

ATC ENVIRONMENTAL INC.

OCT 24 1995

October 23, 1995

Mr. Matthew Moran
Department of Environmental Conservation
HMMD
103 South Main St. - West Bldg.
Waterbury, Vermont 05676

RE: Subsurface Investigation Report
Phase II Investigation
Dunbar Plumbing & Heating
1 Church St.
Barnet, VT
ATC Project #20184-0017

Dear Matt:

On behalf of the Howard Bank, please find enclosed for your review the results of the phase II subsurface investigation performed at the above referenced site by ATC Environmental Inc. on September 22 and 27, 1995.

Please review this report at your earliest convenience. If you have any questions concerning this correspondence, please feel free to contact us at 434-2113.

Sincerely,

ATC ENVIRONMENTAL, INC.



Stephen Znamierowski
Project Manager

SJZ/20184-0017 DEC Cov ltr

enclosure



ATC ENVIRONMENTAL INC.

Subsurface Investigation Report

related to

**Dunbar's Plumbing & Heating
1 Church Street
Barnet, Vermont**

Prepared for:

**Mr. Chris Turley
The Howard Bank
PO Box 660
Montpelier, VT 05601**

Prepared by:

**ATC Environmental Inc.
Brown's Trace Building
Richmond, Vermont**

ATC Project #20184-0017

October 20, 1995

Solutions For Environmental Concerns

Brown's Trace Building, Rt. 2, PO Box 3 • Richmond, VT 05477 • (802) 434-2113 • FAX (802) 434-2160



Table of Contents

Section		Page
1.0	Introduction	
1.1	Site Description	1
1.2	Previous Site Investigation	1
2.0	Materials and Methods	
2.1	Monitoring Well Installation	2
2.2	Soil Screening	2
2.3	Soil Sampling	2
2.4	Groundwater and Stream Sampling	3
2.5	Site Survey and Groundwater Elevations	3
2.6	Potential Receptor Survey	3
3.0	Results	
3.1	Soils	4
3.2	Groundwater and Surface Water	5
3.3	Potential Receptor Survey	6
4.0	Findings	7
5.0	Recommendations	8
6.0	Tables	9
Table 1	Monitoring Well and Site Feature Elevation Data & Groundwater Elevations	
7.0	Figures	
Figure 7.1	Site Vicinity Map	
Figure 7.2	Site Plan, Dunbar's Plumbing & Heating	
Figure 7.3	Groundwater, Surface Water and Soil Sampling Map: September 22 & 27, 1995	
Appendix		
A.	Soil, Groundwater and Surface Water Laboratory Analytical Results	
B.	Monitoring Well Schematics	

1.0 INTRODUCTION

This report details the additional subsurface environmental assessment performed by ATC Environmental Inc. (ATC) under contract with The Howard Bank (Howard), at a parcel located on 1 Church Street in Barnet, Vermont (the site) (Figure 7.1). The legal owner of this property is Neil Dunbar who formally operated Dunbar's Plumbing & Heating at this site. This work was performed pursuant to the August 7, 1995 ATC work plan for the site, which was approved by the Vermont Department of Environmental Conservation (VT DEC) via a letter from Matthew Moran dated September 11, 1995.

1.1 Site Description

The site is located on the north side of Church Street in Barnet, Vermont. The site consists of an approximate .12 acre parcel as depicted on the Barnet Tax Map 26-01, lot 51. Approximately 60% of the site is improved with building structures. There are multiple residences within one half mile radius of the site. The site gently slopes to the east and surface runoff from the site would generally flow in a easterly direction to the Stevens River, abutting the site to the east. According to the Surficial Geologic Map of Vermont, the surficial geology of the area consists of Lake Bottom Sediments which include silt, silty clay, clay and varved clay. Please refer to Appendix B for a description of specific soil types noted on site during the monitoring well installation conducted by ATC for this investigation. A Site Plan is included as Figure 7.2.

1.2 Previous Site Investigations

During August 1995 ATC conducted a Phase I Site Assessment at the site which indicated that a 300 gallon (approximate) gasoline UST had been previously removed from the site in the late 1980s or early 1990s. Integrated with this phase I Assessment, ATC conducted limited soil borings on site to determine if residual subsurface contamination remains associated with the former UST. The results of the soil borings indicated residual contamination on site and ATC recommended that a Phase II investigation be conducted on site. For further background information please refer to the August 1995, Phase I Site Assessment.

On August 23, 1995, pursuant to state law requirements, and on behalf of the Howard Bank, ATC notified the State of Vermont of the suspected release from the UST on site. This notification also included the proposed work plan for an additional phase of investigation; the results of which are included herein.

2.0 MATERIALS AND METHODS

2.1 Monitoring Well Installation

Groundwater monitoring wells MW-1, MW-2 and MW-3 were installed at the site on September 22, 1995 to define groundwater flow and direction as well as to determine any dissolved and/or liquid phase petroleum impact to the groundwater. Borings and well installations were conducted by Tri-State Drilling & Boring (Tri-State) using a hollow stem auger drilling rig. The wells were constructed using two inch flush threaded PVC casing and ten foot sections of .010 or 0.20 slot sized screen. The annulus of the borehole was filled with sand pack to a minimum of 1/2 foot above the well screen to provide sufficient filtering of silt laden waters which would otherwise inhibit groundwater entry to the well. A bentonite seal was placed above the sand pack to prevent surface runoff from entering the well. The monitoring wells were secured with locking well caps, keyed padlocks and a limited access flush mount road box set in a concrete apron. Monitoring well schematics are presented in Appendix B. Monitoring well data and groundwater elevations can be found in Table 1.

