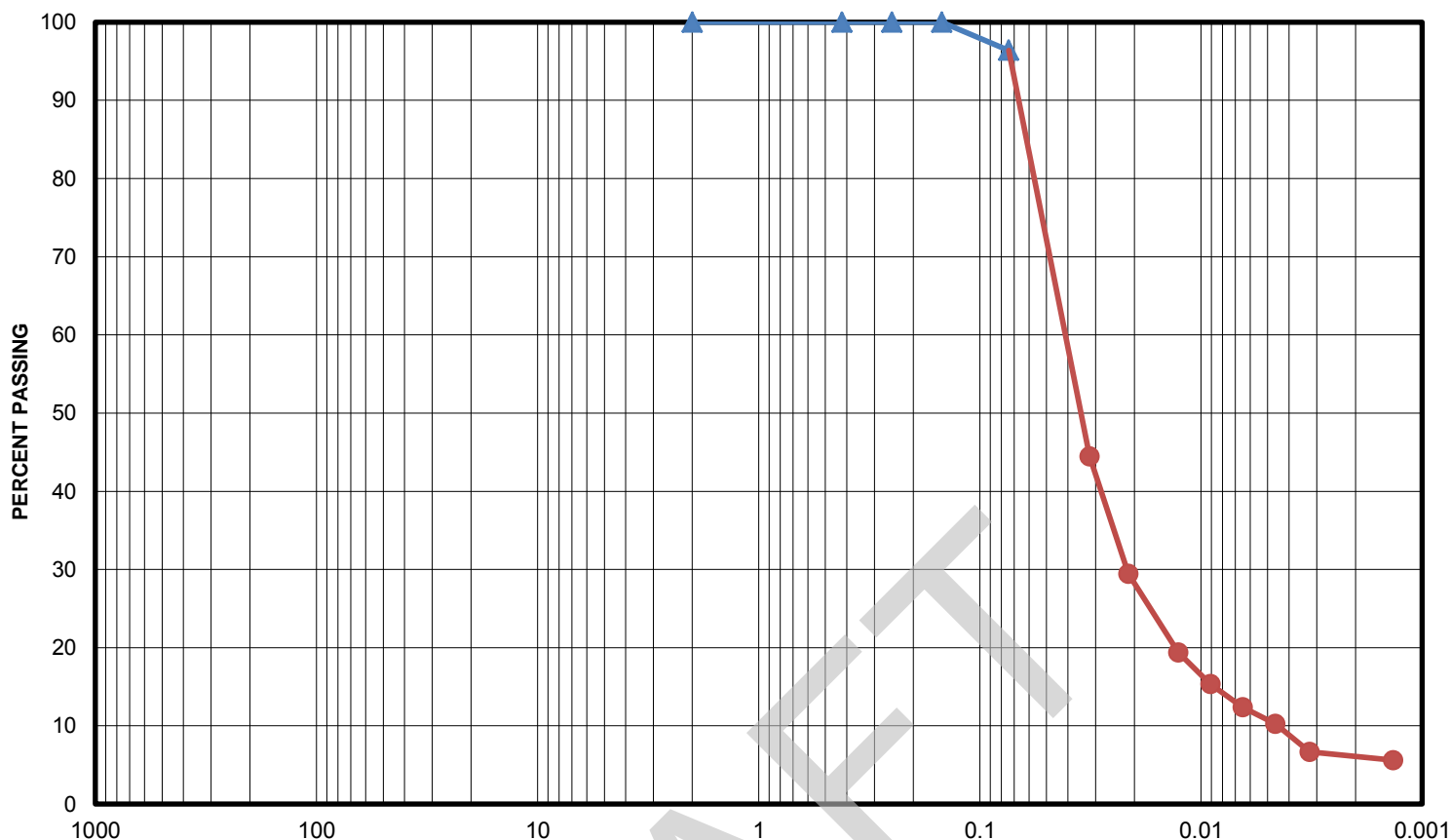
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE

3" 2" 1-1/2" 1" 3/4" 3/8" 1/4" No. 4 No. 10 No. 20 No. 40 No. 60 No. 100 No. 200



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Brown and gray clayey silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	96.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1154

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (B)	Date Tested	10/22/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-8	Checked By	SLC
Source/Depth (feet)	13 - 15		

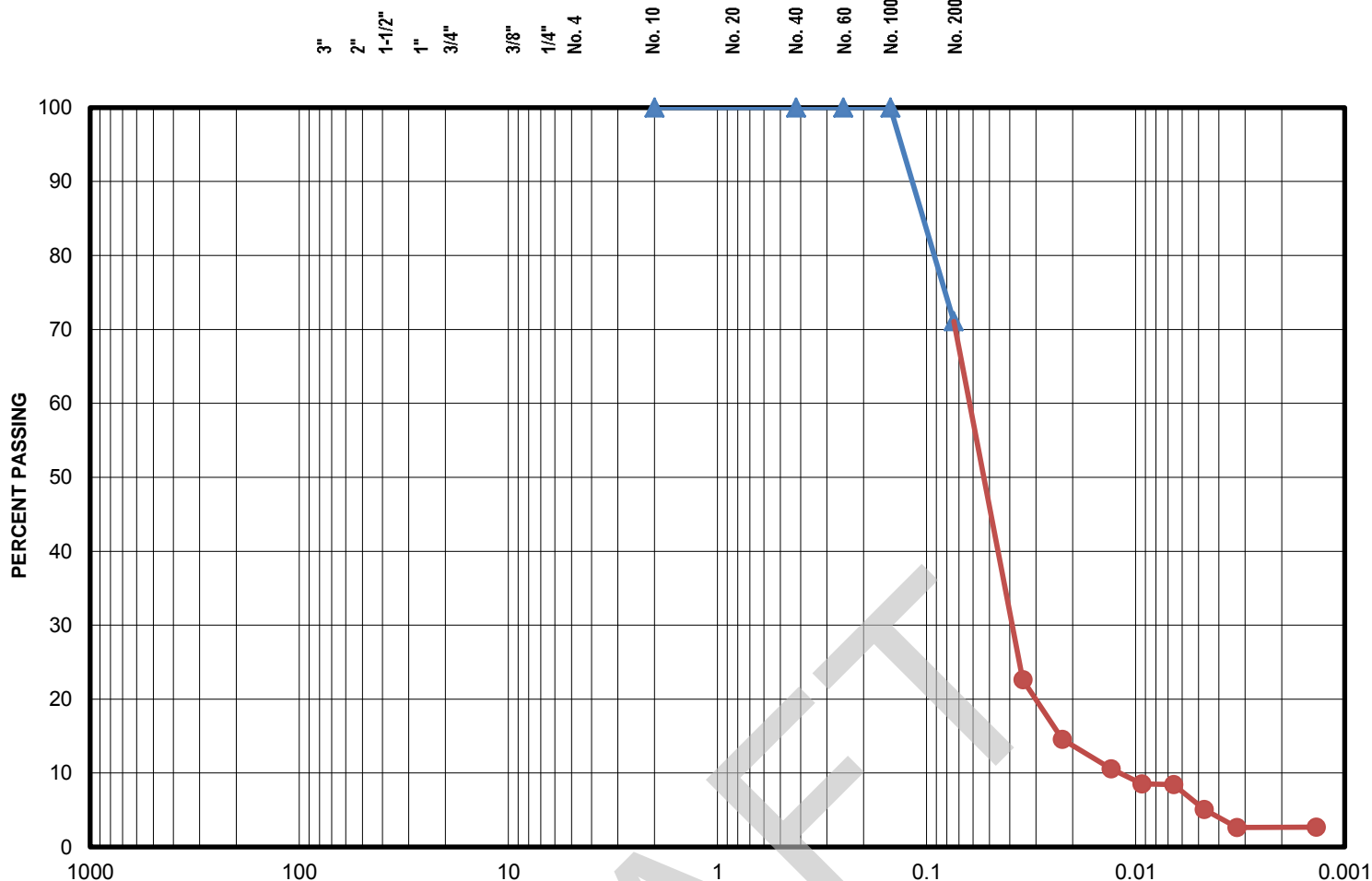
NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
 LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Loose brown and gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	71.1

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1150

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (B)	Date Tested	10/21/2013
Project No.	18274-001-00	Tested By	AB/SEF
Sample ID.	PZ-8	Checked By	SLC
Source/Depth (feet)	18 - 20		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

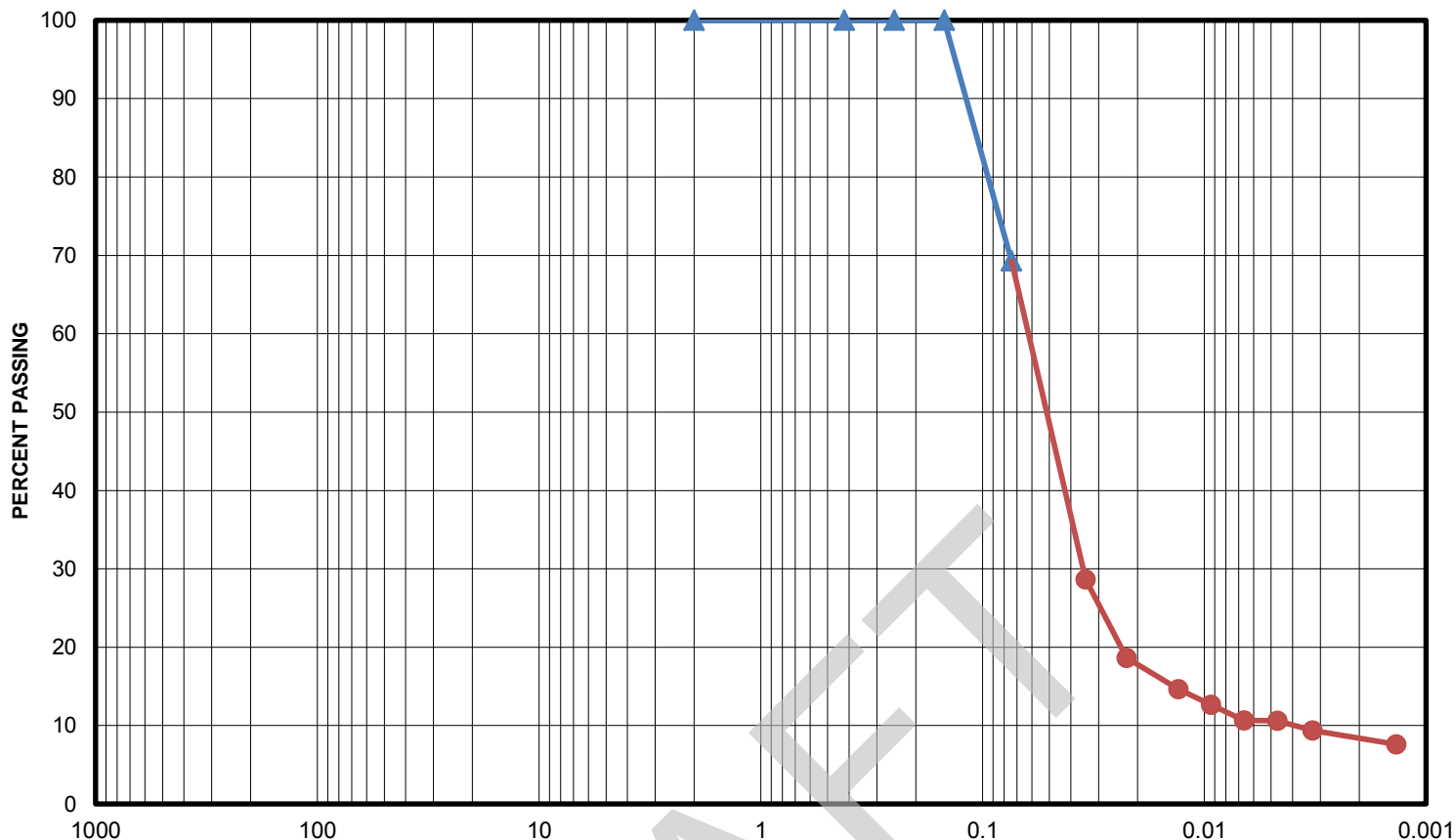


11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
 LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
18274-001-00

U.S. STANDARD SIEVE SIZE

3" 2" 1-1/2" 1" 3/4" 3/8" 1/4" No. 4 No. 10 No. 20 No. 40 No. 60 No. 100 No. 200



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Loose, gray sandy silt with clay (ML)
-----------------------------	---------------------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	69.3

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	1158

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (B)	Date Tested	10/21/2013
Project No.	18274-001-00	Tested By	AB/SEF
Sample ID.	PZ-8	Checked By	SLC
Source/Depth (feet)	33 - 35		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

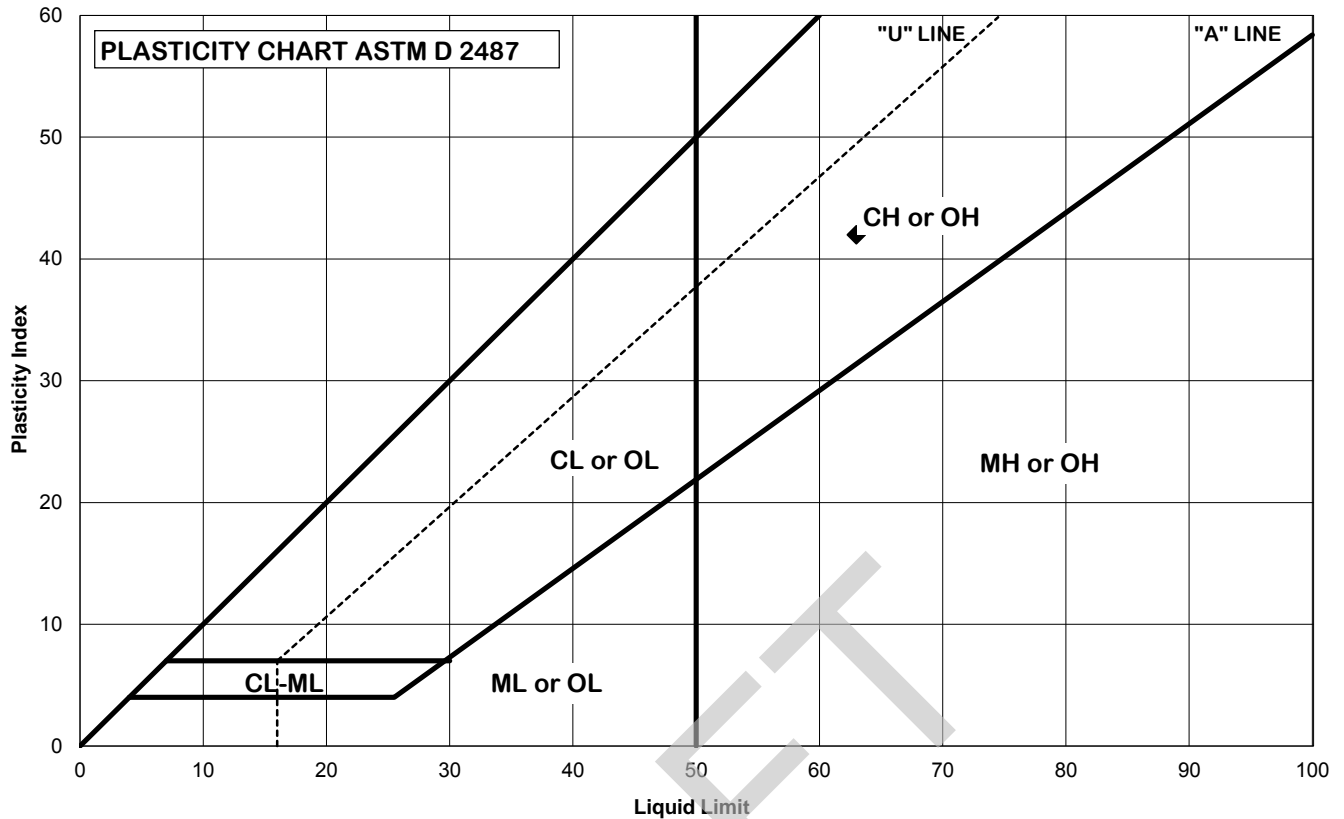


11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-9	Natural WC:	#DIV/0!
Depth, ft.	0 - 2	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff brown and gray clay with trace of fine sand (CH3)		

Classification (fraction passing No. 40 sieve)
CH

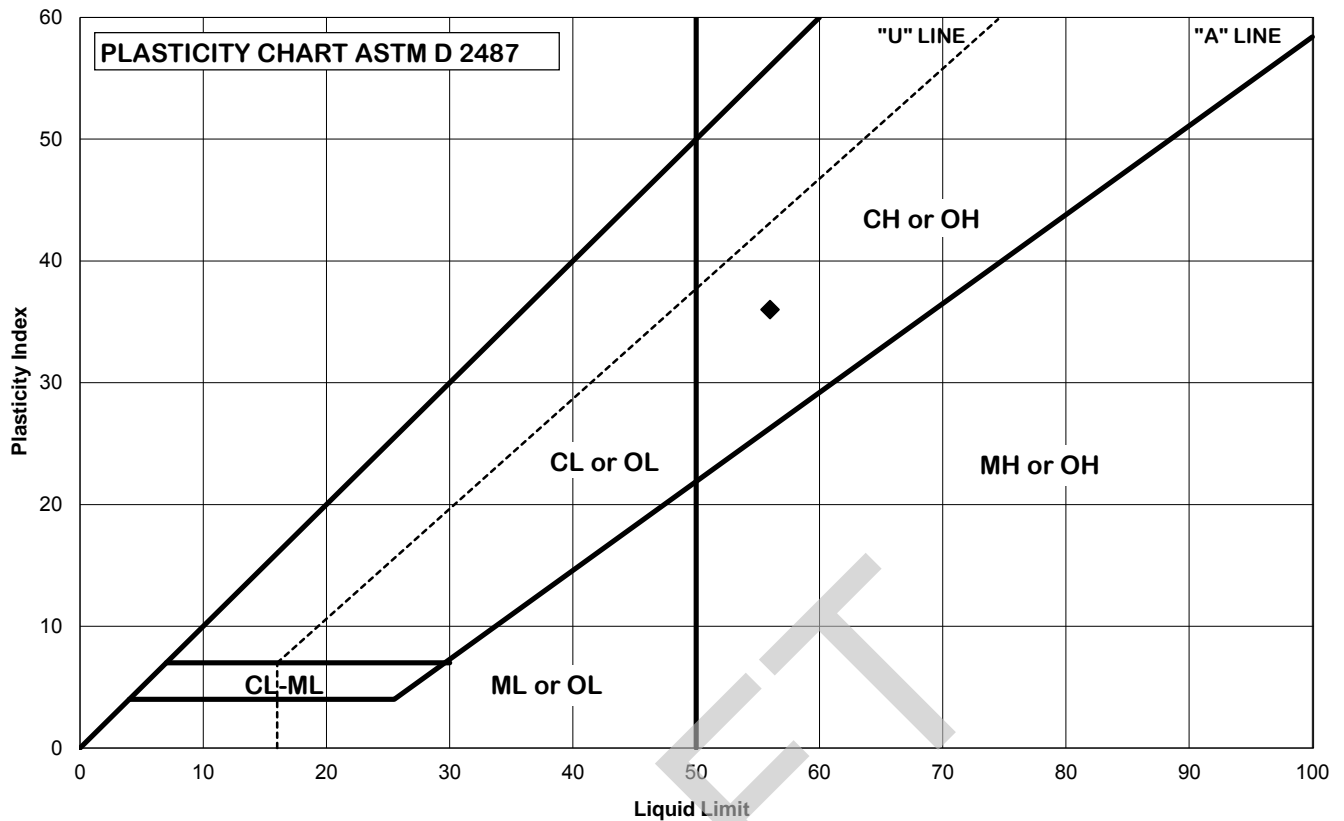
Liquid Limit =	63
Plastic Limit =	21
Plasticity Index =	42

Date:	10/1/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-9	Natural WC:	#DIV/0!
Depth, ft.	3 - 5	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff brown and gray clay (CH2)		

Classification (fraction passing No. 40 sieve)
CH

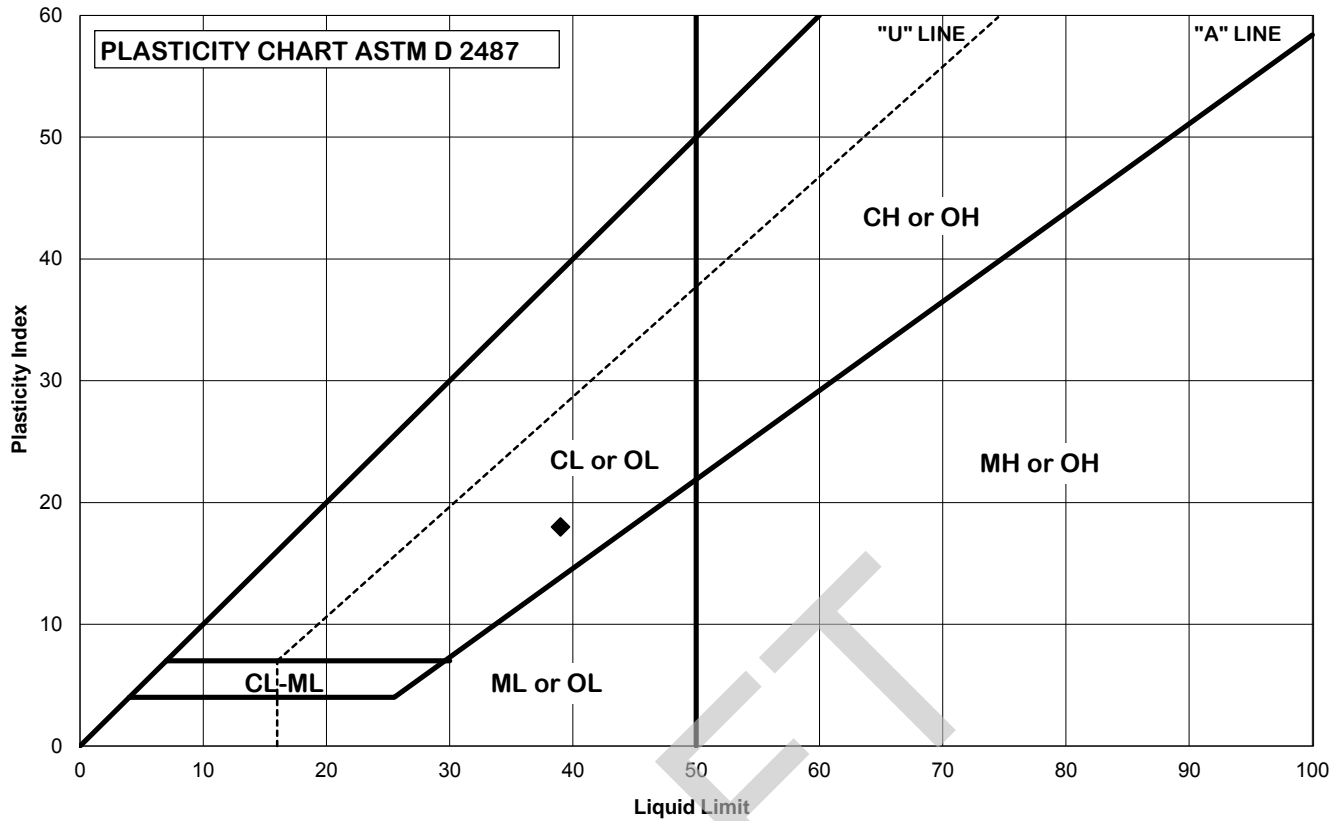
Liquid Limit =	56
Plastic Limit =	20
Plasticity Index =	36

Date:	10/1/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-9	Natural WC:	#DIV/0!
Depth, ft.	8 - 10	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Firm brown and gray clay (CL4)		

Classification (fraction passing No. 40 sieve)
CL

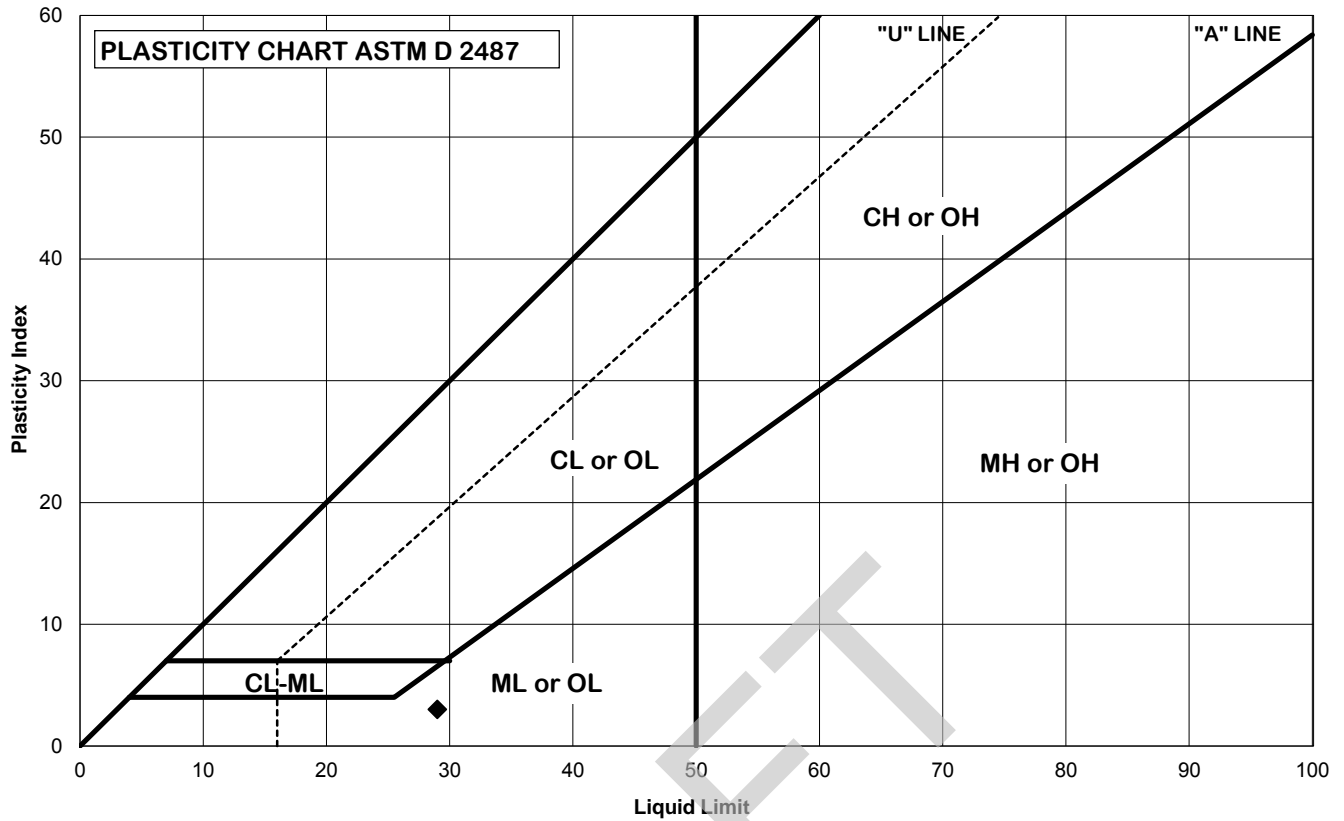
Liquid Limit =	39
Plastic Limit =	21
Plasticity Index =	18

Date:	9/26/2013
Tested By:	BH
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-9	Natural WC:	#DIV/0!
Depth, ft.	18 - 20	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Firm gray sandy clayey silt (ML)		

Classification (fraction passing No. 40 sieve)
ML

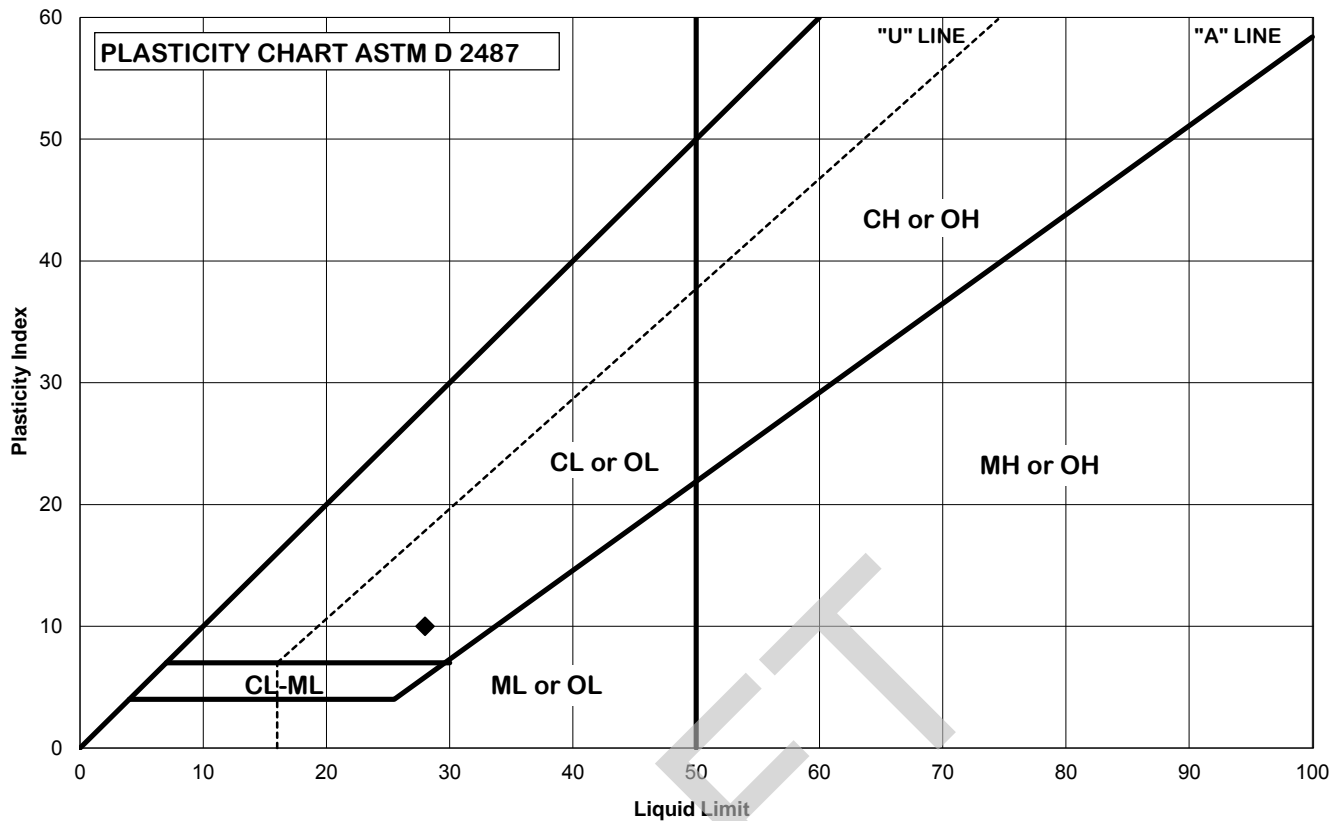
Liquid Limit =	29
Plastic Limit =	26
Plasticity Index =	3

Date:	10/18/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project			
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.			
18274-001-00			
Boring No.		Natural WC:	#DIV/0!
PZ-9 SA		Preparation:	Wet (as-received)
Depth, ft.		23 - 25	
Cup No.		No. Points:	
1355			
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:			
Medium gray clay (CL4)			

Classification (fraction passing No. 40 sieve)
CL

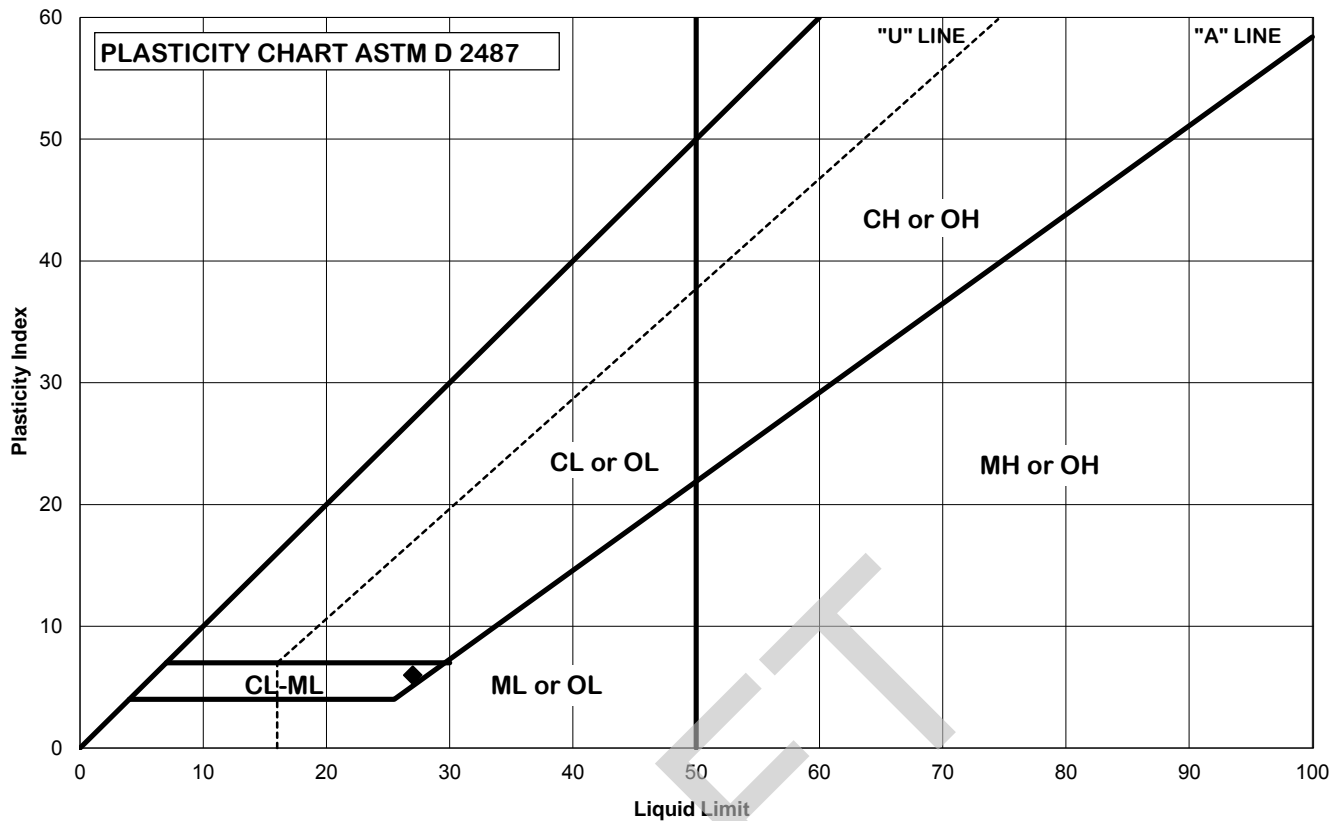
Liquid Limit =	28
Plastic Limit =	18
Plasticity Index =	10

Date:	10/18/2013
Tested By:	BH
Checked By:	SLC

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-9 SB	Natural WC:	#DIV/0!
Depth, ft.	13 - 15	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Firm gray clayey silt (ML)		

Classification (fraction passing No. 40 sieve)
CL-ML

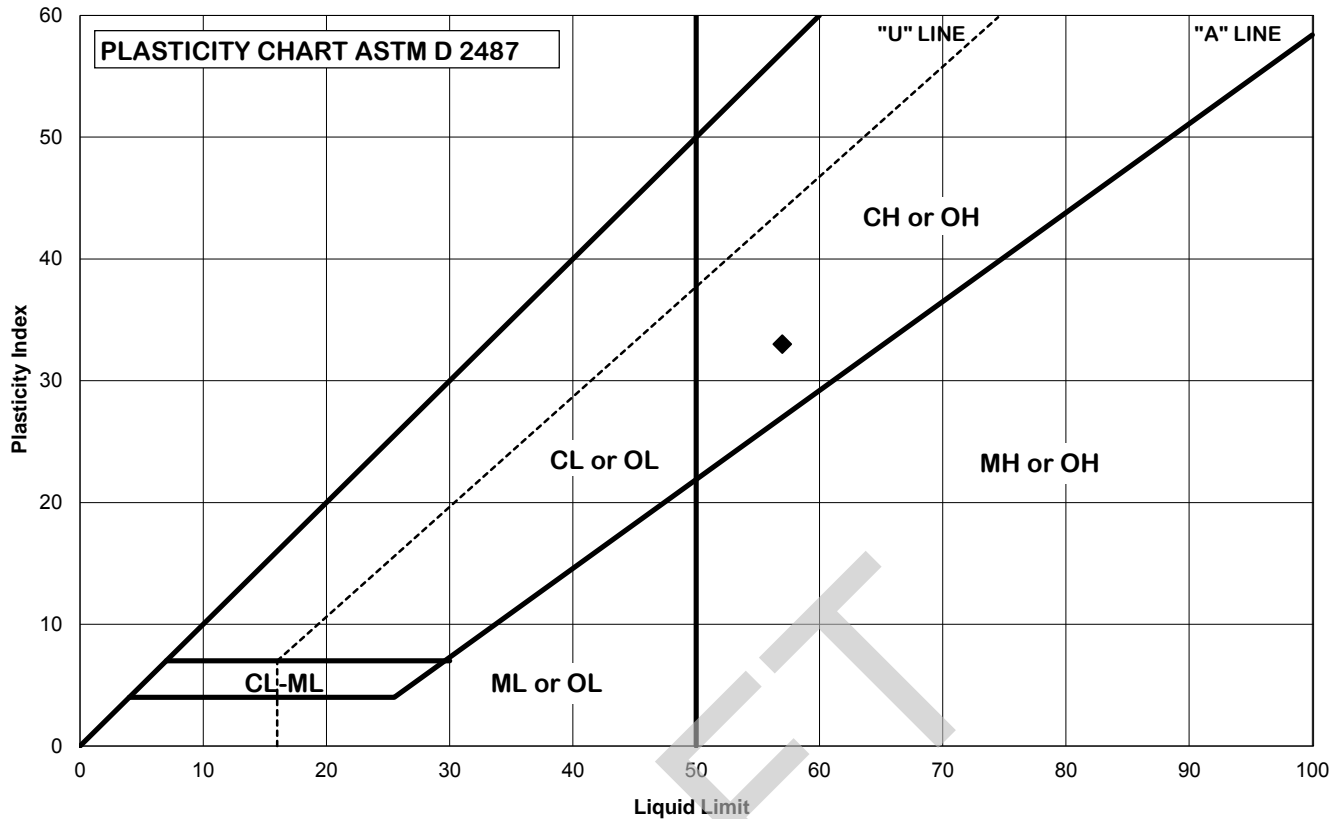
Liquid Limit =	27
Plastic Limit =	21
Plasticity Index =	6

Date:	10/18/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-10	Natural WC:	#DIV/0!
Depth, ft.	0 - 2	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff tan and brown clay (CH2)		

Classification (fraction passing No. 40 sieve)
CH

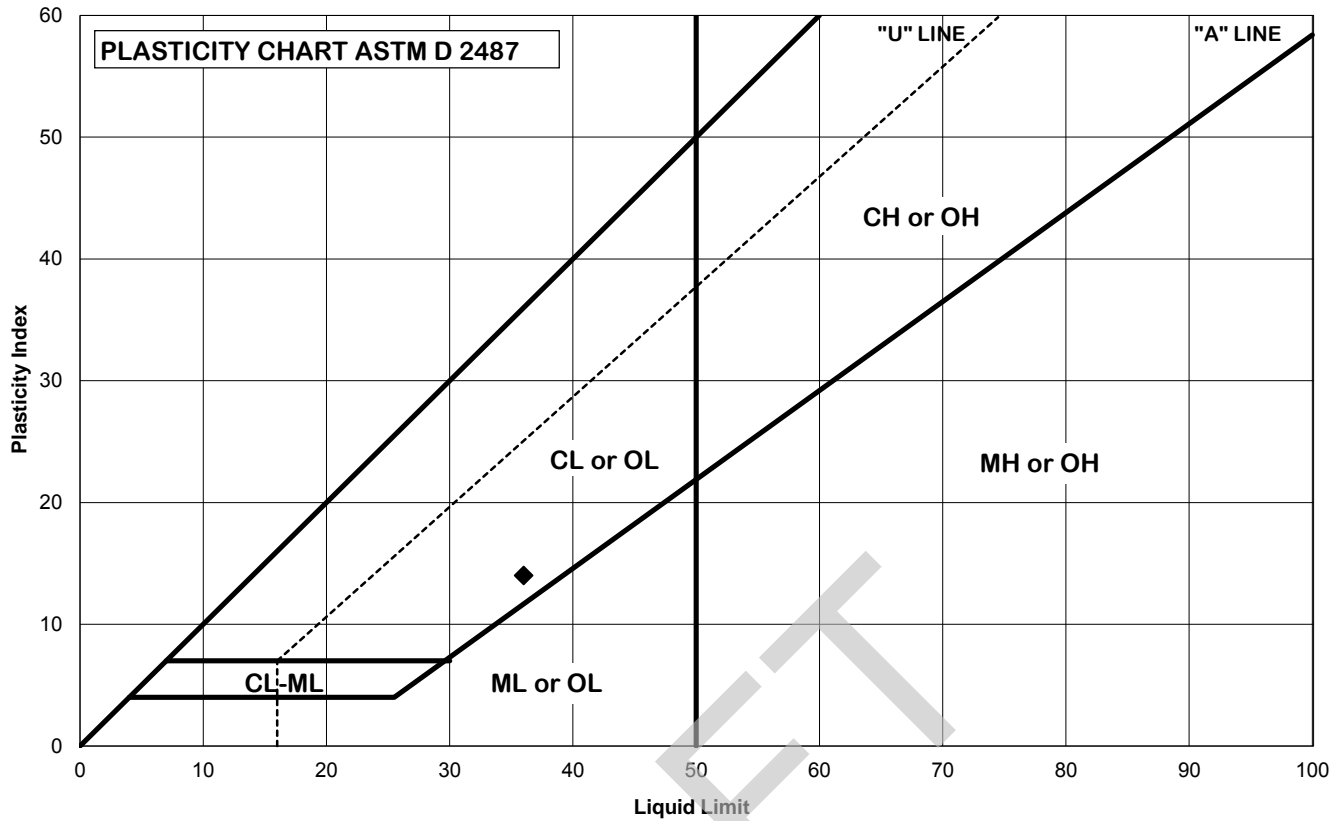
Liquid Limit =	57
Plastic Limit =	24
Plasticity Index =	33

Date:	9/23/2013
Tested By:	lc
Checked By:	slc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-10	Natural WC:	#DIV/0!
Depth, ft.	3 - 5	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff tan and brown gray clay with sand (CL4)		

