



# BLACK & VEATCH BORING LOG SYMBOLS AND TERMINOLOGY

## GENERAL

SPT	-Split Spoon / Standard Penetration Test
TW	-Thin Wall Sampler
CA	-California Sampler
S	-Grab Sample
PP	-Compressive strength as determined by penetrometer.
TV	-Compressive strength as determined by torvane.
NW	-2.98 inch outer diameter core bit
Gravel	-Fine grained - From 1/4 to 3/4 inches in diameter.
	-Coarse grained - From 3/4 to 3 inches in diameter.
Cobble	-From 3 to 12 inches in diameter.
Boulder	-Greater than 12 inches in diameter.
60	-Represents 60 degrees measured from a plane perpendicular to the longitudinal axis of the sample.
Occasional	-One or less per 6" of thickness.
Trace	-Represents 5 to 10 percent by volume.
Some	-Represents 10 to 20 percent by volume.
N Value	-Indicates the number of blows to drive a standard split spoon sampler 12 inches with a 140-pound weight falling 30 inches.
RQD	-A modified core run recovery in which all pieces of sound core over 4 inches in length are counted as recovery. The modified sum of the core recovery is then expressed as a percentage of the total length of the core run.
-----	-Dashed line in classification column indicates approximate or gradational change.
	-At
w/	-With
&	-And
WOR	-Weight of rods
WOH	-Weight of hammer
ID	-Inside diameter
OD	-Outside diameter

## WEATHERING

Fresh	-The rock shows no dissolution, loss of strength, or other effects due to weathering (unweathered rock).
Slightly Weathered	-Rock is slightly discolored with a slightly lower strength than unweathered rock.
Moderately Weathered	-Rock is considerably discolored with a slightly lower strength than unweathered rock.
Highly Weathered	-Rock is discolored and weakened so intensely that 2-inch diameter rock cores can be broken readily by hand. Wet strength is usually much lower than dry strength

## BEDDING

Laminated	-Less than 0.001 foot to 0.1 foot (0.1 inch).
Thin Bedded	-0.01 foot to 0.1 foot (0.1 to 1.0 inches).
Medium Bedded	-0.1 foot to 1.0 foot (1.2 to 12 inches).
Thick Bedded	-Greater than 1.0 foot.
Massive	-Denotes no discernable internal bedding structure.

## SYMBOLS LEGEND

### Soil Samplers



Rock core



Standard penetration test



# BLACK & VEATCH

# BORING LOG

BORING NO. BV-1  
SHEET 1 OF 5

CLIENT										PROJECT										PROJECT NO.	
City of Charlottesville										Ragged Mountain Project										168539	
PROJECT LOCATION					COORDINATES					GROUND ELEVATION (DATUM)					TOTAL DEPTH						
Charlottesville, VA					Not Surveyed					643.5 ft (MSL)					70.7 (feet)						
SURFACE CONDITIONS										COORDINATE SYSTEM					DATE START		DATE FINISHED				
Top of concrete (18" from down slope edge)										Not Surveyed					07/07/2010		07/08/2010				
SOIL SAMPLING										LOGGED BY					CHECKED BY					APPROVED BY	
										B. Gomer					D. Conolly					G. Zamensky	
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS									
ROCK CORING																					
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	ROD RECOVERY	PERCENT RECOVERY	RQD															
4"	1	1.3	1.3	1.3	100	100	0		643		CONCRETE; gray; 3/8-3/4" graded aggregate; subangular to angular; evenly distributed; sand in cement @ 0.6' 0°; J;MW;No;No;PI;R; cold joint	Boring advanced using 4" casing w/ carbide bit & water as drilling fluid (OD 4-1/2"). Below 1.3' continued boring using HQ triple tube core barrel w/ diamond bit & water as drilling fluid (OD 3-3/4"). Frequent mechanical breaks.  Packer test from 6.5-15.0' indicated no significant leakage (0.6 Lugeons).									
			1.3				1		642		Cyclopean CONCRETE; gray; 1/4-20" aggregate & plum stones; subrounded to angular; unevenly distributed; sand in cement										
2.5"	2	4.4	4.4	4.2	100	95	2		641												
							3		640		@ 3.5' 0°; J;N to MW;No;No;PI;SR; mechanical abrasion between concrete & bottom of plum stone										
							4		639												
							5		638		@ 4.7' 30°; J;N;No;No;PI;SR; in plum stone @ 5.1' FZ;0-45°; J;N;No;No;PI to St;SR to R; @ base of plum stone										
			5.7				6		637		@ 5.8' 0°; J;N;No;No;PI;SR; @ base of plum stone										
							7		636												
2.5"	3	5.0	5.0	3.9	100	78	8		635		@ 7.2' 10°; J;N;Fe;Sp;PI;SR; @ top of plum stone @ 7.7' 10°; J;N;Fe;Sp;PI;R; joint in plum stone										
							9		634		@ 8.7' 0°; J;MW;No;No;Ir;R @ 8.8' 3/8" pits @ 9.1' 0-20°; J;N;No;No;Ir;R; large aggregate										
							10		633		@ 9.4' 0°; J;N;No;No;St;SR @ 9.6' 0°; J;N;No;No;Ir;R @ 10.1-10.3' grading brown sand cement										
			10.7				11		632												
							12		631		@ 12.1' 0°; J;MW;Cl;Sp;PI; @ base of plum stone										
2.5"	4	5.0	5.0	4.7	100	94	13		630		@ 13.1-13.3' FZ of weak cement w/ no aggregate @ 13.1-13.7' 90°; J;N;No;No;WA;R; crack in concrete matrix										
							14		629												
							15				@ 14.6' 30°; J;T;No;No;PI;SR @ top of plum stone	Packer test from 14.0-22.5' indicated no									

