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January 3, 2000

Mr. Richard Spiese  
VTDEC Waste Management Division  
103 South Main Street  
West Building  
Waterbury, VT 05671-0404

**RE: Initial Site Investigation Report  
Former Showcase Video, 4<sup>th</sup> and Washington Streets, Fair Haven, VT  
VTDEC Site Nos. 98-2555 and 89-0306**

Dear Mr. Spiese:

Please find enclosed a copy of Griffin's *Initial Site Investigation Report* for the Former Showcase Video property in Fair Haven, VT. This report has been forwarded to you on behalf of Sherman V. Allen, the site owner.

Please call me with any questions or comments.

Sincerely,

Trina L. Cysz  
Environmental Scientist

cc: GI Project 119841492

INITIAL SITE INVESTIGATION OF SUBSURFACE  
PETROLEUM CONTAMINATION

Site Location:

**FORMER SHOWCASE VIDEO  
4<sup>TH</sup> AND WASHINGTON STREETS  
FAIR HAVEN, VERMONT**

VTDEC Site #98-2555, 89-0306  
Griffin Project #39941492

December 9, 1999

*Prepared For:*

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## **I. INTRODUCTION**

This report summarizes the initial investigation of subsurface petroleum contamination at the Former Showcase Video property located at 4<sup>th</sup> and Washington Streets in Fair Haven, VT (see Site Location Map, Appendix A). This investigation was conducted by Griffin International, Inc. (Griffin) for Sherman V. Allen, Inc., (S.V. Allen) the owner of the property. Investigative efforts at the site were conducted due to the detection of subsurface petroleum impacts during the removal of one 8,000-gallon gasoline underground storage tank (UST) on December 7, 1998. This investigation was conducted to define the extent and degree of residual petroleum contamination remaining in the subsurface at the site. The investigation consisted of the following tasks:

1. Regulatory file review;
2. The installation of four groundwater monitoring wells (GMW-1 through GMW-4);
3. Groundwater sample collection from three existing (MW-1 through MW-3) and four newly installed monitoring wells to characterize the degree of groundwater impacts in the former source area;
4. A survey of potential sensitive receptors in the vicinity of the Former Showcase Video property;
5. Preparation of a summary report (this document).

The Vermont Department of Environmental Conservation (VTDEC) requested that this work be completed in a letter to Ms. Cindy Pelkey of S.V. Allen from Mr. Chuck Schwer of the VTDEC, dated February 22, 1999. Work at the site was conducted in accordance with the March 9, 1999 Work Plan and Cost Estimate prepared by Griffin. Approval to proceed with this plan was given in a letter dated March 29, 1999 from Mr. Schwer to Griffin. Approval to proceed with additional groundwater sampling was authorized by Mr. Richard Spiese of the VTDEC on November 11, 1999.

## **II. BACKGROUND**

### **A. Site Description**

The subject property is located at the corner of 4<sup>th</sup> and Washington Streets in Fair Haven, Vermont. The property is located within a residential/commercial-zoned portion of town. The subject site consists of a one-story wooden building situated on a concrete slab foundation. The site building is currently vacant and was most recently occupied by Showcase Video (retail operation). Paved parking and driveway areas and grassy areas occupy the remainder of the site.



Topography on-site slopes gently to the west. Based upon a review of previous environmental reports for the site, groundwater beneath the site has been documented to flow to the west towards an unnamed tributary to the Poultney River, which is located approximately 800 feet south-southwest of the site.

Based on a review of the Thorn Hill, VT-NY USGS Topographic Quadrangle, the subject site is located at approximately 385 feet above sea level and is situated at approximately 43°35'50" North Latitude and 73°16'15" East Longitude (Universal Transverse Mercator coordinates  $4828^{900m}$  N and  $639^{150m}$  E).

Based on a review of previous reports, the subject site and surrounding properties are serviced by municipal water supplied by the Town of Fair Haven. The Town of Fair Haven receives its water from a reservoir located north of Route 4, greater than one mile from the site. The subject site is also serviced by electricity, telephone, sanitary sewer (Town of Fair Haven), and storm sewer (Town of Fair Haven). The site building is heated by fuel oil, which is stored in an aboveground storage tank (AST), located on the northern exterior portion of the building.

The subject site is abutted by the following properties:

- North:** 4<sup>th</sup> Street and Airport Road, across which is a grassy lawn, residence/Paolino's Florals
- East:** residences
- South:** Washington Street, across which are residences
- Southwest:** Washington Street, across which is a grassy area
- West:** Intersection of 4<sup>th</sup> and Washington Streets, across which is a residence

## **B. Background Information**

On December 7, 1998 Griffin inspected the removal and permanent closure of one 8,000-gallon cathodically protected, double-wall, steel gasoline UST. The UST and associated piping was observed to be in excellent condition and had been installed circa 1991. The removed UST was not replaced.

Volatile organic compound (VOC) concentrations, as measured with an HNu<sup>TM</sup> photoionization detector (PID) equipped with a 10.2 eV bulb, ranged from 0 parts per million (ppm) to 120 ppm during the closure. Groundwater was encountered at approximately nine feet below surface grade (bsg). No petroleum sheens or odors were noted in association with the groundwater in the UST pit.

Soils in the excavation consisted of fine and trace medium and coarse sand. All excavated soils were backfilled into the excavation.

### C. Site Geology

According to the Surficial Geologic Map of Vermont (Doll, 1970), surficial geology is mapped as well-sorted sands. According to the Bedrock Geological Map of Vermont (Doll, 1961), the subject property is underlain by the Cambrian-aged Saint Catherine Formation, which is characterized by variegated slate and phyllite.

## III. INVESTIGATIVE PROCEDURES

### A. Regulatory File Review

On October 8, 1999, Griffin performed a regulatory file review at VTDEC offices in Waterbury, Vermont in order to obtain further historical and regulatory information regarding the subject property. The subject property is also known as the Former Fair Haven Car Wash facility (VTDEC Site No. 89-0306) and gasoline station.

In March 1989, seven USTs were removed from the northern (USTs #1-#5, Excavation A) and southern (USTs #6 & #7, Excavation B) portions of the subject property (see Table 1).

<b>Tank No.</b>	<b>Product</b>	<b>Size</b>	<b>Condition</b>
1	diesel	4,000-gallon	fair to poor
2	diesel	4,000-gallon	fair
3	gasoline	4,000-gallon	poor-leaking
4	gasoline	4,000-gallon	fair to poor
5	kerosene	3,000-gallon	fair
6	gasoline	4,000-gallon	fair
7	waste oil	approximately 575-gallon	poor-leaking

**Source:** VTDEC regulatory file for Former Fair Haven Car Wash facility, VTDEC Site No. 89-0306



According to a February 8, 1990 Lincoln Applied Geology (LAG) report, free petroleum product was encountered on the water table in both excavations. Petroleum impacted soils were observed in both excavations with PID readings ranging between 25 ppm and 160 ppm. Two recovery wells were installed in each of the UST pits by Roosevelt Construction Company, and the excavated soils were backfilled.

Four monitoring wells, designated (MW-1 through MW-4) were installed at the site in order to further define the degree and extent of petroleum impact to groundwater. The most recent groundwater monitoring report available (LAG, November 11, 1991) indicated that dissolved petroleum constituents in groundwater had decreased over time to non-detectable levels in three of the four monitoring wells (MW-1, MW-2, MW-4). Petroleum constituents were detected in the groundwater sample from monitoring well MW-3 (downgradient of the former pump island) at a concentration of 10,547  $\mu\text{g/L}$  (micrograms per liter) or parts per billion (ppb). LAG indicated that off-site impacts to groundwater "did not appear to be occurring." No further information was available regarding the regulatory status of this property or additional groundwater monitoring reports.

#### **A. Monitoring Well Installation**

On November 4, 1999, four monitoring wells were installed by Adams Engineering of Underhill, Vermont using a vibratory drill rig. Drilling and well construction were directly supervised by a Griffin geologist. Soil samples were collected at minimum intervals of every five feet. Soil samples were screened for VOCs using an HNu<sup>TM</sup> Model PI-101 PID equipped with a 10.2 eV bulb. Soils were screened using the Griffin Jar/Polyethylene Bag Headspace Screening Protocol, which conforms to state and industry standards. Contaminant concentrations and soil characteristics were recorded in detailed boring logs by the supervising Griffin geologist (see Well Logs, Appendix C). Soil samples were not submitted for laboratory analysis.

Monitoring wells GMW-1 and GMW-2 were installed in inferred down- to cross-gradient positions of the former UST (removed 1998). Monitoring well GMW-3 was installed in an inferred upgradient position of the former UST, and monitoring well GMW-4 was installed in the former source area (UST pit).

#### **GMW-1**

Subsurface conditions encountered in this boring consisted of silt from surface grade to approximately 5 feet bsg underlain by sandy silt with gravel to a depth of 10' bsg. Silty sand was encountered from 10-13' bsg. Bedrock was not encountered in this boring. Groundwater was measured at approximately 7.5' bsg on the day of drilling. VOCs were detected in this boring at concentrations ranging from 0 ppm to 8.4 ppm.