Classification (fraction passing No. 40 sieve)
CL

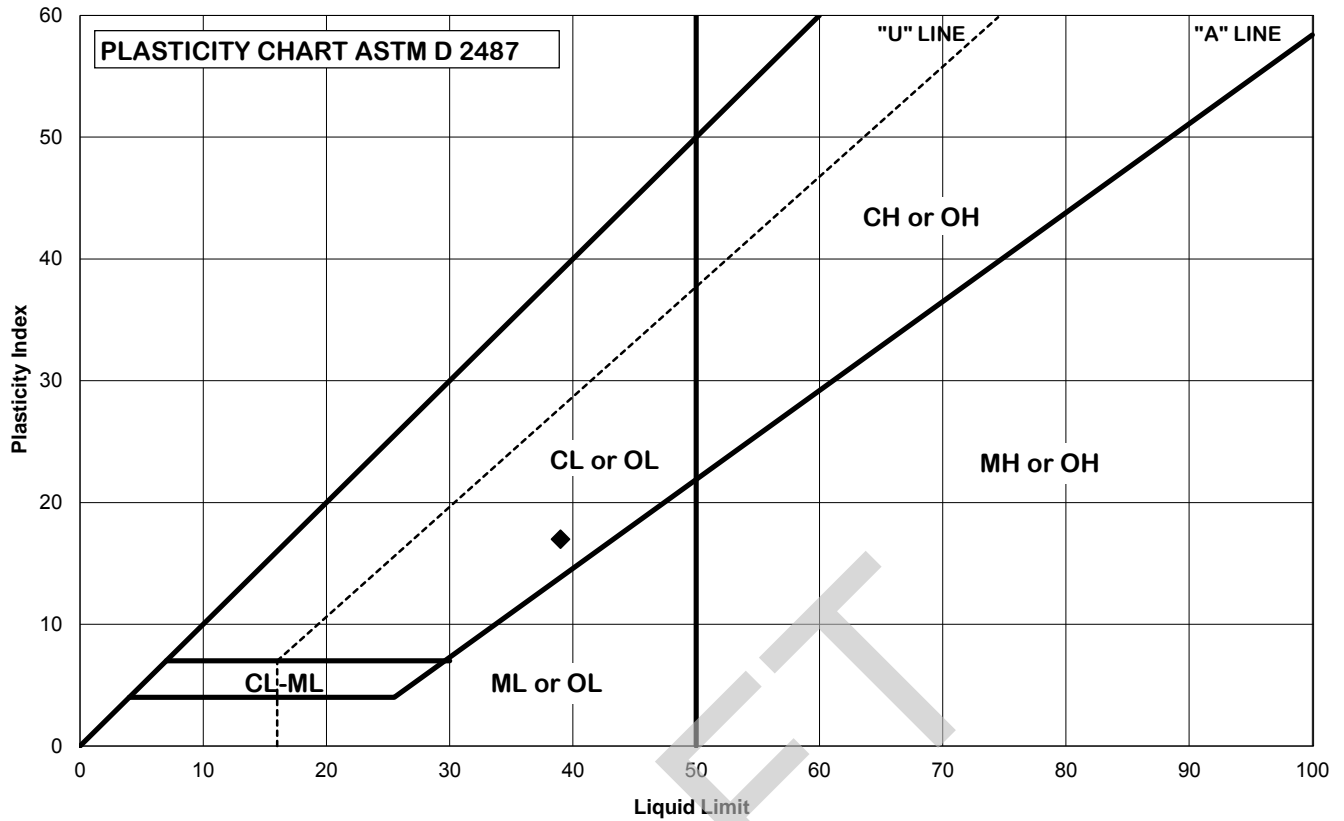
Liquid Limit =	36
Plastic Limit =	22
Plasticity Index =	14

Date:	9/25/2013
Tested By:	BH
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-10	Natural WC:	#DIV/0!
Depth, ft.	8 - 10	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Gray and brown clay (CL4)		

Classification (fraction passing No. 40 sieve)
CL

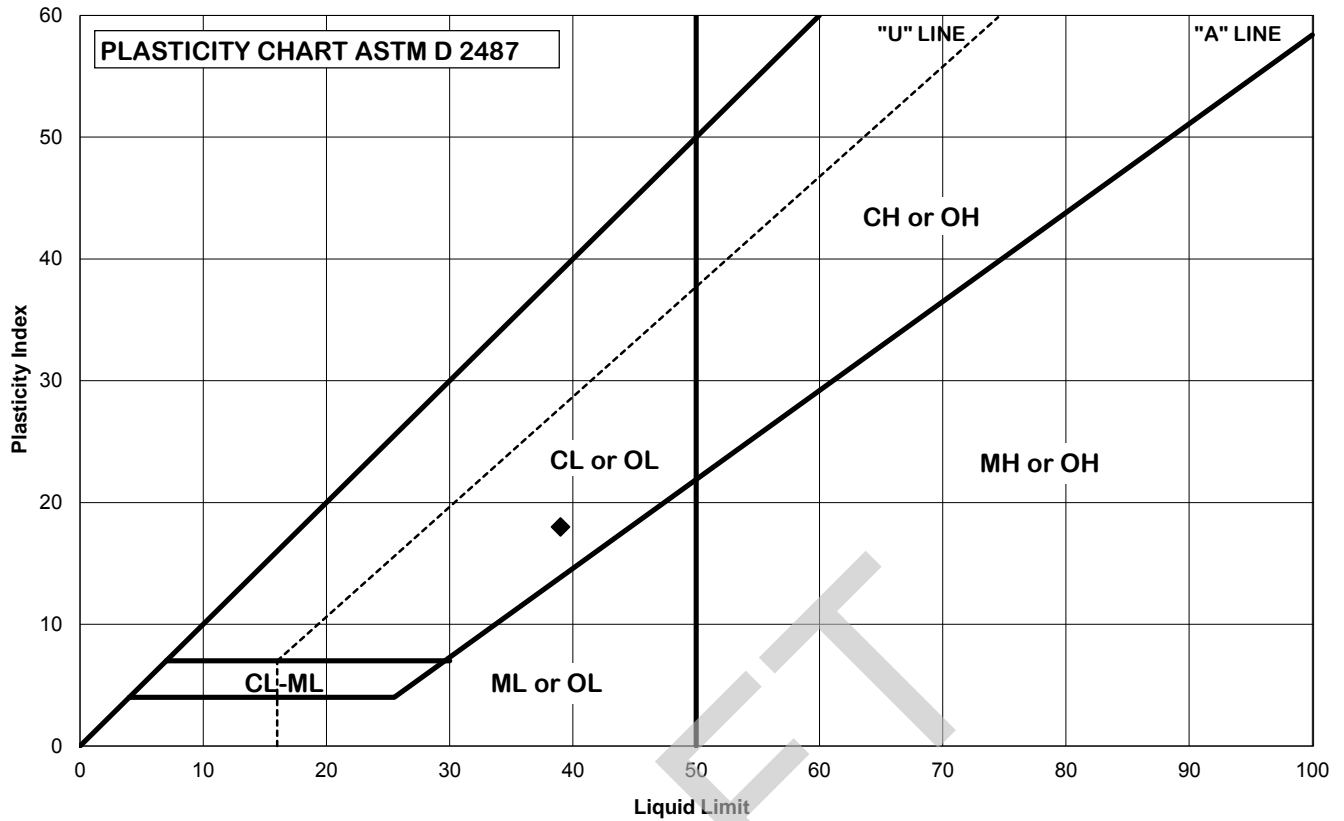
Liquid Limit =	39
Plastic Limit =	22
Plasticity Index =	17

Date:	9/23/2013
Tested By:	slc
Checked By:	slc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-10	Natural WC:	#DIV/0!
Depth, ft.	13 - 15	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Gray and brown clayey silt (ML)		

Classification (fraction passing No. 40 sieve)
CL

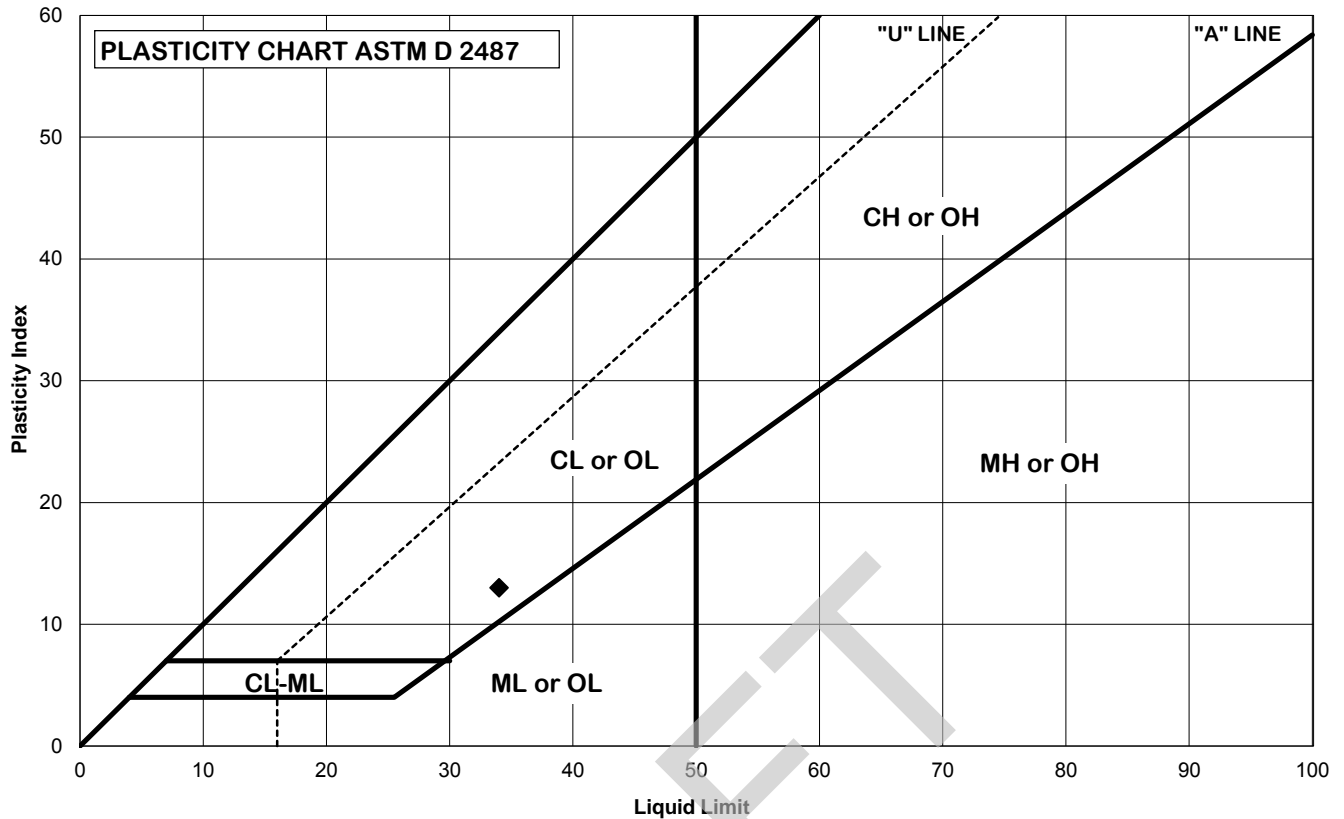
Liquid Limit =	39
Plastic Limit =	21
Plasticity Index =	18

Date:	9/23/2013
Tested By:	slc
Checked By:	slc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-10	Natural WC:	#DIV/0!
Depth, ft.	18 - 20	Preparation:	Wet (as-received)
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very loose brown and gray clayey sandy silt (ML)		


Classification (fraction passing No. 40 sieve)
CL

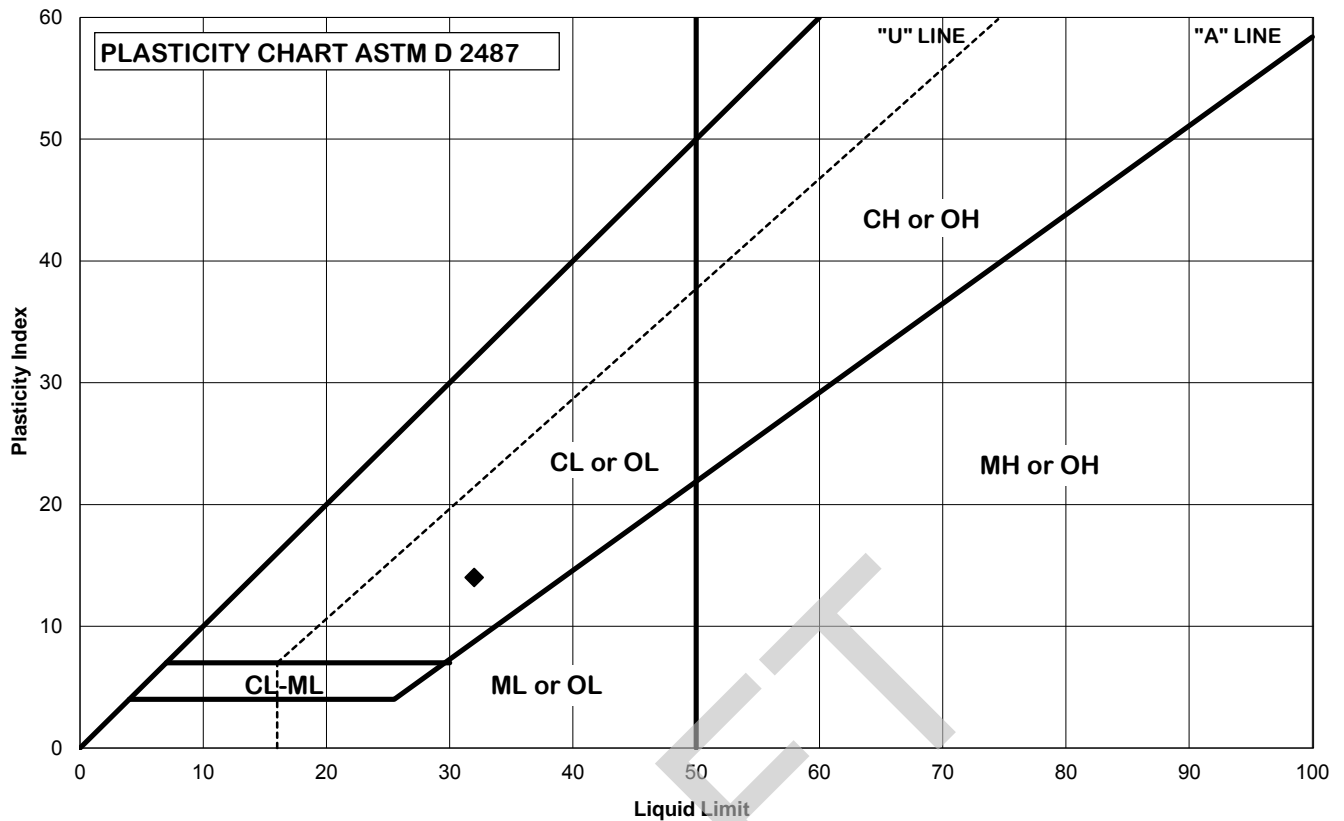
Liquid Limit =	34
Plastic Limit =	21
Plasticity Index =	13

Date:	9/24/2013
Tested By:	SB
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-10	Natural WC:	#DIV/0!
Depth, ft.	23 - 25	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Loose brown and gray clayey sandy silt (ML)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	32
Plastic Limit =	18
Plasticity Index =	14

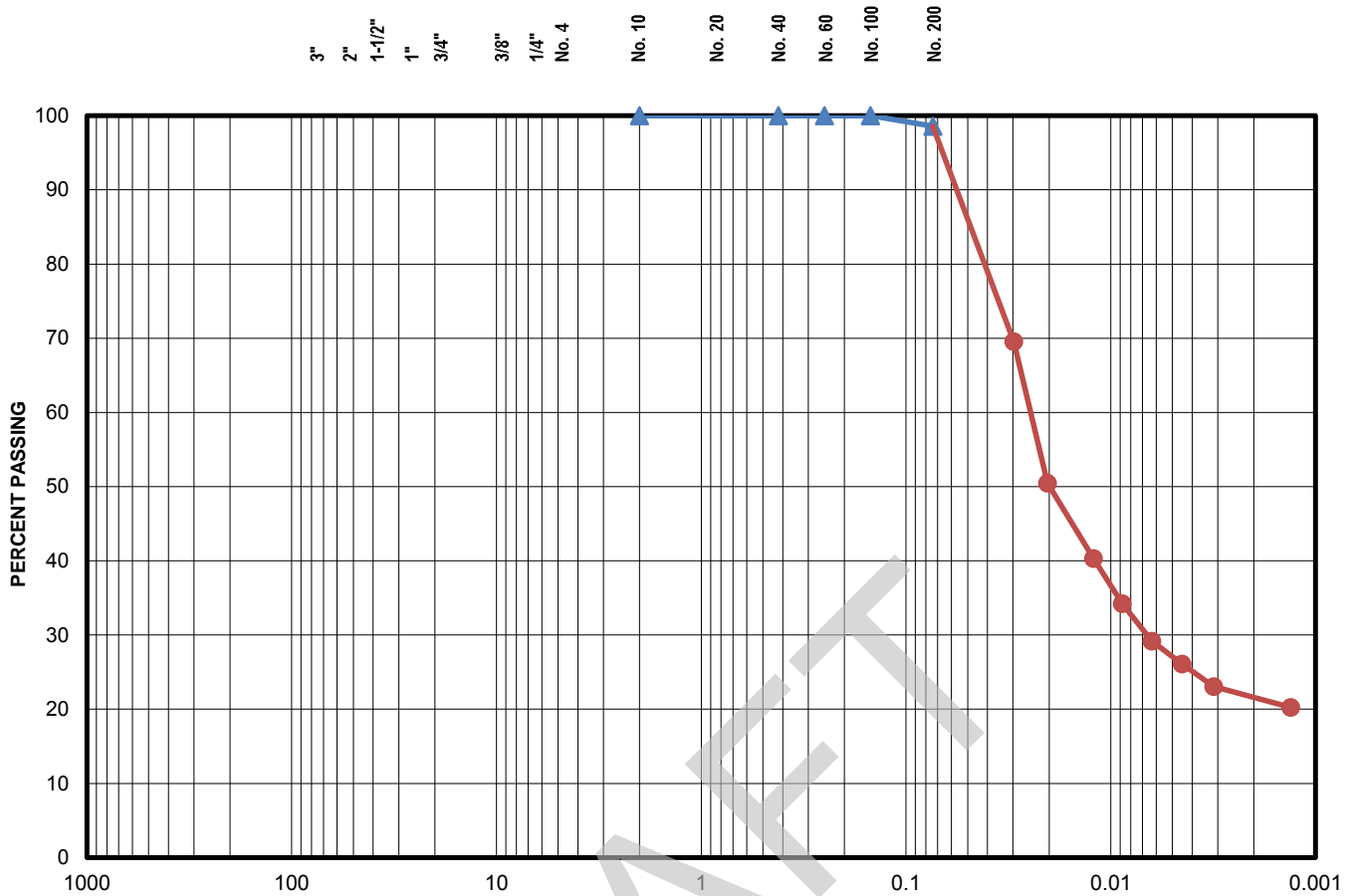
Date:	9/25/2013
Tested By:	BH
Checked By:	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Gray and brown clayey silt (ML)
-----------------------------	---------------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	98.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1147
Hydro jar ID:	1163

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/26/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-10	Checked By	SLC
Source/Depth (feet)	13 - 15		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



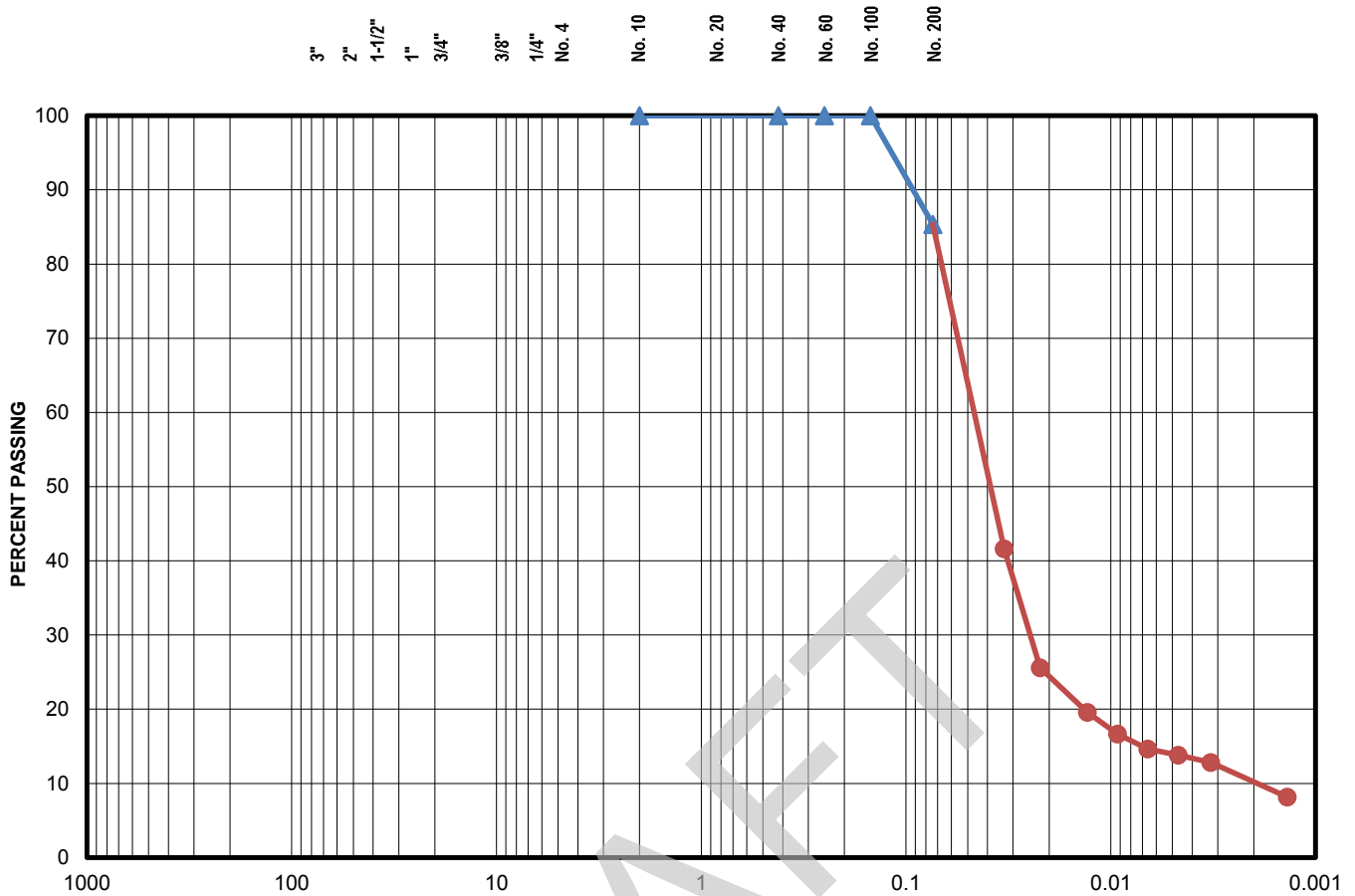
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Very loose brown and gray clayey sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	85.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1146
Hydro jar ID:	1157

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/1/2013
Project No.	18274-001-00	Tested By	SEF/GOM
Sample ID.	PZ-10	Checked By	SLC
Source/Depth (feet)	18 - 20		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



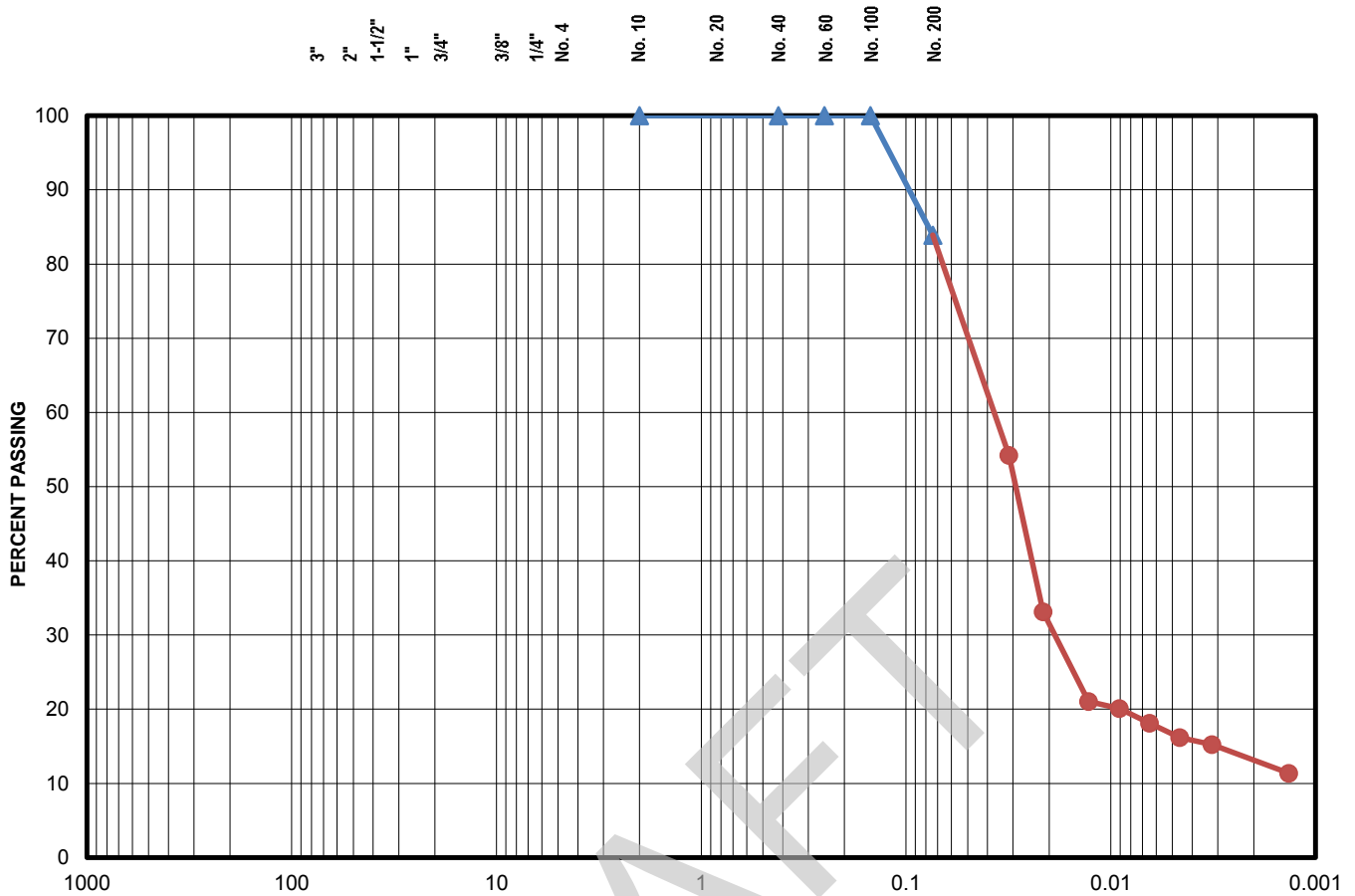
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Loose brown and gray sandy clayey silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	83.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	1150

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/1/2013
Project No.	18274-001-00	Tested By	SEF/GOM
Sample ID.	PZ-10	Checked By	SLC
Source/Depth (feet)	23 - 25		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



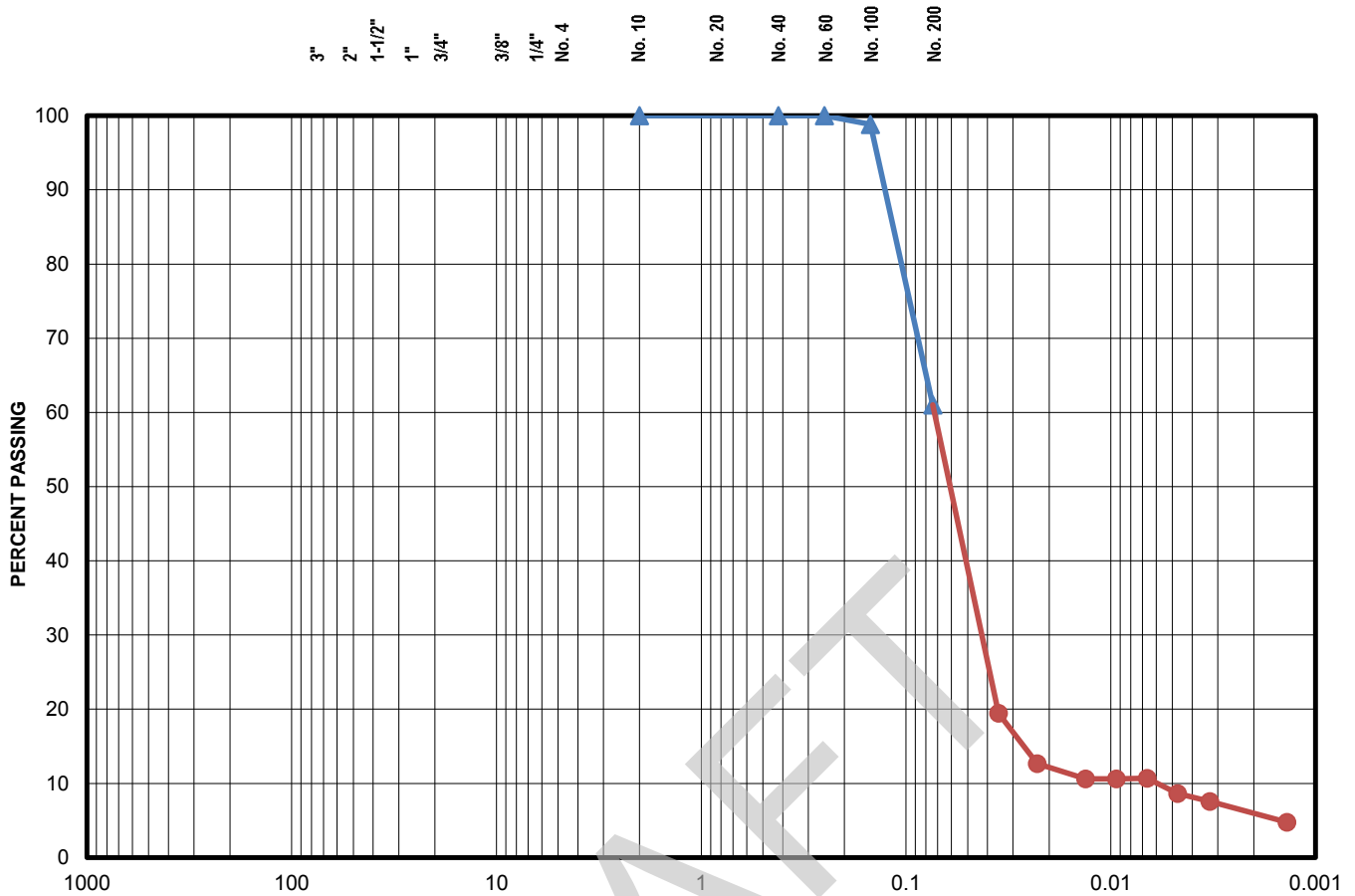
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Dense brown and gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	98.8
1/4"	100.0	No. 200	61.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1147
Hydro jar ID:	1158

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-153)	Date Tested	10/3/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-10	Checked By	SLC
Source/Depth (feet)	28 - 30		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



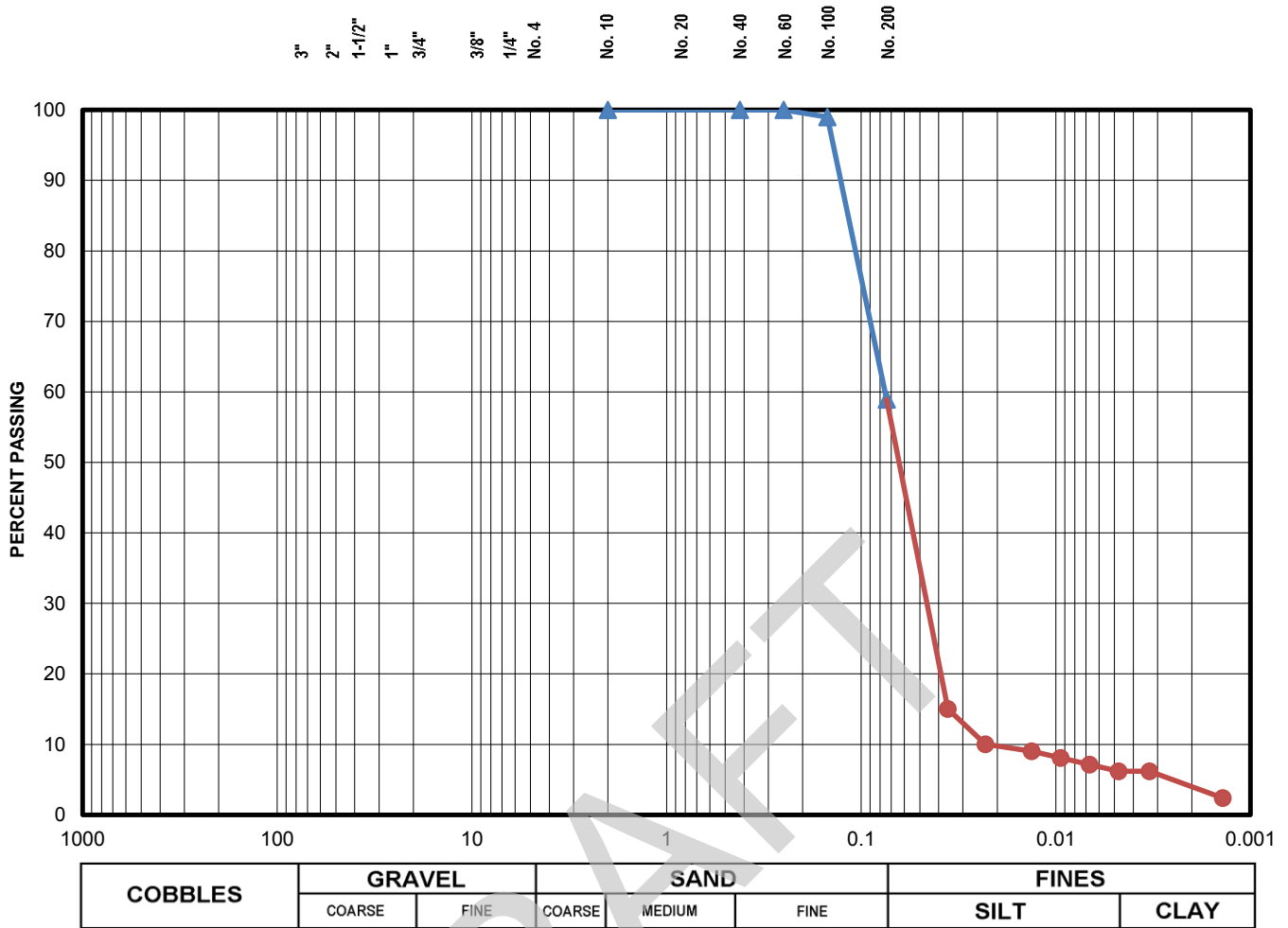
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



Description (D 2488) Dense tan and gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.0
1/4"	100.0	No. 200	58.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	1158

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/1/2013
Project No.	18274-001-00	Tested By	SEF/GOM
Sample ID.	PZ-10	Checked By	SLC
Source/Depth (feet)	33 - 35		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



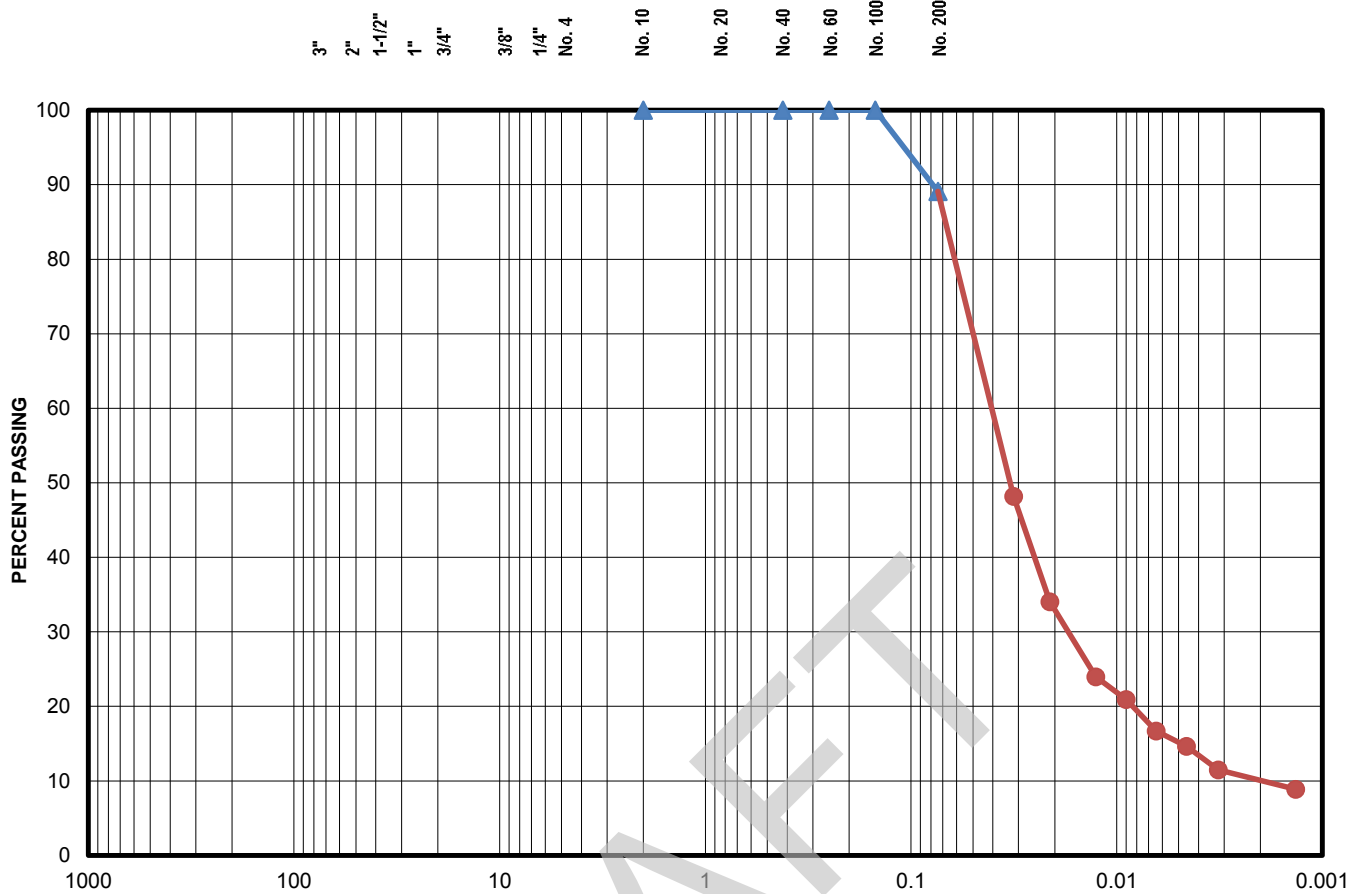
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Firm brown and gray clayey silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	89.1

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	1161

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/3/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-10	Checked By	SLC
Source/Depth (feet)	38 - 40		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



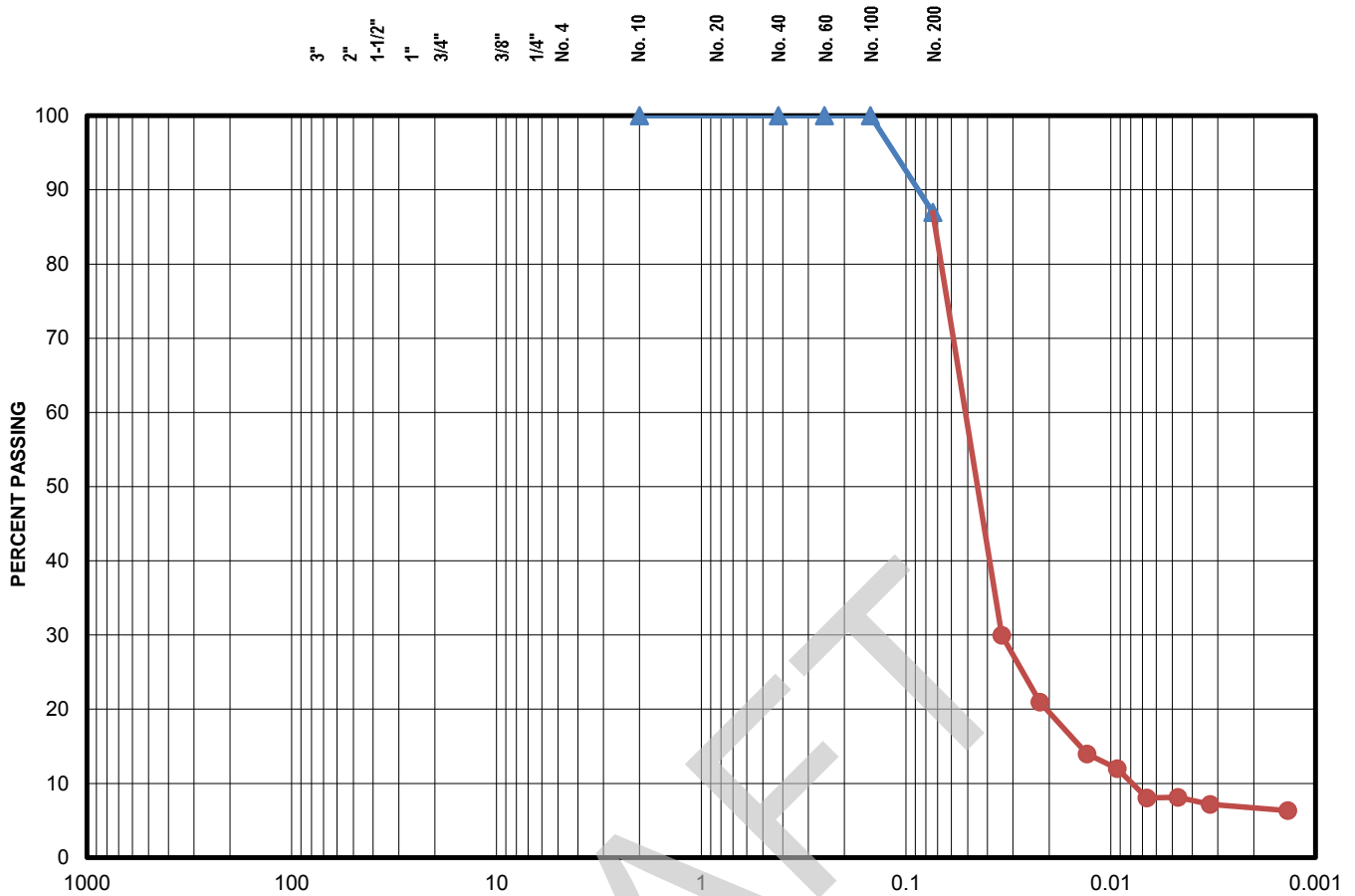
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Dense brown and gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	87.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	1135

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/1/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-10	Checked By	SLC
Source/Depth (feet)	43 - 45		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