2.2 Soil Screening

During borehole advancement split spoon soil samples were collected for subsurface geology notation and then screened by headspace analysis for volatile organic compounds (VOCs) utilizing an HNU Photoionization Detector (PID) (serial #601430). Refer to Appendix B for a summary of borehole geology and PID screening results of split spoon samples obtained for borings completed and logged by ATC on September 22, 1995.

2.3 Soil Sampling

Due to elevated PID readings encountered during the installation of MW-2, one soil sample (SS-01) was collected for analysis of volatile organic compounds (VOC) by EPA 8020. An additional soil sample (SS-02) was collected from the borehole for MW-3 for EPA 8020 analysis. All soil samples were kept chilled until analyzed at the Con-Test E. Longmeadow, Massachusetts laboratory under chain of custody protocol. Soil sampling results are discussed in Section 3.1 of this report, and laboratory hard copy results can be found in Appendix A.

2.4 Collection of Groundwater Samples

One round of groundwater samples were collected by ATC on September 27, 1995 from monitoring well MW-1. Approximately three well volumes were removed from this well prior to sample collection. Additional water samples were also collected on this date from the Stevens River representing stream samples which are upstream (RIVER UP), midstream (RIVER MID), and downstream (RIVER DOWN) of the site location. Figure 7.3 details the location of these sampling points. All groundwater and stream samples were analyzed by EPA Method 8020. All samples were collected in 40 ml glass vials equipped with a Teflon septum and preserved with a HCL solution. All water samples were kept chilled until analyzed at the Con-Test E. Longmeadow, Massachusetts laboratory under chain of custody protocol. Water quality results are discussed in Section 3.2 of this report.

2.5 Site Survey and Groundwater Elevations

A site survey was conducted by ATC on September 27, 1995 to ascertain spatial relationships and relative elevations between significant site features and monitoring wells.

The monitoring well top of casing (TOC) elevation for each well was determined by performing a site survey with a transit and rod. TOC was measured from the top of the PVC casing with the locking well cap removed. A benchmark was established on site with an assumed elevation of 100.00 feet and was utilized to determine relative top of casing elevations.

Water level measurements and TOC elevations were obtained from the three monitoring wells on the site. Water level measurements were determined using a water level indicator, which is accurate to within one-hundredth of a foot. Groundwater elevations were calculated by subtracting the measured water levels from the top of the inner PVC casing elevations.

2.6 Potential Receptor Survey

On September 27, 1995 ATC performed a localized survey of the site and abutting properties and land features to determine any sensitive receptors that may exist which could potentially be impacted by subsurface contamination identified on site. This survey included identification of surface waters, drinking water sources, residential or business dwellings, subsurface service conduits and native flora or fauna which may be impacted. The results of this survey are included in section 3.3.

3.0 RESULTS

3.1 Soils

Lithology

A total of six split spoons were obtained by ATC during the borings for MW-1, and MW-2. Due to the close proximity of overhead utility lines, the use of the drill rig's mast was unfeasible during the boring for MW-3, therefore only grab samples were obtained from the augers during this boring. A spoon obtained at the 3.0 - 5.0 foot below ground surface (bgs) for the boring of MW-1 consisted primarily of olive colored silt and clay. Three additional spoons obtained at 7.0 - 9.0 feet, 10.0 - 12.0 feet and 12.0 - 14.0 feet bgs consisted primarily of clay. MW-1 was located at the western edge of the site and upgradient of the former tank pit. MW-2 was placed into the north edge of the former tank pit and completed at ten feet bgs. The split spoon obtained at 5.0 - 7.0 feet bgs for MW-2 consisted of gray clay with common yellow silt lenses. At 7.0 - 9.0 feet bgs the spoon consisted of the same clay-silt matrix over very moist to wet silty fine sand. MW-3 was located at the southeastern boundary of the site, adjacent to the sidewalk along Church Street. The boring for MW-3 was terminated at 9.5 feet bgs where the augers meet refusal on bedrock. Grab samples from this boring showed silty sand and fine gravel at 3.0 - 5.0 feet bgs, silt and clay from 7.0 - 9.0 feet bgs.

Soil Quality

PID screening results of split spoon soil sample obtained during the boring for MW-2 indicated VOC contamination ranging between 90.0 and 103 ppm. A grab sample of soil to 3.0 feet bgs yielded 118.0 ppm by PID. A soil sample (SS-01) obtained from the split spoon 7.0-9.0 feet bgs showed 41,080 ug/kg total VOC, as analyzed by EPA Method 8020.

All split spoon soil screenings obtained during borings for MW-1 and MW-3 were below 2.0 ppm by PID. A second soil sample obtained from 9.0 feet bgs during the boring of MW-3 was analyzed and found to be non-detect with regard to VOCs by EPA Method 8020. Laboratory results of these soil analyses are included in Appendix A.