#### **GMW-2**



Subsurface conditions encountered in this boring consisted of silty sand underlain by silt to a depth of approximately 9' bsg. Silty sand was encountered at the 9-10' interval, underlain by poorly graded sand with silt to a depth of 15' bsg. A silt layer, which exhibited a petroleum odor, was encountered at approximately 11.5' bsg. Bedrock was not encountered in this boring. Groundwater was measured at approximately eight feet bsg on the day of drilling. VOCs were detected in this boring at concentrations ranging from 0 ppm to 1.6 ppm (below silt layer at 11.5' bsg).

#### **GMW-3**

Subsurface conditions encountered in this boring consisted of silty sand at a depth of 0'-13.5' bsg, underlain by sandy silt to a depth of 15' bsg. Bedrock was not encountered. Groundwater was measured at approximately nine feet bsg on the day of drilling. VOCs were not detected in this boring.

#### **GMW-4**

Subsurface conditions encountered in this boring consisted of silty sand at a depth of 0'-10' bsg, underlain by silty gravel with sand to a depth of 15'. Bedrock was not encountered. Groundwater was measured at approximately eight feet bsg on the day of drilling. VOCs were detected in this boring at concentrations ranging from 0.3 ppm to 179 ppm (soil/water interface). Petroleum product was observed on a piece of gravel in the 5'-10' sampling interval.

Each monitoring well was constructed with a 10-foot length of 0.010-inch, factory slotted, 1.5-inch diameter, PVC screen installed with its midpoint at the approximate groundwater elevation. The wells were completed to approximately one-half foot below the ground surface with Schedule 40, 1.5-inch diameter, PVC, flush-threaded riser. A silica sand pack was placed in the annulus of the well between the borehole wall and the screen to a level approximately one foot above the top of the screened interval. A bentonite seal was placed above the sand pack to isolate the screened interval and prevent migration of surface runoff water into the well. The wells were completed to the ground surface with a flush-mounted road box set in concrete. Well construction details can be found in Appendix C.

### **B. Determination of Groundwater Elevations, Flow Direction, and Gradient**

The monitoring well locations and elevations were surveyed on November 4, 1999 for inclusion on the Site Map (Appendix A). The top of PVC casing in GMW-4 was assigned an arbitrary elevation of 100.00 feet.

Liquid levels were obtained from the site monitoring wells on November 11, 1999. Measured depths to water ranged from approximately 7.67 feet below top of casing (btoc) to 8.95 feet btoc. Liquid level measurement data can be found in Appendix D. Free-phase petroleum product was not observed on groundwater during this monitoring event.



Based on groundwater level measurements, groundwater at the site was determined to flow in a westerly direction, generally consistent with historical data obtained by LAG. The hydraulic gradient was measured to be approximately 0.01 ft/ft, slightly steeper than what was measured by LAG. According to the February 8, 1990 LAG report, a minimum groundwater velocity of 0.036 ft/day was calculated for the site. A Groundwater Contour Map can be found in Appendix A.

### C. Groundwater Sample Collection and Analysis

On November 11, 1999 groundwater samples were collected from the four newly installed monitoring wells (GMW-1 through GMW-4) and three existing monitoring wells (MW-1, MW-2, MW-3) and submitted to Endyne, Inc. of Williston, Vermont. The samples were collected according to Griffin's groundwater sampling protocol, which complies with industry and State standards. The samples were analyzed for VOCs by EPA Method 8021B. In addition, groundwater samples from monitoring wells GMW-1 through GMW-4 were analyzed for Total Petroleum Hydrocarbons (TPH) by EPA Method 8015 Gasoline Range Organics (GRO). In accordance with VTDEC protocols and for quality assurance/quality control (QA/QC) purposes, one duplicate sample (MW-1) and one trip blank were also collected and analyzed for VOCs by EPA Method 8021B.

VOCs were not detected above laboratory detection limits in the groundwater samples from monitoring wells MW-1, MW-2, and GMW-3, located in approximate upgradient to cross-gradient positions of the former USTs. Monitoring wells MW-1 and MW-2 have historically been non-detect for VOCs.

Select VOCs were detected in the groundwater samples from monitoring wells MW-3, GMW-1, GMW-2, and GMW-4. Methyl tertiary butyl ether (MTBE) was detected above its applicable Vermont Groundwater Enforcement Standard (VGES) in the groundwater samples from monitoring wells MW-3 and GMW-1. The trimethylbenzene isomers and naphthalene were detected above their applicable VGES in the groundwater samples from monitoring wells MW-3, GMW-1, GMW-2, and GMW-4. Select other VOCs were detected in the groundwater samples from these wells at concentrations below the applicable VGES. The concentrations of VOCs from monitoring well MW-3 has decreased significantly since November 1991 (the most recent available data).

TPH were not detected above laboratory detection limits in the groundwater sample from monitoring well GMW-3. TPH were detected in the groundwater samples from monitoring wells GMW-1 (3.8 ppm), GMW-2 (1.3 ppm), and GMW-4 (118 ppm). There is currently no VGES available for TPH.

Results from the analyses of the trip blank sample indicate that adequate QA/QC measures were maintained during sample collection and analysis. A groundwater quality summary can be found in Appendix D, and laboratory analytical results can be found in Appendix E.



#### IV. EVALUATION OF POTENTIALLY SENSITIVE RECEPTORS

A visual survey of the area surrounding the former Showcase Video property was conducted in November 1999, in conjunction with the monitoring well installation activities. Based on these observations, an estimation of the potential risk to identified receptors was made based on proximity to the source areas, groundwater flow direction, and contaminant concentration levels in subsurface soils and groundwater.

##### *Water Supplies*

The subject site and surrounding properties are serviced by municipal water. The Town of Fair Haven obtains its water from a reservoir located greater than one mile north of the site. Therefore, based on direction of groundwater flow and distance from the site, this water supply is not inferred to be at risk of petroleum impacts from the site.

##### *Buildings in the Vicinity*

The site building is situated on a concrete slab foundation. Residences, which are inferred to contain basements, are located adjacent to the eastern and southern portions of the site. The residences are situated in up- to cross-gradient positions from the source area. Based on the level of petroleum impact encountered in soils at the site during this investigation, the apparent age of contamination, and the direction of groundwater flow, it is likely that there is a low potential for impact to the indoor air quality in the adjacent basements.

##### *Surface Water*

The nearest surface water body is an unnamed tributary to the Poultney River, located approximately 800 feet south-southwest of the site. Based on distance from the site, it is unlikely that there is a significant risk of impact as a result of subsurface petroleum impacts from the former Showcase Video. However, since the downgradient extent of dissolved petroleum constituents has not been fully determined by this investigation, it is not possible to fully assess the risk to this surface water.

##### *Utility Corridors*

Groundwater at the site is located at approximately seven to nine feet below grade, near the general approximate depth of utility lines. However, given the absence of free phase product, the potential for significant vapor migration along utility corridors is considered to be low.



## V. CONCLUSIONS

Based on the activities performed at the former Showcase Video property in November 1999, Griffin offers the following conclusions:

1. One 8,000-gallon gasoline UST was removed from the site in December 1998. VOC concentrations in soil, as measured with a PID, ranged from 0 ppm to 120 ppm during the closure.
2. Four groundwater monitoring wells (designated GMW-1 through GMW-4) were installed at the subject site in November 1999 in order to further characterize the degree and extent of residual petroleum impacts at the site. PID readings ranged from 0 ppm to 179 ppm during drilling activities. Petroleum product was observed on soils in the boring for monitoring well GMW-4, located in the former source area.
3. Based on information obtained during a regulatory file review at VTDEC offices, seven USTs were removed from the site in March 1989. Free phase-petroleum was noted in one of the excavations (Excavation A), and petroleum impacts to soils were also observed. Four monitoring wells were installed at the site (MW-1, MW-2, MW-3, and MW-4) in order to further define the degree and extent of petroleum impacts to the subsurface at the site. Historical data from LAG reports indicates that petroleum constituents had been detected in monitoring well MW-3, and were non-detect in the remaining monitoring wells.
4. The three existing monitoring wells (MW-1, MW-2, and MW-3) and four newly installed monitoring wells (GMW-1 through GMW-4) were sampled on November 11, 1999. Monitoring well MW-4 could not be located on this date and is inferred to have been destroyed. Griffin did not observe free product on groundwater on the sampling date. Groundwater beneath the subject site was measured to flow to the west at an approximate gradient of 0.01 ft/ft.
5. VOCs were not detected above laboratory detection limits in the groundwater samples from monitoring wells MW-1, MW-2, and GMW-3, located in approximate upgradient to cross-gradient positions of the former USTs. Monitoring wells MW-1 and MW-2 have historically been non-detect for VOCs.
6. Select VOCs were detected in the groundwater samples from monitoring wells MW-3, GMW-1, GMW-2, and GMW-4, at concentrations which exceeded the applicable VGES. The concentrations of VOCs from monitoring well MW-3 have decreased significantly since November 1991 (the most recent available data).
7. TPH were not detected above laboratory detection limits in the groundwater sample from monitoring well GMW-3. TPH were detected at low to moderate concentrations in the groundwater samples from monitoring wells GMW-1, GMW-2, and GMW-4.