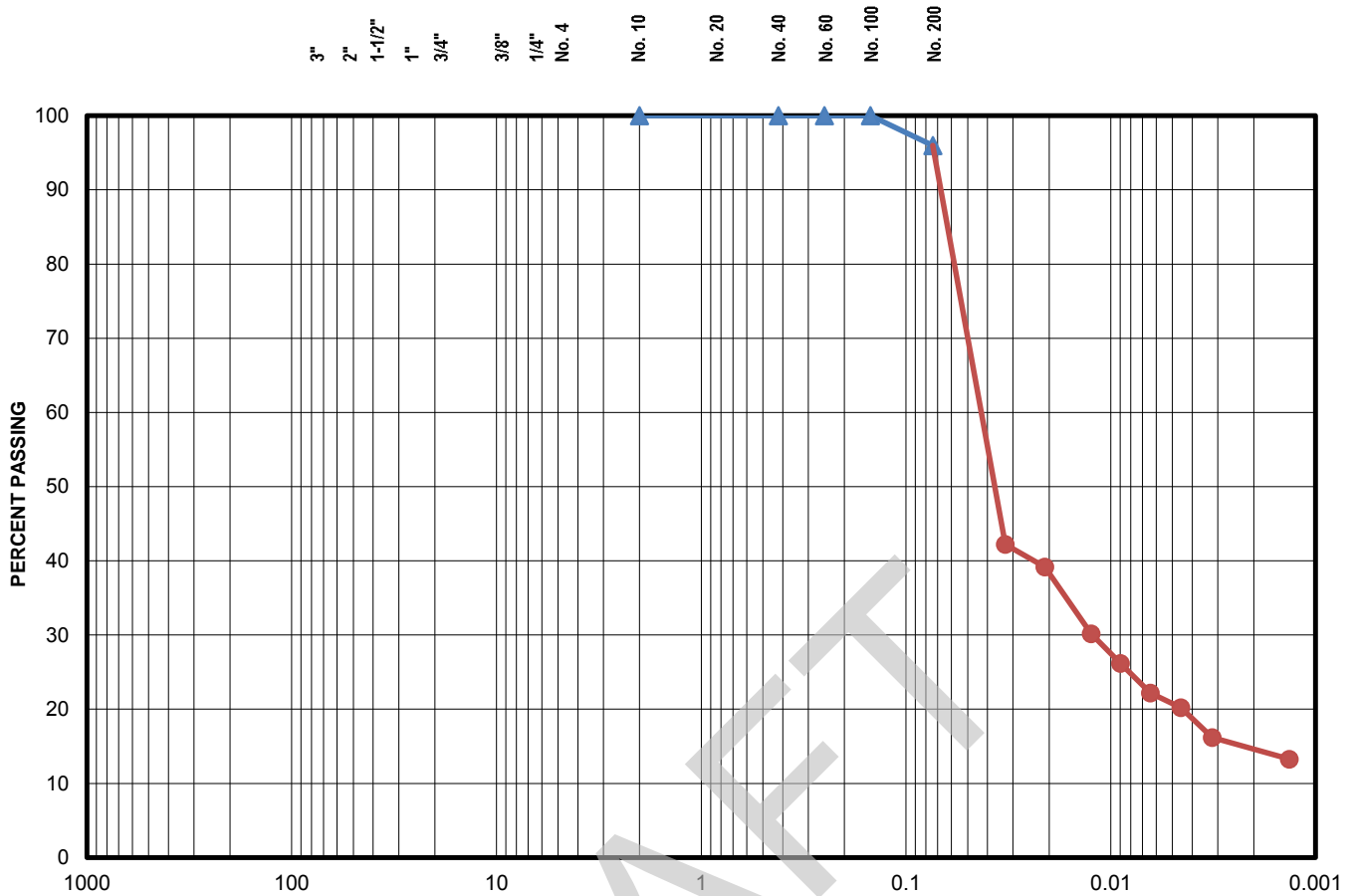
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Firm brown and gray clayey silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	96.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	1157

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/3/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-10	Checked By	SLC
Source/Depth (feet)	48 - 50		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



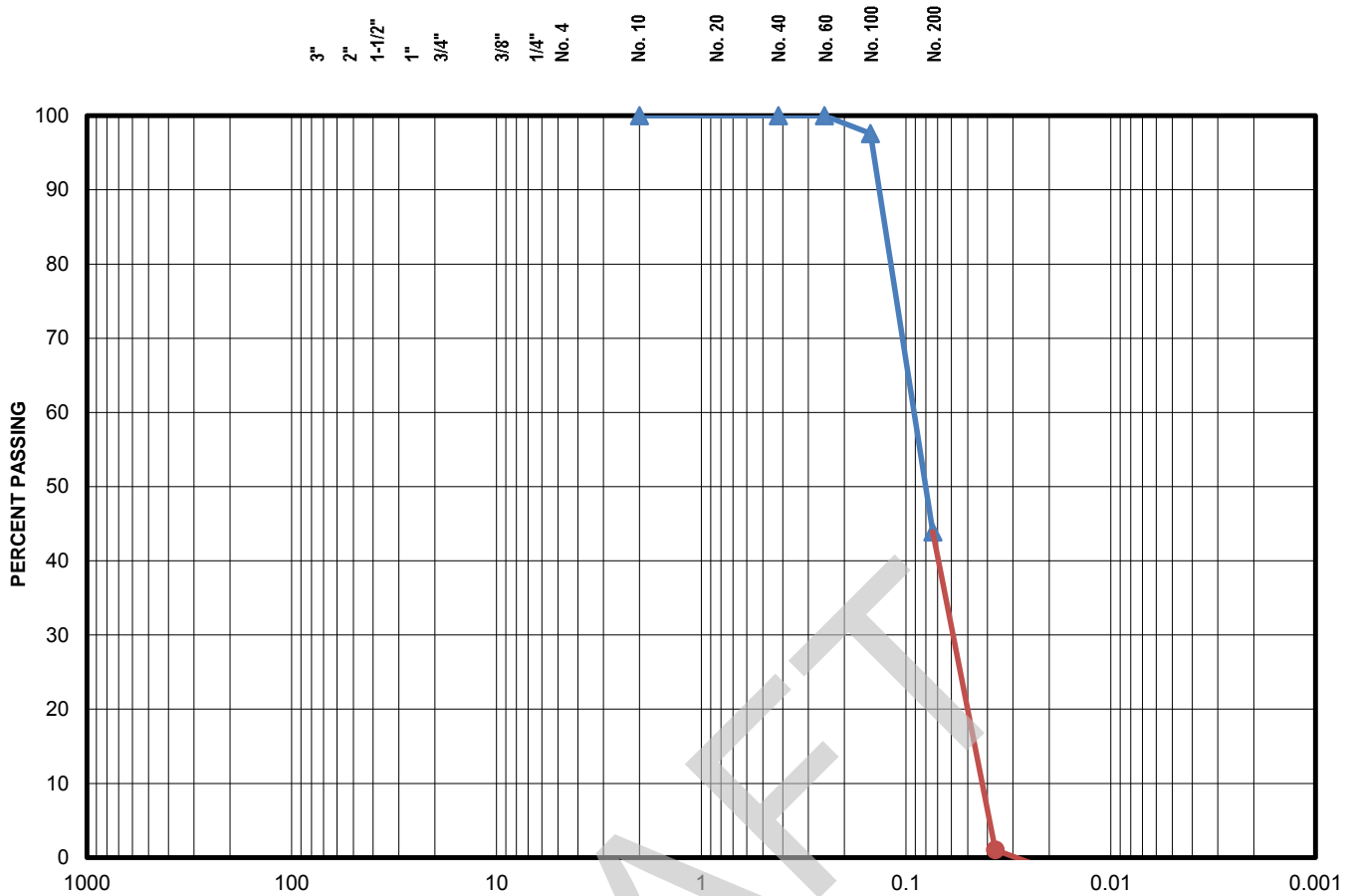
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Dense brown and gray silty sand (SP)
-----------------------------	--------------------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	97.6
1/4"	100.0	No. 200	43.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/3/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-10B	Checked By	SLC
Source/Depth (feet)	23 - 25		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



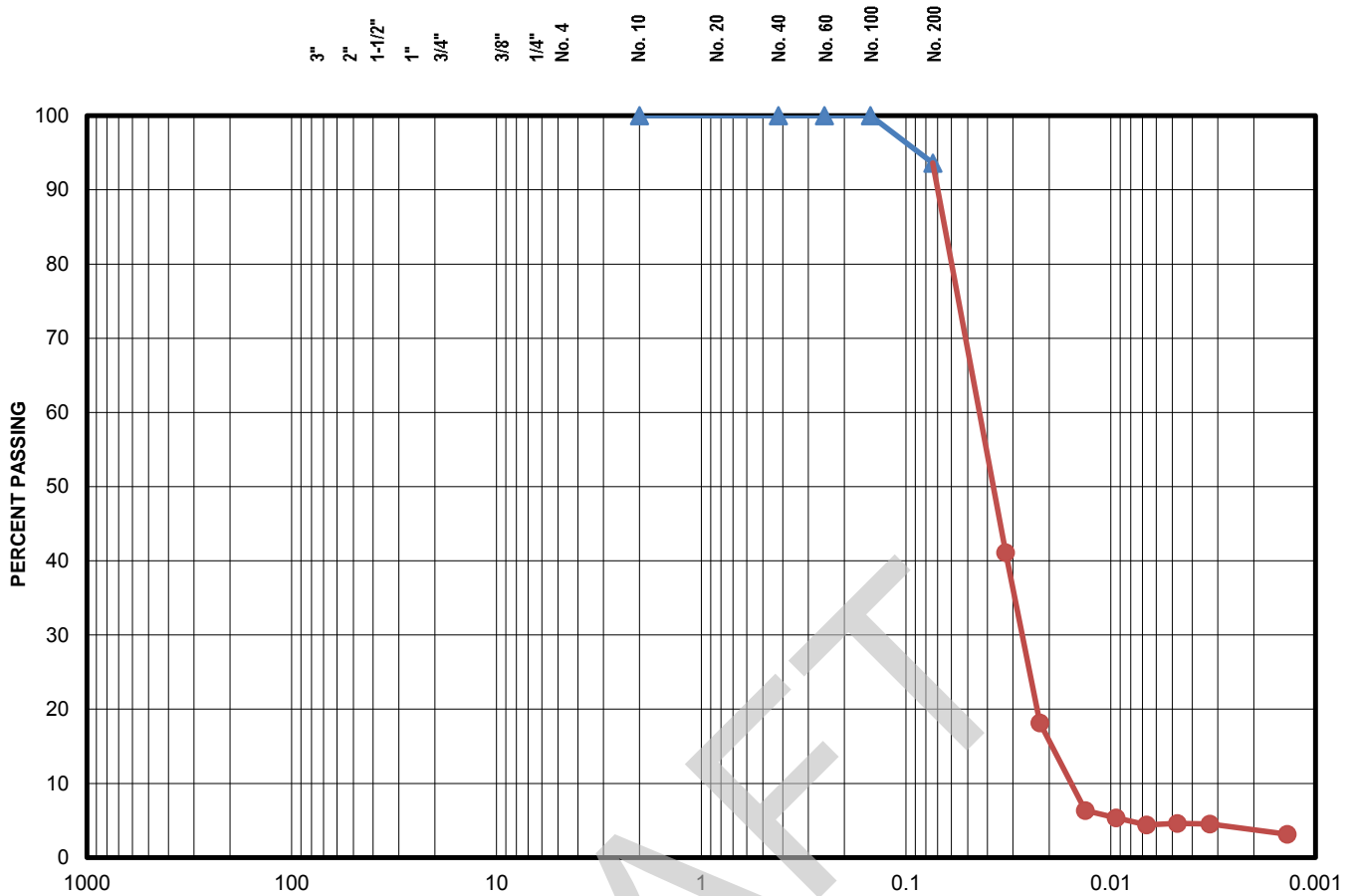
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Firm brown and gray sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	93.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	1154

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/1/2013
Project No.	18274-001-00	Tested By	SEF/GOM
Sample ID.	PZ-10B	Checked By	SLC
Source/Depth (feet)	38 - 40		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



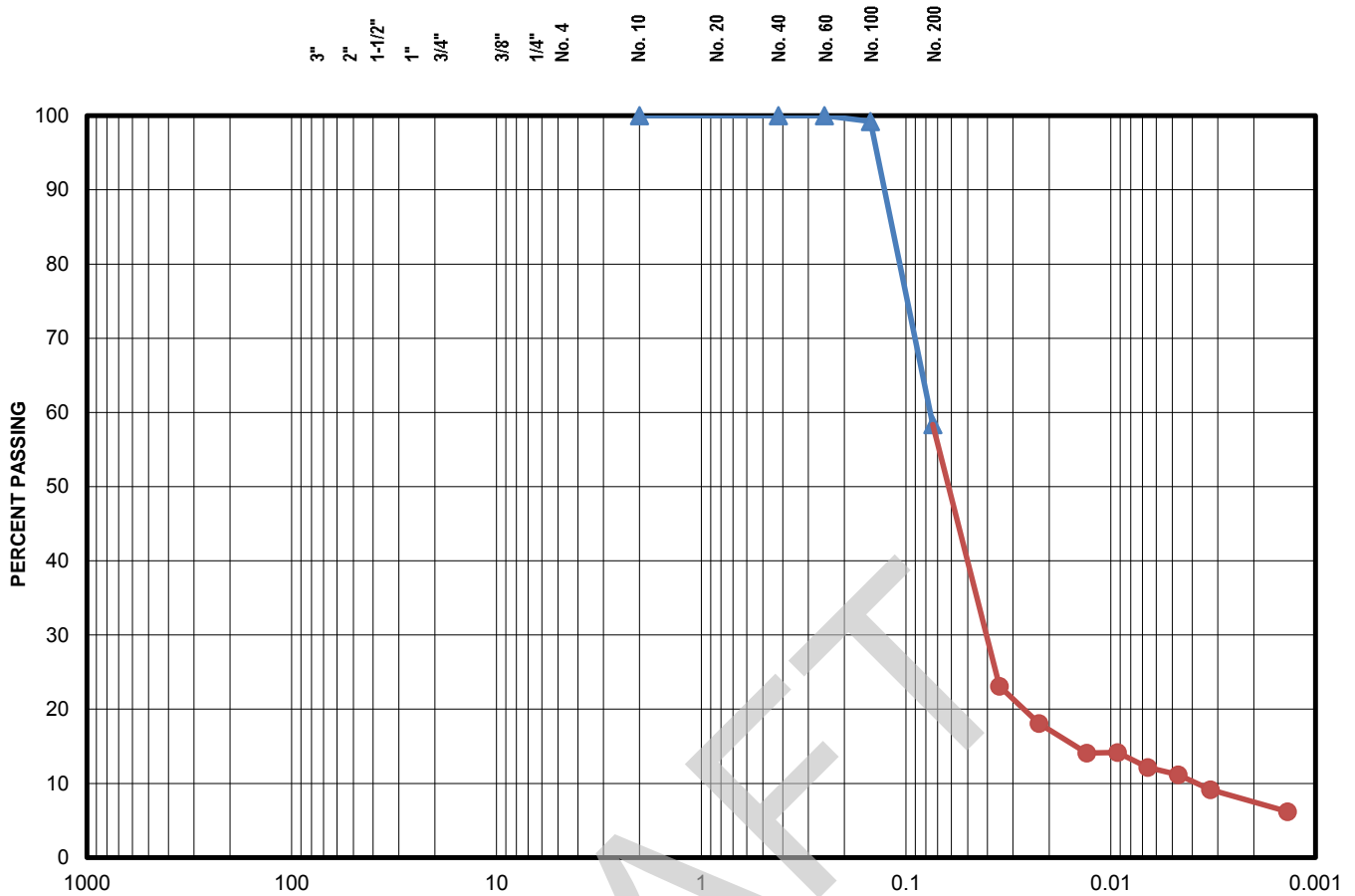
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Firm brown and gray clayey sandy silt (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.2
1/4"	100.0	No. 200	58.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	1354

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/3/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-10B	Checked By	SLC
Source/Depth (feet)	48 - 50		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

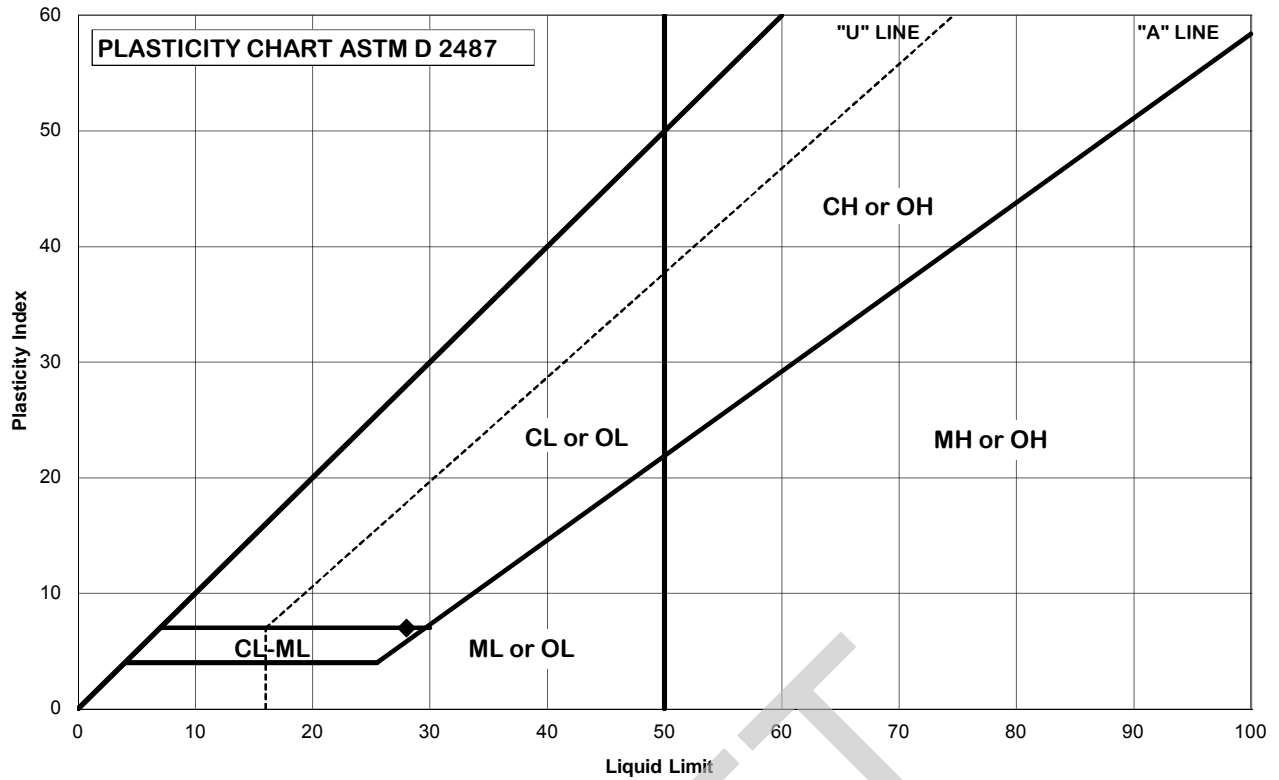


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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

Confidential Information; Privileged & Confidential W/18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-11	Natural WC:	#DIV/0!
Depth, ft.	0 - 2	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Dense brown clayey silt (ML)		

Classification (fraction passing No. 40 sieve)
CL-ML

Liquid Limit =	28
Plastic Limit =	21
Plasticity Index =	7

Date:	9/23/2013
Tested By:	slc
Checked By:	slc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

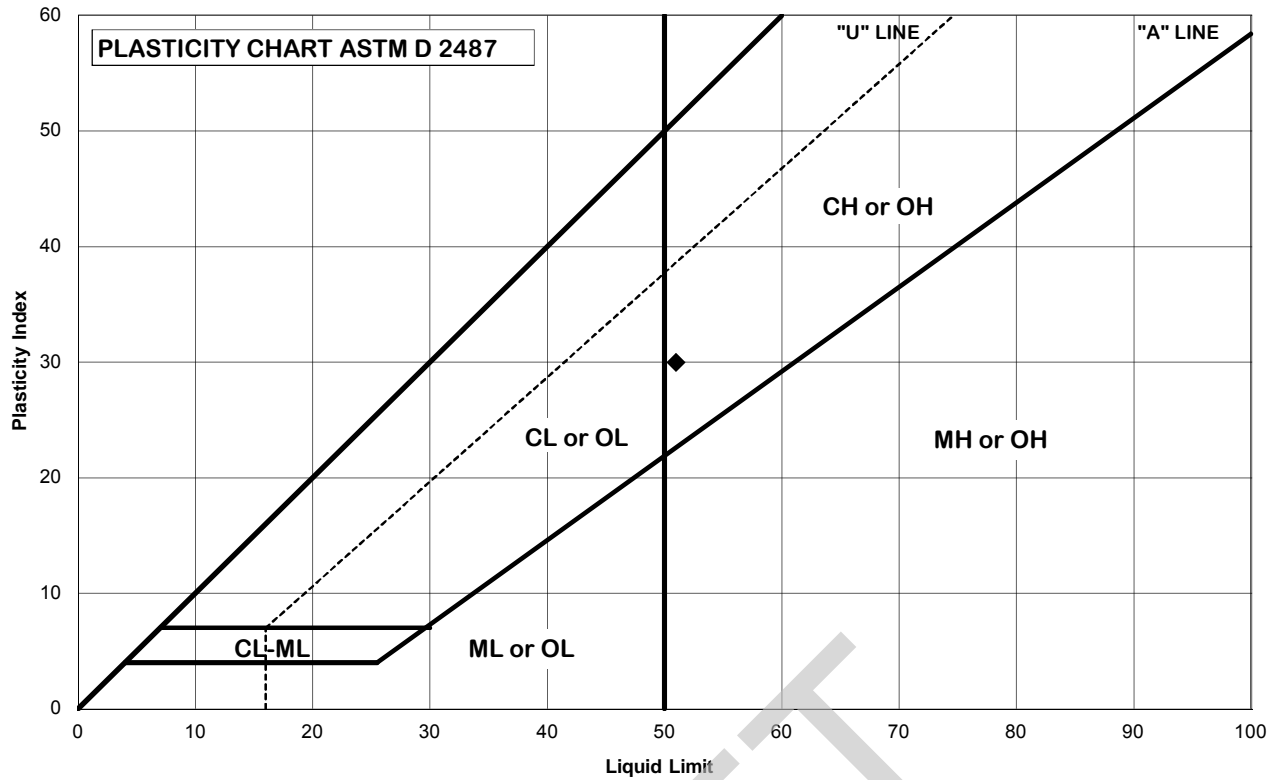


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ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-11	Natural WC:	#DIV/0!
Depth, ft.	3 - 5	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium brown and gray clay with sand seams and organic matter (CH2)		

Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	51
Plastic Limit =	21
Plasticity Index =	30

Date:	9/23/2013
Tested By:	sb
Checked By:	slc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

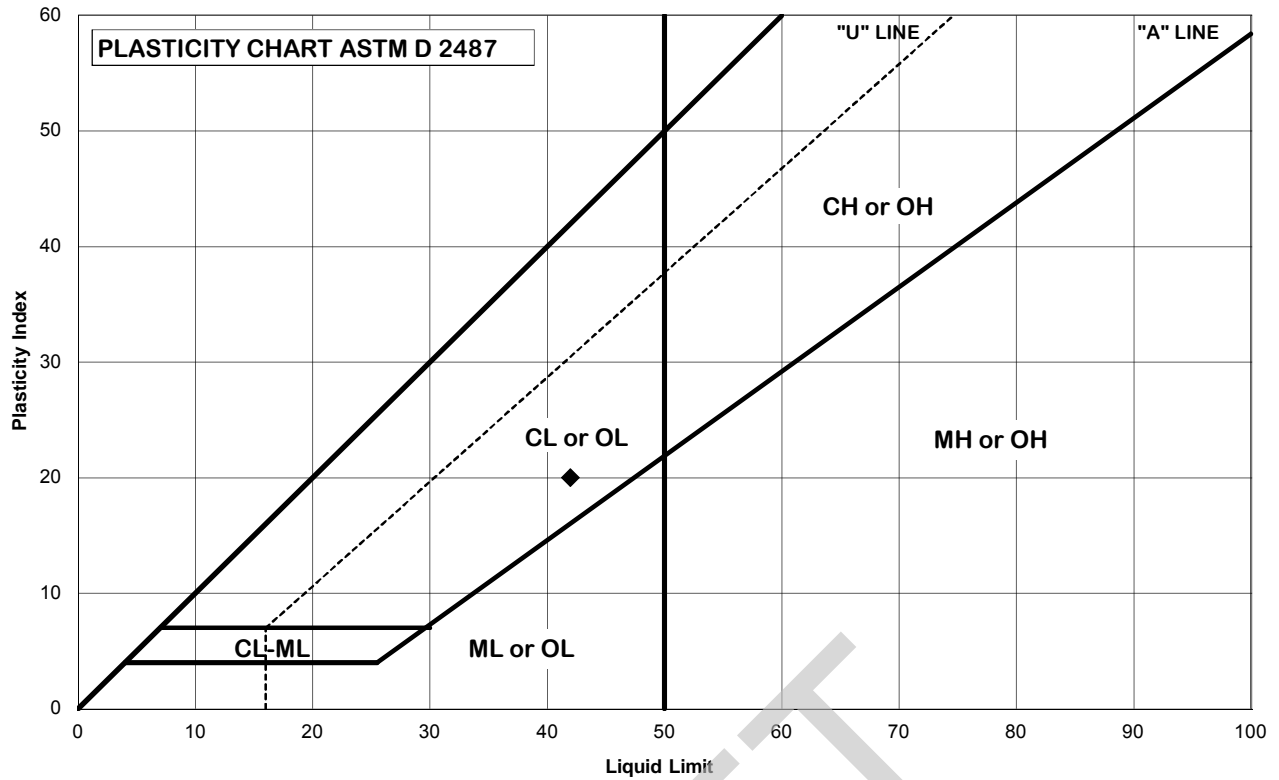


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ATTERBERG LIMITS - ASTM D4318

LA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-11	Natural WC:	#DIV/0!
Depth, ft.	8 - 10	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium brown and gray clay with silt and sand seams (CL6)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	42
Plastic Limit =	22
Plasticity Index =	20

Date:	10/15/2013
Tested By:	SLC
Checked By:	SLC

NOTES:

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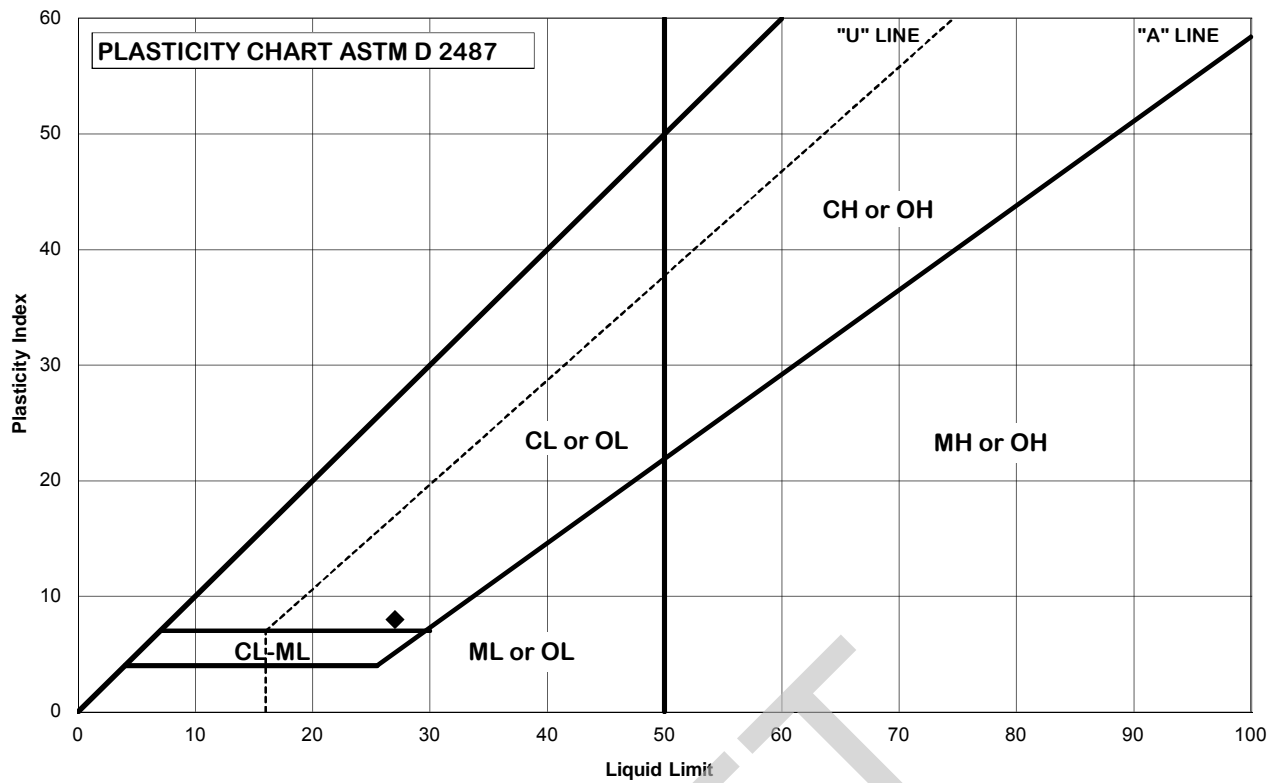


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ATTERBERG LIMITS - ASTM D4318

LA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-11	Natural WC:	#DIV/0!
Depth, ft.	13 - 15	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Firm brown and gray sandy silt with clay (ML)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	27
Plastic Limit =	19
Plasticity Index =	8

Date:	9/23/2013
Tested By:	lc
Checked By:	slc

NOTES:

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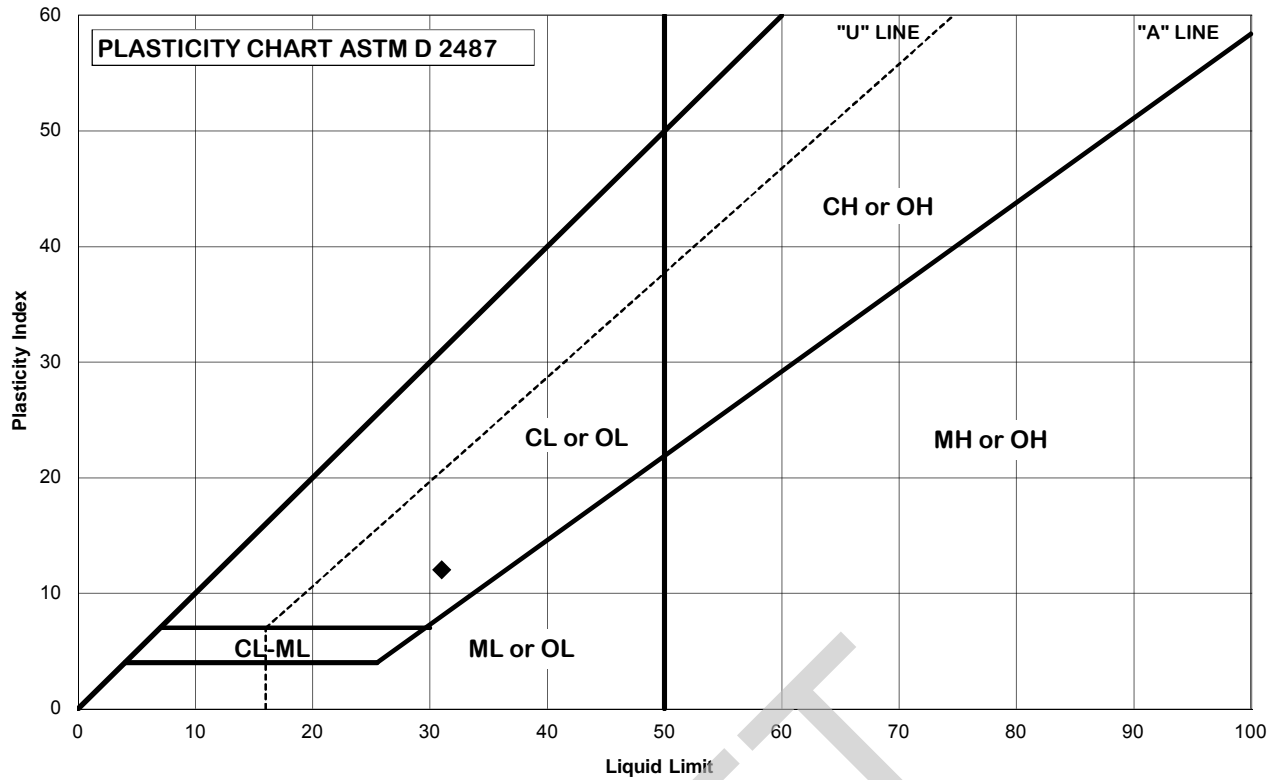


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ATTERBERG LIMITS - ASTM D4318

LA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-11	Natural WC:	#DIV/0!
Depth, ft.	18 - 20	Preparation:	Wet (as-received)
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Firm brown and gray sandy silt with clay (ML)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	31
Plastic Limit =	19
Plasticity Index =	12

Date:	9/23/2013
Tested By:	sb
Checked By:	slc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil.

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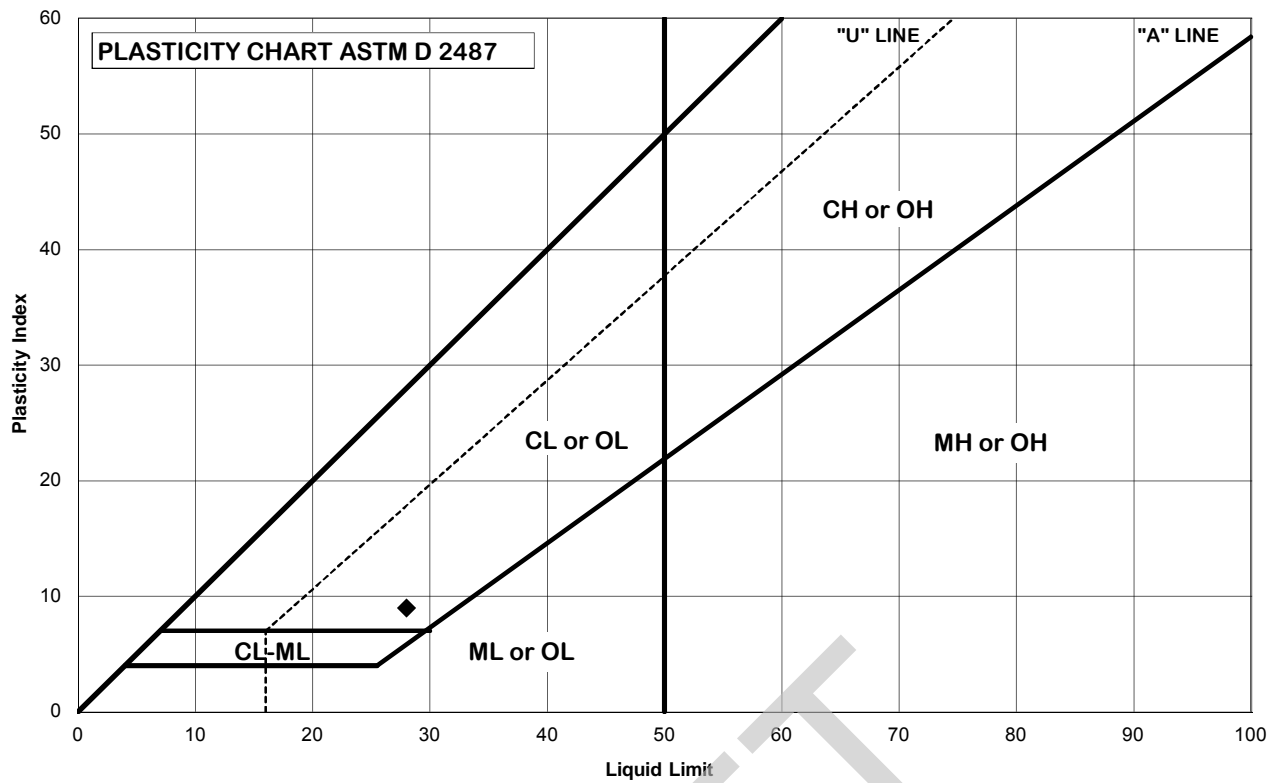


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ATTERBERG LIMITS - ASTM D4318

LA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-11	Natural WC:	#DIV/0!
Depth, ft.	23 - 25	Preparation:	Wet (as-received)
Cup No.	1356	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Firm brown and gray sandy silt with clay (ML)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	28
Plastic Limit =	19
Plasticity Index =	9

Date:	9/23/2013
Tested By:	slc
Checked By:	slc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.



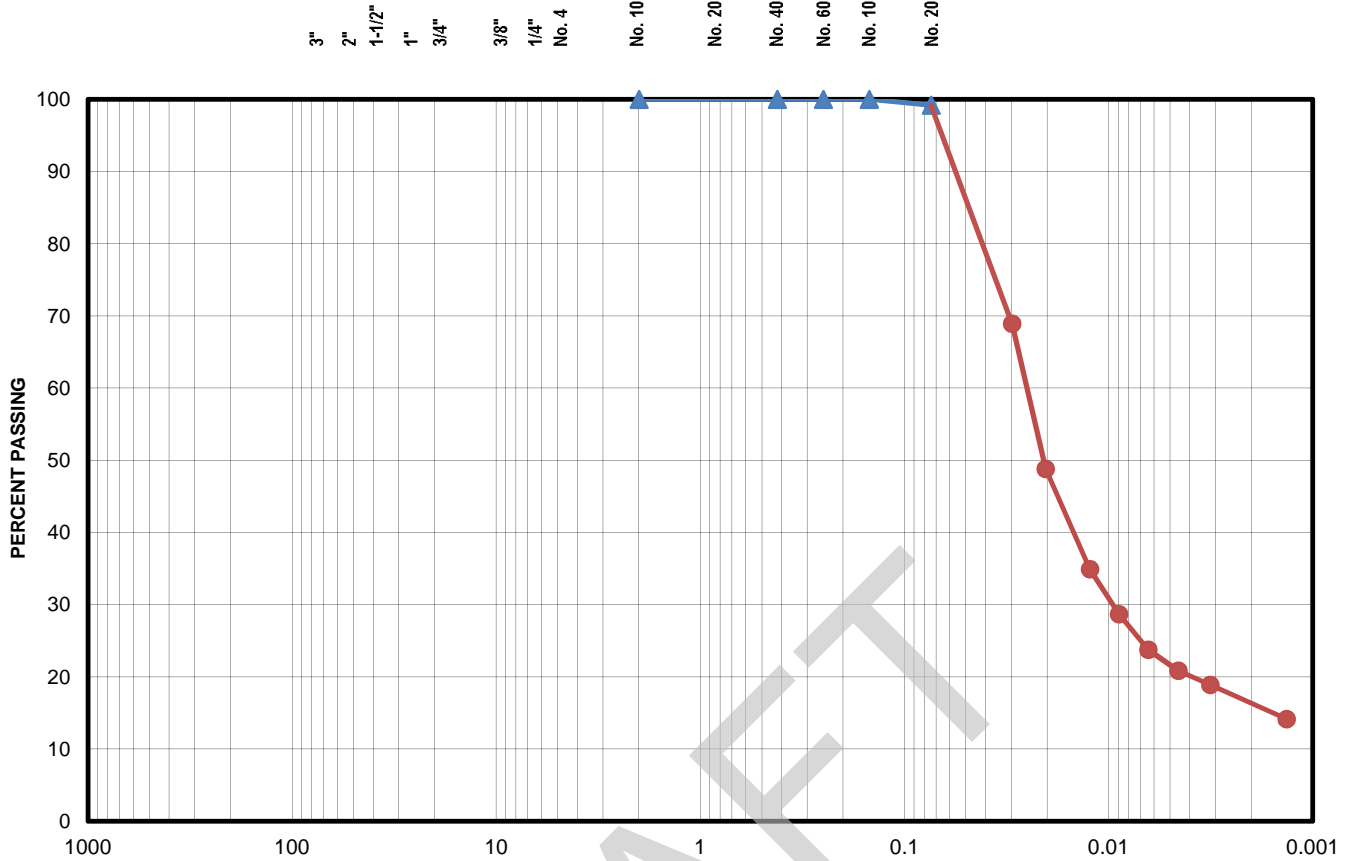
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ATTERBERG LIMITS - ASTM D4318

LA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium brown and gray sandy clay with sand seams (CL)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	99.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1147
Hydro jar ID:	1161

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/1/2013
Project No.	18274-001-00	Tested By	SEF/GOM
Sample ID.	PZ-11	Checked By	SLC
Source/Depth (feet)	8 - 10		

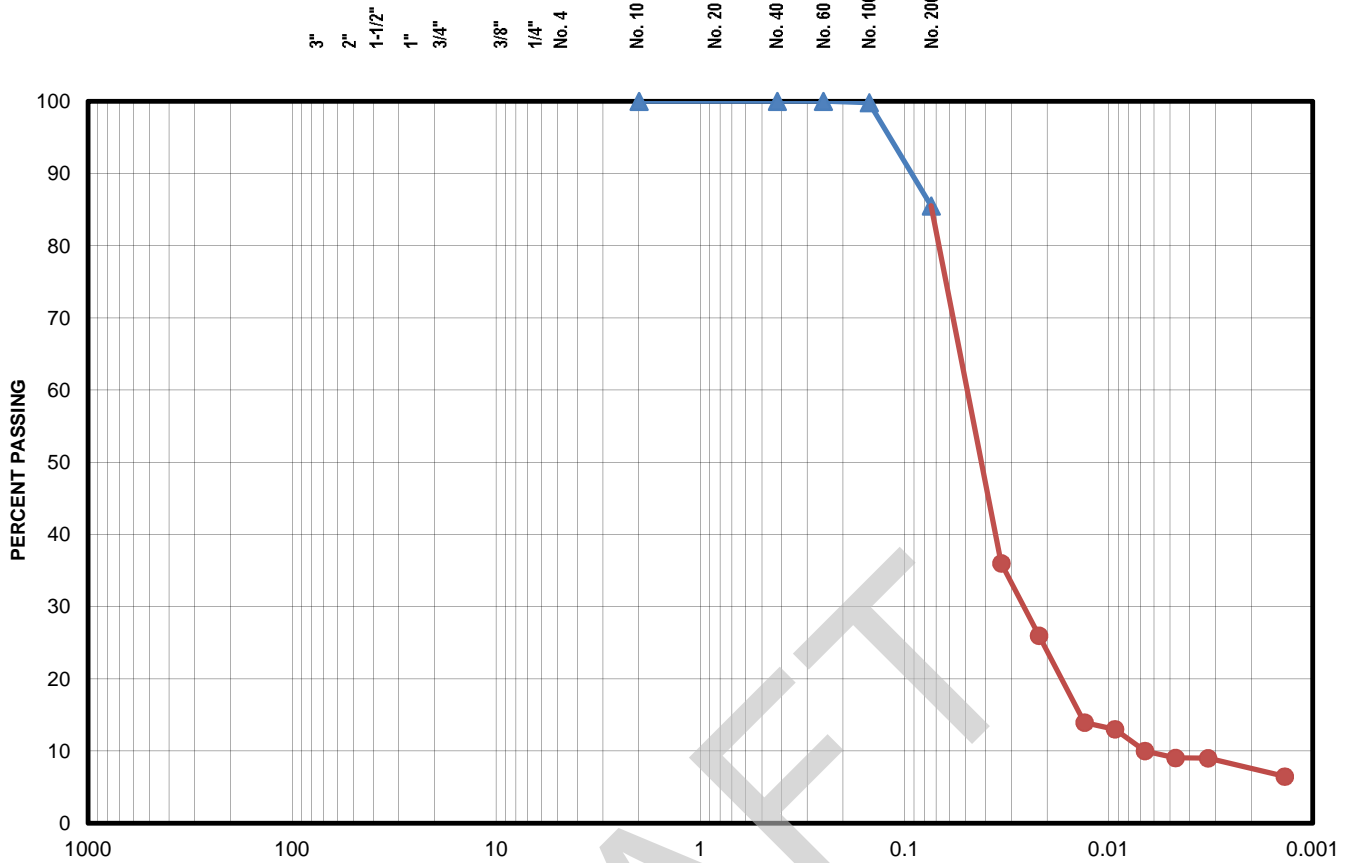
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium brown and gray very sandy clay (CL)
-----------------------------	--

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.8
1/4"	100.0	No. 200	85.5

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1163

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/1/2013
Project No.	18274-001-00	Tested By	GOM/SEF
Sample ID.	PZ-11	Checked By	SLC
Source/Depth (feet)	13 - 15		

