



April 14, 1997

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RECEIVED
Vermont Department of Environmental Conservation

Mr. Michael Morrissette
Hazardous Materials & Waste Coordinator
Vermont Agency of Transportation
133 State Street, Administrative Building
Montpelier, Vermont 05633-5001

RE: AOT/Londonderry Site, Londonderry (VDEC #95-1866) - Receptor Survey & Contamination Summary

Dear Mr. Morrissette:

Lincoln Applied Geology, Inc. (LAG) is pleased to present this summary report addressing soil and ground water contamination at the AOT/Londonderry site at the intersection of Routes 11 and 100, Londonderry, Vermont. During road construction activities related to installation of a new bridge over the West River in 1995, petroleum contaminated soils were encountered at the intersection of Routes 11/100, located northwest of the bridge. As a result, approximately 1,000 cubic yards of petroleum contaminated soils were excavated, transported to the Agency of Transportation (AOT) facility in East Jamaica, and covered with poly tarps. Fill soils consisting of sand, gravel, and crushed stone were placed as road bed material in the excavated areas, compacted, and the road paved. Storm sewer and underdrain pipes were also installed beneath the road perimeter to convey ground water away from the roadway.

As a result of the discovery of the petroleum contaminated soils and their eventual excavation and stockpiling off-site, the Vermont Department of Environmental Conservation (VDEC) required that the AOT perform a receptor survey to identify potential sensitive receptors, determine whether they are adversely affected, evaluate the degree and extent of soil and ground water contamination remaining on-site, and prepare a soil stockpile remediation plan. This was accomplished by: conducting a potential sensitive receptor survey of the site and performing water quality sampling of ground water supplies and surface water; installing 6 soil borings and ground water monitor wells with soil screening for contamination; and water quality sampling of the ground water monitor wells. In this regard, LAG has found limited low levels of weathered gasoline in soils and ground water, and limited effects to sensitive receptors. We recommend that another ground water sampling round be conducted as soon as possible during the spring high water season. Also, the shallow well containing contaminated water that serves The Barn Annex should be abandoned and replaced with water currently serving the New England Shoe Barn. After the soil stockpile has thawed in May 1997, it will be evaluated and a remediation plan will be developed and presented.

Enclosed for your use in reviewing this summary report are the following tables, figures, and appendices:

Table 1,	Water Quality Results;
Table 2,	Ground Water Elevation and Product Thickness;
Table 3,	Well Headspace PID Assays;
Figure 1,	General Location Map;
Figure 2,	Detailed Site Map;
Figure 3,	Ground Water Contour Map for February 19, 1997;
Figure 4,	Water Quality Summary Map for December 30, 1996, January 22 and February 19, 1997;
Appendix A,	Historical Photographs of Gasoline Station Properties;
Appendix B,	Water Quality Laboratory Reports for December 1996, January, and February 1997; and
Appendix C,	LAG Detailed Well Logs for MW-1, 2, 3, 4, 5, and 6.

Potential Contaminant Receptor Survey

A potential sensitive receptor survey was conducted on December 30, 1996. As shown on the General Location Map presented as **Figure 1**, the site (AOT/Londonderry) is located on the north side of the West River, northwest of the bridge, at the intersection of Routes 15 and 100 in Londonderry. Potential sensitive receptors identified are shown on the Detailed Site Map presented as **Figure 2**, and include: storm sewer and underdrain pipes (which convey contaminated water to the West River); the West River; soils and ground water; shallow and drilled water supply wells; and indoor air within the buildings. **Figure 2** also shows the roads, buildings, monitoring wells, former gasoline pump islands, and fuel oil tanks. There are five properties located in the vicinity of the new bridge approach and the area where the petroleum contaminated soils were excavated from beneath Routes 11/100. These include three properties owned by Walter Genser: The New England Shoe Barn (NESB), The Outlet Barn (OB), and The Barn Annex (BA); the "Wood Shed" (owned by Ed Brown, also owner of the Mill Tavern Restaurant to the northwest); and, the Town of Londonderry (Town Park) property located southeast and southwest of the BA along the north bank of the West River.

The majority of soils identified during roadway and bridge construction as being contaminated with gasoline were located beneath Routes 11/100 between the vicinity of the "1' concrete retaining wall" and the West River as shown on **Figure 2**. There are four wells in this area that supply ground water for drinking and plumbing purposes. The NESB is served by a drilled bedrock well (installed prior to 1982) located near the



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southern corner of the NESB building. Well construction details are not known, and the cover to the NESB well could not be removed to obtain depth to ground water data. A shallow well located near the front porch of the OB provides water to the OB building. The well is covered with soil and is not accessible. The BA building is supplied with water from a shallow well located in front of the building. The well is also covered with soil and is not accessible. During road work on Routes 11/100, a 2" diameter polyethylene water pipe was installed beneath the roadway between the NESB and BA buildings in order to provide water from the NESB drilled well to the BA building. The pipe has not been connected to the BA plumbing and made operational. A shallow well located northwest of the Wood Shed building provided water to the building in the past, but is currently not operational. The Wood Shed is presently unheated and unoccupied. The well is also covered with soil and is not accessible. The Mill Tavern Restaurant, located west-northwest of the Wood Shed building, has a drilled bedrock well (115 feet deep) on the south side of the building near the entrance.

A storm sewer and underdrain system of pipes are located on the south and north sides of Routes 11/100 as shown on **Figure 2**. The pipes convey surface and ground water to two pipe outlets (labeled storm sewer outlet #1 and #2). Storm sewer outlet #1 discharges water downslope to the West River, and outlet #2 discharges water to a drainage swale. The pipes are a mechanism through which contaminated ground water could be conveyed to the West River.

As part of the sensitive receptor survey Potential Sources of Contamination (PSOCs) were evaluated to determine PSOCs affecting the identified receptors. PSOCs on the five properties include 550 gallon fuel oil underground storage tanks (USTs) on the north sides of the NESB building and the OB building, and a 275 gallon fuel oil above ground storage tank (AST) in the basement of the BA building. The Wood Shed building was not accessible to determine if a petroleum tank is present, and there are no buildings on the Town Park property. The NESB building has an on-site wastewater disposal system located beneath the gravel parking area northwest of the building. The OB building also has an on-site disposal system supposedly located behind (northeast of) the building, and the BA building has an on-site disposal system located on the Town Park property south of the building.

A review of former historical PSOCs on the properties was conducted with discussions with some residents and a review of historical photographs of the area available at the Town Clerk's office. Four historical photographs (presented in **Appendix A**) which were taken in the vicinity of the site show several gasoline stations and pump islands. The present location of the NESB was once occupied by a Texaco service station with gasoline pumps near Routes 11/100. The service station building had two service bays and a separate truck repair garage (now demolished) in the area



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to the northwest shown as "gravel parking area" on **Figure 2**. Two separate gasoline pump islands were also located on the OB property, one in front of the existing building and another in front of the "paved drive" area (demolished store). Another gasoline pump island was located on the Town Park property near a building that is also now demolished. Some residents formerly referred to this area of town as "gasoline alley" because of the number of locations where gasoline could be purchased.

Water quality samples were selectively collected to evaluate the contaminant effects on the potential sensitive receptors. Samples were collected from the NESB sink, OB sink, Mill Tavern kitchen sink, storm sewer outlet #1, storm sewer outlet #2, and West River on December 30, 1996. Since the BA was closed that day, a water quality sample was collected from the BA pressure tank spigot on January 22, 1997. Water samples were analyzed via EPA Method 8020 at the LaRosa Laboratory for the volatile organic compounds (VOCs) BTEX and MTBE, and also Total Volatile Hydrocarbons (TVH). The results are summarized and presented in **Table 1**, and the laboratory reports are included as **Appendix B**.