3.2 Groundwater and Surface Water

Hydrogeology

On September 27, 1995 ATC measured all monitoring wells to determine groundwater elevation and slope. Only MW-1 was shown to contain water at a depth of 6.51 feet below top of casing or at 95.66 feet relative to a 100 foot assumed datum. MW- 2 was found to be dry at the total depth of the well of 9.56 feet below top of casing or at 91.23 feet relative to a 100 foot assumed datum. MW-3 was also found to be dry at the total depth of the well of 9.13 feet below top of casing or at 90.12 feet relative to a 100 foot datum. The elevation of the Stevens River was also measured from a point on the northwest side (Figure 7.3) of the Church Street bridge and tied into the sites survey relative to a 100 foot datum. Based on these measurements the rivers elevation on September 27, 1995 was shown to be at 88.42 feet or 10.50 feet below the surveyed reference point for measurement on the bridge.

Based on this limited data, groundwater flow can be generally defined to flow east to south easterly at the Stevens River. A vertical groundwater flow gradient based on an assumed easterly flow, more or less perpendicular to the Stevens River from measurements obtained at MW-1 and at the river is approximately 7%.

Groundwater and Surface Water Quality

Monitoring well MW-1 was sampled and analyzed for VOCs by EPA Method 8020 (BTEX & MTBE) Results showed MW-1 to be non detect for all constituents tested. All other monitoring wells could not be sampled due to lack of groundwater.

Three water samples were obtained from the Stevens River. All three samples, obtained upstream (RIVER UP), midstream (RIVER MID) and downstream (RIVER DOWN) were non detect with regard to VOC. All groundwater and surface water analyses are located in Appendix A.

3.3 Potential Receptor Survey

On September 27, 1995 ATC performed a sensitive receptor survey and determined the following:

- There exists numerous residences within 1/2 mile radius of the Dunbar site. The potential of hydrocarbon impact (vapor) appears to be limited to the Dunbar building on site. An HNU photoionization detector was utilized on September 27, 1995 to screen this basement for vapors. This survey did not reveal the existence of VOCs in the basement of the Dunbar building.
- The Stevens River is located directly adjacent the site to the east, and drains into the Connecticut River approximately 3/4 of a mile to the southeast. The banks of this stream are comprised of exposed bedrock extending vertically up and away from the river in some areas as much as 12 to 15 feet. These banks showed numerous areas of groundwater seepage none which included evidence of petroleum sheen or odor. Similarly, there was no evidence of stressed vegetation along these banks in areas adjacent to the groundwater seeps.
- One underground utility adjacent to the site exists as a single main water supply line. This water supply line crosses the Stevens River along the northern side of the Church Street bridge where it then veers at a 45 degree angle from the eastern corner of the Dunbar Building to the south across Church Street where it continues northwest along Church Street. There also exists a curtain drain system associated with the Dunbar Building which has one outlet which drains to the river adjacent the Church Street Bridge. This drain tile outlet did not emit any petroleum odor or appear impacted by petroleum hydrocarbons. Rainwater catch basins also exist on Church Street and are depicted as CB-01 and CB-02 on Figure 7.3. Both of these catch basins were screened on July 27, 1995, and again on September 27, 1995 and did not yield any response by PID for VOCs on these dates. On September 27, 1995 ATC confirmed that CB-01 is completed on bedrock at 5.90 feet below grade and integrated with the bridge abutment, which is also anchored on the bedrock. The outlet of CB-01 was found to be accessible beneath the Church Street Bridge where it outlets to the Stevens River. This catch basin and its outfall did not contain any standing water or evidence of any petroleum contamination during ATC's inspection on September 27, 1995.
- The area which formally contained the UST is currently paved which reduces the risk of direct contact with contaminated soils.

- The nearest public or private drinking supply well was confirmed to exist as the Barnet water system well located approximately 2 miles north on Anderson Road which follows the eastern bank of the Stevens River upriver.

4.0 FINDINGS

The receptor assessment conducted by ATC on September 27, 1995 notes that the nearest groundwater discharge point is the Stevens River which is adjacent the Dunbar site directly to the east. No petroleum sheen or odor was evident in groundwater seeps along the bedrock banks of this river. Stream samples obtained at three locations along the western banks of this river did not reveal any indication of petroleum impact when analyzed by EPA 8020 for VOCs.

A second potential receptor exists as the water supply line which runs beneath Church Street in an area of probable groundwater flow direction. The boring for MW-3, located upgradient and within 5.0 feet of this utility line did not show evidence of petroleum impact as screened by PID. This boring was terminated due to auger refusal on bedrock at 9.5 feet bgs and the well found to be dry at this level on September 27, 1995. These results suggest there is a limited risk to this underground line.

Monitoring wells MW-2 and MW-3 were found to be dry upon inspection on September 27, 1995. Upon conducting the boring for MW-2 on September 22, 1995 a split spoon obtained from 7.0 - 9.0 feet bgs did contain sufficient moisture to conclude additional boring beyond 10.0 feet bgs was not necessary. Groundwater was gauged in the upgradient well MW-1 at 5.65 feet below top of casing or at 95.66 feet relative to an assumed datum. Water was not encountered in MW-2 despite its screened interval extending to 9.56 feet bgs (91.23 relative feet). The boring for MW-3 was terminated by refusal in bedrock at 9.5 feet bgs and this wells screened interval extended to 9.13 feet (90.12 relative feet) below top of casing or 5.54 feet below the depth where water was encountered in MW-1.

Therefore groundwater sampling from on site monitoring wells was limited to the most upgradient monitoring well MW-1 where water sample results indicated no upgradient petroleum impact. In the absence of groundwater in MW-2 and MW-3, soil samples from the base of the borings for these wells were submitted for 8020 analysis to ascertain the degree and extent of contamination from the tank pit.