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# BORING LOG

BORING NO. BV-1  
SHEET 2 OF 5

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 70.7 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/07/2010	DATE FINISHED 07/08/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	ROD RECOVERY	PERCENT RECOVERY	RQD						
2.5"	5	5.0	4.9	4.9	98	98	15		628			significant leakage (6.9 Lugeons).
			15.7				16		627		@ 16.1' 35°;J;N to MW;No;No;PI;R; honeycomb, sandy on top of plum stone	
							17		626			
							18		625			
							19		624		@ 19.6' 0°;J;MW;No;No;St;SR	Below 19.0' frequent drill chatter.
							20		623			
			20.7				21		622		@ 20.8' 5°;J;N;No;No;PI;S; @ top of plum stone @ 21.2-21.4' 0°;J;W;Cl;Fi;PI to St;S to R; clay layer	Packer test from 21.5-30.0' indicated no significant leakage (5.6 Lugeons).
							22		621			
2.5"	6	5.0	4.9	4.6	98	92	23		620		@ 23.0' 0°;J;N;Cl;Sp;St;R	
							24		619			
							25		618			@ 25.0' driller lifted rods.
			25.7				26		617		@ 26.0' 0°;J;MW;No;No;lr;R @ 26.0-26.4' grading brown sand cement	
							27		616		@ 27.0' 0°;J;W;Sd;Fi;PI;S; sand is weakly cemented beneath plum stone; laitance on joint surface @ bottom of plum stone	
2.5"	7	5.0	5.0	4.5	100	90	28		615			
							29		614		@ 29.0' 0°;J;MW;No;No;St;SR; in plum stone	
							30		614		@ 29.6' 0°;J;N;Cl;Fi;lr;SR; probable laitance @ top of plum stone	

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# BORING LOG

BORING NO. BV-1

SHEET 3 OF 5

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 70.7 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/07/2010	DATE FINISHED 07/08/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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SOIL SAMPLING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY							
ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
2.5"	8	5.0	5.0	4.3	100	86	30		613				Packer test from 29.0-37.5' indicated no significant leakage (0.7 Lugeons).
			30.7				31		612				
							32		611	@ 32.1' 5°;J;N;No;No;PI;SR			
2.5"	9	5.0	4.8	4.1	96	82	33		610	@ 33.5-33.7' FZ;0-45°;J;N;No;No;lr;SR to R; less aggregate			Packer test from 36.5-45.0' indicated no significant leakage (3.1 Lugeons). @ 38.0' driller lifted up due to change in cutting.
							34		609	@ 33.9' 0°;J;N;No;No;PI;SR to R			
							35		608	@ 34.4' 0°;J;MW;No;No;lr;SR to R; @ base of plum stone			
			35.7				36		607	@ 36.4' 0°;J;MW;No;No;St;R			
							37		606	@ 37.3' FZ;J;N to MW;No;No;lr;SR to R			
							38		605	@ 37.6' 45°;J;N;Ca & Cl;Sp;PI;SR; honeycombing, @ top of plum stone			
							39		604	@ 38.0' 0°;J;MW to W;No;No;PI;SR; mechanical abrasion of concrete @ edges of joint			
							40		603	@ 38.2' vuggy concrete			
							41		602	@ 39.4' 0-60°;J;N to MW;No;No;lr;SR to R; fracture around aggregate			
							42		601				
2.5"	10	5.0	5.0	4.1	100	82	43		600	@ 42.3' 0°;J;MW;No;No;IR;S to R; @ base of plum stone			
							44		599	@ 43.3-44.8' grading brown sand in cement			
							45			@ 43.6' 0°;J;N;No;No;St;SR			Packer test from 44.1-52.6' indicated no
										@ 44.1' 5°;J;MW;No;No;St;R			
										@ 44.4' 0°;J;N;No;No;St;R			

