DOCKETED	
Docket Number:	25-OPT-01
Project Title:	Viracocha Hill Battery Energy Storage System Project
TN #:	261774
Document Title:	Volume 2 Virococha Hill BESS Appendix 5 4A Part B Geotechnical Investigation Report
Description:	Volume 2 Virococha Hill BESS Appendix 5 4A Part B Geotechnical Investigation Report
Filer:	Sarah Madams
Organization:	Jacobs
Submitter Role:	Applicant Consultant
Submission Date:	2/14/2025 1:56:56 PM
Docketed Date:	2/14/2025

APPENDIX A

Diamond Coring Logs

BERLOGAR STEVENS & ASSOCIATES

FIELD CORE LOG

PROJECT: Rooney/Sand Hill
DRILLING COMPANY: Gregg Drilling
DRILLING METHOD: Diamond Core
DRILL RIG: Mobile B53
NUMBER OF CORE BOXES: 7
LOGGED BY: Andres Garibay
CASING TYPE: HQ3

PROJECT NO.: 4245.200A
BORING NO.: 1 / Turbine 22
DATE INITIATED: 1-3-23
DATE COMPLETED: 1-4-23
TOTAL DEPTH OF HOLE: 90'
BOREHOLE ELEVATION:
GROUNDWATER ELEVATION:
CASING ELEVATION:

RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
		Rotary Wash to 15'								SPT Sample - blow count 5/11/16
										Silty Sandy Clay, brown-moist, medium stiff
								2		Sandstone, yellow-brown, highly weathered, medium to fine, weak
								4		
										SPT Sample - blow count 6/50
								6		
								8		
								10		
								12		SPT Sample - 50 Blows for 6"
								14		

Berlogar Stevens & Associates

FIELD CORE LOG

PROJECT: Rooney/ Sand Hill PROJECT NO.: 4245.200A BORING NO.: 1 / Turbine 22

	RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
10:42am 10:47am	1		5	5'	3.1'	62%		36" 96%	15 16 18		Sandstone, yellow-brown, highly weathered, medium to fine grain, weak Sandstone, gray, highly weathered, medium to fine grain, strong Sandstone, yellow-brown, highly weathered, medium to fine grain, strong
10:55am 11:00am	2		5	5'	4.7'	94%		55" 95%	20 22 24		
11:23am 11:30am	3		7	5'	5'	100%		58.5" 97%	26 28 30		

Berlogar Stevens & Associates

FIELD CORE LOG

PROJECT: Rooney/ Sand Hill

PROJECT NO.: 4245.200A

BORING NO.: 1/ Turbine 22

	RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
11:23am 11:30am	3		7	5'	5'	100%		58.5" 97%	29		Sandstone, yellow-brown, highly weathered, medium to fine grain, strong
12:40pm 12:47pm	4		7	5'	1.5'	30%		0" 0%	30		
									32		
									34		Claystone, light gray, highly weathered, weak
1:05pm 1:11pm	5		6	5'	4.7'	94%		56.4" 94%			Claystone, light gray, highly weathered, moderately strong
									36		
									38		Sandstone, yellow-brown to red-brown, highly weathered, medium to fine grain, moderately strong
1:18pm 1:25pm	6		7	5'	5'	100%		60" 100%	40		
											Claystone, light gray, highly weathered, moderately strong
											Sandstone, yellow-brown to red-brown, highly weathered, medium to fine grain, moderately strong
									42		Sandstone, olive-brown, highly weathered, medium to fine grain, moderately strong
									44		

Berlogar Stevens & Associates

FIELD CORE LOG

PROJECT: Rooney/ Sand Hill

PROJECT NO.: 4245.200A

BORING NO.: 1/ Turbine 22

	RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
1:32pm 1:38pm	7		6	5'	5'	100%		44.4" 74%	45 46 48		Sandstone, olive-brown, highly weathered, medium to fine grain, moderately strong
1:43pm 1:49pm	8		6	5'	5'	100%		60" 100%	50 52 54		
1:52pm 2:00pm	9		6	5'	4.3'	86%		44" 72%	56 58 60		

Berlogar Stevens & Associates

FIELD CORE LOG

PROJECT: Rooney/ Sand Hill

PROJECT NO.: 4245.200A

BORING NO.: 1/ Turbine 22

	RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
1:52pm 2:00pm	9		6	5'	4.3'	86%		44" 72%	59		Sandstone, olive-brown, highly weathered, medium to fine grain, moderately strong
2:18pm 2:25pm	10		7	5'	3'	60%		22" 36%	60 62 64		
8:08am 8:15am	11		7	5'	4.7'	94%		53" 93%	66 68		
8:36am 8:42am	12		6	5'	5'	100%		60" 100%	70 72 74		

Berlogar Stevens & Associates

FIELD CORE LOG

PROJECT: Rooney/ Sand Hill

PROJECT NO.: 4245.200A

BORING NO.: 1/ Turbine 22

	RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
8:49am 8:55am	13		6	5'	4.6'	92%		55" 100%	75 76 78		Sandstone, olive-brown, highly weathered, medium to fine grain, moderately strong
											Sandstone, gray, highly weathered, medium to fine grain, very strong
									80		Sandstone, yellow-brown, highly weathered, medium to fine grain, strong
9:10am 9:17am	14		7	5'	4.7'	94%		56" 100%	82		Claystone, olive-gray, highly weathered, strong
									84		Sandstone, yellow-brown, highly weathered, medium to fine grain, strong
											Claystone, olive-gray, highly weathered, strong
10:32am 10:40am	15		8	5'	4.5'	90%		49" 91%	86		Sandstone, olive-brown, highly weathered, medium to fine grain, strong
									88		Claystone, olive-gray, highly weathered, strong
									90		Sandstone, olive-brown, highly weathered, medium to fine grain, strong

Sand Hill

Turbine 22


Sand Hill
Turbine 22
26.1
33.7
36.4
27.8
29.8
36.4
38.2
40

Sand Hill
Turbine 22


Sand Hill
Turbine 22
54.6
56.4
58.2
63.2
65
65.5'
67.2


Sand Hill
Turbine 22
67.2'
68.8'
70'
72'
73.8'
68.8
70'
71.7'
75'


Sand Hill
Turbine 22
75.6
76.8
77'
78.8
78.8
80'
82.5'
83.2
85'

Sand Hill

Turbine 22

BERLOGAR STEVENS & ASSOCIATES

FIELD CORE LOG

PROJECT: Rooney/San Hill
DRILLING COMPANY: Gregg Drilling
DRILLING METHOD: Diamond Core
DRILL RIG: CME 850
NUMBER OF CORE BOXES: 7
LOGGED BY: Andres Garibay
CASING TYPE: HQ3

PROJECT NO.: 4245.200A
BORING NO.: 2 / Turbine 28
DATE INITIATED: 1-6-23
DATE COMPLETED: 1-6-23
TOTAL DEPTH OF HOLE: 90'
BOREHOLE ELEVATION:
GROUNDWATER ELEVATION:
CASING ELEVATION:

	RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
			Hollow Stem to 10'							CL	Silty sandy clay, dark brown, moist-wet, medium-stiff
									2		Sandstone, yellow-brown, highly weathered, medium to fine grain, weak
									4		
									6		
									8		
									10		
8:52am 9:01am	1		9	5'	2.6'	52%		27" 84%			Sandstone, olive-brown, highly weathered, medium to fine grain, friable
									12		
									14		
9:09am 9:17am	2		8	5'	5'	100%		60" 100%	16		

BERLOGAR STEVENS & ASSOCIATES

FIELD CORE LOG

PROJECT: Rooney/San Hill
DRILLING COMPANY: Gregg Drilling
DRILLING METHOD: Diamond Core
DRILL RIG: CME 850
NUMBER OF CORE BOXES: 7
LOGGED BY: Andres Garibay
CASING TYPE: HQ3

