



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

BORING NUMBER: B-1
SHEET 1 of 1
DATE STARTED: 10/19/04
DATE COMPLETED: 10/21/04

PROJECT NAME: BETHEL
SITE NAME: BR-30
STATION: 1+140.00
OFFSET: -5.92
VTSPG: N 144998.60 m E 487703.73 m

PROJECT NUMBER: BHF 0241(30)S
SITE NUMBER: RT.12
GROUND ELEVATION: 182.99 m
GROUNDWATER DEPTH: 1.00 m 10/20/04
PROJECT PIN NUMBER: 95C002

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL

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

DEPTH (m)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 300mm	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/0.3m)
1							
1.35 - 1.50		1.35 m - 1.50 m, BXDC, Cleaned out casing					
2		A-1-b, GrSa, gry, Moist, Rec. = 0.14 m	29	12.4	44.5	47.7	7.8
		Encountered Cobbles or Boulders, 2.15 m - 2.90 m					
3		A-4, Si, gry, Moist, Rec. = 0.30 m	19	32.3	2.1	5.4	92.5
4							
5		A-4, Si, gry, Moist, Rec. = 0.42 m	24	29.8	2.4	10.3	87.3
6		6.00 m - 6.60 m, No Recovery	57				
7							
8		A-4, Si, gry, Moist, Rec. = 0.39 m	22	36.7	0.3	10.2	89.5
9		A-2-4, SiGrSa, gry, Moist, Rec. = 0.07 m, Advanced casing to 9.60m and encountered rock with various seams	R	13.3	32.0	40.6	27.4
10		Gray, Quartz-mica Schist, with Garnet Porphyroblasts, Competent, Moderately hard, Unweathered, BXMDC, 9.60 m - 11.10 m, Rec. = 1.20 m	1	80	72	40	
11		Gray, Quartz-mica Schist, with Garnet Porphyroblasts, Competent, Moderately hard, Unweathered, BXMDC, 11.10 m - 12.60 m, Rec. = 1.50 m	2	100	96	40	
12							
13		Hole stopped @ 12.60 m					
14							

LOG OF BORING BETHEL BHF0241(30)S.GPJ. VT AOT.GDT 8/30/06



STATE OF VERMONT
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SUBSURFACE INFORMATION

BORING NUMBER: B-2
SHEET 1 of 2
DATE STARTED: 10/12/04
DATE COMPLETED: 10/15/04

PROJECT NAME: BETHEL
SITE NAME: BR-30
STATION: 1+144.00
OFFSET: 5.43
VTSPG: N 145000.12 m E 487715.68 m

PROJECT NUMBER: BHF 0241(30)S
SITE NUMBER: RT.12
GROUND ELEVATION: 183.06 m
GROUNDWATER DEPTH: 3.35 m 10/18/04
PROJECT PIN NUMBER: 95C002

BORING CREW
CREW CHIEF: RUSSELL
DRILLER: RUSSELL
LOGGER: PUALWAN

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

DEPTH (m)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 300mm	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
0.5							
1.5		A-2-4, SiSa with Trace of Organics (1.9%), gry-brn, Moist, Rec. = 0.45 m	12	19.3	16.2	53.5	30.3
2.60 - 3.00		2.60 m - 3.00 m, Cleaned out casing					
3.0		A-1-a, SaGr, brn, Moist, Rec. = 0.20 m	33	9.2	56.4	30.4	13.2
3.5		BXDC, Boulder, 3.50 m - 4.10 m					
4.0		BXGDC, Broke through Boulder, 4.10 m - 5.20 m					
6.0		A-4, Si, gry, Moist, Rec. = 0.40 m	29	33.6	0.3	1.6	98.1
7.5		A-4, Si, gry, Moist, Rec. = 0.30 m	R	32.9	0.2	6.4	93.4
8.0		BXMDC, Broke through Boulder, 7.85 m - 8.15 m					
9.0		Not enough Rec., Appeared to be a dark gray silt, 9.00 m - 9.60 m	46				

LOG OF BORING BETHEL BHF0241(30)S.GPJ VT AOT.GDT 8/30/06



STATE OF VERMONT
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SUBSURFACE INFORMATION

BORING NUMBER: B-2
SHEET 2 of 2
DATE STARTED: 10/12/04
DATE COMPLETED: 10/15/04

PROJECT NAME: BETHEL
SITE NAME: BR-30
STATION: 1+144.00
OFFSET: 5.43
VTSPG: N 145000.12 m E 487715.68 m

PROJECT NUMBER: BHF 0241(30)S
SITE NUMBER: RT.12
GROUND ELEVATION: 183.06 m
GROUNDWATER DEPTH: 3.35 m 10/18/04
PROJECT PIN NUMBER: 95C002