Review of **Table 1** indicates that no detectable levels of BTEX, MTBE, and TVH were present in the NESB drilled well, the OB shallow well, the Mill Tavern Restaurant drilled well, and storm sewer outlet #2. However, contaminant impacts were noted in water from storm sewer outlet #1 which contained 10 parts per billion (ppb) toluene, 3 ppb ethylbenzene, 17 ppb xylenes, and 99 ppb TVH. These low levels of contaminants are attributed to gasoline contaminated ground water infiltrating to the underdrain and storm sewer pipes adjacent to the roadway. The water sample from the BA shallow well was also contaminated as shown by the presence of 60 ppb ethylbenzene, 122 ppb xylenes, and 1,680 ppb TVH. These moderate levels of gasoline related contaminants indicate that the contaminant plume is present beneath the BA building, and perhaps further downgradient (to the south) on Town Park property. This shallow well provides the BA building with water for washing and flushing purposes (the water is not used for drinking due to the "gas smell"). Due to potential health related risks associated with the dissolved VOCs in the water, use of the BA shallow well as a water source should be discontinued. The 2" pipe previously installed from the NESB building in order to convey water from the NESB drilled well should be connected to the BA plumbing and made operational. Prior to its use the BA plumbing should be thoroughly flushed and disinfected. Only then can the BA building be provided with a clean source of ground water.



As part of the receptor survey, the indoor air in the buildings was assayed for gasoline contaminants using a PID. PID assays of indoor air in the first floor and basement areas of the NESB, OB, BA, and Mill Tavern Restaurant buildings were all non-detect (at background). As mentioned before, the Wood Shed building was inaccessible and unoccupied, so the indoor air could not be assayed.

The water quality survey indicates that only the shallow ground water system is impacted by gasoline contaminants in the vicinity of Routes 11/100 (underdrain piping and storm sewer), and immediately downgradient (BA shallow well). Since the water from storm sewer outlet #1 contains low levels of contaminants, and this water cascades downslope into the West River, the West River is also a contaminant receptor of very low contaminant levels (which are instantly diluted by the significant flow volumes of the West River). These low to moderate residual dissolved contaminants describe low to moderate impacts by "old" weathered gasoline. The gasoline is "old" and weathered due to the lack of the gasoline additive MTBE (widely used after the 1980s) and because of the low BTEX levels and greater TVH levels indicating more "heavier" petroleum compounds and less of the "lighter" more volatile petroleum compounds.

Soil Borings and Monitor Well Installation

Six ground water monitor wells (MW-1, 2, 3, 4, 5, and 6) were drilled and installed by the AOT under the direction of LAG on January 22 and 23, 1997. The locations of the wells are shown on **Figure 2**. During drilling, continuous soil samples were collected from a depth of one foot to the bottom of the boring, which ranged from 5.1 feet (MW-5) to 8.5 feet (MW-6). Soil types include: sand and gravel fill (with brick and concrete); gravel with sand and silt; and sand and silt with gravel. All borings encountered auger refusal on bedrock or boulder(s). Soils were screened for the presence of VOCs using a photoionization detector (PID), and then descriptively logged. Two-inch diameter PVC monitor wells were installed in each boring, with screen lengths ranging from 3.0 feet (MW-3 and 4) to 4.85 feet (MW-1 and 2). Details of soil types, soil PID levels, and well construction details are included in the LAG detailed well logs presented as **Appendix C**. Review of **Appendix C** indicates that all soil samples contained no detectable levels of VOCs except for depths of: 3' - 5.7' in MW-3; 1.0' to 5.1' in MW-5; and, 1.0 - 8.5' in MW-6. PID levels ranged from: 0.4 to 0.8 ppm in MW-3; 1.2 to 170 ppm in MW-5; and 0.8 to 260 ppm in MW-6. "Old" gasoline odors were noticeable in MW-5 and MW-6. Both of these wells are located in the vicinity of a former pump island and a 1,000 gallon gasoline UST discovered and excavated during road construction activities.



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Monitoring Data

Depth to bedrock (auger refusal) data collected from the six wells and the Dufresne and Henry, Inc. soils excavation data indicate that a bedrock "high" exists at a depth of 3 to 5 feet below grade along Routes 11/100 between the NESB property and the BA property/Wood Shed property. During road construction some of the bedrock was hydraulically hammered apart and removed prior to placement of the road bed. As shown in **Table 2**, ground water was present in MW-1 and MW-3 on January 23, 1997. On February 19, 1997, only MW-1, 5, and 6 on the north side of Routes 11/100 contained ground water, while wells MW-2, 3, and 4 on the south side of the road were dry. As shown on **Figure 3**, the shallow ground water flow direction in the vicinity of the NESB is from the north to the south-southwest. Although the ground water level data collected to date is limited, shallow ground water flow is probably strongly controlled by: the bedrock surface as it relates to the shallow ground water system; and locations and depths of subsurface utility trenches (storm sewer and underdrain) which may provide preferential ground water flow pathways due to their greater permeability as compared to adjacent undisturbed soils. As a result, ground water contamination is likely present in the upper part of the fractured bedrock beneath Routes 11/100 which has preferentially migrated southeast toward the West River within the storm sewer trench.

A PID was used to screen for the presence of VOCs in the headspace of the six monitor wells. Data collected on January 22 and 23, 1997 showed only background (BG) to very low (0.6 ppm) levels in wells MW-1 to 4. PID levels collected on February 19, 1997 indicated BG levels in MW-1 (upgradient) and MW-4, low levels of 1.2 ppm and 10.2 ppm in MW-2 and MW-3, respectively, and elevated levels of 220 ppm and saturated lamp (SL = >500 ppm) in MW-5 and MW-6, respectively. The PID data has been summarized and is presented as **Table 3**. MW-5 and MW-6 are located beside the former location of a 1,000 gallon gasoline UST and former pump island. As mentioned earlier, soils in these two borings contained "old" gasoline odors and elevated levels of VOCs at 170 and 260 ppm, respectively.

Ground water samples were collected from three (MW-1, 5, and 6) of the six monitoring wells on February 19, 1997. Wells MW-2, 3, and 4 were dry. Prior to sampling, each well was properly purged and allowed to recover. Water samples were collected by bailer and transferred to 40 ml VOA sample vials containing HCl preservative, chilled on ice, and delivered to the LaRosa Laboratory for analysis. Water quality data is summarized and presented in **Table 1**, and laboratory reports are included as **Appendix B**.



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Review of **Table 1** indicates that upgradient well MW-1 contained no detectable levels of BTEX and MTBE, and a low level of 168 ppb TVH. Since the NESB septic system is near MW-1, the low level of dissolved TVH may be caused by low levels of volatile wastes disposed in the septic system, petroleum leaked from vehicles in the unpaved gravel parking lot, or "old" petroleum waste from operation of the former truck service garage that was located on this property. Well MW-5 contained only 1 ppb xylenes, and 615 ppb TVH. These levels are also very low and are attributed to residual "old" gasoline contaminants related to leakage or spillage from the former gasoline UST, delivery piping, pumps, or during refueling events. Moderate levels of "old" gasoline contaminants were detected in MW-6. These include 115 ppb benzene, 147 ppb toluene, 230 ppb ethylbenzene, 3,450 ppb xylenes, and 97,100 ppb TVH. When MW-6 was installed a petroleum "sheen" was present atop water purged from the well. Gasoline contaminants present in soils and ground water associated with the former UST and pump island location (northwest of MW-6) migrated toward the southwest beneath Routes 11/100 into the BA shallow well, and along the more permeable backfill soils surrounding the storm sewer pipe to the southeast. **Figure 4** was prepared from water quality data collected from surface water, bedrock and shallow well ground water, and monitoring well ground water samples collected on December 30, 1996, January 22, 1997, and February 19, 1997. Additional areas of soil and ground water contamination may be associated with the former gasoline pump islands (and USTs?) that existed along Route 11 on the OB property and Town Park property to the south-southeast.

Contaminated Soil Stockpile

On December 30, 1996 a site visit was made to the AOT facility on Route 30 in East Jamaica in order to view the soil stockpile and assess its disposition in preparation for developing an accelerated soil remediation plan. The soil pile measures approximately 80 feet wide by 90 feet long, is up to 6' high, and the sides slope down to grade. The volume of soil is estimated to be 1000 yd³. The pile is covered with a woven poly tarp that is secured in place with small piles of gravel. The soils were fully frozen during the site visit, so PID assays of soils could not be obtained. We propose to evaluate the soil stockpile using an AOT loader or excavator and a PID when the soils are thawed in May. A comprehensive PID evaluation will be conducted and up to four representative soil samples will be collected for BTEX and total petroleum hydrocarbons (TPH) analysis. We will also meet with an AOT representative to discuss the stockpile disposition and available room for reworking the stockpile. The goal is to accelerate soils remediation so that it meets the thinspreading guidelines of the Waste Management Division (WMD).