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# BORING LOG

BORING NO. BV-1  
SHEET 4 OF 5

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 70.7 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/07/2010	DATE FINISHED 07/08/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
2.5"	11	5.0	4.8	4.2	96	84	45		598		@ 45.3' 10°;J;MW;No;No;St;R; 1/2-3/4" vugs	significant leakage (0.0 Lugeons).	
			45.7				46		597		@ 46.5-46.8' FZ;0-60°;J;N to MW;PI;lr;SR to R; concentrated aggregate without cement; 1/2" vugs & laitance @ base of fracture zone	@ 47.0' occasional rig chatter.	
							47		596				
							48		595				
							49		594		@ 49.2' 25°;MW to W;No;No;lr;SR; @ base of plum stone; laitance @ bottom of plum stone	Packer test from 49.1-57.6' indicated no significant leakage (0.0 Lugeons).	
							50		593				
			50.7				51		592			@ 51.0' driller lifted rods.	
							52		591				
2.5"	12	5.0	2.0	0.4	40	8	53		590			@ 53.0' greenish gray wash water. Bind in core barrel prevented recovery of core in Run 12.	
							54		589		<u>GNEISS</u> ; dark gray; massive to slightly foliated; medium to coarse grained; slightly weathered; strong; moderately hard; near vertical (~ 80°) joints & lineations [Lovingson Fm]	@ 53.6' bottom of dam.	
							55		588				
			55.7				56		587		@ 56.2' 10°;N;Fe;Su to Sp;PI;S @ 56.5' 50°;N;Fe;Su to Sp;PI;S to SR @ 56.8-58.8' FZ;10-90°;N to MW;Fe;Su to Sp;PI-St-Ir; S to R	Frequent rig chatter below 57.0'. Packer test from 57.0-70.7' indicated no significant leakage (3.9 Lugeons). Frequent	
							57		586				
2.5"	13	5.0	5.0	0.5	100	10	58		585				
							59		584				
							60						

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# BORING LOG

BORING NO. BV-1  
SHEET 5 OF 5

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 70.7 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/07/2010	DATE FINISHED 07/08/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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SOIL SAMPLING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY							
ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	ROD RECOVERY	PERCENT RECOVERY	ROD							
								60		583			horizontal (0° to 30°) mechanical breaks from 59.0- 69.5'.
			60.7					61		582			
								62		581			@ 62.0' driller lifted rods due to chatter.
2.5"	14	5.0	5.0	0.5	100	10		63		580			
								64		579			
								65		578		@ 65.0' 45°;J;N;Fe;Su;PI;S	
			65.7					66		577		@ 65.6' 60°;Fo;N;No;No;WA;S to SR grading gray to dark gray; foliated; medium grained; very strong; hard	
								67		576		SCHIST; dark gray; foliated; fine to medium grained; moderately to highly weathered; very weak; low hardness	Drill chatter from 67.0-69.5'.
2.5"	15	5.0	4.8	2.7	96	54		68		575		@ 66.8-67.7' FZ;0-45°;Fo;N;No;No;WA;S	
								69		574		Granitic GNEISS; light gray & black; foliated; moedium to very coarse grained; slightly weathered; very strong; hard [Lovington Fm]	
								70		573		@ 68.5-69.0' 85-90°;J;N;Fe;Su;PI;SR;healed @ 69.1' 60°;J;N;Fe;Su;PI;SR;healed @ 69.4-69.6' FZ;0-45°;J;N to MW;Fe;Su;PI to Ir;S to SR	
								71		572		@ 69.9' 40°;Fo;N;No;No;WA;S	No recovery below 70.5'.
								72		571			Bottom of boring @ 70.7'. Boring backfilled w/ cement-bentonite grout on 07/20/2010. Water level @ 10.8' on 07/20/2010.
								73		570			
								74		569			
								75					