PROJECT NO.: 4245.200A
BORING NO.: 2 / Turbine 28
DATE INITIATED: 1-6-23
DATE COMPLETED: 1-6-23
TOTAL DEPTH OF HOLE: 90'
BOREHOLE ELEVATION:
GROUNDWATER ELEVATION:
CASING ELEVATION:

	RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
9:09am 9:17am	2		8	5'	5'	100%		60" 100%	16 18 20		Sandstone, olive-brown, highly weathered, medium to fine grain, friable
9:23am 9:30am	3		7	5'	2.6'	52%		25" 81%	22 24		
9:36am 9:43am	4		7	5'	5'	100%		60" 100%	26 28 30		
9:46am 9:52am	5		6	5'	5'	100%		60" 100%	32		Sandstone, olive-brown, highly weathered, medium to fine grain, weak

BERLOGAR STEVENS & ASSOCIATES

FIELD CORE LOG

PROJECT: Rooney/San Hill
DRILLING COMPANY: Gregg Drilling
DRILLING METHOD: Diamond Core
DRILL RIG: CME 850
NUMBER OF CORE BOXES: 7
LOGGED BY: Andres Garibay
CASING TYPE: HQ3

PROJECT NO.: 4245.200A
BORING NO.: 2 / Turbine 28
DATE INITIATED: 1-6-23
DATE COMPLETED: 1-6-23
TOTAL DEPTH OF HOLE: 90'
BOREHOLE ELEVATION:
GROUNDWATER ELEVATION:
CASING ELEVATION:

	RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
9:46am 9:52am	5		6	5'	5'	100%		60" 100%	32, 34		Sandstone, olive-brown, highly weathered, medium to fine grain, weak
10:15am 10:21am	6		6	1'	.2'	20%			36		note: Core barrel plugged, resulted in 1' cut
									38, 40		
10:37am 10:45am	7		8	5'	5'	100%		60" 100%	42		Sandstone, olive-brown, highly weathered, medium to fine grain, strong
											Sandstone, olive-gray, highly weathered, medium to fine grain, strong
									44		Sandstone, olive-brown, highly weathered, medium to fine grain, strong
10:48am 10:55am	8		7	5'	4.6'	92%		54" 100%	46, 48		

BERLOGAR STEVENS & ASSOCIATES

FIELD CORE LOG

PROJECT: Rooney/San Hill
DRILLING COMPANY: Gregg Drilling
DRILLING METHOD: Diamond Core
DRILL RIG: CME 850
NUMBER OF CORE BOXES: 7
LOGGED BY: Andres Garibay
CASING TYPE: HQ3

PROJECT NO.: 4245.200A
BORING NO.: 2 / Turbine 28
DATE INITIATED: 1-6-23
DATE COMPLETED: 1-6-23
TOTAL DEPTH OF HOLE: 90'
BOREHOLE ELEVATION:
GROUNDWATER ELEVATION:
CASING ELEVATION:

	RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
10:48am 10:55am	8		7	5'	4.6'	92%		54" 100%	48 50 52		Sandstone, olive-brown, highly weathered, medium to fine grain, strong
12:40pm 12:47pm	9		7	5'	4.6'	92%		54" 100%			
									54		Sandstone, olive-gray, highly weathered, medium to fine grain, strong
12:49pm 12:57pm	10		8	5'	5'	100%		60" 100%	56 58 60		
1:07pm 1:13pm	11		6	5'	5'	100%		60" 100%	62 64		

BERLOGAR STEVENS & ASSOCIATES

FIELD CORE LOG

PROJECT: Rooney/San Hill
DRILLING COMPANY: Gregg Drilling
DRILLING METHOD: Diamond Core
DRILL RIG: CME 850
NUMBER OF CORE BOXES: 7
LOGGED BY: Andres Garibay
CASING TYPE: HQ3

PROJECT NO.: 4245.200A
BORING NO.: 2 / Turbine 28
DATE INITIATED: 1-6-23
DATE COMPLETED: 1-6-23
TOTAL DEPTH OF HOLE: 90'
BOREHOLE ELEVATION:
GROUNDWATER ELEVATION:
CASING ELEVATION:

	RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
1:07pm 1:13pm	11		6'	5'	5'	100%		60" 100%	64		Sandstone, olive-gray, highly weathered, medium to fine grain, strong
1:31pm 1:38pm	12		7	5'	5'	100%		60" 100%	66		
									68		
									70		
1:50pm 1:57pm	13		7	5'	4.6'	92%		55" 100%	72		
									74		
2:09pm 2:16pm	14		7						76		note: Sample stuck in barrel, destroyed during retrieval
									78		
									80		

BERLOGAR STEVENS & ASSOCIATES

FIELD CORE LOG

PROJECT: Rooney/San Hill
DRILLING COMPANY: Gregg Drilling
DRILLING METHOD: Diamond Core
DRILL RIG: CME 850
NUMBER OF CORE BOXES: 7
LOGGED BY: Andres Garibay
CASING TYPE: HQ3

PROJECT NO.: 4245.200A
BORING NO.: 2 / Turbine 28
DATE INITIATED: 1-6-23
DATE COMPLETED: 1-6-23
TOTAL DEPTH OF HOLE: 90'
BOREHOLE ELEVATION:
GROUNDWATER ELEVATION:
CASING ELEVATION:

	RUN NO.	DRILLING PRESSURE (psi)	DRILL RATE (MIN/FT)	CUT	RECOVERED	% RECOVERY	% DRILLING FLUID LOSS	RQD (%)	DEPTH	LOG	DESCRIPTION
2:21pm 2:29pm	15		8						80 82 84		note: Sample stuck in barrel, destroyed during retrieval
2:49pm 2:57pm	16		8	5'	4.7'	94%		57" 100%	86 88 90		Sandstone, olive-gray, highly weathered, medium to fine grain, strong Bottom of hole 90'


12.4'
14'
15.6'
17.4'
19.4'
20'
22.2'
15'
14'
15.6'
17.4
19.1'
23.2'
Sand Hill
Turbine 28


COMPANY Rooney/Sand Hill
PROPERTY 4245.200
HOLE NO. 2 / T-28
BOX NO. 2
FROM 23.2'
TO 32'
www.hole PRODUCTS.com
23.2
25.3'
27'
28.7'
30.3'
25'
30'
25.3'
27'
28.7
30.3'
32'
Sand Hill
Turbine 28

Sand Hill
Turbine 28


Sand Hill
Turbine 28
COMPANY
HOLE NO.
FROM
PROPERTY
BOX NO.
TO
45.6
51.5
50'
51'
47.3'
48.9
53.2'
55'


COMPANY
PROPERTY 4245.200
HOLE NO. 2/T-28
BOX NO. 5
FROM 55
TO 65
www.hole PRODUCTS.com
Sand Hill
Turbine 28
55
56.4
58.4
60
62
63.5
65


A TOP
COMPANY Renewy/Sand Hill
PROPERTY 4245.200
HOLE NO. 2/T-28
BOX NO. 6
FROM 65
TO 75
www.hole PRODUCTS.com
65'
66.4'
68'
68.1'
70'
71.6'
72'
73.6'
75'
Sand Hill
Turbine 28

Sand Hill

Turbine 28

APPENDIX B

Rotary Wash Logs

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB1

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.17.23 **COMPLETED** 4.17.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 17

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0	CL	Silty Sandy Clay, Brown, Dry-Moist, Med-Stiff		
					1		Sandstone, Yellow-Brown, Highly Weathered, Friable		
					2				
28	29	46	75		3				
					4				
					5				
33	50/5		50/5		6				
					7				
15	20	30	50		8		Claystone, Olive-Brown, Highly Weathered, Weak		
					9				
					10				
20	32	42	74		11				
					12				
					13				
					14				
					15				
28	45	50	95		16				
					17				
					18				
					19				
					20				

