

97-2267

OCT 1 9 24 AM '00

Type Of Submittal	Petroleum Reimbursement Phase
<input type="checkbox"/> Workslope/Budget	<input type="checkbox"/> Initial Response Action
<input checked="" type="checkbox"/> Technical Report	<input checked="" type="checkbox"/> Free Product
<input type="checkbox"/> Reimbursement Request	<input checked="" type="checkbox"/> Site Investigation
<input type="checkbox"/> Monitoring Result	<input type="checkbox"/> Corrective Action Plan
	<input type="checkbox"/> Remedial Design Plan
	<input type="checkbox"/> Remedial Implementation/Operations/Monitoring

Site Investigation Report
Springfield Area Parent Child Center
Springfield, VT
(VT DEC Site #)
 Latitude 43 degrees, 22', 20"
 Longitude 72 degrees, 30', 15"
USGS Chester Quad

Prepared For:
 Springfield Area Parent Child Center
 2-4 Main St.
 N. Springfield, VT 05157
 Contact: Betty Kinsman
 (802) 886- 5242

Prepared By:
 Brackett Geosciences
 28 Mechanic St.
 Keene, NH 03431
 Contact : Steven L. Brackett
 (603) 355-3924

Sep. 6, 2000

Recommended Risk Category		
<input type="checkbox"/> 1. Immediate Human Health Risk (Impacted Water Well, etc.)	<input type="checkbox"/> 4. Surface Water Impact (Actual Impact to Class B or potential Impact to Class B)	<input type="checkbox"/> 7. Alternate Water Available/Low level Groundwater Contamination (<1000 x VGES)
<input type="checkbox"/> 2. Potential Human Health Risk (Residential well within 1000' or site within wellhead area)	<input type="checkbox"/> 5. No Alternate Water Available/No Existing Wells in Area	<input checked="" type="checkbox"/> 8. No VGES Violation/No Source Remaining
<input type="checkbox"/> 3. Free Product or Source Hazard	<input type="checkbox"/> 6. Alternate Water Available/High Level Groundwater Contamination (>1000 x VGES)	

EXECUTIVE SUMMARY

During the third quarter of 1997 the 2-4 Main St. site was renovated to include new offices and child care areas for the Springfield Area Parent Child Center ("SAPCC") as well as five apartments. As part of this renovation, a 500 gallon #2 fuel oil tank was removed from the site. A Site Assessment report describing the condition of the tank, and impact to site soil was prepared by Stevens and Associates Engineering ("SAE"). As this report indicated fuel oil contaminated soil was encountered in the excavated area during the removal of this 500 gallon UST.

A copy of the Site Assessment Report was sent to the VT ANR-Sites Management Section. After reviewing the report the SMS responded by requesting that a Site Investigation be conducted of the SAPCC site to determine the degree and extent of soil and groundwater contamination, and to assess the risk posed by this contamination to potential receptors.

Brackett Geosciences has completed the necessary background research, installed three monitoring wells at the SAPCC site, collected and field screened soil samples and collected groundwater samples for laboratory analysis.

While soil samples from the monitoring well installed in the tank grave area contained detectable levels of VOC's no other soil or groundwater samples showed any evidence of petroleum impact.

Based on this work Brackett Geosciences has reached the following Conclusions:

- The release of petroleum from the former UST has contaminated a small volume of soil in the tank grave area.
- This soil is at least three feet below the existing grade.
- The existing soil cover over the small volume of contaminated soil in the tank grave area is adequate to eliminate the possibility of direct contact.
- Air screening showed no evidence of detectable levels of VOC's in the ambient air of the site's building (the adjacent furnace room).
- The only VOC's detected in groundwater samples collected from the monitoring wells installed at the site were acetone and carbon disulfide in the sample from MW-2. Both of these compounds are common in laboratory settings. As discussed in the body of this report, it is the opinion of Brackett Geosciences that both detections were the result of laboratory contamination. In any case Vermont Groundwater Enforcement Standards were not exceeded.

- No other potential receptors were identified other than the site soil, groundwater and basement air, nor is there any evidence that any other receptors (excluding site soil and groundwater) have been impacted.

In light of these Conclusions, Brackett Geosciences has the following Recommendations:

Since none of the groundwater samples collected contained VOC's in concentrations exceeding Vermont Groundwater Enforcement Standards the site should be given a SMAC designation, which will include filing a notice of the presence of the contaminated soil in the Springfield land records.

INTRODUCTION

The Springfield Area Parent Child Center ("SAPCC") is located at 2-4 Main St., N. Springfield, VT. The site building contains 5 residential units, offices and a child care facility. The site building was renovated to these uses during the third quarter of 1997. As part of this renovation a 500 gallon #2 fuel oil underground storage tank ("UST") was removed from the site. This tank had been used to store oil for on-premises heating. It was replaced by two 275 gallon aboveground storage tanks placed in the furnace room of the building.

During excavation of the 500 gallon UST fuel oil contaminated soil was encountered. Unfortunately, the tank had been placed in a narrow alleyway between two buildings which were connected by a second story balcony. Due to the proximity to the site buildings and the overhead balcony it was not reasonably possible to over excavate to attempt to determine degree and extent of the contamination.

Stevens and Associates Engineering ("SAE") prepared a Site Assessment which was forwarded to the VT ANR- Sites Management Section. In a letter dated from Chuck Schwer, SMS responded by asking for a Site Investigation of the SAPCC site to determine the degree and extent of soil and groundwater contamination, to assess the risks posed by this contamination, and to determine the need for treatment or monitoring of the contaminated media.

Brackett Geosciences conducted a Site Investigation under the Site Investigation Expressway program.

SITE INFORMATION

The following ownership information was derived from the files of the Town of Springfield, VT.

Table 1 - Current Site Ownership Data By Tax Map Parcel

Tax Map # 1B	Owner	Address	
4/09	Kristen Gould	3 Main St.	N. Springfield, VT
4/10	Don Curtis Est.	Rd #1, Box 1	N. Springfield, VT
3/56	Town Of Springfield	Fairgrounds Rd.	Springfield, VT
4/35.1	VT Country Foods	P.O. Box 58-2010	Springfield, VT
4/11	VT Country Foods	P.O. Box 58-2010	Springfield, VT

SITE HISTORY

Ownership History

1997 to present	Springfield Area Parent Child Center
1992 to 1997	Peter Hall and Steven Greeley
5/1992 to 9/1992	First National Bank of Vermont
1985 to 5/1992	George and Janet Constantine
1963 to 1985	Donald and Marie Abbott

Hazardous Materials Use, Storage and Disposal Practices

The site has been in multi-family and light commercial use since it was built in the 1960's. There is no evidence to indicate other than de minimus use, storage, or disposal of hazardous materials.