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**BLACK & VEATCH**

**BORING LOG**

BORING NO. BV-2P  
SHEET 1 OF 6

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 83.6 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/08/2010	DATE FINISHED 07/13/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
4"	1	1.2	1.1	1.0	92	83	0	643		CONCRETE; gray; 3/8-3/4" graded aggregate; subangular to angular; evenly distributed @ 0.4' 0°;J;MW;No;No;PI;SR; likely cold joint Cyclopean CONCRETE; gray; 1/4" to 25" aggregate & plum stone; subrounded to angular; unevenly distributed; sand-sized grains in cement @ 1.4' 0°;J;MW;No;No;lr;SR	Boring advanced using 4" casing w/ carbide bit & water as drilling fluid (OD 4-1/2"). Below 1.2' continued boring using HQ triple tube core barrel w/ diamond bit & water as drilling fluid (OD 3-3/4"). Frequent mechanical breaks.  @ 8.1' 0-10°;J;N;No;No;lr;SR; @ base of plum stone  Packer test from 9.5-18.0' indicated no significant leakage (3.5 Lugeons). @ 11.2' 100% loss of circulation to 11.6'.  @ 13.0' white wash water for approximately 6".		
			1.2				1	642					
2.5"	2	4.3	4.2	4.0	98	93	3	640					
			5.5				6	638					
							7	637					
2.5"	3	5.0	5.0	4.9	100	98	8	635					
							9	634					
							10	633					
			10.5				11	632					
							12	631					
2.5"	4	5.0	5.0	4.0	100	80	13	630					
							14	629					
							15	629					

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# BORING LOG

BORING NO. BV-2P  
SHEET 2 OF 6

CLIENT										PROJECT										PROJECT NO.	
City of Charlottesville										Ragged Mountain Project										168539	
PROJECT LOCATION					COORDINATES					GROUND ELEVATION (DATUM)					TOTAL DEPTH						
Charlottesville, VA					Not Surveyed					643.5 ft (MSL)					83.6 (feet)						
SURFACE CONDITIONS										COORDINATE SYSTEM					DATE START		DATE FINISHED				
Top of concrete (18" from down slope edge)										Not Surveyed					07/08/2010		07/13/2010				
SOIL SAMPLING										LOGGED BY					CHECKED BY					APPROVED BY	
										B. Gomer					D. Conolly					G. Zamensky	
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS									
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD															
2.5"	5	5.0	5.0	4.5	100	90	15.5		628		@ 15.0' 10°;J;MW;Fe;Su;PI;SR; large aggregate	Packer test from 15.5-24.0' indicated no significant leakage (0.0 Lugeons).									
							16		627		@ 15.7' 40°;J;N to MW;No;No;St;R; @ top of plum stone; slight honeycomb										
							17		626												
							18		625												
							19		624												
							20		623		@ 19.8' 0-10°;J;N to MW;Fe;Su;PI to Ir;SR @ 20.0' 45°;J;N to MW;UK;Sp;St;SR	Drill chatter from 21.5-23.5'.									
							21		622												
							22		621												
							23		620		@ 23.3-23.5' FZ;0-45°;N to MW;Sd & Cl;Sp to Pa;Ir;S to R @ 23.7' 0°;J;MW;Cl;Sp to Su;Ir;R										
							24		619			Packer test from 22.9-31.4' indicated slight leakage (15 Lugeons).									
							25		618		@ 24.9' 10°;J;N to MW;No;No;St;SR										
							26		617												
							27		616		@ 26.8' 1/2" vugs										
							28		615			Frequent drill chatter from 27.5-30.6'.									
							29		614		@ 28.9' 0-30°;J;N to MW;construction debris;Pa;St;SR; @ top of plum stone										
							30														

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**BLACK & VEATCH**

**BORING LOG**

BORING NO. BV-2P  
SHEET 3 OF 6

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 83.6 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/08/2010	DATE FINISHED 07/13/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	ROD RECOVERY	PERCENT RECOVERY	RQD							
			30.6				30		613				
							31		612				
							32		611				
2.5"	8	5.0	5.0	4.2	100	84	33		610	@ 32.5' 0°;J;N;Cl;Fi;PI;S; laitance			
							34		609	@ 33.2' 5°;J;N to MW;No;No;St;SR; @ top of plum stone			@ 33.0' drill chatter, occasional drill chatter to 38.0'.
							35		608	@ 34.0' 5°;J;N to MW;No;No;St;SR; @ base of plum stone			
			35.6				36		607	@ 34.6-37.2' grading brown sand cement			
							37		606	@ 34.7' 0°;J;MW;Sd;Sp;lr;R			
2.5"	9	5.0	4.9	4.0	98	80	38		605	@ 34.9' 10°;J;N;Sd;Su;PI;SR			
							39		604	@ 35.2' 0-45°;J;N;No;No;St;SR			
							40		603	@ 35.7' 0°;J;N;Cl;Sp;PI;SR; laitance			
							41		602	@ 36.8' 0°;J;MW;Sd;Sp;lr;R			
							42		601	@ 37.2' 20°;J;N to MW;Sd;Pa;PI;SR; @ top of plum stone			
							43		600	@ 37.2-37.7' 90°;J;N;Fe;Su;lr;R			
							44		599	@ 37.6-37.8' FZ;J;N to MW;Sd;Pa;PI to lr;S to SR; apparent precipitate in joints			
							45			@ 38.0-38.2' sandy weak cement @ bottom of plum stone			
2.5"	10	5.0	5.0	4.5	100	90	43		600	@ 41.3' 0°;J;N;No;No;lr;R; joint through vein in plum stone			
			40.6				44						Drill chatter from 43.5-44.2'.
							45						Packer test from 44.5-53.0'