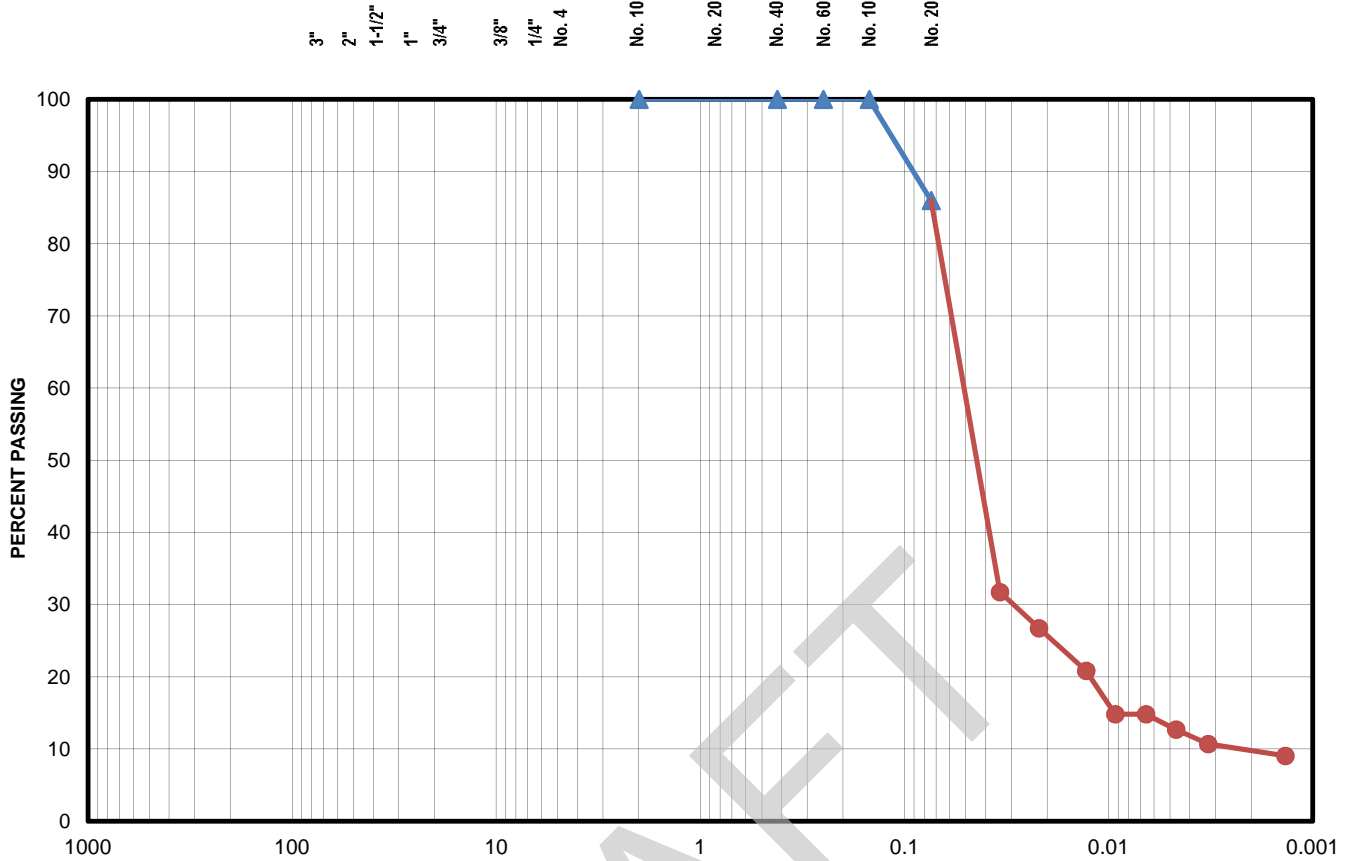
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium brown and gray very sandy clay (CL)
-----------------------------	--


Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	86.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1146
Hydro jar ID:	1154

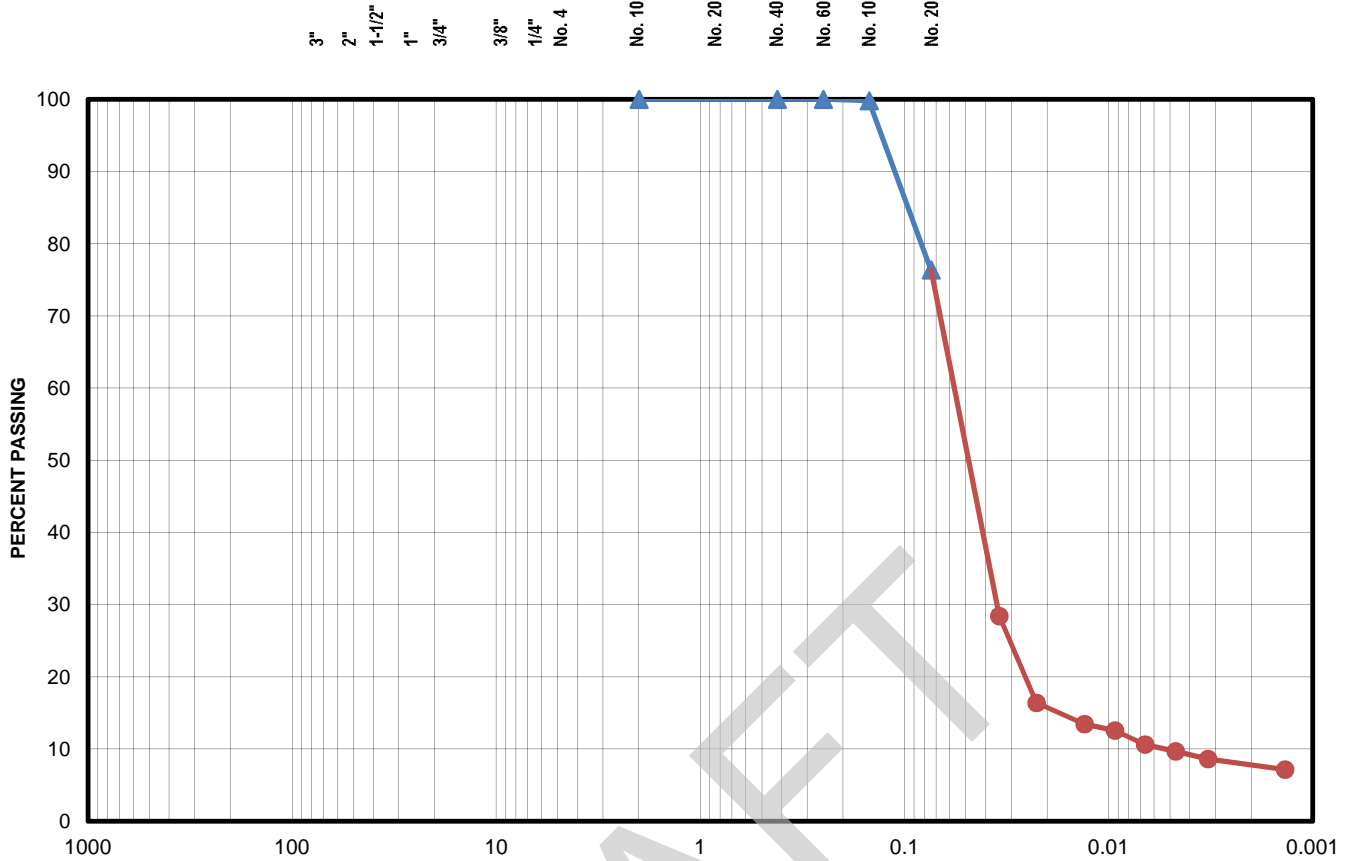
*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/26/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-11	Checked By	SLC
Source/Depth (feet)	18 - 20		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

 11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809	ASTM D 422 SOIL PARTICLE SIZE ANALYSIS CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, 18274-001-00
--	--

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium brown and gray very sandy clay (CL)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.8
1/4"	100.0	No. 200	76.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	10/1/2013
Project No.	18274-001-00	Tested By	GOM/SEF
Sample ID.	PZ-11	Checked By	SLC
Source/Depth (feet)	23 - 25		

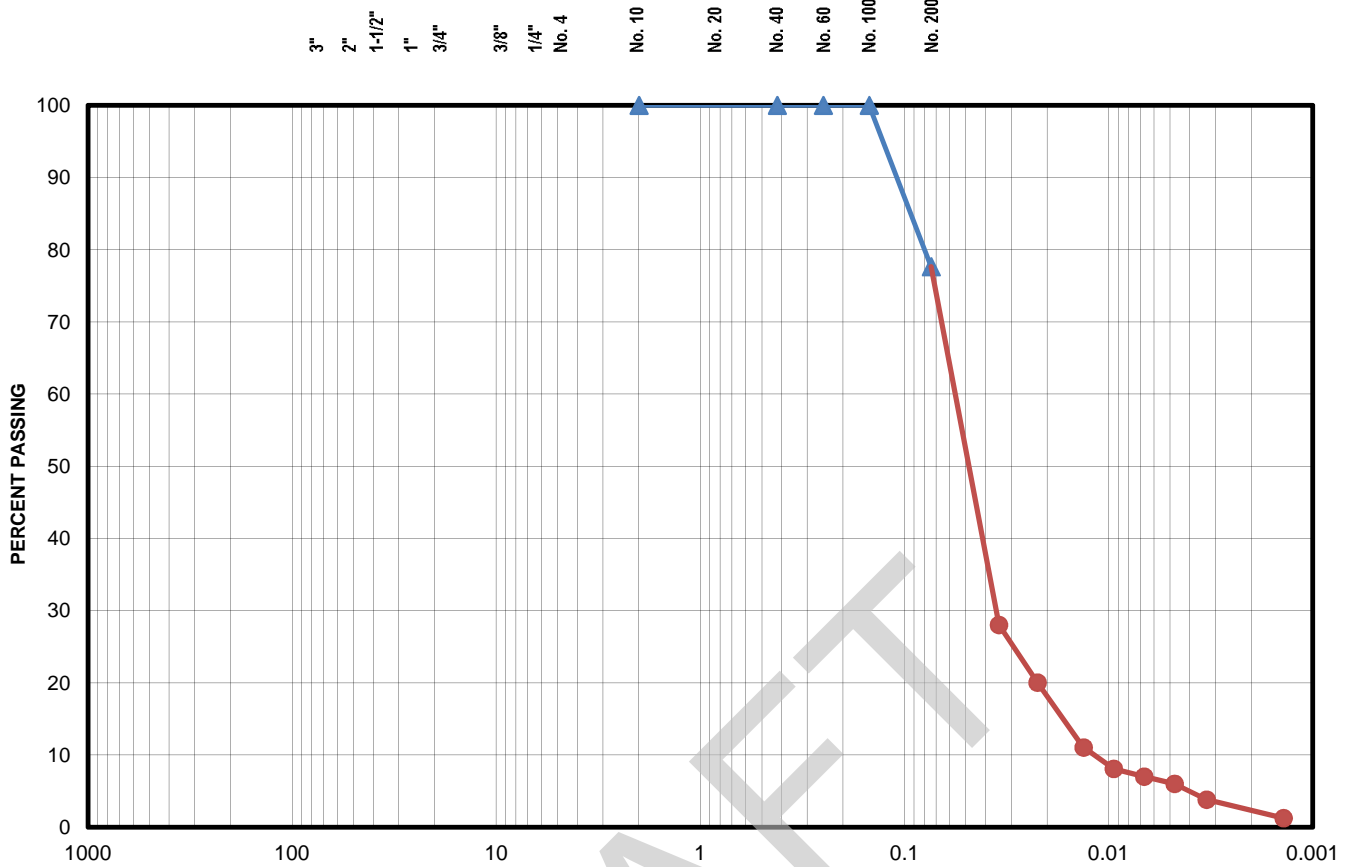
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium brown and gray sandy clay (CL)
-----------------------------	---------------------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	77.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1158

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/26/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-11	Checked By	SLC
Source/Depth (feet)	28 - 30		

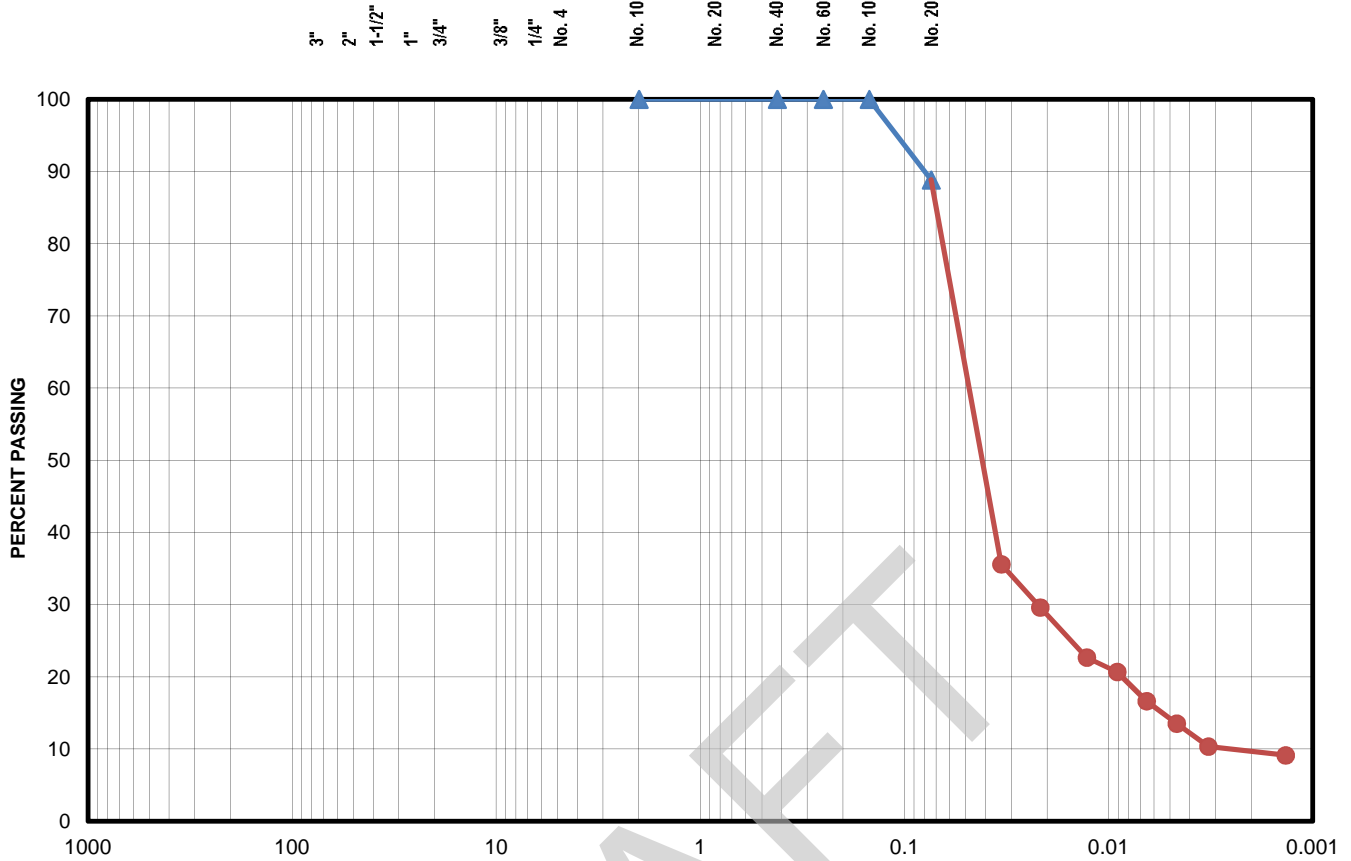
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Firm gray clayey sand (SP)
-----------------------------	----------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	88.8

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	1161

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/26/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-11	Checked By	SLC
Source/Depth (feet)	33 - 35		

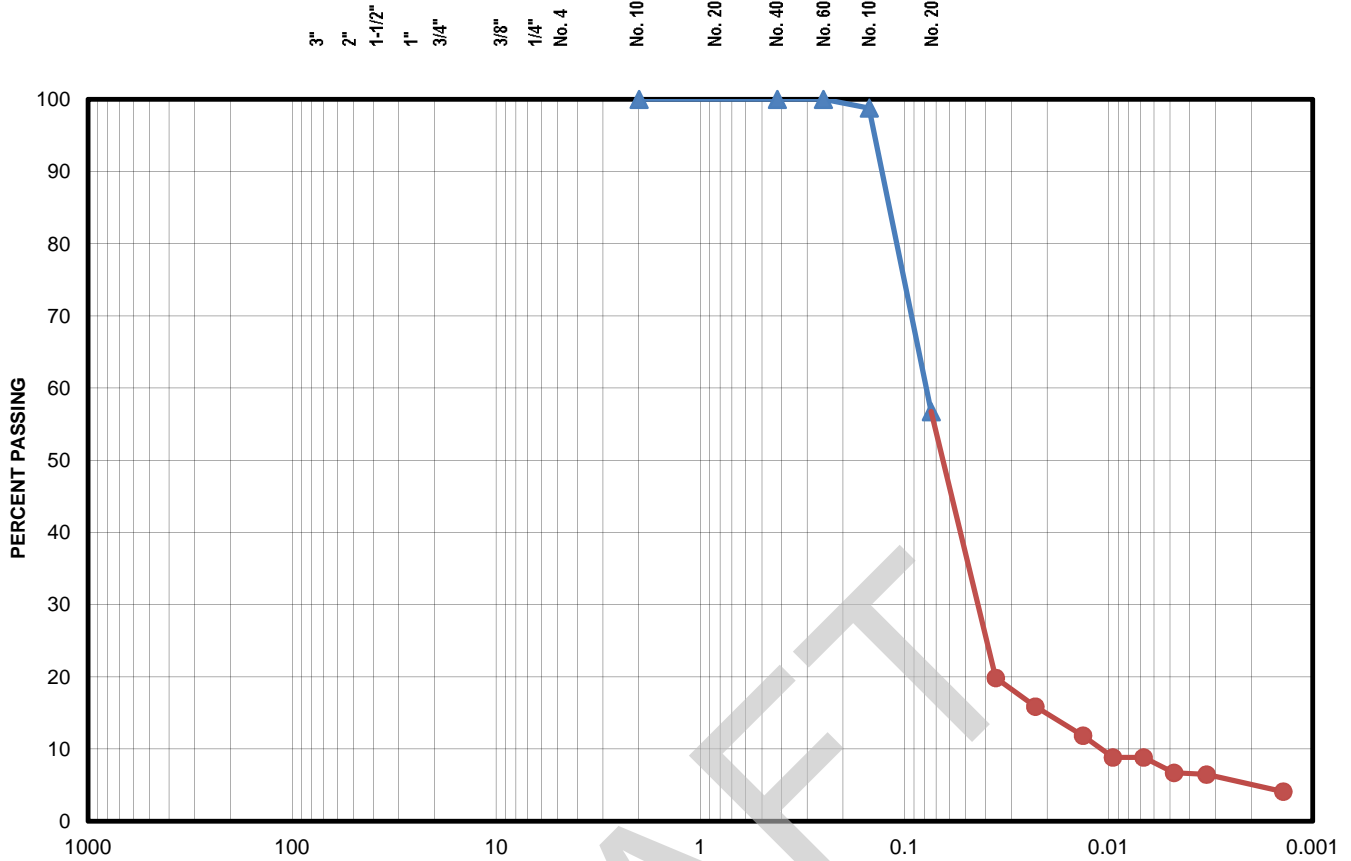
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Firm gray clayey sand (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	98.8
1/4"	100.0	No. 200	56.7

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1135

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/26/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-11	Checked By	SLC
Source/Depth (feet)	38 - 40		

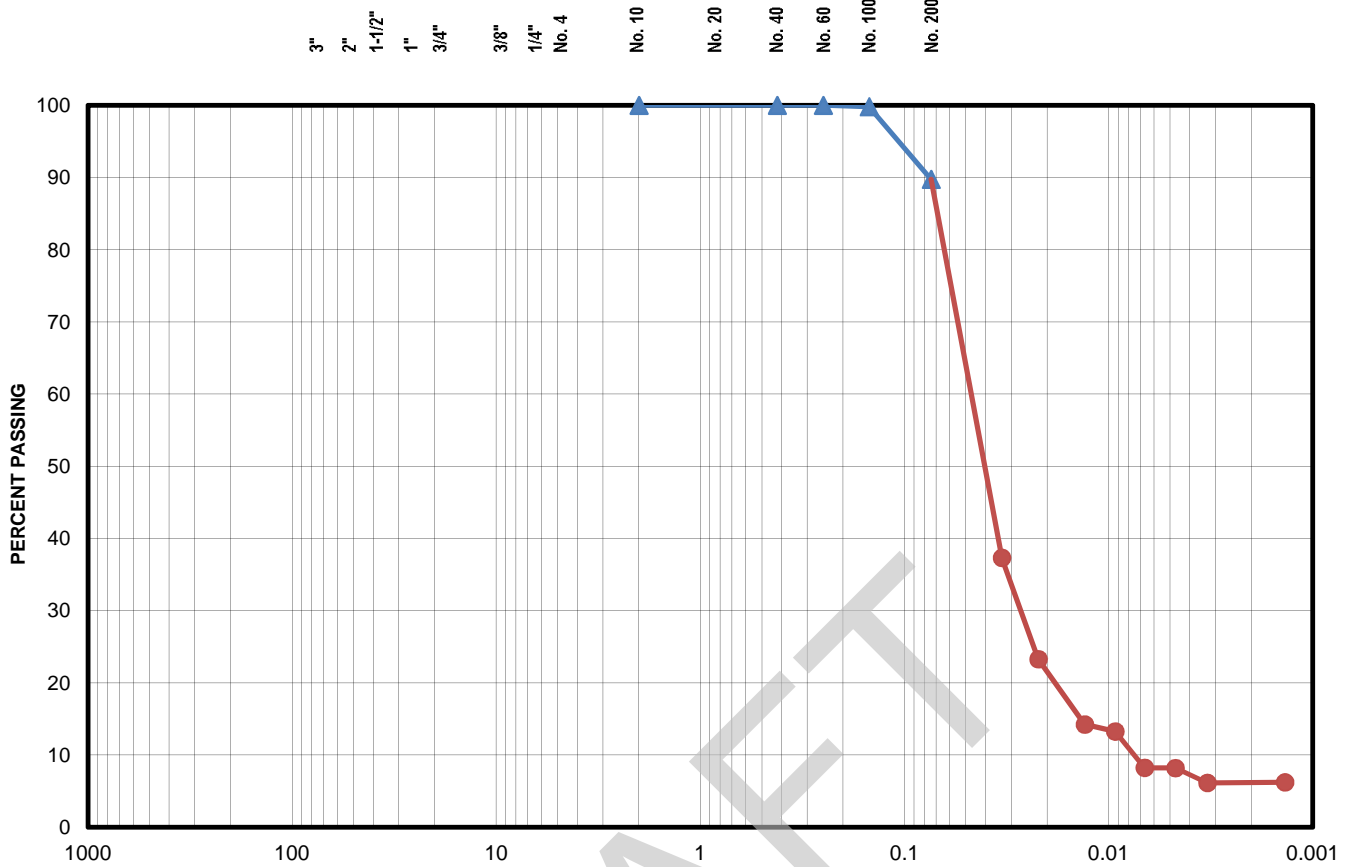
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Firm gray clayey sand (SP)
-----------------------------	----------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.8
1/4"	100.0	No. 200	89.7

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	1150

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/26/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-11	Checked By	SLC
Source/Depth (feet)	43 - 45		

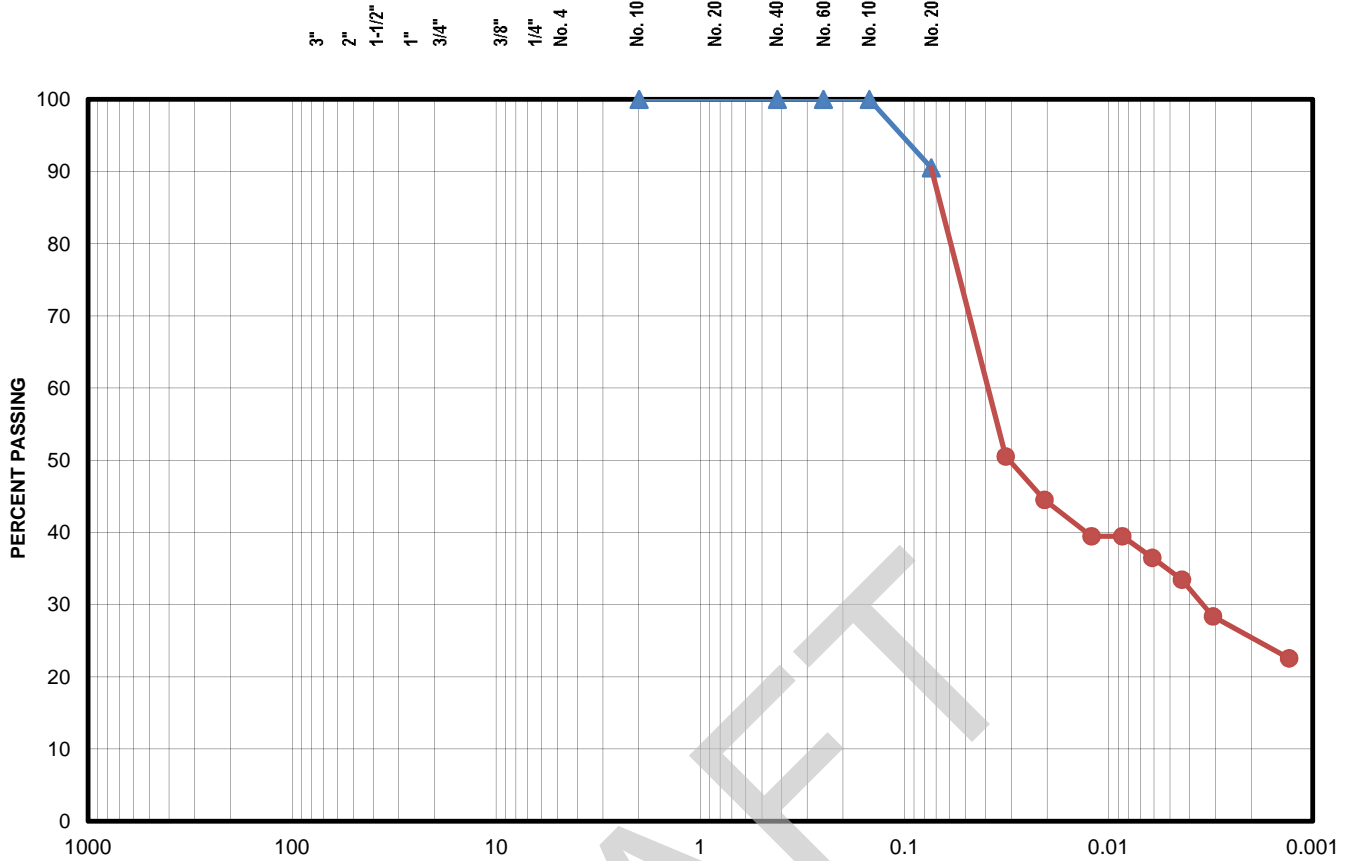
NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium brown and gray sandy clay (CL)
-----------------------------	---------------------------------------

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	100.0
1/4"	100.0	No. 200	90.5

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	1354

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/26/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-11B	Checked By	SLC
Source/Depth (feet)	28 - 30		

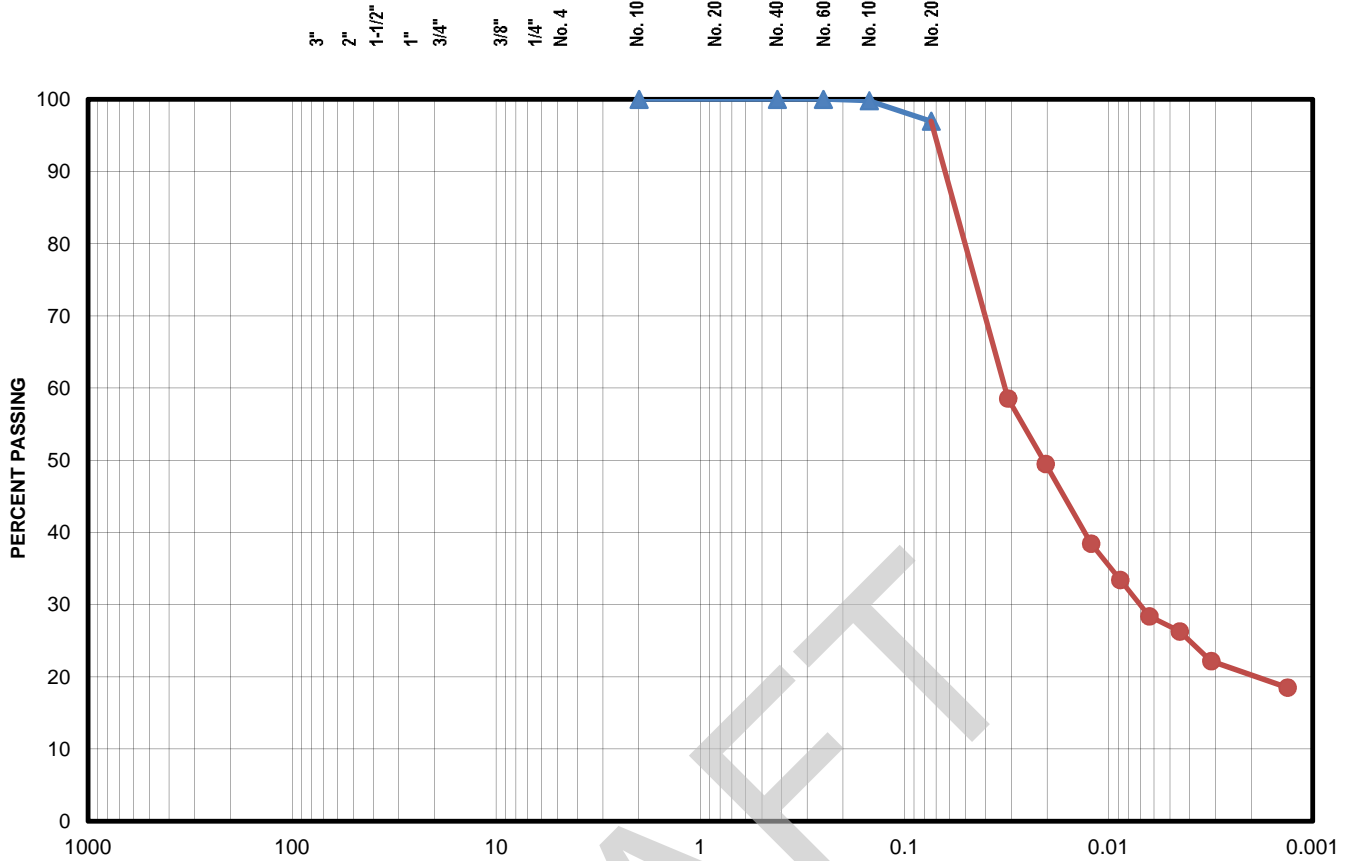
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ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488)	Medium gray clay (CL)
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Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	100.0
3/8"	100.0	No. 100	99.8
1/4"	100.0	No. 200	97.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	1353

*assumed unless noted

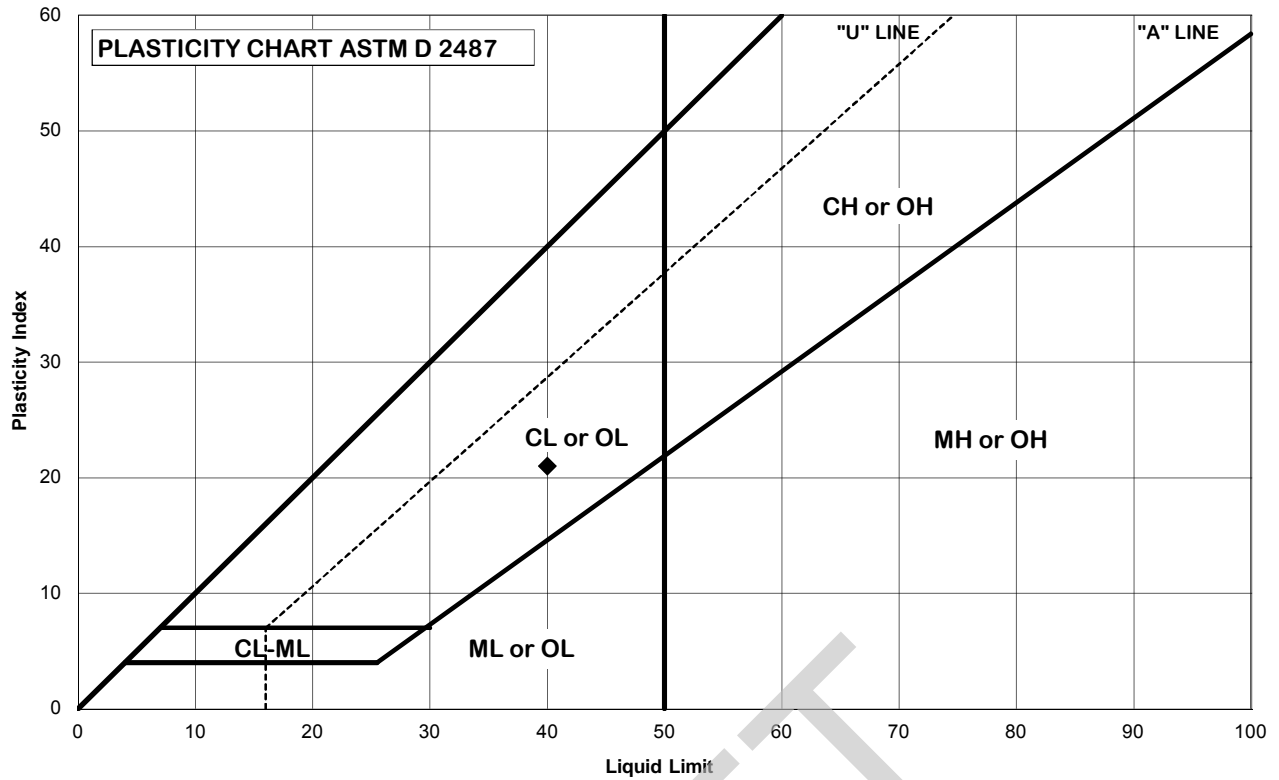
Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	9/26/2013
Project No.	18274-001-00	Tested By	SEF
Sample ID.	PZ-11B	Checked By	SLC
Source/Depth (feet)	43 - 45		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-12	Natural WC:	#DIV/0!
Depth, ft.	0 - 2	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Brown silty clay (CL)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	40
Plastic Limit =	19
Plasticity Index =	21

Date:	9/23/2013
Tested By:	lc
Checked By:	slc

NOTES:

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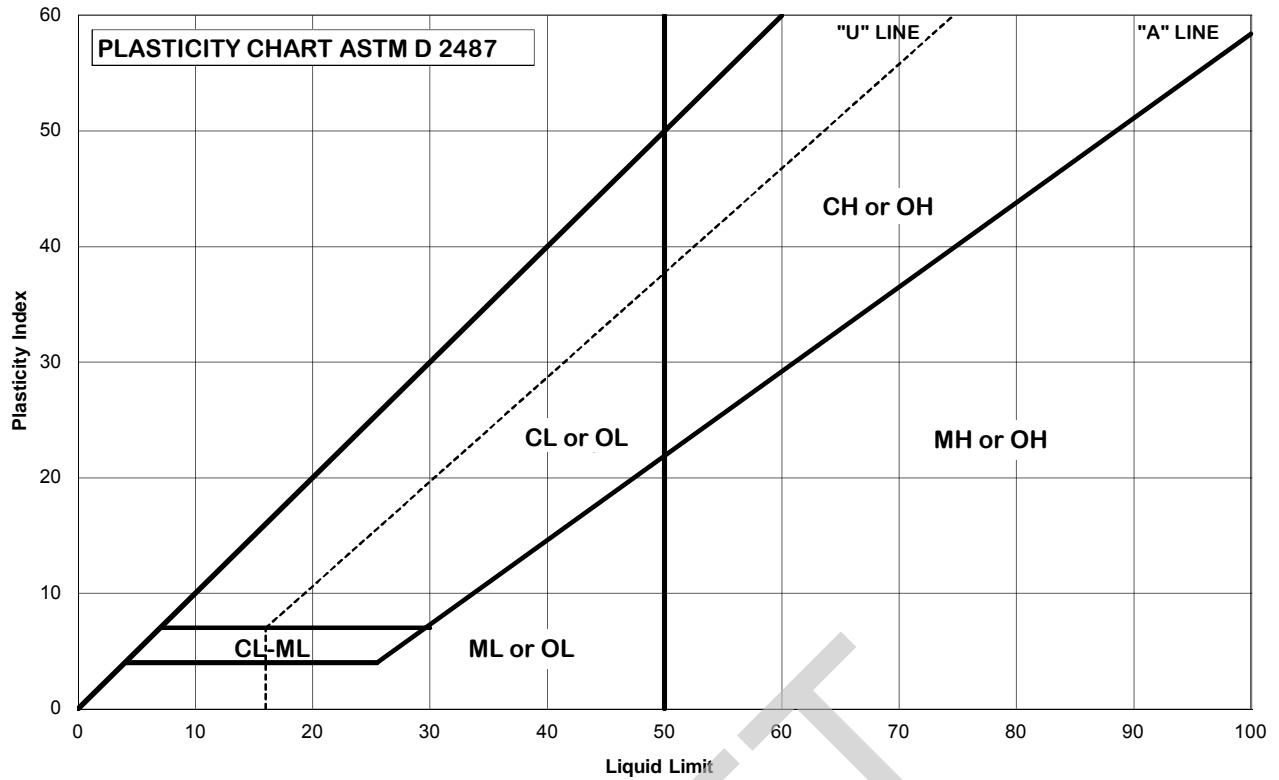


11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460

ATTERBERG LIMITS - ASTM D4318

LA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-12	Natural WC:	#DIV/0!
Depth, ft.	3 - 5	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Tan and gray silty clay (CL)		

Classification (fraction passing No. 40 sieve)
CL

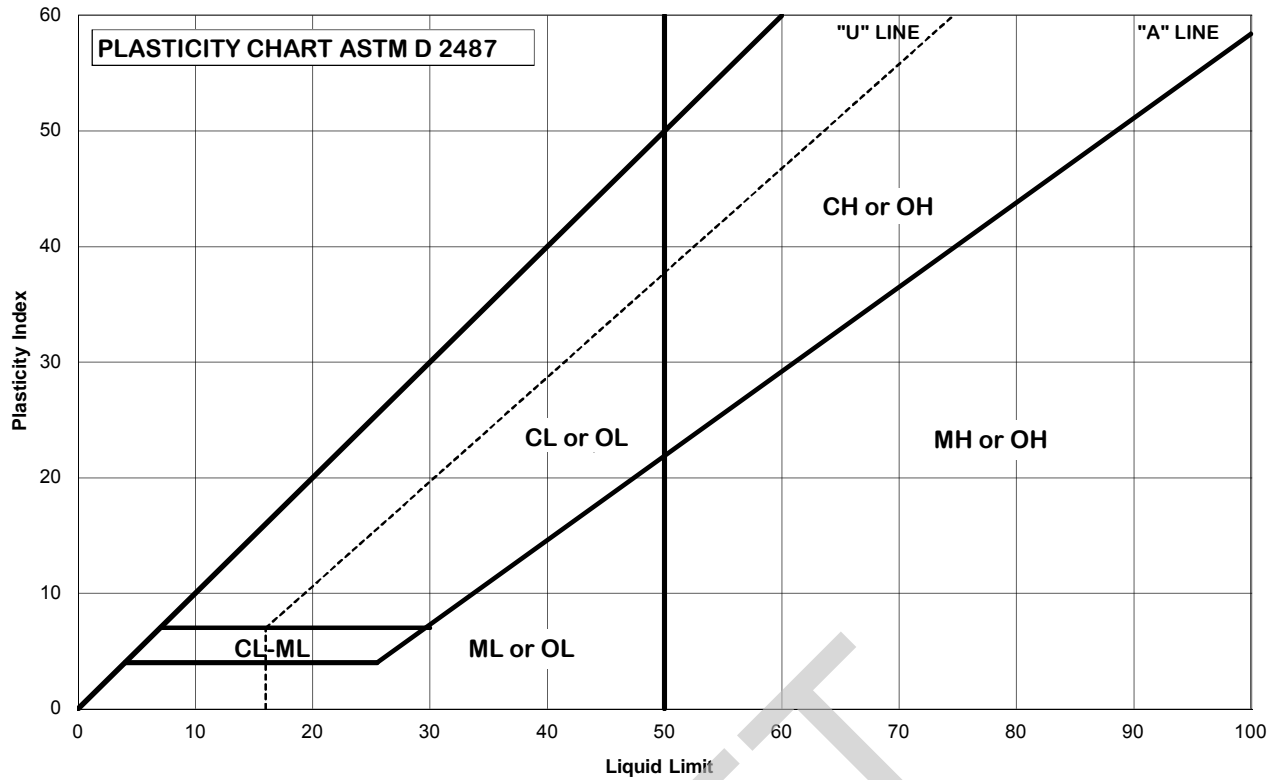
Liquid Limit =	44
Plastic Limit =	21
Plasticity Index =	23

Date:	9/23/2013
Tested By:	bh
Checked By:	slc

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA - Mid-Barataria Diversion (BA-153), Plaquemines Par
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-12	Natural WC:	#DIV/0!
Depth, ft.	13 - 15	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium brown and gray silty clay (CL)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	44
Plastic Limit =	21
Plasticity Index =	23

Date:	9/23/2013
Tested By:	sb
Checked By:	slc

NOTES:

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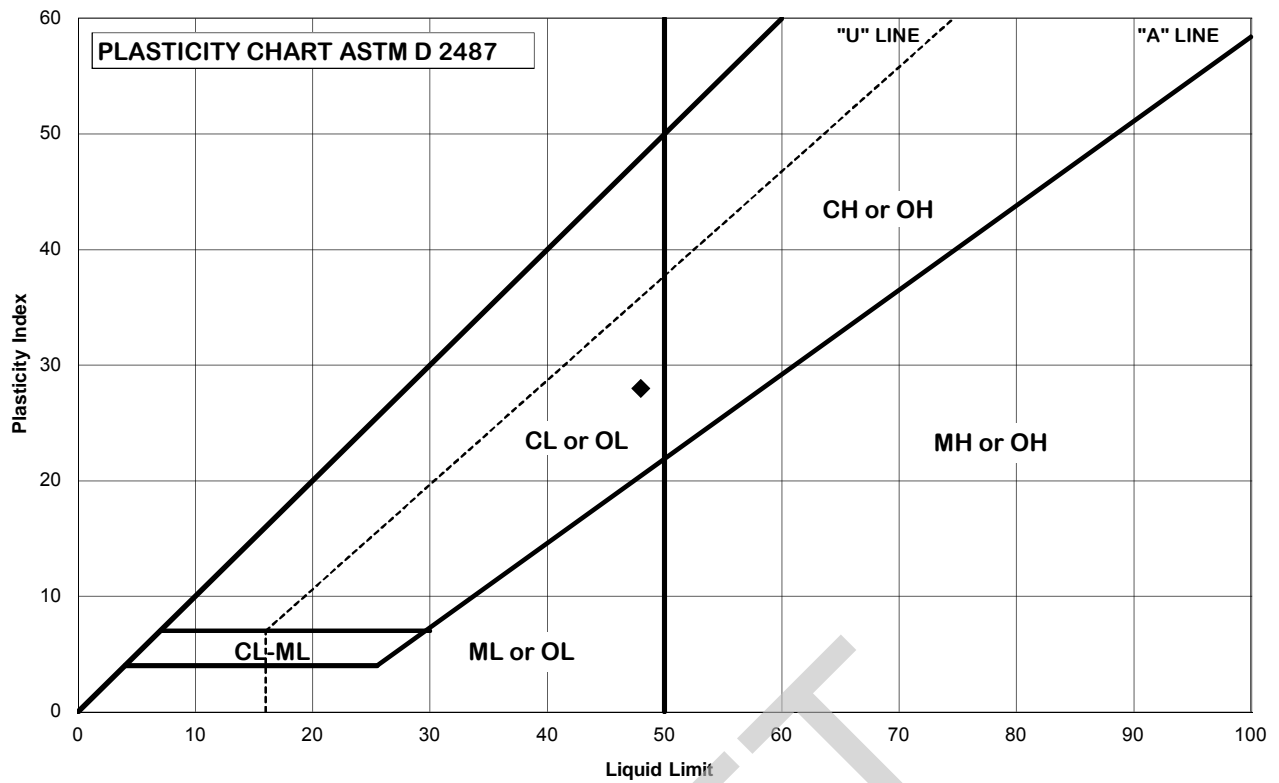


