



STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 MATERIALS & RESEARCH SECTION
 SUBSURFACE INFORMATION

BORING NUMBER: B-1
 SHEET 1 of 1
 DATE STARTED: 3/02/06
 DATE COMPLETED: 3/09/06

PROJECT NAME: RICHMOND
 SITE NAME: US-2
 STATION: 35+32.51
 OFFSET: -31.00
 VTSPG: N 701532.8871 ft E 1505213.5205 ft

PROJECT NUMBER: STP-RS 0284(11)
 SITE NUMBER: BR-24
 GROUND ELEVATION: 306.85 ft
 GROUNDWATER DEPTH: No Water to Depth
 PROJECT PIN NUMBER: 90C092

BORING CREW
 CREW CHIEF: GARROW
 DRILLER: GARROW
 LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
		A-1-b, SiSaGr, brn, Moist, Rec. = 0.5 ft	9	14.7	41.2	35.5	23.3
2.5		A-1-b, GrSa, brn, Moist, Rec. = 0.9 ft, Cleaned out casing.	6	12.1	40.7	42.7	16.6
5.0		A-4, SaSi with Broken Rock, brn, Moist, Rec. = 1.0 ft	5	25.4	10.2	29.7	60.1
					Top of Bedrock @ 5.8 ft		
7.5		Greenish gray, Quartz rich Phyllite, Competent, Moderately hard, Unweathered, NXMDC, 5.8 ft - 9.5 ft, Rec. = 3.5 ft	1	95	81	50	14
							19
							24
10.0		Greenish gray, Quartz rich Phyllite, Competent, Moderately hard, Unweathered, NXMDC, 9.5 ft - 14.2 ft, Rec. = 4.6 ft	2	98	89	50	
12.5							
15.0		Greenish gray, Quartz rich Phyllite, Competent, Moderately hard, Unweathered, NXMDC, 14.2 ft - 16.0 ft, Rec. = 1.7 ft	3	94	89	50	
		Hole stopped @ 16.0 ft					
17.5		NOTE: The mainline stationing on the project has been changed. This boring report reflects the change in stationing. The field logs are in the original stationing.					

LOG OF BORING RICHMOND STP-RS 0284(11).LGPJ VT AOT.GDT 5/2/06



STATE OF VERMONT
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BORING NUMBER: B-2
 SHEET 1 of 1
 DATE STARTED: 3/09/06
 DATE COMPLETED: 3/13/06

PROJECT NAME: RICHMOND
 SITE NAME: US-2
 STATION: 35+60.95
 OFFSET: -19.50
 VTSPG: N 701519.2469 ft E 1505240.3644 ft

PROJECT NUMBER: STP-RS 0284(11)
 SITE NUMBER: BR-24
 GROUND ELEVATION: 304.66 ft
 GROUNDWATER DEPTH: No Water to Depth
 PROJECT PIN NUMBER: 90C092

BORING CREW
 CREW CHIEF: HOLT
 DRILLER: GARROW
 LOGGER: WERNER

BORING RIG: SMALL SKID RIG
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
2.5		A-1-b, SiSaGr with Wood material., brn, Moist, Rec. = 1.0 ft	14	14.6	35.6	42.5	21.9
		A-1-b, SaGr, brn, Moist, Rec. = 1.3 ft	9	8.2	42.4	41.3	16.3
5.0		Greenish gray, Quartz rich Phyllite, Competent, Moderately hard, Unweathered, NXMDC, 4.0 ft - 9.0 ft, Rec. = 4.7 ft	1	94	84	55	9
7.5						10	
							12
							13
10.0		Greenish gray, Quartz rich Phyllite, Competent, Moderately hard, Unweathered, NXMDC, 9.0 ft - 13.2 ft, Rec. = 3.9 ft	2	93	71	55	14
12.5							
15.0		Hole stopped @ 13.2 ft					
17.5		NOTE: The mainline stationing on the project has been changed. This boring report reflects the change in stationing. The field logs are in the original stationing.					

LOG OF BORING RICHMOND STP-RS 0284(11).LGPJ VT AOT.GOT 5/2/06



STATE OF VERMONT
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BORING NUMBER: B-3
SHEET 1 of 1
DATE STARTED: 3/16/06
DATE COMPLETED: 3/19/06

PROJECT NAME: RICHMOND
SITE NAME: US-2
STATION: 39+15.52
OFFSET: -20.50
VTSPG: N 701495.0929 ft E 1505594.1211 ft

PROJECT NUMBER: STP-RS 0284(11)
SITE NUMBER: BR-24
GROUND ELEVATION: 307.76 ft
GROUNDWATER DEPTH: No Water to Depth
PROJECT PIN NUMBER: 90C092

