

Heindel and Noyes

P.O. Box 64709 Burlington, Vermont 05406-4709

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820

802-860-1014

DEC 7 10 04 AM '98

Dec. 5, 1998

Bob Butler
Sites Management Section
Agency of Natural Resources
103 South Main St.
Waterbury, Vt. 05671-0404

98-2350

Re: Caledonia County Airport

Dear Bob,

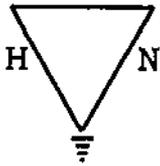
Enclosed please find a copy of our Site Assessment for the Caledonia County Airport. This report is being provided to you at the request of our client, Michael Morrissette of the Agency of Transportation.

Please feel free to call if you have any questions or concerns.

Sincerely,

Jeffrey Noyes
Chief Hydrogeologist

cc: Michael Morrissette



Heindel and Noyes

P.O. Box 64709 Burlington, Vermont 05406-4709

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820

Fax 802-860-1014

**AGENCY OF TRANSPORTATION
Caledonia County Airport
Lyndon, Vermont**

**SITE ASSESSMENT REPORT
October 1998**

Prepared for:

Prepared by:

Heindel and Noyes



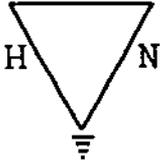
November 25, 1998

**AGENCY OF TRANSPORTATION
Caledonia County Airport
Lyndon, Vermont**

**SITE ASSESSMENT REPORT
October 1998**

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1
2.0 SITE DESCRIPTION AND HISTORICAL USE	2
2.1 Site Location and Physiography	2
2.2 Existing Environmental Threats	2
2.3 Site History	2
3.0 METHODS OF INVESTIGATION	2
3.1 Monitoring Well Installation	2
3.2 Soil Screening and Sampling	3
3.3 Groundwater Sampling	3
4.0 INVESTIGATION RESULTS	3
4.1 Site Stratigraphy and Hydrogeology	3
4.2 Contaminant Distribution	4
5.0 SENSITIVE RECEPTOR SURVEY	4
6.0 CONCLUSIONS	5



Heindel and Noyes

P.O. Box 64709 Burlington, Vermont 05406-4709

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820

Fax 802-860-1014

AGENCY OF TRANSPORTATION Caledonia County Airport Lyndon, Vermont

SITE ASSESSMENT REPORT October 1998

1.0 INTRODUCTION

In 1983 a 3000 gallon underground storage tank (UST) used for aviation gasoline at the airport was removed and replaced by a 5000 gallon UST. The 3000 gallon tank was leaking prior to removal and its continued use was not an option.

On February 13, 1998, the 5000 gallon replacement UST was removed by North Country Environmental Services (NCES). The tank was reported to be in good condition with moderate pitting and no holes. The distribution lines were also in good condition and showed no signs of leakage. NCES concluded at the time of the pull that any petroleum contamination at the site was due to the leaking 3000 gallon tank removed in 1983. All fuel storage is currently at an above ground facility.

In a letter dated May 8, 1998 to Mike Morissette from the Sites Management Section (SMS), a request was made to further define the degree and extent of contamination of the soil and groundwater at this site. A request for proposal was submitted to Heindel and Noyes on July 20, 1998 and the site work was performed October 15th and 16th, 1998. Four monitoring wells were installed, a soil sample was taken from the old tank location and the four monitoring wells were sampled for water quality. This report provides an overview of the site history, geology and summarizes the results of the water and soil sampling.

2.0 SITE DESCRIPTION AND HISTORICAL USE

2.1 Site Location and Physiography

Caledonia County Airport is located in Lyndon, Vermont on Pudding Hill west of town highway 14 (Appendix 1, Page 1). It sits on an elevated plateau north of the confluence of Miller Run to the west and the West Branch of the Passumpsic River to the east (Appendix 1, Page 2). The site geology is characterized by shallow cut and fill construction overlying poorly sorted glacial till (Appendix 1, Pages 3&4).

2.2 Existing Environmental Threats

The airport is surrounded by rural farmland. While many times farms have their own fuel storage facilities, there are no documented problem storage tanks in the vicinity of the airport.

2.3 Site History

The airport property was purchased in the mid 1960's and was opened for service in 1968. Prior to State ownership, the site was open farmland. From 1968 to 1983, aviation gasoline consisted of a product called 8087. This was a leaded gasoline with an octane rating between 80 and 87. At the time the UST was removed in 1983, a fuel change was made to a higher octane unleaded product. Most, if not all of the contamination at this site is the 8087. The USTs sited in this report are the only tanks that were ever located on the airport property.

3.0 METHODS OF INVESTIGATION

The objective of the subsurface investigation was to determine the degree and extent of aviation gas contamination associated with the leaking UST removed in 1983. The investigation included soil screening, monitoring well installation, sampling and laboratory characterization of soil and groundwater contamination. Each activity is detailed below.

3.1 Monitoring Well Installation

Four monitoring wells were installed to determine water quality and the extent of the contaminant plume. The wells were placed using a hollow stem auger and soil samples were taken every five feet by split spoon in MW-1 (upgradient), MW-2 and MW-3

(downgradient). Monitoring well, MW-4, was placed in the old tank site and was sampled continuously from 5 to 15 feet in depth. A ground water contour map is included in Appendix 2, Page 1 and the boring logs can be found in Appendix 3, pages 1 to 4.

3.2 Soil Screening and Sampling

All soil samples were screened with a Photoionization Detector (PID). The results of these tests can be found in Appendix 3, page 5. The only well showing significant levels of contamination with the PID was MW-4. Soil from upgradient and downgradient wells was background (0.2ppm) or slightly above. One soil sample from a depth of 9-11 feet in MW-4 was tested by EPA Method 8015 for Total Petroleum Hydrocarbons. The results indicate the contaminant is gasoline with an estimated contamination level of 115mg/kg of soil. The test result is located in Appendix 4, Page 1.