Soil sample analysis results for SS-1 from the boring of MW-2 at 7.0 - 9.0 feet bgs indicated levels of benzene at 1410 ug/kg, of toluene at 8640 ug/kg, of ethyl benzene at 5130 ug/kg and of total xylenes at 25,900 ug/kg. According to the "Draft Interim Soil Cleanup Guidelines" (VT DEC Hazardous Materials Management Division Guidance Document, June 29, 1992), when comparing soil analysis results to VT DEC Groundwater Enforcement Standards VOC concentrations in soil as derived from laboratory dry weight analysis should be less than 20 times greater than Ground Water Enforcement Standards concentrations. Therefore dividing each individual analyte above by a factor of 20 yields 70.5 ppb of benzene, 432 ppb of toluene, 256.5 ppb of ethylbenzene and 1,295 ppb of total xylenes. Vermont's groundwater enforcement standards for these compounds are 5.0 ug/l (ppb), 242 ug/l (ppb), 680 ug/l (ppb) and 400 ug/l (ppb) respectively. Thus, except for ethylbenzene, all other compounds exceed VT DEC Draft Interim Soil Guideline levels. These result showed impact at the tank pit as apparent adsorbed component above groundwater. In comparison the soil sample obtained at 9.0 feet bgs of MW-3 yielded no detectable VOCs indicating that contamination has not migrated significantly in this direction.

These groundwater results, in conjunction with the soil results, suggest that there is not extensive subsurface contamination of the site associated with the former UST. The petroleum impact appears limited to the area in the immediate vicinity of the former UST pit.

5.0 RECOMMENDATIONS

Based upon the results of this study, the following recommendations are presented:

- Provide a copy of this report and sampling results to the VT DEC.
- As the source of the contamination has been removed, and based on the results of the groundwater and soil sampling and relatively low risk of any sensitive receptors being negatively impacted, ATC does not recommend further action at this time.

6.0 Table 1: Monitoring Well and Site Feature Elevation Data & Groundwater Elevations

Monitoring Well or other Site Feature	TOC Elevation*	Groundwater Measurement 9/27/95	Groundwater Elevation 9/27/95	Bottom of Well Elevation
MW-1	102.17	5.65	95.66	90.01
MW-2	100.79	Dry	Dry	91.23
MW-3	99.25	Dry	Dry	90.12
Bridge	98.92	10.50	88.42	N/A
CB-1	99.00	Dry	Dry	93.10

→ 96.52

* Top of Casing Measurements based upon a survey conducted by ATC Environmental on September 27, 1995. All measurements relative to a common 100 foot common datum (benchmark) located as the northwest Church Street Bridge footing. (See Figure 7.2)

NG - Not Gauged
N/A - Not Applicable

on 11/28/95

	<u>TOC</u>	<u>gw depth</u>	<u>Elevation</u>	<u>Bottom of well</u>
MW-1 -	102.17	5.64	96.53	90.01
MW-2 -	100.79	—	—	91.23
MW-3 -	99.25	8.35	90.90	90.12

