



**DATE:** [September 13, 2013](#)  
**TO:** SBFCA C/O Parsons Brinkeroff  
 Mr. Mark Martin  
 2329 Gateway Oaks Drive, Suite 200  
 Sacramento, CA 95833-4231  
[mamartin@pbworld.com](mailto:mamartin@pbworld.com)  
  
**cc**  
  
**Pages:** 118

**TRANSMITTAL #** **SUB 56.0**  
**FROM:** Nordic / Magnus Pacific JV  
 Sean L. Rhodes  
 Project Manager  
[srhodes@magnuspacific.com](mailto:srhodes@magnuspacific.com)  
  
 1437 Furneaux Road  
 Olivehurst, CA 95961  
 TEL: 530-742-7124  
 FAX: 530-742-3707

We are sending you:

- |   |                                    |  |
|---|------------------------------------|--|
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Submittal | <input type="checkbox"/> Change Order      |
| <input type="checkbox"/> Plans          | <input type="checkbox"/> RFI       | <input type="checkbox"/> Field Instruction |
| <input type="checkbox"/> Drawings       | <input type="checkbox"/> Letter    | <input type="checkbox"/> Other: See Below  |

**Specification Section:**

**31 62 43**

**Resubmittal of:**

Item No.	Date	Copies	Pages	Description
1	9/13/13	1	118	Impermeable Layer Verification Drilling Logs -Aug 2013

**Remarks:** [Please find attached the drilling logs from the impermeable layer verification for Aug 2013.](#)

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I certify that the above submitted items had been reviewed in detail and are correct and in strict conformance with contract drawings and specifications except as otherwise stated.

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Sean L. Rhodes

Copy to: File

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>7-8-13</b>	COMPLETION DATE <b>8-12-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_84725_3B_R</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Tom Scott</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 847+25 Reach 13</b>	SURFACE ELEVATION <b>82.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 75</b>	BOREHOLE DIAMETER <b>5 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Mod Cal (2"), HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>124.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														6:30 am start drilling
80.00	2														
78.00	3														
76.00	4														
74.00	5														
72.00	6														
70.00	7														
68.00	8														
66.00	9														
64.00	10														
	11														
	12														
	13														
	14														
	15														
	16														
	17														
	18														
	19														
	20														

(continued)



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Geotechnical Engineering, Design  
and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_84725_3B_R</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>John Wright</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
60.00	22														
	23														
58.00	24														
	25														
56.00	26														
	27														
54.00	28														
	29														
52.00	30														
	31														
50.00	32														
	33														
48.00	34														
	35														
46.00	36														
	37														
44.00	38														
	39														
42.00	40														
	41														
40.00	42														
	43														
	44														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_84725_3B_R</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
	45														Lost fluid pressure and mud circulation
36.00	46														
	47														
34.00	48														
	49														
32.00	50														
	51														
30.00	52														
	53														
28.00	54														
	55														
26.00	56														
	57														
24.00	58														
	59														
22.00	60														
	61														gravel layer encountered
20.00	62														
	63														
18.00	64														
	65														
16.00	66														end gravel layer
	67														
	68														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_84725_3B_R</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
69															
12.00	70														
	71														
10.00	72														
	73														
	74														
8.00	75														
	76														
	77														
6.00	78														
	79														
2.00	80		Poorly graded SAND with SILT (SP-SM); loose to medium dense; dark gray; wet; about 90% medium to fine SAND; about 10% nonplastic fines.		1			100							
	81														
0.00	82		SILT (ML); very soft; dark gray; wet; about 25 to 30% fine SAND; about 70 to 75% low plasticity fines.												
	83		Poorly graded SAND with SILT (SP-SM); medium dense to dense; dark gray; wet; about 90% medium to fine SAND; about 10% nonplastic fines.												
-2.00	84				2	23 55/6	55/6	17							9:15am, sample stuck, driller had to flush barrel.
	85				3	12 23	51 28								8-12-13 re-sample from 85 to 100 ft to complete 3B (samples 2 thru 9)
-4.00	86		SILTY SAND (SM); very dense; dark gray; moist to wet; fine SAND; about 20 to 25% nonplastic fines.												
	87				4	17 28 38	66	83							
-6.00	88														
	89				5	16 15 14	29	94							
-8.00	90														
	91		SILT (ML); hard; dark gray; moist; about 5 to 10% fine SAND; nonplastic fines.		6	16 25 29	54	79							
	92														

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_84725_3B_R</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	92		SILT (ML) (continued).	X	6		54	79							
	93		SILTY SAND (SM); medium dense; dark gray; moist; about 20% nonplastic fines.	X	7	9	27	89							
-12.00	94		SILT with SAND (ML); medium dense; gray; moist; about 15% fine SAND.			12									
	95		SILTY SAND (SM); medium dense; dark gray; wet; medium to fine SAND; about 20% nonplastic to low plasticity fines.	X	8	8	23	89							
-14.00	96		SANDY SILT (ML); stiff; gray; moist; medium to fine SAND; low to medium plasticity fines.			9									
	97														
-16.00	98		Poorly graded SAND with SILT (SP-SM); very dense; dark gray; moist; medium to fine SAND; about 10% nonplastic fines.	X	9	47	50/5	67							
	99		Poorly graded GRAVEL with SILT and SAND (GP-GM); very dense; dark gray to black; moist; coarse to fine GRAVEL; about 15% medium to fine SAND; about 10% nonplastic fines.			50/5									
-18.00	100		SILTY SAND (SM); loose to medium dense; dark gray; wet; about 60 to 65% medium to fine SAND; about 35 to 40% nonplastic to low plasticity fines.		10			30							10:30am
	101		SANDY SILT (ML); soft; dark gray; wet; about 35 to 40% fine SAND; about 60 to 65% low plasticity fines.												
-20.00	102		Well-graded GRAVEL with SILT and SAND (GW-GM); very dense; dark gray; wet; about 60% coarse to fine GRAVEL; about 20% coarse to fine SAND; about 20% low plasticity fines.												Below 101.5 drill rig movement indicates gravel/cobble material
	103														
-22.00	104														
	105														
-24.00	106														
	107														
-26.00	108														
	109														
-28.00	110														
	111														
-30.00	112														
	113														
-32.00	114														
	115														
	116														

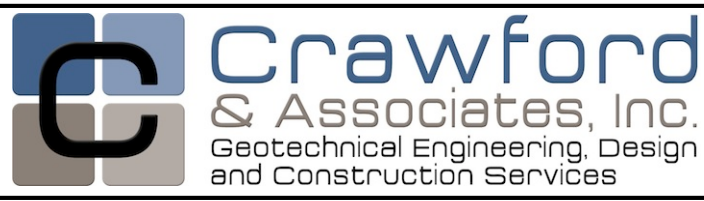
(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_84725_3B_R</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	116														
	117														
-36.00	118		Poorly graded SAND with SILT (SP-SM); dense to very dense; dark gray; wet; about 10% coarse to fine GRAVEL; about 80% medium to fine SAND; about 10% nonplastic fines.		11			78							
	119														
-38.00	120		Poorly graded GRAVEL with SAND (GP); very dense; gray; wet; about 80% coarse to fine GRAVEL; about 15% medium to fine SAND; about 5% nonplastic fines.		12			67							
	121														
	122														
	123														
-40.00	124		Bottom of borehole at 124.0 ft bgs												
	125		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
	126														
	127														
	128														
	129														
-48.00	130														
	131														
	132														
	133														
	134														
	135														
	136														
	137														
	138														
	139														
	140														

1:00pm



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_84725_3B_R</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-17-13</b>	COMPLETION DATE <b>8-19-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_85525_11B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 855+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Std Cal (2.5"), HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>117.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
3	3														
65.00	4														
5	5														
63.00	6														
7	7														
61.00	8														
9	9														
59.00	10														
11	11														
57.00	12														
13	13														
55.00	14														
15	15														
53.00	16														
17	17														
51.00	18														
19	19														
20	20														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85525_11B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>David Castro</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
21															
47.00	22														
23															
45.00	24														
25															
43.00	26														
27															
41.00	28														
29															
39.00	30														
31															
37.00	32														
33															
35.00	34														
35															
33.00	36														
37															
31.00	38														
39															
29.00	40														
41															
27.00	42														
43															
44															