3.3 Groundwater Sampling

Five groundwater samples were collected and analyzed by EPA Method 8260; one sample from each of the four monitoring wells installed and a fifth sample from an existing monitoring well on the site identified as MW-A in this study. This well was present at the time NCEC pulled the 5000-gallon UST. The individual test results can be found in Appendix 4, Pages 2-6 and a table of results is on Page 7.

4.0 INVESTIGATION RESULTS

4.1 Site Stratigraphy and Hydrogeology

The soils encountered at the site can be divided into three horizons. The first consists of a variable thickness of gravelly sand fill. Below this is a layer of loose to medium dense pebbly, silty sand, which is present to a depth of approximately 8.5 feet at MW-1 and appears to thicken to the south. The bottom of this layer was not encountered in the other borings. The third soil type encountered is a dense till containing pebbles and stone fragments. This soil was only encountered in MW-1.

The groundwater contour map (Appendix 2, page 1) indicates a southerly flow direction with a horizontal gradient of 1.3% (MW-1 to MW-3). The data indicates the gradient is quite uniform across the site. A table of elevations for top of casing and depth to groundwater is on page 2 of Appendix 2.

4.2 Contaminant Distribution

During the soil borings, split-spoon samples were field screened with a PID. The results can be found on the boring logs and are summarized below in a table located on page 5 of Appendix 3. The only significant levels of volatile organic compounds (VOCs) encountered in the soil were found in MW-4 beginning at a depth of 7 feet. This is approximately 1.5 feet above the phreatic surface at this location. The background reading for the PID during the drilling was 0.2 ppm VOCs. Samples from the other borings all tested less than 1.5 ppm VOCs.

Groundwater sample results also indicate that the only detectable contamination is in the immediate vicinity of the old UST location (MW-A and MW-4). A table summarizing the results is located on page 7 of Appendix 4. Levels of Benzene, Ethylbenzene and Toluene exceed the Vermont Enforcement Limits in MW-4 and MW-A. The contaminant distribution is consistent with gasoline.

5.0 SENSITIVE RECEPTOR SURVEY

Topographic and Orthophoto maps of the site (Appendix 1, pages 2 and 5) indicate the nearest receptors in the direction of groundwater movement are a spring and driven well located south of the airport on TH-14. The farm, located on the east side of TH-14, gets drinking water from a spring located approximately 50 feet west of TH-14 across from the house. The house on the west side of TH-14 is newer construction and has a driven well in bedrock. These structures and associated drinking water sources are 1600' and 2000' from the old UST site respectively. The nearest surface water receptor is 2000' away on the east side of TH-14. This is a south flowing stream, which enters the Passumpsic River near its confluence with Miller Run. The downgradient wells on the property are well positioned to give early detection if any contamination migrates in the direction of these receptors.

Upgradient receptors include the drinking water source for the airport and a well and pond located at a farm at the northwest corner of the airport property. The airport well is located approximately 500' upgradient from the old UST site. It is a driven well approximately 200' deep. The well is cased to bedrock which is located approximately 20' below ground surface. The farm is located approximately 1000 feet west, northwest of the old UST site and has a driven well. The pond at the farm was excavated in the last several years.

Based on the location and type of receptors in the vicinity of the contamination, the most critical appears to be the spring located 1600' south of the contamination.

6.0 CONCLUSIONS

- A release of aviation gasoline prior to 1983 is the cause of soil and groundwater contamination at this site.
- There are levels of benzene, ethylbenzene and toluene in excess of the Vermont Enforcement Standards in soil and groundwater in the vicinity of the old UST location.
- A well located approximately 150' downgradient of the contamination source (MW-3) has no detectable contamination.
- It appears that little if any migration of the contamination has occurred since the source was removed in 1983. The plume is likely to be in stasis.
- There is a spring used as a drinking water source located 1600' downgradient from the source of contamination.