8. The high ratio of trimethylbenzene isomers to BTEX compounds in the groundwater samples collected from monitoring wells MW-3, GMW-1, GMW-2, and GMW-4 indicate that the dissolved contamination observed in these wells is likely to be relatively old in age. This suggests that the petroleum impacts evident at the former Showcase Video may have resulted primarily from a release of petroleum, which occurred in the past, since there was no evidence of leakage from the UST removed in December 1998.
  
9. Based on field observations and analytical results, residual petroleum impacts are present in soil and groundwater beneath the site. No water supplies appear to be at risk in the area, and there appears to be a low potential risk to indoor air quality of buildings in the vicinity of the site. The risk assessment for this site has determined that there is a potential risk to the unnamed tributary to the Poultney River, located approximately 800 feet south-southwest of the site. The risk to this potential receptor is likely to be low given its significant distance from the site, however, since the downgradient extent of petroleum contamination has not yet been determined, the risk cannot be fully assessed at this time.

## **VI. RECOMMENDATIONS**

Based on the results of this site investigation, Griffin recommends the following:

A confirmatory round of groundwater samples should be collected to document dissolved petroleum concentrations in the subsurface. Groundwater samples should be analyzed for VOCs by EPA Method 8021B. The next round of sampling should be scheduled for May 2000.

Monitoring well MW-1 should be removed from the sampling schedule due to historical non-detect results and its upgradient position and proximity to monitoring well GMW-3.



## VII. REFERENCES

Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, Vermont Geological Survey.

Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, Vermont Geological Survey.

Lincoln Applied Geology, February 8, 1990, Former Fair Haven Car Wash Update Letter.

Lincoln Applied Geology, October 17, 1990, *Quarterly Monitoring Results – October 1990*.

Lincoln Applied Geology, May 11, 1990, *Quarterly Monitoring Results – April 1990*.

Lincoln Applied Geology, November 11, 1991, *October 1991 Monitoring Results*.

Paolino, Mr. Daniel, S.V. Allen, Inc., site access, November 1999.

R.H. Roosevelt Construction Co., August 22, 1989, *Site Assessment of Property of Sherman V. Allen, Inc.*

USGS Topographic Map, Thorn Hill, NY-VT, 1946, photorevised 1972.

VTDEC, October 8, 1999, regulatory file review, previous environmental reports.

# Appendix A

## **Site Maps**

- 1) Site Location Map**
  - 2) Area Map**
  - 3) Site Map**
  - 4) Groundwater Contour Map**
  - 5) Contaminant Distribution Map**
-



Griffin Job Number: 39941492  
 Source: USGS Topographic Map, Thom Hill Quadrangle, 1946, photorevised 1972

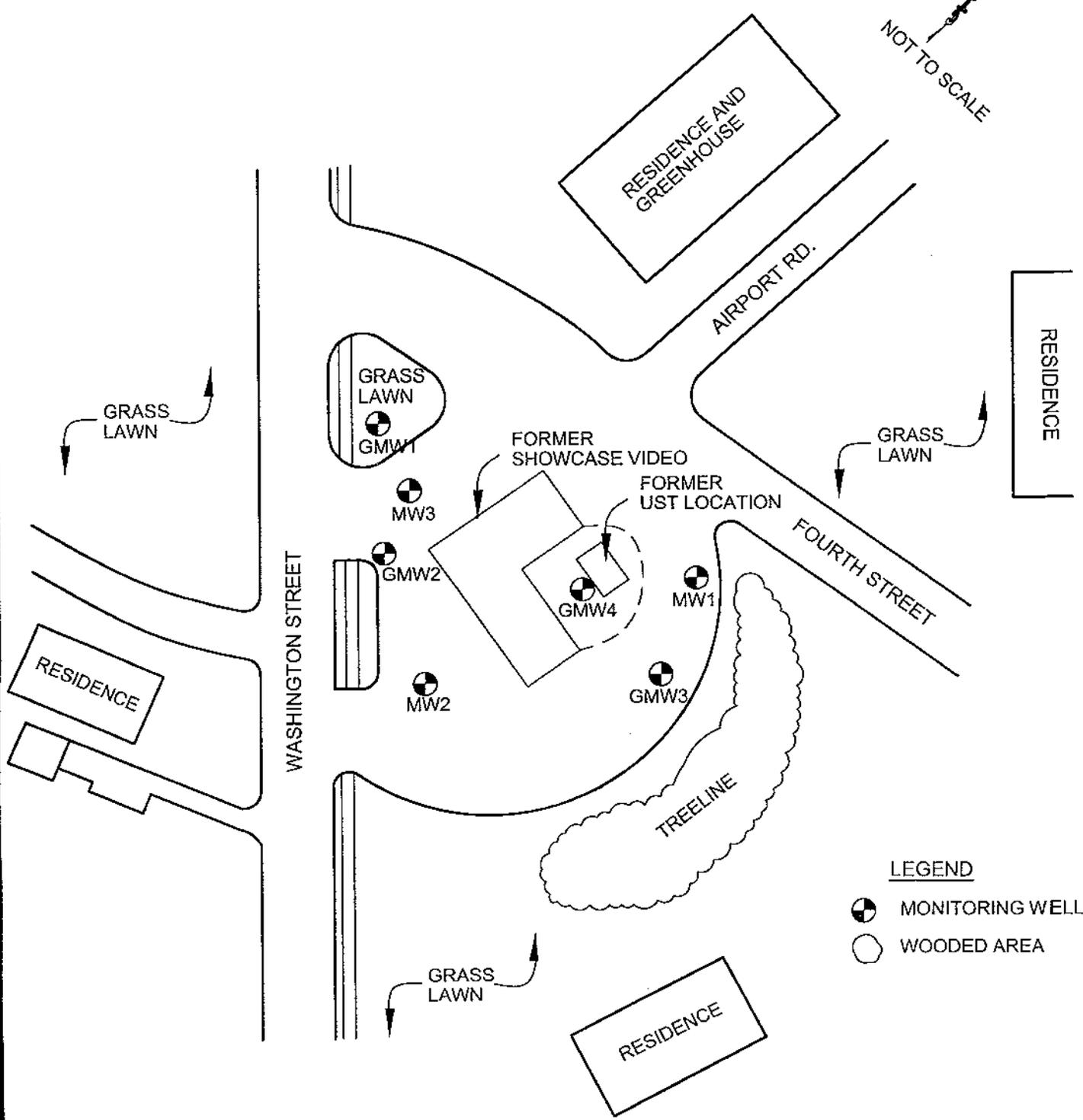


**Showcase Video**  
 4th & Washington Streets, Fair Haven, VT

Site Location Map  
 VTDEC Site No. 98-2555

Date: 10/12/99	Drawing No. 1/1	Scale: 1:24,000	By: TLC
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NOT TO SCALE