11am

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85525_11B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
	45														
23.00	46														
	47														
21.00	48														
	49														
19.00	50														
	51														
17.00	52														
	53														
15.00	54														
	55														
13.00	56														gravel layer
	57														
11.00	58														
	59														
9.00	60														
	61														
7.00	62														
	63														
5.00	64														
	65														
3.00	66														
	67														
	68														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85525_11B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
	69														
-1.00	70														
	71														
-3.00	72														
	73														
-5.00	74														
	75														
-7.00	76														
	77														
-9.00	78														
	79														
-11.00	80														
	81														
-13.00	82														
	83														
-15.00	84														
	85														
-17.00	86														
	87														
-19.00	88														lost circulation, 300 gal of water used so far
	89														
-21.00	90														
	91														
	92														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85525_11B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	94														
-27.00	96														
-29.00	98														
-31.00	100				1	20 25 30	55	0							
-33.00	102				2	10 12 12	24	0							
-35.00	104				3	30 34		0							
-37.00	106														
-39.00	108		Lean to fat CLAY (CL/CH); very stiff; greenish gray; moist; about 5 to 20% fine SAND; about 95 to 80% medium to high plasticity fines.		4			98				PP = 2.5			
-41.00	110		SANDY SILT (ML); hard; greenish gray; moist; about 40% fine SAND; about 60% nonplastic to low plasticity fines.									PP = >4.5			
-43.00	112		SILTY SAND (SM); dense; dark gray; moist; about 65 to 70% fine SAND; about 30 to 35% nonplastic fines; Interbedded layers of silt.		5			78				PP = >4.5			
-45.00	114														
	115		Lean CLAY (CL); hard; greenish gray; moist; about 10% fine SAND; about 90% medium plasticity fines.		6			87				PP = >4.5			filled mud tank with 100 gal of water

8/17/13  
1:46pm end gravel layer

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85525_11B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
116			Lean CLAY (CL) (continued).		6			87				PP = >4.5 PP = >4.5			
	117		Bottom of borehole at 117.0 ft bgs												
-49.00	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-51.00	120														
-53.00	122														
-55.00	124														
-57.00	126														
-59.00	128														
-61.00	130														
-63.00	132														
-65.00	134														
-67.00	136														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85525_11B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>9-4-13</b>	COMPLETION DATE <b>9-4-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_85625_12B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>12.00' Rt Sta 856+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>120.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
3	3														
65.00	4														
5	5														
63.00	6														
7	7														
61.00	8														
9	9														
59.00	10														
11	11														
57.00	12														
13	13														
55.00	14														
15	15														
53.00	16														
17	17														
51.00	18														
19	19														
20	20														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85625_12B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>John Wright</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



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 and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85625_12B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
	45														
23.00	46														
	47														
21.00	48														
	49														
19.00	50														
	51														
17.00	52														
	53														gravel layer
15.00	54														
	55														
13.00	56														
	57														
11.00	58														
	59														
9.00	60														
	61														
7.00	62														
	63														
5.00	64														
	65														
3.00	66														
	67														
	68														

(continued)



**Crawford**  
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 Geotechnical Engineering, Design  
 and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85625_12B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
	69														
-1.00	70														
	71														
-3.00	72														
	73														
-5.00	74														
	75														
-7.00	76														
	77														
-9.00	78														
	79														
-11.00	80														
	81														
-13.00	82														end gravel layer
	83														
-15.00	84														
	85														
-17.00	86														gravel layer
	87														
-19.00	88														
	89														
-21.00	90														
	91														
	92														

(continued)



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 Geotechnical Engineering, Design  
 and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85625_12B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	94														
-27.00	96														end gravel layer
-29.00	98		CLAYEY SAND (SC); dense; gray; moist to wet; about 5% fine GRAVEL; about 45% fine SAND; about 50% low to medium plasticity fines.	1	10	33	61								
-31.00	99		Poorly graded SAND with SILT (SP-SM); medium dense; dark gray; wet; about 90% fine SAND; about 10% nonplastic fines; interbedded layers of silty SAND.	2	16			98							
-31.00	100		SANDY SILT (ML); dark greenish gray; moist; about 30% fine SAND; low plasticity fines.		17							PP = 3.5			
-31.00	101		SILT (ML); very stiff; dark greenish gray; moist; about 10 to 15% fine SAND; low plasticity fines.									PP = 3			
-33.00	102											PP = 1.75			
-33.00	103		Lean CLAY (CL); stiff to very stiff; dark greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; slightly blocky.									PP = 3			
-35.00	104		Hard; blocky.												
-35.00	105			3			83					PP = >4.5			
-37.00	106														
-37.00	107											PP = >4.5			
-39.00	108											PP = >4.5			
-39.00	109		Low to medium plasticity fines.												
-41.00	110		SILTY SAND (SM); dark gray; wet; about 80% medium to fine SAND; about 20% nonplastic fines.	4			40								
-43.00	111		Poorly graded SAND (SP); dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines.												
-43.00	112														
-45.00	114														
-45.00	115		Poorly graded SAND with SILT (SP-SM); about 90% medium to fine SAND; about 10% nonplastic fines.	5			90								
-45.00	116		SANDY SILT (ML); about 50% medium to fine SAND; about 50% low plasticity fines.												

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85625_12B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	116		Poorly graded SAND with SILT (SP-SM); about 90% medium to fine SAND; about 10% nonplastic fines.		5			90							
	117				6			100							
-49.00	118		SILTY SAND (SM); about 85% medium to fine SAND; about 15% nonplastic fines.												
	119		Poorly graded SAND with SILT (SP-SM); about 90% medium to fine SAND; about 10% nonplastic fines.												
-51.00	120		Bottom of borehole at 120.0 ft bgs												
	121		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-53.00	122														
	123														
-55.00	124														
	125														
-57.00	126														
	127														
-59.00	128														
	129														
-61.00	130														
	131														
-63.00	132														
	133														
-65.00	134														
	135														
-67.00	136														
	137														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85625_12B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>David Castro</b>	BEGIN DATE <b>8-17-13</b>	COMPLETION DATE <b>8-19-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_85725_13B</b>
DRILLING CONTRACTOR <b>Gulf Shore, Driller Name: Carlos</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 857+25 Reach 13</b>	SURFACE ELEVATION <b>68.5 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 75</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Mod Cal (2"), SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>118.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
66.50	2														
3	3														
64.50	4														
5	5														
62.50	6														
7	7														
60.50	8														
9	9														
58.50	10														
11	11														
56.50	12														
13	13														
54.50	14														
15	15														
52.50	16														
17	17														
50.50	18														
19	19														
20	20														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85725_13B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>David Castro</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
46.50	22														
	23														
44.50	24														
	25														
42.50	26														
	27														
40.50	28														
	29														
38.50	30														
	31														
36.50	32														
	33														
34.50	34														
	35														
32.50	36														
	37														
30.50	38														
	39														
28.50	40														
	41														
26.50	42														
	43														
	44														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85725_13B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
45															
22.50	46														
47															
20.50	48														
49															
18.50	50														
51															
16.50	52														
53															
14.50	54														
55															
12.50	56														gravel layer
57															
10.50	58														
59															
8.50	60														
61															
6.50	62														
63															
4.50	64														
65															
2.50	66														
67															
68															

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85725_13B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
	69														
-1.50	70														
	71														
-3.50	72														
	73														
-5.50	74														
	75														
-7.50	76														
	77														
-9.50	78														
	79														
-11.50	80														
	81														
-13.50	82														
	83														
-15.50	84														
	85														
-17.50	86														
	87														
-19.50	88														
	89														
-21.50	90														lost 800 gal of water so far
	91														
	92														

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85725_13B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
92															
-25.50	94														lost 1000 gal of water so far
-27.50	96														
-29.50	98														
-31.50	99				1	13	43	67							Drillers augered to 99 ft to stop circulation loss.
	100		CLAYEY SAND (SC); dense; greenish gray; moist; about 65 to 50% fine SAND; about 35 to 50% medium plasticity fines.		2	9	38	100							
	101					15									
-33.50	102		SILTY CLAY (CL-ML); stiff; greenish gray; moist; trace fine GRAVEL.			23									
	103		Lean to fat CLAY (CL/CH); very stiff; greenish gray; moist; trace fine GRAVEL; blocky.		3	10	48	89							
	104					21									
-35.50	105				4	14	62	89							
	106					23									
	107				5	14	72	100							
	108		CLAYEY SAND (SC); very dense; greenish gray; moist; about 70% medium to fine SAND; about 30% fines.			27									
-39.50	109				6	9	43	89							
	110					17									
	111				7	12	48	89							
-41.50	112		SILTY SAND (SM); dense; greenish gray; moist; about 75% fine SAND; about 25% nonplastic fines.			22									
	113				8	8	43	67							
	114		Coarse to fine SAND.			15									
-43.50	115		Trace GRAVEL; fine SAND.		9	11	47	67							
	116					17									
					10	13	51	72							
						18									
						33									