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB1

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.17.23 **COMPLETED** 4.17.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 17

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
29	31	50	81		21		Claystone, Olive-Brown, Highly Weathered, Weak		
					22				
					23				
					24				
					25				
13	20	40	60		26				
					27				
					28				
					29				
					30				
13	15	15	30		31				
					32				
					33				
					34				
					35				
11	15	20	35		36				
					37				
					38				
					39				
					40				

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB1

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.17.23 **COMPLETED** 4.17.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 17

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40				
22	50/5		50/5		41		Claystone, Olive-Brown, Moderately Weathered, Weak		
					42				
					43				
					44				
50/5			50/5		45				
					46				
					47				
					48				
					49				
					50				
36	37	42	79		51				
					52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
41	50/5		50/5		60		Bottom Of Hole 60'		

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB2

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.17.23 **COMPLETED** 4.18.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 18

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0	CL	Silty Sandy Clay, Brown, Dry-Moist, Med-Stiff		
					1		Sandstone, Yellow-Brown, Highly Weathered, Friable		
					2				
5	41	50/4	50/4		3				
					4				
					5				
19	39	42	81		6				
					7				
27	48	50/2	50/2		8				
					9				
					10				
36	50/4		50/4		11				
					12				
					13				
					14				
					15				
25	31	42	73		16		Claystone, Olive-Brown, Moderately Weathered, Weak		
					17				
					18				
					19				
					20				

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB2

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.17.23 **COMPLETED** 4.18.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 19

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
13	39	50/4	50/4		21		Sandstone, Yellow-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
45	43	50/6	50/6		26		Claystone, Olive-Brown, Moderately Weathered, Weak		
					27				
					28				
					29				
					30				
50/5			50/5		31		Sandstone, Olive-Brown, Moderately Weathered, Strong		
					32				
					33				
					34				
					35				
15	43	50/3	50/3		36				
					37				
					38				
					39				
					40				

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB2

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.17.23 **COMPLETED** 4.18.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 18

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40				
19	25	33	58		41		Claystone, Olive-Brown, Moderately Weathered, Weak		
					42				
					43				
					44				
10	21	20	41		45				
					46				
					47				
					48				
					49				
					50				
50/5			50/5		51				
					52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
18	41	50/3	50/3		60		Bottom Of Hole 60'		

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB3

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.18.23 **COMPLETED** 4.18.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 19

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0	CL	Silty Sandy Clay, Brown, Dry-Moist, Med-Stiff		
					1		Sandstone, Yellow-Brown, Highly Weathered, Friable		
					2				
2	7	25	32		3				
					4				
					5				
					6				
					7				
22	50/5		50/5		8		Claystone, Olive-Gray to Olive-Brown, Moderately Weathered, Weak		
					9				
					10				
					11				
					12				
50/1			50/1		13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB3

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.18.23 **COMPLETED** 4.18.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 19

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
50/6			50/6		21		Sandstone, Yellow-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
45	50/2		50/2		28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
50/5			50/5		36				
					37				
					38				
					39				
					40				

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Pleasanton, CA 94566

BORING NUMBER RB3

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.18.23 **COMPLETED** 4.18.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 19

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40				
					41				
					42				
					43		Claystone, Olive-Brown, Moderately Weathered, Weak		
20	50/5		50/5		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
40	50/6		50/6		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
43	50/5		50/5		60				
							Bottom Of Hole 60.5'		

Berlogar Stevens & Associates
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Pleasanton, CA 94566

BORING NUMBER RB4

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.19.23 **COMPLETED** 4.19.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 20

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0	CL	Silty Sandy Clay, Brown, Dry-Moist, Med-Stiff		
					1		Sandstone, Yellow-Brown, Highly Weathered, Friable		
7	12	24	36		2				
					3				
					4				
					5				
					6				
					7				
9	22	30	52		8		Claystone, Olive-Brown, Moderately Weathered, Weak		
					9				
					10				
					11				
					12				
21	50/6		50/6		13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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Pleasanton, CA 94566

BORING NUMBER RB4

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.19.23 **COMPLETED** 4.19.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 20

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
50/5			50/5		21		Claystone, Olive-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
50/4			50/4		28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
50/6			50/6		36				
					37				
					38				
					39				
					40				

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Pleasanton, CA 94566

BORING NUMBER RB4

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.19.23 **COMPLETED** 4.19.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 20

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40				
					41				
					42				
					43		Claystone, Olive-Brown, Moderately Weathered, Weak		
50/6			50/6		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
50/4			50/4		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/5			50/5		60				
							Bottom Of Hole 60.5'		

Berlogar Stevens & Associates
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Pleasanton, CA 94566

BORING NUMBER RB5

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.19.23 **COMPLETED** 4.19.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 21

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0	CL	Silty Sandy Clay, Brown, Dry-Moist, Med-Stiff		
					1				
					2				
3	10	28	38		3		Claystone, Olive-Brown, Highly Weathered, Friable		
					4				
					5				
					6				
					7				
13	17	27	44		8		Claystone, Olive-Brown, Moderately Weathered, Weak		
					9				
					10				
					11				
					12				
24	35	50/5	50/5		13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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Pleasanton, CA 94566

BORING NUMBER RB5

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.19.23 **COMPLETED** 4.19.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 21

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
22	35	50/4	50/4		21		Claystone, Olive-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
18	22	40	64		28		Claystone, Gray to Olive-Brown, Moderately Weathered, Weak		
					29				
					30				
					31				
					32				
					33				
					34				
					35				
35	34	50/5	50/5		36				
					37				
					38				
					39				
					40				

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BORING NUMBER RB5

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.19.23 **COMPLETED** 4.19.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 21

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40		Claystone, Olive-Brown, Moderately Weathered, Weak		
					41				
					42				
					43				
26	35	50/5	50/5		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
50/4			50/4		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/6			50/6		60				
							Bottom Of Hole 60.5'		

Berlogar Stevens & Associates
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Pleasanton, CA 94566

BORING NUMBER RB6

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.20.23 **COMPLETED** 4.20.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 25

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0	CL	Silty Sandy Clay, Brown, Dry-Moist, Med-Stiff		
					1				
					2				
6	20	39	59		3		Sandstone, Red-Brown, Highly Weathered, Friable		
					4				
					5				
					6				
					7				
13	38	50/3	50/3		8		Claystone, Olive-Brown, Highly Weathered, Friable		
					9				
					10				
					11				
					12				
33	50/5		50/5		13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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Pleasanton, CA 94566

BORING NUMBER RB6

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.20.23 **COMPLETED** 4.20.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 25

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
14	19	36	55		21		Claystone, Olive-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
50/3			50/3		28		Sandstone, Yellow-Brown, Moderately Weathered, Weak		
					29				
					30				
					31				
					32				
					33				
					34				
					35				
50/5			50/5		36		Claystone, Gray, Moderately Weathered, Weak		
					37				
					38				
					39				
					40				

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BORING NUMBER RB6

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.20.23 **COMPLETED** 4.20.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 25

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40				
					41				
					42		Claystone, Olive-Brown, Moderately Weathered, Weak		
					43				
50/2			50/2		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
50/3			50/3		52		Claystone, Gray, Moderately Weathered, Weak		
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/1			50/1		60		Sandstone, Gray, Highly Weathered, Friable		
							Bottom Of Hole 60.5'		

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB7

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.20.23 **COMPLETED** 4.20.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 29