LEGEND

-  MONITORING WELL
-  WOODED AREA

SOURCE: GRIFFIN FIELD RECONNAISSANCE 11/4/99  
VT-DEC SITE #:98-2555/89-0306

JOB NO.: 39941492

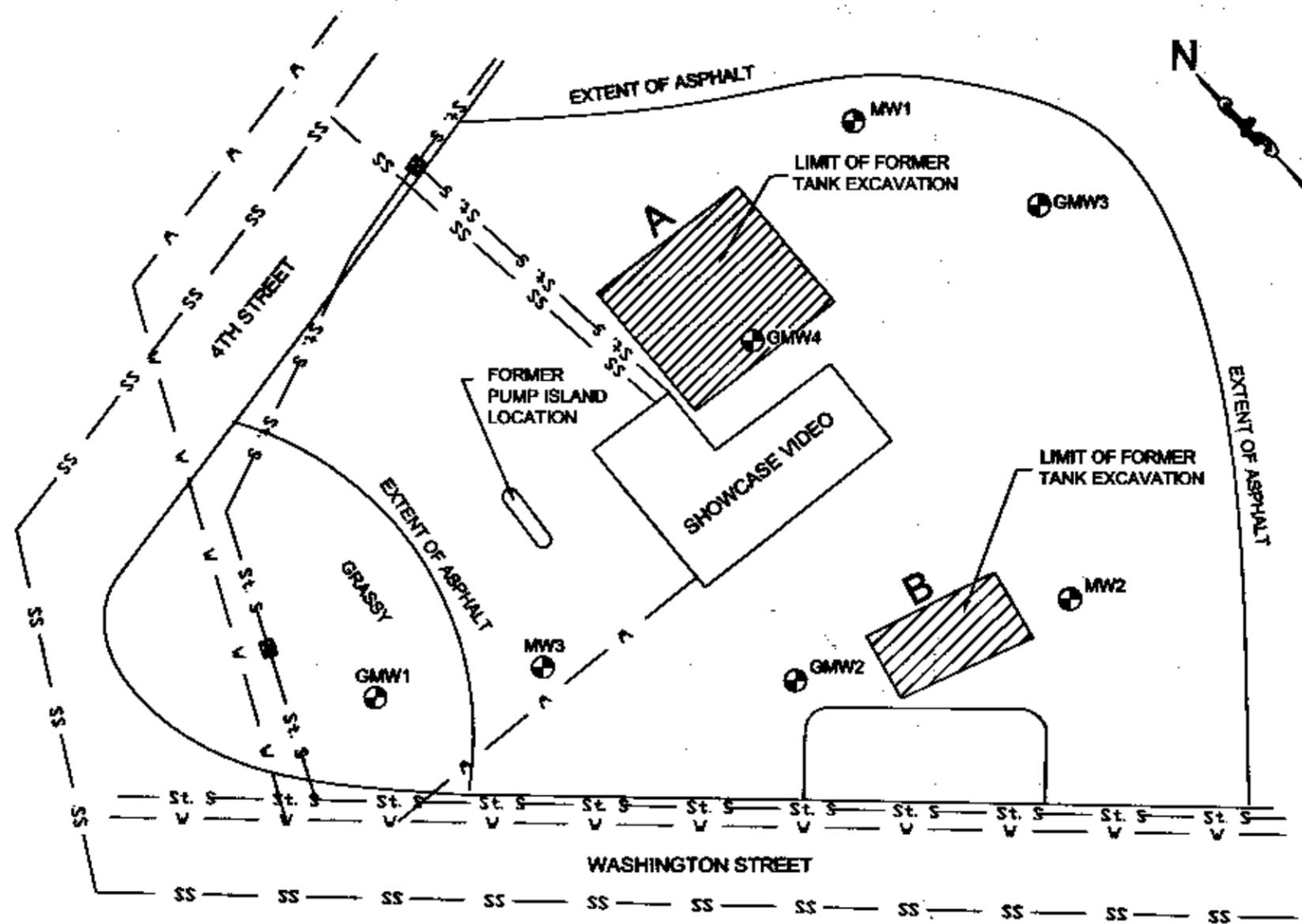
# SHOWCASE VIDEO

4TH AND WASHINGTON STREETS  
FAIR HAVEN, VERMONT

## AREA MAP



DATE: 12/08/99	DWG.#: 1	SCALE: NTS	DRN.: NM	APP.: TC
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### LEGEND

-  CATCHBASIN
-  SANITARY SEWER
-  STORM SEWER
-  WATER LINE
  
-  APPROXIMATE LOCATION OF FORMER UST's:
  - (1) 8,000 GALLON GASOLINE UST, REMOVED 12/98
  - (1) 14,000 GALLON DIESEL UST, REMOVED 3/89
  - (1) 4,000 GALLON DIESEL UST, REMOVED 3/89
  - (2) 4,000 GALLON GASOLINE UST's, REMOVED 3/89
  - (1) 3,000 GALLON KEROSENE UST, REMOVED 3/89
  - (1) 8,000 GALLON GASOLINE UST, REMOVED 12/98
  
-  APPROXIMATE LOCATION OF FORMER 4,000 GALLON GASOLINE UST AND 550 GALLON WASTE OIL UST, REMOVED 3/89
  
-  GMW2 MONITORING WELL INSTALLED BY GRIFFIN INTERNATIONAL (11/4/99)
  
-  MW1 APPROXIMATE LOCATION OF MONITORING WELL INSTALLED BY ROOSEVELT CONSTRUCTION CO. (1989)

NOTE: UTILITY LOCATIONS ARE APPROXIMATE

SOURCES: LINCOLN APPLIED GEOLOGY SITE PLAN (1/90)  
 GRIFFIN FIELD RECONNAISSANCE  
 GRIFFIN SITE SURVEY (11/4/99)

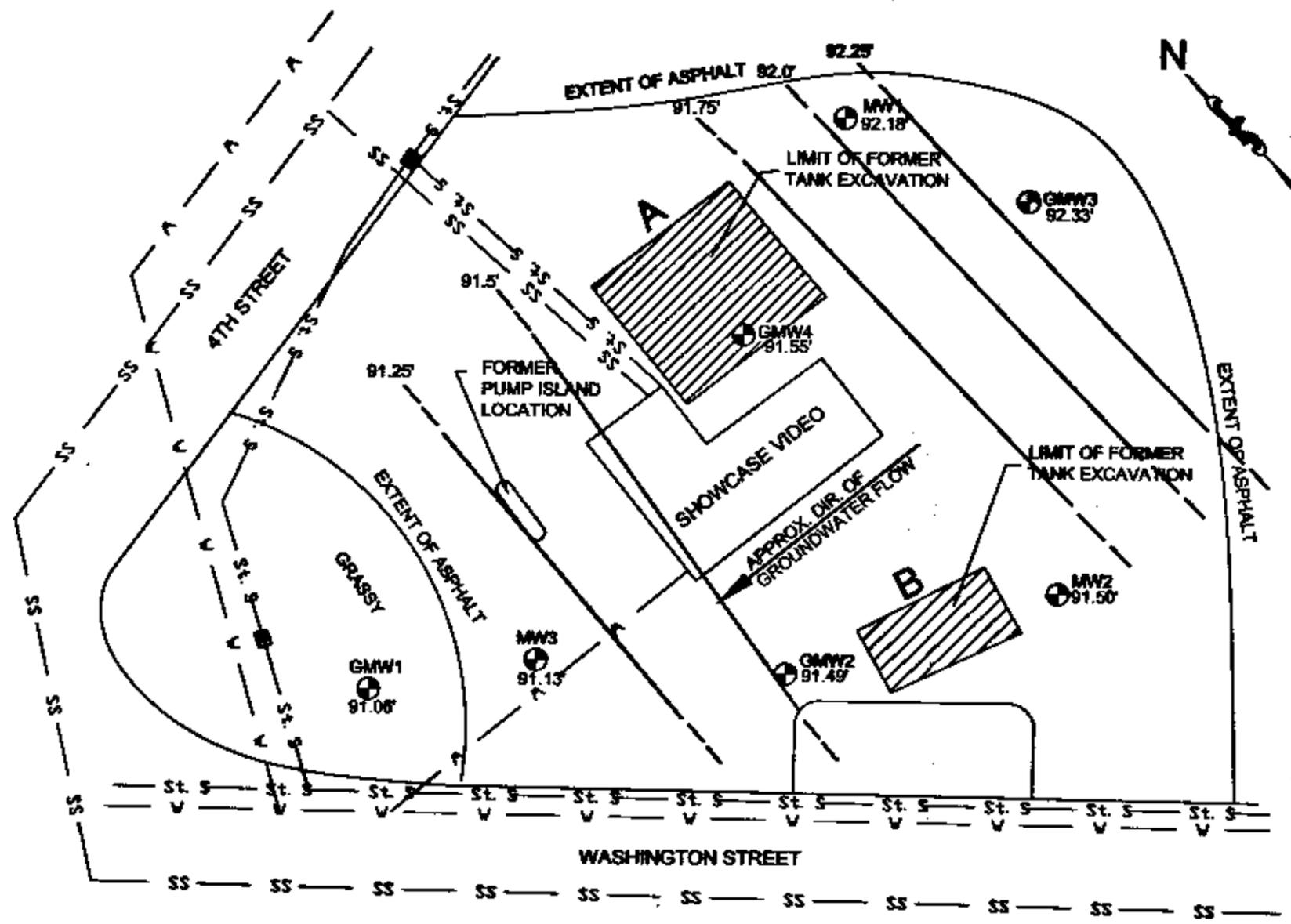
VEDEC SITE & SURVEYING  
 JOB NO.: 38941492



**SHOWCASE VIDEO**  
 4TH AND WASHINGTON STREETS  
 FAIR HAVEN, VERMONT

**SITE MAP**

DATE: 10/23/98	DWG.#: 1	SCALE: 1"=20'	DRN.: NM	APP.: TC
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### LEGEND

- CATCHBASIN
- SANITARY SEWER
- STORM SEWER
- WATER LINE
- APPROXIMATE LOCATION OF FORMER UST's:  
 (1) 8,000 GALLON GASOLINE UST, REMOVED 12/98  
 (1) 14,000 GALLON DIESEL UST, REMOVED 3/89  
 (1) 4,000 GALLON DIESEL UST, REMOVED 3/89  
 (2) 4,000 GALLON GASOLINE UST's, REMOVED 3/89  
 (1) 3,000 GALLON KEROSENE UST, REMOVED 3/89  
 (1) 8,000 GALLON GASOLINE UST, REMOVED 12/98
- APPROXIMATE LOCATION OF FORMER 4,000 GALLON GASOLINE UST AND 550 GALLON WASTE OIL UST, REMOVED 3/89
- GMW2 MONITORING WELL INSTALLED BY GRIFFIN INTERNATIONAL (11/4/99)
- MW1 APPROXIMATE LOCATION OF MONITORING WELL INSTALLED BY ROOSEVELT CONSTRUCTION CO. (1989)
- GROUNDWATER CONTOUR INTERVAL (DASHED WHERE INFERRED)