Figure 7.1

**Site Vicinity Map
Dunbar's Plumbing & Heating
Barnet, Vermont**

Figure 7.2

**Site Plan
Dunbar's Plumbing & Heating
Barnet, Vermont**

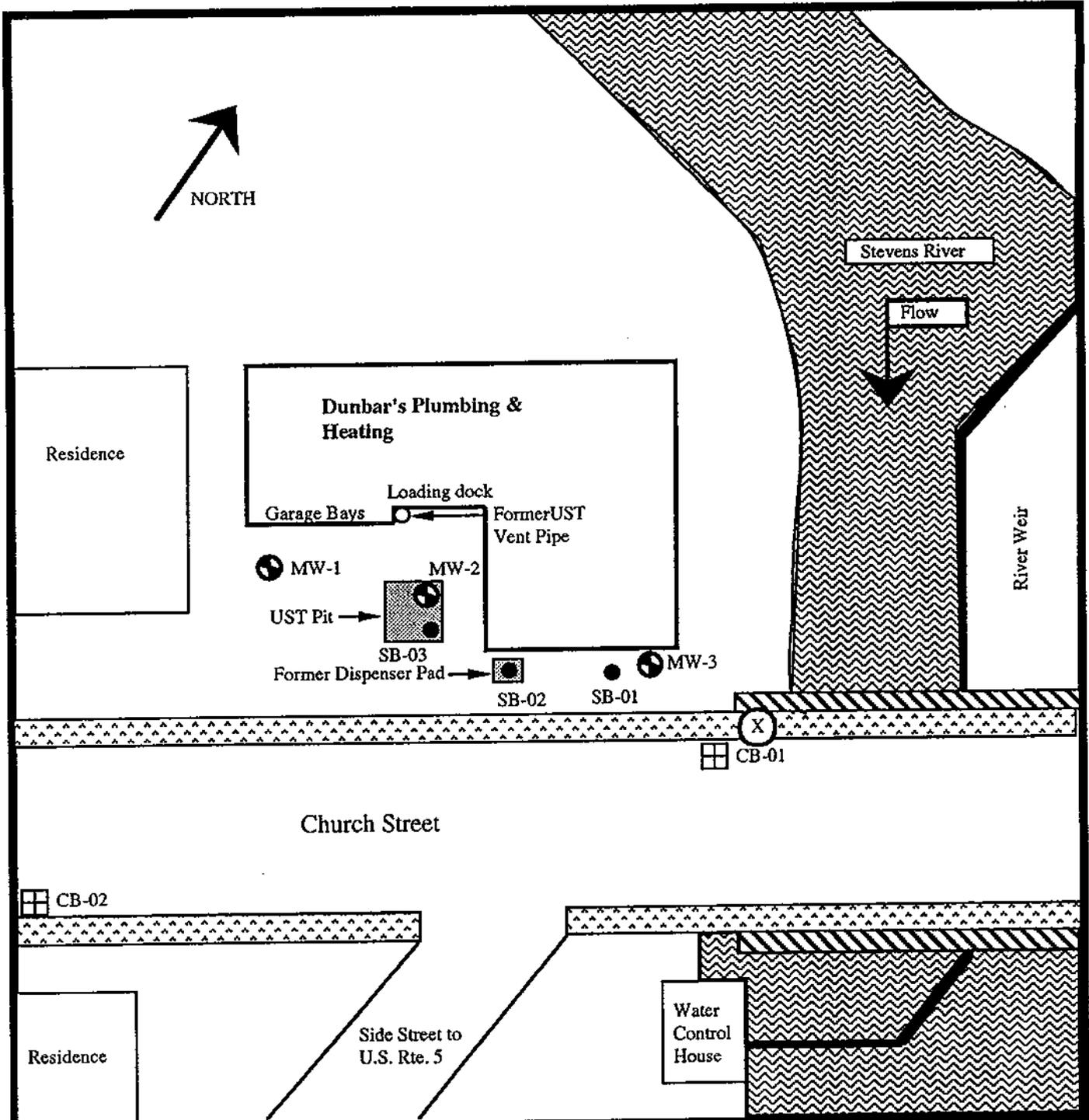
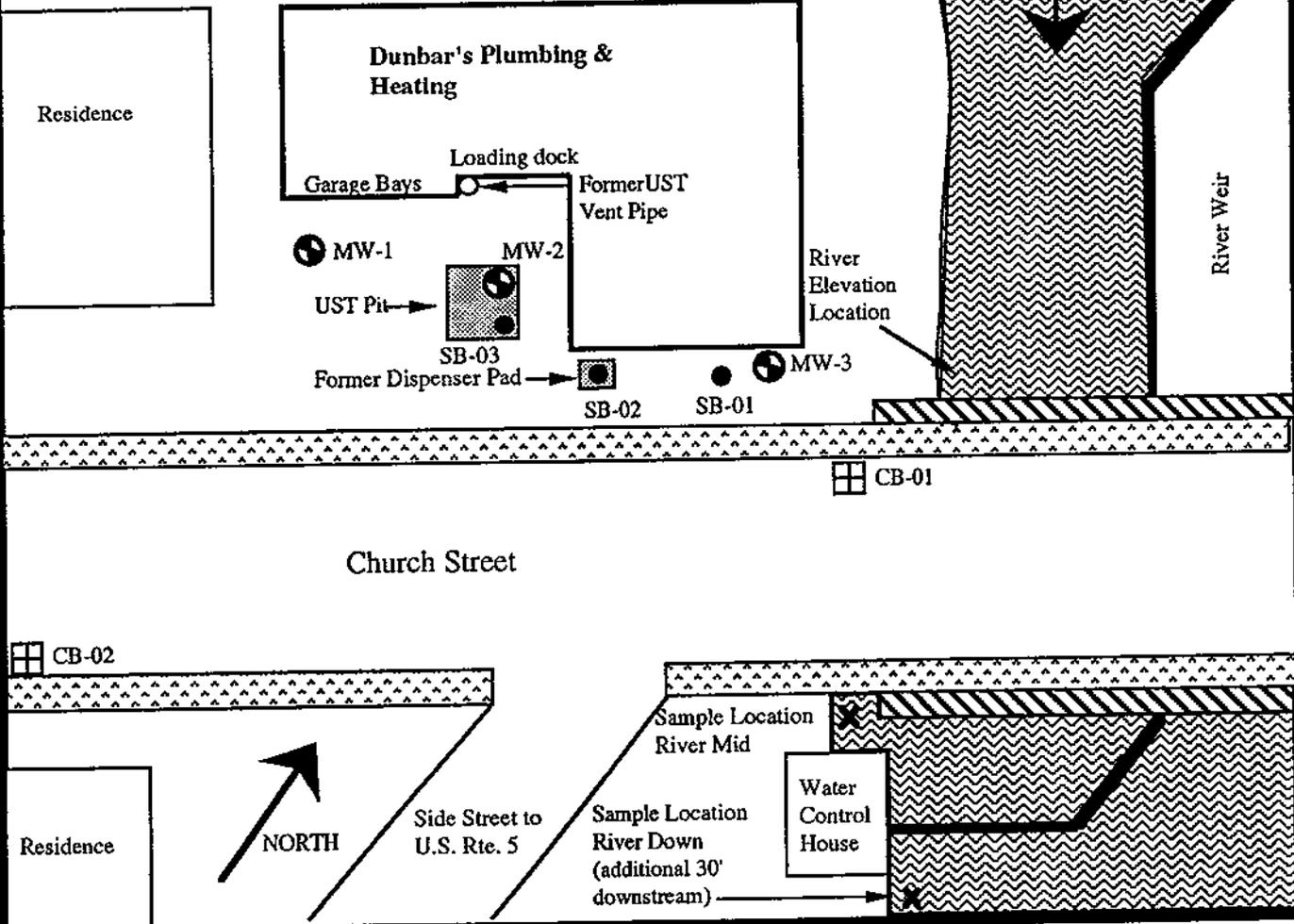