Known Hazardous Materials Releases

There is no formal record in town, state, or federal files which indicates prior hazardous material releases at the site.

MAPS

A Site Plan which shows the former location of the 500 gallon #2 fuel oil UST and the locations of any potential receptors is contained in the Appendix.

USGS Map - see Appendix

MONITORING WELLS

Monitoring Well Installation and Construction Procedure - All soil borings and monitoring wells were installed by Kennedy Drilling of Troy, NH using Earth Probe technology.

Monitoring wells were constructed by installing 1" Sch 40 PVC machine slotted screen and solid riser, in appropriate lengths into 2" soil borings. The annulus was filled with sorted filter sand to a depth of between .5' and 1' above the top of the screen. A bentonite seal of at 1' thick was placed on top of the filter sand, and then the balance of the annulus was filled with native soils. A locking cap was installed in the top of the 1" PVC riser. Detailed well logs are included in the appendices of this report.

SOIL SAMPLING AND FIELD SCREENING

- Soil Sampling - Soil samples were collected continuously in all soil borings and monitoring wells using a 2' diameter by 36' long sampling probe.

- Field Screening- Field screening of soil samples for VOC's was conducted using a Gastech OVM Model 1314 calibrated to 400 ppm hexane. The OVM was calibrated on the day of use, both before and after field screening was conducted. Soil samples were placed in wide mouth glass jars, the mouths of which were then covered with aluminum foil. The sample jars were warmed to a consistent temperature as close to 70 degrees F as possible. The concentration of VOC's in the jar's headspace was then determined by inserting the probe of the Gastech[®] OVM through the aluminum foil membrane. The results of this field screening are presented in the table below.

Table 3 - Soil Field Screening Results

Sample #	Sample Description	Field Screening Result (ppm)
1-1	0'-3' light brown, fine sand, no smell or staining	0
1-2	3'-6' light brown fine sand, slight petroleum odor, no staining	35 ppm
1-3	6'- 9' light brown fine sand, no smell or staining	0
1-4	9'-12' light brown fine sand, no smell or staining	0
1-5	12'-15' dark brown medium grained sand, no smell, no staining	0
1-6	15'-18' dark brown medium grained sand and gravel, no smell, no staining	0
2-1	0'-3' light brown, fine sand, no smell or staining	0
2-2	3'-6' light brown fine sand, no smell, or staining	0
2-3	6'- 9' light brown fine sand, no smell or staining	0
2-4	9'-12' light brown fine sand, no smell or staining	0
2-5	12'-15' dark brown medium grained sand, no smell, no staining	0
2-6	15'-18' dark brown medium grained sand and gravel, no smell, no staining	0
3-1	0'-3' light brown, fine sand, no smell or staining	0
3-2	3'-6' light brown fine sand, no smell,	0

	or staining	
3-3	6'- 9' light brown fine sand, no smell or staining	0
3-4	9'-12' light brown fine sand, no smell or staining	0
3-5	12'-15' dark brown medium grained sand, no smell, no staining	0
3-6	15'-18' dark brown medium grained sand and gravel, no smell, no staining	0

COLLECTION OF GROUNDWATER SAMPLES

On August 30, 2000 groundwater samples were collected from MW-1, MW-2 and MW-3. The procedures followed are described below.

- Groundwater Sampling - Prior to the collection of groundwater samples all monitoring wells were developed using a Watera pump. Once the wells were developed they were purged of at least three well volumes of water before samples were collected. Purging and sampling were also conducted using a Watera pump. All groundwater samples were bottled and preserved according to industry accepted protocols.

- Groundwater Gauging - Groundwater elevation was always conducted prior to the purging of wells. The water elevation probe was wiped clean between wells. Water depth was measured from the ground surface using a Roctest[®] Water Elevation Meter. The meter has a probe attached to the end of a measured cable. The probe was lowered into the well and at the point that the probe reached groundwater an electric circuit was closed and a high frequency tone was emitted from the meter at the surface. The cable was marked in .01' increments.

INTERPRETATION OF LABORATORY RESULTS

The groundwater analytical results for the August 30, 2000 round of groundwater monitoring are contained in the table below.

As shown on the enclosed Site Plan, MW-1 is located in the tank grave, MW-2 is located approximately 20' southwest of the tank grave between the tank grave and the Black River and MW-3 is located approximately 20' west of the tank grave between the tank grave and the Black River.

Table 4 - Laboratory Results of
Groundwater Analysis for August 30, 2000 Sampling Round (ppb)

	benzene	toluene	ethylbenzene	xylene	MTBE	naphthalene
MW-1	ND	ND	ND	ND	ND	ND
MW-2	ND	ND	ND	ND	ND	ND
MW-3	ND	ND	ND	ND	ND	ND

The groundwater sample collected from MW-2 did contain carbon disulfide and acetone. There is no record of a source in the area for these two compounds. Additionally, they are both common in laboratory settings. Given these two facts it is the opinion of Brackett Geosciences that the presence of each of the detected VOC's was the result of laboratory contamination.

GEOLOGY

Soil Type - Detailed descriptions of the soils encountered at the SAPCC site are contained in the tables above. In general site soils appear to consist of loamy, very fine sand to a depth of approximately 6' and then clean, light brown, fine grained sand to approximately 17.5'. Below 17.5' a coarse gravel was encountered.

Bedrock Type - The Centennial Geologic Map of Vermont (1961) indicates that the bedrock in the area of the SAPCC site is the pre-Cambrian Mount Holly biotite gneiss. Monitoring wells on the site prove that the depth to bedrock is greater than '.

HYDROGEOLOGY

Direction of Groundwater Flow

Groundwater elevations presented on the enclosed groundwater potentiometric map were recorded on August 30, 2000. This information indicates that the direction of groundwater flow is to the southwest toward the Black River.

Rate of Migration

A seepage rate of .74 ft/day has been calculated as follows:

hydraulic conductivity = 1×10^{-3} ft/sec (Freeze and Cherry, 1979; page 29 - Table 2.2: "sand")

porosity = 35% (Freeze and Cherry, 1979; page 37 - Table 2.4: "silty sand")

hydraulic gradient = .5 % (observed)

$$S = 1 \times 10^{-3} \times .005 / .35$$

$$S = 1.23 \text{ ft/day}$$

Table 2 - Summary of Site Hydrogeology

Depth to GW	GW Flow Direction	Hydraulic Gradient	Estimated K
approximately 13' below grade	south	1% (observed)	1×10^{-3} feet/sec

FREE PRODUCT

No free product was encountered during either the removal of the 500 gallon UST in question, or during the installation of soil borings and monitoring wells.