11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460

ATTERBERG LIMITS - ASTM D4318

LA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-12	Natural WC:	#DIV/0!
Depth, ft.	18 - 20	Preparation:	Wet (as-received)
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium brown and gray silty clay (CL)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	48
Plastic Limit =	20
Plasticity Index =	28

Date:	9/23/2013
Tested By:	sb
Checked By:	slc

NOTES:

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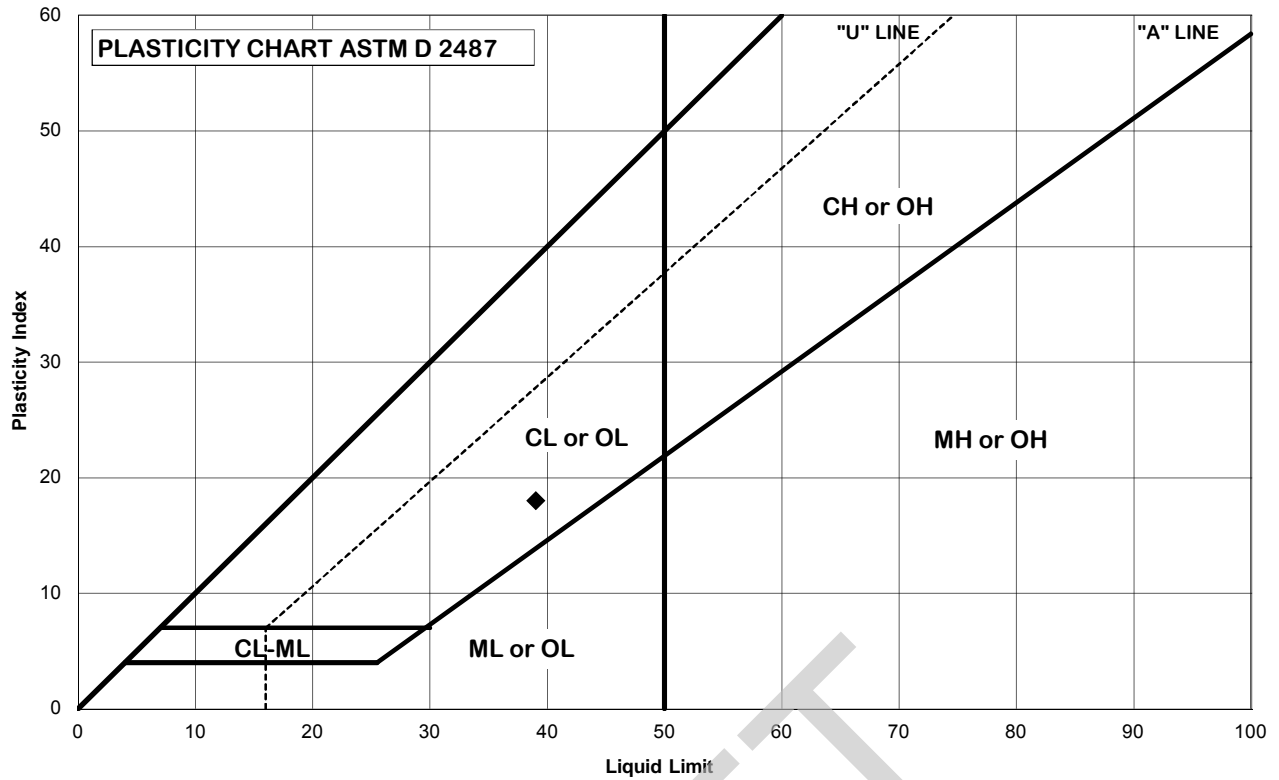


11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460

ATTERBERG LIMITS - ASTM D4318

LA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-12	Natural WC:	#DIV/0!
Depth, ft.	23 - 25	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium brown and gray silty clay (CL)		

Classification (fraction passing No. 40 sieve)
CL

Liquid Limit =	39
Plastic Limit =	21
Plasticity Index =	18

Date:	9/23/2013
Tested By:	lc
Checked By:	slc

NOTES:

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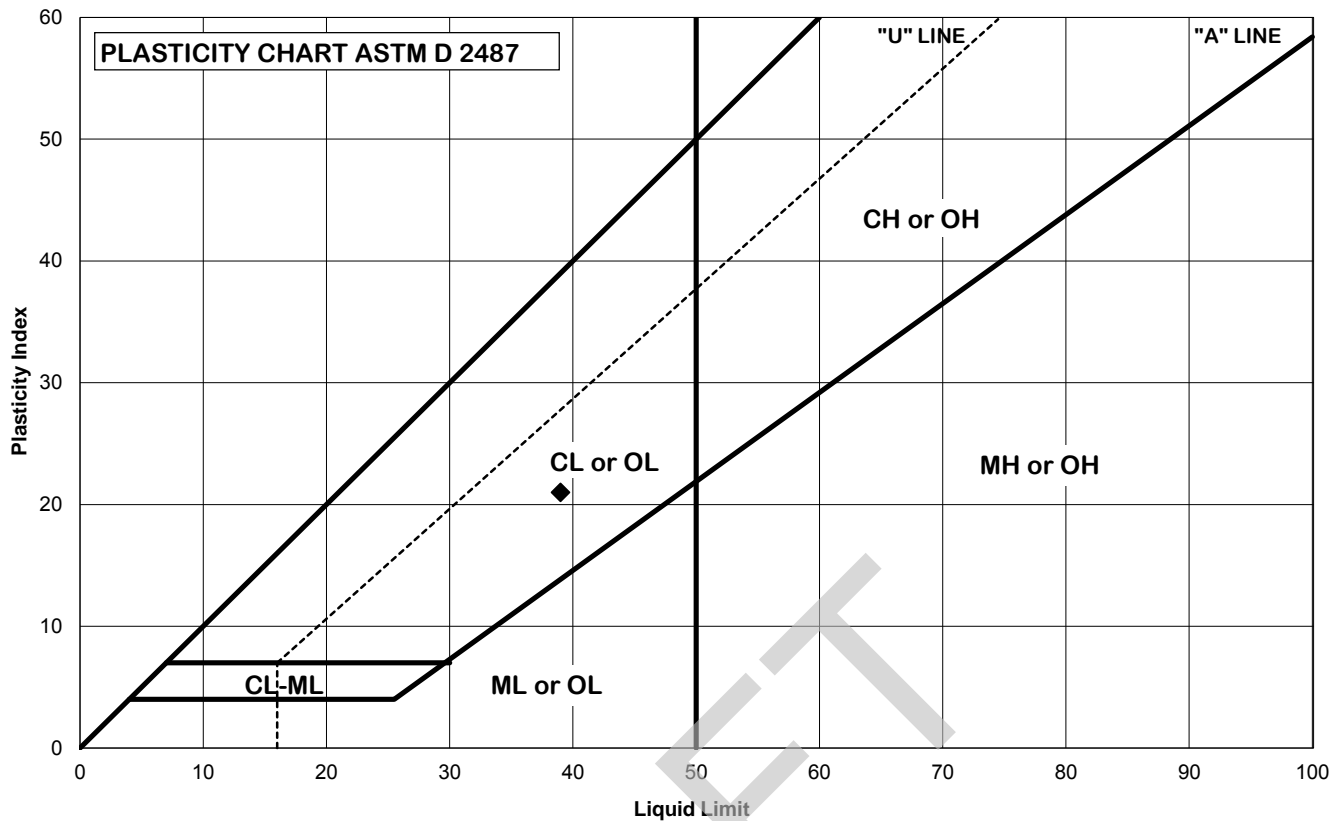


11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460

ATTERBERG LIMITS - ASTM D4318

LA - Mid-Barataria Diversion (BA-153), Plaquemines Parish

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-12 S3A	Natural WC:	#DIV/0!
Depth, ft.	8 - 10	Preparation:	Wet (as-received)
Cup No.	1355	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium brown clay with organic matter (CL4)		

Classification (fraction passing No. 40 sieve)
CL

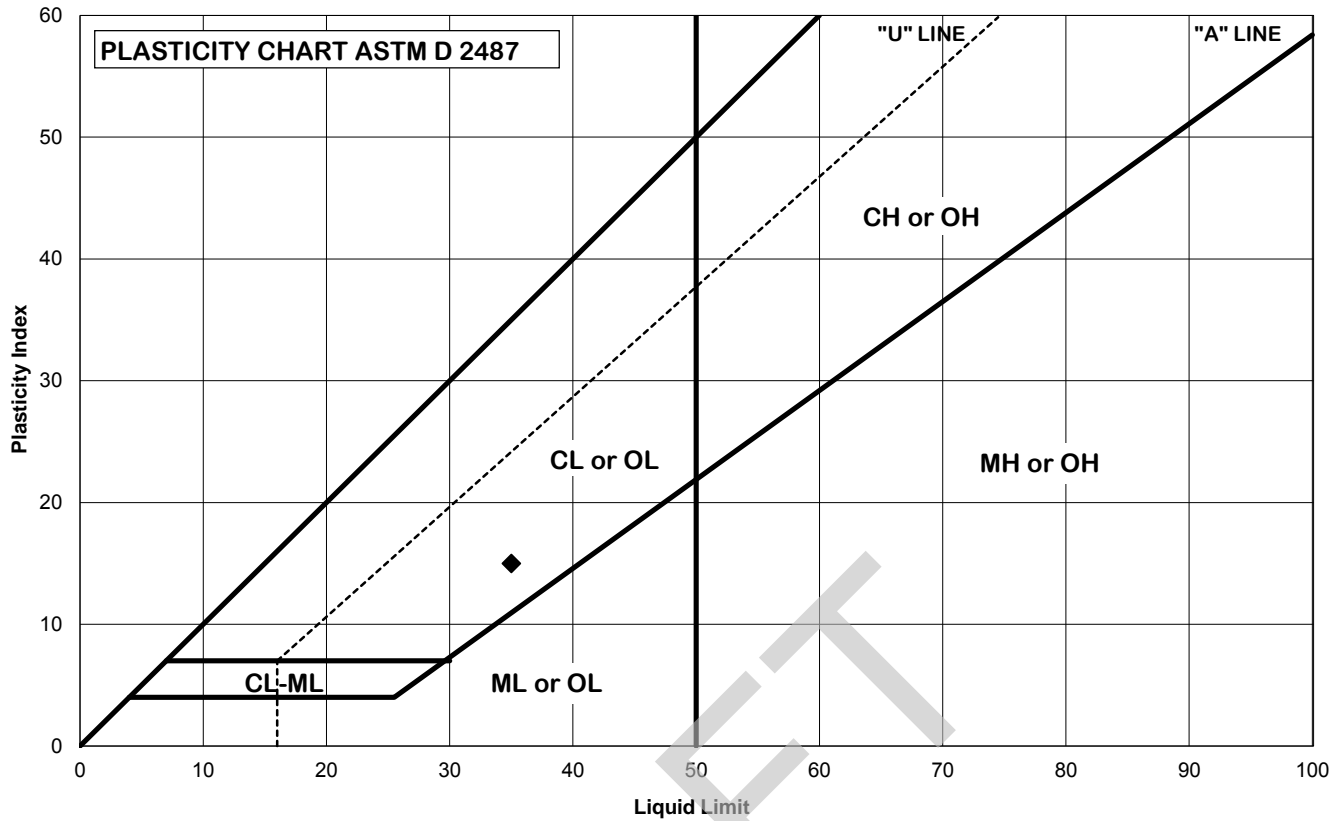
Liquid Limit =	39
Plastic Limit =	18
Plasticity Index =	21

Date:	9/23/2013
Tested By:	bh
Checked By:	slc

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-12 S3B	Natural WC:	#DIV/0!
Depth, ft.	8 - 10	Preparation:	Wet (as-received)
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Gray clay (CL4)		

Classification (fraction passing No. 40 sieve)
CL

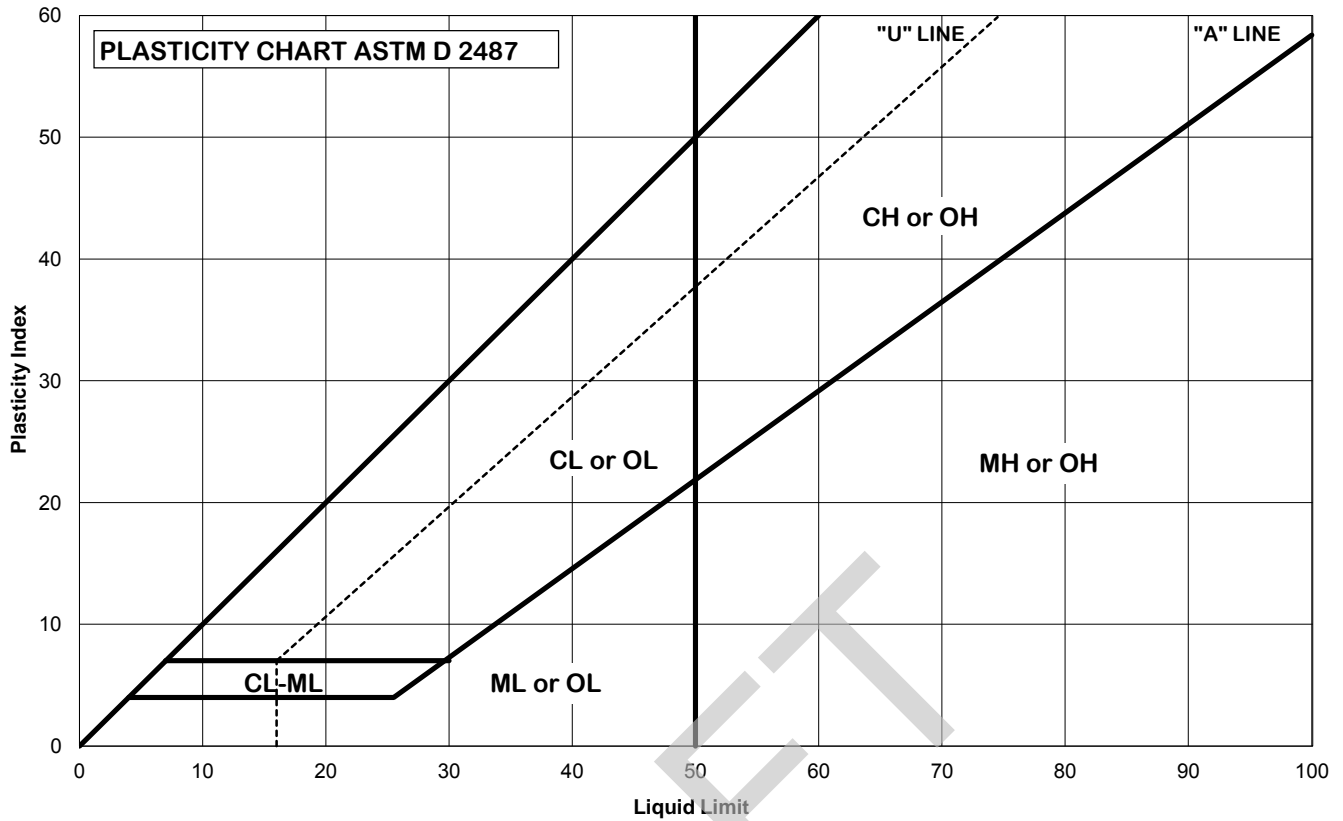
Liquid Limit =	35
Plastic Limit =	20
Plasticity Index =	15

Date:	9/23/2013
Tested By:	bh
Checked By:	slc

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project			
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.			
18274-001-00			
Boring No.		Natural WC:	#DIV/0!
PZ-14		Preparation:	Wet (as-received)
Depth, ft.		No. Points:	
0 - 2		No. Points:	
Cup No.		No. Points:	
1028			
Percent Retained on No. 40		0	Estimated or Tested
		0	0.0
Original sample description:		Soft brown clay (CH4)	


Classification (fraction passing No. 40 sieve)
CH

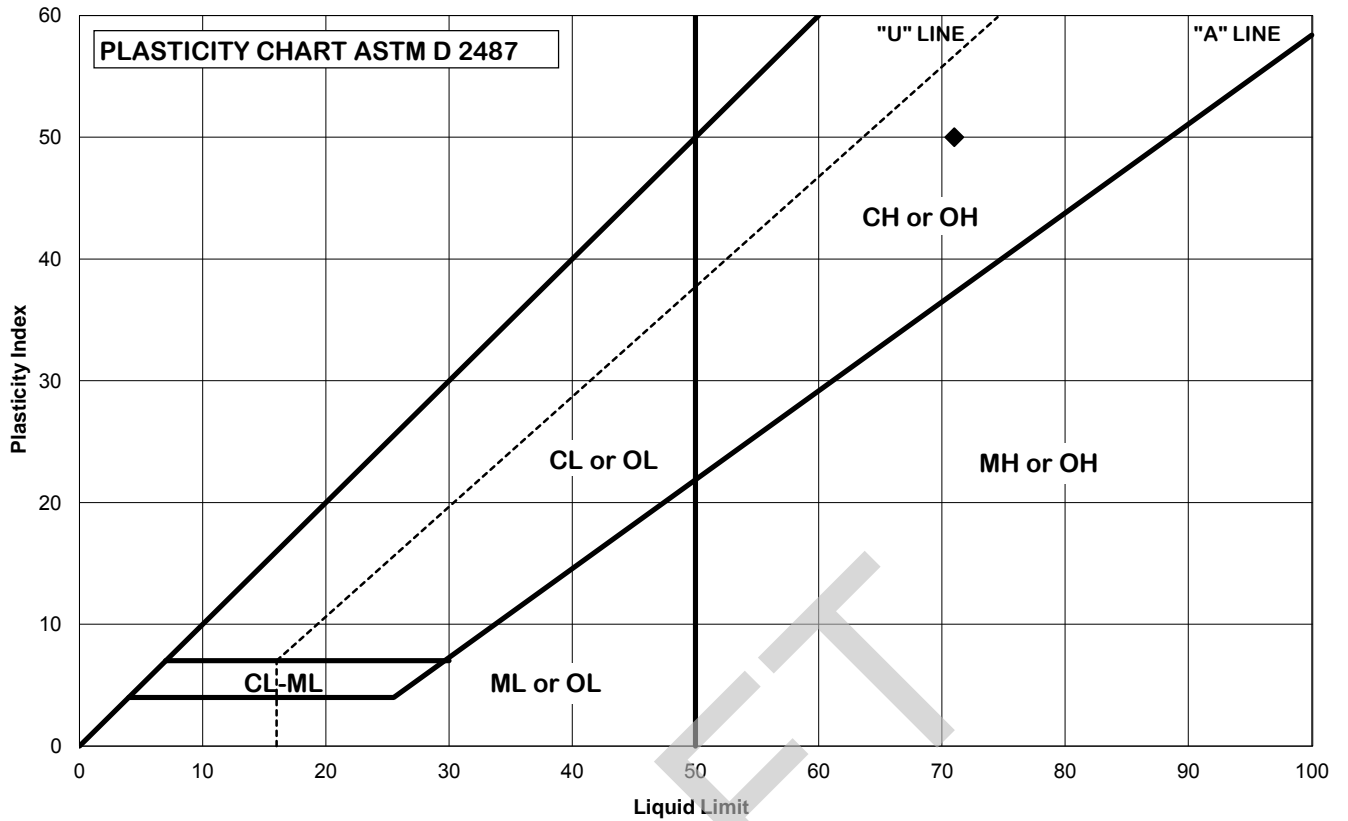
Liquid Limit =	99
Plastic Limit =	37
Plasticity Index =	62

Date:	6/25/2013
Tested By:	SC
Checked By:	SC

NOTES:

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 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-14	Natural WC:	#DIV/0!
Depth, ft.	3 - 5	Preparation:	Air Dried
Cup No.	1026	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay (CH3)		

Classification (fraction passing No. 40 sieve)
CH

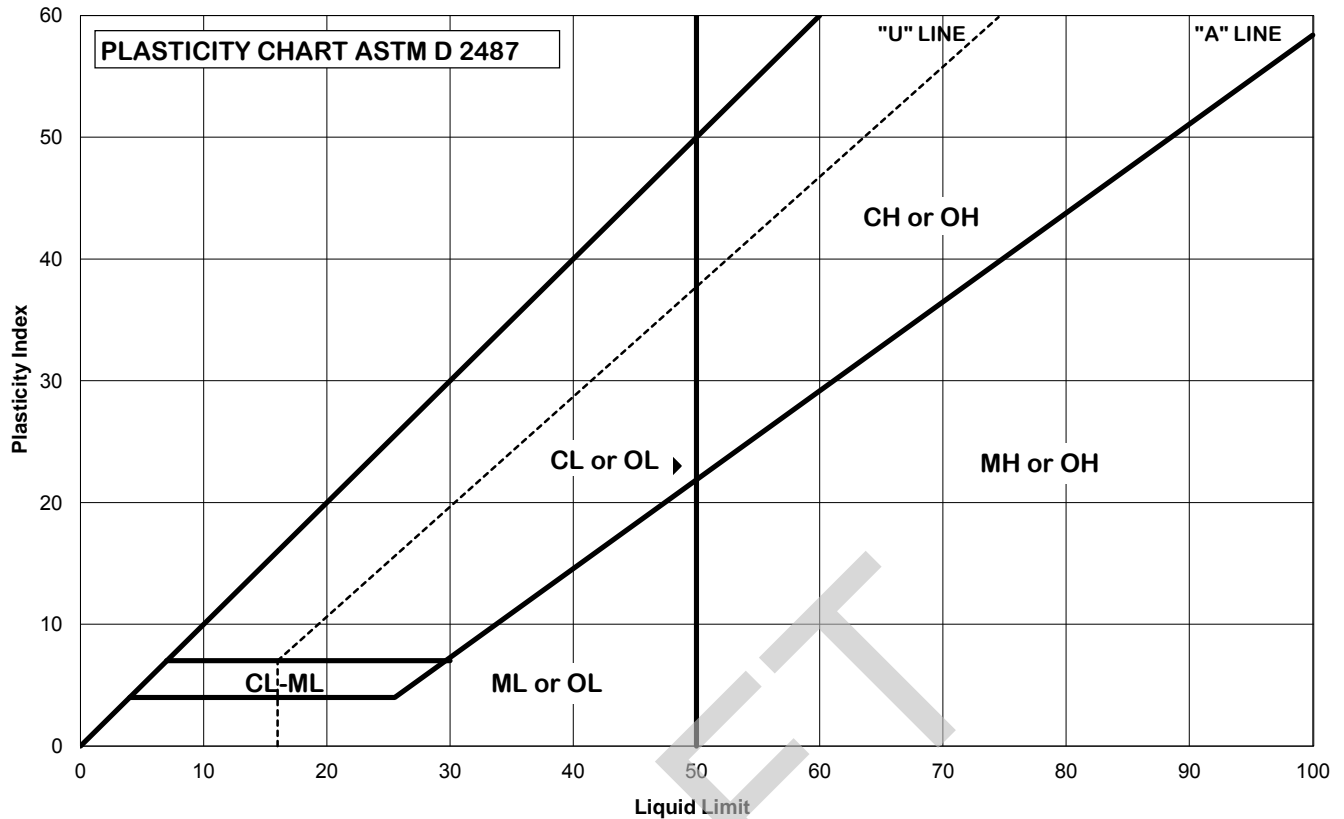
Liquid Limit =	71
Plastic Limit =	21
Plasticity Index =	50

Date:	6/27/2013
Tested By:	SC
Checked By:	OS

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-14	Natural WC:	#DIV/0!
Depth, ft.	8 - 10	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay (CL6)		


Classification (fraction passing No. 40 sieve)
CL

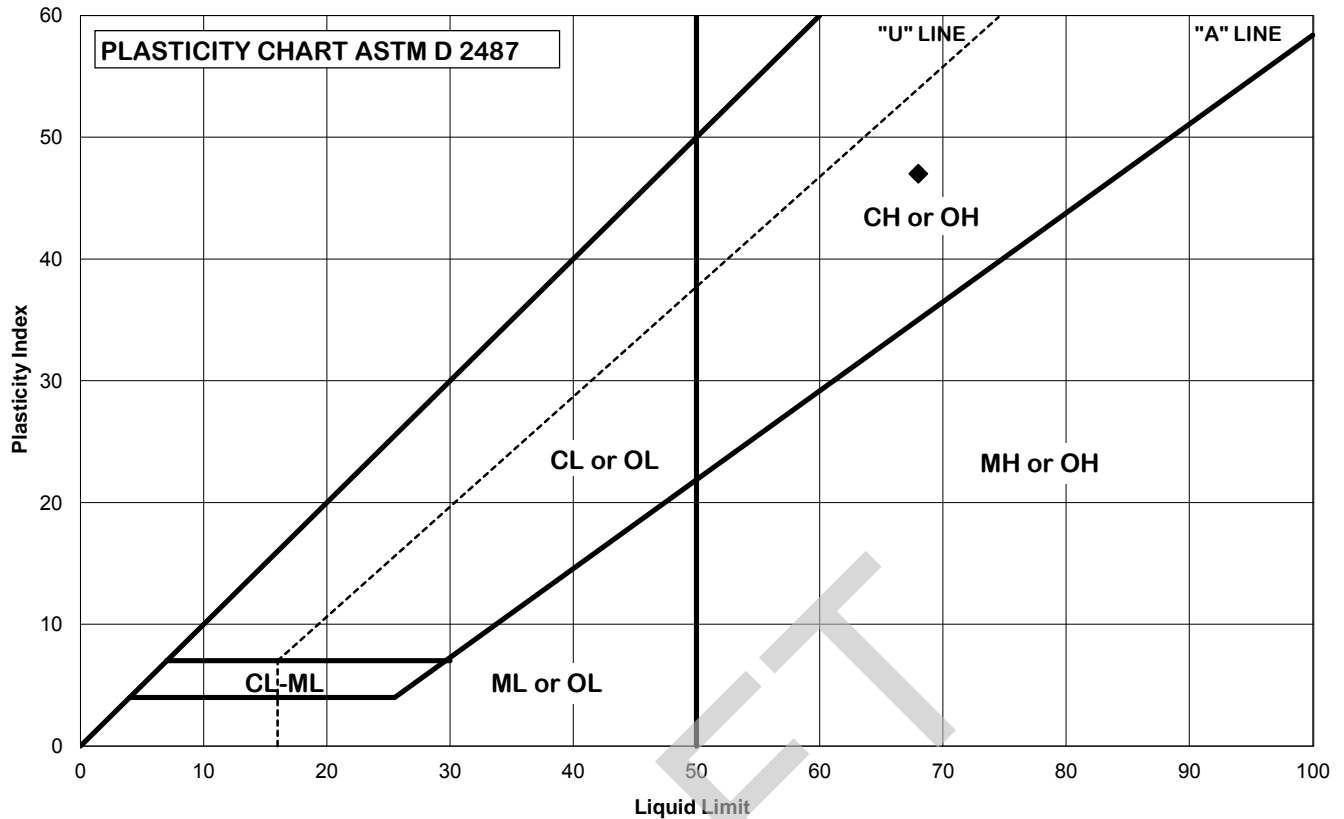
Liquid Limit =	48
Plastic Limit =	25
Plasticity Index =	23

Date:	6/25/2013
Tested By:	BH
Checked By:	SC

NOTES:

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 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-14	Natural WC:	#DIV/0!
Depth, ft.	13 - 15	Preparation:	Air Dried
Cup No.	1029	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay (CH3)		

Classification (fraction passing No. 40 sieve)
CH

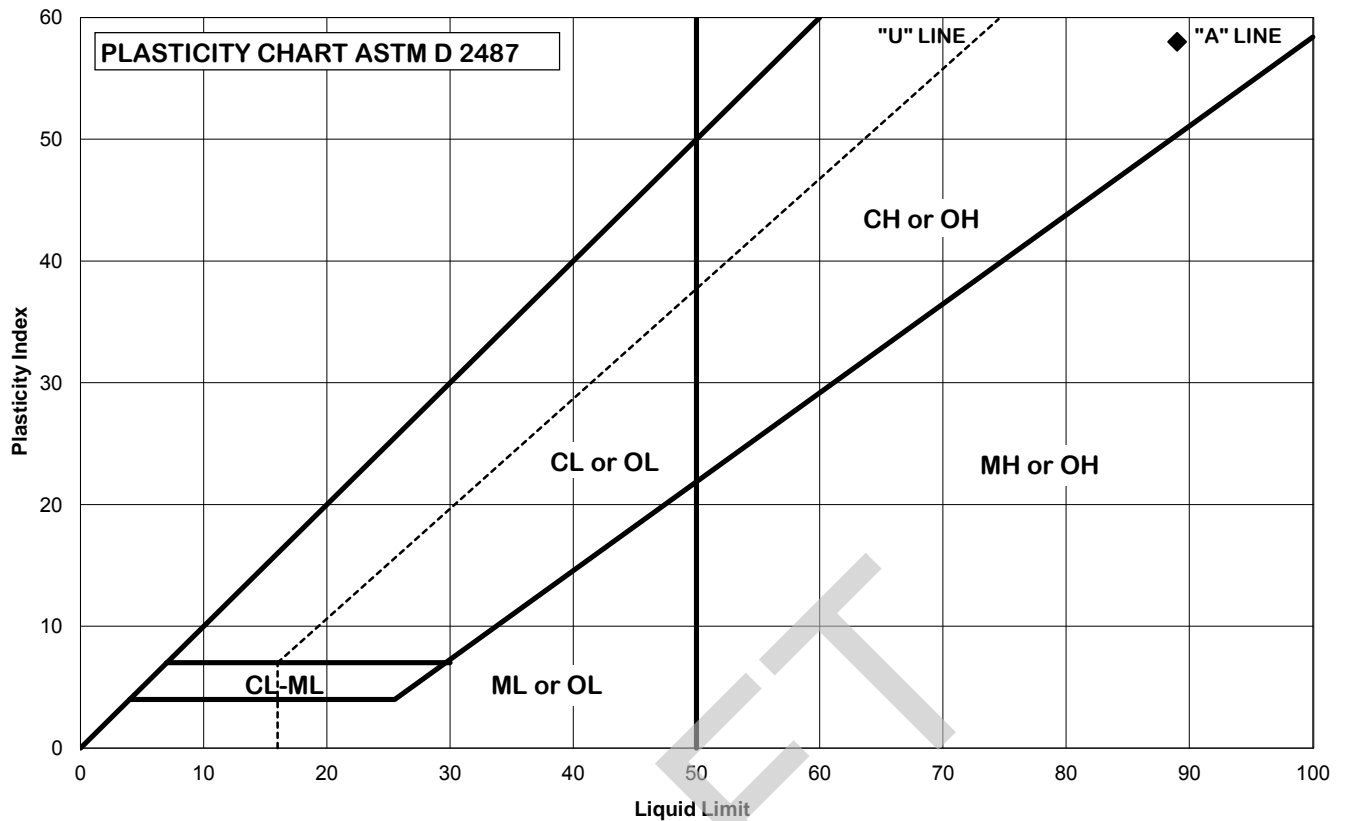
Liquid Limit =	68
Plastic Limit =	21
Plasticity Index =	47

Date:	6/27/2013
Tested By:	SC
Checked By:	OS

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-14	Natural WC:	#DIV/0!
Depth, ft.	23 - 25	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay (CH4)		


Classification (fraction passing No. 40 sieve)
CH

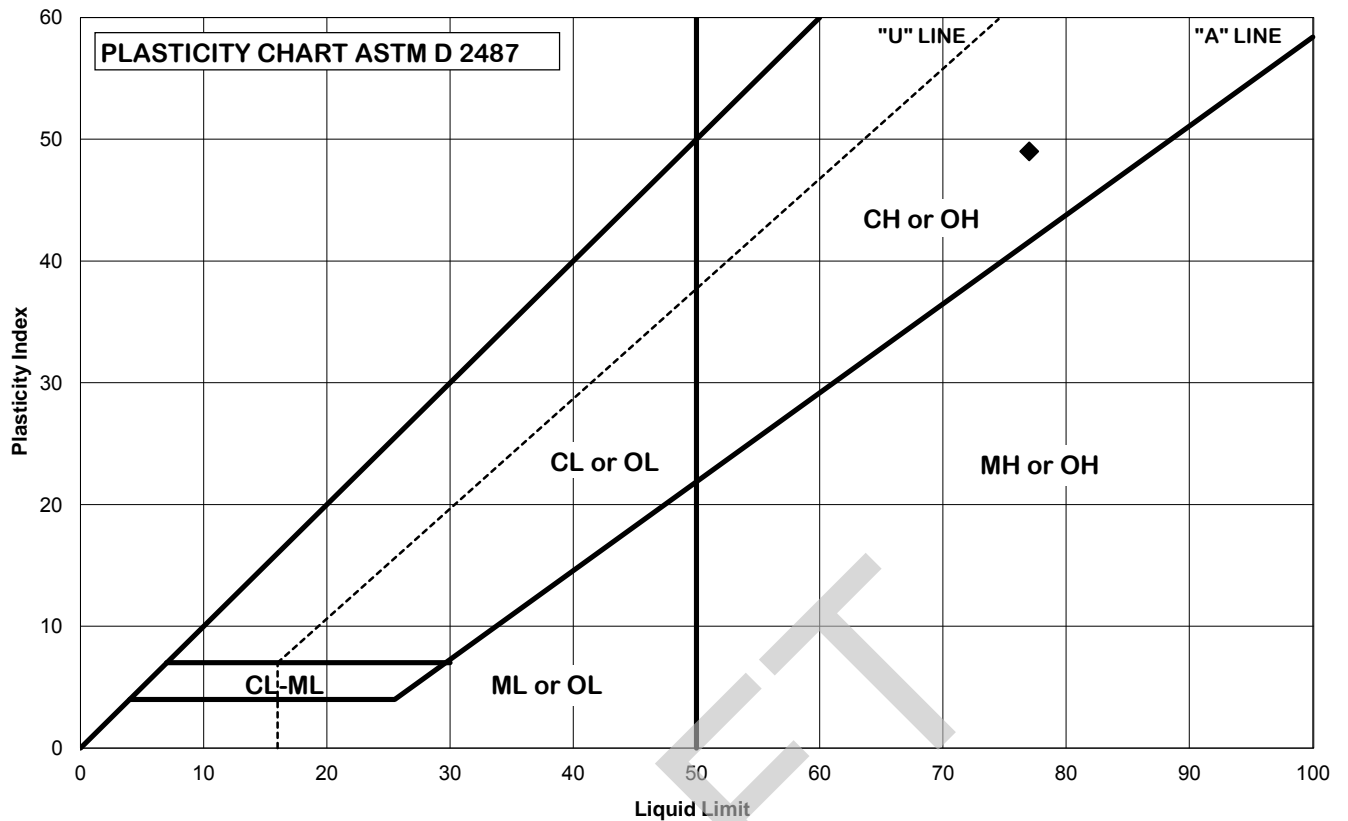
Liquid Limit =	89
Plastic Limit =	31
Plasticity Index =	58

Date:	6/21/2013
Tested By:	bh
Checked By:	sc

NOTES:

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 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-14	Natural WC:	#DIV/0!
Depth, ft.	30 - 31.5	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay with silt lenses (CH4)		


Classification (fraction passing No. 40 sieve)
CH

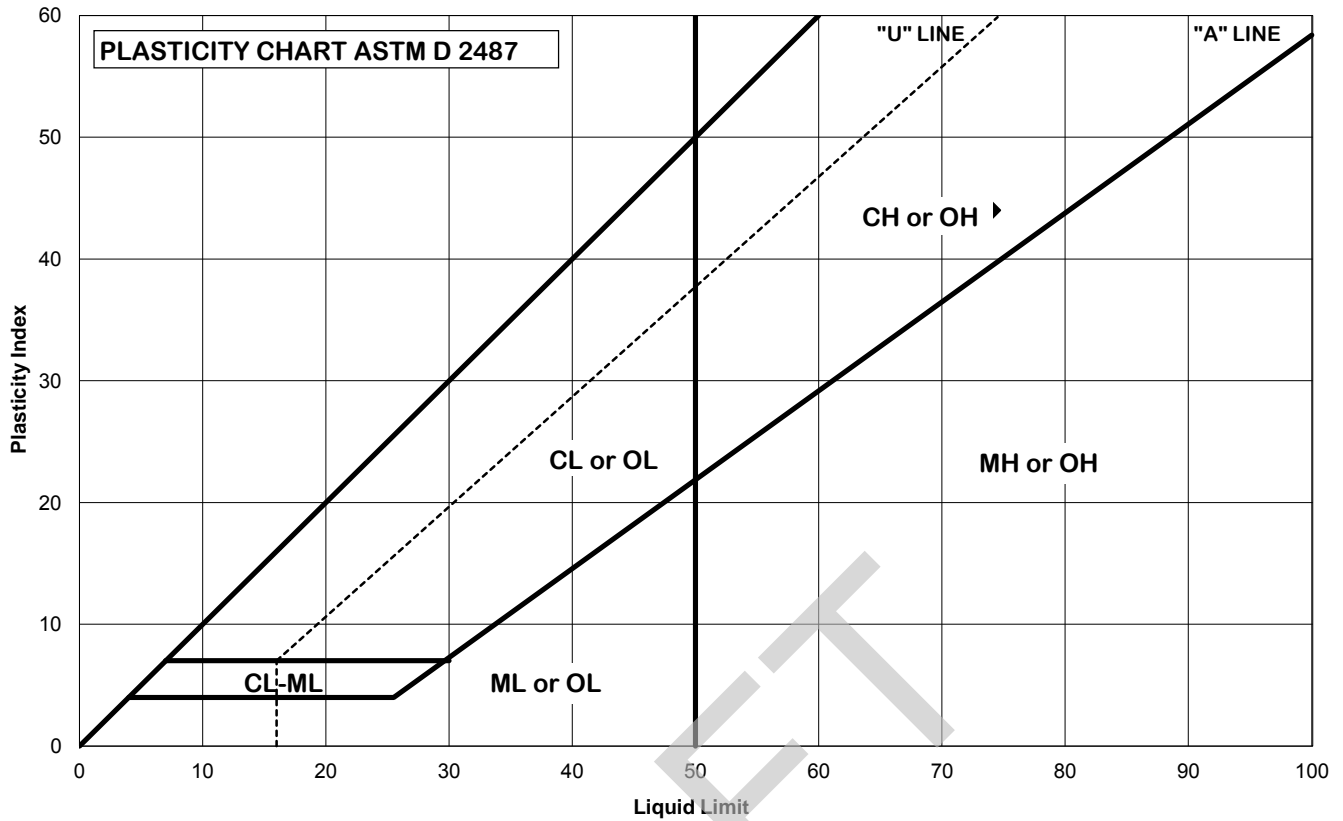
Liquid Limit =	77
Plastic Limit =	28
Plasticity Index =	49

Date:	6/21/2013
Tested By:	bh
Checked By:	sc

NOTES:

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 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-14	Natural WC:	#DIV/0!
Depth, ft.	33 - 35	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft gray clay (CH3)		


Classification (fraction passing No. 40 sieve)
CH

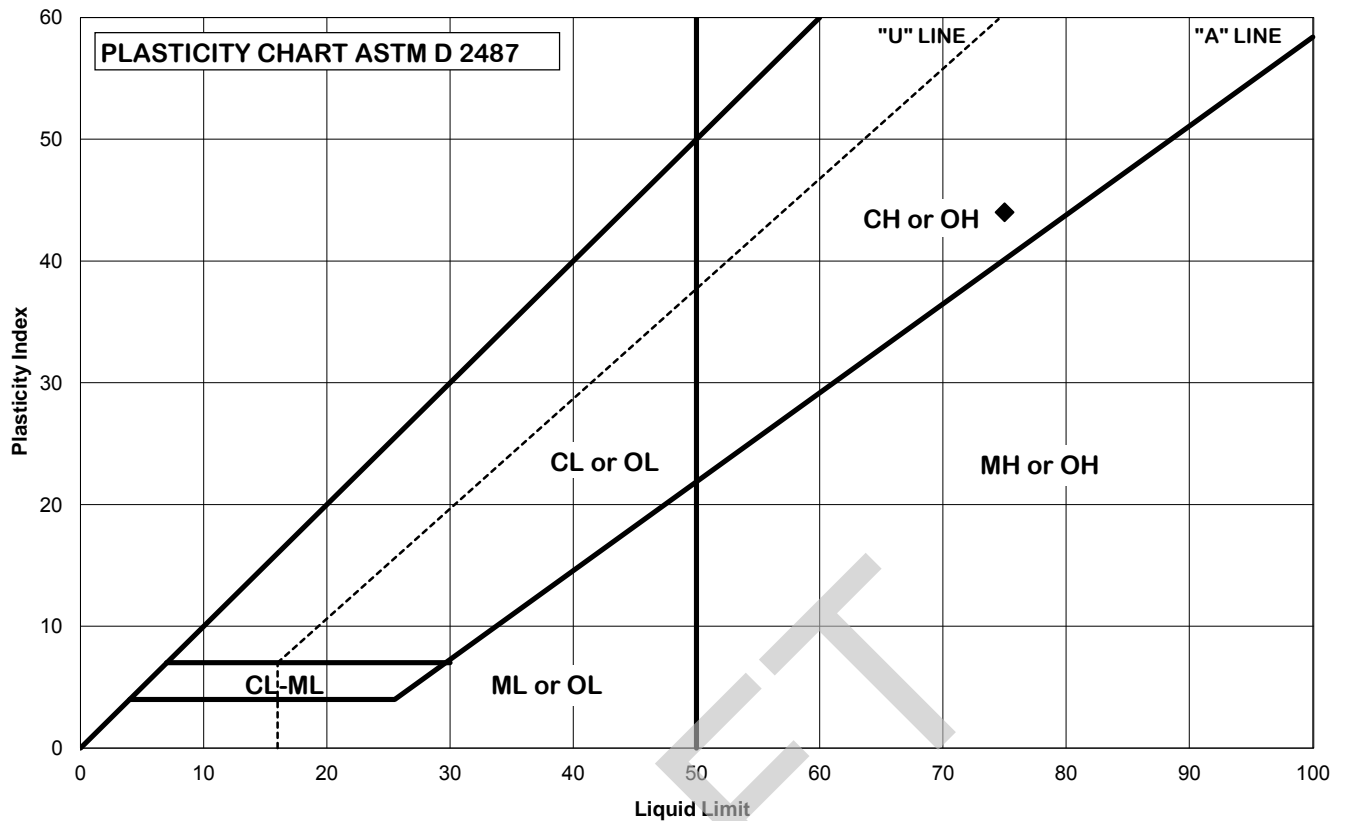
Liquid Limit =	74
Plastic Limit =	30
Plasticity Index =	44