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# BORING LOG

BORING NO. BV-2P  
SHEET 4 OF 6

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 83.6 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/08/2010	DATE FINISHED 07/13/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
2.5"	11	5.0	5.0	4.5	100	90	45		598		@ 45.2' 30°;J;N;Cl;Fi;PI;SR; laitance at bottom of plum stone	indicated no significant leakage (3.4 Lugeons).	
			45.6				46		597				
							47		596			Drill chatter from 47.0-48.0'.	
2.5"	11	5.0	5.0	4.5	100	90	48		595		@ 48.6' 0°;J;N;No;No;PI;SR; @ base of plum stone		
							49		594				
							50		593			Drill chatter from 50.0-53.5'.	
			50.6				51		592		@ 50.8' 3/8" pits		
							52		591		@ 51.6' 20°;J;N to MW;No;No;PI to Ir;S to SR; @ top of plum stone	Packer test from 52.0-60.5' indicated no significant leakage (0.0 Lugeons).	
2.5"	12	5.0	5.0	4.2	100	84	53		590		@ 53.0' 0°;J;MW;No;No;Ir;R; joint in plum stone	@ 53.2' driller lifted rods.	
							54		589		@ 53.5' 0°;J;MW;Fe;Su;PI;R; @ base of plum stone		
							55		588		@ 54.6' 10°;J;N;Fe;Su;PI;SR; joint in plum stone	Occasional drill chatter from 54.5-55.6'.	
			55.6				56		587			@ 56.0' dark gray wash water for 6".	
							57		586		@ 56.5' 0°;J;MW;No;No;Ir;R; @ base of plum stone	Below 57.0' frequent chatter.	
2.5"	13	5.0	4.9	4.1	98	82	58		585		@ 58.2-58.5' FZ;0°-45°;J;N to MW;No;No;Ir;SR; gravel		
							59		584		@ 58.8' 0°;J;N;No;No;St;SR		
							60					Packer test from 59.3-67.8'	

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# BORING LOG

BORING NO. BV-2P  
SHEET 5 OF 6

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 83.6 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/08/2010	DATE FINISHED 07/13/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
			60.6				60					indicated leakage (210 Lugeons).	
							61					Frequent drill chatter from 61.0-64.5'.	
							62						
							63					Packer test from 63.0-71.5' indicated leakage (142 Lugeons).	
2.5"	14	5.0	5.0	3.1	100	62	63						
							64						
							65						
							66						
							67						
							68						
2.5"	15	5.0	4.9	4.9	98	98	68						
							69						
							70						
							71						
							72						
2.5"	16	3.0	3.0	1.7	100	57	72						
							73						
							74						
							75						

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@ 61.2' 0°;J;MW to W;No;No;St;R; weak cement @ base of plum stone

@ 62.9-64.0' FZ;0-30°;J;N to MW;No;No;PI to St; S to R  
@ 63.2' 90°;J;N to MW;Cl;Fi;PI;S; laitance & weakly cemented aggregate

@ 64.4' 31°;J;N;No;No;PI;SR  
Granitic GNEISS; black to light gray; slightly foliated; medium to very coarse grained; fresh; very strong; hard [Lovingson Fm]

@ 69.0' grading medium to coarse grained

QUARTZ; white; very coarse grained; fresh; strong; hard  
@ 71.7-72.9' FZ;0-45°;J;N to W;No;No;PI & St; SR to R

Granite GNEISS; black to light gray; slightly foliated; medium grained; fresh; strong; hard [Lovingson Fm]



# BLACK & VEATCH

# BORING LOG

BORING NO. BV-2P

SHEET 6 OF 6

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 83.6 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/08/2010	DATE FINISHED 07/13/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
2.5"	17	5.0	5.0	5.0	100	100	75						
				78.6			76						
							77					@ 77.1' 0°;J;N;No;No;lr;R	
							78						
							79					@ 78.9' grading medium grained	Occasional drill chatter from 78.6-81.5'.
							80					@ 80.1' grading medium to coarse grained	
2.5"	18	5.0	5.0	4.9	100	98	81						Frequent drill chatter from 81.5-83.6'. @ 81.8' driller lifted rods.
							82						
							83						@ 83.0' driller lifted rods.
							84						Bottom of boring @ 83.6'. Piezometer installed in boring on 07/19/2010. Water level @ 8.6' on 07/21/2010.
							85						
							86						
							87						
							88						
							89						
							90						