PLUME DEFINITION

Extent of Plume -

One round of groundwater samples has been collected from the monitoring wells installed at this site. Each sample was analyzed for the presence of volatile organic compounds ("VOC's") according to EPA Method 8260. None of these samples contained detectable quantities of VOC's.

It appears from the soil screening conducted during this investigation that the released fuel oil did not migrate deep enough to come in contact with the groundwater table below the site and consequently the site's groundwater was never contaminated (i.e. a plume of contaminated groundwater does not exist at the SAPCC site).

POTENTIAL RECEPTORS

RECEPTORS

	<u>Yes</u>	<u>No</u>	<u>Notes</u>
Wellhead Protection Areas	X		See notes below
residential wells		X	
surface waters	X		See notes below
buildings with basements	X		See notes below
wetlands		X	
ecologically sensitive areas		X	
areas of direct soil contact		X	
utility corridors		X	

Wellhead Protection Area - One of the well fields for the Springfield municipal water system is located directly across the Black River from the SAPCC site. The closest well is approximately 250' from the tank grave area. The Town of Springfield is currently

preparing a Source Protection Plan for this wellfield. A copy of the proposed Source Protection Area, prepared by Hoffer and Associates has been included in the Appendix of this report. The Springfield Area Parent Child Center is within Zone 3 of the proposed SPA.

surface waters - The Black River bounds the SAPCC site of the south side. The river's edge is approximately 80' from the tank grave area. It appears that the SAPCC site has been filled over time to raise the site's grade. This has resulted in a very steep embankment from the site to the river below. This embankment has been rip-rapped to control erosion. During this investigation the rivers edge and the rip-rapped embankment were visually inspected for evidence of seepage. There was no evidence of seepage to the river along the bank adjacent to the area investigated. No surface water sample was collected from the Black River since both monitoring wells between the former tank location and the river were clean (MW-2 and MW-3).

Buildings with basements - On August 30, 2000 Brackett Geosciences screened the ambient air of the furnace room which abuts the former tank location. Screening was conducted using a Gastech OVM Model 1314 calibrated to 400 ppm hexane. No VOC's were detected.

CONCLUSIONS

Based on the information collected during this investigation Brackett Geosciences has reached the following Conclusions:

- The release of petroleum from the former UST contaminated soil in the tank grave area.
- The groundwater samples collected from MW-1, MW-2 and MW-3 did not contain detectable levels of VOC's.
- The existing soil cover over the small volume of contaminated soil in the tank grave area is adequate to eliminate the possibility of direct contact.
- There is no evidence of a threat to any receptors other than to the volume of contaminated soil delineated during this investigation.
- In the opinion of Brackett Geosciences, based on the information which is currently available, there is no basis for either additional delineation of soil/groundwater contamination or for active remediation of the petroleum contaminated soil identified in this study.

RECOMMENDATIONS

Given that

- there is no evidence of impact to groundwater,

- that the degree and extent of soil contamination has been delineated,
- the contaminated soil is greater than 3' deep,

SAE recommends that

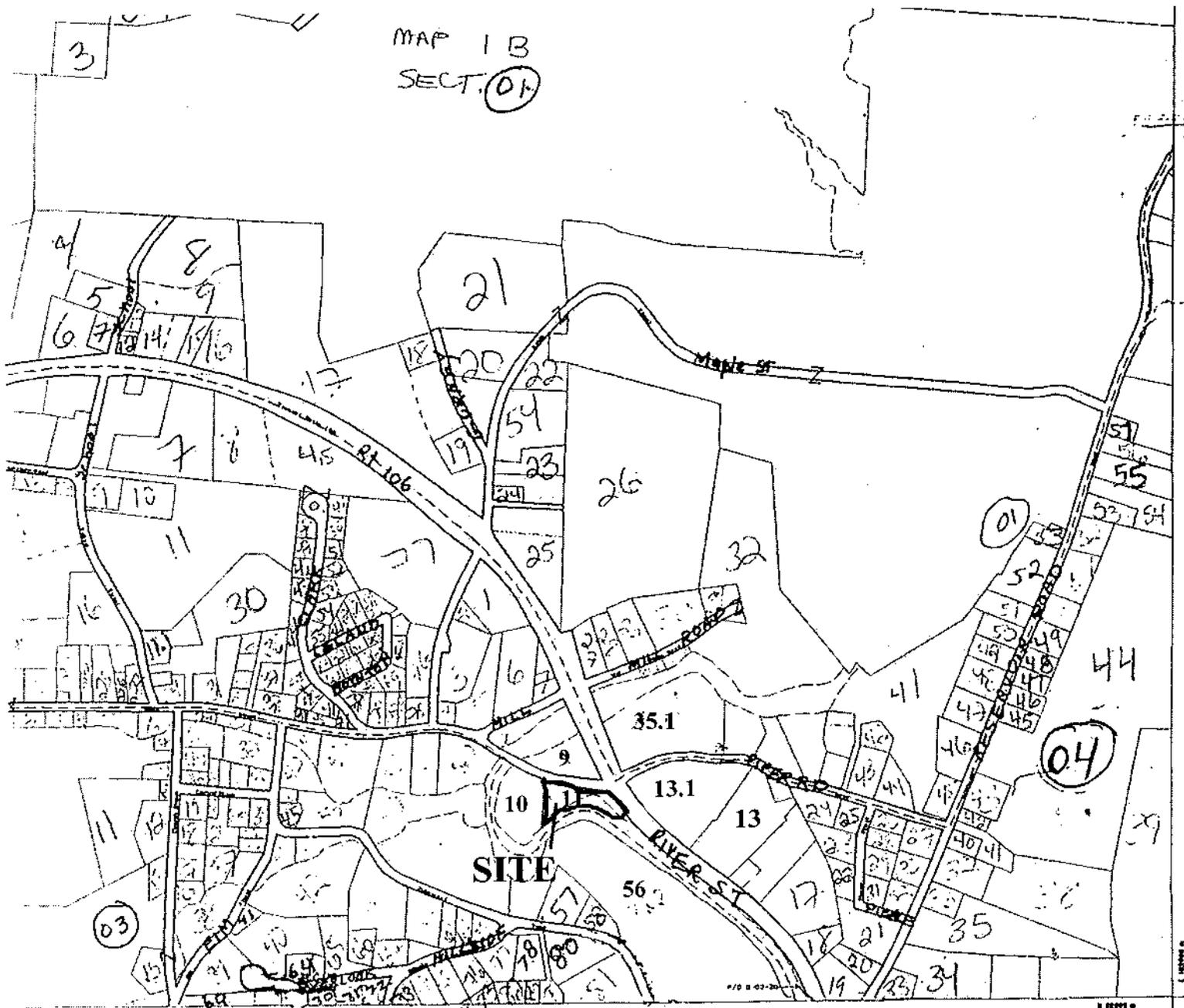
- The site should be designated as Site Management Activity Closed ("SMAC").