NOTE: UTILITY LOCATIONS ARE APPROXIMATE

SOURCES: LINCOLN APPLIED GEOLOGY SITE PLAN (1/90)  
 GRIFFIN FIELD RECONNAISSANCE  
 GRIFFIN SITE SURVEY (11/4/99)

GRiffin INTERNATIONAL  
 JOB NO.: 35941492

**SHOWCASE VIDEO**  
 4TH AND WASHINGTON STREETS  
 FAIR HAVEN, VERMONT  
 GROUNDWATER CONTOUR MAP

MEASURED 11/1/09  
 DATE: 10/23/99 DWG.#: 1 SCALE: 1"=20' DRN.: NM APP.: TC

# LEGEND

-  CATCHBASIN
-  SANITARY SEWER
-  STORM SEWER
-  WATER LINE

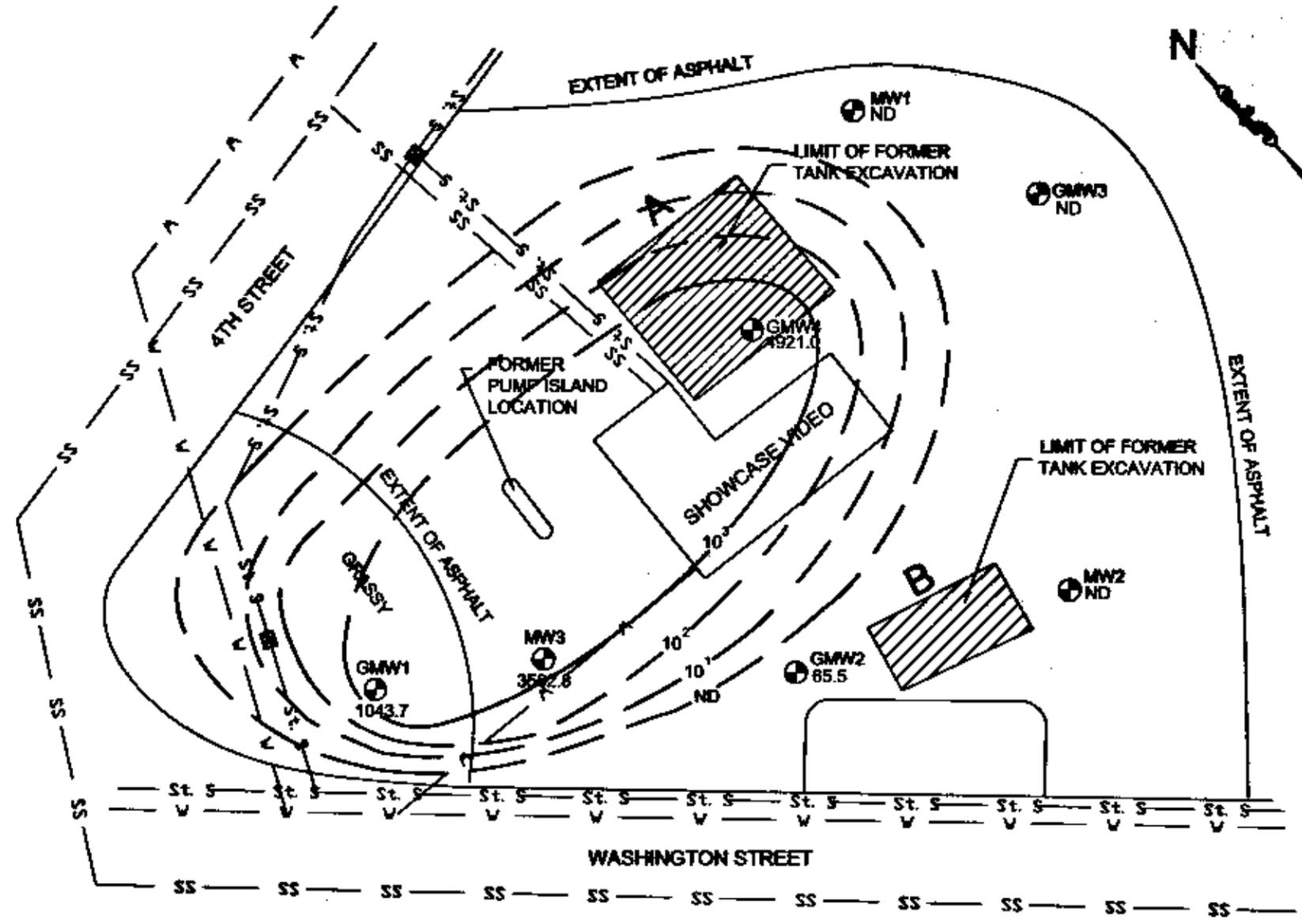
-  APPROXIMATE LOCATION OF FORMER UST's:  
 (1) 8,000 GALLON GASOLINE UST, REMOVED 12/98  
 (1) 14,000 GALLON DIESEL UST, REMOVED 3/89  
 (1) 4,000 GALLON DIESEL UST, REMOVED 3/89  
 (2) 4,000 GALLON GASOLINE UST's, REMOVED 3/89  
 (1) 3,000 GALLON KEROSENE UST, REMOVED 3/89  
 (1) 8,000 GALLON GASOLINE UST, REMOVED 12/98

-  APPROXIMATE LOCATION OF FORMER 4,000 GALLON GASOLINE UST AND 550 GALLON WASTE OIL UST, REMOVED 3/89

-  GMW2 65.5  
MONITORING WELL INSTALLED BY GRIFFIN INTERNATIONAL (11/4/99)

-  MW1  
APPROXIMATE LOCATION OF MONITORING WELL INSTALLED BY ROOSEVELT CONSTRUCTION CO. (1989)

-  10<sup>3</sup>  
CONTAMNANT CONCENTRATION CONTOUR WITH TOTAL TARGETED VOC CONCENTRATION (ppb), DASHED WHERE INFERRED



NOTE: UTILITY LOCATIONS ARE APPROXIMATE

SOURCE: LINCOLN APPLIED GEOLOGY SITE PLAN (1/90)  
 GRIFFIN FIELD RECONNAISSANCE  
 GRIFFIN SITE SURVEY (11/4/99)

JOB NO.: 39941492



**GRIFFIN INTERNATIONAL**

**SHOWCASE VIDEO**  
 4TH AND WASHINGTON STREETS  
 FAIR HAVEN, VERMONT

CONTAMNANT CONCENTRATION MAP  
 SAMPLED: 11/11/99

DATE: 12/06/99	DWG.#: 1	SCALE: 1"=20'	DRN.: NM	APP.: TC
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# Appendix B

## Well Logs

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# BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: **GMW-1**



**FORMER SHOWCASE VIDEO  
FAIR HAVEN, VERMONT**

Griffin Project #: 39941492	Date Installed: 11/4/1999	
Drilled by: Griffin International	Drilling Method: Vibratory Direct Push	
Driller: Gerry Adams	Boring Diameter: 2.75"	
Supervised by: TK	Development Method: Peristaltic Pump	
Logged by: TK	Screened Length: 10 Ft.	

Letter Symbol  
Graphic Symbol

	Well Construction	Pen/Rec (') Blow Count	Interval (') PID (ppm)	Soil Characteristics	
Grade = 0	Asphalt Surface				
0.40		5/3.2	0-1.3	SILT (ML). 95% silt, 5% fine to coarse, angular to subrounded gravel. Dark to light brown, moist.	ML
0.80			0		
1.20			1.3-5	SILT (ML). 90% silt, 10% fine, angular to subangular gravel. Light brown, moist.	ML
1.60			0		
2.00			5-10	Sandy SILT with GRAVEL (ML). 55% silt, 30% fine to coarse, angular to subrounded sand, 15% fine to coarse angular to subrounded gravel. Olive to olive-brown, wet. Petroleum odor on lower 2' of sample.	ML
2.40			0.4		
2.80		5/2.3			
3.20					
3.60					
4.00					
4.40					
4.80					
5.20					
5.60					
6.00					
6.40					
6.80					
7.20					
7.60					
8.00					
8.40					
8.80					
9.20					
9.60					
10.00		3/2.4	10-13	Silty SAND (SM). 85% fine to medium, angular to subrounded sand. Poorly graded, gray, wet. Petroleum odor observed in sample.	SM
10.40			8.4		
10.80					
11.20					
11.60					
12.00					
12.40					
12.80					
13.20			13	End of boring. No refusal.	
13.60					
14.00					
14.40					
14.80					