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85725_13B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks	
	116		SILTY SAND (SM) (continued).													
	117		Lean CLAY with SAND (CL); hard; greenish gray; moist; about 15% fine SAND; about 85% medium plasticity fines; blocky.	11	9	62	100									
		22														
		40														
-49.50	118		Bottom of borehole at 118.0 ft bgs													
	119		<p>FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.</p>													
-51.50	120															
	121															
-53.50	122															
	123															
-55.50	124															
	125															
-57.50	126															
	127															
-59.50	128															
	129															
-61.50	130															
	131															
-63.50	132															
	133															
-65.50	134															
	135															
-67.50	136															
	137															
-69.50	138															
	139															
	140															



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85725_13B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-19-13</b>	COMPLETION DATE <b>8-20-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_85825_14B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Tom Scott</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 858+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 75</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Mod Cal (2"), SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>116.5 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
65.00	4														
63.00	6														
61.00	8														
59.00	10														
57.00	12														
55.00	14														
53.00	16														
51.00	18														
	19														
	20														

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85825_14B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>David Castro</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



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 Geotechnical Engineering, Design  
 and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85825_14B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
	45														
23.00	46														
	47														
21.00	48														
	49														
19.00	50														
	51														
17.00	52														
	53														
15.00	54														
	55														
13.00	56														
	57														gravel layer
11.00	58														
	59														
9.00	60														
	61														
7.00	62														
	63														
5.00	64														
	65														
3.00	66														
	67														
	68														

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85825_14B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
	69														
-1.00	70														
	71														
-3.00	72														
	73														
-5.00	74														
	75														
-7.00	76														
	77														
-9.00	78														
	79														
-11.00	80														
	81														
-13.00	82														
	83														
-15.00	84														
	85														
-17.00	86														
	87														
-19.00	88														gravel layer
	89														
-21.00	90														
	91														
	92														

(continued)



**Crawford**  
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 and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85825_14B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	94														end gravel layer
-29.00	98		Lean to fat CLAY (CL/CH); very stiff; greenish gray; moist; about 5% fine SAND; about 95% medium to high plasticity fines; blocky.		1	12	32	100				PP = 3.0			
	99					15									
	100					17									
-31.00	100														
	101					15	40	100				PP = 2.75			
	101					18									
	102					22									
-33.00	102														
	103														
-35.00	104					18	42	100				PP = 2.5			
	104					19									
	105					23									
-37.00	106														
	106					14	42	100				PP = 2.0			
	107		SILT with SAND (ML); stiff to very stiff; greenish gray; moist; about 25% fine SAND; about 75% nonplastic fines.			17									
	107					25									
-39.00	108														
	109		SILTY SAND (SM); dense; dark gray; wet; about 85% medium to fine SAND; about 15% nonplastic fines.			14	38	100				PP = 2.75			
	109					18									
	110		Lean CLAY (CL); very stiff; greenish gray; moist; about 10% fine SAND; about 90% low to medium plasticity fines; blocky.			20									
-41.00	110														
	111		SILTY SAND (SM); very dense; dark greenish gray; wet; about 65% medium to fine SAND; about 35% nonplastic to low plasticity fines.			20	62	100							
	111					30									
	112		Poorly graded SAND (SP); very dense; dark gray; wet; about 95% SAND; about 5% nonplastic fines.			32									
-43.00	112														
	113														
	113					15	59	100				PP = 3.25			
	114		Lean CLAY (CL); very stiff; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.			24									
-45.00	114					35									
	115					16	34	88				PP = 3.75			
	115					16									
	115					18									

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85825_14B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
116			Lean CLAY (CL) (continued).	<input checked="" type="checkbox"/>	8		34	88					<input checked="" type="checkbox"/>		
	117		Bottom of borehole at 116.5 ft bgs												
	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-49.00	119														
-51.00	120														
	121														
-53.00	122														
	123														
-55.00	124														
	125														
-57.00	126														
	127														
-59.00	128														
	129														
-61.00	130														
	131														
-63.00	132														
	133														
-65.00	134														
	135														
-67.00	136														
	137														
-69.00	138														
	139														
	140														



**Crawford & Associates, Inc.**  
Geotechnical Engineering, Design and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85825_14B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-19-13</b>	COMPLETION DATE <b>8-20-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_85925_15B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 859+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Mod Cal (2"), SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS <b>N/A</b> <b>N/A</b>	TOTAL DEPTH OF BORING <b>117.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
67.00	2														
65.00	4														
63.00	6														
61.00	8														
59.00	10														
57.00	12														
55.00	14														
53.00	16														
51.00	18														
	19														
	20														

(continued)



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Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85925_15B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>David Castro</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85925_15B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
45															
23.00	46														
47															
21.00	48														
49															
19.00	50														
51															
17.00	52														
53															
15.00	54														
55															
13.00	56														
57															gravel layer
11.00	58														
59															
9.00	60														
61															
7.00	62														
63															
5.00	64														
65															
3.00	66														
67															
68															

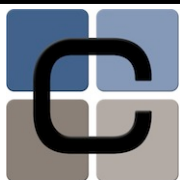
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85925_15B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
-1.00	70														add 50 gal of water
-3.00	72														
-5.00	74														
-7.00	76														
-9.00	78														
-11.00	80														
-13.00	82														
-15.00	84														
-17.00	86														add 50 gal of water
-19.00	88														
-21.00	90														
	91														
	92														

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85925_15B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	94														
-27.00	96														
-29.00	98														
-31.00	100		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.		1	18 19 16	35	100				PP = 4.25 PP = >4.5			
-33.00	102				2	16 16 18	34	100				PP = 2.25 PP = >4.5 PP = >4.5 PP = 2.5			
-35.00	104		SILTY CLAY with SAND (CL-ML); very stiff; moist; about 20% fine SAND; about 80% low to medium plasticity fines.		3	12 15 21	36	100							
-37.00	106		Lean CLAY (CL); very stiff; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.		4	14 20 22	42	88				PP = 2.25			
-39.00	108		SILTY SAND (SM); dense; dark gray; wet; about 80% medium to fine SAND; about 20% nonplastic fines.												
-39.00	108		Lean CLAY with SAND (CL); stiff to very stiff; greenish gray; moist; about 15% fine SAND; about 85% medium plasticity fines.												
-41.00	110		SILTY SAND (SM); very dense; dark gray; moist; about 55% fine SAND; about 45% nonplastic to low plasticity fines.		5	21 26 38	64	100							
-43.00	112		Poorly graded SAND (SP); dense to very dense; dark gray; moist; about 95% medium to fine SAND; about 5% nonplastic fines; Interbedded layer of silt.		6	14 26 28	54	75							
-45.00	114		Lean CLAY (CL); very stiff to hard; greenish gray; moist; about 5% medium to fine SAND; about 95% medium plasticity fines; blocky.		7	34 37 50/4"	87/10	68				PP = 3.0 PP = 3.5 PP = >4.5			
-45.00	114		Poorly graded SAND (SP); very dense; greenish gray; wet; about 95% medium to fine SAND; about 5% fines.		8		45	71							

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85925_15B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
116			Dark gray. Poorly graded SAND (SP) (continued).	X	8	14	45	71							
117			Bottom of borehole at 117.0 ft bgs			18									
-49.00	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.			27									
-51.00	120														
-53.00	122														
-55.00	124														
-57.00	126														
-59.00	128														
-61.00	130														
-63.00	132														
-65.00	134														
-67.00	136														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_85925_15B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-23-13</b>	COMPLETION DATE <b>8-23-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_86325_19BR</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 863+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS <b>N/A</b> <b>N/A</b>	TOTAL DEPTH OF BORING <b>117.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
3	3														
65.00	4														
5	5														
63.00	6														
7	7														
61.00	8														
9	9														
59.00	10														
11	11														
57.00	12														
13	13														
55.00	14														
15	15														
53.00	16														
17	17														
51.00	18														
19	19														
20	20														

(continued)



**Crawford**  
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Geotechnical Engineering, Design  
and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86325_19BR</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>John Wright</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



**Crawford & Associates, Inc.**  
 Geotechnical Engineering, Design and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86325_19BR</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
	45														
23.00	46														
	47														
21.00	48														
	49														
19.00	50														
	51														
17.00	52														
	53														
15.00	54														
	55														
13.00	56														gravel layer
	57														
11.00	58														
	59														
9.00	60														
	61														
7.00	62														
	63														
5.00	64														
	65														
3.00	66														
	67														
	68														

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86325_19BR</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
-1.00	70														
-3.00	72														
-5.00	74														end of gravel layer
-7.00	76														
-9.00	78														
-11.00	80														
-13.00	82														
-15.00	84														
-17.00	86														
-19.00	88														
-21.00	90														gravel layer
	91														
	92														

(continued)



**Crawford**  
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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86325_19BR</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>4 of 6</b>



ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	94														end of gravel layer
-27.00	96				1	15 23 25	48	0							
-29.00	98														
-31.00	100		Poorly graded SAND (SP); dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines.		2			100							
-31.00	100		SILTY SAND (SM); dark greenish gray; wet; about 80% fine SAND; about 20% nonplastic fines.												
-31.00	101		Poorly graded SAND (SP); dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines; 4" interbedded layer of SILT.		3			94							
-33.00	102														
-33.00	103		SILT (ML); very stiff; dark greenish gray; moist; about 5% fine SAND; about 95% low plasticity fines.												
-35.00	104											PP = 3.75			
-35.00	105		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines.		4			65				PP = 3.0			
-37.00	106											PP = >4.5			
-37.00	107		SILTY SAND (SM); dark gray; wet; about 75% fine SAND; about 25% nonplastic fines.												
-39.00	108														
-41.00	110		About 80% SAND; about 20% nonplastic fines.		5			94							
-41.00	111		Poorly graded SAND with SILT (SP-SM); dark gray; wet; about 90% fine SAND; about 10% nonplastic fines.												
-43.00	112														
-43.00	113		SANDY SILT (ML); dark gray; moist; about 45% fine SAND; about 55% nonplastic to low plasticity fines.												
-45.00	114		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines.		6			100				PP = >4.5			
-45.00	115											PP = >4.5			

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86325_19BR</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
116			Lean CLAY (CL) (continued).		6			100				PP = >4.5 PP = >4.5 PP = >4.5			
	117		Bottom of borehole at 117.0 ft bgs												
-49.00	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-51.00	120														
-53.00	122														
-55.00	124														
-57.00	126														
-59.00	128														
-61.00	130														
-63.00	132														
-65.00	134														
-67.00	136														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86325_19BR</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-19-13</b>	COMPLETION DATE <b>8-20-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_86425_20B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 864+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Mod Cal (2"), HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>117.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
3	3														
65.00	4														
5	5														
63.00	6														
7	7														
61.00	8														
9	9														
59.00	10														
11	11														
57.00	12														
13	13														
55.00	14														
15	15														
53.00	16														
17	17														
51.00	18														
19	19														
20	20														

(continued)



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and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86425_20B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>David Castro</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86425_20B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
45															
23.00	46														
47															
21.00	48														
49															
19.00	50														
51															gravel layer
17.00	52														
53															
15.00	54														
55															
13.00	56														
57															
11.00	58														
59															gravel layer
9.00	60														
61															
7.00	62														
63															
5.00	64														
65															
3.00	66														
67															
68															

(continued)



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 and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86425_20B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
-1.00	70														
-3.00	72														
-5.00	74														
-7.00	76														
-9.00	78														end gravel layer
-11.00	80														
-13.00	82														
-15.00	84														
-17.00	86														fluid loss, add 100 gal of water
-19.00	88														
-21.00	90														gravel layer
	91														
	92														

(continued)



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 and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86425_20B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	92														
-27.00	96		Lean CLAY (CL); stiff to very stiff; greenish gray; moist; trace fine GRAVEL; medium plasticity fines.		1	14	30	100							end gravel layer
	97					14									
	98		SANDY SILT (ML); stiff; greenish gray; moist; about 45% fine SAND; about 55% low plasticity fines.		2	16	24	100							
	99					11									
	100		SILTY SAND (SM); medium dense to dense; dark gray; about 80% fine SAND; about 20% nonplastic fines.		3			81							
	101														
	102		Poorly graded SAND (SP); medium dense to dense; dark gray; about 95% medium to fine SAND; about 5% nonplastic fines.												
	103		SILTY SAND (SM); medium dense to dense; dark gray; about 85 to 80% medium to fine SAND; about 15 to 20% nonplastic fines; Interbedded layers of silt.												
	104				4			80							
	105														
	106														
	107		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% low to medium plasticity fines.		5			100				PP = 2.5			
	108		CLAYEY SAND (SC); medium dense to dense; dark greenish gray; moist; about 60% fine SAND; about 40% low plasticity fines.									PP = 2.25			
	109		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines.									PP = >4.5			
	110		Lean CLAY with SAND (CL); hard; greenish gray; moist; about 15% fine SAND; about 85% medium plasticity fines.		6			98				PP = 4.5			
	111											PP = >4.5			
	112		CLAYEY SAND (SC); dense; dark greenish gray; moist; about 60% fine SAND; about 40% low plasticity fines.									PP = >4.5			
	113		Lean CLAY with SAND (CL); hard; greenish gray; moist; about 5 to 10% fine SAND; about 95% medium plasticity fines; blocky.									PP = >4.5			
	114				7			100				PP = >4.5			
	115		CLAYEY SILT with SAND (ML/CL); hard; greenish gray; moist; about 20% fine SAND; about 80% low plasticity fines.									PP = >4.5			
	116														

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86425_20B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	116		CLAYEY SILT with SAND (ML/CL) (continued).		7			100				PP = >4.5 PP = >4.5			
	117		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.												
			Bottom of borehole at 117.0 ft bgs												
-49.00	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-51.00	120														
-53.00	122														
-55.00	124														
-57.00	126														
-59.00	128														
-61.00	130														
-63.00	132														
-65.00	134														
-67.00	136														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86425_20B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-20-13</b>	COMPLETION DATE <b>8-21-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_86525_21B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 865+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Mod Cal (2"), HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS <b>N/A</b> <b>N/A</b>	TOTAL DEPTH OF BORING <b>117.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
3	3														
65.00	4														
5	5														
63.00	6														
7	7														
61.00	8														
9	9														
59.00	10														
11	11														
57.00	12														
13	13														
55.00	14														
15	15														
53.00	16														
17	17														
51.00	18														
19	19														
20	20														

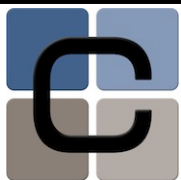
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86525_21B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>David Castro</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86525_21B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
	45														
23.00	46														
	47														
21.00	48														
	49														
19.00	50														
	51														gravel layer
17.00	52														
	53														
15.00	54														
	55														gravel layer
13.00	56														
	57														
11.00	58														
	59														
9.00	60														
	61														
7.00	62														
	63														
5.00	64														
	65														
3.00	66														
	67														
	68														

(continued)



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 Geotechnical Engineering, Design and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86525_21B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
	69														
-1.00	70														
	71														
-3.00	72														end gravel layer
	73														
-5.00	74														
	75														
-7.00	76														
	77														
-9.00	78														
	79														
-11.00	80														
	81														
-13.00	82														
	83														
-15.00	84														
	85														
-17.00	86														
	87														
-19.00	88														
	89														
-21.00	90														
	91														gravel layer
	92														

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86525_21B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
92															
-25.00	94														end gravel layer
-27.00	96		Lean CLAY (CL); stiff; greenish gray; moist; about 5 to 10% fine SAND; about 95% medium plasticity fines.		1	25 28 37	65	13							
-29.00	98				2	10 11 15	26	67							
-31.00	100		SILTY SAND (SM); medium dense; greenish gray; moist; about 40% fine SAND; about 60% low plasticity fines.		3			100				PP = 2.75			
-33.00	102											PP = 2.75			
-35.00	104		Poorly graded SAND with SILT (SP-SM); medium dense; greenish gray; moist; about 90 to 85% SAND; about 10 to 15% nonplastic to low plasticity fines.		4			100				PP = 2.5 PP = 1.5			
-37.00	105		SILTY SAND (SM); medium dense; dark gray; wet; about 80 to 75% fine SAND; about 20 to 25% nonplastic fines.												
-39.00	108		Poorly graded SAND (SP); medium dense; dark gray; wet; about 95% SAND; about 5% fines.												
-41.00	110				6			64							
-43.00	112		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.		7			100				PP = >4.5			
-45.00	113				8			100				PP = 2.5			
	114											PP = >4.5			
	115											PP = >4.5			
	116														

(continued)



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Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86525_21B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	116		Poorly graded SAND (SP); medium dense to dense; dark gray; wet; about 95% SAND; about 5% nonplastic fines.		8			100				PP = >4.5			
	117		SANDY SILT (ML); hard; gray; moist; about 45% fine SAND; about 55% nonplastic to low plasticity fines.									PP = 2.0			
-49.00	118		Bottom of borehole at 117.0 ft bgs												
	119		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-51.00	120														
	121														
-53.00	122														
	123														
-55.00	124														
	125														
-57.00	126														
	127														
-59.00	128														
	129														
-61.00	130														
	131														
-63.00	132														
	133														
-65.00	134														
	135														
-67.00	136														
	137														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86525_21B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-21-13</b>	COMPLETION DATE <b>8-22-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_86725_23B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 867+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Mod Cal (2"), HQ Core</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>116.5 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
65.00	4														
63.00	6														
61.00	8														
59.00	10														
57.00	12														
55.00	14														
53.00	16														
51.00	18														
	19														
	20														

(continued)



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Geotechnical Engineering, Design and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86725_23B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>David Castro</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