Springfield Area Parent Child Center

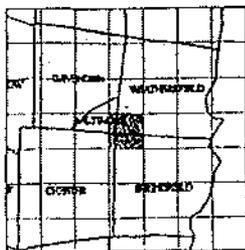
Area Map



MAP 1 B
 SECT. 04



VCS



	2	3	4
6	7	8	
9	10	11	12
13	14	15	

**PROPERTY TAX MAP
 TOWN of SPRINGFIELD**

SHEET NO. 18
 ORTHOPHOTO NO. 148092
 KENDRICKS CORNER



ANALYTICAL REPORT

P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313
<http://www.scitestlabs.com>
email: info@scitestlabs.com

Brackett Geosciences
28 Mechanics St.
Keene, NH 03431

Steve Brackett

Work Order No.: 0009-03218

Project Name: SAPCC
Customer Nos.: 090264

Date Received: 9/01/00
Date Reported: 9/26/00

Sample Desc.: SAPCC.01

Sample Nos: 001

Sample Date: 8/30/00

Collection Time: 0:00

Test Performed	Method	Results	Units	Analyst	Analysis Date
Volatiles	EPA 8260B			RJS	9/11/00
Dichlorodifluoromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Vinyl chloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Bromomethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Trichlorofluoromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,1-Dichloroethene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Diethyl ether	EPA 8260B	< 5.0	ug/L	RJS	9/11/00
Iodomethane	EPA 8260B	< 10	ug/L	RJS	9/11/00
Acetone	EPA 8260B	< 10	ug/L	RJS	9/11/00
Carbon disulfide	EPA 8260B	< 5	ug/L	RJS	9/11/00
Methylene chloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Methyl tertiary Butyl Ether	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
trans-1,2-Dichloroethene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Acrylonitrile	EPA 8260B	< 20	ug/L	RJS	9/11/00
1,1-Dichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Vinyl acetate	EPA 8260B	< 20	ug/L	RJS	9/11/00
cis-1,2-Dichloroethene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
2,2-Dichloropropane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
2-Butanone (MEK)	EPA 8260B	< 10	ug/L	RJS	9/11/00
Bromochloromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloroform	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Tetrahydrofuran	EPA 8260B	< 10	ug/L	RJS	9/11/00
1,1,1-Trichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Carbon tetrachloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,1-Dichloropropene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Benzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2-Dichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Trichloroethene (TCE)	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2-Dichloropropane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Dibromomethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Bromodichloromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00

ANALYTICAL REPORT

Project Name: SAPCC
Project No.: 090264

Work Order No.: 0009-03218

Sample Desc.: SAPCC.01

Sample Nos: 001

Test Performed

2-Chloroethyl vinyl ether
cis-1,3-Dichloropropene
4-Methyl-2-pentanone (MIBK)
Toluene
trans-1,3-Dichloropropene
1,1,2-Trichloroethane
Tetrachloroethene (PCE)
1,3-Dichloropropane
2-Hexanone
Dibromochloromethane
1,2-Dibromoethane (EDB)
Chlorobenzene
1,1,1,2-Tetrachloroethane
Ethylbenzene
Xylenes-m,p
o-Xylene
Styrene
Bromoform
Isopropylbenzene
Bromobenzene
1,2,3-Trichloropropane
1,1,2,2-Tetrachloroethane
trans-1,4-Dichloro-2-butene
n-Propylbenzene
2-Chlorotoluene (ortho)
4-Chlorotoluene (para)
1,3,5-Trimethylbenzene
tert-Butylbenzene
1,2,4-Trimethylbenzene
sec-Butylbenzene
1,3-Dichlorobenzene (meta)
1,4-Dichlorobenzene (para)
p-Isopropyltoluene
1,2-Dichlorobenzene (ortho)
n-Butylbenzene
1,2-Dibromo-3-chloropropane
1,2,4-Trichlorobenzene
Hexachlorobutadiene
Naphthalene
1,2,3-Trichlorobenzene

Method

EPA 8260B

Results

< 20

< 1.0

< 10

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 10

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 2.0

< 2.0

< 2.0

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 20

< 1.0

< 2.0

< 1.0

< 1.0

< 2.0

< 1.0

Units

ug/L

Sample Date: 8/30/00

Collection Time: 0:00

Analyst

RJS

Analysis Date

9/11/00

9/11/00

9/11/00

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ANALYTICAL REPORT

Project Name: SAPCC
Project No.: 090264

Work Order No.: 0009-03218

Sample Desc.: SAPCC.01	Method	Results	Units	Analyst	Analysis Date
Sample Nos: 001					
Test Performed					
Surrogate:					
***Dibromofluoromethane		103	% Recovery	RJS	9/11/00
***Toluene-d8		60	% Recovery	RJS	9/11/00
***Bromofluorobenzene		95	% Recovery	RJS	9/11/00

Sample Desc.: SAPCC.02	Method	Results	Units	Analyst	Analysis Date
Sample Nos: 002					
Test Performed					
Volatiles	EPA 8260B			RJS	9/11/00
Dichlorodifluoromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Vinyl chloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Bromomethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Trichlorofluoromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,1-Dichloroethene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Diethyl ether	EPA 8260B	< 5.0	ug/L	RJS	9/11/00
Iodomethane	EPA 8260B	< 10	ug/L	RJS	9/11/00
Acetone	EPA 8260B	9.3	ug/L	RJS	9/11/00
Carbon disulfide	EPA 8260B	6.3	ug/L	RJS	9/11/00
Methylene chloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Methyl tertiary Butyl Ether	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
trans-1,2-Dichloroethene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Acrylonitrile	EPA 8260B	< 20	ug/L	RJS	9/11/00
1,1-Dichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Vinyl acetate	EPA 8260B	< 20	ug/L	RJS	9/11/00
cis-1,2-Dichloroethene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
2,2-Dichloropropane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
2-Butanone (MEK)	EPA 8260B	< 10	ug/L	RJS	9/11/00
Bromochloromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloroform	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Tetrahydrofuran	EPA 8260B	< 10	ug/L	RJS	9/11/00
1,1,1-Trichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Carbon tetrachloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,1-Dichloropropene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Benzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2-Dichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Trichloroethene (TCE)	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2-Dichloropropane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00