USGS Topography Map of Caledonia County Airport - Lyndon, Vermont

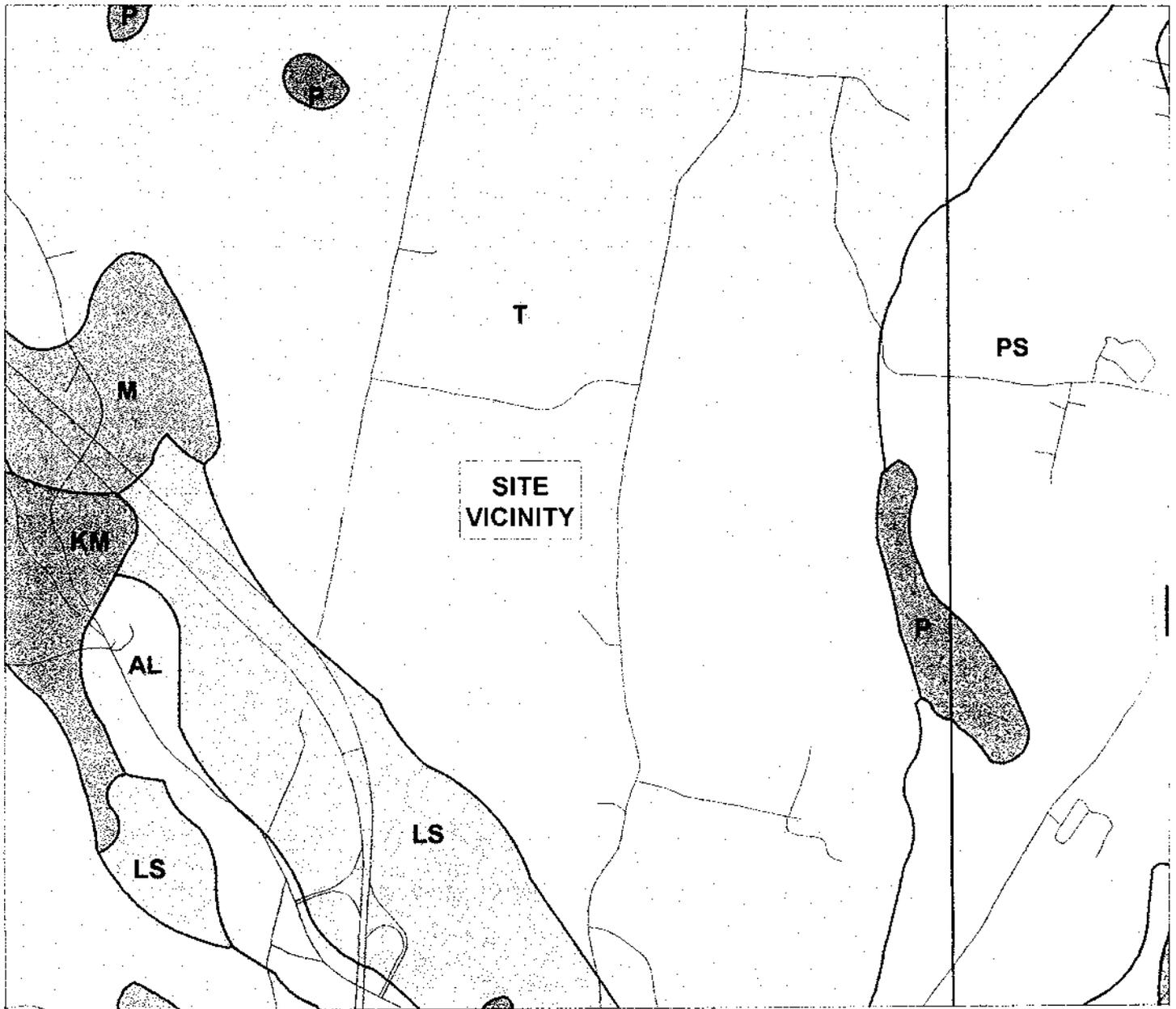


2000 0 2000 Feet

INFORMATION &
VISUALIZATION
SERVICES

P.O. Box 64708 - Burlington, Vermont 05406-4708 - Tel: (802) 885-0477 - Fax: (802) 880-1014

Surficial Geology Map of Caledonia County Airport - Lyndon, Vermont



2000 0 2000 4000 6000 Feet

SURFICIAL LEGEND ON FOLLOWING PAGE



P.O. Box 64759 - Burlington, Vermont - 05405-4759 - Tel: (802) 866-0427 - Fax: (802) 866-1014

Heindel and Noyes



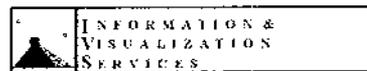
• Hydrogeology • Ecology •
• Environmental Engineering •

CONSULTING SCIENTISTS AND ENGINEERS

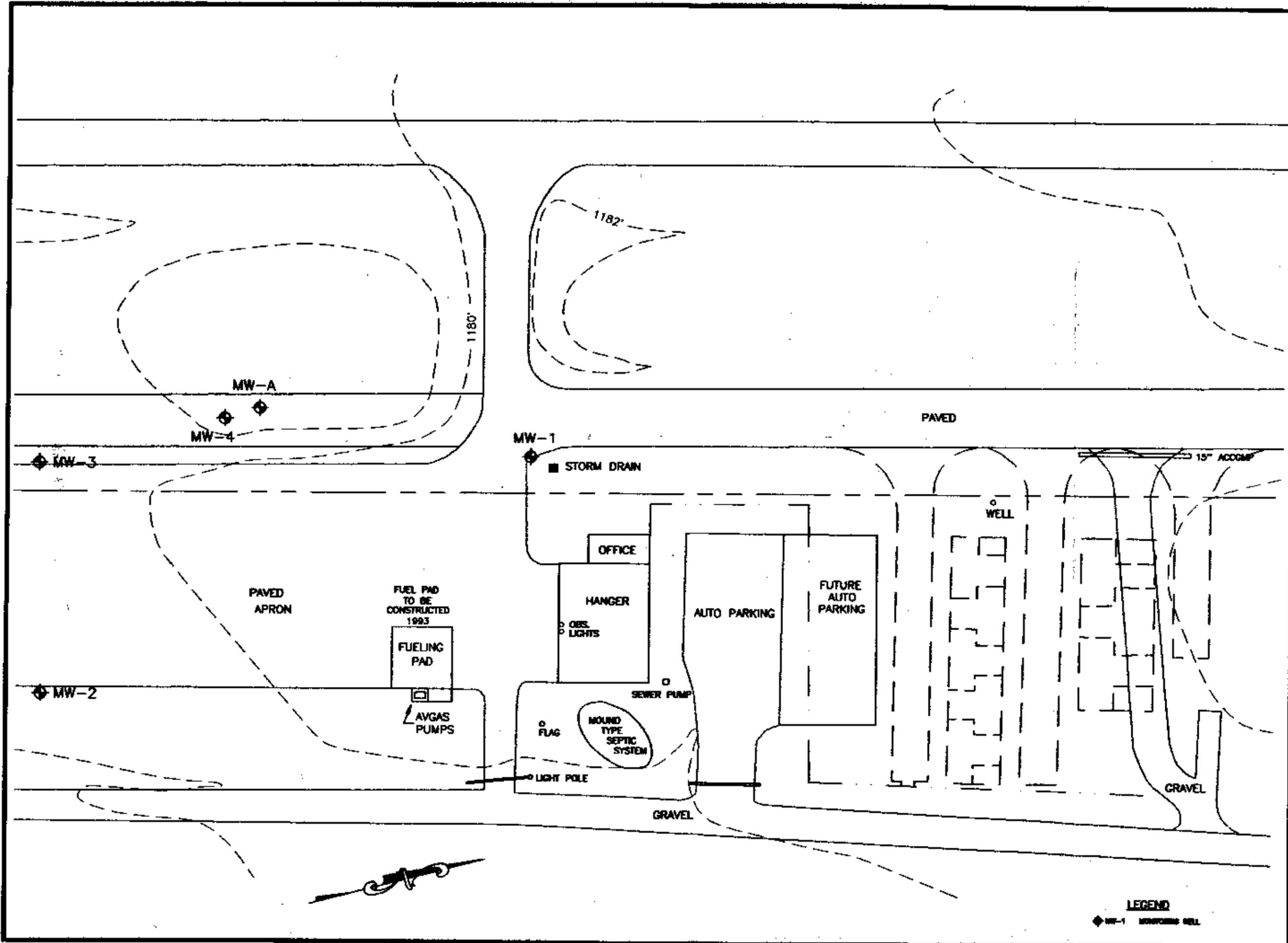
Orthophotography of Caledonia County Airport Lyndon, Vermont