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Conclusions

Based upon the findings and data presented from the receptor survey and contamination assessment, the following conclusions are presented:

1. Approximately 1,000 yd³ of gasoline contaminated soils from the AOT/Londonderry project were excavated, transported, stockpiled, and covered at the AOT facility in East Jamaica, Vermont.
2. Confirmed gasoline contamination of soils and ground water is related to a former 1,000 gallon UST, delivery piping, and pump island located on the NESB property. Soils may also have been contaminated by former gasoline USTs and pump islands associated with the OB property and the Town Park property further to the south-southeast along Route 11.
3. Existing PSOCs on surrounding properties include inground septic systems, fuel oil USTs (NESB and OB properties), and a fuel oil AST (BA property). These PSOCs do not appear to be related to the identified gasoline contamination of soils and ground water.
4. Potential sensitive receptors of the gasoline contamination include two drilled bedrock wells (NESB and Mill Tavern Restaurant properties), three shallow wells (OB, BA, and Wood Shed properties), the West River, water from the storm sewer and underdrain system (storm sewer outlet #1 and #2), and indoor air in the NESB, OB, BA, and Wood Shed building. All potential ground water receptors contained no detectable levels of BTEX, MTBE, and TVH except for the BA shallow well and storm sewer outlet #1, which contained moderate and low levels, respectively. Indoor air quality assayed by PID in the first floor and basement areas were all at BG. The BA shallow well is not used for drinking but is used for flushing toilets and washing. As such there is the potential for health impacts due to dermal contact.
5. The six installed soil borings and monitor wells describe soil contamination as assayed by PID in MW-3 (3.0' - 5.7'), MW-5 (1.0' - 5.1'), and MW-6 (1.0 - 8.5'). PID levels in soils ranged from very low in MW-3 to elevated in MW-5 and MW-6, and PID levels in well headspaces were low in MW-2 and 3, and elevated in MW-5 and 6. No PID levels above BG were detected in soils from MW-1 and 4.



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6. Six monitoring wells were installed atop bedrock. Soils consist of sand and gravel fill over sand, gravel, and silt overlying bedrock. A bedrock "high" exists along Routes 11/100 between the NESB and BA/Wood Shed properties, with bedrock encountered at a depth of 3 to 5 feet below grade. The bedrock surface "high" likely influences the shallow ground water flow direction, causing flow toward the southeast, and then toward the southwest and the West River.
7. Ground water was only present in MW-1, 5, and 6 in February 1997. Ground water flow is toward the south-southwest on the NESB property. Low to moderate gasoline related contaminants were present in the shallow ground water system from MW-5 and MW-6 at the former location of a gasoline UST and pump island. The presence of low contaminant levels in the BA shallow well to the southwest indicates that a low level contaminant plume is present beneath the BA property and probably the Town Park beyond.
8. Due to fluctuating ground water levels, dissolved gasoline related contaminants are probably present in the upper portion of the fractured bedrock beneath the NESB, BA, and Town Park properties. Since this part of Londonderry is a ground water discharge zone, there is probably very little to no risk of gasoline contamination to drilled bedrock wells in this area.
9. Excavation of the approximately 1,000 yd³ of gasoline contaminated soils has removed the bulk of the original gasoline contaminant source.

Recommendations

1. Evaluate the stockpiled soils by PID using an AOT backhoe or excavator. Collect four representative soil samples for BTEX, MTBE, and TPH analyses. Develop a soil remediation plan for treating the soils so they will meet the WMD thinspreading guidelines. This will be started in May 1997.
2. Mr. Genser, owner of the NESB, OB, and BA properties, should have the contaminated BA shallow well disconnected and then the existing 2" diameter water pipe (recently installed between the NESB building and the BA building) should be connected to the NESB well and made operational. Uncontaminated water from the NESB drilled well can then be provided for drinking, washing, and flushing purposes to the BA



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building after the existing plumbing has been thoroughly flushed and disinfected. This action will eliminate potential health risks associated with dermal contact with the existing contaminated water.

3. As soon as possible during this springs high water table period (April/May) conduct a second complete PID headspace and ground water level monitoring event of the existing six monitor wells. Collect water quality samples from the six monitor wells, the NESB drilled well, the OB shallow well, the BA shallow well (before disconnection), storm sewer outlets #1 and #2, the underdrain outlet beside storm sewer outlet #2 and the West River. Evaluate the data and generate a brief summary report with conclusions and recommendations.
4. Although the evaluation conducted and data collected indicate that the low to moderate level contamination is of limited extent and magnitude, the downgradient extent of the plume as it relates to the former pump islands and the West River should be determined by installing two soil borings and ground water monitor wells on Town Park property (one southwest of the BA and the other south of the BA).

Mr. Genser should be contacted to disconnect the BA shallow well and connect the spare pipe from the NESB drilled well water supply. We await your approval to conduct the second monitoring and sampling event. We will perform the soil stockpile evaluation with AOT after the soils thaw in May 1997. After receipt and review of the soils stockpile data we will generate the accelerated stockpile remediation plan report.

If you have any questions or concerns with regard to this matter, please do not hesitate to call me at 453-4384.

Sincerely,



William D. Norland
Hydrogeologist

WDN/clk
Enclosures

cc: Linda Elliott
Walter Genser

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Revell Drive • Lincoln, Vermont 05443 • (802) 453-4384 • FAX (802) 453-5399

Ground Water Quality Results (ppb)

Data Point	Compound	12/30/96	01/22/97	02/19/97					
New England Shoe Barn Sink	Benzene	<1							
	Toluene	<1							
	Ethylbenzene	<1							
	Xylenes	<1							
	MTBE	<1							
	BTEX	<4							
	BTEX + MTBE	<5							
TVH	<100								
<hr/>									
Outlet Barn Sink	Benzene	<1							
	Toluene	<1							
	Ethylbenzene	<1							
	Xylenes	<1							
	MTBE	<1							
	BTEX	<4							
	BTEX + MTBE	<5							
TVH	<100								
<hr/>									
Storm Sewer at West River Dam Outlet #1	Benzene	<1							
	Toluene	10							
	Ethylbenzene	3							
	Xylenes	17							
	MTBE	<1							
	BTEX	31							
	BTEX + MTBE	32							
TVH	99								
<hr/>									
Storm Sewer at Route 11 Outlet #2	Benzene	<1							
	Toluene	<1							
	Ethylbenzene	<1							
	Xylenes	<1							
	MTBE	<1							
	BTEX	<4							
	BTEX + MTBE	<5							
TVH	<100								
<hr/>									
West River	Benzene	<1							
	Toluene	<1							
	Ethylbenzene	<1							
	Xylenes	<1							
	MTBE	<1							
	BTEX	<4							
	BTEX + MTBE	<5							
TVH	<100								
<hr/>									
Mill Tavern Kitchen Sink	Benzene	<1							
	Toluene	<1							
	Ethylbenzene	<1							
	Xylenes	<1							
	MTBE	<1							
	BTEX	<4							
	BTEX + MTBE	<5							
TVH	<100								

NOTES:
 MTBE in upper right corner of cell
 BTEX in lower left corner of cell
 TVH = Total Volatile Hydrocarbons
 < - Contaminant not detected at specified detection limit

Ground Water Quality Results (ppb)

Data Point	Compound	12/30/96	01/22/97	02/19/97					
Barn Annex	Benzene		<10						
	Toluene		<10						
	Ethylbenzene		60						
	Xylenes		122						
	MTBE		<10						
	BTEX		202						
MW-1	BTEX + MTBE		212						
	TVH		1,680						
MW-5	Benzene			<1					
	Toluene			<1					
	Ethylbenzene			<1					
	Xylenes			<1					
	MTBE			<1					
	BTEX			<4					
MW-6	BTEX + MTBE			<5					
	TVH			168					
MW-6	Benzene			<5					
	Toluene			<5					
	Ethylbenzene			<5					
	Xylenes			1					
	MTBE			<5					
	BTEX			16					
MW-6	BTEX + MTBE			21					
	TVH			615					
MW-6	Benzene			115					
	Toluene			147					
	Ethylbenzene			230					
	Xylenes			3450					
	MTBE			<100					
	BTEX			3942					
MW-6	BTEX + MTBE			4042					
	TVH			97100					
Trip Blank	Benzene		<1						
	Toluene		<1						
	Ethylbenzene		<1						
	Xylenes		<1						
	MTBE		<1						
	BTEX		<4						
Trip Blank	BTEX + MTBE		<5						
	TVH		<100						