ANALYTICAL REPORT

Project Name: SAPCC
Project No.: 090264

Work Order No.: 0009-03218

Sample Desc.: SAPCC.02

Sample Nos: 002

Test Performed

Dibromomethane

Bromodichloromethane

2-Chloroethyl vinyl ether

cis-1,3-Dichloropropene

4-Methyl-2-pentanone (MIBK)

Toluene

trans-1,3-Dichloropropene

1,1,2-Trichloroethane

Tetrachloroethene (PCE)

1,3-Dichloropropane

2-Hexanone

Dibromochloromethane

1,2-Dibromoethane (EDB)

Chlorobenzene

1,1,1,2-Tetrachloroethane

Ethylbenzene

Xylenes-m,p

o-Xylene

Styrene

Bromoform

Isopropylbenzene

Bromobenzene

1,2,3-Trichloropropane

1,1,2,2-Tetrachloroethane

trans-1,4-Dichloro-2-butene

n-Propylbenzene

2-Chlorotoluene (ortho)

4-Chlorotoluene (para)

1,3,5-Trimethylbenzene

tert-Butylbenzene

1,2,4-Trimethylbenzene

sec-Butylbenzene

1,3-Dichlorobenzene (meta)

1,4-Dichlorobenzene (para)

p-Isopropyltoluene

1,2-Dichlorobenzene (ortho)

n-Butylbenzene

1,2-Dibromo-3-chloropropane

1,2,4-Trichlorobenzene

Hexachlorobutadiene

Method

EPA 8260B

Results

< 1.0

< 1.0

< 20

< 1.0

< 10

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 10

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 2.0

< 2.0

< 2.0

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 20

< 1.0

< 2.0

< 1.0

< 1.0

< 1.0

Units

ug/L

Sample Date: 8/30/00

Collection Time: 0:00

Analyst

RJS

Analysis Date

9/11/00

9/11/00

9/11/00

9/11/00

9/11/00

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9/11/00

ANALYTICAL REPORT

Project Name: SAPCC
Project No.: 090264

Work Order No.: 0009-03218

Sample Desc.: SAPCC.02				Sample Date: 8/30/00	
Sample Nos: 002				Collection Time: 0:00	
Test Performed	Method	Results	Units	Analyst	Analysis Date
Naphthalene	EPA 8260B	< 2.0	ug/L	RJS	9/11/00
1,2,3-Trichlorobenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Surrogate:					
***Dibromofluoromethane		104	% Recovery	RJS	9/11/00
***Toluene-d8		94	% Recovery	RJS	9/11/00
***Bromofluorobenzene		97	% Recovery	RJS	9/11/00

Sample Desc.: SAPCC.03				Sample Date: 8/30/00	
Sample Nos: 003				Collection Time: 0:00	
Test Performed	Method	Results	Units	Analyst	Analysis Date
Volatiles	EPA 8260B			RJS	9/11/00
Dichlorodifluoromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Vinyl chloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Bromomethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Trichlorofluoromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,1-Dichloroethene	EPA 8260B	< 5.0	ug/L	RJS	9/11/00
Diethyl ether	EPA 8260B	< 10	ug/L	RJS	9/11/00
Iodomethane	EPA 8260B	< 10	ug/L	RJS	9/11/00
Acetone	EPA 8260B	< 5	ug/L	RJS	9/11/00
Carbon disulfide	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Methylene chloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Methyl tertiary Butyl Ether	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
trans-1,2-Dichloroethene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Acrylonitrile	EPA 8260B	< 20	ug/L	RJS	9/11/00
1,1-Dichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Vinyl acetate	EPA 8260B	< 20	ug/L	RJS	9/11/00
cis-1,2-Dichloroethene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
2,2-Dichloropropane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
2-Butanone (MEK)	EPA 8260B	< 10	ug/L	RJS	9/11/00
Bromochloromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloroform	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Tetrahydrofuran	EPA 8260B	< 10	ug/L	RJS	9/11/00
1,1,1-Trichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Carbon tetrachloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,1-Dichloropropene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Benzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2-Dichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00

ANALYTICAL REPORT

Project Name: SAPCC
Project No.: 090264

Work Order No.: 0009-03218

Sample Desc.: SAPCC.03	Method	Results	Units	Analyst	Analysis Date
Sample Nos: 003					
Test Performed					
Trichloroethene (TCE)	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2-Dichloropropane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Dibromomethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Bromodichloromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
2-Chloroethyl vinyl ether	EPA 8260B	< 20	ug/L	RJS	9/11/00
cis-1,3-Dichloropropene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
4-Methyl-2-pentanone (MIBK)	EPA 8260B	< 10	ug/L	RJS	9/11/00
Toluene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
trans-1,3-Dichloropropene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,1,2-Trichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Tetrachloroethene (PCE)	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,3-Dichloropropane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
2-Hexanone	EPA 8260B	< 10	ug/L	RJS	9/11/00
Dibromochloromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2-Dibromoethane (EDB)	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chlorobenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,1,1,2-Tetrachloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Ethylbenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Xylenes-m,p	EPA 8260B	< 2.0	ug/L	RJS	9/11/00
o-Xylene	EPA 8260B	< 2.0	ug/L	RJS	9/11/00
Styrene	EPA 8260B	< 2.0	ug/L	RJS	9/11/00
Bromoform	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Isopropylbenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Bromobenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2,3-Trichloropropane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,1,2,2-Tetrachloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
trans-1,4-Dichloro-2-butene	EPA 8260B	< 20	ug/L	RJS	9/11/00
n-Propylbenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
2-Chlorotoluene (ortho)	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
4-Chlorotoluene (para)	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,3,5-Trimethylbenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
tert-Butylbenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2,4-Trimethylbenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
sec-Butylbenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,3-Dichlorobenzene (meta)	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,4-Dichlorobenzene (para)	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
p-Isopropyltoluene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2-Dichlorobenzene (ortho)	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
n-Butylbenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2-Dibromo-3-chloropropane	EPA 8260B	< 2.0	ug/L	RJS	9/11/00