700 0 700 1400 Feet



P.O. Box 64790 - Burlington, Vermont 05404-4790 - Tel: (802) 866-6477 - Fax: (802) 866-1014



CALEDONIA COUNTY AIRPORT

LYNDON, VERMONT

SITE PLAN

SCALE: 1"=60' FILE: C:\CALEDONIA\AIRPT

DATE: NOVEMBER 25, 1998

PROJECT NO. 98151

DRAWN BY: D. Smith

PROJ. MGR: A. McBean

APPROVED: J. Noyes

DRAFT FINAL

Heindel and Noyes

- Hydrogeology • Ecology •
- Environmental Engineering •
- CONSULTING SCIENTISTS AND ENGINEERS

P.O. BOX 84709
BURLINGTON, VERMONT 05408-4709

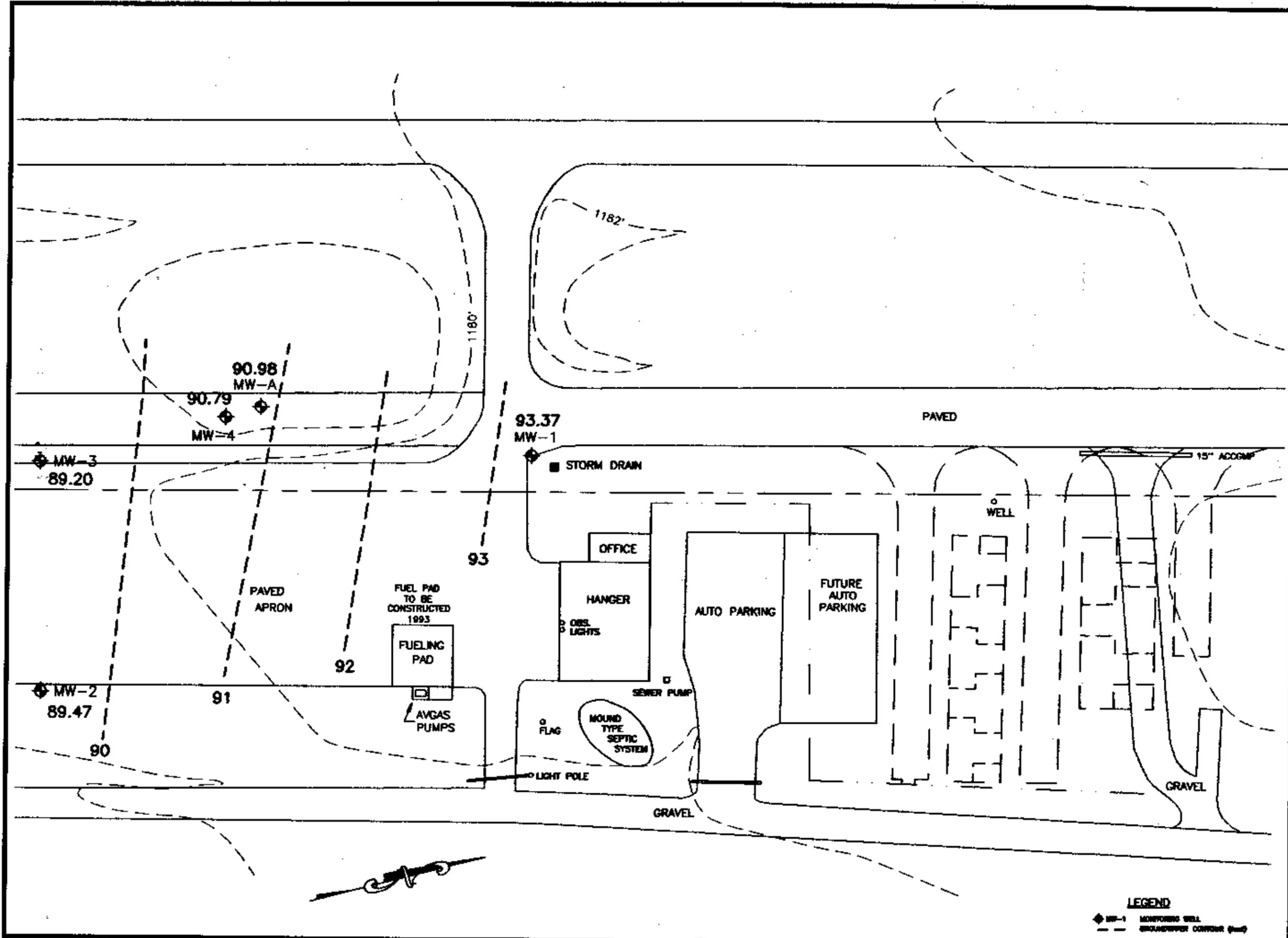
Prepared By:
Information & Visualization Services