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0		Silty Sandy Clay, Brown, Dry-Moist, Med-Stiff		
					1	CL			
					2				
5	8	23	31		3				
					4				
					5				
					6				
					7				
7	10	14	24		8		Claystone, Olive-Brown, Highly Weathered, Friable		
					9				
					10				
					11				
					12				
40	50/2		50/2		13		Claystone, Olive-Brown, Moderately Weathered, Weak		
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB7

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.20.23 **COMPLETED** 4.20.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 29

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
50/5			50/5		21		Claystone, Olive-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
					28				
50/6			50/6		29				
					30				
					31				
					32				
					33				
					34				
					35				
47	50/5		50/5		36				
					37				
					38				
					39				
					40				

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Pleasanton, CA 94566

BORING NUMBER RB7

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.20.23 **COMPLETED** 4.20.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 29

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40				
					41				
					42		Claystone, Olive-Brown, Moderately Weathered, Weak		
					43				
27	50/3		50/3		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
50/5			50/5		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/6			50/6		60				
							Bottom Of Hole 60.5'		

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1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB8

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.21.23 **COMPLETED** 4.21.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 23

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0	CL	Silty Sandy Clay, Brown, Dry-Moist, Med-Stiff		
					1				
					2				
					3		Sandstone, Yellow-Brown, Highly Weathered, Friable		
24	49	50/5	50/5		4				
					5				
					6				
					7				
34	50/5		50/5		8				
					9				
					10				
					11				
					12				
41	50/5		50/5		13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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Pleasanton, CA 94566

BORING NUMBER RB8

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.21.23 **COMPLETED** 4.21.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 23

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
34	40	49	89		21		Sandstone, Yellow-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
					28		Claystone, Olive-Brown, Moderately Weathered, Weak		
29	33	50/4	50/4		29				
					30				
					31				
					32				
					33				
					34				
					35				
50/3			50/3		36				
					37				
					38				
					39				
					40				

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Pleasanton, CA 94566

BORING NUMBER RB8

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.21.23 **COMPLETED** 4.21.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 23

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40		Claystone, Olive-Brown, Moderately Weathered, Weak		
					41				
					42				
					43				
44	50/4		50/4		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
50/5			50/5		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/5			50/5		60				
							Bottom Of Hole 60.5'		

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Pleasanton, CA 94566

BORING NUMBER RB9

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.21.23 **COMPLETED** 4.21.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 26

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0	CL	Silty Sandy Clay, Brown, Dry, Med-Stiff		
					1				
					2		Sandstone, Yellow-Brown, Highly Weathered, Friable		
6	39	38	77		3				
					4				
					5				
					6				
					7				
26	21	29	50		8				
					9				
					10				
					11				
					12				
20	20	28	48		13		Claystone, Olive-Brown, Moderately Weathered, Weak		
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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Pleasanton, CA 94566

BORING NUMBER RB9

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.21.23 **COMPLETED** 4.21.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 26

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
6	4	9	13				Claystone, Olive-Brown, Moderately Weathered, Weak		
					21				
					22				
					23				
					24				
					25				
					26				
					27				
20	50/5		50/5						
					28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
29	50/2		50/2						
					36				
					37				
					38				
					39				
					40				

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BORING NUMBER B-

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.21.23 **COMPLETED** 4.21.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 26

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40		Claystone, Olive-Brown, Moderately Weathered, Weak		
					41				
					42				
					43				
37	50/6		50/6		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
34	50/5		50/5		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/5			50/5		60				
							Bottom Of Hole 60.5'		

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Pleasanton, CA 94566

BORING NUMBER RB10

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.24.23 **COMPLETED** 4.24.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 27

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0				
						CL	Silty Sandy Clay, Brown, Dry, Med-Stiff		
					1				
					2				
8	8	11	19						
					3		Sandstone, Red-Brown, Highly Weathered, Friable		
					4				
					5				
					6				
					7				
6	15	15	30						
					8		Claystone, Olive-Brown, Highly Weathered, Friable to Weak		
					9				
					10				
					11				
					12				
18	32	43	75						
					13		Claystone, Olive-Brown to Olive-Gray, Moderately Weathered, Weak		
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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Pleasanton, CA 94566

BORING NUMBER RB10

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.24.23 **COMPLETED** 4.24.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 27

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
50/3			50/3		21		Claystone, Olive-Brown to Olive-Gray, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
50/1			50/1		28		Sandstone, Gray, Highly Weathered, Weak		
					29				
					30				
					31				
					32				
					33				
					34				
					35				
50/4			50/4		36		Claystone, Olive-Brown, Moderately Weathered, Weak		
					37				
					38				
					39				
					40				

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BORING NUMBER RB10

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.24.23 **COMPLETED** 4.24.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 27

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40		Claystone, Olive-Brown, Moderately Weathered, Weak		
					41				
					42				
					43				
37	50/6		50/6		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
34	50/5		50/5		52		Sandstone, Gray, Highly Weathered, Moderately Strong		
					53		Sampler bouncing off bedrock. Sample retrieved by using sifter in water coming out of the conductor casing.		
					54				
					55				
					56				
					57				
					58				
					59				
50/5			50/5		60		Claystone, Olive-Gray, Moderately Weathered, Weak		
							Bottom Of Hole 60.5'		

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Pleasanton, CA 94566

BORING NUMBER RB11

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.24.23 **COMPLETED** 4.24.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 24

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0				
						CL	Silty Sandy Clay, Brown, Dry-Moist, Med-Stiff		
					1				
							Sandstone, Red-Brown, Highly Weathered, Friable		
					2				
4	18	50/3	50/3						
					3				
					4				
					5				
					6				
					7				
50/2			50/2						
					8				
					9				
					10				
					11				
					12				
18	32	43	75						
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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Pleasanton, CA 94566

BORING NUMBER RB11

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.24.23 **COMPLETED** 4.24.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 24

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
50/3			50/3		21		Claystone, Olive-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
22	30	50/5	50/5		28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
42	50/3		50/3		36				
					37				
					38				
					39				
					40				

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BORING NUMBER RB11

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.24.23 **COMPLETED** 4.24.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 24

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40		Claystone, Olive-Brown, Moderately Weathered, Weak		
					41				
					42				
					43				
26	38	50/5	50/5		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
50/4			50/4		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
40	50/5		50/5		60				
							Bottom Of Hole 60.5'		

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Pleasanton, CA 94566

BORING NUMBER RB12

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.25.23 **COMPLETED** 4.25.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 3

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0				
						CL	Silty Sandy Clay, Brown, Dry-Moist, Med-Stiff		
					1				
					2				
					3				
8	13	26	39						
					4		Sandstone, Yellow-Brown, Highly Weathered, Friable		
					5				
					6				
					7				
6	20	34	54				Claystone, Olive-Brown, Highly Weathered, Friable		
					8				
					9				
					10				
					11				
					12				
34	50/5		50/5						
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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BORING NUMBER RB12

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.25.23 **COMPLETED** 4.25.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 3

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
50/4			50/4		21		Sandstone, Red-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
40	50/3		50/3		28		Claystone, Olive-Brown to Olive-Gray, Moderately Weathered, Weak		
					29				
					30				
					31				
					32				
					33				
					34				
					35				
50/5			50/5		36				
					37				
					38				
					39				
					40				

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BORING NUMBER RB12

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.25.23 **COMPLETED** 4.25.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 3

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40		Claystone, Olive-Brown to Olive-Gray, Moderately Weathered, Weak		
					41				
					42				
					43				
50/5			50/5		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
50/5			50/5		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/5			50/5		60				
							Bottom Of Hole 60.5'		

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Pleasanton, CA 94566

BORING NUMBER RB13

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.25.23 **COMPLETED** 4.25.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 4