ANALYTICAL REPORT

Project Name: SAPCC
Project No.: 090264

Work Order No.: 0009-03218

Sample Desc.: SAPCC.03				Sample Date: 8/30/00	
Sample Nos: 003				Collection Time: 0:00	
Test Performed	Method	Results	Units	Analyst	Analysis Date
1,2,4-Trichlorobenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Hexachlorobutadiene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Naphthalene	EPA 8260B	< 2.0	ug/L	RJS	9/11/00
1,2,3-Trichlorobenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Surrogate:					
***Dibromofluoromethane		105	% Recovery	RJS	9/11/00
***Toluene-d8		66	% Recovery	RJS	9/11/00
***Bromofluorobenzene		101	% Recovery	RJS	9/11/00

Sample Desc.: SAPCC.01 Duplicate				Sample Date: 8/30/00	
Sample Nos: 004				Collection Time: 0:00	
Test Performed	Method	Results	Units	Analyst	Analysis Date
Volatiles	EPA 8260B			RJS	9/11/00
Dichlorodifluoromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Vinyl chloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Bromomethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Trichlorofluoromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,1-Dichloroethene	EPA 8260B	< 5.0	ug/L	RJS	9/11/00
Diethyl ether	EPA 8260B	< 10	ug/L	RJS	9/11/00
Iodomethane	EPA 8260B	< 10	ug/L	RJS	9/11/00
Acetone	EPA 8260B	< 5	ug/L	RJS	9/11/00
Carbon disulfide	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Methylene chloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Methyl tertiary Butyl Ether	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
trans-1,2-Dichloroethene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Acrylonitrile	EPA 8260B	< 20	ug/L	RJS	9/11/00
1,1-Dichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Vinyl acetate	EPA 8260B	< 20	ug/L	RJS	9/11/00
cis-1,2-Dichloroethene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
2,2-Dichloropropane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
2-Butanone (MEK)	EPA 8260B	< 10	ug/L	RJS	9/11/00
Bromochloromethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Chloroform	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Tetrahydrofuran	EPA 8260B	< 10	ug/L	RJS	9/11/00
1,1,1-Trichloroethane	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Carbon tetrachloride	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,1-Dichloropropene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00

ANALYTICAL REPORT

Project Name: SAPCC
Project No.: 090264

Work Order No.: 0009-03218

Sample Desc.: SAPCC.01 Duplicate

Sample Nos: 004

Test Performed

Benzene

1,2-Dichloroethane

Trichloroethene (TCE)

1,2-Dichloropropane

Dibromomethane

Bromodichloromethane

2-Chloroethyl vinyl ether

cis-1,3-Dichloropropene

4-Methyl-2-pentanone (MIBK)

Toluene

trans-1,3-Dichloropropene

1,1,2-Trichloroethane

Tetrachloroethene (PCE)

1,3-Dichloropropane

2-Hexanone

Dibromochloromethane

1,2-Dibromoethane (EDB)

Chlorobenzene

1,1,1,2-Tetrachloroethane

Ethylbenzene

Xylenes-m,p

o-Xylene

Styrene

Bromoform

Isopropylbenzene

Bromobenzene

1,2,3-Trichloropropane

1,1,2,2-Tetrachloroethane

trans-1,4-Dichloro-2-butene

n-Propylbenzene

2-Chlorotoluene (ortho)

4-Chlorotoluene (para)

1,3,5-Trimethylbenzene

tert-Butylbenzene

1,2,4-Trimethylbenzene

sec-Butylbenzene

1,3-Dichlorobenzene (meta)

1,4-Dichlorobenzene (para)

p-Isopropyltoluene

1,2-Dichlorobenzene (ortho)

Method

EPA 8260B

Results

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 20

< 1.0

< 10

< 1.0

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< 2.0

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< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 20

< 1.0

Units

ug/L

Sample Date: 8/30/00

Collection Time: 0:00

Analyst

RJS

Analysis Date

9/11/00

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ANALYTICAL REPORT

Project Name: SAPCC
Project No.: 090264

Work Order No.: 0009-03218

Sample Desc.: SAPCC.01 Duplicate

Sample Date: 8/30/00

Sample Nos: 004

Collection Time: 0:00

Test Performed	Method	Results	Units	Analyst	Analysis Date
n-Butylbenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
1,2-Dibromo-3-chloropropane	EPA 8260B	< 2.0	ug/L	RJS	9/11/00
1,2,4-Trichlorobenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Hexachlorobutadiene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Naphthalene	EPA 8260B	< 2.0	ug/L	RJS	9/11/00
1,2,3-Trichlorobenzene	EPA 8260B	< 1.0	ug/L	RJS	9/11/00
Surrogate:					
***Dibromofluoromethane		103	% Recovery	RJS	9/11/00
***Toluene-d8		57	% Recovery	RJS	9/11/00
***Bromofluorobenzene		97	% Recovery	RJS	9/11/00

VOC note: A matrix quenching effect was detected on surrogate Toluene-d8 for most samples.