**Crawford**  
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 and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86725_23B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
45															
23.00	46														
47															
21.00	48														
49															
19.00	50														
51															
17.00	52														
53															
15.00	54														gravel layer
55															
13.00	56														
57															
11.00	58														
59															
9.00	60														
61															
7.00	62														
63															
5.00	64														
65															
3.00	66														
67															
68															

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86725_23B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
-1.00	70														end gravel layer
-3.00	72														
-5.00	74														
-7.00	76														
-9.00	78														
-11.00	80														
-13.00	82														
-15.00	84														
-17.00	86														
-19.00	88														
-21.00	90														
	91														
	92														

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86725_23B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	94														gravel layer
-27.00	96														end gravel layer
-29.00	98		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines.		1	25	57	33							
	99					28									
	100					29									
-31.00	100		Poorly graded SAND (SP); dense; dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines.		2			100				PP = >4.5			
	101		SILT (ML); hard; greenish gray; moist; about 10% fine SAND; about 90% low plasticity fines.									PP = >4.5			
-33.00	102											PP = 4.0			
	103											PP = 3.75			
-35.00	104		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.		3			100				PP = 4.0			
	105											PP = 3.5			
-37.00	106											PP = 4.5			
	107											PP = 4.5			
-39.00	108		SANDY SILT (ML); hard; greenish gray; moist; about 30 to 45% fine SAND; about 70 to 65% low plasticity fines.		4			100							
	109														
-41.00	110		SILTY SAND (SM); medium dense to dense; dark gray; wet; about 65% fine SAND; about 35% nonplastic to low plasticity fines.												
	111		Poorly graded SAND (SP); medium dense; dark gray; wet; about 95% coarse to fine SAND; about 5% nonplastic fines.		5			85							
-43.00	112														
	113														
-45.00	114														
	115														
	116														

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86725_23B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
116			Poorly graded SAND (SP) (continued).		5			85							
	116.5		Bottom of borehole at 116.5 ft bgs												
			<p>FINAL LOG:            The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.</p>												
-49.00	118														
-51.00	120														
-53.00	122														
-55.00	124														
-57.00	126														
-59.00	128														
-61.00	130														
-63.00	132														
-65.00	134														
-67.00	136														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86725_23B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-21-13</b>	COMPLETION DATE <b>8-22-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_86825_24B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Tom Scott</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 868+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 75</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Std Cal (2.5"), Mod Cal (2"), SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>116.5 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
3	3														
65.00	4														
5	5														
63.00	6														
7	7														
61.00	8														
9	9														
59.00	10														
11	11														
57.00	12														
13	13														
55.00	14														
15	15														
53.00	16														
17	17														
51.00	18														
19	19														
20	20														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86825_24B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>David Castro</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86825_24B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
45															
23.00	46														
47															
21.00	48														
49															
19.00	50														
51															
17.00	52														
53															
15.00	54														gravel layer
55															
13.00	56														
57															
11.00	58														
59															
9.00	60														
61															
7.00	62														
63															
5.00	64														
65															
3.00	66														
67															
68															

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86825_24B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
-1.00	70														
-3.00	72														
-5.00	74														
-7.00	76														end gravel
-9.00	78														
-11.00	80														
-13.00	82														
-15.00	84														
-17.00	86														
-19.00	88														
-21.00	90														gravel layer
	91														
	92														

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86825_24B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	94														
-27.00	96														
-29.00	98														
-31.00	100		Poorly graded SAND with SILT (SP-SM); dense; dark gray; wet; about 90% medium to fine SAND; about 10% nonplastic fines.		1	14 18 27	45	50				PP = >4.5			
-33.00	102		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines.		2	21 22 23	45	67							
-35.00	104		Poorly graded SAND (SP); dense; dark gray; moist; about 95% medium to fine SAND; about 5% nonplastic fines.												
-37.00	106		Lean CLAY (CL); very stiff; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines.		3	13 15 18	33	100				PP = 3.0			
-39.00	108		SILTY SAND (SM); dense; dark gray; wet; about 85% fine SAND; about 15% fines.		4	14 21 21	42	83				PP = 1.25			
-41.00	110		Lean CLAY (CL); stiff; dark greenish gray; moist; about 5% fine SAND; about 95% low plasticity fines; blocky.		5	12 18 22	40	100				PP = 4.0			
-43.00	112		SANDY SILT (ML); soft to medium stiff; dark gray; moist; about 45% fine SAND; about 55% nonplastic to low plasticity fines; Interbedded layer of silty sand.		6	13 27 41	68	100				PP = >4.5 PP = >4.5 PP = 0.5			
-45.00	114		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines.		7	23 27 48	75	100							
	115		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines.		8	34 38 42	80	83				PP = 1.0			
	116														

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86825_24B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
116			Lean CLAY (CL) (continued).	X	8		80	83				PP = >4.5			
	117		Bottom of borehole at 116.5 ft bgs												
	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-49.00	119														
-51.00	120														
	121														
-53.00	122														
	123														
-55.00	124														
	125														
-57.00	126														
	127														
-59.00	128														
	129														
-61.00	130														
	131														
-63.00	132														
	133														
-65.00	134														
	135														
-67.00	136														
	137														
-69.00	138														
	139														
	140														



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86825_24B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-22-13</b>	COMPLETION DATE <b>8-22-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_86925_25B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 869+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Mod Cal (2"), HQ Core</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>117.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
3	3														
65.00	4														
5	5														
63.00	6														
7	7														
61.00	8														
9	9														
59.00	10														
11	11														
57.00	12														
13	13														
55.00	14														
15	15														
53.00	16														
17	17														
51.00	18														
19	19														
20	20														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86925_25B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>David Castro</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86925_25B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
	45														
23.00	46														
	47														
21.00	48														
	49														
19.00	50														
	51														gravel layer
17.00	52														
	53														
15.00	54														
	55														
13.00	56														
	57														
11.00	58														
	59														
9.00	60														
	61														
7.00	62														
	63														
5.00	64														
	65														
3.00	66														
	67														
	68														

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86925_25B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															end gravel layer
-1.00	69														
	70														
	71														
-3.00	72														
	73														
-5.00	74														
	75														
-7.00	76														
	77														
-9.00	78														
	79														
-11.00	80														
	81														
-13.00	82														
	83														
-15.00	84														
	85														
-17.00	86														gravel layer
	87														
-19.00	88														
	89														
-21.00	90														
	91														
	92														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86925_25B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	94														
-27.00	96														
-29.00	98		SILTY SAND (SM); dense; gray; wet; about 85% fine SAND; about 15% nonplastic fines.		1	26	46	63							
	99		Poorly graded SAND (SP); medium dense; dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines.			23									
	100				2	23									
-31.00	101							100							
-33.00	102		Lean CLAY (CL); stiff; greenish gray; moist; about 5 to 10% fine SAND; about 95 to 90% medium to high plasticity fines; blocky.									PP = 3.5			
	103											PP = 3.75			
	104											PP = 1.5			
-35.00	105				3			100				PP = 1.5			
	106											PP = >4.5			
	107											PP = >4.5			
-37.00	108											PP = >4.5			
	109											PP = >4.5			
-39.00	110											PP = >4.5			
	111											PP = >4.5			
-43.00	112											PP = >4.5			
	113		Poorly graded SAND with SILT (SP-SM); dense; dark gray; wet; about 90% medium to fine SAND; about 10% nonplastic fines.		5			93				PP = >4.5			
	114		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.									PP = >4.5			
-45.00	115											PP = >4.5			
	116		SANDY SILT (ML); hard; dark gray; wet; about 45%									PP = >4.5			

end gravel layer

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86925_25B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	116		fine SAND; about 55% low plasticity fines.		5			93				PP = >4.5 PP = >4.5			
	117		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.												
			Bottom of borehole at 117.0 ft bgs												
-49.00	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
	119														
-51.00	120														
	121														
-53.00	122														
	123														
-55.00	124														
	125														
-57.00	126														
	127														
-59.00	128														
	129														
-61.00	130														
	131														
-63.00	132														
	133														
-65.00	134														
	135														
-67.00	136														
	137														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_86925_25B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>David Castro</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-22-13</b>	COMPLETION DATE <b>8-24-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_87025_26B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Tom Scott</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 870+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Std Cal (2.5"), Mod Cal (2"), SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>116.5 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
65.00	4														
63.00	6														
61.00	8														
59.00	10														
57.00	12														
55.00	14														
53.00	16														
51.00	18														
	19														
	20														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87025_26B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>John Wright</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87025_26B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
45															
23.00	46														
47															
21.00	48														
49															
19.00	50														
51															
17.00	52														
53															
15.00	54														
55															
13.00	56														gravel layer
57															
11.00	58														
59															
9.00	60														
61															
7.00	62														
63															
5.00	64														
65															
3.00	66														
67															
68															