Date:	6/21/2013
Tested By:	bh
Checked By:	sc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-14	Natural WC:	#DIV/0!
Depth, ft.	48 - 50	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay (CH3)		

Classification (fraction passing No. 40 sieve)
CH

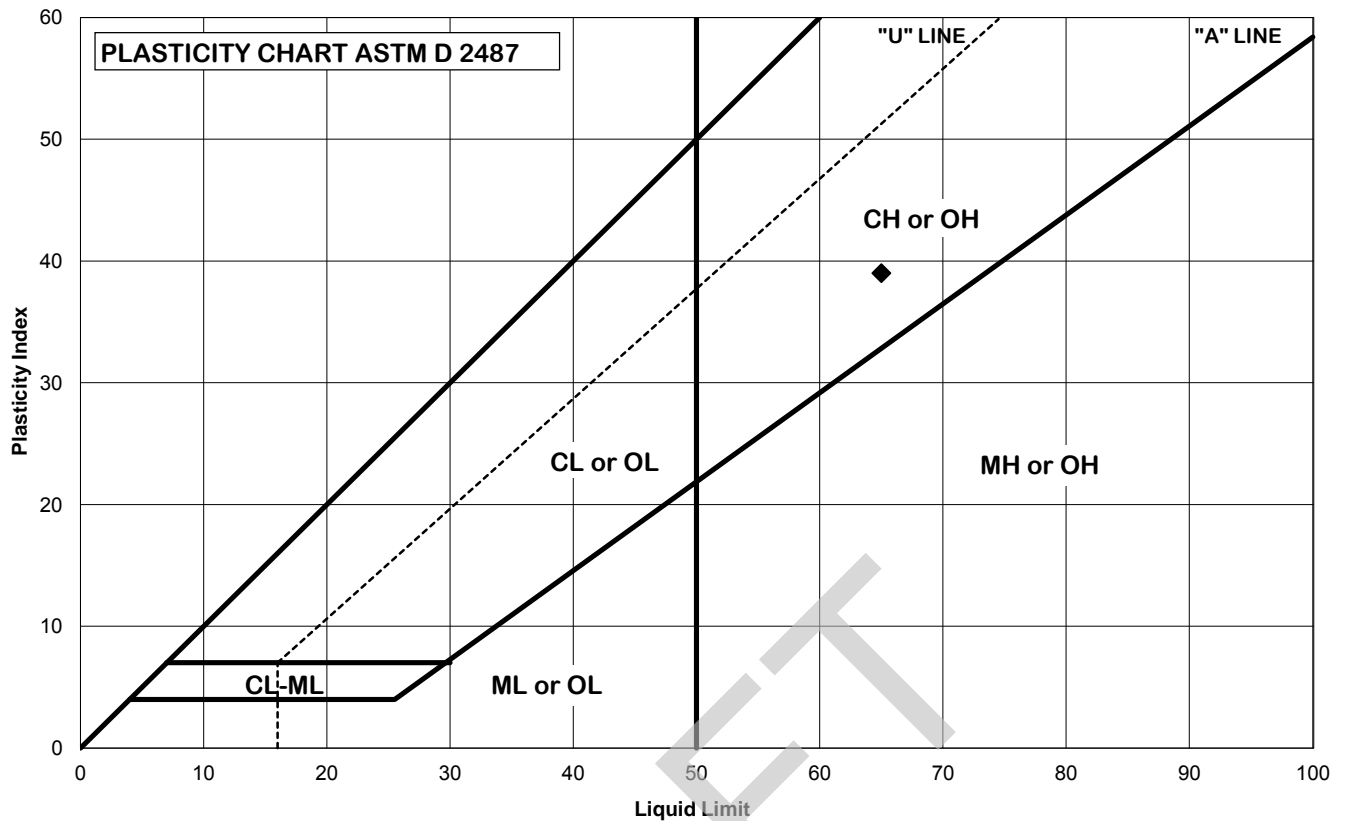
Liquid Limit =	75
Plastic Limit =	31
Plasticity Index =	44

Date:	6/21/2013
Tested By:	bh
Checked By:	sc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-14	Natural WC:	#DIV/0!
Depth, ft.	58 - 60	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft gray clay (CH3)		

Classification (fraction passing No. 40 sieve)
CH

Liquid Limit =	65
Plastic Limit =	26
Plasticity Index =	39

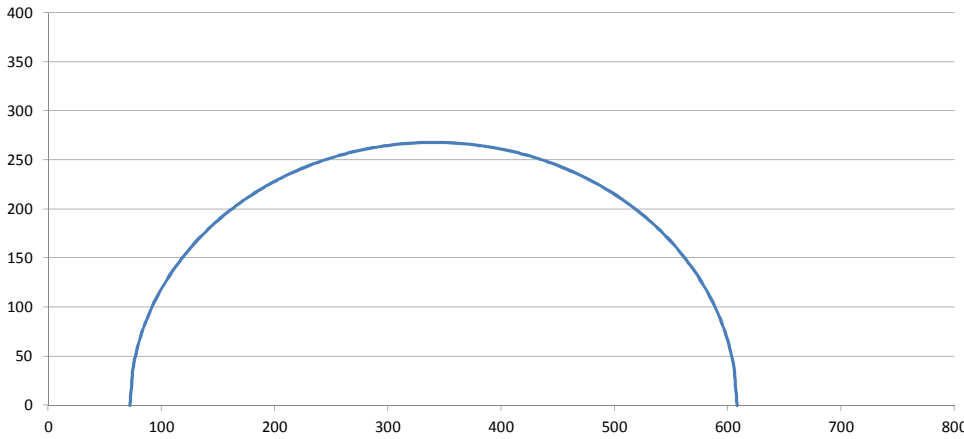
Date:	6/21/2013
Tested By:	bh
Checked By:	sc

NOTES:

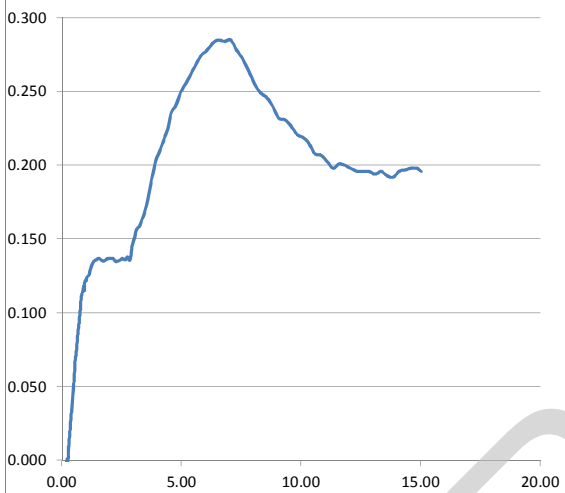
NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	268
Sample 1 Failure	Multiple Shear
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A

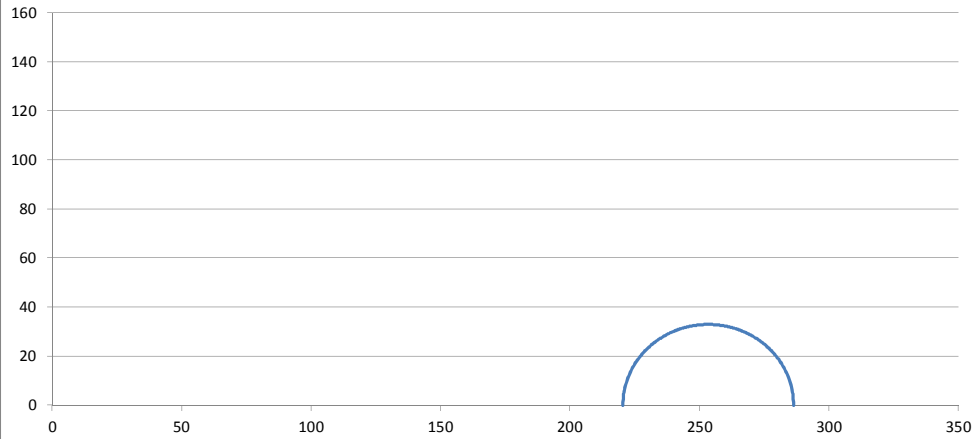


	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	85.10		
	DRY DENSITY, PCF	50.46		
	WET DENSITY, PCF	93.40		
	SATURATION %	98.64		
	VOID RATIO	2.30		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

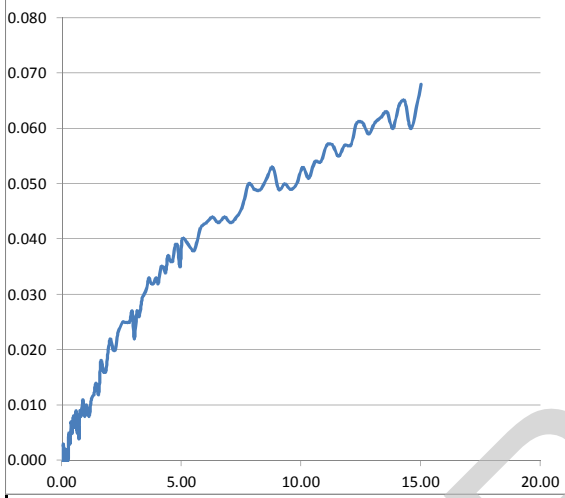
TEST TYPE:	UU			INITIAL HEIGHT, IN	5.51		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.79		
				CELL PRESSURE, PSI	0.40		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	536.00		
REMARKS				STRAIN, %	6.56		
				ULTIMATE STRESS, %	0.02		
				σ_1 FAILURE, PSF	608.00		
				σ_3 FAILURE, PSF	72.00		

SAMPLE DESCRIPTION	Soft brown clay (CH4)						
BORING NO.	PZ-14			SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	6/19/2013	
PROJECT NUMBER	18274-001-00			DEPTH FT.	0 - 2		
TESTED BY	TC//			CHECKED BY	SLC//		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	33
Sample 1 Failure	Bulge
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



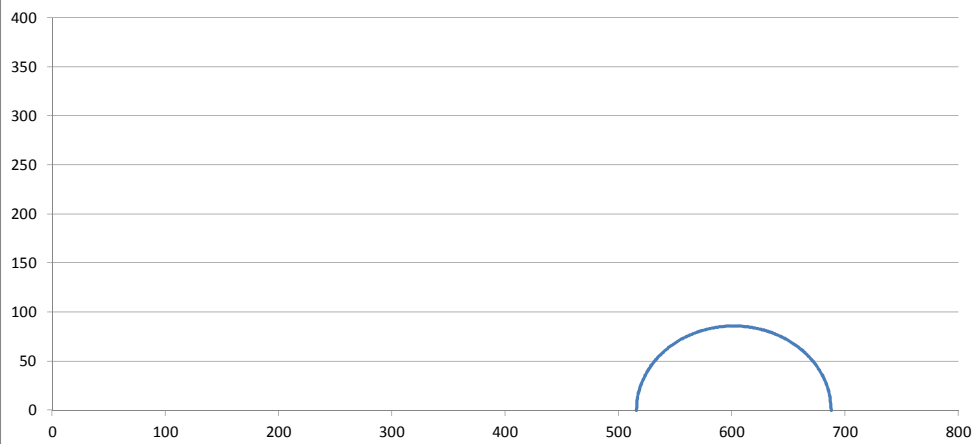
	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	47.00		
	DRY DENSITY, PCF	72.92		
	WET DENSITY, PCF	107.19		
	SATURATION %	97.60		
	VOID RATIO	1.29		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.24		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.99		
				CELL PRESSURE, PSI	1.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	66.00		
REMARKS	0			STRAIN, %	8.81		
				ULTIMATE STRESS, %	0.02		
				σ_1 FAILURE, PSF	286.32		
				σ_3 FAILURE, PSF	220.32		

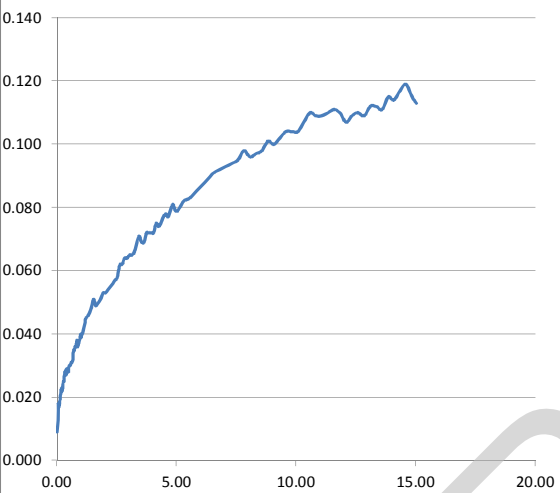
SAMPLE DESCRIPTION: Very soft gray clay (CH3)

BORING NO.	PZ-14	SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/19/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	3 - 5		
TESTED BY	TC//	CHECKED BY	SLC//		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	86
Sample 1 Failure	Bulge
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



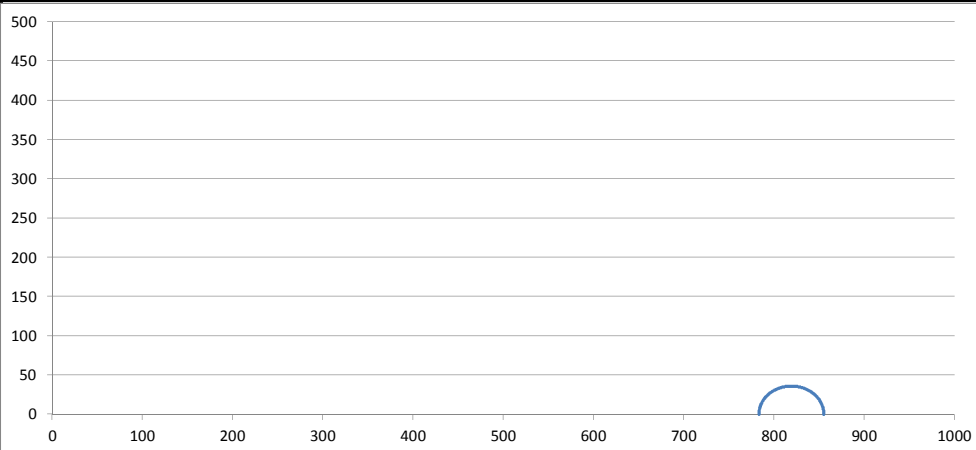
	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	42.80		
	DRY DENSITY, PCF	82.44		
	WET DENSITY, PCF	117.72		
	SATURATION %	111.83		
	VOID RATIO	1.02		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.16		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.95		
				CELL PRESSURE, PSI	3.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	172.00		
REMARKS				STRAIN, %	10.58		
				ULTIMATE STRESS, %	0.03		
				σ_1 FAILURE, PSF	687.52		
				σ_3 FAILURE, PSF	515.52		

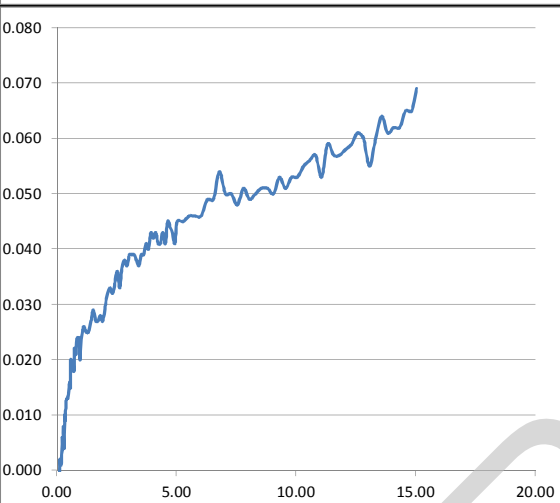
SAMPLE DESCRIPTION	Very soft gray clay (CL6)						
BORING NO.	PZ-14		SAMPLE NO.	0	TEST TYPE	UU	
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	6/19/2013	
PROJECT NUMBER	18274-001-00		DEPTH FT.	8 - 10			
TESTED BY	TC//		CHECKED BY	SLC//			

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	36
Sample 1 Failure	Bulge
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



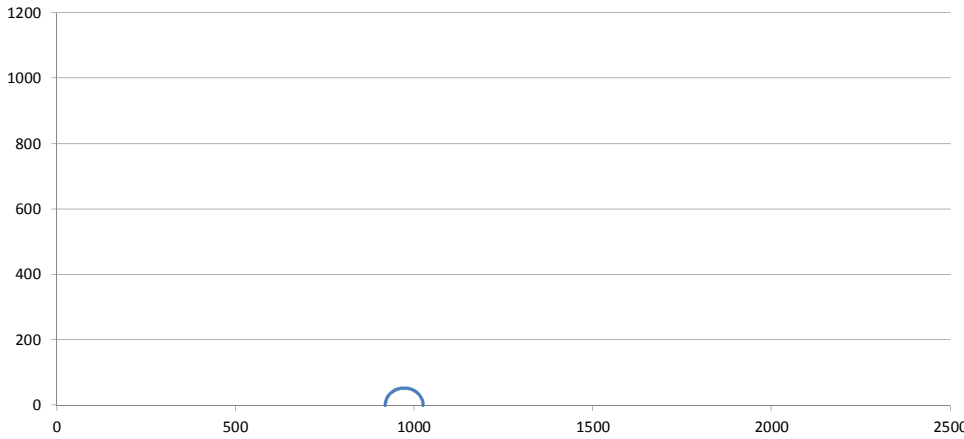
Specimen No.	1	2	3
INITIAL			
WATER CONTENT %	51.96		
DRY DENSITY, PCF	63.57		
WET DENSITY, PCF	96.61		
SATURATION %	85.54		
VOID RATIO	1.62		
AT TEST			
WATER CONTENT %			
DRY DENSITY, PCF			
WET DENSITY, PCF			
SATURATION %			
VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.04		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.77		
				CELL PRESSURE, PSI	5.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	72.00		
REMARKS				STRAIN, %	6.79		
				ULTIMATE STRESS, %	0.02		
				σ_1 FAILURE, PSF	855.36		
				σ_3 FAILURE, PSF	783.36		

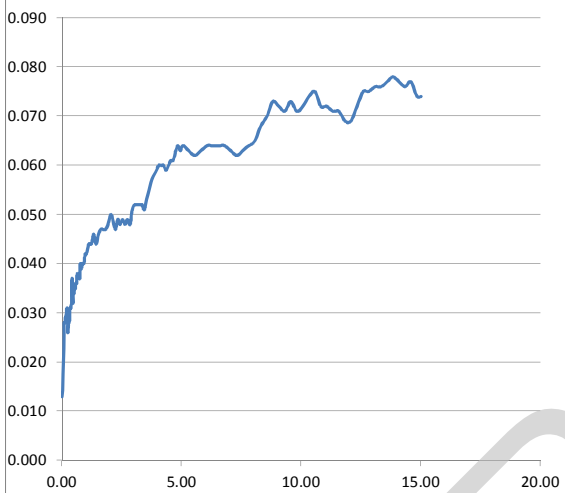
SAMPLE DESCRIPTION: Very soft gray clay (CH3)

BORING NO.	PZ-14	SAMPLE NO.		TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/19/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	13 - 15		
TESTED BY	TC//	CHECKED BY	SLC//		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	53
Sample 1 Failure	Bulge
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



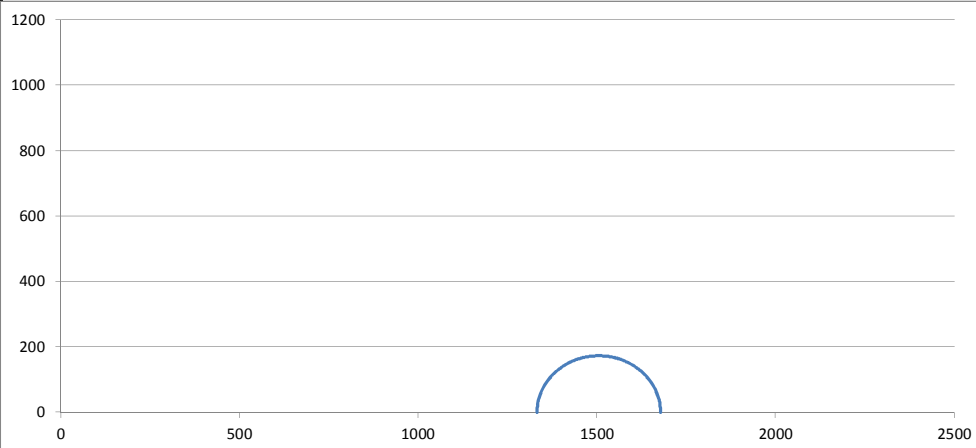
Specimen No.	1	2	3
INITIAL WATER CONTENT %	71.13		
INITIAL DRY DENSITY, PCF	59.19		
INITIAL WET DENSITY, PCF	101.30		
INITIAL SATURATION %	104.59		
INITIAL VOID RATIO	1.82		
AT TEST WATER CONTENT %			
AT TEST DRY DENSITY, PCF			
AT TEST WET DENSITY, PCF			
AT TEST SATURATION %			
AT TEST VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.05		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.92		
				CELL PRESSURE, PSI	6.40		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	106.00		
REMARKS	0			STRAIN, %	4.85		
				ULTIMATE STRESS, %	0.01		
				σ_1 FAILURE, PSF	1024.72		
				σ_3 FAILURE, PSF	918.72		

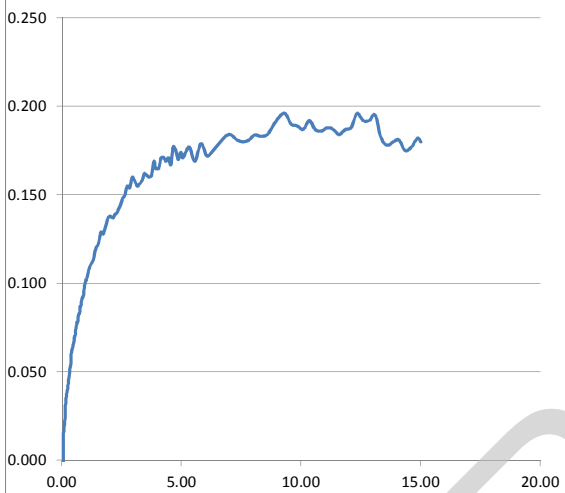
SAMPLE DESCRIPTION: Very soft gray and black clay with shells (CH4)

BORING NO.	PZ-14	SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/19/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	18 - 20		
TESTED BY	TC//	CHECKED BY	SLC//		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	173
Sample 1 Failure	Multiple Shear
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



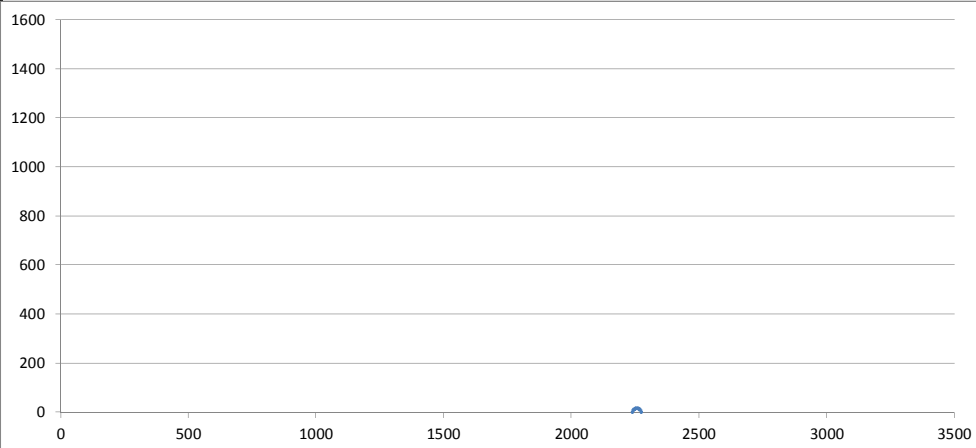
	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	72.89		
	DRY DENSITY, PCF	57.99		
	WET DENSITY, PCF	100.26		
	SATURATION %	103.83		
	VOID RATIO	1.87		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.11		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.79		
				CELL PRESSURE, PSI	9.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	346.00		
REMARKS				STRAIN, %	9.33		
				ULTIMATE STRESS, %	0.02		
				σ_1 FAILURE, PSF	1678.00		
				σ_3 FAILURE, PSF	1332.00		

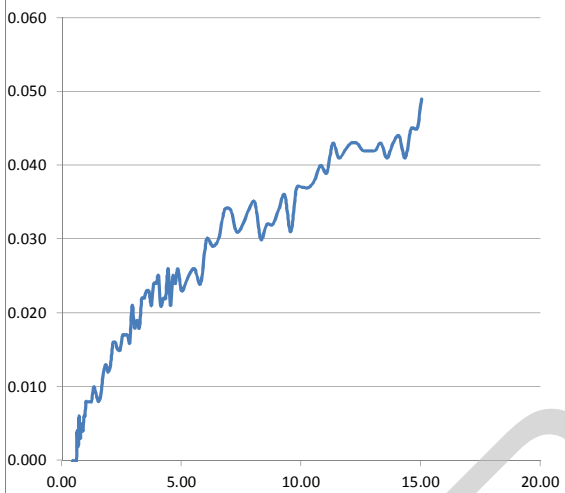
SAMPLE DESCRIPTION: Very soft gray clay (CH4)

BORING NO.	PZ-14	SAMPLE NO.		TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/19/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	23 - 25		
TESTED BY	TC//	CHECKED BY	SLC//		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	17
Sample 1 Failure	Bulge
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A

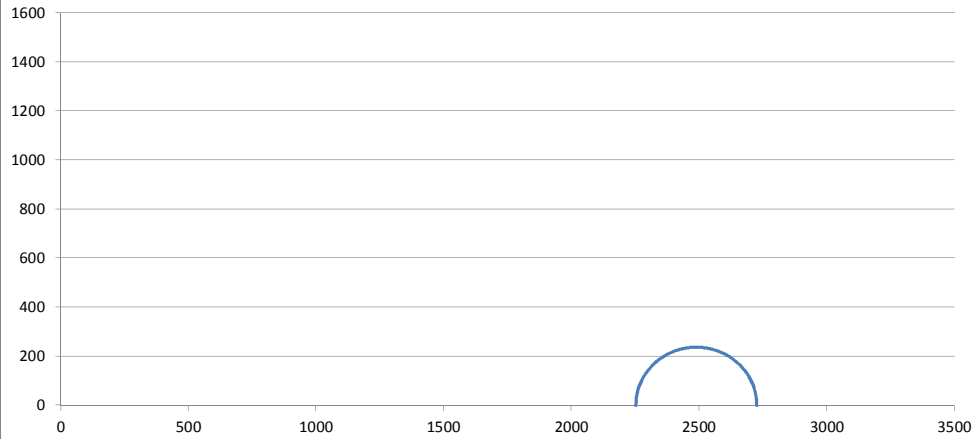


	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	84.82		
	DRY DENSITY, PCF	52.27		
	WET DENSITY, PCF	96.60		
	SATURATION %	103.45		
	VOID RATIO	2.19		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

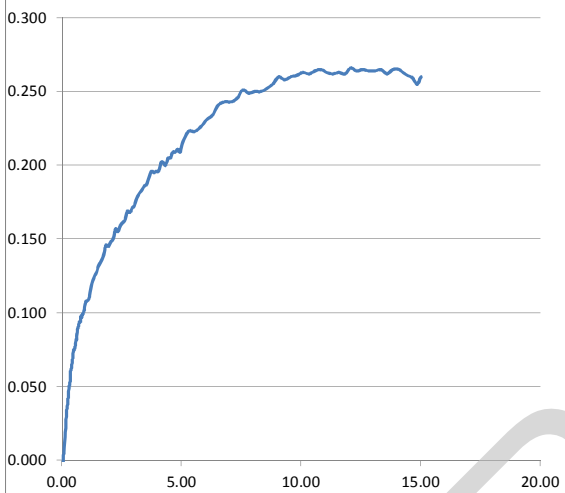
TEST TYPE:	UU			INITIAL HEIGHT, IN	4.45		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.84		
				CELL PRESSURE, PSI	13.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	34.00		
REMARKS	0			STRAIN, %	6.80		
				ULTIMATE STRESS, %	0.01		
				σ_1 FAILURE, PSF	2273.20		
				σ_3 FAILURE, PSF	2239.20		

SAMPLE DESCRIPTION	Very soft gray clay (CH3)						
BORING NO.	PZ-14		SAMPLE NO.	0	TEST TYPE	UU	
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	6/19/2013	
PROJECT NUMBER	18274-001-00		DEPTH FT.	33 - 35			
TESTED BY	TC//		CHECKED BY	SLC//			

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	237
Sample 1 Failure	Multiple Shear
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A

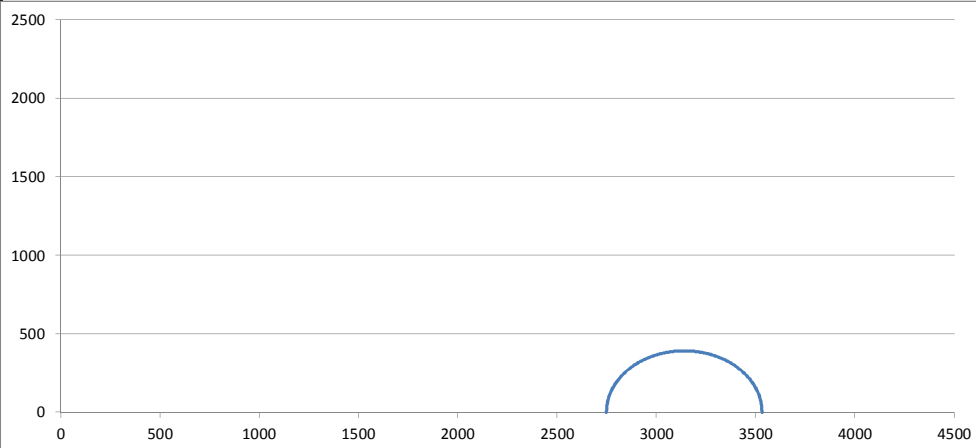


	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	56.94		
	DRY DENSITY, PCF	69.82		
	WET DENSITY, PCF	109.58		
	SATURATION %	109.59		
	VOID RATIO	1.39		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			
TEST TYPE:	UU			
ATTERBERG LIMIT	LL	PL	PI	
ASSUMED SPECIFIC GRAVITY	2.65			
REMARKS	INITIAL HEIGHT, IN	5.69		
	INITIAL DIAMETER, IN	2.67		
	CELL PRESSURE, PSI	15.60		
	FAILURE STRESS, PSF	474.00		
0	STRAIN, %	10.82		
	ULTIMATE STRESS, %	0.03		
	σ_1 FAILURE, PSF	2726.16		
	σ_3 FAILURE, PSF	2252.16		

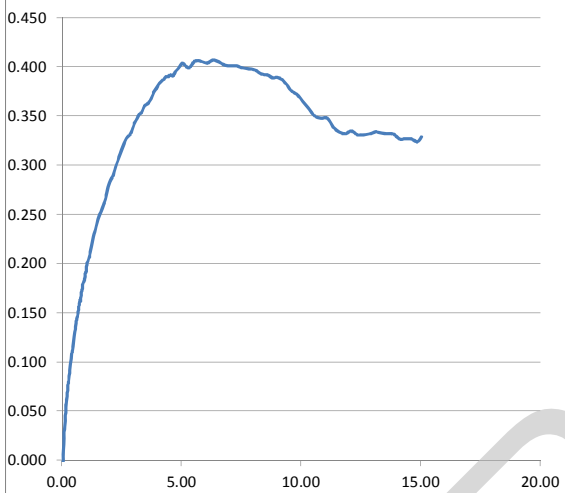
SAMPLE DESCRIPTION		Very soft gray clay (CH3)			
BORING NO.	PZ-14	SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/19/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	38 - 40		
TESTED BY	TC//	CHECKED BY	SLC//		

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Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	392
Sample 1 Failure	Multiple Shear
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A

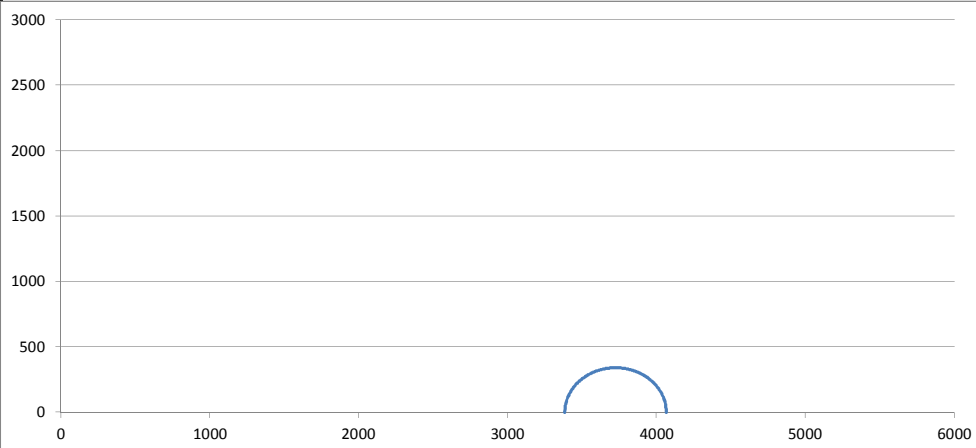


	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	53.36		
	DRY DENSITY, PCF	68.12		
	WET DENSITY, PCF	104.48		
	SATURATION %	98.48		
	VOID RATIO	1.45		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

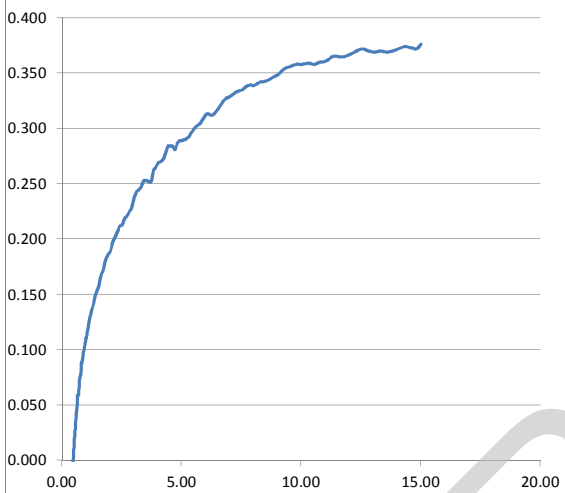
TEST TYPE:	UU			INITIAL HEIGHT, IN	5.49		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.85		
				CELL PRESSURE, PSI	19.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	784.00		
REMARKS	0			STRAIN, %	5.05		
				ULTIMATE STRESS, %	0.01		
				σ_1 FAILURE, PSF	3531.52		
				σ_3 FAILURE, PSF	2747.52		

SAMPLE DESCRIPTION	Soft gray clay (CH3)						
BORING NO.	PZ-14			SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	6/19/2013	
PROJECT NUMBER	18274-001-00			DEPTH FT.	48 - 50		
TESTED BY	TC//			CHECKED BY	SLC//		

Data Entry Sheet For Compression - 2010 Version



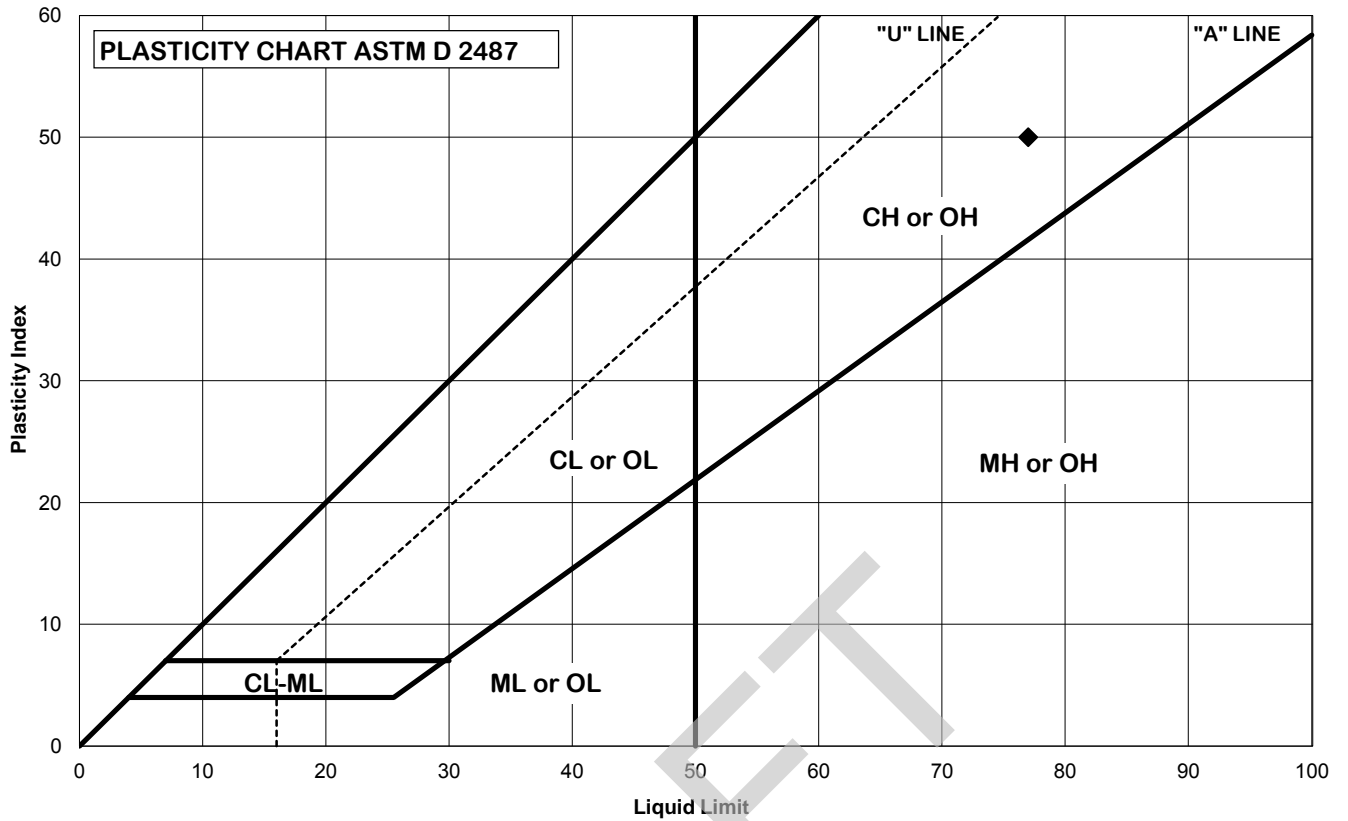
RESULTS	
C, PSF	341
Sample 1 Failure	Bulge
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



Specimen No.	1	2	3
INITIAL WATER CONTENT %	51.63		
INITIAL DRY DENSITY, PCF	68.44		
INITIAL WET DENSITY, PCF	103.78		
INITIAL SATURATION %	96.05		
INITIAL VOID RATIO	1.44		
AT TEST WATER CONTENT %			
AT TEST DRY DENSITY, PCF			
AT TEST WET DENSITY, PCF			
AT TEST SATURATION %			
AT TEST VOID RATIO			
TEST TYPE:	UU		
ATTERBERG LIMIT	LL	PL	PI
ASSUMED SPECIFIC GRAVITY	2.65		
REMARKS	INITIAL HEIGHT, IN	5.28	
	INITIAL DIAMETER, IN	2.86	
	CELL PRESSURE, PSI	23.60	
	FAILURE STRESS, PSF	682.00	
0	STRAIN, %	12.56	
	ULTIMATE STRESS, %	0.03	
	σ_1 FAILURE, PSF	4066.00	
	σ_3 FAILURE, PSF	3384.00	

SAMPLE DESCRIPTION		Soft gray clay (CH3)	
BORING NO.	PZ-14	SAMPLE NO.	0 TEST TYPE UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED 6/19/2013
PROJECT NUMBER	18274-001-00	DEPTH FT.	58 - 60
TESTED BY	TC//	CHECKED BY	SLC//

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ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-15	Natural WC:	#DIV/0!
Depth, ft.	0 - 2	Preparation:	Air Dried
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Stiff brown and gray clay with roots (CH3)		


Classification (fraction passing No. 40 sieve)
CH

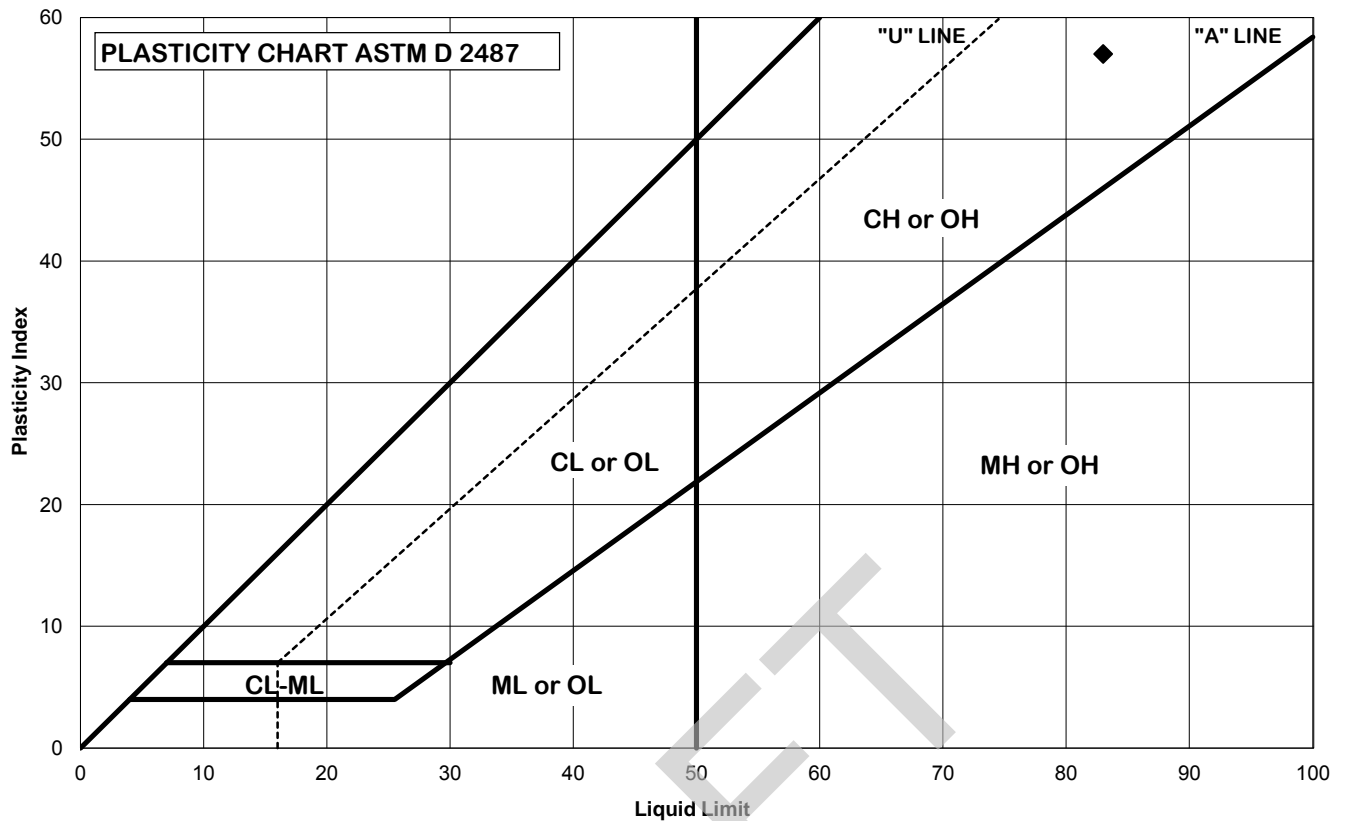
Liquid Limit =	77
Plastic Limit =	27
Plasticity Index =	50