Authorized by: David Lemoff

HOFFER CONSULTING INC
CONSULTING HYDROGEOLOGISTS

297 South Main Street
Barre, Vermont 05641
(802) 476 - 2002
fax (802) 476 - 2525
geohoff@AOL.com

FAX TRANSMITTAL

To: Steve Brackett
Fax : 603-355-2969
From: Jeff
Date: 9-7-00

4

Total Pages including cover: _____

Hard Copy to Follow in Mail? yes no

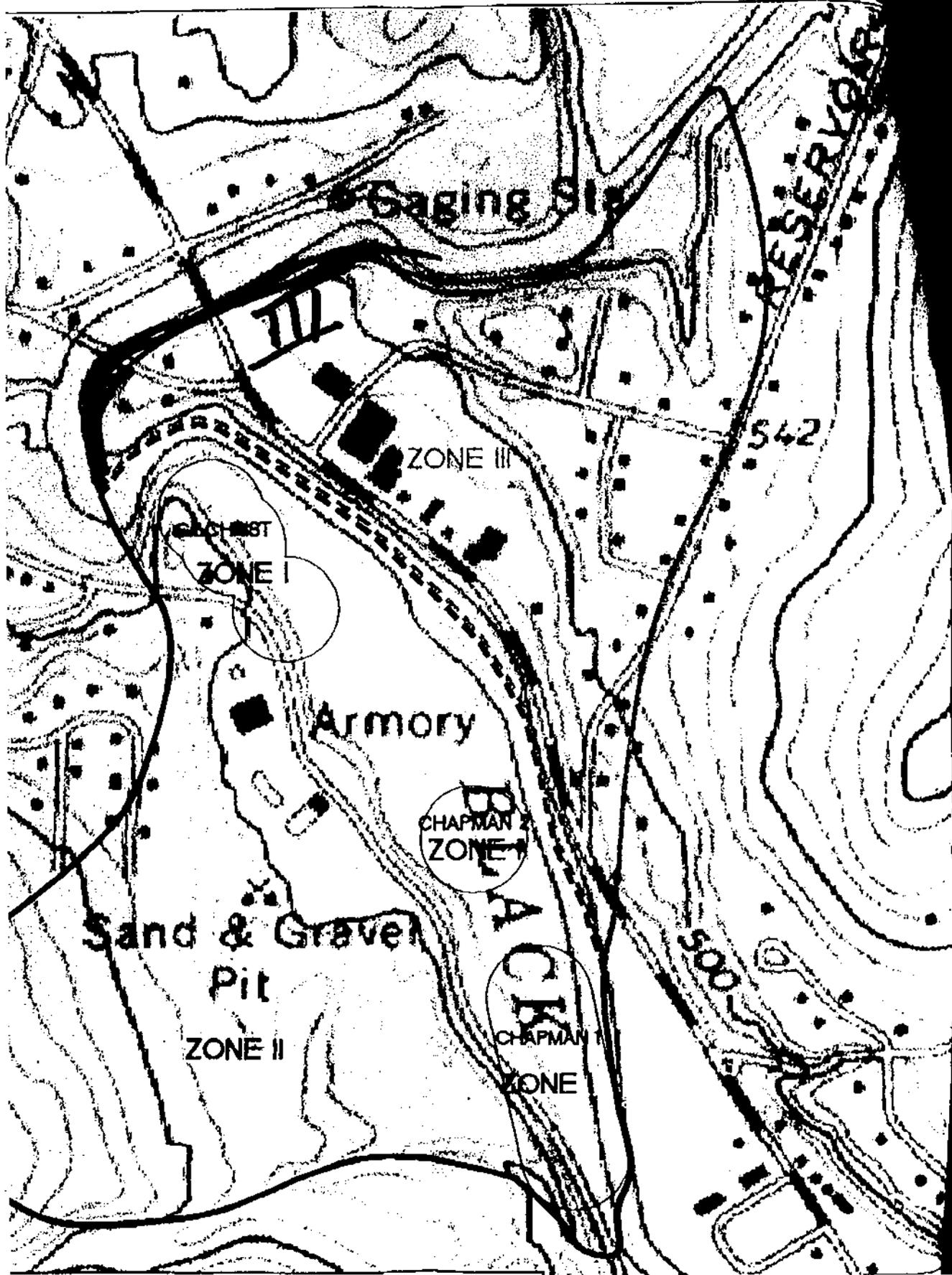
Steve,

Your site is in ZONE 3 of the SPA,

.....