NOTES:
 MTBE in upper right corner of cell
 BTEX in lower left corner of cell
 TVH = Total Volatile Hydrocarbons
 < - Contaminant not detected at specified detection limit

Ground Water Elevation/Product Level (feet)

Data Point	TOC	01/22/97	01/23/97	02/19/97					
MW-1	100.00	93.78	97.87	99.00					
MW-2	92.06	84.11	84.11	84.06					
MW-3	95.02		90.31	90.07					
MW-4	96.05		89.75	89.6					
MW-5	96.42			93.17					
MW-6	96.80			93.30					

Notes:

- 1 - Elevation datum assumed
- 2 - Reference elevation is elevation of top of PVC well casing
- Light Grey Cell = DRY
- Dark Grey Cell = Inaccessible

Project: AOT/Londonderry
Location: Londonderry, Vermont

Table 3
VDEC Site # 95-1866
Sheet 1 of 1

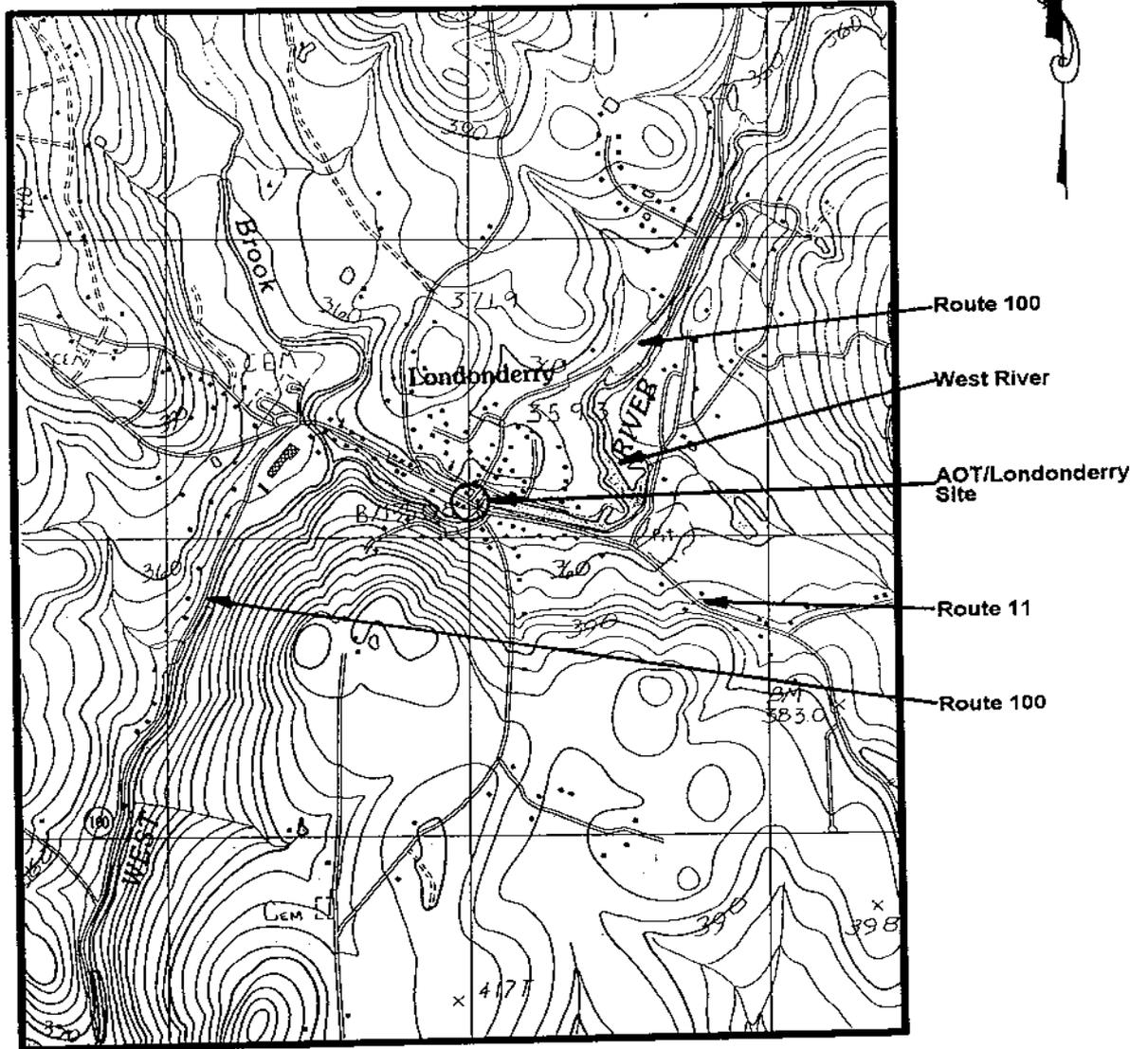
Photoionization Results (PID - ppm)

Data Point	01/22/97	01/23/97	02/19/97					
MW-1	BG	BG	BG					
MW-2	BG	BG	1.2					
MW-3		0.6	10.2					
MW-4		BG	BG					
MW-5			220					
MW-6			SL					

Notes:
BG - Background
SL - Saturated Lamp

Figure 1

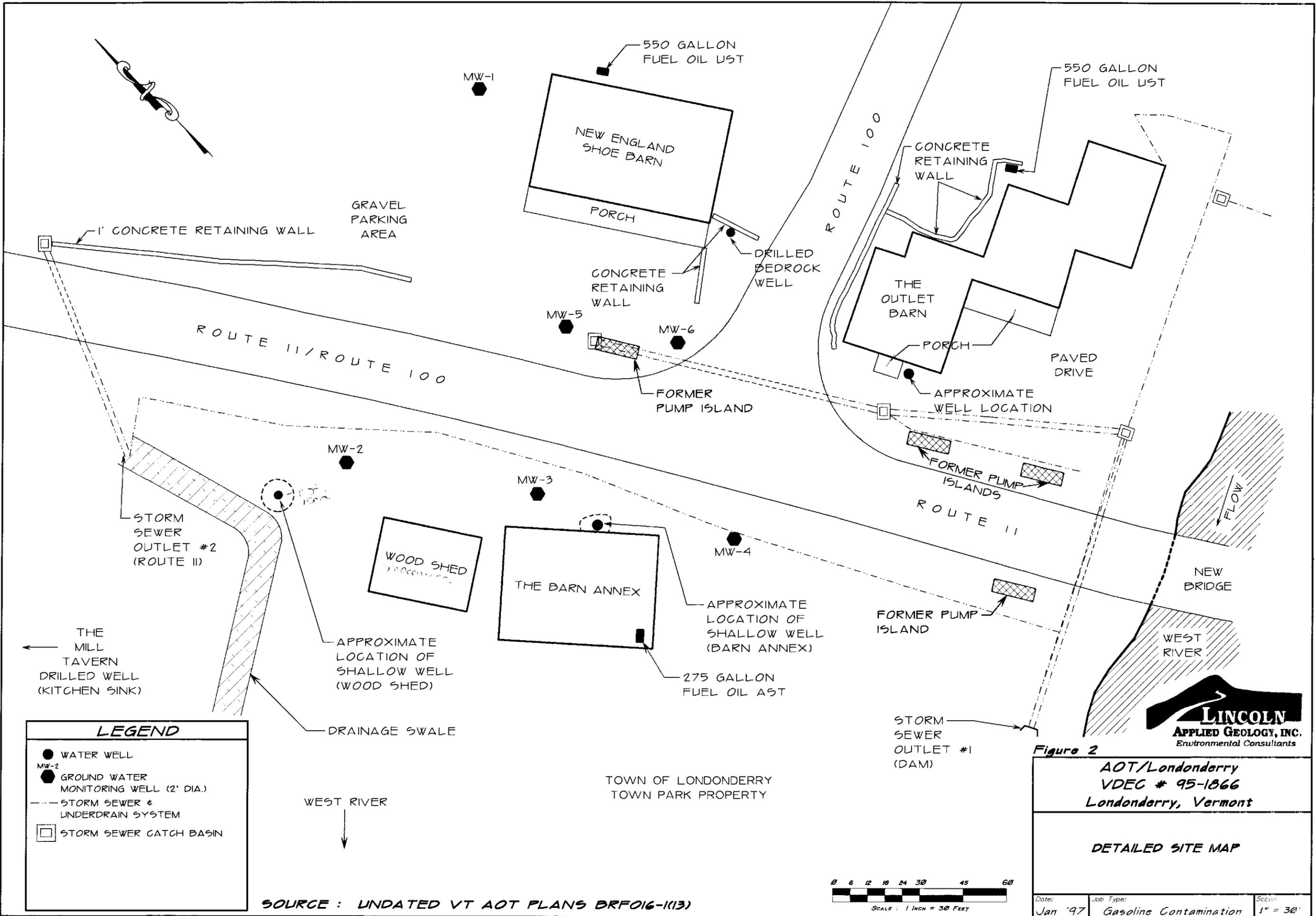
**AOT/Londonderry
Routes 11 and 100
Londonderry, VT (VDEC Site # 95-1866)
GENERAL LOCATION MAP**