Figure 7.3

**Groundwater, Surface Water and Soil Sampling Map
Dunbar's Plumbing & Heating
Barnet, Vermont**

Groundwater Elevations September 27, 1995	Soil or Water Lab Results (Total VOCs) September 27, 1995
MW-1 95.66 feet	Water Sample Non- Detect
MW-2 Dry at 91.23 feet	Soil Sample (7.0-9.0 bgs) - 41,080 ug/kg (total VOC)
MW-3 Dry at 90.12 feet	Soil Sample (9.0 bgs) - - Non - Detect
	Water sample River up Non-Detect Water sample River mid Non-Detect Water sample River down Non-Detect



LEGEND

- - Soil Boring (7/18/95)
- ⊙ - Monitoring Well
- ⊠ - Rain Catchbasin
- ▨ - Bridge
- ▤ - Sidewalk
- ✕ - Stream Sample

Figure Number 7.3
Groundwater, Surface
Water and Soil
Sampling Map
Dunbar's Plumbing &
Heating
Church Street
Barnet, VT

Approximate Scale 1" = 25'

ATC Environmental Inc.
P.O. Box 3, Richmond, VT

September 1995

Project Number
20184-0017

Drawing by
John Roman

Appendix A

Soil & Groundwater Laboratory Analytical Results

ATC ENVIRONMENTAL

CONTACT: JOHN C. ROMAN
FIELD OFFICE: VT

REPORT DATE: 10/16/95

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-21329
JOB NUMBER: 20184-0017

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: BARNET, VT

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
SS-01	95B17434	SOIL	MW-2, 7-9'	8020 - solid
SS-02	95B17435	SOIL	MW-3, 9'	8020 - solid
WS-01	95B17429	GRND WATER	MW-1	602/8020 water
WS-02	95B17430	GRND WATER	RIVER MID	602/8020 water
WS-03	95B17431	GRND WATER	RIVER UP	602/8020 water
WS-04	95B17432	GRND WATER	RIVER DOWN	602/8020 water
WS-05	95B17433	GRND WATER	FIELD BLANK	602/8020 water

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

AIHA 308
MASSACHUSETTS MA100
CONNECTICUT PH-0567
NEW YORK ELAP 10899
PENNSYLVANIA DER 68-433
NEW HAMPSHIRE 2516

AIHA ELLAP (LEAD) 6838
MAINE (POTABLE/NON-POTABLE)
VERMONT DOH (LEAD) No. 15036
RHODE ISLAND (LIC. No. 112)
OHIO (ENVIRO. LEAD) # 10005

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document.

Tod Kopyscinski 10/16/95
SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director

ATC ENVIRONMENTAL

Contact: JOHN C. ROMAN
Field Office:VT

10/16/95
page 1 of 5

Project Location: BARNET, VT
Date Received: 09/28/95

LIMS-BAT #: LIMS-21329
Job Number: 20184-0017
Sample Matrix: GRND WATER

Sampled: 09/27/95
MW-1
WS-01

	Units	95B17429	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Benzene	ug/l	ND	10/08/95	MFF	0.2		
Chlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,2-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,3-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,4-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
Ethyl Benzene	ug/l	ND	10/08/95	MFF	0.5		
Methyl tert-Butyl Ether (MTBE)	ug/l	ND	10/08/95	MFF	0.5		
Toluene	ug/l	ND	10/08/95	MFF	0.5		
p&m-Xylene	ug/l	ND	10/08/95	MFF	1.0		
o-Xylene	ug/l	ND	10/08/95	MFF	0.5		

Sampled: 09/27/95
RIVER MID
WS-02

	Units	95B17430	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Benzene	ug/l	ND	10/08/95	MFF	0.2		
Chlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,2-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,3-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,4-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
Ethyl Benzene	ug/l	ND	10/08/95	MFF	0.5		
Methyl tert-Butyl Ether (MTBE)	ug/l	ND	10/08/95	MFF	0.5		
Toluene	ug/l	ND	10/08/95	MFF	0.5		
p&m-Xylene	ug/l	ND	10/08/95	MFF	1.0		
o-Xylene	ug/l	ND	10/08/95	MFF	0.5		

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

10/16/95
page 2 of 5

LIMS-BAT #: LIMS-21329
Job Number: 20184-0017
Sample Matrix: GRND WATER

Sampled: 09/27/95
RIVER UP
WS-03

	Units	95B17431	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Benzene	ug/l	ND	10/08/95	MFF	0.2		
Chlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,2-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,3-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,4-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
Ethyl Benzene	ug/l	ND	10/08/95	MFF	0.5		
Methyl tert-Butyl Ether (MTBE)	ug/l	ND	10/08/95	MFF	0.5		
Toluene	ug/l	ND	10/08/95	MFF	1.0		
p&m-Xylene	ug/l	ND	10/08/95	MFF	0.5		
o-Xylene	ug/l	ND	10/08/95	MFF	0.5		

Sampled: 09/27/95
RIVER DOWN
WS-04

	Units	95B17432	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Benzene	ug/l	ND	10/08/95	MFF	0.2		
Chlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,2-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,3-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,4-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
Ethyl Benzene	ug/l	ND	10/08/95	MFF	0.5		
Methyl tert-Butyl Ether (MTBE)	ug/l	ND	10/08/95	MFF	0.5		
Toluene	ug/l	ND	10/08/95	MFF	1.0		
p&m-Xylene	ug/l	ND	10/08/95	MFF	0.5		
o-Xylene	ug/l	ND	10/08/95	MFF	0.5		