BORING CREW
CREW CHIEF: RUSSELL
DRILLER: RUSSELL
LOGGER: PUALWAN

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

DEPTH (m)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 300mm	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/0.3m)
10.5		A-4, Si, gry, Moist, Rec. = 0.40 m	R	38.1	0.3	4.8	94.9
11.0		BXGDC, Appears to be Boulders with a lot of breaks, 10.60 m - 12.15 m					
12.15 - 12.60		Advanced casing, 12.15 m - 12.60 m					
12.60		Top of Bedrock @ 12.60 m					
12.60 - 14.10		White, Biotite Gneiss, Not Competent, Hard, Unweathered, BXGDC, 12.60 m - 14.10 m, Rec. = 0.75 m	1	50	0	40	
14.10 - 15.60		White-gray, Biotite Gneiss, Competent, Hard, Unweathered, BXMDC, 14.10 m - 15.60 m, Rec. = 1.50 m	2	100	98	40	
15.60 - 16.60		White-gray, Biotite Gneiss, grading to gray quartz-mica schist, Competent, Hard to moderately hard, Unweathered, BXMDC, 15.60 m - 16.60 m, Rec. = 0.80 m	3	80	80	40	
16.60		Hole stopped @ 16.60 m					

LOG OF BORING BETHEL BHF0241(30)S.GPJ VT AOT.GDT 8/30/06

VT <small>Working to Get You There</small> STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-3 SHEET 1 of 2 DATE STARTED: 8/03/04 DATE COMPLETED: 8/06/04					
PROJECT NAME: BETHEL SITE NAME: BR-30 STATION: 1+175.00 OFFSET: -6.50 VTSPG: N 145032.93 m E 487710.57 m		PROJECT NUMBER: BHF 0241(30)S SITE NUMBER: RT.12 GROUND ELEVATION: 182.92 m GROUNDWATER DEPTH: 3.47 m 8/06/04 PROJECT PIN NUMBER: 95C002					
BORING CREW CREW CHIEF: SOMERS DRILLER: SOMERS LOGGER: PUALWAN		BORING RIG: TRUCK BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL CHECKED BY: DLG					
DEPTH (m)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 300mm	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
0.5		A-4, SaSi, Lt/gry, Moist, Rec. = 0.18 m	5	20.1	5.4	36.6	58.0
1.0		A-1-b, SiGr, gry, Moist, Rec. = 0.18 m	23	11.6	62.5	15.8	21.7
1.5		A-4, SiSa, brn, Moist, Rec. = 0.42 m	4	29.7	1.6	52.1	46.3
2.0		A-4, SiSa, brn, Moist, Rec. = 0.36 m A-1-a, SaGr, brn, Moist	38	21.7 10.9	4.5 57.4	58.3 32.6	37.2 10.0
2.5		A-1-b, SaGr, brn, Moist, Rec. = 0.30 m A-4, SaSi HP, Lt/gry, Moist	59	10.3 14.3	43.1 6.9	37.5 23.0	19.4 70.1
3.0		A-4, SaSi, Lt/gry, Moist, Rec. = 0.36 m	66	14.2	1.8	20.2	78.0
3.5		A-4, Si, Lt/gry, Moist, Rec. = 0.12 m	R	29.9	2.0	17.9	80.1
4.0		A-4, Si, gry, Moist, Rec. = 0.33 m	74	17.0	12.8	18.2	69.0
4.5		A-4, SaSi, gry, Moist, Rec. = 0.24 m	58	17.2	4.1	33.4	62.5
5.0		A-4, Si, gry, Moist, Rec. = 0.48 m	73	29.4	0.2	10.3	89.5
6.0		Visual Class: A-2-4, Gr Sa Si, gry, Moist, Rec. = 0.09 m, 6.10 m - 6.23 m, Insufficient Sample for testing.	R				
6.5		A-4, Si, gry, Moist, Rec. = 0.09 m	R	25.7	5.0	13.9	81.1
7.5		A-4, Si, gry, Moist, Rec. = 0.18 m A-4, SaSi, gry, Moist	85	29.4 19.3	3.8 5.0	8.8 44.7	87.4 50.3
8.0		A-4, SaSi, gry, Moist, Rec. = 0.36 m	83	26.9	2.9	23.5	73.6
8.5		A-4, Si, gry, Moist, Rec. = 0.45 m	76	33.0	0.6	6.1	93.3
9.0							
9.5							