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# BORING LOG

BORING NO. BV-3  
SHEET 1 OF 5

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 58.7 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/13/2010	DATE FINISHED 07/14/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
4"	1	1.4	1.4	0.9	100	64	0		643		CONCRETE; gray; 3/8-3/4" graded aggregate; evenly spaced; entrained air pockets; subangular to angular @ 0.3' 0°; J; MW; No; No; PI; SR to R; cold joint w/ construction debris	Boring advanced using 4" casing w/ carbide bit & water as drilling fluid (OD 4-1/2"). Below 1.4', continued boring using HQ triple tube core barrel w/ diamond bit & water as drilling fluid (OD 3-3/4"). Frequent mechanical breaks. @ 2.6' driller lifted rods.  Packer test from 6.0-14.5' indicated no significant leakage (5.9 Lugeons).  Packer test from 10.5-19.0' indicated no significant leakage (1.4 Lugeons).  Drill chatter from 13.7' to 14.7'.	
			1.4				1		642		Cyclopean CONCRETE; gray; 1/4" to 28" aggregate & plum stone; unevenly distributed; subrounded to subangular; sand cement		
2.5"	2	2.3	2.3	2.2	100	96	2		641				
			3.7				3		640				
							4		639				
							5		638				
2.5"	3	5.0	4.9	4.9	98	98	6		637		@ 5.7' 0°; J; N; No; No; PI; SR; @ top of plum stone		
							7		636		@ 7.0' 5°; J; N; Sd; Su; PI; R; @ top of plum stone @ 7.4-8.3' cement grading to light yellowish brown sand		
							8		635				
			8.7				9		634		@ 9.2' FZ; 0-45°; J; N to MW; No; No; Ir; SR to R; fractured plum stone		
							10		633				
2.5"	4	5.0	5.0	4.7	100	94	11		632				
							12		631		@ 12.1' 45°; J; N to MW; Sd; Pa; Ir; S to SR; slight honeycomb, @ top of plum stone @ 12.6' 25°; J; N; Fe; Su; St; SR; 1/4" vugs, @ base of plum stone		
							13		630				
			13.7				14		629				
							15		628				

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**BORING LOG**

BORING NO. BV-3  
SHEET 2 OF 5

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 58.7 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/13/2010	DATE FINISHED 07/14/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
2.5"	5	5.0	5.0	4.9	100	98	15		628				
							16		627		@ 16.1' 0°;J;MW to W;No;No;PI to St;R; weak cement w/ little aggregate @ 16.1-16.4' honeycomb, 3/4" vugs	@ 16.0' driller reports change in resistance. Frequent drill chatter from 16.9' to 17.5'.	
							17		626		@ 17.6' 25°;J;N;No;No;PI;SR; joint in plum stone		
							18		625			Packer test from 18.0-26.5' indicated no significant leakage (0.0 Lugeons).	
			18.7				19		624				
2.5"	6	5.0	5.0	4.8	100	96	20		623		@ 19.8' 0-20°;J;N to MW;Cl;Sp;PI to Ir;SR; @ top of plum stone; laitance @ 20.2' 5°;J;N;UK;Sp;Ir;SR to R; @ base of plum stone		
							21		622				
							22		621		@ 22.4' 0°;J;N to W;No;No;PI to Ir;SR; @ base of weathered plum stone; laitance @ 22.9' 0°;J;N to MW;No;No;PI;SR	Packer test from 21.5-30.0' indicated no significant leakage (0.0 Lugeons).	
							23		620				
			23.7				24		619				
2.5"	7	5.0	5.0	4.9	100	98	25		618			Frequent drill chatter from 24.0' to 25.0'.	
							26		617		@ 26.3-26.5' 1-1/2" vug & honeycomb @ 26.5' 5°;J;N;No;No;Ir;R; fracture around aggregate		
							27		616				
							28		615				
			28.7				29		614			Packer test from 28.8-37.3' indicated no significant	
							30						