Source: USGS. 7.5 Min. x 15 Scale: 1" = 2,000'
Topographic Quadrangle of
Londonderry, VT., Quad. 1986



Quadrangle Location



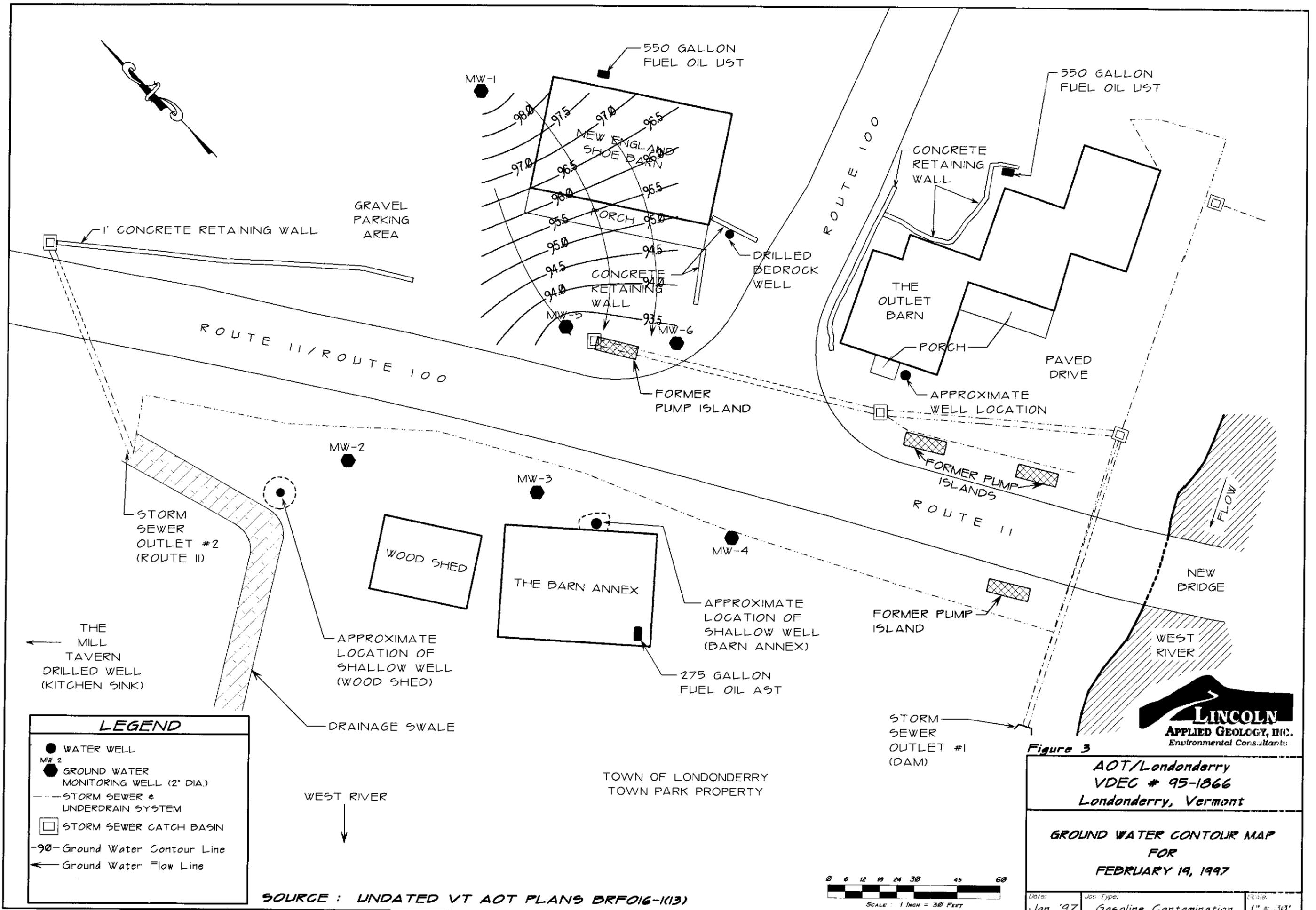


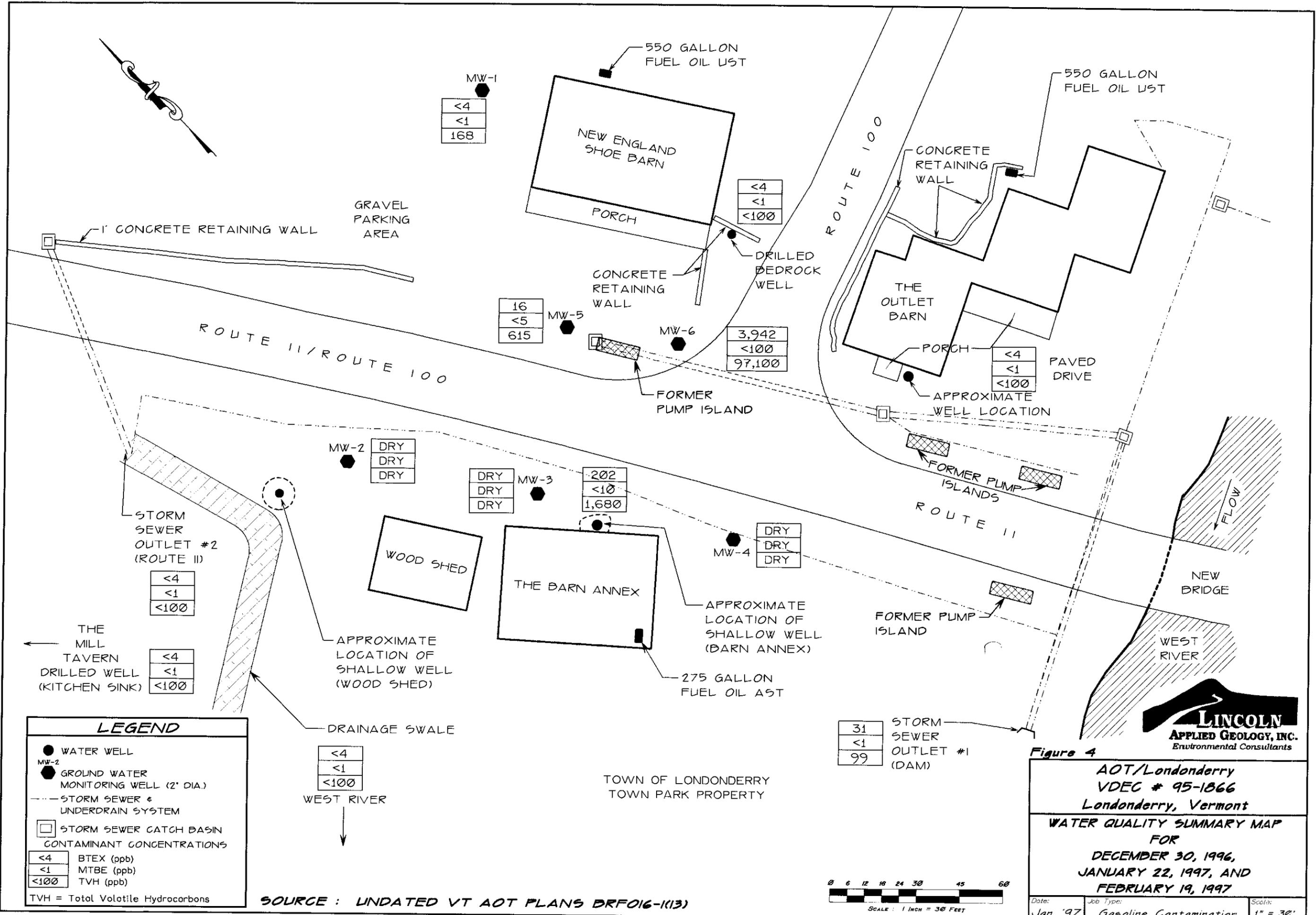
Figure 3

AOT/Londonderry
VDEC # 95-1866
Londonderry, Vermont

GROUND WATER CONTOUR MAP
FOR
FEBRUARY 19, 1997

Date: Jan '97	Job Type: Gasoline Contamination	Scale: 1" = 30'
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E:\CIENTS\STES\VT ANTU\NUM\DR\PLAN\DRF016-1(13) 4/17/97



SOURCE : UNDATED VT AOT PLANS DRFO16-1(13)



Figure 4

AOT/Londonderry
VDEC # 95-1866
Londonderry, Vermont

WATER QUALITY SUMMARY MAP
FOR
DECEMBER 30, 1996,
JANUARY 22, 1997, AND
FEBRUARY 19, 1997

Date: Jan '97 Job Type: Gasoline Contamination Scale: 1" = 30'

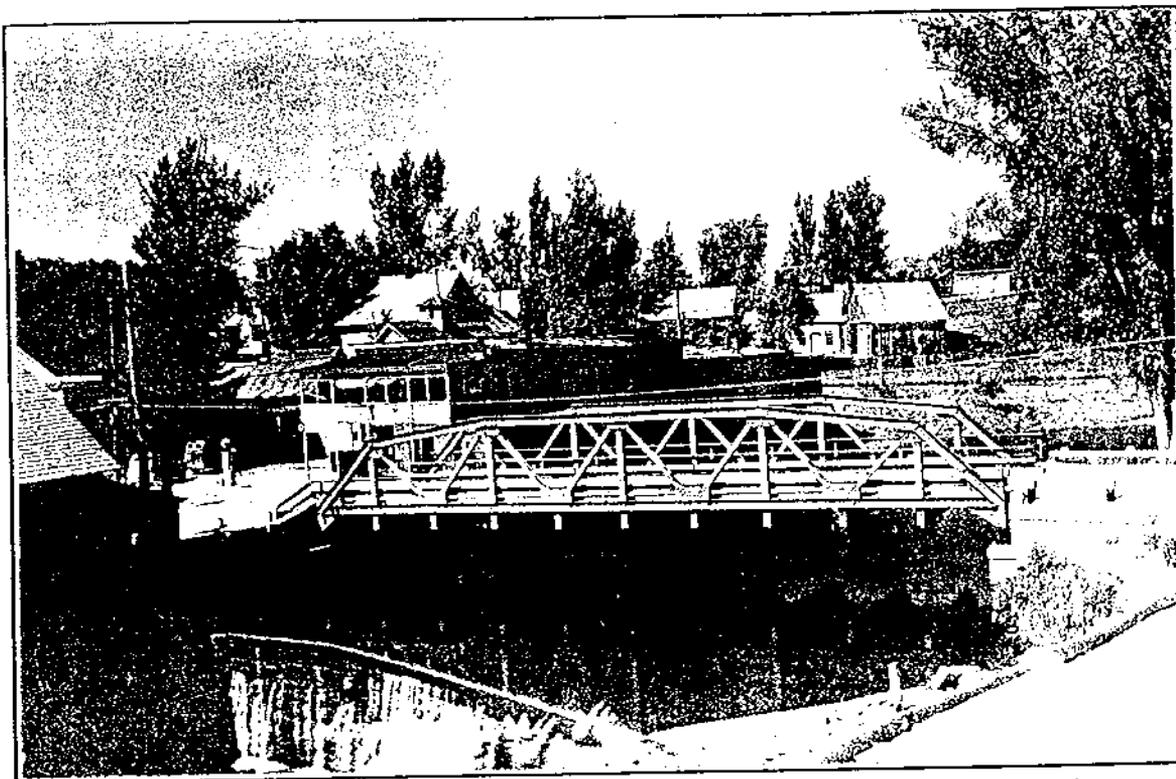