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0				
						CL	Silty Sandy Clay, Brown, Dry, Med-Stiff		
					1				
							Claystone, Olive-Brown, Moderately Weathered, Weak		
					2				
2	3	9	12						
					3				
					4				
					5				
					6				
					7				
5	14	27	41						
					8				
					9				
					10				
					11				
					12				
13	19	24	43						
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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Pleasanton, CA 94566

BORING NUMBER RB13

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.25.23 **COMPLETED** 4.25.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 4

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
23	25	25	50		21		Claystone, Olive-Brown to Olive-Gray, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
					28				
50/1			50/1		29				
					30				
					31				
					32				
					33				
					34				
					35				
17	9	30	39		36				
					37				
					38				
					39				
					40				

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BORING NUMBER RB13

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.25.23 **COMPLETED** 4.25.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 4

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40		Claystone, Olive-Brown, Moderately Weathered, Weak		
					41				
					42				
					43				
50/3			50/3		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
50/3			50/3		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/3			50/3		60				
							Bottom Of Hole 60.5'		

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BORING NUMBER RB14

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.26.23 **COMPLETED** 4.26.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 5

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0				
						CL	Silty Sandy Clay, Brown, Dry, Soft		
					1				
					2				
6	5	6	11						
					3				
					4				
					5				
					6				
					7				
14	28	38	66				Claystone, Olive-Brown, Highly Weathered, Friable		
					8				
					9				
					10				
					11				
					12				
33	46	50/5	50/5						
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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BORING NUMBER RB14

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.26.23 **COMPLETED** 4.26.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 5

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
50/5			50/5		21		No recovery		
					22				
					23				
					24				
					25				
					26				
					27				
					28		Claystone, Olive-Gray to Olive-Brown, Moderately Weathered, Weak		
50/4			50/4		29				
					30				
					31				
					32				
					33				
					34				
					35				
50/4			50/4		36				
					37				
					38				
					39				
					40				

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BORING NUMBER RB14

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.26.23 **COMPLETED** 4.26.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 5

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40				
					41				
					42				
					43				
50/4			50/4		44		Claystone, Olive-Brown, Moderately Weathered, Weak		
					45				
					46				
					47				
					48				
					49				
					50				
					51				
18	21	26	47		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/1			50/1		60				
							Bottom Of Hole 60.5'		

Berlogar Stevens & Associates
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Pleasanton, CA 94566

BORING NUMBER RB15

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.26.23 **COMPLETED** 4.26.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 6

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0				
						CL	Silty Sandy Clay, Brown, Dry, Med-Stiff		
					1				
					2				
3	13	9	22		3				
					4				
					5				
					6				
					7				
9	5	13	18		8		Claystone, Olive-Brown, Highly Weathered, Friable		
					9				
					10				
					11				
					12				
34	50/4		50/4		13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB15

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.26.23 **COMPLETED** 4.26.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 6

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
22	50/6		50/6		21		Claystone, Olive-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
31	39	39	78		28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
50/6			50/6		36				
					37				
					38				
					39				
					40				

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Pleasanton, CA 94566

BORING NUMBER RB15

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.26.23 **COMPLETED** 4.26.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 6

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40				
					41				
					42				
46	50/3		50/3		43		Claystone, Olive-Brown, Moderately Weathered, Weak		
					44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
50/6			50/6		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/5			50/5		60				
							Bottom Of Hole 60.5'		

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Pleasanton, CA 94566

BORING NUMBER RB16

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.27.23 **COMPLETED** 4.27.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 7

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0				
						CL	Silty Sandy Clay, Brown, Dry, Med-Stiff		
					1				
					2				
2	8	7	15						
					3		Claystone, Olive-Brown, Moderately Weathered, Weak		
					4				
					5				
					6				
					7				
3	10	9	19						
					8				
					9				
					10				
					11				
					12				
11	20	24	44						
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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Pleasanton, CA 94566

BORING NUMBER RB16

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.27.23 **COMPLETED** 4.27.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 7

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
22	30	32	62		21		Claystone, Olive-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
26	47	50/5	50/5		28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
50/5			50/5		36				
					37				
					38				
					39				
					40				

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1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB16

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.27.23 **COMPLETED** 4.27.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 7

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40		Claystone, Olive-Brown, Moderately Weathered, Weak		
					41				
					42				
					43				
29	50/5		50/5		44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
31	46	50/4	50/4		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
41	50/3		50/3		60				
							Bottom Of Hole 60.5'		

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Pleasanton, CA 94566

BORING NUMBER RB17

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.27.23 **COMPLETED** 4.27.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 9

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0	CL	Silty Sandy Clay, Brown, Dry, Soft		
					1				
					2				
5	9	15	24		3				
							Claystone, Olive-Brown, Highly Weathered, Friable		
					4				
					5				
					6				
					7				
15	21	27	48		8				
					9				
					10				
					11				
					12				
20	31	43	74		13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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Pleasanton, CA 94566

BORING NUMBER RB17

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.27.23 **COMPLETED** 4.27.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 9

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
27	33	41	54		21		Claystone, Olive-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
28	38	50/6	50/6		28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
25	39	39	78		36				
					37				
					38				
					39				
					40				

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Pleasanton, CA 94566

BORING NUMBER RB17

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.27.23 **COMPLETED** 4.27.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 9

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40		Claystone, Olive-Brown, Moderately Weathered, Weak		
					41				
					42				
					43				
					44				
50/6			50/6		45				
					46				
					47				
					48				
					49				
					50				
					51				
50/5			50/5		52		Claystone, Gray, Moderately Weathered, Weak		
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/3			50/3		60				
							Bottom Of Hole 60.5'		

Berlogar Stevens & Associates
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Pleasanton, CA 94566

BORING NUMBER RB18

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.27.23 **COMPLETED** 4.27.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 8

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0				
						CL	Silty Sandy Clay, Dark Brown, Dry-Moist, Med-Stiff		
					1				
					2				
7	7	10	17						
					3				
					4				
					5				
					6				
					7				
10	24	35	59				Claystone, Olive-Brown, Highly Weathered, Friable		
					8				
					9				
					10				
					11				
					12				
26	35	40	75						
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

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Pleasanton, CA 94566

BORING NUMBER RB18

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.27.23 **COMPLETED** 4.27.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 8

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
50/1			50/1		21		Sandstone, Red-Brown, Moderately Weathered, Weak		
					22				
					23				
					24				
					25				
					26				
					27				
50/5			50/5		28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
50/6			50/6		36				
					37				
					38				
					39				
					40				

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1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER RB18

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 4.27.23 **COMPLETED** 4.27.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rotary Wash
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER 140lb Auto Hammer - 30" Drop
NOTES Turbine 8

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					40		Claystone, Olive-Brown, Moderately Weathered, Weak		
					41				
					42				
					43				
					44				
50/5			50/5		45				
					46				
					47				
					48				
					49				
					50				
					51				
39	50/5		50/5				No recovery		
					52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
50/4			50/4		60		No recovery		
							Bottom Of Hole 60.5'		

APPENDIX C

Hollow Stem Logs

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER B-1

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 3.15.23 **COMPLETED** 3.15.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rhino
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER DH103
NOTES AML Substation

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT	BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
			0		6" of crushed rock		
Hand auger to 3.5'			1	CL	Sandy Clay, Med-Brown, Dry-Moist, Med-Stiff (Fill)		
			2				
			3				
50/6	50/6		4		Claystone, Olive-Brown, Highly weathered, Weak		
			5		Sandstone, Yellow-Brown, Highly Weathered, Friable		
			6				
			7				
			8				
50/2	50/2		9				
			10				
			11				
			12				
			13				
50/6	50/6		14				
			15		Bottom of Hole 15'		
			16				
			17				
			18				
			19				
			20				

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER B-2

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 3.15.23 **COMPLETED** 3.15.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rhino
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER DH103
NOTES AML Substation