**Legend**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li> Road Box with Bolt Down Cover, Set in Cement.</li> <li> Existing Surface.</li> <li> Bentonite Seal Placed in Annulus.</li> <li> Grade #1 Silica Sand Pack Placed in Annulus.</li> <li> Drill Cuttings Placed in Annulus.</li> </ul> | <ul style="list-style-type: none"> <li> Locking Plug.</li> <li> 1.5" ID, Schedule 40 PVC Riser.</li> <li> 1.5" ID, Schedule 40 PVC, 0.010" Slotted Well Screen</li> <li> Plug Point</li> <li> Approximate Water Level During Drilling</li> <li> Static Water Level</li> </ul> |
|---|---|

# BORING LOG AND WELL CONSTRUCTION DIAGRAM

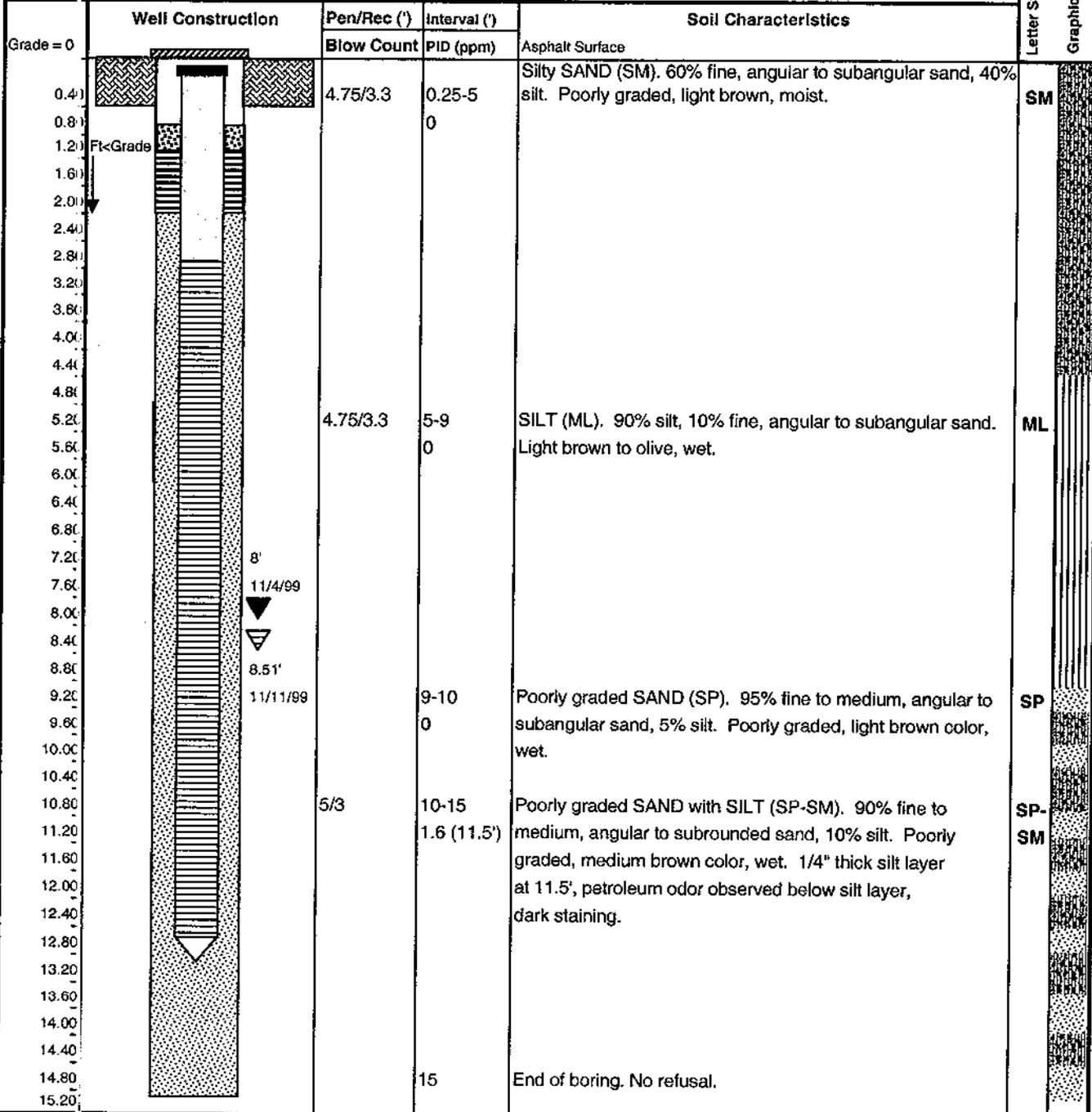
Well No: **GMW-2**



**FORMER SHOWCASE VIDEO  
FAIR HAVEN, VERMONT**

Griffin Project #: 39941492	Date Installed: 11/4/1999	
Drilled by: Griffin International	Drilling Method: Vibratory Direct Push	
Driller: Gerry Adams	Boring Diameter: 2.75"	
Supervised by: TK	Development Method: Peristaltic Pump	
Logged by: TK	Screened Length: 10 Ft.	

Letter Symbol  
Graphic Symbol



**Legend**

<ul style="list-style-type: none"> <li> Road Box with Bolt Down Cover, Set in Cement.</li> <li> Existing Surface.</li> <li> Bentonite Seal Placed in Annulus.</li> <li> Grade #1 Silica Sand Pack Placed in Annulus.</li> <li> Drill Cuttings Placed in Annulus.</li> </ul>	<ul style="list-style-type: none"> <li> Locking Plug.</li> <li> 1.5" ID, Schedule 40 PVC Riser.</li> <li> 1.5" ID, Schedule 40 PVC, 0.010" Slotted Well Screen</li> <li> Plug Point</li> <li> Approximate Water Level During Drilling</li> <li> Static Water Level</li> </ul>
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# BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: **GMW-3**



**FORMER SHOWCASE VIDEO  
FAIR HAVEN, VERMONT**

Griffin Project #: 39941492	Date Installed: 11/4/1999
Drilled by: Griffin International	Drilling Method: Vibratory Direct Push
Driller: Gerry Adams	Boring Diameter: 2.75"
Supervised by: TK	Development Method: Peristaltic Pump
Logged by: TK	Screened Length: 10 Ft.

Letter Symbol  
Graphic Symbol

Grade = 0	Well Construction	Pen/Rec (')	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol	
		Blow Count	PID (ppm)				
0.40		4.75/3	0.25-5 0	Asphalt Surface Silty SAND (SM). 85% fine to medium, angular to subrounded sand, 15% silt. Light brown, moist.	SM		
0.80							
1.20							
1.60							
2.00							
2.40							
2.80							
3.20							
3.60							
4.00							
4.40							
4.80							
5.20			5/3	5-10 0	Silty SAND (SM). 85% fine to medium, angular to subrounded sand, 15% silt. Poorly graded, light brown to light gray, moist to wet.		SM
5.60							
6.00							
6.40							
6.80							
7.20							
7.60							
8.00		8.91'					
8.40		11/11/99					
8.80		11/4/99					
9.20							
9.60							
10.00							
10.40							
10.80		5/3.5	10-13.5 0	Silty SAND (SM). 85% fine to medium, angular to subrounded sand, 15% silt. Poorly graded, light brown to light gray, moist to wet.	SM		
11.20							
11.60							
12.00							
12.40							
12.80							
13.20							
13.60			13.5-15 0	Sandy SILT (ML). 60% silt, 40% fine, angular to subangular sand. Light olive brown, wet.	ML		
14.00							
14.40							
14.80			15	End of boring. No refusal.			
15.20							

**Legend**

<ul style="list-style-type: none"> <li> Road Box with Bolt Down Cover, Set in Cement.</li> <li> Existing Surface.</li> <li> Bentonite Seal Placed in Annulus.</li> <li> Grade #1 Silica Sand Pack Placed in Annulus.</li> <li> Drill Cuttings Placed in Annulus.</li> </ul>	<ul style="list-style-type: none"> <li> Locking Plug.</li> <li> 1.5" ID, Schedule 40 PVC Riser.</li> <li> 1.5" ID, Schedule 40 PVC, 0.010" Slotted Well Screen.</li> <li> Plug Point</li> <li> Approximate Water Level During Drilling</li> <li> Static Water Level</li> </ul>
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# BORING LOG AND WELL CONSTRUCTION DIAGRAM