TABLE 1
WATER TABLE ELEVATIONS
October 19, 1998
 Agency of Transportation: Caledonia Airport
 Lyndon, Vermont

Monitoring Well	Top of Casing (TOC) Elevation (ft)	Depth to Groundwater (ft btc)	Water Table Elevation (ft)
MW-A	102.14	11.16	90.98
MW-1	100.93	7.56	93.37
MW-2	96.58	7.11	89.47
MW-3	96.41	7.21	89.20
MW-4	99.30	8.51	90.79

Notes:

- TOC = Top of casing
- btc = below top of casing



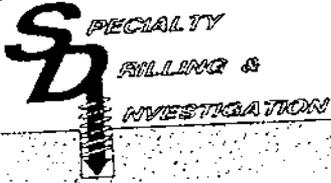
LEGEND
 ◆ MW-1 MONITORING WELL
 --- GROUNDWATER CONTOUR (ft)

Heindel and Noyes
 • Hydrogeology • Ecology •
 • Environmental Engineering •
 CONSULTING SCIENTISTS AND ENGINEERS
 P.O. BOX 84709
 BURLINGTON, VERMONT 05402-4709
 Prepared By:
 Information & Visualization Services

DATE: NOVEMBER 25, 1998
 PROJECT NO. 98151
 DRAWN BY: J. Smith
 PROJ. MGR: A. McBean
 APPROVED: J. Noyes
 DRAFT FINAL

CALEDONIA COUNTY AIRPORT
 LYNDON, VERMONT
 GROUNDWATER CONTOUR MAP - 10/19/97
 SCALE: 1"=60'
 FILE: C:\CALEDONIA\AIRPT

SOIL BORING LOG



P.O. Box 64709, Burlington, Vermont
05406-4709
Tel: 802-658-0820
Fax: 802-860-1014

Project Name: AOT Caledonia Airport
Project Location: Lyndon, VT
Boring Number: 1
Sheet 1 of 1
SDI Project Number: _____

Boring Location: MW-1 (upgradient) Date Started: 10/15/98 Rig Hours Meter Start: 237.5 9:15
Foreman: Chris Aldrich Date Completed: 10/15/98 Rig Hours Meter End: 239.0 11:00
H&N Staff: Chris Aldrich and Don Barton

Casing Sampler
Size: _____ Type: Split Spoon Other: _____
Hammer: 140 Pounds Hammer: _____
Fall: 30 Inches Fall: _____

Sample				Sample Description	Groundwater Readings	Depth	Casing	Stabil.
No.	Rec.	Depth	Blows		Date			
1	24"	5-7'	1,2,3,3	Olive gray silty fine sand, brown sand, lens at 6', pebbles, moist.	Till	0.3	2" PVC	Set to 15' BG
2	20"	10-12'	8,14,15, 20	Dense gray till with pebbles and rock fragments	Saturated	0.4	10' .020 screen	Sand pack 15-3.5'
							Bentonite chips	3.5 - 2.5
							Native fill to 6" of G.S.	
							Flush mount	
				Materials used 2 5' screens .020 1 5' riser 1 male plug; 1 locking gripper 6 bags sand ½ bag bentonite chips flush mount				

Proportions Used
Trace: 0 to 10%
Little: 10 to 20%
Some: 20 to 35%
And: 35 to 50%

Penetration Resistance
140 lb. wt falling 30" on 2" O.D. Sampler

<u>Cohesive Density</u>	0-4 Very Loose	<u>Cohesive Consistency</u>	0-2 Very Soft
5-9 Loose	3-4 Soft	5-8 M/Stiff	
10-29 Med. Dense	9-15 Stiff	16-30 Very Stiff	
30-49 Dense	31+ Hard		
50+ Very Dense			

Well Construction Legend

Concrete:	Bentonite:
Grout	Silica Sand
Backfill:	Bedrock

SOIL BORING LOG

	P.O. Box 64709, Burlington, Vermont 05406-4709 Tel: 802-658-0820 Fax: 802-860-1014	Project Name: AOT Caledonia Airport Project Location: Lyndon, VT Boring Number: 2 Sheet 1 of 1 SDI Project Number: _____
---	---	--

Boring Location: MW-2 (downgradient) Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Dori Barton	Date Started: 10/15/98 Date Completed: 10/15/98	Rig Hours Meter Start: 239.2 11:15 Rig Hours Meter End: 240.3 12:20
--	--	--

Casing Size: _____ Type: Split Spoon Other: _____ Sampler: _____ Hammer: 140 Pounds _____ Fall: 30 inches _____	Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____
--	---

Sample				Sample Description	Strata Change & General Description	Field Testing PID	Equipment or Well Installed
No.	Rec.	Depth	Blows				
1	24"	5-7'	2,3,4,4	Olive green sand, till with pebbles	Damp	0.9	Set 2" PVC to 13' BGS
2	24"	10-12'	5,10,11, 16	As above	Saturated	0.2	10' .020 screen Sand pack 13' to 2'
							Bentonite chips 2'-1' 6" Native fill
							Flush mount
				Materials used 2 5' screens .020 1 5' riser 1 male plug; 1 locking gripper 6 bags sand 1/2 bag bentonite chips flush mount			