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0		6" of crushed rock		
Hand auger to 3.5'					1	CL	Sandy Clay, Med-Brown, Dry-Moist, Med-Stiff (Fill)		
					2		Claystone, Olive-Brown, Highly weathered, Weak		
					3				
9	26	30	56		4				
					5		Sandstone, Yellow-Brown, Highly weathered, Friable		
					6				
					7				
					8				
12	29	50/3	50/3		9				
					10				
					11				
					12				
					13				
18	40	50/3	50/3		14				
					15				
					16				
					17				
					18				
15	50/6		50/6		19		Claystone, Gray, Highly weathered, Friable		
					20				

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER B-2

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 3.15.23 **COMPLETED** 3.15.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rhino
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER DH103
NOTES AML Substation

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
					21		Claystone, Gray, Highly weathered, Friable		
					22				
					23				
37	50/3		50/3		24		Claystone, Olive-Brown, Highly weathered, Weak		
					25		Bottom of Hole 25'		
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				

Berlogar Stevens & Associates
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BORING NUMBER B-3

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 3.15.23 **COMPLETED** 3.15.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rhino
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER DH103
NOTES AML Substation

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0		6" of crushed rock		
Hand auger to 3.5'					1	CL	Sandy Clay, Med-Brown, Dry-Moist, Med-Stiff (Fill)		
					2				
					3		Sandstone, Yellow-Brown, Highly Weathered, Friable		
12	40	50/3	50/3		4				
					5				
					6				
					7				
					8				
17	50/5		50/5		9				
					10		Bottom of Hole 10'		
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

Berlogar Stevens & Associates
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Pleasanton, CA 94566

BORING NUMBER B-4

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 3.15.23 **COMPLETED** 3.15.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rhino
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER DH103
NOTES Zond Substation

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0		6" of crushed rock		
Hand auger to 3.5'					1	SC	Silty Clayey Sand, Brown, Moist-Wet, Med-Dense		
					2				
					3				
8	9	13	22	X	4				
					5				
					6				
					7				
					8				
3	3	5	8	X	9				
					10				
					11				
					12				
					13				
2	2	1	3	X	14				
					15				
					16				
					17				
					18				
3	3	2	5	X	19		Claystone, Gray, Highly weathered, Friable		
					20				
							Bottom of Hole 20 Feet		

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BORING NUMBER B-4

CLIENT Viracocha Wind
PROJECT NAME Rooney/Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore CA
DATE STARTED 3.15.23 **COMPLETED** 3.15.23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rhino
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER DH103
NOTES Zond Substation

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20				
					21	SC	Silty Clayey Sand, Brown, Moist-Wet, Med-Dense		
					22				
					23				
2	3	7	10	X	24				
				X	25				
					26				
					27				
					28				
50/6			50/6	X	29		Claystone, Olive-Brown, Highly weathered, Weak		
				X	30				
					31				
					32				
					33				
50/3			50/3	X	34				
				X	35		Bottom of Hole 35'		
					36				
					37				
					38				
					39				
					40				

Berlogar Stevens & Associates
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Pleasanton, CA 94566

BORING NUMBER B-5

CLIENT Viracocha Wind
PROJECT NAME Rooney / Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore, CA
DATE STARTED 3-16-23 **COMPLETED** 3-16-23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rhino
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER DH03
NOTES Zond Substation

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0		6 INCHES / CRUSHED ROCK		
HAND AUGER							YELLOW-		
TO 3.5'					1	SC	SILTY CLAYEY SAND, BROWN, MOIST-WET, MED-DENSE		
					2				
					3				
5	8	10	18	X	4				
					5				
					6				
					7				
					8				
5	7	11	18	X	9				
					10				
					11				
					12				
					13				
7	9	9	18	X	14				
					15				
					16				
					17				
					18				
1	1	3	4	X	19				
					20				

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1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER B-5

CLIENT Viracocha Wind
PROJECT NAME Rooney / Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Location
DATE STARTED 3-16-23 **COMPLETED** 3-16-23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rhino
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER DH03
NOTES Zond Substation

Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					20	SC	SILTY CLAYEY SAND, YELLOW-BROWN, MOIST-WET, MED-DENSE		
					21				
					22				
					23				
26	35	48	83	X	24		CLAYSTONE, OLIVE-BROWN, MODERATELY WEATHERED, WEAK		
					25				
					26				
					27				
					28				
12	22	31	53	X	29				
					30		Bottom of Hole 30 Feet		
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				

Berlogar Stevens & Associates
1220 Quarry Lane
Pleasanton, CA 94566

BORING NUMBER B-6

CLIENT Viracocha Wind
PROJECT NAME Rooney / Sand Hill
PROJECT NUMBER 4245.200
PROJECT LOCATION Livermore, CA
DATE STARTED 3-16-23 **COMPLETED** 3-16-23
LOGGED BY: AG
DRILLING CONTRACTOR Gregg
GROUNDWATER: **AT TIME OF DRILLING** ---
DRILLING EQUIPMENT Rhino
SAMPLER TYPE: **AT END OF DRILLING** ---
HAMMER DH03
NOTES Zond Substation

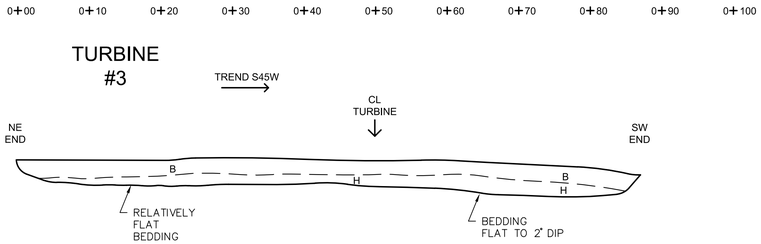
Modified California Sampler | Standard Penetration Test | Bulk Sample | Shelby Tube

BLOWS PER HALF FOOT			BLOWS PER FOOT	SAMPLER	DEPTH (ft)	USCS CLASSIFICATION	MATERIAL DESCRIPTION	POCKET PENETROMETER	TORVANE SHEAR STRENGTH
					0		6 INCHES / CRUSHED ROCK		
HAND AUGER					1				
TO 3.5'									
					2	SC	SILTY CLAYEY SAND, YELLOW-BROWN, MOIST-WET, MED-DENSE		
					3				
8	6	7	13		4				
					5				
					6				
					7				
					8				
1	2	3	5		9				
					10				
					11				
					12				
					13				
50/3			50/3		14		SANDSTONE, LIGHT-GRAY, HIGHLY WEATHERED, WEAK		
					15		Bottom of Hole 13.3 Feet		
					16				
					17				
					18				
					19				
					20				

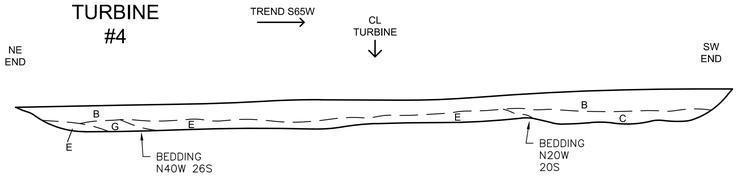
APPENDIX D

Trench Logs

TURBINE #3

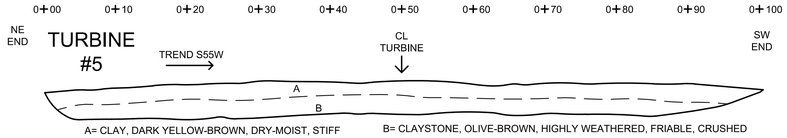


TURBINE #4



H= SILTSTONE THINLY BEDDED WITH SANDSTONE, FINE-GRAINED, TAN BROWN, HIGHLY WEATHERED, WEAK, HIGHLY FRACTURED, THINLY LAMINATED