-Jeff

GROUNDWATER & ENVIRONMENTAL SERVICES



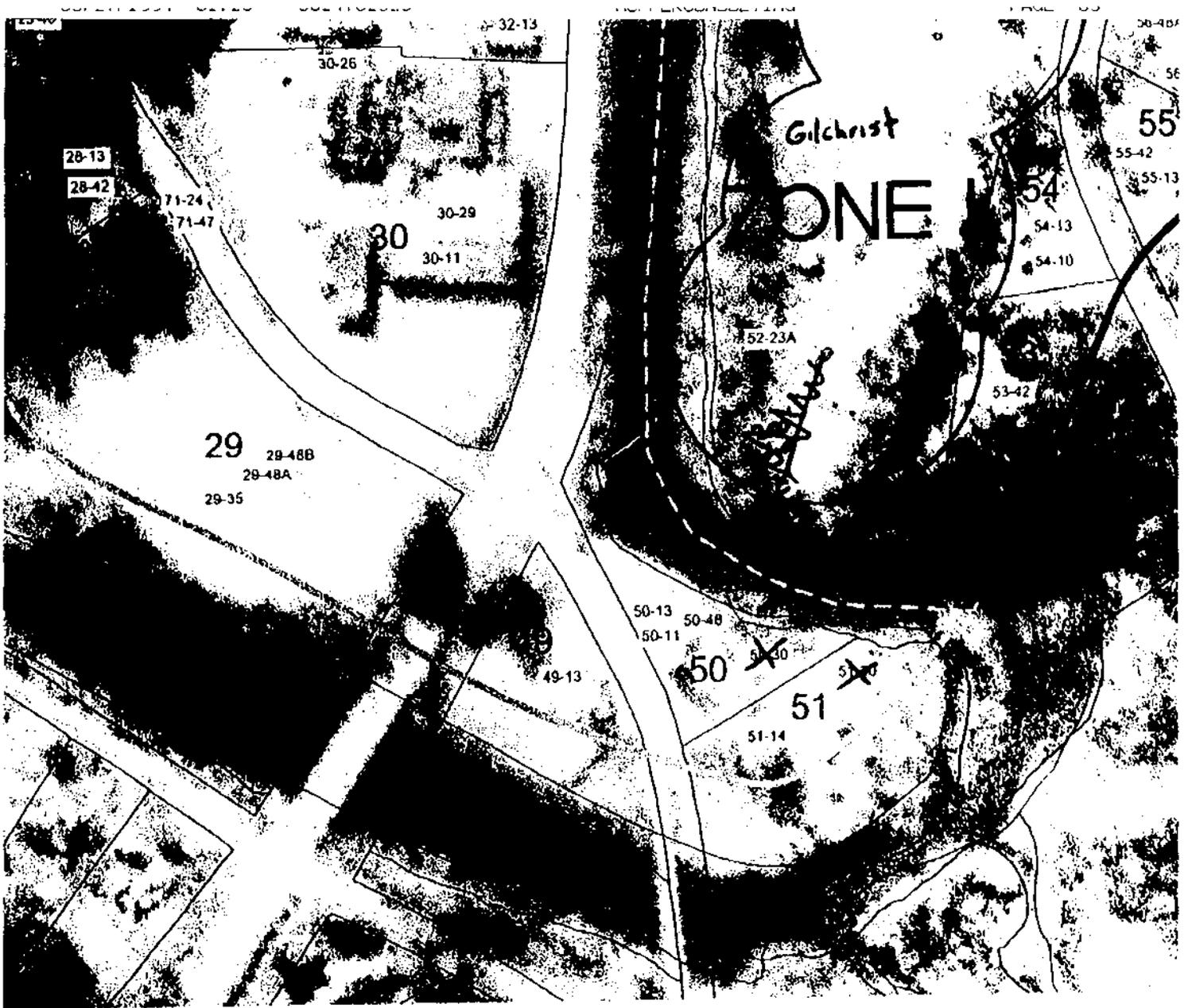
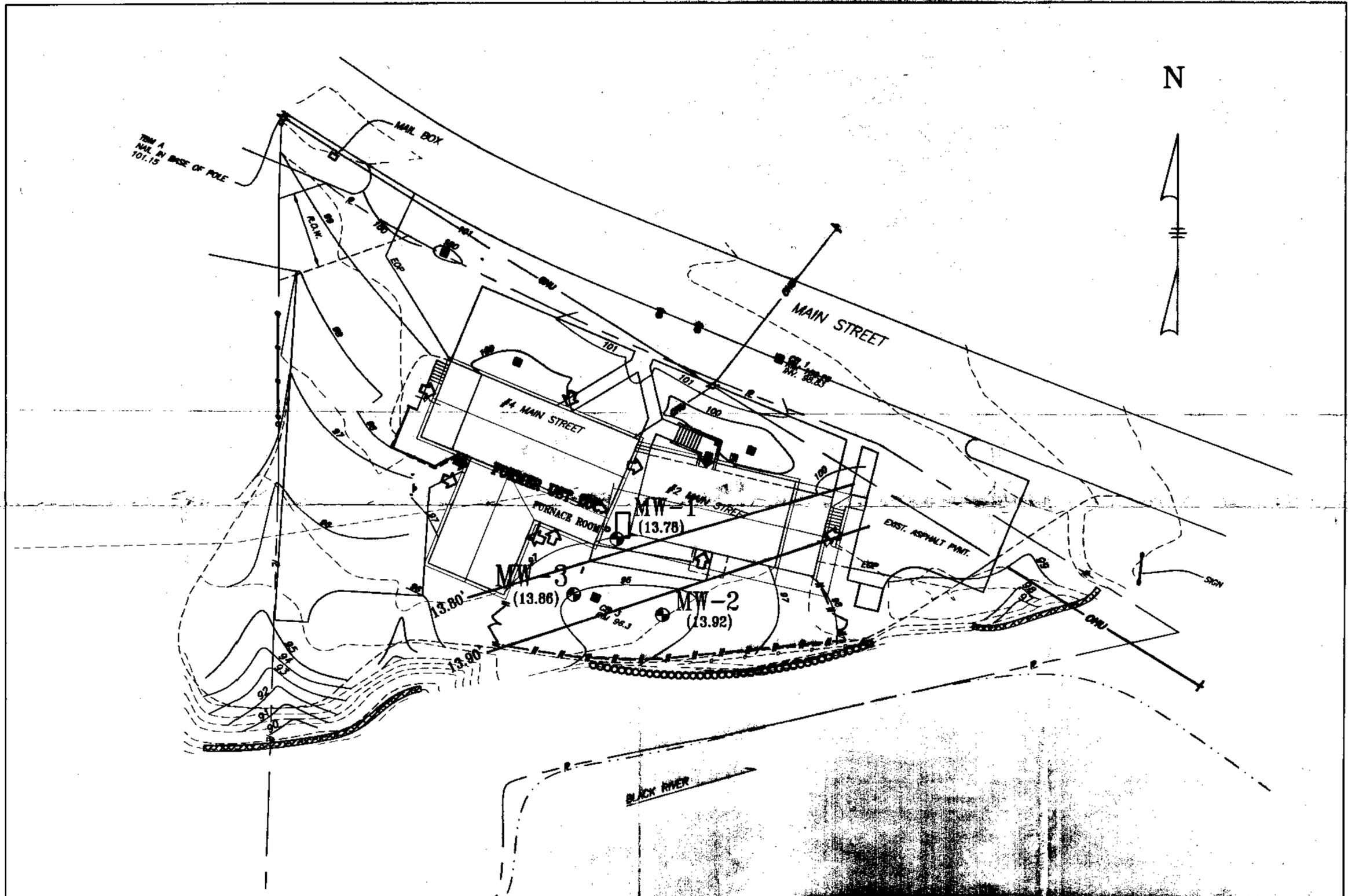


FIGURE
 ORTHOPHOTO PLAN OF POTENTIAL
 SCALE: 1" = 200' *Bar scale.*

Table 2

Potential Sources of Contamination

Activity ID#	Land Uses/PSOC Activities	Unique Contam. ID#	Unique Contaminant Address	Local Uses/PSOC's by Zone						Risk Evaluation of Land Uses/PSOC's			Attachments Provided
				Zone 1		Zone 2		Zone 3		High	Med	Low	Yes
				YES	NO	YES	NO	YES	NO				
		49-13	3 Main Street					X					
		50-13	2 & 4 Main Street					X				X	
		54-13	233 Fairground Road					X				X	
		55-13	236 Fairground Road			X						X	
		57-13A	216 Fairground Road			X						X	
		57-13B	216 Fairground Road			X				X			X
		57-13C	216 Fairground Road			X				X			X
		60-13	2 Edgewood Drive			X				X			X
		62-13	6 Edgewood Drive			X						X	
		63-13	8 Edgewood Drive			X						X	
		66-13	7 Edgewood Drive			X						X	
14		-Above Ground										X	
			35-14	429 River Road					X				
		36-14	421 River Road					X		X			
15	-Below Ground	51-14	6 Main Street					X			X		
		21-15	24 Piper Road								X		
		23-15	22 Piper Road					X		X			
		31-15	19 Piper Road					X		X			
		39-15	6 Reservoir Road					X		X			
		56-15	224 Fairground Road					X		X			
		66-15	400 River Road			X				X		X	
16	Fuel/Heating Oil Spills				X			X		X			
		30-16	449-453 River Road			X					X	X	



SITE PLAN
 PREPARED FOR
SPRINGFIELD AREA PARENT CHILD CENTER
 2 MAIN STREET
 NORTH SPRINGFIELD, VERMONT

Brackett Geosciences © 2000

28 Mechanic St., Keene, NH 03431 Phone (603) 355-3824 Fax (603) 355-2909

DATE PLAN:
 9/16/00
 DATE SURVEY:
 DRAWN BY:
 SLB
 CHECKED BY:
 SLB
 SCALE:
 1:20
 PROJ. NO.
 CAD FILE NO.