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



10/16/95
page 3 of 5

LIMS-BAT #: LIMS-21329
Job Number: 20184-0017
Sample Matrix: GRND WATER

Sampled: 09/27/95
FIELD BLANK
MS-05

	Units	95B17433	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Benzene	ug/l	ND	10/08/95	MFF	0.2		
Chlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,2-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,3-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
1,4-Dichlorobenzene	ug/l	ND	10/08/95	MFF	0.5		
Ethyl Benzene	ug/l	ND	10/08/95	MFF	0.5		
Methyl tert-Butyl Ether (MTBE)	ug/l	ND	10/08/95	MFF	0.5		
Toluene	ug/l	ND	10/08/95	MFF	1.0		
p&m-Xylene	ug/l	ND	10/08/95	MFF	0.5		
o-Xylene	ug/l	ND	10/08/95	MFF	0.5		

Analytical Method(s):

EPA 602/SW846 8020

SAMPLES ARE CONCENTRATED BY PURGE AND TRAP FOLLOWED BY GAS CHROMATOGRAPHIC ANALYSIS WITH PHOTOIONIZATION DETECTION (PID).

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

10/16/95
page 4 of 5

LIMS-BAT #: LIMS-21329
Job Number: 20184-0017
Sample Matrix: SOIL

Sampled: 09/22/95

	Units	95817434	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Benzene	ug/kg	282	10/10/95	MFF	100		
Chlorobenzene	ug/kg		10/10/95	MFF	250		
1,2-Dichlorobenzene	ug/kg		10/10/95	MFF	250		
1,3-Dichlorobenzene	ug/kg		10/10/95	MFF	250		
1,4-Dichlorobenzene	ug/kg		10/10/95	MFF	250		
Ethyl Benzene	ug/kg	~7	10/10/95	MFF	250		
Methyl tert-Butyl Ether (MTBE)	ug/kg		10/10/95	MFF	250		
Toluene	ug/kg	~8	10/10/95	MFF	250		
p&m-Xylene	ug/kg		10/10/95	MFF	500		
o-Xylene	ug/kg	62	10/10/95	MFF	250		

Sampled: 09/22/95

MW-3, 9'
SS-02

	Units	95817435	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Benzene	ug/kg		10/10/95	MFF	1.0		
Chlorobenzene	ug/kg		10/10/95	MFF	2.5		
1,2-Dichlorobenzene	ug/kg		10/10/95	MFF	2.5		
1,3-Dichlorobenzene	ug/kg		10/10/95	MFF	2.5		
1,4-Dichlorobenzene	ug/kg		10/10/95	MFF	2.5		
Ethyl Benzene	ug/kg		10/10/95	MFF	2.5		
Methyl tert-Butyl Ether (MTBE)	ug/kg		10/10/95	MFF	2.5		
Toluene	ug/kg		10/10/95	MFF	2.5		
p&m-Xylene	ug/kg		10/10/95	MFF	5.0		
o-Xylene	ug/kg		10/10/95	MFF	2.5		

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

10/16/95
page 5 of 5

Analytical Method(s):

SW846 8020

CONCENTRATION BY PURGE AND TRAP FOLLOWED BY GAS CHROMATOGRAPHY ANALYSIS
WITH PHOTOIONIZATION DETECTION.

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

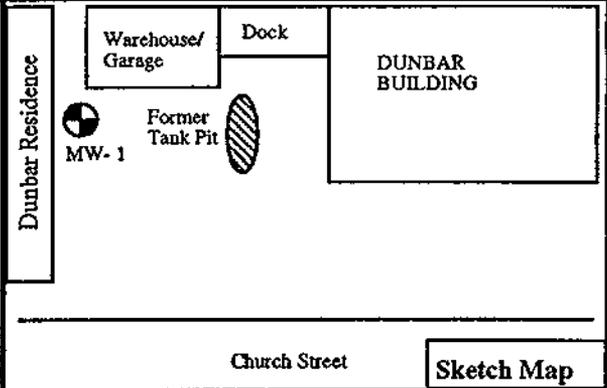
SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.

Appendix B
Monitoring Well Schematics

ATC Environmental Inc. Monitoring Well Log

WELL NUMBER MW-1

PROJECT NAME Howard Bank / Dunbar's Plumbing & Heating
 PROJECT # 20184-0017
 LOCATION Church Street, Barnet VT
 DATE DRILLED 9/22/95 BORING DEPTH 12.0'
 DIAMETER 2"
 SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.10
 CASING DIA. 2" LENGTH 2.0' TYPE PVC
 DRILLING CO. Tri-State D & B DRILLING METHOD HSA
 DRILLER Neil Faulkner LOG BY JCR