Date:	6/25/2013
Tested By:	SC
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-15	Natural WC:	#DIV/0!
Depth, ft.	8 - 10	Preparation:	Air Dried
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Soft brown and gray clay (CH4)		

Classification (fraction passing No. 40 sieve)
CH

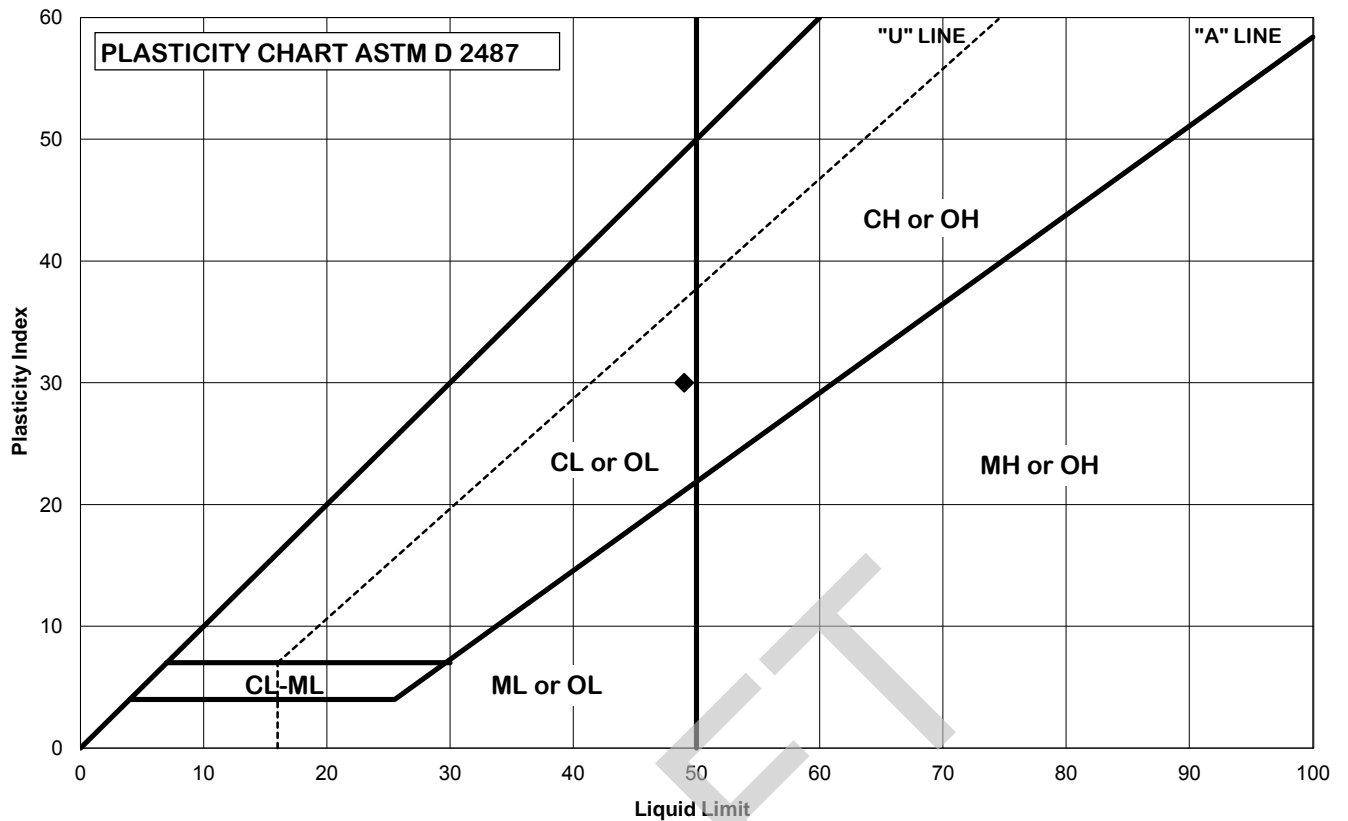
Liquid Limit =	83
Plastic Limit =	26
Plasticity Index =	57

Date:	6/25/2013
Tested By:	SC
Checked By:	SC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-15	Natural WC:	#DIV/0!
Depth, ft.	13.9 - 14.4	Preparation:	Air Dried
Cup No.	1026	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft brown and gray clay (CL6)		

Classification (fraction passing No. 40 sieve)
CL

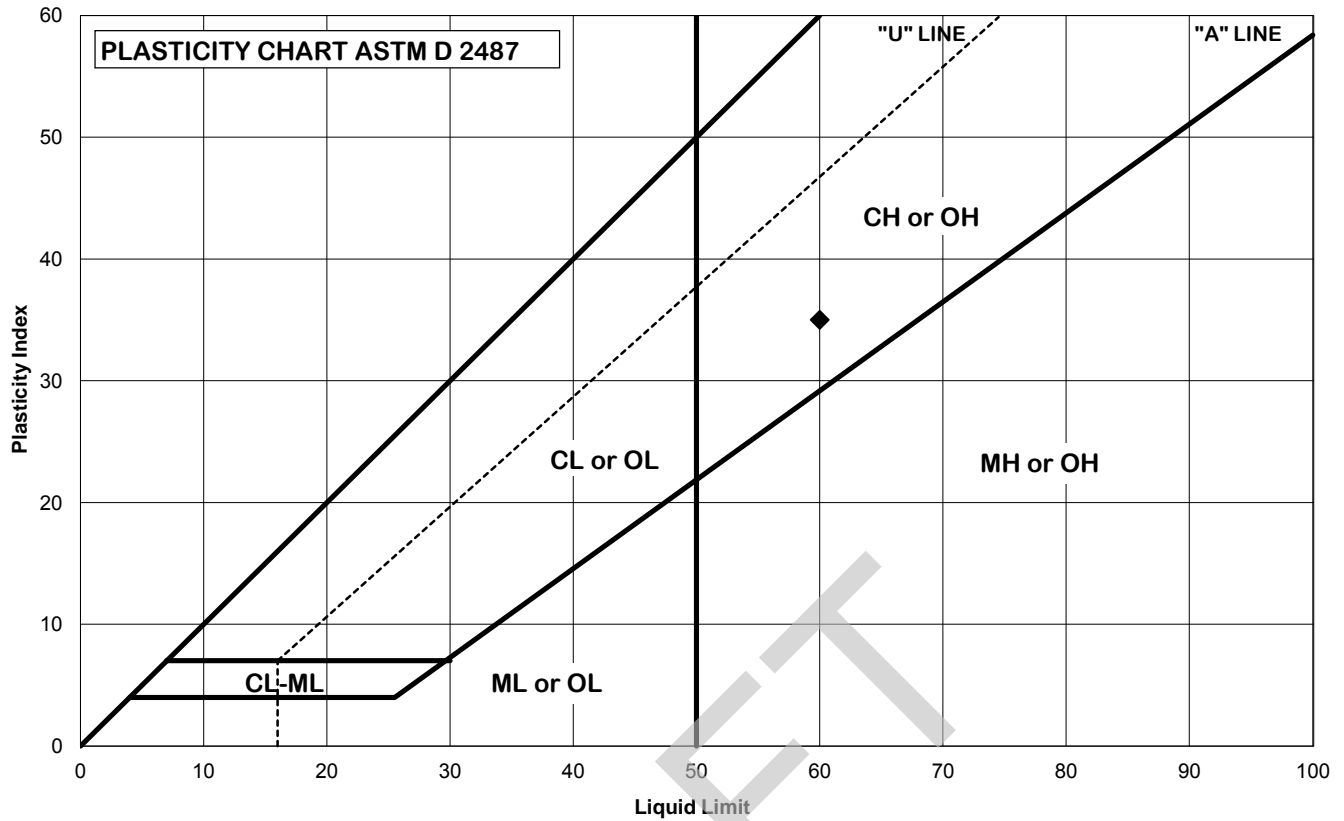
Liquid Limit =	49
Plastic Limit =	19
Plasticity Index =	30

Date:	6/27/2013
Tested By:	SC
Checked By:	OS

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-15	Natural WC:	#DIV/0!
Depth, ft.	18 - 20	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft brown and gray clay (CH2)		

Classification (fraction passing No. 40 sieve)
CH

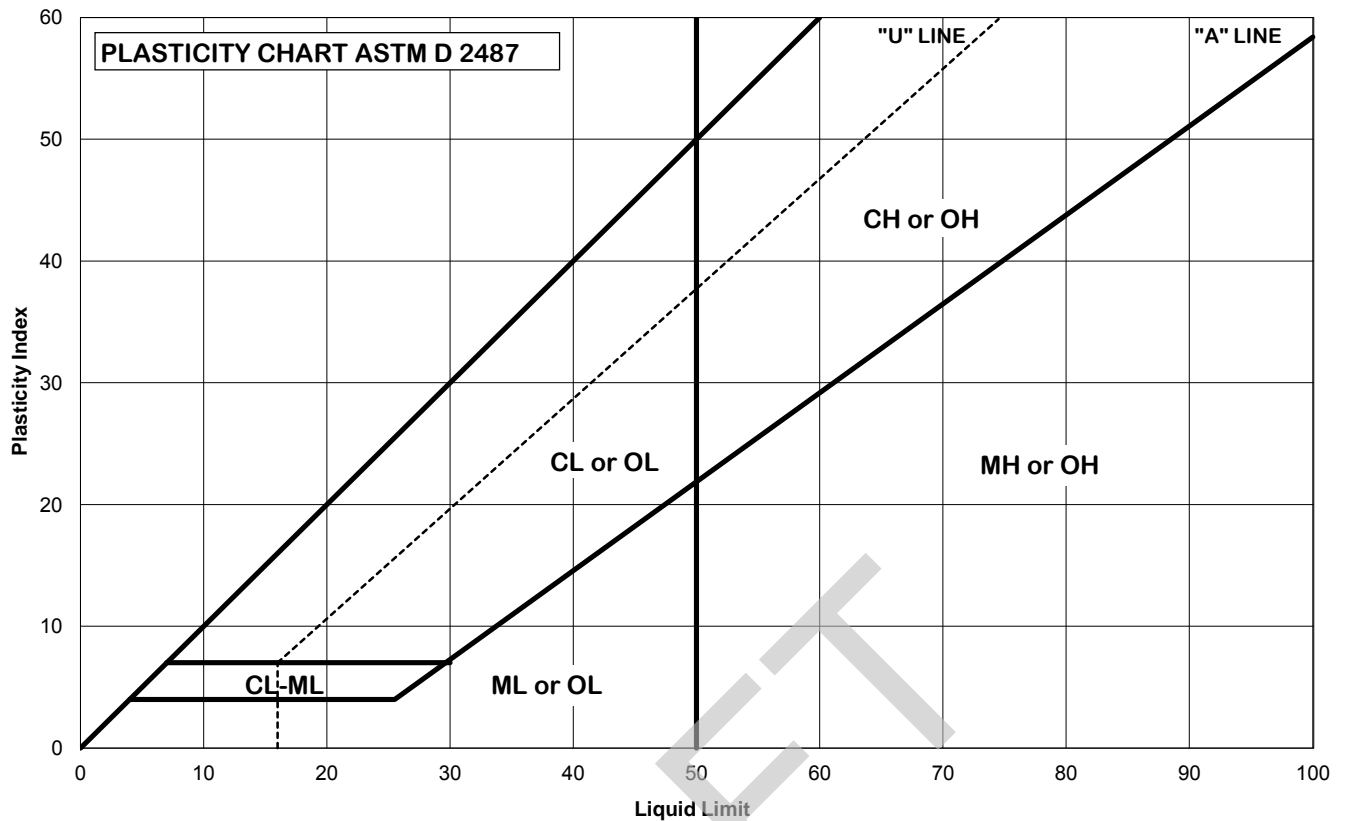
Liquid Limit =	60
Plastic Limit =	25
Plasticity Index =	35

Date:	6/21/2013
Tested By:	bh
Checked By:	sc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-15	Natural WC:	#DIV/0!
Depth, ft.	23.5 - 24.4	Preparation:	Air Dried
Cup No.	1026	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft brown, tan, and gray clay (CH4)		


Classification (fraction passing No. 40 sieve)
CH

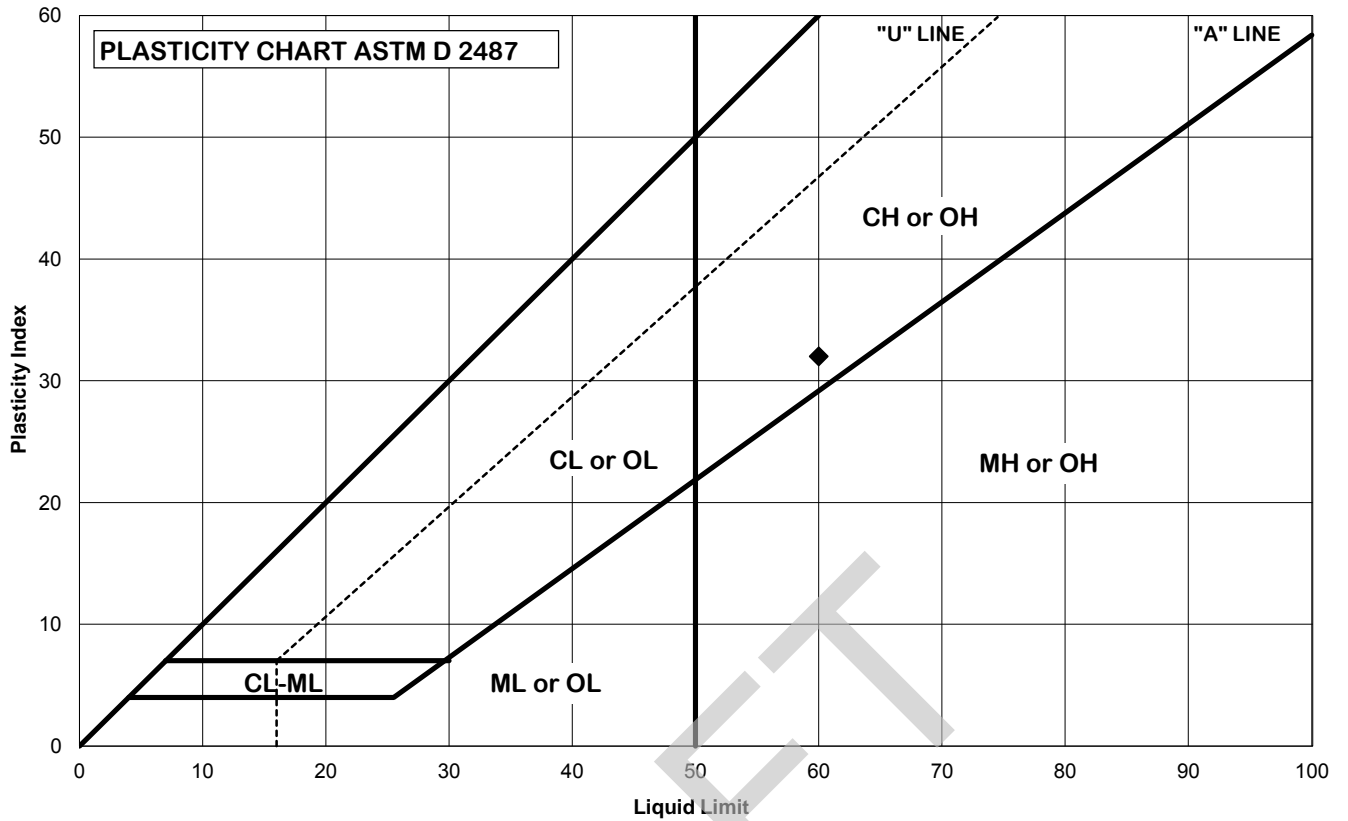
Liquid Limit =	136
Plastic Limit =	35
Plasticity Index =	101

Date:	6/27/2013
Tested By:	SC
Checked By:	OS

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-15	Natural WC:	#DIV/0!
Depth, ft.	23 - 23.5	Preparation:	Air Dried
Cup No.	1077	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very soft tan and gray clay (CH2)		

Classification (fraction passing No. 40 sieve)
CH

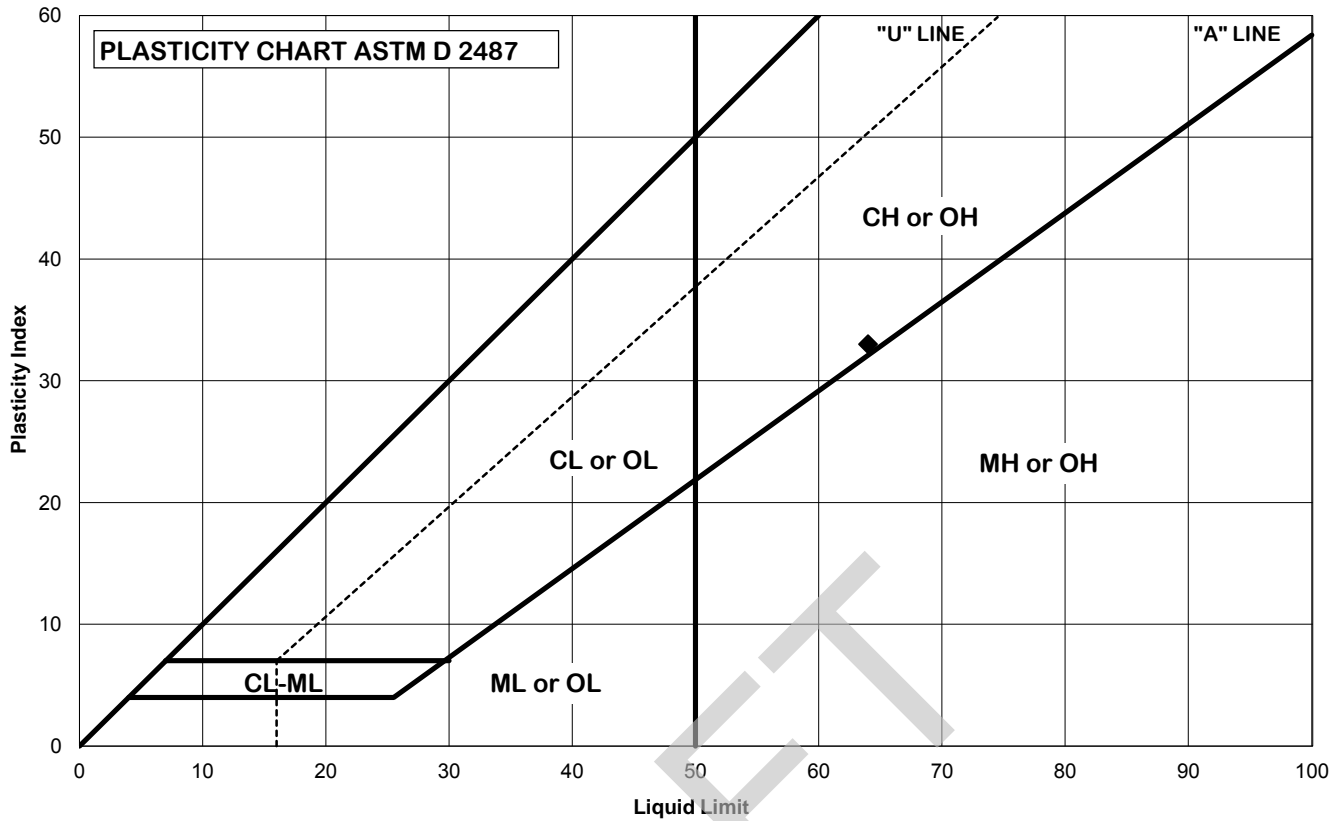
Liquid Limit =	60
Plastic Limit =	28
Plasticity Index =	32

Date:	6/21/2013
Tested By:	bh
Checked By:	sc

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project			
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.			
18274-001-00			
Boring No.		Natural WC:	#DIV/0!
PZ-15		Preparation:	Air Dried
Depth, ft.		No. Points:	
29.2 - 30			
Cup No.		Percent Retained on No. 40	
1029		0	
		Estimated or Tested	0.0
Original sample description:			
Very soft tan and gray clay (CH3)			

Classification (fraction passing No. 40 sieve)
CH

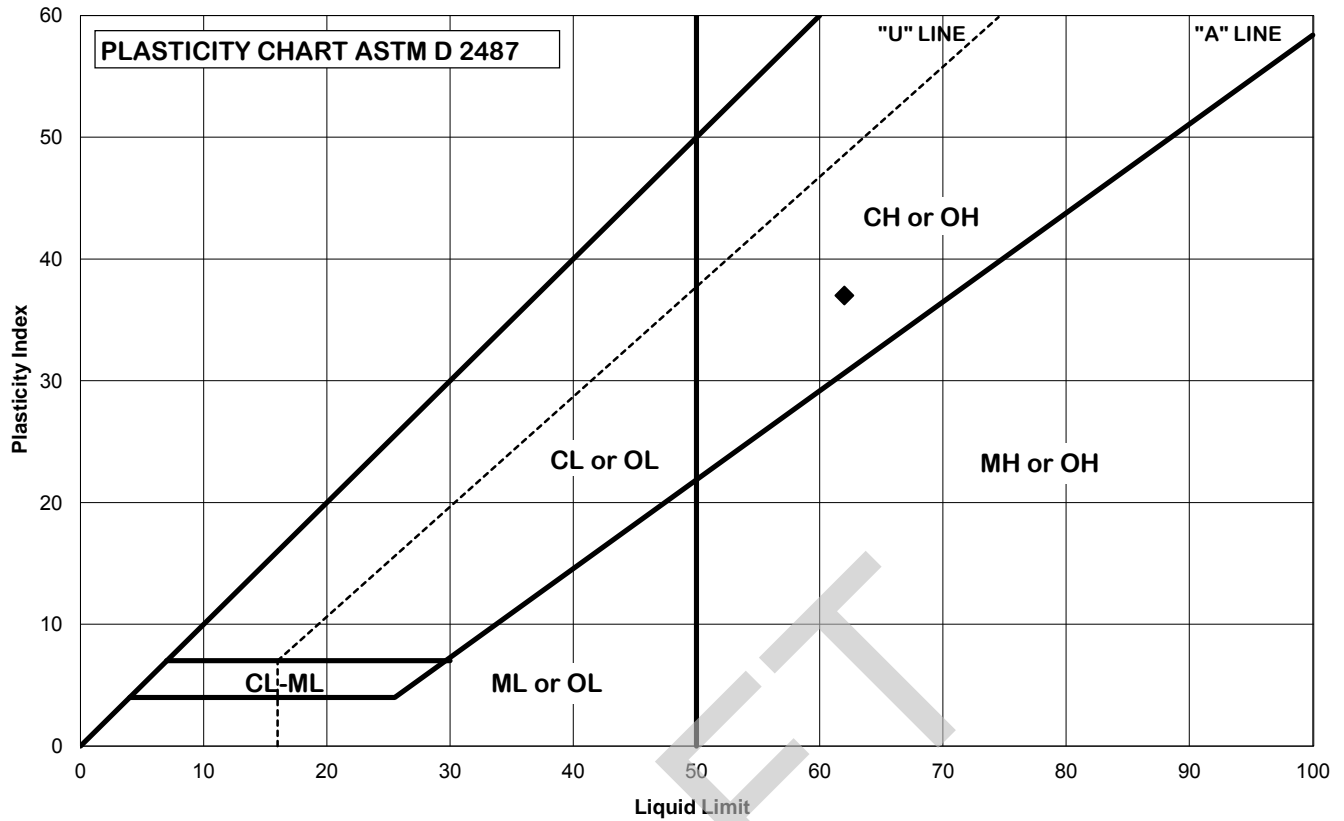
Liquid Limit =	64
Plastic Limit =	31
Plasticity Index =	33

Date:	6/27/2013
Tested By:	BH
Checked By:	OS

NOTES:

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<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project			
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.			
18274-001-00			
Boring No.		Natural WC:	#DIV/0!
PZ-15		Preparation:	Air Dried
Depth, ft.		No. Points:	
48.5 - 50			
Cup No.		Percent Retained on No. 40	
1028		0	
		Estimated or Tested	
		0.0	
Original sample description:		Soft gray and tan clay (CH3)	

Classification (fraction passing No. 40 sieve)
CH

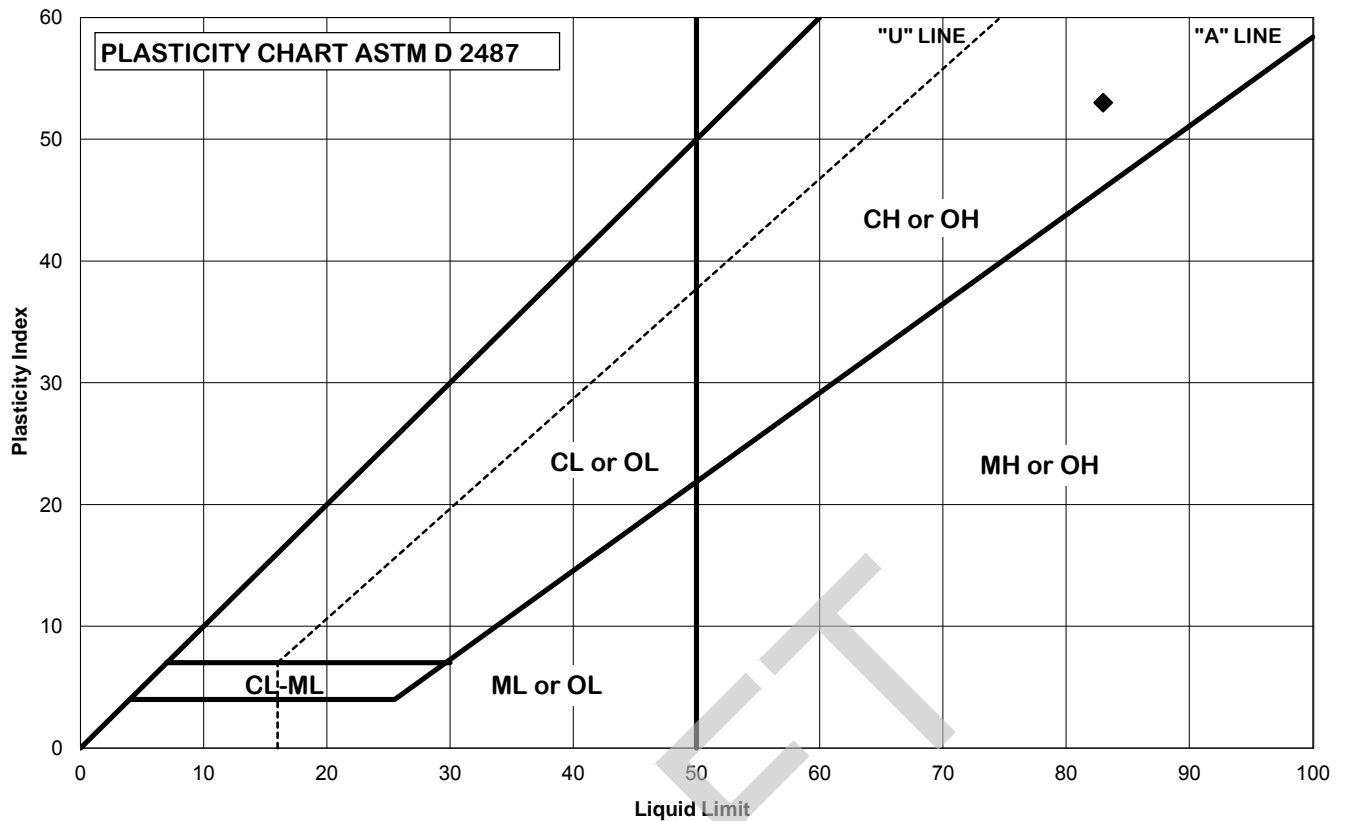
Liquid Limit =	62
Plastic Limit =	25
Plasticity Index =	37

Date:	6/27/2013
Tested By:	BH
Checked By:	OS

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90			
Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	PZ-15	Natural WC:	#DIV/0!
Depth, ft.	58 - 60	Preparation:	Air Dried
Cup No.	1028	No. Points:	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Medium gray clay (CH4)		

Classification (fraction passing No. 40 sieve)
CH

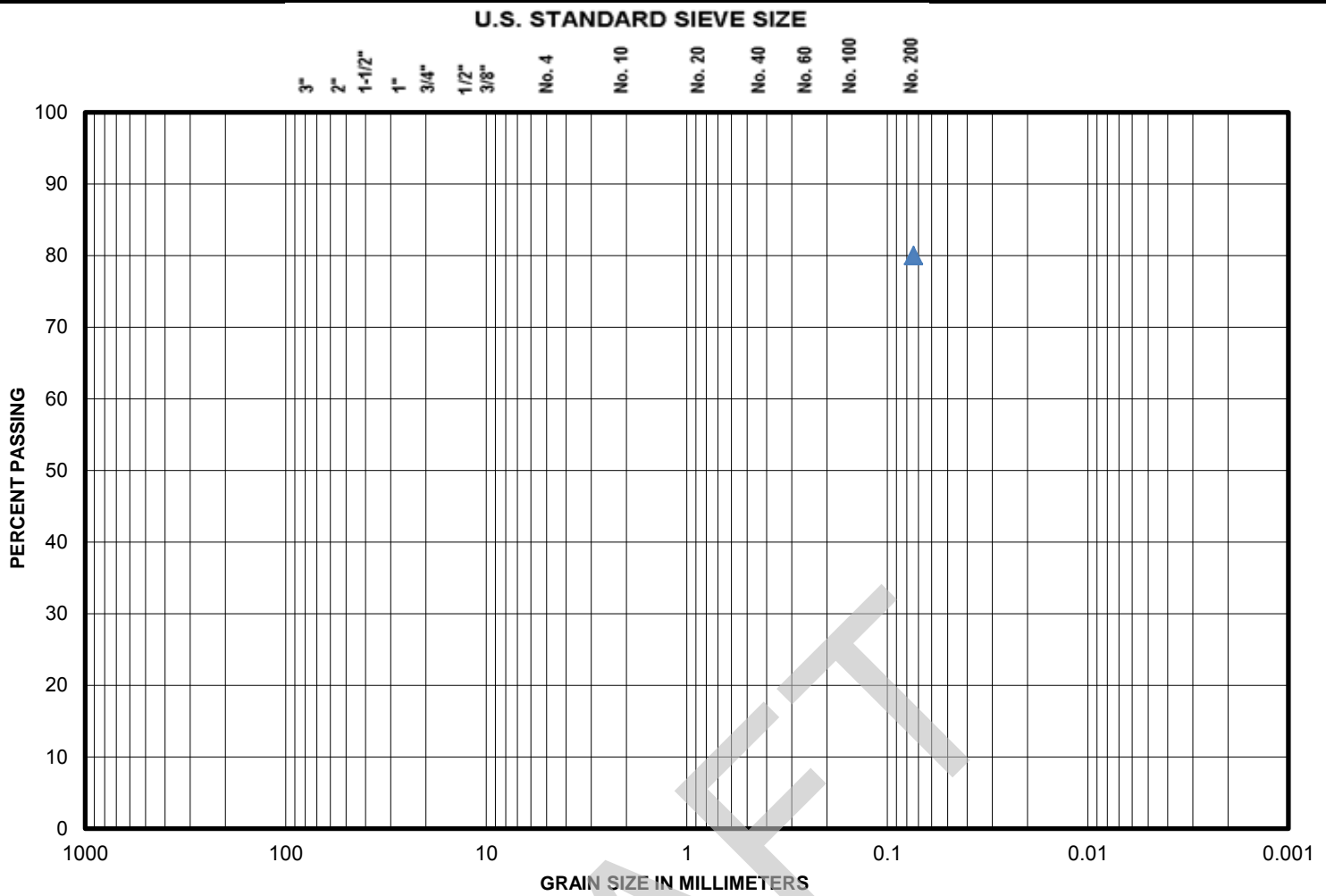
Liquid Limit =	83
Plastic Limit =	30
Plasticity Index =	53

Date:	6/27/2013
Tested By:	BH
Checked By:	OS

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test(s) were performed in general accordance with the the referenced method(s). Any deviations are documented in the notes section.

<p>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</p>	ATTERBERG LIMITS - ASTM D4318
	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
	18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	20.0	Fines (Silt & Clay) %	80.0
--------	------	-----------------------	------

USC Classification	ML	C _u	na	C _c	na
Description (D 2488)	Dense brown and tan sandy silt with clay (ML)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	80.0

Project	LA CPRA - Mid-Barataria Diversion (BA-153), PL	Date Tested	6/28/2013
Project No.	18274-001-00	Tested By	RW
Boring No.	PZ-15	Checked By	SC
Source/Depth (feet)	33 - 35	Sieve Type	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



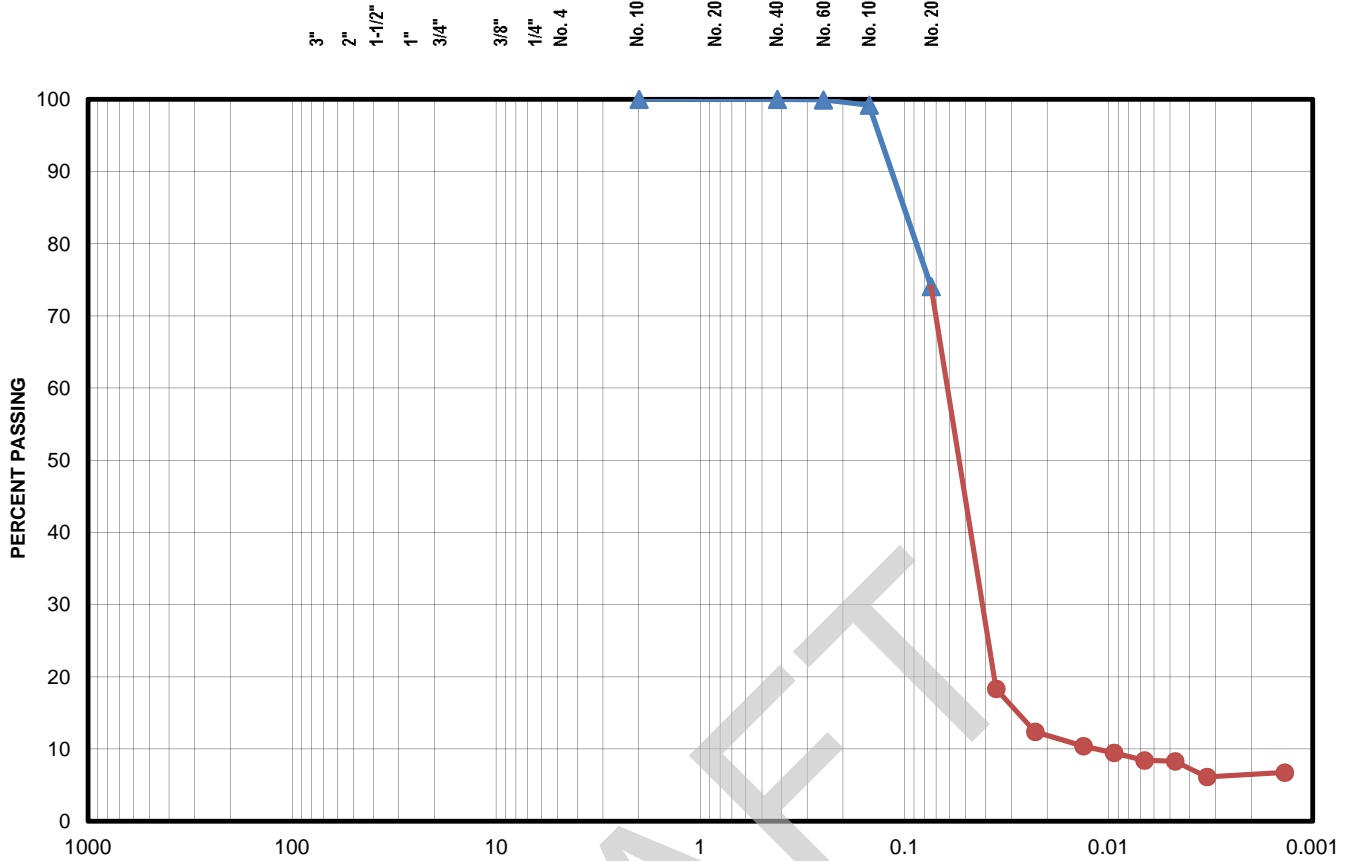
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, La 70809

ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	99.2
1/4"	100.0	No. 200	74.1

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1146
Hydro jar ID:	1156

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	PZ-15	Checked By	SC
Source/Depth (feet)	40 - 41.5		

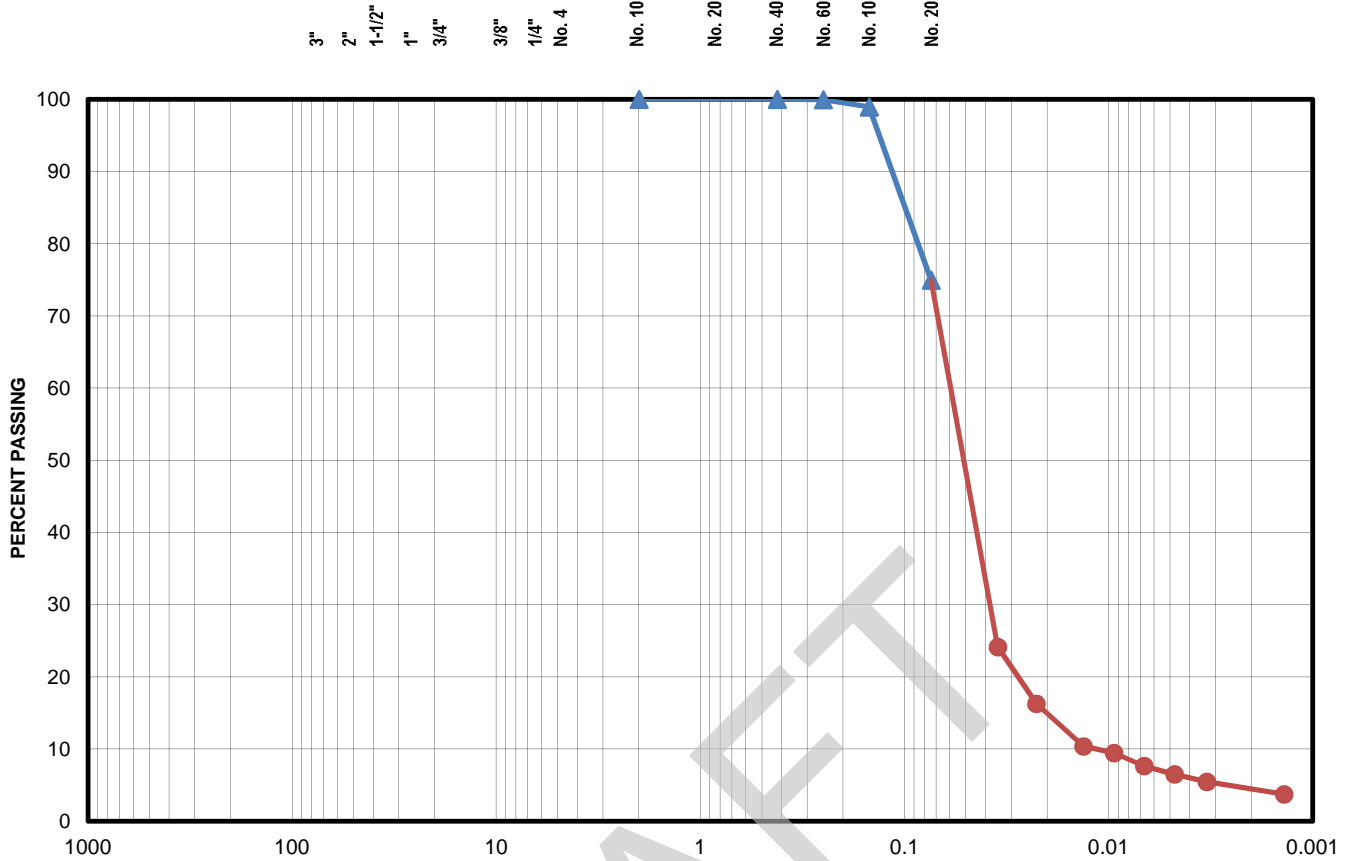
NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Description (D 2488) Medium dense gray sandy silt with clay (ML)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	99.9
3/8"	100.0	No. 100	98.9
1/4"	100.0	No. 200	74.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	(NaPO ₃) ₆
Hydrometer Type	ASTM 152 H
Hydrometer ID:	68515
Hydro jar ID:	1158

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15)	Date Tested	7/2/2013
Project No.	18274-001-00	Tested By	RW
Sample ID.	PZ-15	Checked By	SC
Source/Depth (feet)	43.5 - 45		

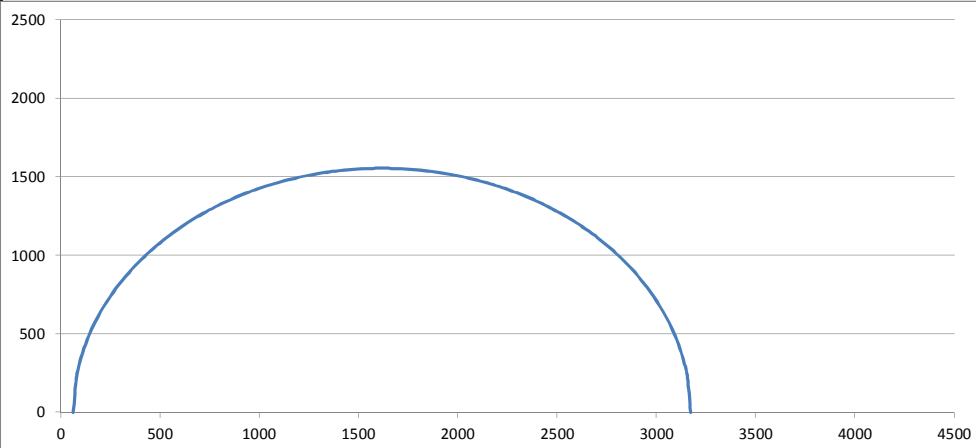
NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



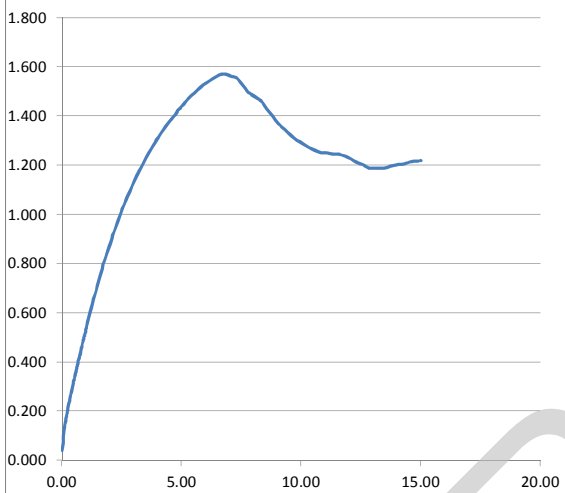
11955 Lakeland Park Blvd. Suite 100 Baton Rouge, LA 70809

ASTM D 422 SOIL PARTICLE SIZE ANALYSIS
CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,
18274-001-00

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	1555
Sample 1 Failure	Multiple Shear
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A