LOG OF BORING BETHEL BHF0241(30)S.GPJ VT AOT.GDT 8/30/06

VT <small>Working to Get You There</small> STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-3 SHEET 2 of 2 DATE STARTED: 8/03/04 DATE COMPLETED: 8/06/04					
PROJECT NAME: BETHEL SITE NAME: BR-30 STATION: 1+175.00 OFFSET: -6.50 VTSPG: N 145032.93 m E 487710.57 m		PROJECT NUMBER: BHF 0241(30)S SITE NUMBER: RT.12 GROUND ELEVATION: 182.92 m GROUNDWATER DEPTH: 3.47 m 8/06/04 PROJECT PIN NUMBER: 95C002					
BORING CREW CREW CHIEF: SOMERS DRILLER: SOMERS LOGGER: PUALWAN		BORING RIG: TRUCK BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL CHECKED BY: DLG					
DEPTH (m)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 300mm	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
10.5		Appears to be Rock particles, 10.60 m - 11.20 m, Insufficient Sample for testing.	R				
11.0							
11.5							
12.0		A-1-a, SaGr with broken & crushed rock, gry/grn, Moist, Rec. = 0.26 m	R	11.1	56.8	28.8	14.4
12.5		Cleaned out casing, 12.70 m - 13.60 m					
13.0							
13.5							
14.0		Gray, Quartz-mica Schist, Not Competent, Moderately hard, Unweathered, BXGDC, 13.70 m - 13.90 m, Rec. = 0.19 m	1	95	0	40	
14.5		Gray, Quartz-mica Schist, Competent, Moderately hard, Unweathered, BXGDC, 13.90 m - 15.40 m, Rec. = 1.50 m	2	100	92	40	
15.0							
15.5		Gray, Quartz-mica Schist, Competent, Moderately hard, Unweathered, BXGDC, 15.40 m - 16.90 m, Rec. = 1.50 m	3	100	70	40	
16.0							
16.5							
17.0		Hole stopped @ 16.90 m					
17.5							
18.0							
18.5							
19.0							
19.5							

LOG OF BORING BETHEL BHF0241(30)S.GPJ VT AOT.GDT 8/30/06



STATE OF VERMONT
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MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-4
SHEET 1 of 1
DATE STARTED: 9/17/04
DATE COMPLETED: 9/29/04

PROJECT NAME: BETHEL
SITE NAME: BR-30
STATION: 1+179.50
OFFSET: 5.50
VTSPG: N 145034.80 m E 487723.25 m

PROJECT NUMBER: BHF 0241(30)S
SITE NUMBER: RT.12
GROUND ELEVATION: 182.33 m
GROUNDWATER DEPTH: 3.20 m 10/08/04
PROJECT PIN NUMBER: 95C002

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL

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

DEPTH (m)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 300mm	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	ROD (%)	Dip (deg)	Drill Rate (min/0.3m)
1							
2		Cleaned out casing and cored ahead, No sample, Boulder, 1.49 m - 2.10 m					
3		Visual Class: A-2-4, Si Gr Sa, gry-brn, Moist, Insufficient sample for testing, Rec. = 0.14 m, 3.00 m - 3.60 m	R				
4							
5		BXDC, Cleaned out casing, 4.30 m - 4.50 m Visual Class: A-1-b, Sa Gr with Broken Rock, gry, Moist, Insufficient sample for testing, Rec. = 0.10 m, 4.50 m - 4.65 m	R				
6		A-4, Si, gry, Moist, Rec. = 0.39 m	38	30.5	7.2	5.1	87.7
7							
8		A-2-4, GrSaSi HP, gry, Moist, Rec. = 0.45 m	R	15.4	32.2	33.8	34.0
9		A-4, Si, gry, Moist, Rec. = 0.51 m	60	34.1	0.0	8.4	91.6
10							
11		Boulder, BXDC, Cored ahead, 10.13 m - 11.63 m					
12		Gray, Quartz-mica Schist, Competent, Moderately hard, Unweathered, BXMDC, 11.63 m - 13.13 m, Rec. = 1.50 m	1	100	90	40	
13		Gray, Quartz-mica Schist, Competent, Moderately hard, Unweathered, BXMDC, 13.13 m - 14.33 m, Rec. = 1.10 m	2	92	90	40	
14		Gray, Quartz-mica Schist, Competent, Moderately hard, Unweathered, BXMDC, 14.33 m - 14.48 m, Rec. = 0.15 m	3	100	90	40	
15		Hole stopped @ 14.48 m					

LOG OF BORING BETHEL BHF0241(30)S.GPJ VT AOT.GDT 8/30/06

Top of Bedrock @ 11.63 m