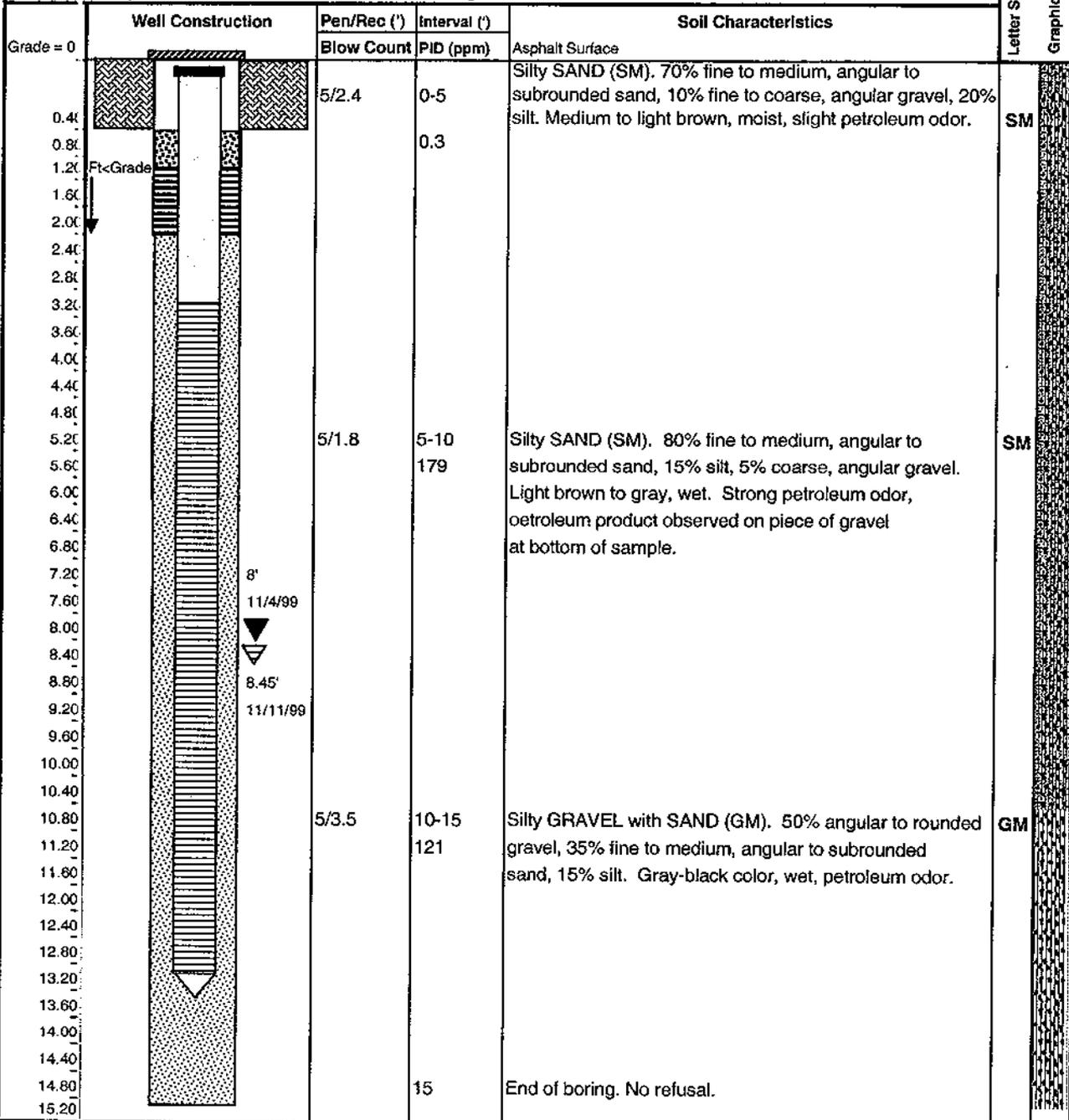
Well No: **GMW-4**



**FORMER SHOWCASE VIDEO  
FAIR HAVEN, VERMONT**

Griffin Project #: 39941492	Date Installed: 11/4/1999
Drilled by: Griffin International	Drilling Method: Vibratory Direct Push
Driller: Gerry Adams	Boring Diameter: 2.75"
Supervised by: TK	Development Method: Peristaltic Pump
Logged by: TK	Screened Length: 10 Ft.

Letter Symbol  
Graphic Symbol



**Legend**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li> Road Box with Bolt Down Cover, Set in Cement.</li> <li> Existing Surface.</li> <li> Bentonite Seal Placed in Annulus.</li> <li> Grade #1 Silica Sand Pack Placed in Annulus.</li> <li> Drill Cuttings Placed in Annulus.</li> </ul> | <ul style="list-style-type: none"> <li> Locking Plug.</li> <li> 1.5" ID, Schedule 40 PVC Riser.</li> <li> 1.5" ID, Schedule 40 PVC, 0.010" Slotted Well Screen</li> <li> Plug Point</li> <li> Approximate Water Level During Drilling</li> <li> Static Water Level</li> </ul> |
|---|---|



# Appendix C

## Liquid Level Monitoring Data

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**LIQUID LEVEL MONITORING DATA**

11/11/1999

Well I.D.	Top of Casing Elevation	Depth To Product	Depth To Water	Product Thickness	Specific Gravity Of Product	Water Equivalent	Corrected Depth To Water	Corrected Water Table Elevation
MW-1	101.01	-	8.83	-	-	-	-	92.18
MW-2	100.45	-	8.95	-	-	-	-	91.50
MW-3	99.35	-	8.22	-	-	-	-	91.13
GMW-1	98.73	-	7.67	-	-	-	-	91.06
GMW-2	100.00	-	8.51	-	-	-	-	91.49
GMW-3	101.24	-	8.91	-	-	-	-	92.33
GMW-4	100.00	-	8.45	-	-	-	-	91.55

All values reported in feet.

Top-of-Casing elevations measured in feet relative to top of casing for monitoring well GMW-4 (100.00').  
Elevations surveyed by Griffin International, Inc. on 11/4/99.



# Appendix D

## Groundwater Quality Summary

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## Sample Date: November 11, 1999

PARAMETER	MW-1	MW-2	MW-3	GMW-1	GMW-2	GMW-3	GMW-4	VGES
Benzene	ND<1.0	ND<1.0	ND<20.0	ND<10.0	ND<1.0	ND<1.0	ND<100	5.
Toluene	ND<1.0	ND<1.0	<b>56.8</b>	ND<10.0	ND<1.0	ND<1.0	ND<100	1,000.
Ethylbenzene	ND<1.0	ND<1.0	<b>476.</b>	<b>56.7</b>	<b>3.8</b>	ND<1.0	<b>237.</b>	700.
Xylenes	ND<1.0	ND<1.0	<b>1,056.</b>	<b>109.</b>	<b>9.0</b>	ND<1.0	<b>227.</b>	10,000.
Total BTEX	ND	ND	<b>1,588.8</b>	<b>165.7</b>	<b>12.8</b>	ND	<b>464.</b>	-
MTBE	ND<10.0	ND<10.0	<b>264</b>	<b>140</b>	ND<10.0	ND<10.0	ND<1000	40.
1,3,5-Trimethylbenzene	ND<1.0	ND<1.0	<b>251</b>	<b>173</b>	<b>19.4</b>	ND<1.0	<b>1,280</b>	4.
1,2,4-Trimethylbenzene	ND<1.0	ND<1.0	<b>403</b>	<b>453</b>	<b>24.3</b>	ND<1.0	<b>2,950</b>	5.
Naphthalene	ND<1.0	ND<1.0	<b>159</b>	<b>81.6</b>	<b>72.0</b>	ND<1.0	<b>578</b>	20.
Total Targeted VOCs	ND	ND	<b>3,562.8</b>	<b>1,043.7</b>	<b>65.5</b>	ND	<b>4,921.0</b>	-
TPH (mg/L)	NA	NA	NA	<b>3.8</b>	<b>1.3</b>	ND<0.1	<b>118.</b>	-

All values reported in ug/L (ppb) unless otherwise specified.

VGES - Vermont Groundwater Enforcement Standard (Vermont Groundwater Protection Rule and Strategy, 11/15/97)

ND ( ): Not Detected (compound-specific detection limit)

TBQ ( ): Trace Below Quantitation Limit (quantitation limit)

Detected concentrations in **bold**. Concentrations which meet or exceed the VGES are shaded.

TPH - Total Petroleum Hydrocarbons

## HISTORICAL GROUNDWATER QUALITY SUMMARY

### MW-1

Sample Date Analytical Method	10/18/90 602	11/22/91 602	11/11/99 8021B					VGES
PARAMETER								
Benzene	ND	ND	ND<1.0					5.
Toluene	ND	ND	ND<1.0					1,000.
Ethylbenzene	ND	ND	ND<1.0					700.
Xylenes	ND	ND	ND<1.0					10,000.
Total BTEX	ND	ND	ND					-
MTBE	ND	ND	ND<10.0					40.
1,3,5-Trimethylbenzene	NA	NA	ND<1.0					4.
1,2,4-Trimethylbenzene	NA	NA	ND<1.0					5.
Naphthalene	NA	NA	ND<1.0					20.
Total Targeted VOCs	ND	ND	ND					-

### MW-2

Sample Date Analytical Method	10/18/90 602	11/22/91 602	11/11/99 8021B					VGES
PARAMETER								
Benzene	ND	ND	ND<1.0					5.
Toluene	ND	ND	ND<1.0					1,000.
Ethylbenzene	ND	ND	ND<1.0					700.
Xylenes	ND	ND	ND<1.0					10,000.
Total BTEX	ND	ND	ND					-
MTBE	ND	ND	ND<10.0					40.
1,3,5-Trimethylbenzene	NA	NA	ND<1.0					4.
1,2,4-Trimethylbenzene	NA	NA	ND<1.0					5.
Naphthalene	NA	NA	ND<1.0					20.
Total Targeted VOCs	ND	ND	ND					-

All values reported in ug/L (ppb)

VGES - Vermont Groundwater Enforcement Standard (Vermont Groundwater Protection Rule and Strategy, 11/15/97)

ND ( ): Not Detected (compound-specific detection limit)

TBQ ( ): Trace Below Quantitation Limit (quantitation limit)

Detected concentrations in **bold**. Concentrations which meet or exceed the VGES are shaded.