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	PID/OVM READINGS	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
GRADE	TOP CAP			
		ROAD BOX & SAKRETE	1.2 PPM	0.0-3.0' (Grab) Brown coarse and medium SAND to 1.0' over grey brown fine SAND with some silt, trace fine GRAVEL. Slightly moist and loose.
		BENTONITE	0.0 PPM	3.0-5.0 (3-3-4-4) 24"R Olive SILT and CLAY. Common fine yellow-brown mottles associated with fine SILT lenses. Slightly moist and firm.
5		SCREEN (0.10)	0.0 PPM	7.0-9.0' (1-1-2-2) 24"R Olive grey varved CLAY. Uniform, very moist and very sticky.
10		SANDPACK #1 Silica Sand	0.0 PPM	10.0-12.0' (1-1-2) 24"R Olive grey CLAY. Wet and very sticky.
		BOTTOM CAP	E.O.B. 12.0'	12.0-14.0' (1-1-1-2) 24"R Olive grey CLAY with trace of SILT. Wet and sticky.
15			0.0 PPM	
20				
				WELL CONSTRUCTION: Screen 12.0' to 2.0' Riser 2.0' to 0.3' Sand 12.0' to 1.8' Plug 1.8' to 1.0'

ATC Environmental Inc. Monitoring Well Log

WELL NUMBER MW-2

PROJECT NAME Howard Bank / Dunbar's Plumbing & Heating
 PROJECT # 20184-0017
 LOCATION Church Street, Barnet VT
 DATE DRILLED 9/22/95 BORING DEPTH 10.0'
 DIAMETER 2"
 SCREEN DIA. 2" LENGTH 8.0' SLOT SIZE 0.20
 CASING DIA. 2" LENGTH 2.0' TYPE PVC
 DRILLING CO. Tri-State D & B DRILLING METHOD HSA
 DRILLER Neil Faulkner LOG BY ICR

Dunbar Residence

Warehouse/
Garage

Dock

DUNBAR
BUILDING

Former
Tank Pit



MW-2

Church Street

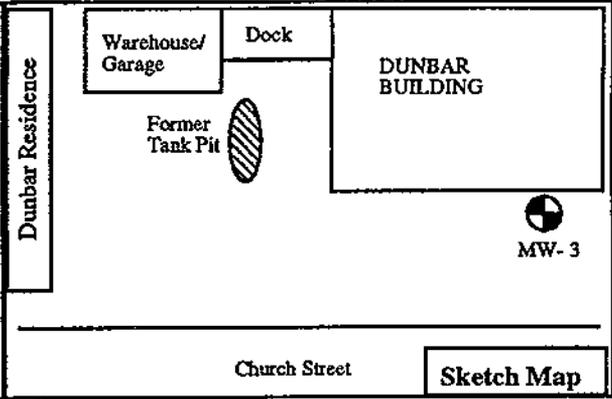
Sketch Map

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	PID/OVM READINGS	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
GRADE	TOP CAP			
		ROAD BOX & SAKRETE		0.0-3.0' (Grab) Grey coarse & medium SAND and fine GRAVEL with trace SILT over fine and medium SAND with SILT and trace fine GRAVEL. Dry and loose. Petro odor.
		BENTONITE	118.0 PPM	3.0-5.0' (Grab) Dark brownish-grey SAND and fine SAND with SILT. Slightly moist and loose. Moderate odor.
5		SCREEN (0.20)	90.0 PPM	5.0-7.0' (2-2-2-3) 24"R Olive and Grey CLAY with common distinct yellow-brown SILT lenses. Moist, friable and slightly sticky. Moderate odor
		SANDPACK #1 Silica Sand	103.0 PPM	7.0-9.0' (1-1-1-2) 24"R Olive CLAY and SILT for 8" over grey and olive SILT with very fine SAND to 18" over yellow brown and grey SILT with fine & very fine SAND to 22" over yellow brown very fine SAND. Very moist and sticky to 8"; water sticky but loose to 18" moist and sticky to 22"; dry and loose to 24". Moderate to strong odor.
10		BOTTOM CAP	E.O.B. 10.0'	
15				
20				
				WELL CONSTRUCTION: Screen 10.0' to 2.0' Riser 2.0' to 0.3' Sand 10.0' to 1.8' Plug 1.8' to 1.0'

**ATC Environmental Inc.
Monitoring Well Log**

WELL NUMBER MW-3

PROJECT NAME Howard Bank / Dunbar's Plumbing & Heating
 PROJECT # 20184-0017
 LOCATION Church Street, Barnet VT
 DATE DRILLED 9/22/95 BORING DEPTH 9.5'
 DIAMETER 2"
 SCREEN DIA. 2" LENGTH 7.0' SLOT SIZE 0.20
 CASING DIA. 2" LENGTH 2.5' TYPE PVC
 DRILLING CO. Tri-State D & B DRILLING METHOD HSA
 DRILLER Neil Faulkner LOG BY ICR



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	PID/OVM READINGS	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
GRADE	TOP CAP			
		ROAD BOX & SAKRETE	0.0 PPM	0.0-2.0' (Grab) Dark brown LOAMY SAND with some coarse and medium SAND and GRAVEL. Dry and loose.
		BENTONITE		
		SCREEN (0.20)	0.0 PPM	3.0-5.0 (Grab) Grey brown SAND and SILT with some fine GRAVEL. Slight moist, firm.
5		SANDPACK #1 Silica Sand		
		BOTTOM CAP	0.0 PPM	7.0-9.0' (Grab) Olive brown SILT and CLAY. Moist to very moist and sticky.
10			0.0 PPM E.O.B. 9.5'	9.5' (Grab) Refusal; Coarse SAND and bedrock fragments with silt. Moist.
15				
20				
				WELL CONSTRUCTION: Screen 9.5' to 2.5' Riser 2.5' to 0.3' Sand 9.5' to 2.0' Plug 2.0' to 1.0'
				NOTE: Due overhead power lines the drill rig derrick was not utilized throughout this boring for MW-03, and therefore split spoon sampling was not possible