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87025_26B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
-1.00	69														
-3.00	70														
	71														
	72														end gravel
	73														
-5.00	74														
	75														
-7.00	76														
	77														
-9.00	78														
	79														
-11.00	80														
	81														
-13.00	82														
	83														
-15.00	84														
	85														
-17.00	86														gravel layer
	87														
-19.00	88														
	89														
-21.00	90														
	91														
	92														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87025_26B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
92															
-25.00	94														
-27.00	96														end gravel layer
-29.00	97		Poorly graded SAND (SP); medium dense; dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines; Poorly graded coarse to fine gravel in slough.		1	17 28 37	65	22							
	98		Interbedded layers of silt.		2	13 21 36	57	33							
-31.00	100														driller had problems with hole caving in from 100' to 104'
-35.00	104		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; slightly blocky.		3	16 18 25	43	50				PP = 4.5 PP = 3.25			
-37.00	106		Blocky.		4	16 18 27	45	58				PP = 4.0 PP = >4.5			
-39.00	108		About 5 to 10% SAND; about 95 to 90% fines.		5	23 26 32	58	83				PP = 4.5 PP = >4.5			
-41.00	110				6	24 45 50/3"	95/9	76				PP = >4.5 PP = >4.5			
-43.00	112				7	18 24 29	53	92				PP = >4.5 PP = >4.5			
-45.00	114				8	21 30 50/4"	80/10	92				PP = >4.5			
	115														
	116														

(continued)



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DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	116		Lean CLAY (CL) (continued).	X	8		80/10	92					X		
	117		Silty sand at tip. Bottom of borehole at 116.5 ft bgs												
-49.00	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-51.00	120														
-53.00	122														
-55.00	124														
-57.00	126														
-59.00	128														
-61.00	130														
-63.00	132														
-65.00	134														
-67.00	136														
-69.00	138														
	139														
	140														



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DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-23-13</b>	COMPLETION DATE <b>8-24-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_87225_28B</b>
DRILLING CONTRACTOR <b>Gulf Shore, Driller Name: Carlos</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 872+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Hollow-Stem Auger</b>			DRILL RIG <b>CME 75</b>	BOREHOLE DIAMETER <b>8 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Mod Cal (2"), SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS <b>N/A</b> <b>N/A</b>	TOTAL DEPTH OF BORING <b>117.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
3	3														
65.00	4														
5	5														
63.00	6														
7	7														
61.00	8														
9	9														
59.00	10														
11	11														
57.00	12														
13	13														
55.00	14														
15	15														
53.00	16														
17	17														
51.00	18														
19	19														
20	20														

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87225_28B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>John Wright</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87225_28B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
45															
23.00	46														
47															
21.00	48														
49															
19.00	50														
51															
17.00	52														
53															
15.00	54														
55															
13.00	56														
57															
11.00	58														start of gravel layer with interbedded sections of non gravel material
59															
9.00	60														
61															
7.00	62														
63															
5.00	64														
65															
3.00	66														
67															
68															

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87225_28B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
	69														
-1.00	70														
	71														
-3.00	72														
	73														
-5.00	74														
	75														
-7.00	76														
	77														
-9.00	78														
	79														
-11.00	80														
	81														
-13.00	82														
	83														
-15.00	84														
	85														
-17.00	86														
	87														
-19.00	88														
	89														
-21.00	90														
	91														
	92														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87225_28B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
92															
-25.00	94														
-27.00	96														
-29.00	98														
-31.00	99		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines.		1	7	21	33				PP = >4.5			
	100		Blocky.		2	5	46	56				PP = 4.0			
	101					17	29								
-33.00	102														
	103				3	9	64	100				PP = >4.5			
	104				4	12	52	89				PP = 4.0			
	105					20	32								
-35.00	106				5	12	56	100				PP = 4.5			
	107					22	34					PP = >4.5			
	108				6	16	57	72				PP = 4.0			
	109					25	32					PP = 3.5			
-39.00	110		Poorly graded SAND with SILT (SP-SM); dense; dark greenish gray; wet; about 90% medium to fine SAND; about 10% nonplastic fines; Interbedded layer of silt.		7	16	66	100							
	111		Poorly graded SAND (SP); dense to very dense; dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines.		8	10	56	100							
	112		Poorly graded SAND with SILT (SP-SM); very dense; dark gray; wet; about 90% medium to fine SAND; about 10% nonplastic fines; Oxidation lense 2" from tip.		9	24	71	100							
	113					30	41								
-43.00	114		Dense; Interbedded layers of sandy silt and silt.		10	23	67	100							
	115		Very dense; Interbedded layers of poorly graded sand and clayey sand.			29	38								
	116														

end of gravel

driller only had 109' of hollow stem auger. After driving sample 8 to 112.5', driller cleaned out hole with a California Sampler (2.5" I.D.) to 113'.

(continued)



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 Geotechnical Engineering, Design and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87225_28B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
116			Poorly graded SAND (SP); very dense; dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines.	X	11	35	52/8	100							driller cleaned out hole to 116' multiple times due to hole caving in
117			Bottom of borehole at 117.0 ft bgs			32									
						20/2"									
-49.00	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-51.00	120														
-53.00	122														
-55.00	124														
-57.00	126														
-59.00	128														
-61.00	130														
-63.00	132														
-65.00	134														
-67.00	136														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87225_28B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>Rick Sowers</b>	BEGIN DATE <b>8-23-13</b>	COMPLETION DATE <b>8-24-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_87325_29B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 873+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>Mod Cal (2"), HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>116.8 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
3	3														
65.00	4														
5	5														
63.00	6														
7	7														
61.00	8														
9	9														
59.00	10														
11	11														
57.00	12														
13	13														
55.00	14														
15	15														
53.00	16														
17	17														
51.00	18														
19	19														
20	20														

(continued)

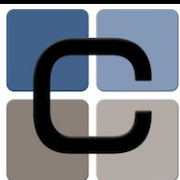


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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87325_29B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>John Wright</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87325_29B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
	45														
23.00	46														
	47														
21.00	48														
	49														
19.00	50														
	51														
17.00	52														
	53														
15.00	54														
	55														
13.00	56														
	57														
11.00	58														
	59														
9.00	60														
	61														
7.00	62														
	63														
5.00	64														
	65														gravel layer
3.00	66														
	67														
	68														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87325_29B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
-1.00	70														end gravel
-3.00	72														
-5.00	74														
-7.00	76														
-9.00	78														
-11.00	80														
-13.00	82														
-15.00	84														
-17.00	86														
-19.00	88														
-21.00	90														gravel layer
	91														
	92														

(continued)



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87325_29B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	94														
-27.00	96														
-29.00	98														end gravel layer
-31.00	100				1	25	80	0							no recovery, but sampler had blue sandy clay on outside of barrel
-33.00	102														
-35.00	104		Lean CLAY (CL); dense; stiff; blue; moist; about 5 to 10% fine SAND; about 95 to 90% medium plasticity fines.		2	14	37	100				PP = 1.5-2.0			
	103					17									
	104		Hard; greenish blue gray.		3			100				PP = 4.5			
-37.00	106														
-39.00	108		Bluish gray.		4			80				PP = 4.0			
-41.00	110		Poorly graded SAND with CLAY (SP-SC); bluish gray; wet; about 90% SAND; about 10% medium plasticity fines.												
-43.00	112		SILTY SAND (SM); bluish gray; wet; Interbedded lense of sandy clay.		5			60							
-45.00	114														
	115		Poorly graded SAND (SP); bluish gray; wet; about 95% SAND; about 5% nonplastic fines.												
	116														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87325_29B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	116		Poorly graded SAND (SP) ( <i>continued</i> ).		5			60							
	117		Bottom of borehole at 116.8 ft bgs												
	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-49.00	119														
-51.00	120														
	121														
-53.00	122														
	123														
-55.00	124														
	125														
-57.00	126														
	127														
-59.00	128														
	129														
-61.00	130														
	131														
-63.00	132														
	133														
-65.00	134														
	135														
-67.00	136														
	137														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87325_29B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-24-13</b>	COMPLETION DATE <b>8-26-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_87425_30B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 874+25 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>116.5 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
67.00	2														
65.00	4														
63.00	6														
61.00	8														
59.00	10														
57.00	12														
55.00	14														
53.00	16														
51.00	18														
	19														
	20														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87425_30B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>John Wright</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87425_30B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
45															
23.00	46														
47															
21.00	48														
49															
19.00	50														
51															
17.00	52														
53															
15.00	54														
55															
13.00	56														gravel layer
57															
11.00	58														
59															
9.00	60														
61															
7.00	62														
63															
5.00	64														
65															
3.00	66														
67															
68															