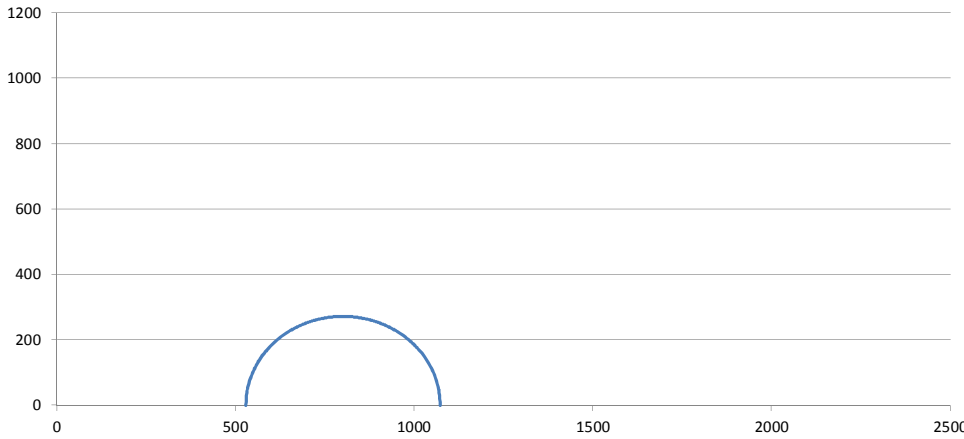


Specimen No.	1	2	3
INITIAL			
WATER CONTENT %	34.75		
DRY DENSITY, PCF	77.90		
WET DENSITY, PCF	104.96		
SATURATION %	81.40		
VOID RATIO	1.14		
AT TEST			
WATER CONTENT %			
DRY DENSITY, PCF			
WET DENSITY, PCF			
SATURATION %			
VOID RATIO			

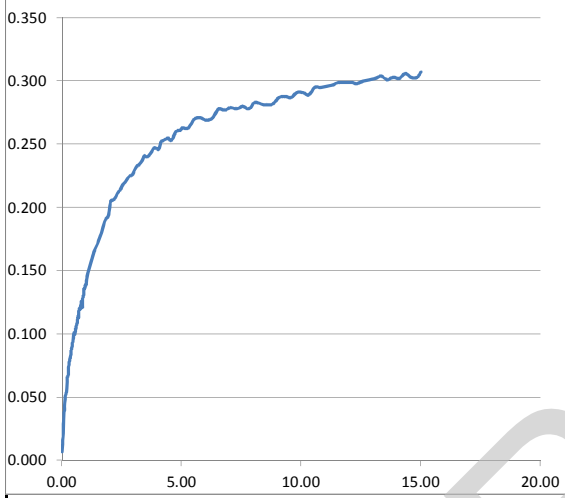
TEST TYPE:	UU			INITIAL HEIGHT, IN	4.52		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.87		
				CELL PRESSURE, PSI	0.40		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	3110.00		
REMARKS	0			STRAIN, %	6.79		
				ULTIMATE STRESS, %	0.02		
				σ_1 FAILURE, PSF	3171.92		
				σ_3 FAILURE, PSF	61.92		

SAMPLE DESCRIPTION		Stiff brown and gray clay with roots (CH3)					
BORING NO.	PZ-15	SAMPLE NO.	0	TEST TYPE	UU		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	6/19/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	0 - 2				
TESTED BY	TC//	CHECKED BY	SLC//				

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	272
Sample 1 Failure	Multiple Shear
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



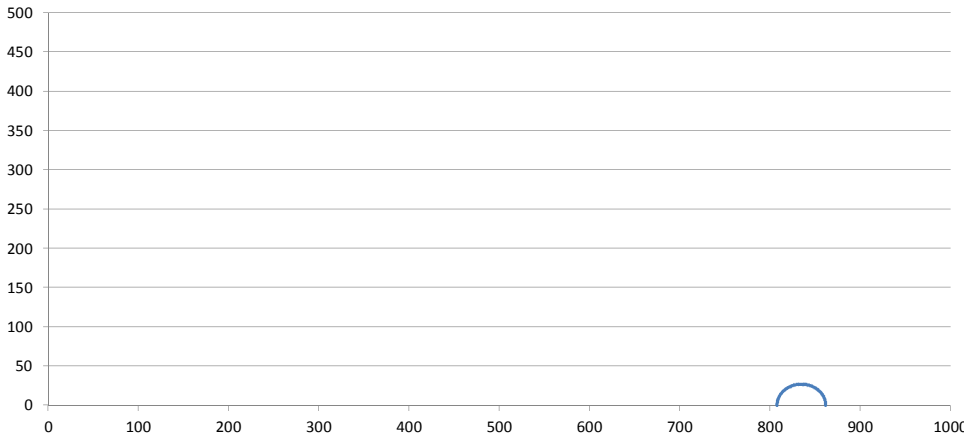
	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	50.26		
	DRY DENSITY, PCF	68.84		
	WET DENSITY, PCF	103.44		
	SATURATION %	94.42		
	VOID RATIO	1.42		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.14		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.85		
				CELL PRESSURE, PSI	3.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	544.00		
REMARKS				STRAIN, %	13.34		
				ULTIMATE STRESS, %	0.03		
				σ_1 FAILURE, PSF	1072.48		
				σ_3 FAILURE, PSF	528.48		

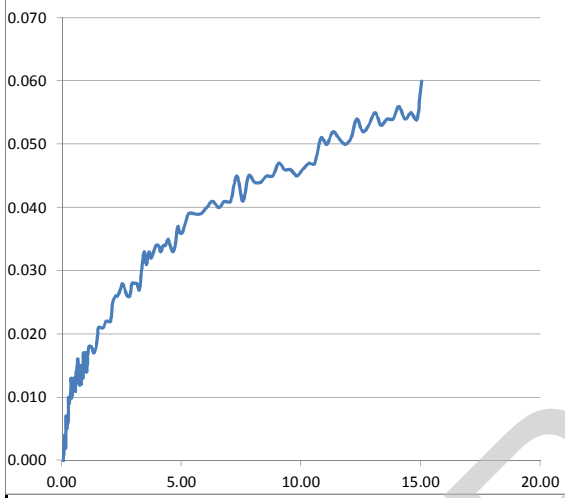
SAMPLE DESCRIPTION		Soft brown and gray clay (CH4)					
BORING NO.	PZ-15	SAMPLE NO.		TEST TYPE	UU		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	6/19/2013		
PROJECT NUMBER	18274-001-00	DEPTH FT.	8 - 10				
TESTED BY	TC//	CHECKED BY	SLC//				

"Confidential Information; Privileged & Confidential Work Product"

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	27
Sample 1 Failure	Bulge
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



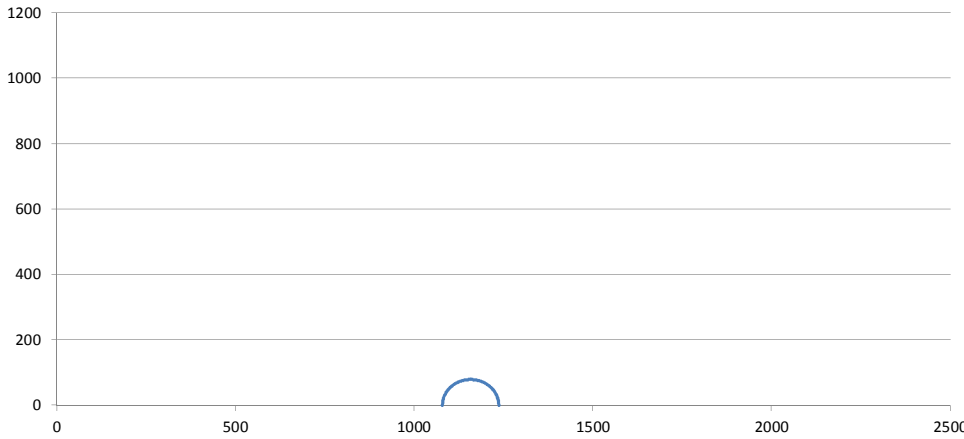
	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	38.84		
	DRY DENSITY, PCF	75.91		
	WET DENSITY, PCF	105.38		
	SATURATION %	86.71		
	VOID RATIO	1.20		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	4.54		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.91		
				CELL PRESSURE, PSI	5.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	54.00		
REMARKS	0			STRAIN, %	7.31		
				ULTIMATE STRESS, %	0.02		
				σ_1 FAILURE, PSF	861.84		
				σ_3 FAILURE, PSF	807.84		

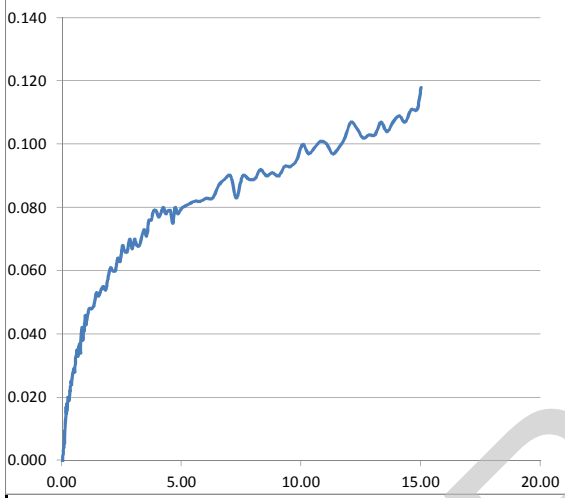
SAMPLE DESCRIPTION		Very soft brown and gray clay (CL6)					
BORING NO.	PZ-15	SAMPLE NO.		TEST TYPE	UU		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	6/19/2013		
PROJECT NUMBER	18274-001-00		DEPTH FT.	13.9 - 14.4			
TESTED BY	TC//		CHECKED BY	SLC//			

"Confidential Information; Privileged & Confidential Work Product"

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	79
Sample 1 Failure	Yield
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



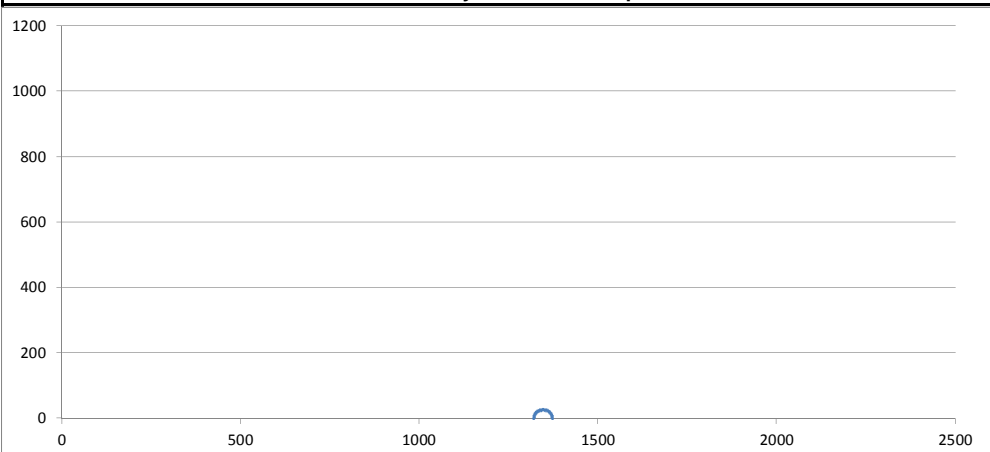
	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	54.87		
	DRY DENSITY, PCF	76.01		
	WET DENSITY, PCF	117.71		
	SATURATION %	122.81		
	VOID RATIO	1.19		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.40		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.63		
				CELL PRESSURE, PSI	7.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	158.00		
REMARKS				STRAIN, %	15.01		
				ULTIMATE STRESS, %	0.04		
				σ_1 FAILURE, PSF	1236.56		
				σ_3 FAILURE, PSF	1078.56		

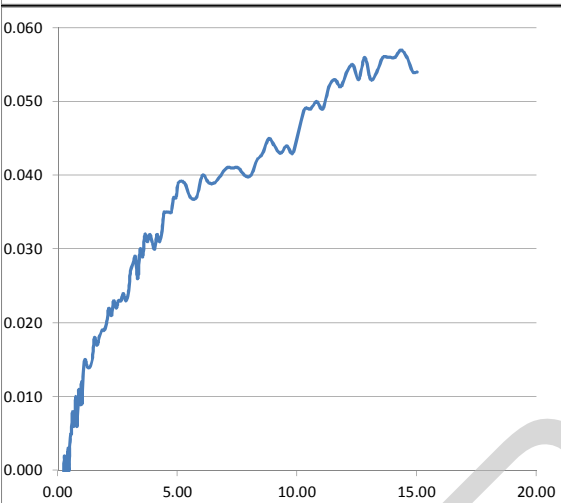
SAMPLE DESCRIPTION		Very soft brown and gray clay (CH2)					
BORING NO.	PZ-15	SAMPLE NO.		TEST TYPE	UU		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	6/19/2013		
PROJECT NUMBER	18274-001-00		DEPTH FT.	18 - 20			
TESTED BY	TC//		CHECKED BY	SLC//			

"Confidential Information; Privileged & Confidential Work Product"

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	26
Sample 1 Failure	Bulge
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



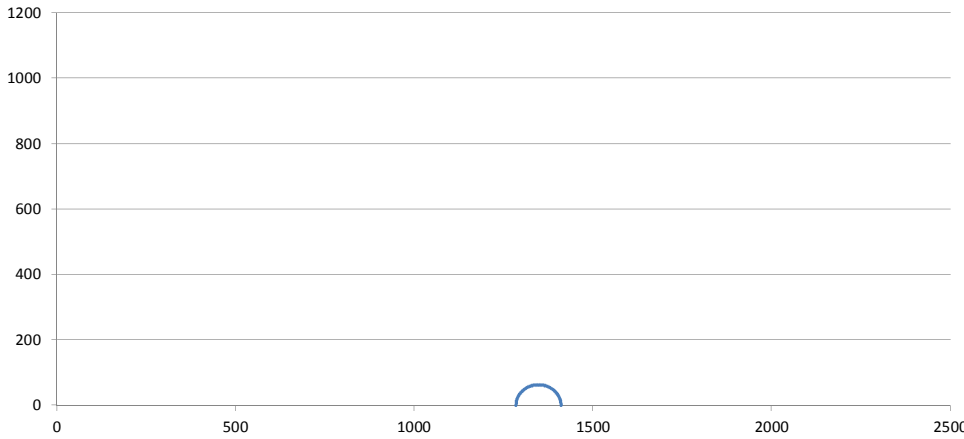
	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	106.52		
	DRY DENSITY, PCF	51.00		
	WET DENSITY, PCF	105.31		
	SATURATION %	125.36		
	VOID RATIO	2.27		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	4.83		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.66		
				CELL PRESSURE, PSI	9.20		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	52.00		
REMARKS	0			STRAIN, %	5.04		
				ULTIMATE STRESS, %	0.01		
				σ_1 FAILURE, PSF	1372.48		
				σ_3 FAILURE, PSF	1320.48		

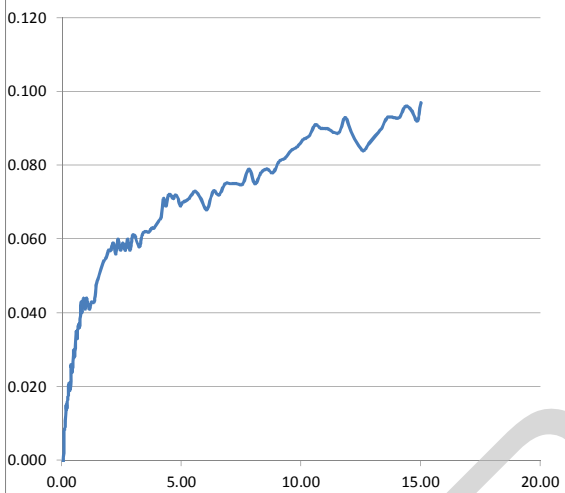
SAMPLE DESCRIPTION: Very soft tan and gray clay (CH2)

BORING NO.	PZ-15	SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/19/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	23 - 23.5		
TESTED BY	TC//	CHECKED BY	SLC//		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	63
Sample 1 Failure	Bulge
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



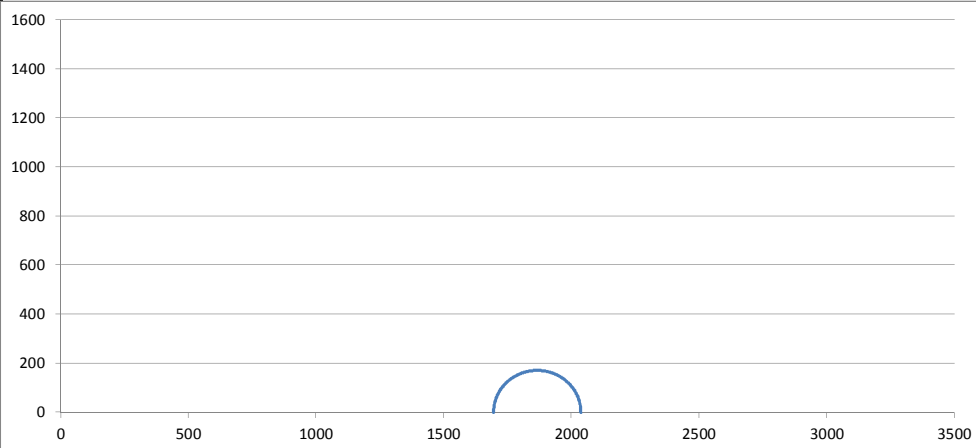
	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	41.15		
	DRY DENSITY, PCF	70.19		
	WET DENSITY, PCF	99.08		
	SATURATION %	79.93		
	VOID RATIO	1.37		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.33		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.65		
				CELL PRESSURE, PSI	9.40		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	126.00		
REMARKS	0			STRAIN, %	10.58		
				ULTIMATE STRESS, %	0.03		
				σ_1 FAILURE, PSF	1410.48		
				σ_3 FAILURE, PSF	1284.48		

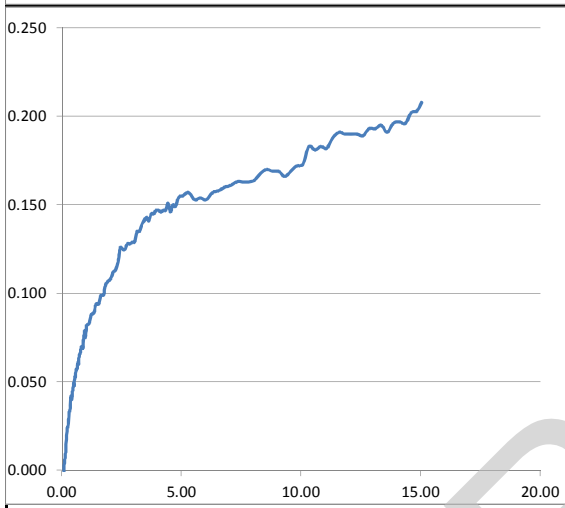
SAMPLE DESCRIPTION		Very soft brown, tan, and gray clay (CH4)					
BORING NO.	PZ-15	SAMPLE NO.	0	TEST TYPE	UU		
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			DATED SAMPLED	6/19/2013		
PROJECT NUMBER	18274-001-00		DEPTH FT.	23.5 - 24.4			
TESTED BY	TC//		CHECKED BY	SLC//			

"Confidential Information; Privileged & Confidential Work Product"

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	171
Sample 1 Failure	Yield
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



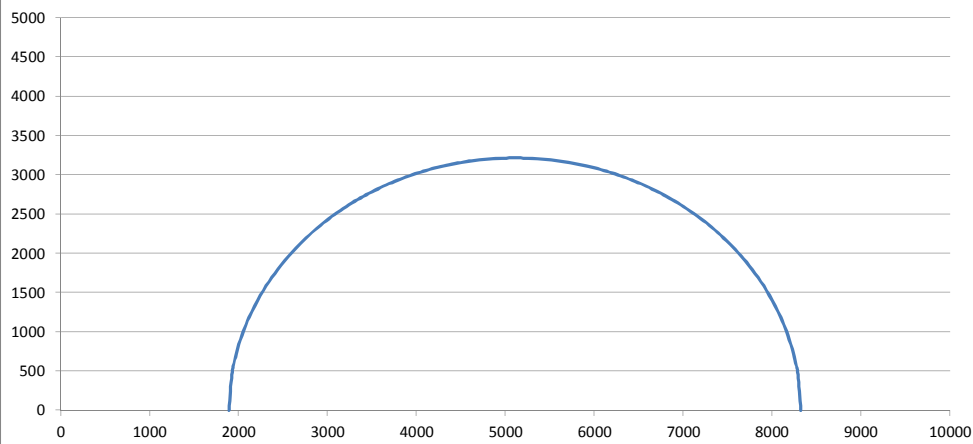
	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	29.41		
	DRY DENSITY, PCF	79.80		
	WET DENSITY, PCF	103.27		
	SATURATION %	72.12		
	VOID RATIO	1.09		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.31		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.81		
				CELL PRESSURE, PSI	11.80		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	342.00		
REMARKS	0			STRAIN, %	15.03		
				ULTIMATE STRESS, %	0.04		
				σ_1 FAILURE, PSF	2036.88		
				σ_3 FAILURE, PSF	1694.88		

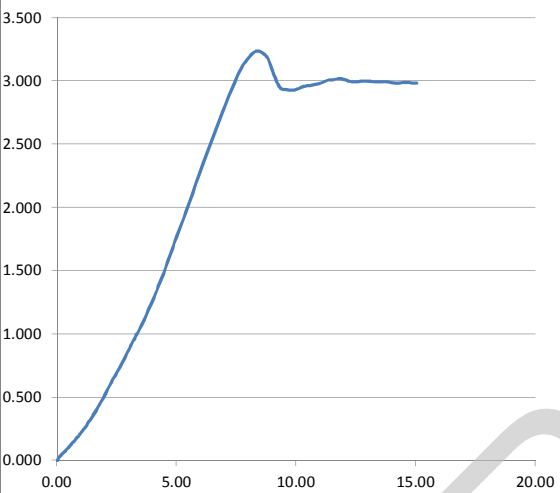
SAMPLE DESCRIPTION: Very soft tan and gray clay (CH3)

BORING NO.	PZ-15	SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	6/19/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	29.2 - 30		
TESTED BY	TC//	CHECKED BY	SLC//		

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	3216
Sample 1 Failure	Bulge
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A

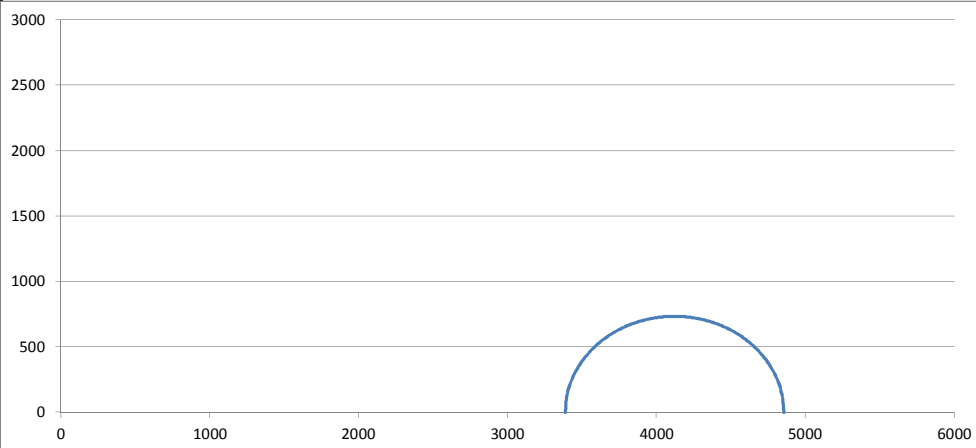


	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	27.39		
	DRY DENSITY, PCF	77.30		
	WET DENSITY, PCF	98.47		
	SATURATION %	63.24		
	VOID RATIO	1.16		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

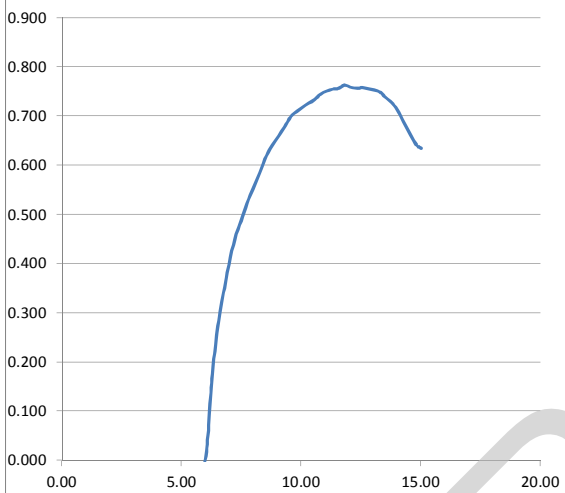
TEST TYPE:	UU			INITIAL HEIGHT, IN	5.53		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.93		
				CELL PRESSURE, PSI	13.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	6432.00		
REMARKS	0			STRAIN, %	8.31		
				ULTIMATE STRESS, %	0.02		
				σ_1 FAILURE, PSF	8321.28		
				σ_3 FAILURE, PSF	1889.28		

SAMPLE DESCRIPTION	Dense brown and tan sandy silt with clay (ML)						
BORING NO.	PZ-15		SAMPLE NO.	0	TEST TYPE	UU	
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	6/20/2013	
PROJECT NUMBER	18274-001-00		DEPTH FT.	33 - 35			
TESTED BY	TC//		CHECKED BY	SLC//			

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	734
Sample 1 Failure	Multiple Shear
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



Specimen No.	1	2	3
INITIAL			
WATER CONTENT %	58.78		
DRY DENSITY, PCF	67.71		
WET DENSITY, PCF	107.51		
SATURATION %	107.37		
VOID RATIO	1.46		
AT TEST			
WATER CONTENT %			
DRY DENSITY, PCF			
WET DENSITY, PCF			
SATURATION %			
VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.62		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.80		
				CELL PRESSURE, PSI	23.60		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	1468.00		
REMARKS				STRAIN, %	11.81		
				ULTIMATE STRESS, %	0.03		
				σ_1 FAILURE, PSF	4854.88		
				σ_3 FAILURE, PSF	3386.88		

SAMPLE DESCRIPTION	Medium gray clay (CH4)						
BORING NO.	PZ-15			SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA				DATED SAMPLED	6/24/2013	
PROJECT NUMBER	18274-001-00			DEPTH FT.	58 - 60		
TESTED BY	tc//			CHECKED BY	sc//		

Southern Earth Sciences, Inc.

Hydraulic Conductivity Triaxial Test

11638 Sun Belt Court
Baton Rouge, Louisiana 70809

Data Summary Sheet
(ASTM D5084)

Project No.: B13-018 Project Name: Mid Barataria Diversion
 Project Manager: MP Date Completed: 9/6/2013 Technician: MP
 Boring No.: IS-2A Depth: 55-55.5 Sample No.: _____
 CK'd by: RLJ Date CK'd: 9/9/2013

SAMPLE PREPARATION: UNDISTURBED

METHOD OF COMPACTION: N/A

TESTING METHOD: METHOD F

TYPE SOIL & USCS

FIELD MOISTURE (%):	<u>N/A</u>	LAB MOISTURE (%):	<u>-----</u>
INITIAL DIAMETER (cm):	<u>7.214</u>	FINAL DIAMETER** (cm):	<u>7.159</u>
INITIAL LENGTH (cm):	<u>8.407</u>	FINAL LENGTH** (cm):	<u>8.344</u>
INITIAL MOISTURE CONTENT (%):	<u>46.9</u>	FINAL MOISTURE CONTENT (%):	<u>40.0</u>
INITIAL WET WT.:	<u>598</u>	FINAL WET WT.:	<u>577.3</u>
CONSOLIDATED (Y/N):	<u>yes</u>	BACKPRESSURE (psi):	<u>75.0</u>
CELL PRESSURE (psi):	<u>85</u>	EFFECTIVE PRESSURE (psi):	<u>10.0</u>
INITIAL DRY DENSITY (lbs/ft ³):	<u>73.9</u>	ASSUMED G _s :	<u>2.80</u>
% COMPACTION:	<u>-----</u>	FINAL SATURATION (%):	<u>Not Calculated due to</u>
FINAL DRY DENSITY (lbs/ft ³):	<u>76.7</u>		<u>alternate layers of Clay and Sand</u>

B PARAMETER CK.: yes

AVERAGE K_{sat}* (cm/s): 3.37x10⁻⁷

MAXIMUM GRADIENT USED: 26.7

MINIMUM GRADIENT USED: 13.9

- This data applies only to specimen tested.

* Corrected to 20 °C

** All final sample dimensions are subject to sample deformation caused by exsolution of air in pore water and/or consolidation.

Project No.: B13-018 Project Name: Mid Barataria Diversion
 Project Manager: MP Date Completed: 9/9/2013 Technician: MP
 Boring No.: IS-9A Depth: 46-47 Sample No.:
 CK'd by: RLJ Date CK'd: 9/9/2013

SAMPLE PREPARATION: UNDISTURBED

METHOD OF COMPACTION: N/A

TESTING METHOD: METHOD F

TYPE SOIL & USCS

FIELD MOISTURE (%):	<u> N/A </u>	LAB MOISTURE (%):	<u> ----- </u>
INITIAL DIAMETER (cm):	<u> 6.906 </u>	FINAL DIAMETER** (cm):	<u> 6.867 </u>
INITIAL LENGTH (cm):	<u> 11.316 </u>	FINAL LENGTH** (cm):	<u> 11.252 </u>
INITIAL MOISTURE CONTENT (%):	<u> 30.8 </u>	FINAL MOISTURE CONTENT (%):	<u> 28.3 </u>
INITIAL WET WT.:	<u> 833.7 </u>	FINAL WET WT.:	<u> 795.2 </u>
CONSOLIDATED (Y/N):	<u> yes </u>	BACKPRESSURE (psi):	<u> 75.0 </u>
CELL PRESSURE (psi):	<u> 85 </u>	EFFECTIVE PRESSURE (psi):	<u> 10.0 </u>
INITIAL DRY DENSITY (lbs/ft ³):	<u> 93.9 </u>	ASSUMED G _s :	<u> 2.60 </u>
% COMPACTION:	<u> ----- </u>	FINAL SATURATION (%):	<u> 96.1 </u>
FINAL DRY DENSITY (lbs/ft ³):	<u> 92.8 </u>		

B PARAMETER CK.: yes

AVERAGE K_{sat}* (cm/s): 2.08x10⁻⁶

MAXIMUM GRADIENT USED: 13.2

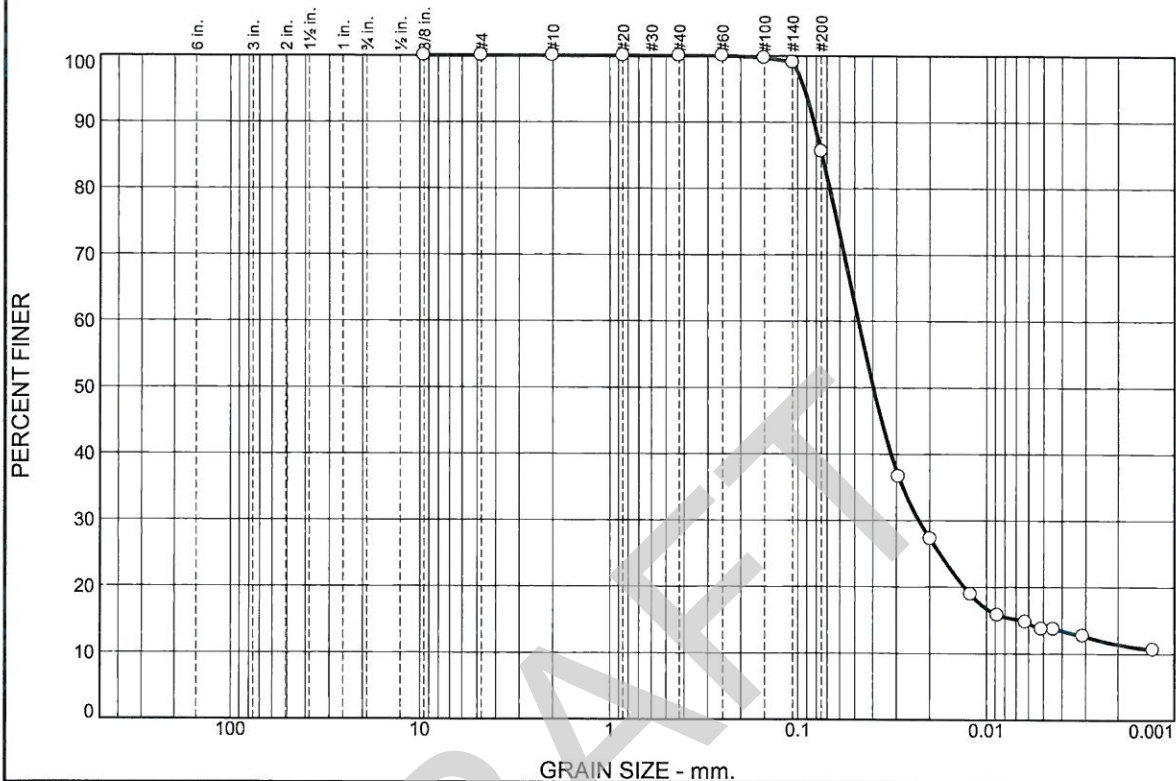
MINIMUM GRADIENT USED: 8.3

- This data applies only to specimen tested.

* Corrected to 20 °C

** All final sample dimensions are subject to sample deformation caused by exsolution of air in pore water and/or consolidation.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	14.4	71.9	13.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	100.0		
#100	99.7		
#140	99.0		
#200	85.6		

Material Description
Gray and Yellow SILT with Sand and Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (ML) AASHTO=

Remarks
 F.M.=0.00

* (no specification provided)

Source of Sample: IS-9A Depth: 50-51

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
Figure	

Southern Earth Sciences, Inc.

Hydraulic Conductivity Triaxial Test

11638 Sun Belt Court
Baton Rouge, Louisiana 70809

Data Summary Sheet
(ASTM D5084)

Project No.: B13-018 Project Name: Mid Barataria Diversion
Project Manager: MP Date Completed: 9/18/2013 Technician: MP
Boring No.: IS-9A Depth: 55-56 Sample No.: _____
CK'd by: RLJ Date CK'd: 9/18/2013

SAMPLE PREPARATION: UNDISTURBED

METHOD OF COMPACTION: N/A

TESTING METHOD: METHOD F

TYPE SOIL & USCS

FIELD MOISTURE (%):	<u>N/A</u>	LAB MOISTURE (%):	<u>-----</u>
INITIAL DIAMETER (cm):	<u>6.900</u>	FINAL DIAMETER** (cm):	<u>6.859</u>
INITIAL LENGTH (cm):	<u>10.711</u>	FINAL LENGTH** (cm):	<u>10.648</u>
INITIAL MOISTURE CONTENT (%):	<u>32.22</u>	FINAL MOISTURE CONTENT (%):	<u>29.7</u>
INITIAL WET WT.:	<u>780.0</u>	FINAL WET WT.:	<u>753.8</u>
CONSOLIDATED (Y/N):	<u>yes</u>	BACKPRESSURE (psi):	<u>75.0</u>
CELL PRESSURE (psi):	<u>85.0</u>	EFFECTIVE PRESSURE (psi):	<u>10.0</u>
INITIAL DRY DENSITY (lbs/ft ³):	<u>92.0</u>	ASSUMED G _s :	<u>2.65</u>
% COMPACTION:	<u>-----</u>	FINAL SATURATION (%):	<u>99.3</u>
FINAL DRY DENSITY (lbs/ft ³):	<u>92.3</u>		

B PARAMETER CK.: yes

AVERAGE K_{sat}* (cm/s): 2.83x10⁻⁶

MAXIMUM GRADIENT USED: 16.4

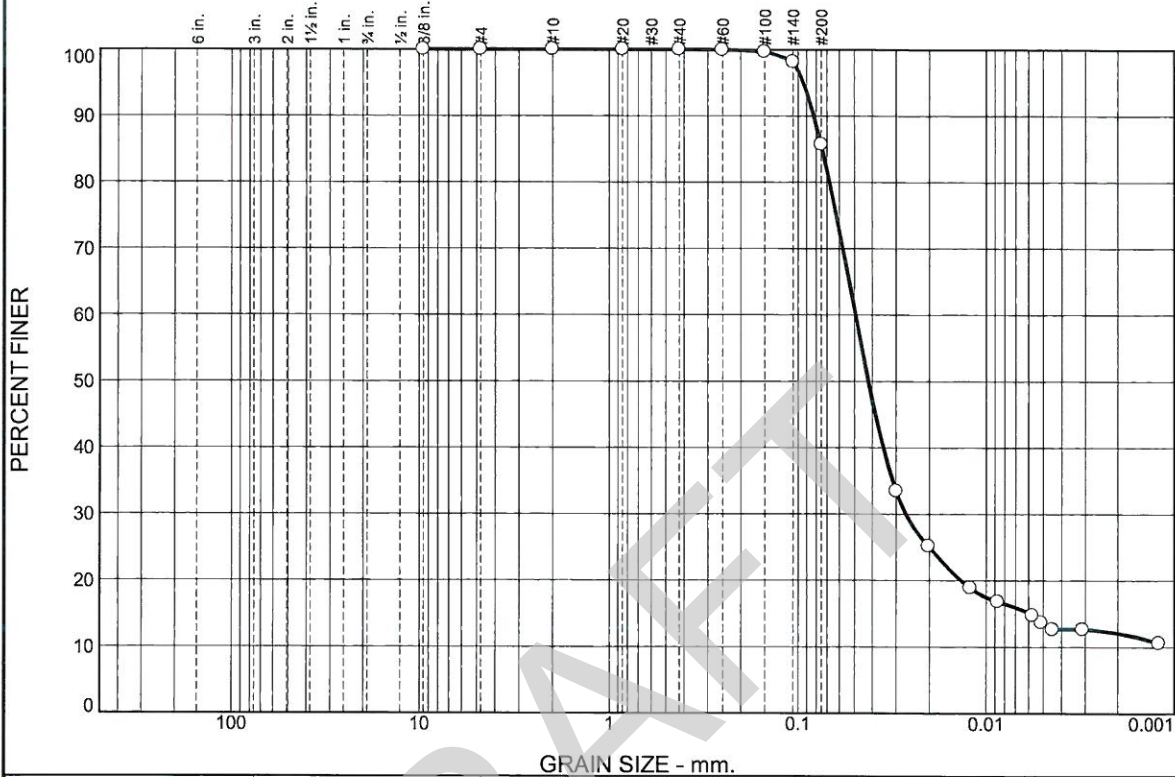
MINIMUM GRADIENT USED: 8.3

- This data applies only to specimen tested.

* Corrected to 20 °C

** All final sample dimensions are subject to sample deformation caused by exsolution of air in pore water and/or consolidation.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	14.3	72.2	13.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.9		
#100	99.7		
#140	98.2		
#200	85.7		

Material Description

Gray SAND with Clay

Atterberg Limits

PL= LL= PI=

Classification

USCS= (CL-ML) AASHTO=

Remarks

F.M.=0.00

* (no specification provided)

Source of Sample: IS-13A Depth: 34-35 Date:

<p style="text-align: center;">Southern Earth Sciences, Inc. Baton Rouge, LA</p>	<p>Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018</p>
---	--

Figure

Project No.: B13-018 Project Name: Mid Barataria Diversion
 Project Manager: MP Date Completed: 9/14/2013 Technician: MP
 Boring No.: IS-13A Depth: 54-55 Sample No.:
 CK'd by: RLJ Date CK'd: 9/16/2013

SAMPLE PREPARATION: UNDISTURBED

METHOD OF COMPACTION: N/A

TESTING METHOD: METHOD F

TYPE SOIL & USCS

FIELD MOISTURE (%): N/A LAB MOISTURE (%): -----

INITIAL DIAMETER (cm): 7.183 FINAL DIAMETER** (cm): 7.138

INITIAL LENGTH (cm): 10.312 FINAL LENGTH** (cm): 10.246

INITIAL MOISTURE CONTENT (%): 31.06 FINAL MOISTURE CONTENT (%): 29.1

INITIAL WET WT.: 793.1 FINAL WET WT.: 774.2

CONSOLIDATED (Y/N): yes BACKPRESSURE (psi): 75.0

CELL PRESSURE (psi): 85.0 EFFECTIVE PRESSURE (psi): 10.0

INITIAL DRY DENSITY (lbs/ft³): 90.4 ASSUMED G_s: 2.65

% COMPACTION: ----- FINAL SATURATION (%): 95.2

FINAL DRY DENSITY (lbs/ft³): 91.3

B PARAMETER CK.: yes

AVERAGE K_{sat}* (cm/s): 3.14x10⁻⁷

MAXIMUM GRADIENT USED: 14.5

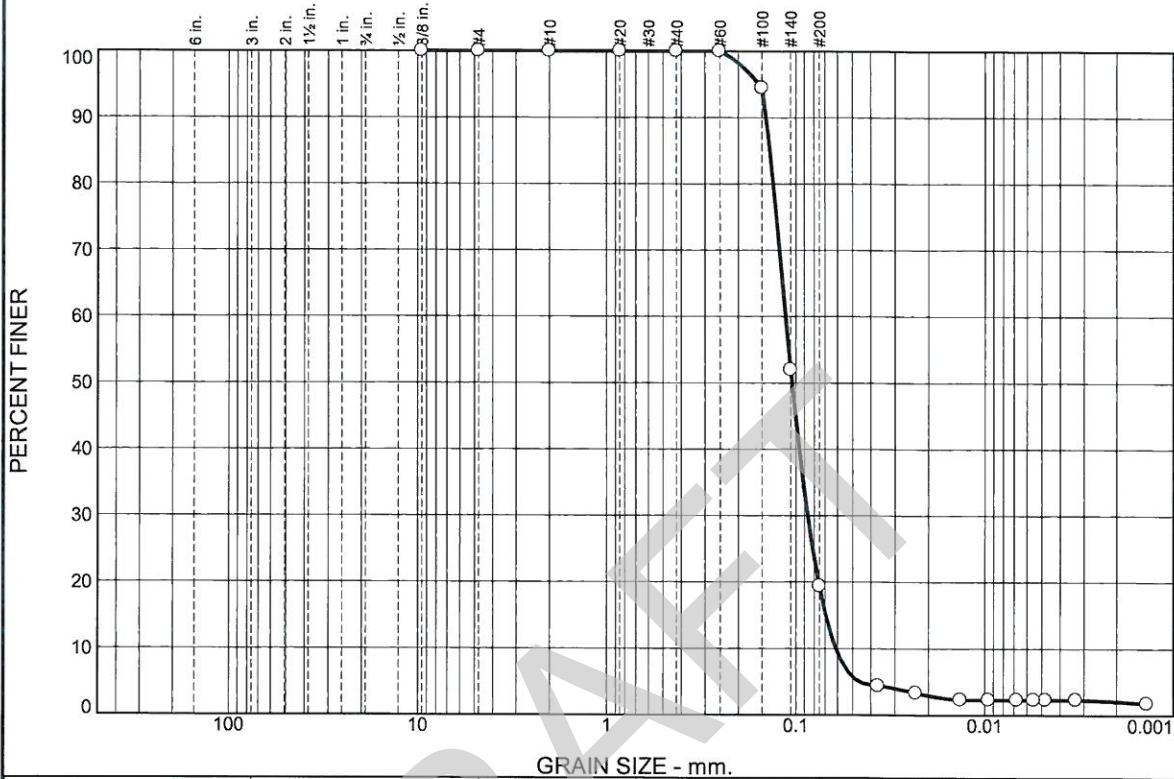
MINIMUM GRADIENT USED: 10.7

- This data applies only to specimen tested.

* Corrected to 20 °C

** All final sample dimensions are subject to sample deformation caused by exsolution of air in pore water and/or consolidation.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	80.6	17.1	2.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	100.0		
#100	94.5		
#140	52.0		
#200	19.4		

Material Description
Gray Fine SAND with Silt and Trace Clay

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= (SM) AASHTO=

Remarks
 F.M.=0.06

* (no specification provided)

Source of Sample: IS-16A Depth: 47-48

Date:

Southern Earth Sciences, Inc. Baton Rouge, LA	Client: GeoEngineers Project: Mid Barataria Diversion Project No: B13-018
Figure	