Appendix A

Historical Photographs of Gasoline Stations
on Properties, Routes 11/100, Londonderry

AOT/Londonderry
Londonderry, Vermont
VDEC Site # 95-1866

Lincoln Applied Geology, Inc., Revell Drive, Lincoln, Vermont 05443



Photograph #1

View to north of West River, bridge, and former gasoline station on The Outlet Barn property.



Photograph #2

View to southeast of former Gulf station and gasoline pumps on The Outlet Barn property, bridge, and gasoline pump on the Town of Londonderry property.

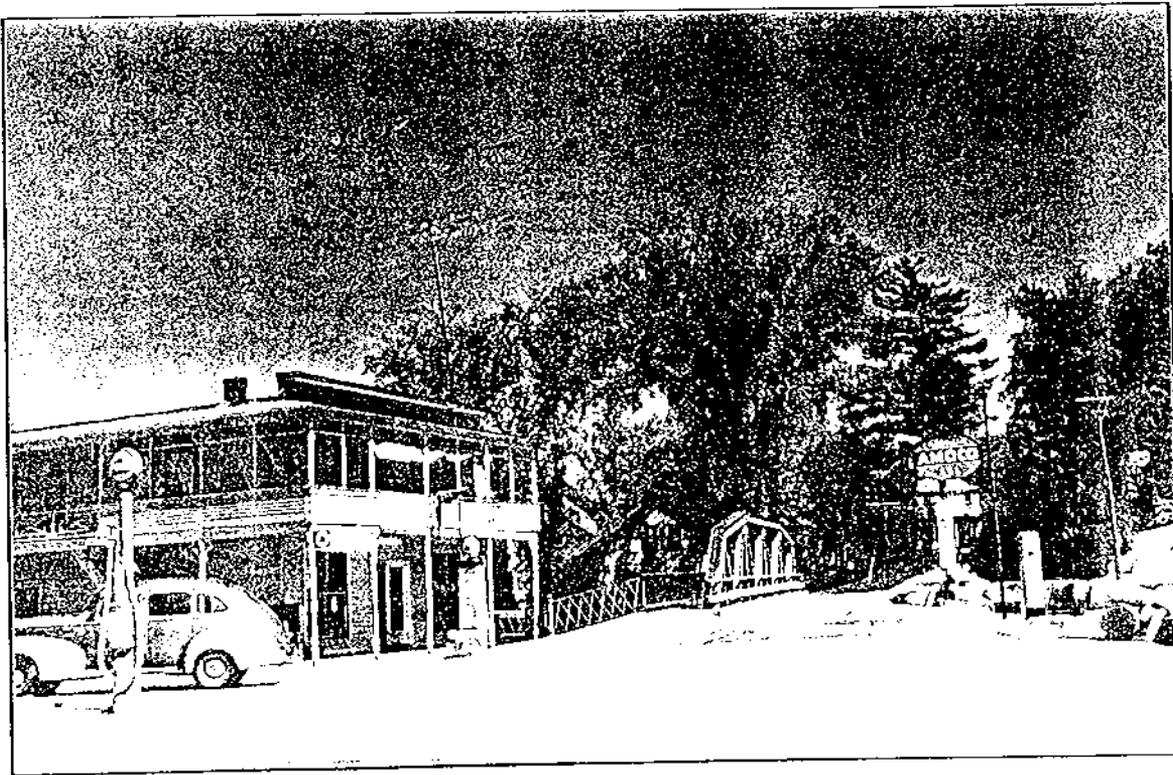
AOT/Londonderry
Londonderry, Vermont
VDEC Site # 95-1866

Lincoln Applied Geology, Inc., Revell Drive, Lincoln, Vermont 05443



Photograph #3

View of north of former Texaco gasoline station and truck repair garage on the New England Shoe Barn property.