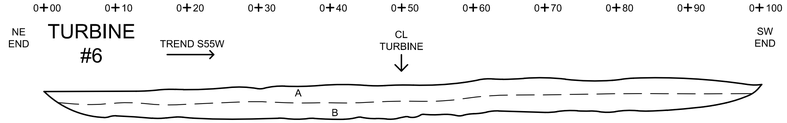
TURBINE #5



A= CLAY, DARK YELLOW-BROWN, DRY-MOIST, STIFF

B= CLAYSTONE, OLIVE-BROWN, HIGHLY WEATHERED, FRIABLE, CRUSHED

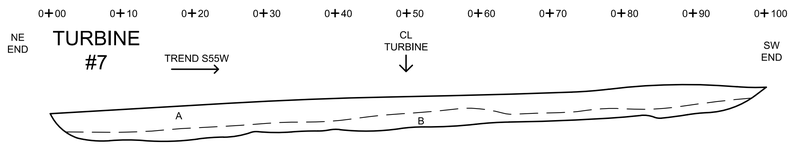
TURBINE #6



A= CLAY, DARK YELLOW-BROWN, DRY-MOIST, STIFF

B= CLAYSTONE, OLIVE-BROWN, HIGHLY WEATHERED, FRIABLE, CRUSHED

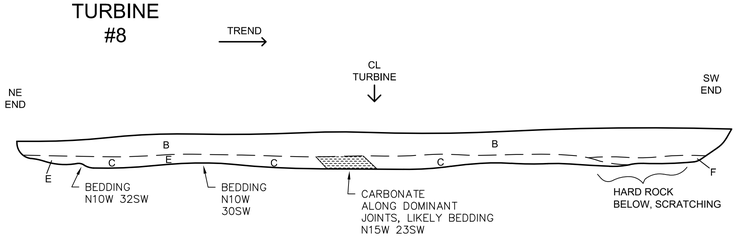
TURBINE #7



A= CLAY, DARK YELLOW-BROWN, DRY-MOIST, STIFF

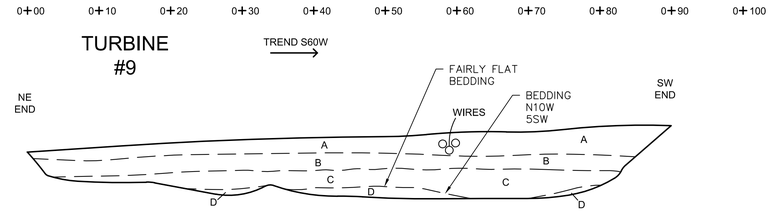
B= CLAYSTONE, OLIVE-BROWN, HIGHLY WEATHERED, FRIABLE, CRUSHED

TURBINE #8



G= SANDSTONE, FINE-GRAINED, LT GRAY TO BROWN, HIGHLY WEATHERED, VERY STRONG TO STRONG (BOULDER FORMING ON IT)