<u>Proportions Used</u> Trace: 0 to 10% Little: 10 to 20% Some: 20 to 35% And: 35 to 50%	<u>Penetration Resistance</u> 140 lb. wt falling 30" on 2" O.D. Sampler <u>Cohesive Density</u> 0-4 Very Loose 5-9 Loose 10-29 Med. Dense 30-49 Dense 50+ Very Dense	<u>Cohesive Consistency</u> 0-2 Very Soft 3-4 Soft 5-8 M/Stiff 9-15 Stiff 16-30 Very Stiff 31+ Hard	<u>Well Construction Legend</u> Concrete: _____ Grout _____ Backfill: _____ Bentonite: _____ Silica Sand _____ Bedrock _____
--	---	---	--

SOIL BORING LOG

	P.O. Box 64709, Burlington, Vermont 05406-4709 Tel: 802-658-0820 Fax: 802-860-1014	Project Name: AOT Caledonia Airport Project Location: Lyndon, VT Boring Number: 3 Sheet 1 of 1 SDI Project Number: _____			
Boring Location: MW-3 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Dori Barton		Date Started: 10/15/98 Date Completed: 10/15/98			
Rig Hours Meter Start: 240.3 1:35 Rig Hours Meter End: 241.6 2:50					
Casing: _____ Type: Split Spoon Other: _____ Hammer: 140 Pounds Fall: 30 Inches Sampler: _____ Hammer: _____ Fall: _____		Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____			
Sample		Sample Description	Strata Change & General Description	Field Testing PID	Equipment or Well Installed
No.	Rec.	Depth	Blows		
1	20"	5-7'	2,3,4,4	Olive gray sandy pebbly till	Damp 1.5 Set 2" PVC to 12.3' BGS
2	17"	10-12'	4,5,21, 26	As above	Saturated 0.2 10' .020 screen Sand 12.3' to 1.3'
					Bentonite chips 1.3-0.5 Native fill Flush mount
				Materials used 2 5' screens .020 1 5' riser 1 male plug; 1 locking gripper 6 bags sand 1/2 bag bentonite chips flush mount	
Proportions Used Trace: 0 to 10% Little: 10 to 20% Some: 20 to 35% And: 35 to 50%		Penetration Resistance 140 lb. wt falling 30" on 2" O.D. Sampler Cohesive Density 0-4 Very Loose 5-9 Loose 10-29 Med. Dense 30-49 Dense 50+ Very Dense		Well Construction Legend Concrete: _____ Grout: _____ Backfill: _____ Bentonite: _____ Silica Sand: _____ Bedrock: _____	
				Cohesive Consistency 0-2 Very Soft 3-4 Soft 5-8 M/Stiff 9-15 Stiff 16-30 Very Stiff 31+ Hard	

Soil Screening Data
Agency of Transportation: Caledonia Airport
Lyndon, Vermont

Soil Boring	Depth (ft bgs)	Composite PID (ppm)
MW-1	5-7	0.3
	10-12	0.4
MW-2	5-7	0.9
	10-12	0.2
MW-3	5-7	1.5
	10-12	0.2
MW-4	5-7	0.4
	7-9	63
	9-11	68
	11-13	93
	13-14.5	50
	14.5-15	6

note: bgs = below ground surface

10/27/98

Department of Environmental Conservation Laboratory
Method 8015 - Total Petroleum Hydrocarbons: Solids

GJD

Lab Id: 37043
Location: MW-4 9-11

Report To: WAGNER HEINDEL NOYES
Phone: 658-0820
Program: 61

Date Collected: 10/14/1998
Chain of Custody? Yes

Notes:

Date Analyzed: 10/21/1998 Over hold? No Dilution: 1
Sample wt.: 10.3 g

Date extracted: 10/19/98
Percent moisture: 34.1

Parameter	Units are mg/kg dw PQL	Result	Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
Total Petroleum Hydrocarbons	70	N.D.		35	Y	90

Notes: Fuel tentatively identified as gasoline. S8015 is not the appropriate method for quantitation of gasoline. Rough quantitation estimate is 115 mg/kg.

RECEIVED
OCT 29 1998

Wagner, Heindel and Noyes, Inc.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

10/21/98

Department of Environmental Conservation Laboratory
Method 8260 - Volatile Organics in Water

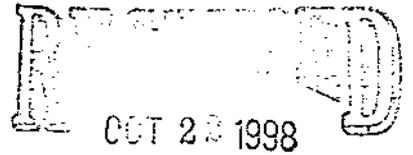
GJD

Lab Id: 37044 Report To: WAGNER HEINDEL NOYES Phone: 658-0820 Date Collected: 10/16/1998
Location: MW-A Program: 61 Chain of Custody? Yes

Notes: AOT/CALEDONIA AORPORT

Date Analyzed: 10/19/1998 Over hold? No Dilution: 200

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Vinyl chloride	1000	N.D.				
Chloromethane	1000	N.D.				
Bromomethane	1000	N.D.				
Chloroethane	1000	N.D.				
Trichlorofluoromethane	1000	N.D.				
Acetone	10000	N.D.				
1,1-Dichloroethene	1000	N.D.				
Carbon disulfide	1000	N.D.				
Methylene chloride	200	N.D.				
Methyl-t-butylether (MTBE)	200	N.D.				
trans-1,2-Dichloroethene	1000	N.D.				
1,1-Dichloroethane	1000	N.D.				
Vinyl acetate	2000	N.D.				
2-Butanone	10000	N.D.				
cis-1,2-Dichloroethene	1000	N.D.				
Chloroform	200	N.D.				
1,1,1-Trichloroethane	1000	N.D.				
Carbon tetrachloride	1000	N.D.				
Benzene	200	634				
1,2-Dichloroethane	1000	N.D.				
Trichloroethene	1000	N.D.				
1,2-Dichloropropane	1000	N.D.				
Bromodichloromethane	1000	N.D.				
cis-1,2-Dichloropropene	200	N.D.				
Toluene	200	5880				
trans-1,3-Dichloropropene	200	N.D.				
1,1,2-Trichloroethane	1000	N.D.				
4-Methyl-2-pentanone	10000	N.D.				
2-Hexanone	10000	N.D.				
Tetrachloroethene	200	N.D.				
Dibromochloromethane	1000	N.D.				
Chlorobenzene ^t	200	N.D.				
Ethylbenzene	200	950				
Xylenes	200	2580				
Styrene	1000	N.D.				
Bromoform	1000	N.D.				
1,1,2,2-Tetrachloroethane	1000	N.D.				