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**BORING LOG**

**BORING NO. BV-3**  
**SHEET 3 OF 5**

CLIENT City of Charlottesville										PROJECT Ragged Mountain Project										PROJECT NO. 168539												
PROJECT LOCATION Charlottesville, VA										COORDINATES Not Surveyed										GROUND ELEVATION (DATUM) 643.5 ft (MSL)					TOTAL DEPTH 58.7 (feet)							
SURFACE CONDITIONS Top of concrete (18" from down slope edge)															COORDINATE SYSTEM Not Surveyed					DATE START 07/13/2010					DATE FINISHED 07/14/2010							
SOIL SAMPLING										LOGGED BY B. Gomer										CHECKED BY D. Conolly					APPROVED BY G. Zamensky							
SAMPLE TYPE		SAMPLE NUMBER		SET 6 INCHES		2ND 6 INCHES		3RD 6 INCHES		N VALUE		SAMPLE RECOVERY		DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS										REMARKS				
CORE SIZE		RUN NUMBER		RUN LENGTH		RUN RECOVERY		RQD RECOVERY		PERCENT RECOVERY		RQD		DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS										REMARKS				
2.5"		8		5.0		5.0		5.0		100		100		30		613		@ 30.2' 0-30°;J;N;No;No;lr;SR; joint in plum stone										leakage (8.3 Lugeons).				
2.5"		9		5.0		5.0		4.5		100		90		31		612		@ 30.9-31.5' grading brown sand cement @ 30.9' 30°;J;N to MW;Cl;Sp;Pl to lr;SR; @ base of plum stone @ 31.6' pits; 1/8-1/4"														
2.5"		10		5.0		4.9		4.9		98		98		32		611		@ 32.7-34.0' grading brown sand cement @ 32.7' 30°;J;N;No;No;Pl;SR; @ base of plum stone w/ irregular contact														
														33		610																
														34		609												Frequent drill chatter from 34.0' to 38.0'.				
														35		608																
														36		607		@ 34.5' 10-45°;J;N to MW;No;No;lr;R; honeycomb; weak cement @ 35.0' 20-30°;J;N to MW;No;No;lr;R; honeycomb & 1/2" vugs @ 35.8' 40°;J;N;No;No;Pl;SR; joint in plum stone														
														37		606												Packer test from 36.5-45.0' indicated no significant leakage (0.0 Lugeons).				
														38		605																
														39		604																
														40		603																
														41		602		Granitic GNEISS; black to light gray; massive to foliated; medium to very coarse grained; fresh; very strong; hard [Lovingson Fm]										@ 40.5' bottom of dam. @ 41.0' white/gray wash. Frequent drill chatter from 41.0-46.5'.				
														42		601																
														43		600																
														44		599												Packer test from 44.0-58.7' indicated no				
														45		599																

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CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 58.7 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/13/2010	DATE FINISHED 07/14/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
2.5"	11	5.0	5.0	5.0	100	100	45		598	<p>@ 50.4' 5-30°;J;N;No;No;PI to St; S to SR</p>	significant leakage (0.0 Lugeons).		
							46		597		Smooth drilling below 46.5'.		
							47		596				
							48		595				
			48.7				49		594				
							50		593				
2.5"	12	5.0	5.0	5.0	100	100	51		592				
							52		591				
							53		590				
			53.7				54		589				
							55		588				
2.5"	13	5.0	4.9	4.9	98	98	56		587		@ 55.0' frequent chattering.		
							57		586				
							58		585	@ 57.7' 20°;J;N to MW;No;No;PI;R			
							59		584				
							60				Bottom of boring @ 58.7'. Boring backfilled w/ cement-		

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**BORING LOG**

BORING NO. BV-3  
SHEET 5 OF 5

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) 643.5 ft (MSL)	TOTAL DEPTH 58.7 (feet)
SURFACE CONDITIONS Top of concrete (18" from down slope edge)		COORDINATE SYSTEM Not Surveyed	DATE START 07/13/2010	DATE FINISHED 07/14/2010

SOIL SAMPLING			LOGGED BY B. Gomer		CHECKED BY D. Conolly		APPROVED BY G. Zamensky	
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SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
ROCK CORING							60					bentonite grout on 07/19/2010. Water level @ 6.2' on 07/19/2010.
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD						
							60		583			
							61		582			
							62		581			
							63		580			
							64		579			
							65		578			
							66		577			
							67		576			
							68		575			
							69		574			
							70		573			
							71		572			
							72		571			
							73		570			
							74		569			
							75					