TURBINE #9



A= GRAVELLY CLAY, TAN-BROWN, DRY, STIFF, (FILL) ANGULAR TO ROUNDED GRAVEL, UP TO 2 INCHES

D= CLAYSTONE, RED-BROWN, HIGHLY WEATHERED, FRIABLE, CRUSHED

B= CLAY, DARK YELLOW-BROWN, MOIST, STIFF

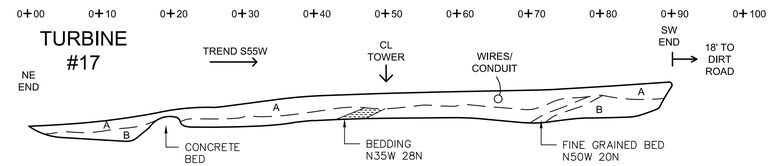
C= CLAYSTONE,OLIVE-BROWN, HIGHLY WEATHERED, FRIABLE, CRUSHED

E= SANDSTONE, FINE-GRAINED, TAN-BROWN, HIGHLY WEATHERED, FRIABLE, HIGHLY FRACTURED

F= SANDY CLAY, DARK BROWN, MOIST, STIFF, FINE-GRAINED SAND

0 5 10 20
SCALE IN FEET

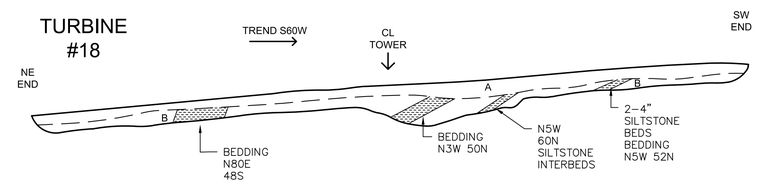
TURBINE #17



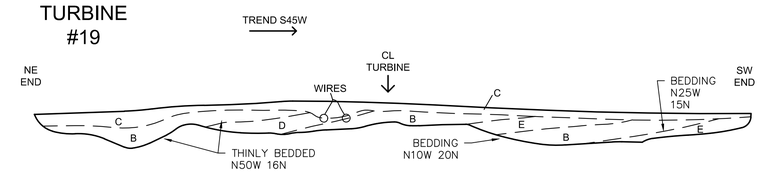
A= CLAY, DARK BROWN, DRY, STIFF, BLOCKY PAD STRUCTURE

B= SANDSTONE, FINE-GRAINED, TAN-BROWN, HIGHLY WEATHERED, WEAK

TURBINE #18



TURBINE #19



C= CLAY, BROWN TO GRAY-BROWN, DRY, STIFF

E= SANDSTONE, FINE-GRAINED, LT GRAY, HIGHLY WEATHERED, HIGHLY FRACTURED, WEAK

D= SILTSTONE, CLAYSTONE, OLIVE-GRAY TO REDDISH BROWN, HIGHLY WEATHERED, WEAK, THINLY BEDDED

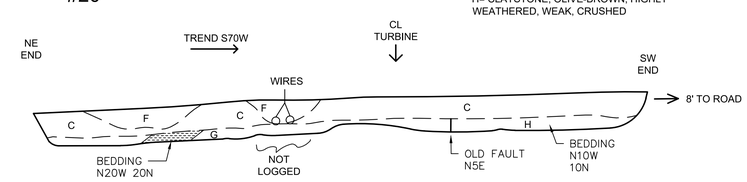
F= CLAY W/GRAVEL, BROWN, DRY, MEDIUM STIFF (FILL) GRAVEL UP TO 2 INCHES

TURBINE #20

*TRENCH IS ~ $\frac{1}{2}$ WAY BETWEEN LOCATIONS

G= SHALE (CLAYSTONE), OLIVE-GRAY TO LIGHT GRAY, HIGHLY WEATHERED, WEAK, CRUSHED TO HEAVY FRACTURED, THINLY BEDDED

H= CLAYSTONE, OLIVE-BROWN, HIGHLY WEATHERED, WEAK, CRUSHED



WIND TURBINE TRENCH LOGS

ROONEY SANDHILL

SANTA CLARA, CALIFORNIA

Berlogar Stevens & Associates

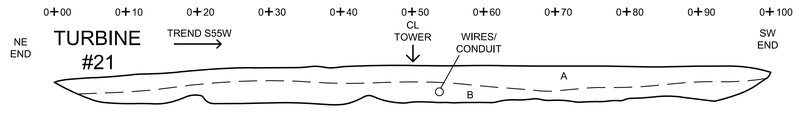
SOIL ENGINEERS * ENGINEERING GEOLOGISTS

DRAWN BY: ZG

DATE: 11/09/22

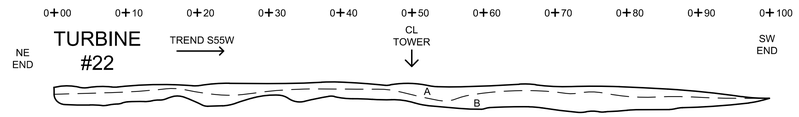
JOB NUMBER: 4245.200

BASE: GOOGLE EARTH, 2022



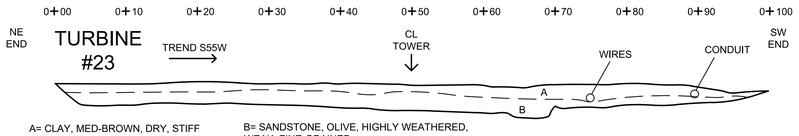
A= CLAY, DARK BROWN, DRY, STIFF

B= SANDSTONE, FINE GRAIN, YELLOW-BROWN, HIGHLY WEATHERED, WEAK



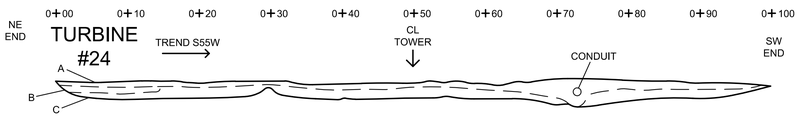
A= CLAY, DARK BROWN, DRY, STIFF

B= SANDSTONE, FINE GRAIN, TAN-BROWN, HIGHLY WEATHERED, WEAK



A= CLAY, MED-BROWN, DRY, STIFF

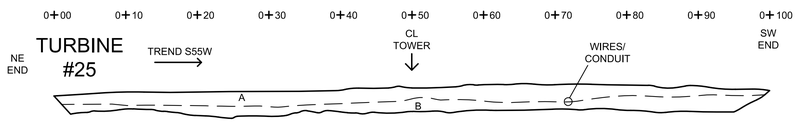
B= SANDSTONE, OLIVE, HIGHLY WEATHERED, WEAK, FINE-GRAINED



A= CLAY, MED-BROWN, DRY, STIFF

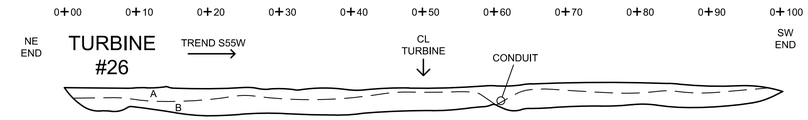
B= SILTSTONE, LIGHT-GRAY, HIGHLY WEATHERED, WEAK

C= SANDSTONE,YELLOW-BROWN, HIGHLY WEATHERED, WEAK, FINE GRAINED



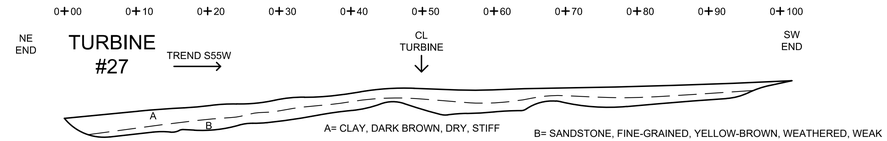
A= CLAY, DARK BROWN, DRY, STIFF

B= SANDSTONE, FINE GRAIN, DARK YELLOW-BROWN, HIGHLY WEATHERED, WEAK



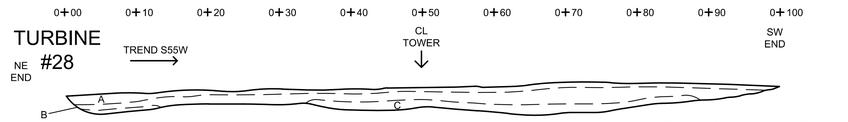
A= CLAY, MED-BROWN, DRY, STIFF

B= SANDSTONE, FINE-GRAINED, YELLOW-BROWN, HIGHLY WEATHERED, WEAK



A= CLAY, DARK BROWN, DRY, STIFF

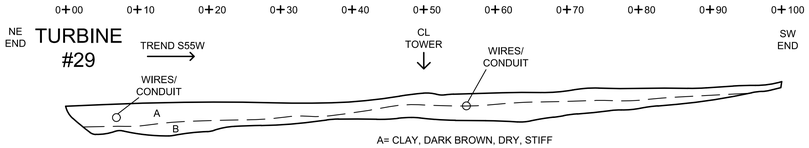
B= SANDSTONE, FINE-GRAINED, YELLOW-BROWN, WEATHERED, WEAK



A= CLAY, DARK BROWN, DRY, STIFF

B= SILTSTONE, LIGHT GRAY, HIGHLY WEATHERED, WEAK

C= SANDSTONE, DARK YELLOW-BROWN, FINE-GRAINED, HIGHLY WEATHERED, WEAK



A= CLAY, DARK BROWN, DRY, STIFF

B= SANDSTONE, DARK YELLOW-BROWN, HIGHLY WEATHERED, WEAK, FINE-GRAINED

WIND TURBINE TRENCH LOGS

ROONEY SANDHILL

SANTA CLARA, CALIFORNIA

Berlogar Stevens & Associates

SOIL ENGINEERS * ENGINEERING GEOLOGISTS

DRAWN BY: ZG

DATE: 11/09/22

JOB NUMBER: 4245-200

BASE: GOOGLE EARTH, 2022

APPENDIX E

Test Pits

Job No. 4245.200
Rooney/Sand Hill
Alameda County, California

Test Pit Logs

TP-1

0’ – 2.5’	Silty Clay, dark brown, moist-wet, soft
2.5’ – 6’	Claystone, weathered, olive to olive-brown, weak

TP-2

0’ – 2’	Silty Clay, dark-brown, moist-wet, soft
2’ – 6’	Silty Clay, red-brown, moist-wet, medium stiff
6’ – 7’	Claystone, light olive-brown to tan, weathered, weak

TP-3

0’ – 2.5’	Silty Clay, dark brown, moist-wet, soft
2.5’ – 3.5’	Claystone, olive to olive-brown, highly weathered, weak
3.5’ – 7’	Claystone, red-brown, weathered, weak

TP-4

0’ – 3’	Silty Clay, dark brown, moist-wet, soft
3’ – 7’	Sandstone, highly weathered, yellow-brown, weak

TP-5

0’ – 3’	Silty Clay, dark-brown, moist-wet, soft
3’ – 7’	Claystone, light olive-brown to olive, weathered, weak

TP-6

0’ – 4.5’	Silty Clay, dark-brown, moist-wet, soft
4.5’ – 8’	Claystone, olive-brown, highly weathered, weak

TP-7

0’ – 3’	Silty Clay, brown, moist-wet, soft
3’ – 6’	Clayey Sand, red-brown, moist-wet, medium dense

TP-8

0’ – 4.5’	Silty Clay, brown, moist-wet, soft
4.5’ – 7’	Sandstone, light yellow-brown to tan, highly weathered, weak

TEST PITS EXCAVATED FEBRUARY 2023

Test Pit Logs

TP-9 (Turbine 23)

0’ – 1.5’	Silty Clay, dark brown, dry, medium stiff
1.5’ – 4’	Sandstone, yellow-brown, friable, highly weathered, 65° F

TP-10 (AML Substation)

0’ – 1’	Crushed Rock
1’ – 4’	Sandstone, yellow-brown, friable, highly weathered, 67° F

TP-11 (Zond Substation)

0’ – 1.5’	Crushed Rock
1.5’ – 4.5’	Silty Clayey Sand, medium brown, moist, medium dense, 60°F

TP-12 (Turbine 5)

0’ – 2’	Silty Clayey Sand, medium brown, dry, dense
2’ – 5’	Claystone, Olive-brown, moderately weathered, weak, 52° F

TEST PITS EXCAVATED 6/8/2023