BORING CREW
CREW CHIEF: HOLT
DRILLER: GARROW
LOGGER: RUSSELL

BORING RIG: LAG TRACK RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
2.5		A-1-b, GrSa, brn, Moist, Rec. = 0.9 ft	12	13.0	41.3	50.3	8.4
		A-1-a, SaGr, brn, Moist, Rec. = 0.4 ft, Cleaned out casing.	7	9.3	55.4	35.5	9.1
		Visual Class., Gravel with Concrete, gry, Moist, Rec. = 0.4 ft	6				
5.0		No Recovery, 6.0 ft - 6.5 ft	R				
7.5		Greenish gray, Quartz rich Phyllite, Competent, Moderately hard, Unweathered, NXMDC, 6.5 ft - 11.5 ft, Rec. = 4.9 ft	1	98	88	60	11
						18	
						13	
						15	
12.5		Greenish gray, Quartz rich Phyllite, Slightly weathered along joint planes. Competent, Moderately hard, NXMDC, 11.5 ft - 14.8 ft, Rec. = 3.3 ft	2	100	52	60	7
						8	
15.0		Greenish gray, Quartz rich Phyllite, Slightly weathered along joint planes. Competent, Moderately hard, NXMDC, 14.8 ft - 16.5 ft, Rec. = 1.6 ft	3	94	44	60	11
17.5		Hole stopped @ 16.5 ft					
		NOTE: The mainline stationing on the project has been changed. This boring report reflects the change in stationing. The field logs are in the original stationing.					

LOG OF BORING RICHMOND STP-RS 0284(11).LRF VT AOT.GDT 5/2/06



STATE OF VERMONT
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 SUBSURFACE INFORMATION

BORING NUMBER: B-4
 SHEET 1 of 1
 DATE STARTED: 3/20/06
 DATE COMPLETED: 3/21/06

PROJECT NAME: RICHMOND
 SITE NAME: US-2
 STATION: 39+26.00
 OFFSET: -31.60
 VTSPG: N 701505.4719 ft E 1505605.1693 ft

PROJECT NUMBER: STP-RS 0284(11)
 SITE NUMBER: BR-24
 GROUND ELEVATION: 309.66 ft
 GROUNDWATER DEPTH: No Water to Depth
 PROJECT PIN NUMBER: 90C092

BORING CREW
 CREW CHIEF: GARROW
 DRILLER: GARROW
 LOGGER: RUSSELL

BORING RIG: LAG TRACK RIG
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
2.5		A-1-a, SaGr, brn-gry, Moist, Rec. = 1.2 ft, Frozen material.	17	7.5	55.7	35.6	8.7
		A-4, SiSa, brn, Moist, Rec. = 0.7 ft		22.4	2.1	61.4	36.5
		A-2-4, SiSa, brn, Moist, Rec. = 1.7 ft	3	10.4	0.2	72.6	27.2
		A-2-4, SiSa with some Broken Rock, brn, Moist, Rec. = 0.5 ft	R	12.9	6.4	72.9	20.7
5.0		Greenish gray, Quartz rich Phyllite, Upper 0.14 feet has moderate - severe weathering. Fair competency, Moderately hard, NXMDC, 4.5 ft - 8.0 ft, Rec. = 3.5 ft	1	100	31	40	5
7.5						11	
						13	
10.0		Greenish gray, Quartz rich Phyllite, Competent, Moderately hard, Unweathered, NXMDC, 8.0 ft - 13.0 ft, Rec. = 4.9 ft	2	98	90	40	5
						7	
						7	
12.5		Greenish gray, Quartz rich Phyllite, Competent, Moderately hard, Unweathered, NXMDC, 13.0 ft - 14.5 ft, Rec. = 1.3 ft	3	87	80	40	6
						12	
						8	
15.0		Hole stopped @ 14.5 ft					
17.5		NOTE: The mainline stationing on the project has been changed. This boring report reflects the change in stationing. The field logs are in the original stationing.					

LOG OF BORING RICHMOND STP-RS 0284(11).LGPJ - VT AOT.GOT 5/2/06



STATE OF VERMONT
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 SUBSURFACE INFORMATION

BORING NUMBER: B-201
 SHEET 1 of 1
 DATE STARTED: 9/08/06
 DATE COMPLETED: 9/12/06

PROJECT NAME: RICHMOND
 SITE NAME: US-2
 STATION: 803+60.00
 OFFSET: -10.00
 VTSPG: N 701370.78 ft E 1505345.82 ft

PROJECT NUMBER: STP-RS 0284(11)
 SITE NUMBER: BR-24
 GROUND ELEVATION: 295.66 ft
 GROUNDWATER DEPTH: 13.3 ft 9/13/06
 PROJECT PIN NUMBER: 90C092