Wagner, Heindel and Noyes, Inc.

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

Dibromofluoromethane . 96% D8-Toluene 106% 4-Bromofluorobenzene . 94%

Notes: Hydrocarbons present (butane, pentane, hexane isomers).

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

10/21/98

Department of Environmental Conservation Laboratory
Method 8260 - Volatile Organics in Water

GJD

Lab Id: 37039 Report To: WAGNER HEINDEL NOYES Phone: 658-0820 Date Collected: 10/16/1998
Location: MW-1 Program: 61 Chain of Custody? Yes

Notes: AOT/CALEDONIA AIRPORT, LYNDON VT

Date Analyzed: 10/19/1998 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Vinyl chloride	5	N.D.				
Chloromethane	5	N.D.				
Bromomethane	5	N.D.				
Chloroethane	5	N.D.				
Trichlorofluoromethane	5	N.D.				
Acetone	50	N.D.				
1,1-Dichloroethene	5	N.D.		0	Y	120
Carbon disulfide	5	N.D.				
Methylene chloride	1	N.D.				
Methyl-t-butylether (MTBE)	1	N.D.				
trans-1,2-Dichloroethene	5	N.D.				
1,1-Dichloroethane	5	N.D.				
Vinyl acetate	10	N.D.				
2-Butanone	50	N.D.				
cis-1,2-Dichloroethene	5	N.D.				
Chloroform	1	N.D.				
1,1,1-Trichloroethane	5	N.D.				
Carbon tetrachloride	5	N.D.				
Benzene	1	N.D.		5	Y	109
1,2-Dichloroethane	5	N.D.				
Trichloroethene	5	N.D.		3	Y	108
1,2-Dichloropropane	5	N.D.				
Bromodichloromethane	5	N.D.				
cis-1,2-Dichloropropene	1	N.D.				
Toluene	1	N.D.		5	Y	106
trans-1,3-Dichloropropene	1	N.D.				
1,1,2-Trichloroethane	5	N.D.				
4-Methyl-2-pentanone	50	N.D.				
2-Hexanone	50	N.D.				
Tetrachloroethene	1	N.D.				
Dibromochloromethane	5	N.D.				
Chlorobenzene ⁱ	1	N.D.		1	Y	110
Ethylbenzene	1	N.D.				
Xylenes	1	N.D.				
Styrene	5	N.D.				
Bromoform	5	N.D.				
1,1,2,2-Tetrachloroethane	5	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

Dibromofluoromethane . 104% DB-Toluene 102% 4-Bromofluorobenzene . 94%

Notes:

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

10/21/98

Department of Environmental Conservation Laboratory
Method 8260 - Volatile Organics in Water

GJD

Lab Id: 37040 Report To: WAGNER HEINDEL NOYES Phone: 658-0820 Date Collected: 10/16/1998
Location: MW-2 Program: 61 Chain of Custody? Yes

Notes: AOT/CALEDONIA AIRPORT, LYNDON VT

Date Analyzed: 10/19/1998 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Vinyl chloride	5	N.D.				
Chloromethane	5	N.D.				
Bromomethane	5	N.D.				
Chloroethane	5	N.D.				
Trichlorofluoromethane	5	N.D.				
Acetone	50	N.D.				
1,1-Dichloroethene	5	N.D.				
Carbon disulfide	5	N.D.				
Methylene chloride	1	N.D.				
Methyl-t-butylether (MTBE)	1	N.D.				
trans-1,2-Dichloroethene	5	N.D.				
1,1-Dichloroethane	5	N.D.				
Vinyl acetate	10	N.D.				
2-Butanone	50	N.D.				
cis-1,2-Dichloroethene	5	N.D.				
Chloroform	1	N.D.				
1,1,1-Trichloroethane	5	N.D.				
Carbon tetrachloride	5	N.D.				
Benzene	1	N.D.				
1,2-Dichloroethane	5	N.D.				
Trichloroethene	5	N.D.				
1,2-Dichloropropane	5	N.D.				
Bromodichloromethane	5	N.D.				
cis-1,2-Dichloropropene	1	N.D.				
Toluene	1	N.D.				
trans-1,3-Dichloropropene	1	N.D.				
1,1,2-Trichloroethane	5	N.D.				
4-Methyl-2-pentanone	50	N.D.				
2-Hexanone	50	N.D.				
Tetrachloroethene	1	N.D.				
Dibromochloromethane	5	N.D.				
Chlorobenzene	1	N.D.				
Ethylbenzene	1	N.D.				
Xylenes	1	N.D.				
Styrene	5	N.D.				
Bromoform	5	N.D.				
1,1,2,2-Tetrachloroethane	5	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

Dibromofluoromethane . 104% D8-Toluene 101% 4-Bromofluorobenzene . 95%

Notes:

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

10/21/98

Department of Environmental Conservation Laboratory
Method 8260 - Volatile Organics in Water