Photograph #4

View of southeast of former Gulf station and Mobil gasoline pump on The Outlet Barn property, bridge, and Amoco gasoline pump on the Town of Londonderry property.

Appendix B

Water Quality Laboratory Reports for
December 1996, January, and
February 1997

1/06/97

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 25032 Report To: Bill Norland @ LAG Phone: 453-4384 Date Collected: 12/30/96
Location: Londonderry, Shoe Barn Sink Program: 41 Chain of Custody? Yes

Notes: JAN 14 1997

Date Analyzed: 1/02/97 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

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

α,α,α -Trifluorotoluene 114% 4-Bromofluorobenzene . 106%

Notes: No second column confirmation used.

JAN 14 1997

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

1/06/97

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 25033 Report To: Bill Norland @ LAG Phone: 453-4384 Date Collected: 12/30/96
Location: Londonderry, Outlet Barn Sink Program: 41 Chain of Custody? Yes

Notes:

Date Analyzed: 1/02/97 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

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

α,α,α -Trifluorotoluene 113% 4-Bromofluorobenzene . 103%

Notes: No second column confirmation used.

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

1/06/97

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 25034 Report To: Bill Norland @ LAG Phone: 453-4384 Date Collected: 12/30/96
Location: Londonderry, St. Sewer Eff Dam Program: 41 Chain of Custody? Yes

Notes:

Date Analyzed: 1/02/97 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	10				
Ethylbenzene	1	3				
Total Xylenes	1	17				
Total Volatile Hydrocarbons	100	99	E			

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

α,α,α -Trifluorotoluene 115% 4-Bromofluorobenzene . 105%

Notes: No second column confirmation used.

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

1/06/97

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 25035 Report To: Bill Norland @ LAG Phone: 453-4384 Date Collected: 12/30/96
Location: Londonderry, St. Swr. Rt 11 Program: 41 Chain of Custody? Yes

Notes:

Date Analyzed: 1/02/97 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

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

α,α,α-Trifluorotoluene 113% 4-Bromofluorobenzene . 104%

Notes: No second column confirmation used.

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

1/06/97

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 25036 Report To: Bill Norland @ LAG
Location: Londonderry, West River

Phone: 453-4384
Program: 41

Date Collected: 12/30/96
Chain of Custody? Yes

Notes:

Date Analyzed: 1/02/97 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

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

α,α,α -Trifluorotoluene 114% 4-Bromofluorobenzene . 95%

Notes: No second column confirmation used.

JAN 14 1997

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

1/06/97

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 25037 Report To: Bill Norland @ LAG Phone: 453-4384 Date Collected: 12/30/96
Location: Londonderry, Mill Tavern Sink Program: 41 Chain of Custody? Yes

Notes:

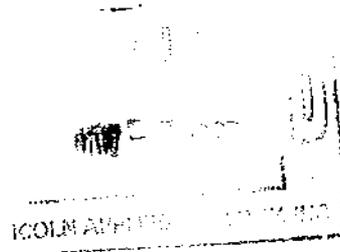
Date Analyzed: 1/02/97 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.		3	Y	104
Toluene	1	N.D.		5	Y	107
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

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

α, α, α -Trifluorotoluene 114% 4-Bromofluorobenzene . 103%

Notes: No second column confirmation used.



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

1/06/97

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 25038 Report To: Bill Norland @ LAG
Location: Londonderry, Trip Blank

Phone: 453-4384
Program: 41

Date Collected: 12/30/96
Chain of Custody? Yes

Notes:

Date Analyzed: 1/02/97 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

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

α,α,α -Trifluorotoluene 117% 4-Bromofluorobenzene . 106%

Notes: No second column confirmation used.

1/10/97

ANALYSIS REPORT

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

2/05/97

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

SRL

Lab Id: 25142 Report To: Bill Norland
Location: AOT, Londonderry, Barn Annex

Phone: 453-4384
Program: 61

Date Collected: 1/22/97
Chain of Custody? No

Notes:

Date Analyzed: 1/27/97 Over hold? No Dilution: 10

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	10	N.D.				
Benzene	10	N.D.				
Toluene	10	N.D.				
Ethylbenzene	10	60				
Total Xylenes	10	122				
Total Volatile Hydrocarbons	1000	1680	E			

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

α,α,α -Trifluorotoluene 119% 4-Bromofluorobenzene . 104%

Notes: No second column confirmation used.

REP C 7 1991

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

2/27/97

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 25239 Report To: Bill Norland@LAG
Location: AOT Londonderry, MW-5

Phone: 453-4384
Program: 61

Date Collected: 2/19/97
Chain of Custody? Yes

Notes:

Date Analyzed: 2/20/97 Over hold? No Dilution: 5

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	5	N.D.				
Benzene	5	N.D.				
Toluene	5	N.D.				
Ethylbenzene	5	N.D.				
Total Xylenes	5	1				
Total Volatile Hydrocarbons	500	615	E			

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

α,α,α -Trifluorotoluene 117% 4-Bromofluorobenzene . 108%

Notes: No second column confirmation used.

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

2/27/97

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 25238 Report To: Bill Norland@LAG
Location: AOT Londonderry, MW-1

Phone: 453-4384
Program: 61

Date Collected: 2/19/97
Chain of Custody? Yes

Notes:

Date Analyzed: 2/20/97 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	186	E			

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

α,α,α -Trifluorotoluene 114% 4-Bromofluorobenzene . 109%

Notes: No second column confirmation used.

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

Appendix C

LAG Detailed Well Logs for
MW-1, 2, 3, 4, 5, and 6

WELL LOG

WELL: MW-1, Near northwest corner of New England Shoe Barn.
LOCATION: New England Shoe Barn property, Routes 11 / 100, Londonderry, Vermont.
DRILLER: AOT, Montpelier, Vermont.
HYDROGEOLOGIST: William Norland, Lincoln Applied Geology, Inc.
DATE: January 22, 1997

Soils Description: (BG = Background [1.4], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0.0 - 1.0'	<u>Gravel and sand fill</u> . Frost at 0.0 - 0.5'.	BG
1.0 - 1.6'	Moist, brown, <u>sand and gravel fill</u> .	BG
1.6 - 2.7'	Moist, olive, <u>silt and fine sand</u> ; little fine to medium gravel.	BG
2.7 - 3.0'	Dry, olive, <u>coarse gravel</u> , (schist); some silt and fine sand.	BG
3.0 - 3.8'	Wet, tan, <u>silt</u> ; some fine to medium gravel, little fine sand.	BG
3.8 - 5.0'	Moist, tan, <u>dense silt</u> ; some fine sand; little fine to medium gravel.	BG
5.0 - 5.9'	Dry, tan, <u>silt</u> ; little fine sand; trace of fine gravel.	BG
5.9 - 6.5'	Dry, tan, <u>silt</u> ; some fine to medium gravel; little fine sand.	BG
6.5 - 7.0'	Dry to moist, tan, <u>silt</u> ; some fine to medium gravel; little fine sand.	BG
7.0 - 7.5'	Dry to moist, tan, <u>medium to coarse gravel</u> ; little silt.	BG
	Auger refusal at 7.5'.	