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87425_30B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
-1.00	70														end gravel
-3.00	72														
-5.00	74														
-7.00	76														
-9.00	78														
-11.00	80														
-13.00	82														
-15.00	84														
-17.00	86														
-19.00	88														
-21.00	90														gravel layer
	91														
	92														

(continued)



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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87425_30B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>4 of 6</b>



ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
116			Lean CLAY (CL) (continued).		4			100				PP = >4.5			
	117		Bottom of borehole at 116.5 ft bgs												
	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-49.00	119														
-51.00	120														
	121														
-53.00	122														
	123														
-55.00	124														
	125														
-57.00	126														
	127														
-59.00	128														
	129														
-61.00	130														
	131														
-63.00	132														
	133														
-65.00	134														
	135														
-67.00	136														
	137														
-69.00	138														
	139														
	140														



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Geotechnical Engineering, Design and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87425_30B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-29-13</b>	COMPLETION DATE <b>8-29-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_87525_31B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 875+25 Reach 13</b>	SURFACE ELEVATION <b>68.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>116.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
66.00	2														
64.00	4														
62.00	6														
60.00	8														
58.00	10														
56.00	12														
54.00	14														
52.00	16														
50.00	18														
48.00	20														
46.00	22														
44.00	24														
	25														

(continued)

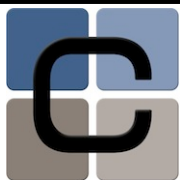


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Geotechnical Engineering, Design  
and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87525_31B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>John Wright</b>	DATE	SHEET <b>1 of 5</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
42.00	26														
40.00	28														
38.00	30														
36.00	32														
34.00	34														
32.00	36														
30.00	38														
28.00	40														
26.00	42														
24.00	44														
22.00	46														
20.00	48														
18.00	50														
16.00	52														
14.00	54														gravel layer

(continued)



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 Geotechnical Engineering, Design  
 and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87525_31B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>2 of 5</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
12.00	55														
	56														
	57														
10.00	58														
	59														
8.00	60														
	61														
6.00	62														
	63														
4.00	64														
	65														
2.00	66														
	67														
0.00	68														
	69														
-2.00	70														
	71														
-4.00	72														end gravel
	73														
-6.00	74														
	75														
-8.00	76														
	77														
-10.00	78														
	79														
-12.00	80														
	81														
-14.00	82														
	83														
-16.00	84														
	85														

(continued)



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 and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87525_31B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>3 of 5</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-18.00	86														
-20.00	88														
-22.00	90														
-24.00	92														gravel layer
-26.00	94														
-28.00	96														end gravel layer
-30.00	98														
-32.00	100		Poorly graded SAND (SP); medium dense; dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines.	1	5	11	29	94							
	101		CLAYEY SAND (SC); dark gray; wet; about 80% medium to fine SAND; about 20% low to medium plasticity fines.	2		18		90							
-34.00	102		Poorly graded SAND with CLAY (SP-SC); dark gray; wet; about 90% medium to fine SAND; about 10% low to medium plasticity fines; trace coarse sand.												
-36.00	104														
-38.00	106		CLAYEY SAND (SC); gray; moist to wet; about 85% coarse to fine SAND; about 15% low to medium plasticity fines.	3				87							
-40.00	108		Lean CLAY (CL); greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.												
-42.00	110														
	111		SANDY SILT (ML); hard; greenish gray; moist; about 30% fine SAND; about 70% low plasticity fines.	4				100				PP = 4.0			
-44.00	112		SILTY CLAY (CL-ML); hard; greenish gray; moist; about 5 to 10% fine SAND; about 90 to 95% low to medium plasticity fines.									PP = >4.5			
	113		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.									PP = >4.5			
-46.00	114											PP = >4.5			
	115		SILT with SAND (ML); hard; dark gray; moist; about												

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87525_31B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>4 of 5</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
115			15% fine SAND; about 85% low plasticity fines; slightly blocky.		4			100				PP = 4.0 PP = >4.5			
-48.00	116		Bottom of borehole at 116.0 ft bgs												
	117		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-50.00	118														
	119														
-52.00	120														
	121														
-54.00	122														
	123														
-56.00	124														
	125														
-58.00	126														
	127														
-60.00	128														
	129														
-62.00	130														
	131														
-64.00	132														
	133														
-66.00	134														
	135														
-68.00	136														
	137														
-70.00	138														
	139														
-72.00	140														
	141														
-74.00	142														
	143														
-76.00	144														
	145														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87525_31B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>5 of 5</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-29-13</b>	COMPLETION DATE <b>8-30-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_87625_32B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 876+25 Reach 13</b>	SURFACE ELEVATION <b>67.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS <b>N/A</b> <b>N/A</b>	TOTAL DEPTH OF BORING <b>115.5 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
65.00	1														
63.00	2														
	3														
	4														
	5														
61.00	6														
	7														
	8														
59.00	9														
	10														
	11														
57.00	12														
	13														
	14														
55.00	15														
	16														
	17														
53.00	18														
	19														
	20														
51.00	21														
	22														
	23														
49.00	24														
	25														

(continued)

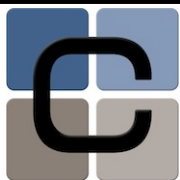


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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87625_32B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>John Wright</b>	DATE	SHEET <b>1 of 5</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
41.00	26														
39.00	28														
37.00	30														
35.00	32														
33.00	34														
31.00	36														
29.00	38														
27.00	40														
25.00	42														
23.00	44														
21.00	46														
19.00	48														
17.00	50														
15.00	52														gravel layer
13.00	54														
	55														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87625_32B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>2 of 5</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
11.00	55														
	56														
	57														
9.00	58														
	59														
7.00	60														
	61														
5.00	62														
	63														
3.00	64														
	65														
1.00	66														
	67														
-1.00	68														
	69														
-3.00	70														
	71														
-5.00	72														
	73														
-7.00	74														
	75														
-9.00	76														end gravel
	77														
-11.00	78														
	79														
-13.00	80														
	81														
-15.00	82														
	83														
-17.00	84														
	85														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87625_32B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>3 of 5</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-19.00	86														
-21.00	88														
-23.00	90														
-25.00	92														gravel layer
-27.00	94														end gravel layer
-29.00	96														
-29.00	96		Poorly graded SAND (SP); medium dense; dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines.	1	5	10	21	94							
-31.00	98		CLAYEY SAND (SC); gray; wet; about 65% medium to fine SAND; about 35% low to medium plasticity fines.	2				100							
-33.00	100		Poorly graded SAND (SP); dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines; interbedded layers of clayey SAND.												
-35.00	102		CLAYEY SAND (SC); gray; wet; about 65% medium to fine SAND; about 35% low to medium plasticity fines.	3				78							
-35.00	103		Poorly graded SAND (SP); dark gray; wet; about 95% medium to fine SAND; about 5% nonplastic fines.												
-37.00	104		CLAYEY SAND (SC); gray; wet; about 65% medium to fine SAND; about 35% low to medium plasticity fines; trace coarse SAND, interbedded layers of poorly graded SAND.												
-39.00	106														
-41.00	107		SILTY CLAY (CL-ML); hard; dark greenish gray; moist; about 10% fine SAND; about 90% low to medium plasticity fines; slightly blocky.	4				100				PP = >4.5			
-41.00	108		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.									PP = >4.5			
-43.00	110											PP = >4.5			
-45.00	112											PP = >4.5			
-47.00	114		SILT (ML); hard; dark greenish gray; moist; low plasticity fines; grades from 10% to 30% fine sand.	5				100				PP = >4.5			
-47.00	114											PP = >4.5			
-47.00	114											PP = >4.5			
-47.00	114											PP = >4.5			

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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87625_32B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>4 of 5</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-49.00	115		SILTY SAND (SM); dark gray; moist to wet; about 80 to 85% medium to fine SAND; about 15 to 20% nonplastic fines. Bottom of borehole at 115.5 ft bgs												
-51.00	116														
-53.00	117														
-55.00	118														
-57.00	119														
-59.00	120														
-61.00	121														
-63.00	122														
-65.00	123														
-67.00	124														
-69.00	125														
-71.00	126														
-73.00	127														
-75.00	128														
-77.00	129														
	130														
	131														
	132														
	133														
	134														
	135														
	136														
	137														
	138														
	139														
	140														
	141														
	142														
	143														
	144														
	145														

FINAL LOG:  
The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_87625_32B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>5 of 5</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>9-3-13</b>	COMPLETION DATE <b>9-3-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13 88930 45B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 889+30 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>117.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
67.00	2														
65.00	4														
63.00	6														
61.00	8														
59.00	10														
57.00	12														
55.00	14														
53.00	16														
51.00	18														
	19														
	20														