BORING CREW
 CREW CHIEF: PORTER
 DRILLER: GARROW
 LOGGER: WERNER

BORING RIG: LAG TRACK RIG w/AUTO HAMMER
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	LL (%)	PI (%)
			RUN	REC (%)	ROD (%)	Dip (deg)	Drill Rate (min/ft)		
5		A-2-4, SiSa, brn, Moist, Rec. = 1.1 ft	2	8.3	0.0	75.8	24.2		
		A-2-4, Sa, brn, Moist, Rec. = 1.4 ft	2	4.8	0.0	82.3	17.7		
		A-2-4, SiSa, brn, Moist, Rec. = 1.4 ft	5	7.5	0.8	75.9	23.3		
		A-2-4, Sa, brn, Moist, Rec. = 1.3 ft	8	11.2	4.3	76.2	19.5		
		No Recovery, 8.0 ft - 10.0 ft	7						
10		A-2-4, SiSa, brn, Moist, Rec. = 1.4 ft	3	32.4	1.3	78.2	20.5		
		A-2-4, Sa with broken rock particles, gry, Moist, Rec. = 0.8 ft	5	23.3	11.0	75.7	13.3		
15		Boulder, 13.9 ft - 14.9 ft							
		A-1-b, Sa, brn, Moist, Rec. = 0.7 ft	6	20.9	9.2	85.8	5.0		
		A-1-b, Sa, brn, Moist, Rec. = 0.9 ft, Lost water at 18.0 ft	6	22.1	1.3	92.2	6.5		
20		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft	10	11.7	45.6	49.1	5.3		
25		A-4, Si, gry, Moist, Rec. = 1.4 ft, Sample tested "NP". Water returned at 27.0 ft	7	35.8	0.1	1.7	98.2		
30		A-7-6, Cl, gry, Moist, Rec. = 2.0 ft	5	35.4	0.0	1.4	98.6	45	22
35		Visual Class., Broken rock particles, gry, Moist, Rec. = 0.5 ft	36						
40		Gray, Phyllitic Schist, Competent, Moderately hard, Unweathered, NXMDC, 37.5 ft - 42.5 ft, Rec. = 4.8 ft	1	96	96	60	10 11 10 9 12		
45		Hole stopped @ 42.5 ft							

LOG OF BORING RICHMOND STP-RS 0284(11).GPJ VT AOT.GDT 1/18/07

Top of Bedrock @ 37.5 ft



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BORING NUMBER: B-202
SHEET 1 of 1
DATE STARTED: 9/13/06
DATE COMPLETED: 9/15/06

PROJECT NAME: RICHMOND
SITE NAME: US-2
STATION: 803+62.50
OFFSET: 11.50
VTSPG: N 701350.04 ft E 1505351.57 ft

PROJECT NUMBER: STP-RS 0284(11)
SITE NUMBER: BR-24
GROUND ELEVATION: 295.4 ft
GROUNDWATER DEPTH: 12.0 ft 9/15/06
PROJECT PIN NUMBER: 90C092

BORING CREW
CREW CHIEF: PORTER
DRILLER: GARROW
LOGGER: WERNER

BORING RIG: LAG TRACK RIG w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	LL (%)	PI (%)
			RUN	REC (%)	ROD (%)	Dip (deg)	Drill Rate (min/ft)		
		A-2-4, SiSa, brn, Moist, Rec. = 1.6 ft	2	10.8	0.0	74.7	25.3		
5		A-2-4, SiSa, brn, Moist, Rec. = 0.5 ft	18	24.4	3.6	69.6	26.8		
		Visual Class: Broken rock with silty sand material, gry, Moist, Rec. = 0.9 ft							
10		A-2-4, SiSa, gry, Moist, Rec. = 1.1 ft, Hard to keep water at 12.5 ft	4	30.8	3.2	71.0	25.8		
15		A-3, Sa, gry, Moist, Rec. = 0.7 ft	2	26.6	1.8	88.3	9.9		
20		A-1-b, Sa, brn, Moist, Rec. = 1.1 ft	7	21.3	8.6	86.7	4.7		
25		A-4, Si, gry, Moist, Rec. = 1.7 ft, Sample tested "NP". Water stable at 25.0 ft	7	33.9	0.1	2.3	97.6		
30		A-4, Si, gry, Moist, Rec. = 1.2 ft	8	31.3	0.0	1.1	98.9	30	4
		A-7-6, Cl, gry, Moist, Rec. = 0.8 ft		38.2	0.0	1.6	98.4	49	24
35		Visual Class: Broken rock with some clay material, gry, Moist, Rec. = 0.3 ft	20						
		Top of Bedrock @ 37.2 ft							
40		Gray, Phyllitic Schist, with small magnetite porphyroblasts. Competent, Moderately hard, Unweathered, NXMDC, 37.2 ft - 41.1 ft, Rec. = 3.3 ft	1	85	62	60	6 16 16 18		
45		Gray, Phyllitic Schist, with small magnetite porphyroblasts. Competent, Moderately hard, Unweathered, NXMDC, 41.1 ft - 42.4 ft, Rec. = 1.3 ft Hole stopped @ 42.4 ft	2	100	100	60	15		

LOG OF BORING RICHMOND STP-RS 0284(11).LGP VT AOT.GDT 1/18/07