Well Construction:

Bottom of Boring: 7.5'
Bottom of Well: 6.8'
Well Screen: 4.85' (1.85' - 6.70') of 2" sch. 40 PVC, 0.010" slot
Solid Riser: 1.65' (0.2' - 1.85') of 2" sch. 40 PVC
Sand Pack: 5.3' (1.4' - 6.7')
Bentonite Seal: 0.8' (0.6' - 1.4')
Backfill: None
Well Box: Flush

WELL LOG

WELL: MW-2, Near north corner of old wood shed.
LOCATION: The Mill Tavern property, Routes 11 / 100, Londonderry, Vermont.
DRILLER: AOT, Montpelier, Vermont.
HYDROGEOLOGIST: William Norland, Lincoln Applied Geology, Inc.
DATE: January 22, 1997

Soils Description: (BG = Background [1.4], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0.0' - 1.0'	Sand and gravel <u>fill</u> . Frost to 0.5'	BG
1.0' - 3.0'	Dry, tan, <u>fine to coarse sand, and fine to medium gravel fill</u> ; little silt.	BG
3.0' - 5.0'	Moist, tan, brown, sand and gravel <u>fill</u> ; <u>fine to coarse sand</u> ; some fine to medium gravel; little silt. Red tile @ 3.7'	BG
5.0' - 7.0'	Moist, tan brown, sand and gravel <u>fill</u> ; <u>fine to coarse sand</u> ; some fine to medium gravel; little silt.	BG
7.0' - 8.4'	Wet, brown, <u>fine sand and silt</u> ; little medium sand, medium to coarse gravel. Auger refusal at 8.4'.	BG

Well Construction:

Bottom of Boring: 8.4'
Bottom of Well: 8.4'
Well Screen: 4.85' (3.55' - 8.4') of 2" sch. 40 PVC, 0.010" slot
Solid Riser: 3.35' (0.2' - 3.55') of 2" sch. 40 PVC
Sand Pack: 5.3' (3.1' - 8.4')
Bentonite Seal: 1.2' (0.9' - 2.1')
Backfill: 1.0' (2.1' - 3.1')
Well Box: Flush

WELL LOG

WELL: MW-3, In front of The Barn Annex.
LOCATION: The Barn Annex property, Routes 11 / 100, Londonderry, Vermont.
DRILLER: AOT, Montpelier, Vermont.
HYDROGEOLOGIST: William Norland, Lincoln Applied Geology, Inc.
DATE: January 22 and 23, 1997

Soils Description: (BG = Background [1.4], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0.0' - 0.2'	Asphalt; pavement	BG
0.2' - 1.0'	Sand and gravel <u>fill</u> .	BG
1.0' - 1.8'	Moist, tan, <u>fine to medium sand and silt</u> ; some fine to medium gravel, <u>fill</u> .	BG
1.8' - 3.0'	Very difficult drilling at 2.2' due to boulders and gravel.	BG
3.0' - 5.0'	Wet, brown tan, <u>fine to medium sand and silt</u> ; some fine to coarse gravel, <u>fill</u> .	0.4
5.0' - 5.7'	Wet, brown, <u>fine to medium sand and silt</u> ; some fine to coarse gravel, <u>fill</u> .	0.8
	Auger refusal at 5.7' on bedrock or large boulder.	

Well Construction:

Bottom of Boring: 5.7'
Bottom of Well: 5.5'
Well Screen: 3.0' (2.5' - 5.5') of 2" sch. 40 PVC, 0.010" slot
Solid Riser: 2.0' (0.5' - 2.5') of 2" sch. 40 PVC
Sand Pack: 4.4' (1.1' - 5.5')
Bentonite Seal: 0.7' (0.4' - 1.1')
Backfill: None
Well Box: Flush

WELL LOG

WELL: MW-4, Near the northeast corner of The Barn Annex.
LOCATION: The Barn Annex property, Routes 11 / 100, Londonderry, Vermont.
DRILLER: AOT, Montpelier, Vermont.
HYDROGEOLOGIST: William Norland, Lincoln Applied Geology, Inc.
DATE: January 23, 1997

Soils Description: (BG = Background [0.2], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0.0' - 1.0'	Sand and gravel <u>fill</u> .	BG
1.0' - 3.0'	Moist, brown, <u>fine to medium sand</u> ; some fine to coarse gravel; little silt. <u>Fill</u> .	BG
3.0' - 5.0'	Moist, brown, <u>fine to medium gravel</u> ; some fine to coarse sand; trace coarse gravel. <u>Fill</u> .	BG
5.0' - 7.0'	Moist, brown, <u>fine to medium gravel</u> ; some fine to coarse sand; coarse gravel in the tip. <u>Fill</u> .	BG
7.0' - 7.3'	Moist, brown, <u>fine to medium gravel</u> ; some fine to coarse sand; coarse gravel in the tip.	BG
	Auger refusal at 7.3'.	

Well Construction:

Bottom of Boring: 7.3'
Bottom of Well: 6.5'
Well Screen: 3.0' (4.3' - 7.3') of 2" sch. 40 PVC, 0.010" slot
Solid Riser: 3.5' (0.8' - 4.3') of 2" sch. 40 PVC
Sand Pack: 3.3' (4.0' - 7.3')
Bentonite Seal: 0.8' (3.2' - 4.0')
Backfill: 2.2' (1.0' - 3.2')
Well Box: Flush

WELL LOG

WELL: MW-5, In front of New England Shoe Barn.
LOCATION: New England Shoe Barn property, Routes 11 /100, Londonderry, Vermont.
DRILLER: AOT, Montpelier, Vermont.
HYDROGEOLOGIST: William Norland, Lincoln Applied Geology, Inc.
DATE: January 23, 1997

Soils Description: (BG = Background [0.2], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0.0' - 0.3'	Asphalt.	BG
0.3' - 1.0'	Sand and gravel. <u>Fill</u> .	BG
1.0' - 2.0'	Wet, tan brown, <u>fine sand and silt</u> ; some medium to coarse sand; some fine to coarse gravel, <u>fill</u> .	1.2
2.0' - 3.0'	Dry, tan to grey, <u>sand and gravel</u> . Gasoline odor off the auger.	5.0
3.0' - 3.5'	Dry, black to buff white, concrete, sand and gravel; fine to coarse gravel, fine to coarse sand, <u>fill</u> . Very dense. Old gasoline odor.	170
3.5' - 5.0'	Dry, olive to grey, <u>fine sand</u> ; some fine to medium gravel; little medium to coarse sand, <u>fill</u> .	170
5.0' - 5.1'	Wet, olive to grey, <u>fine to medium sand</u> ; some fine gravel. Old gasoline odor.	5.0
	Auger refusal at 5.1'.	

Well Construction:

Bottom of Boring: 5.1'
Bottom of Well: 5.0'
Well Screen: 3.5' (1.5' - 5.0') of 2" sch. 40 PVC, 0.010" slot
Solid Riser: 1.0' (0.5' - 1.5') of 2" sch 40 PVC
Sand Pack: 3.8' (1.2' - 5.0')
Bentonite Seal: 0.5' (0.7' - 1.2')
Backfill: none
Well Box: Flush

WELL LOG

WELL: MW-6, North of Routes 11 / 100 intersection, in front of The New England Shoe Barn.
LOCATION: New England Shoe Barn property, Routes 11 / 100, Londonderry, Vermont.
DRILLER: AOT, Montpelier, Vermont.
HYDROGEOLOGIST: William Norland, Lincoln Applied Geology, Inc.
DATE: January 23, 1997

Soils Description: (BG = Background [0.2], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0.0' - 0.2'	Asphalt.	BG
0.2' - 1.0'	Sand and gravel fill.	BG
1.0' - 2.5'	Wet, tan brown, <u>fine sand</u> ; some silt, little fine to coarse gravel, <u>fill</u> .	0.8
3.0' - 5.0'	Moist to wet, tan to olive and grey, <u>fine to medium sand</u> ; some fine to medium gravel; little coarse sand and silt, <u>fill</u> .	160
5.0' - 7.0'	Wet, dark grey to grey, <u>fine to medium sand</u> ; some fine to coarse gravel; little silt and coarse sand. Strong gasoline odor.	260
7.0' - 7.8'	Wet, dark grey to grey, <u>fine to medium sand</u> ; some fine to coarse gravel; little silt, and coarse sand. Strong gasoline odor.	220
7.8' - 8.5'	Wet, light grey to olive, <u>fine sand and silt</u> ; little fine gravel, medium sand. Faint gasoline odor.	95

Auger refusal at 8.5' on boulder or bedrock.

Well Construction:

Bottom of Boring: 8.5'
Bottom of Well: 8.2'
Well Screen: 4.8' (3.4' - 8.2') of 2" sch. 40 PVC, 0.010" slot
Solid Riser: 3.2' (0.2' - 3.4') of 2" sch. 40 PVC
Sand Pack: 5.1' (3.1' - 8.2')
Bentonite Seal: 0.5' (2.6' - 3.1')
Backfill: 1.8' (0.8' - 2.6')
Well Box: Flush