GJD

Lab Id: 37041 Report To: WAGNER HEINDEL NOYES Phone: 658-0820 Date Collected: 10/16/1998
Location: MW-3 Program: 61 Chain of Custody? Yes

Notes: AOT/CALEDONIA AIRPORT, LYNDON VT

Date Analyzed: 10/16/1998 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Vinyl chloride	5	N.D.				
Chloromethane	5	N.D.				
Bromomethane	5	N.D.				
Chloroethane	5	N.D.				
Trichlorofluoromethane	5	N.D.				
Acetone	50	N.D.				
1,1-Dichloroethene	5	N.D.				
Carbon disulfide	5	N.D.				
Methylene chloride	1	N.D.				
Methyl-t-butylether (MTBE)	1	N.D.				
trans-1,2-Dichloroethene	5	N.D.				
1,1-Dichloroethane	5	N.D.				
Vinyl acetate	10	N.D.				
2-Butanone	50	N.D.				
cis-1,2-Dichloroethene	5	N.D.				
Chloroform	1	N.D.				
1,1,1-Trichloroethane	5	N.D.				
Carbon tetrachloride	5	N.D.				
Benzene	1	N.D.				
1,2-Dichloroethane	5	N.D.				
Trichloroethene	5	N.D.				
1,2-Dichloropropane	5	N.D.				
Bromodichloromethane	5	N.D.				
cis-1,2-Dichloropropene	1	N.D.				
Toluene	1	N.D.				
trans-1,3-Dichloropropene	1	N.D.				
1,1,2-Trichloroethane	5	N.D.				
4-Methyl-2-pentanone	50	N.D.				
2-Hexanone	50	N.D.				
Tetrachloroethene	1	N.D.				
Dibromochloromethane	5	N.D.				
Chlorobenzene	1	N.D.				
Ethylbenzene	1	N.D.				
Xylenes	1	N.D.				
Styrene	5	N.D.				
Bromoform	5	N.D.				
1,1,2,2-Tetrachloroethane	5	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

Dibromofluoromethane . 102% D8-Toluene 102% 4-Bromofluorobenzene . 94%

Notes:

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

10/21/98

Department of Environmental Conservation Laboratory
Method 8260 - Volatile Organics in Water

GJD

Lab Id: 37042
Location: MW-4

Report To: WAGNER HEINDEL NOYES
Phone: 658-0820
Program: 61

Date Collected: 10/16/1998
Chain of Custody? Yes

Notes: AOT/CALEDONIA AIRPORT, LYNDON VT

Date Analyzed: 10/19/1998 Over hold? No Dilution: 200

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Vinyl chloride	1000	N.D.				
Chloromethane	1000	N.D.				
Bromomethane	1000	N.D.				
Chloroethane	1000	N.D.				
Trichlorofluoromethane	1000	N.D.				
Acetone	10000	N.D.				
1,1-Dichloroethene	1000	N.D.				
Carbon disulfide	1000	N.D.				
Methylene chloride	200	N.D.				
Methyl-t-butylether (MTBE)	200	N.D.				
trans-1,2-Dichloroethene	1000	N.D.				
1,1-Dichloroethane	1000	N.D.				
Vinyl acetate	2000	N.D.				
2-Butanone	10000	N.D.				
cis-1,2-Dichloroethene	1000	N.D.				
Chloroform	200	N.D.				
1,1,1-Trichloroethane	1000	N.D.				
Carbon tetrachloride	1000	N.D.				
Benzene	200	500				
1,2-Dichloroethane	1000	N.D.				
Trichloroethene	1000	N.D.				
1,2-Dichloropropane	1000	N.D.				
Bromodichloromethane	1000	N.D.				
cis-1,2-Dichloropropene	200	N.D.				
Toluene	200	44200	O			
trans-1,3-Dichloropropene	200	N.D.				
1,1,2-Trichloroethane	1000	N.D.				
4-Methyl-2-pentanone	10000	N.D.				
2-Hexanone	10000	N.D.				
Tetrachloroethene	200	N.D.				
Dibromochloromethane	1000	N.D.				
Chlorobenzene	200	N.D.				
Ethylbenzene	200	1300				
Xylenes	200	3640				
Styrene	1000	N.D.				
Bromoform	1000	N.D.				
1,1,2,2-Tetrachloroethane	1000	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

Dibromofluoromethane . 94% D8-Toluene 105% 4-Bromofluorobenzene . 93%

Notes: Hydrocarbons present (butane, pentane, hexane isomers).

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

GROUND WATER QUALITY RESULTS
 Agency of Transportation: Caledonia Airport
 Lyndon, Vermont

Parameter	Benzene	Ethyl-Benzene	MTBE	Toluene	Total Xylenes	Total BTEX	Unidentified Peaks
VT Enforcement Standard [1]	5	700	40	1000	10000	none	none
VT Preventive Action Limit [1]	0.5	350	20	500	5000	none	none
VT Health Advisory [2]	1	none	40	none	none	none	none
Federal MCL [2]	5	700	none	1000	10,000	none	none
UNITS	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	none

Sample ID	Date	Method	Benzene	Ethyl-Benzene	MTBE	Toluene	Total Xylenes	Total BTEX	Unidentified Peaks
MW-A	10/19/98	8260	634	950	< 200	5680	2580	10044	none
MW-1	10/19/98	8260	< 1	< 1	< 1	< 1	< 1	< 4	none
MW-2	10/19/98	8260	< 1	< 1	< 1	< 1	< 1	< 4	none
MW-3	10/19/98	8260	< 1	< 1	< 1	< 1	< 1	< 4	none
MW-4	10/19/98	8260	500	1300	< 200	44200	3640	49640	none