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**BORING LOG**

BORING NO. BV-4P  
SHEET 1 OF 4

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) Not Surveyed	TOTAL DEPTH 50.0 (feet)
SURFACE CONDITIONS Grass covered slope on buttress embankment		COORDINATE SYSTEM Not Surveyed	DATE START 07/15/2010	DATE FINISHED 07/18/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
SPT	1	2	2	2	4	0.4	0					Silty SAND; brown; loose; dry; fine grained; trace organics (Fill)	Boring advanced using HQ rotary casing w/ water as drilling fluid (OD 3-3/4"). SPT sampler driven using 140 lb hammer w/ 30" drop; 1-3/4 turns on cathead; baskets in SPT samplers.
							1					@ 0.8' organics grade out	
SPT	2	2	1	3	4	0.6	2					grading wet (due to drilling fluid); fine to medium grained; w/ trace clay & organics (roots & fibers in construction fill)	
							3						
SPT	3	4	2	3	5	0.5	4					grading some gravel; clay & organics grade out	
							5						
							6						
SPT	4	3	2	3	5	0.3	7					grading reddish brown; gravel grades out	
							8						
							9						
SPT	5	2	3	4	7	0.5	10					grading brown	
							11						
							12						
SPT	6	5	5	5	10	0.4	13						
							14						
							15						

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**BORING LOG**

BORING NO. BV-4P  
SHEET 2 OF 4

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) Not Surveyed	TOTAL DEPTH 50.0 (feet)
SURFACE CONDITIONS Grass covered slope on buttress embankment		COORDINATE SYSTEM Not Surveyed	DATE START 07/15/2010	DATE FINISHED 07/18/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	ROD RECOVERY	PERCENT RECOVERY	RQD							
SPT	7	5	5	5	10	0.3	15				grading reddish brown w/ some gravel	Gravel clast in basket of SPT-7.	
SPT	8	5	6	11	17	0.3	19				@ 19.5' grading light yellowish brown & gray; medium dense; fine to coarse grained; poorly graded; subangular to subrounded; w/ trace gravel		
SPT	9	5	5	6	11	0.6	21				grading reddish brown & light yellowish brown w/ occasional seams of sandy silt	Changed from standard (orange) to soft (green) basket prior to SPT-9.	
SPT	10	6	5	5	10	0.7	24				grading brown; loose; fine to medium grained		
SPT	11	5	4	4	8	0.8	27				grading reddish brown		
SPT	12	4	3	6	9	0.8	29				Sandy SILT; reddish brown; stiff; wet; nonplastic (Fill)		

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# BLACK & VEATCH

# BORING LOG

BORING NO. BV-4P

SHEET 3 OF 4

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) Not Surveyed	TOTAL DEPTH 50.0 (feet)
SURFACE CONDITIONS Grass covered slope on buttress embankment		COORDINATE SYSTEM Not Surveyed	DATE START 07/15/2010	DATE FINISHED 07/18/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
SPT	13	3	9	8	17	0.5	30					Loss of circulation @ 30.0'. Water level maintained in casing below 30.0'.	
							31						
							32						
SPT	14	4	5	7	12	0.4	34					Alternating hard & soft layers, drilling to 33.5'. Overdrilled to 34.0' for SPT-14.	
							35						
							36						
SPT	15	30	20	15	35	0.5	38					Dropped SPT sampler ~10' before sampling @ 36.5'. Drilled 1' deeper to avoid disturbances. @ 37.0' hard drilling. ~2" gravel slough in top of SPT-15.	
							39						
							40						
SPT	16	5	13	50/1.5	50+	1.1	40						
							41						
							42						
							43						
							44						
							45						

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**BLACK & VEATCH**

**BORING LOG**

BORING NO. BV-4P

SHEET 4 OF 4

CLIENT City of Charlottesville		PROJECT Ragged Mountain Project		PROJECT NO. 168539
PROJECT LOCATION Charlottesville, VA		COORDINATES Not Surveyed	GROUND ELEVATION (DATUM) Not Surveyed	TOTAL DEPTH 50.0 (feet)
SURFACE CONDITIONS Grass covered slope on buttress embankment		COORDINATE SYSTEM Not Surveyed	DATE START 07/15/2010	DATE FINISHED 07/18/2010

SOIL SAMPLING		LOGGED BY B. Gomer		CHECKED BY D. Conolly	APPROVED BY G. Zamensky
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ROCK CORING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD							
1.875	2	3.9	3.6	3.6	92	92	45				@ 45.0' 70°;Fo;N;Ca;Sp;PI to St;SR to R		
			46.1				46						
							47						
							48					~0.2' gravel & wood slough @ top of Run 2. Apparent slough from washed out zone @ 42.4-43.0'.	
							49						
							50					No recovery 49.7-50.0'. Bottom of boring @ 50.0'. Piezometer installed in boring on 07/17/2010. Water level @ 47.7' below top of casing (3.7' stickup) on 07/21/2010.	
							51						
							52						
							53						
							54						
							55						
							56						
							57						
							58						
							59						
							60						

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