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13 88930 45B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>John Wright</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														gravel layer
	31														
37.00	32														end gravel
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



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 Geotechnical Engineering, Design and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_88930_45B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
45															
23.00	46														gravel layer
47															
21.00	48														
49															
19.00	50														
51															
17.00	52														
53															
15.00	54														
55															
13.00	56														
57															
11.00	58														
59															
9.00	60														Very dense/coarse gravel
61															
7.00	62														
63															
5.00	64														
65															
3.00	66														
67															
68															

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_88930_45B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
-1.00	69														
-3.00	70														
	71														
	72														end gravel
	73														
-5.00	74														
	75														
-7.00	76														
	77														
-9.00	78														
	79														
-11.00	80														
	81														
-13.00	82														
	83														
-15.00	84														
	85														
-17.00	86														
	87														gravel layer
-19.00	88														
	89														end gravel gravel layer
-21.00	90														
	91														
	92														

(continued)



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Geotechnical Engineering, Design  
and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_88930_45B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	94														end gravel
-29.00	98		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines.		1	8	16	100				PP = 3.75			
	99				2	8		100				PP = >4.5			
	100											PP = 3.75			
	101		SANDY SILT (ML); hard; dark greenish gray; moist; about 35% fine SAND; about 65% low plasticity fines.									PP = >4.5			
	102											PP = >4.5			
-33.00	102		SANDY lean CLAY (CL); dark greenish gray; moist; about 35% fine SAND; about 65% low to medium plasticity fines.		3			90							
	103														
-35.00	104		Poorly graded SAND with SILT (SP-SM); dark gray; wet; about 85 to 90% coarse to fine SAND; about 10 to 15% nonplastic fines.												
	105														
-37.00	106		SILTY SAND (SM); dark gray; moist to wet; about 50% fine SAND; about 50% nonplastic to low plasticity fines.												
	107		Lean CLAY (CL); very stiff; greenish gray; moist; about 5 to 10% fine SAND; about 90 to 95% medium plasticity fines.		4			100				PP = 3.25			
	108											PP = >4.5			
	109		Hard; blocky.									PP = >4.5			
	110											PP = >4.5			
	111											PP = >4.5			
-43.00	112		SILTY SAND (SM); dark gray; wet; about 60% fine SAND; about 40% nonplastic to low plasticity fines.		5			100							
	113														
-45.00	114		Lean CLAY (CL); hard; dark greenish gray; moist; about 5 to 10% fine SAND; about 95% medium plasticity fines.									PP = >4.5			
	115											PP = >4.5			
	116		SILTY SAND (SM); dark gray; moist to wet; about 50%									PP = >4.5			

(continued)



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and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_88930_45B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
116			fine SAND; about 50% nonplastic to low plasticity fines.		5			100							
117			Bottom of borehole at 117.0 ft bgs												
-49.00	118		<b>FINAL LOG:</b> The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-51.00	120														
-53.00	122														
-55.00	124														
-57.00	126														
-59.00	128														
-61.00	130														
-63.00	132														
-65.00	134														
-67.00	136														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_88930_45B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>6 of 6</b>

LOGGED BY <b>John Wright</b>	BEGIN DATE <b>8-30-13</b>	COMPLETION DATE <b>8-30-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>13_89450_50B</b>
DRILLING CONTRACTOR <b>Geo-Ex, Driller Name: Ryan</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>0.00' Rt Sta 894+50 Reach 13</b>	SURFACE ELEVATION <b>69.0 ft</b>
DRILLING METHOD <b>Rotary Wash</b>			DRILL RIG <b>CME 850</b>	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>HQ Core, SPT (1.4")</b>			SPT HAMMER TYPE <b>Automatic Trip, 140 lb, 30 inch</b>	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION <b>Cement Grout</b>			GROUNDWATER DURING DRILLING READINGS <b>N/A</b>	AFTER DRILLING (DATE) <b>N/A</b>
				TOTAL DEPTH OF BORING <b>117.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0														
1	1														
67.00	2														
3	3														
65.00	4														
5	5														
63.00	6														
7	7														
61.00	8														
9	9														
59.00	10														
11	11														
57.00	12														
13	13														
55.00	14														
15	15														
53.00	16														
17	17														
51.00	18														
19	19														
20	20														

(continued)



**Crawford**  
& Associates, Inc.  
Geotechnical Engineering, Design  
and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_89450_50B</b>
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE <b>D</b>	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>
PROJECT OR BRIDGE NAME <b>SBFCA</b>				
BRIDGE NUMBER	PREPARED BY <b>John Wright</b>	DATE	SHEET <b>1 of 6</b>	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
20															
	21														
47.00	22														
	23														
45.00	24														
	25														
43.00	26														
	27														
41.00	28														
	29														
39.00	30														
	31														
37.00	32														
	33														
35.00	34														
	35														
33.00	36														
	37														
31.00	38														
	39														
29.00	40														
	41														
27.00	42														
	43														
	44														

(continued)



**Crawford & Associates, Inc.**  
 Geotechnical Engineering, Design and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_89450_50B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>2 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
44															
45															
23.00	46														
47															
21.00	48														
49															
19.00	50														
51															gravel layer
17.00	52														
53															
15.00	54														
55															
13.00	56														
57															
11.00	58														
59															
9.00	60														
61															
7.00	62														
63															
5.00	64														
65															
3.00	66														
67															
68															

(continued)



**Crawford**  
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 Geotechnical Engineering, Design  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_89450_50B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>3 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
68															
-1.00	69														
-3.00	70														
	71														
	72														
	73														
-5.00	74														
	75														end gravel
-7.00	76														
	77														
-9.00	78														
	79														
-11.00	80														
	81														
-13.00	82														
	83														
-15.00	84														
	85														
-17.00	86														
	87														
-19.00	88														gravel layer
	89														
-21.00	90														
	91														
	92														

(continued)



**Crawford & Associates, Inc.**  
 Geotechnical Engineering, Design and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_89450_50B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>4 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-25.00	92														
	93														end gravel
	94														
	95														
	96		Lean CLAY (CL); very stiff; greenish blue gray; moist; about 5% fine SAND; about 95% medium plasticity fines.	1	5	15	100					PP = 3			
	97				7							PP = 1			
	98			2			100					PP = 1.25			
	99											PP = 1			
	100											PP = 2.25			
	101											PP = 3.75			
	102		SILTY CLAY (CL-ML); hard; dark greenish gray; moist; about 5% fine SAND; about 95% low to medium plasticity fines.	3				100				PP = 4.25			
	103		CLAYEY SILT (ML/CL); stiff; dark greenish gray; moist to wet; about 5 to 10% fine SAND; about 90 to 95% low plasticity fines.									PP = >4.5			
	104		Low to medium plasticity fines.									PP = 1.75			
	105		Low plasticity fines.									PP = 3.25			
	106		Lean CLAY (CL); medium stiff; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.									PP = 0.25			
	107		CLAYEY SILT (ML/CL); hard; greenish gray; moist; about 20% fine SAND; about 80% low plasticity fines.									PP = >4.5			
	108		About 30% fine SAND; about 70% fines.	4			100					PP = 2.5			
	109		SILTY SAND (SM); dark gray; wet; about 60 to 70% fine SAND; about 30 to 40% nonplastic to low plasticity fines.									PP = 3			
	110		Lean CLAY (CL); very stiff to hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.									PP = 4.25			
	111											PP = >4.5			
	112			5			100					PP = >4.5			
	113											PP = >4.5			
	114		SILTY SAND (SM); dark gray; wet; about 60% medium to fine SAND; about 40% low plasticity fines.									PP = >4.5			
	115		Lean CLAY (CL); hard; greenish gray; moist; about 5% fine SAND; about 95% medium plasticity fines; blocky.									PP = >4.5			
	116											PP = >4.5			

(continued)



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 Geotechnical Engineering, Design and Construction Services

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_89450_50B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>5 of 6</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
116			Lean CLAY (CL) (continued).		5			100				PP = >4.5 PP = >4.5			
	117		Bottom of borehole at 117.0 ft bgs												
-49.00	118		FINAL LOG: The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our final logs represent our interpretation of the field logs and general knowledge of the site and geological conditions.												
-51.00	120														
-53.00	122														
-55.00	124														
-57.00	126														
-59.00	128														
-61.00	130														
-63.00	132														
-65.00	134														
-67.00	136														
-69.00	138														
	139														
	140														



REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>13_89450_50B</b>	
DIST. <b>03</b>	COUNTY <b>YUB</b>	ROUTE	POSTMILE <b>D</b>	EA <b>03-13-120.1</b>	
PROJECT OR BRIDGE NAME <b>SBFCA</b>					
BRIDGE NUMBER		PREPARED BY <b>John Wright</b>		DATE	SHEET <b>6 of 6</b>