NA - not analyzed

1990 and 1991 analytical data obtained from Lincoln Applied Geology, Inc. reports.

## HISTORICAL GROUNDWATER QUALITY SUMMARY

MW-3

Sample Date Analytical Method PARAMETER	10/18/90 602	11/22/91 602	11/11/99 8021B				VGES
Benzene	<b>1,420.</b>	<b>960.</b>	ND<20.0				5.
Toluene	<b>1,490.</b>	<b>1,850.</b>	<b>56.8</b>				1,000.
Ethylbenzene	<b>1,000.</b>	<b>427.</b>	<b>476.</b>				700.
Xylenes	<b>2,780.</b>	<b>5,500.</b>	<b>1,056.</b>				10,000.
Total BTEX	<b>6,690</b>	<b>8,737</b>	<b>1,588.8</b>				
MTBE	<b>3,980.</b>	<b>1,810.</b>	<b>264.</b>				40.
1,3,5-Trimethylbenzene	NA	NA	<b>251.</b>				4.
1,2,4-Trimethylbenzene	NA	NA	<b>403.</b>				5.
Naphthalene	NA	NA	<b>159.</b>				20.
Total Targeted VOCs	<b>10,670.0</b>	<b>10,547.0</b>	<b>3,562.8</b>				-

All values reported in ug/L (ppb)

VGES - Vermont Groundwater Enforcement Standard (Vermont Groundwater Protection Rule and Strategy, 11/15/97)

ND ( ): Not Detected (compound-specific detection limit)

TBQ ( ): Trace Below Quantitation Limit (quantitation limit)

Detected concentrations in **bold**. Concentrations which meet or exceed the VGES are shaded.

NA - not analyzed

1990 and 1991 analytical data obtained from Lincoln Applied Geology, Inc. reports.



# Appendix E

## Laboratory Report

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**ENDYNE, INC.**

**Laboratory Services**

32 James Brown Drive  
Williston, Vermont 05495  
(802) 879-4333  
FAX 879-7103

**LABORATORY REPORT**

CLIENT: Griffin International

ORDER ID: 4912

PROJECT: Showcase Video/#39941492

DATE RECEIVED: November 12, 1999

REPORT DATE: November 29, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

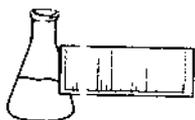
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director

enclosures



## LABORATORY REPORT

CLIENT: Griffin International  
PROJECT: Showcase Video/#39941492  
REPORT DATE: November 29, 1999ORDER ID: 4912  
DATE RECEIVED: November 12, 1999  
SAMPLER: JR  
ANALYST: 725

Ref. Number: 147408

Site: Trip Blank

Date Sampled: November 11, 1999 Time: 7:47 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 10.0	ug/L	SW 8021B	11/25/99
Benzene	< 1.0	ug/L	SW 8021B	11/25/99
Toluene	< 1.0	ug/L	SW 8021B	11/25/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	11/25/99
Xylenes Total	< 1.0	ug/L	SW 8021B	11/25/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	11/25/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	11/25/99
Naphthalene	< 1.0	ug/L	SW 8021B	11/25/99
UIP's	0.		SW 8021B	11/25/99
Surrogate 1	103.	%	SW 8021B	11/25/99

Ref. Number: 147409

Site: MW-2

Date Sampled: November 11, 1999 Time: 2:43 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 10.0	ug/L	SW 8021B	11/25/99
Benzene	< 1.0	ug/L	SW 8021B	11/25/99
Toluene	< 1.0	ug/L	SW 8021B	11/25/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	11/25/99
Xylenes, Total	< 1.0	ug/L	SW 8021B	11/25/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	11/25/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	11/25/99
Naphthalene	< 1.0	ug/L	SW 8021B	11/25/99
UIP's	0.		SW 8021B	11/25/99
Surrogate 1	102.	%	SW 8021B	11/25/99



Ref. Number: 147410

Site: MW-3

Date Sampled: November 11, 1999 Time: 3:01 PM

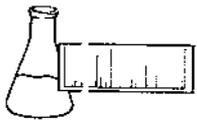
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	264.	ug/L	SW 8021B	11/25/99
Benzene	< 20.0	ug/L	SW 8021B	11/25/99
Toluene	56.8	ug/L	SW 8021B	11/25/99
Ethylbenzene	476.	ug/L	SW 8021B	11/25/99
Xylenes, Total	1,056.	ug/L	SW 8021B	11/25/99
1,3,5 Trimethyl Benzene	251.	ug/L	SW 8021B	11/25/99
1,2,4 Trimethyl Benzene	403.	ug/L	SW 8021B	11/25/99
Naphthalene	159.	ug/L	SW 8021B	11/25/99
UIP's	> 10.		SW 8021B	11/25/99
Surrogate 1	101.	%	SW 8021B	11/25/99

Ref. Number: 147411

Site: GMW-1

Date Sampled: November 11, 1999 Time: 3:09 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	140.	ug/L	SW 8021B	11/25/99
Benzene	< 10.0	ug/L	SW 8021B	11/25/99
Toluene	< 10.0	ug/L	SW 8021B	11/25/99
Ethylbenzene	56.7	ug/L	SW 8021B	11/25/99
Xylenes, Total	109.	ug/L	SW 8021B	11/25/99
1,3,5 Trimethyl Benzene	176.	ug/L	SW 8021B	11/25/99
1,2,4 Trimethyl Benzene	453.	ug/L	SW 8021B	11/25/99
Naphthalene	81.6	ug/L	SW 8021B	11/25/99
UIP's	> 10		SW 8021B	11/25/99
Surrogate 1	102.	%	SW 8021B	11/25/99



Ref. Number: 147412

Site: GMW-2

Date Sampled: November 11, 1999 Time: 2:55 PM

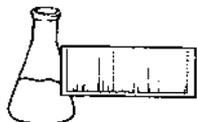
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 10.0	ug/L	SW 8021B	11/25/99
Benzene	< 1.0	ug/L	SW 8021B	11/25/99
Toluene	< 1.0	ug/L	SW 8021B	11/25/99
Ethylbenzene	3.8	ug/L	SW 8021B	11/25/99
Xylenes, Total	9.0	ug/L	SW 8021B	11/25/99
1,3,5 Trimethyl Benzene	19.4	ug/L	SW 8021B	11/25/99
1,2,4 Trimethyl Benzene	24.3	ug/L	SW 8021B	11/25/99
Naphthalene	72.0	ug/L	SW 8021B	11/25/99
UIP's	> 10		SW 8021B	11/25/99
Surrogate 1	102.	%	SW 8021B	11/25/99

Ref. Number: 147413

Site: GMW-3

Date Sampled: November 11, 1999 Time: 3:42 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 10.0	ug/L	SW 8021B	11/25/99
Benzene	< 1.0	ug/L	SW 8021B	11/25/99
Toluene	< 1.0	ug/L	SW 8021B	11/25/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	11/25/99
Xylenes, Total	< 1.0	ug/L	SW 8021B	11/25/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	11/25/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	11/25/99
Naphthalene	< 1.0	ug/L	SW 8021B	11/25/99
UIP's	0.		SW 8021B	11/25/99
Surrogate 1	101.	%	SW 8021B	11/25/99



Ref. Number: 147414

Site: MW-1

Date Sampled: November 11, 1999 Time: 3:48 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 10.0	ug/L	SW 8021B	11/25/99
Benzene	< 1.0	ug/L	SW 8021B	11/25/99
Toluene	< 1.0	ug/L	SW 8021B	11/25/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	11/25/99
Xylenes, Total	< 1.0	ug/L	SW 8021B	11/25/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	11/25/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	11/25/99
Naphthalene	< 1.0	ug/L	SW 8021B	11/25/99
UIP's	0.		SW 8021B	11/25/99
Surrogate 1	108.	%	SW 8021B	11/25/99

Ref. Number: 147415

Site: Duplicate MW1

Date Sampled: November 11, 1999 Time: 3:48 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 10.0	ug/L	SW 8021B	11/25/99
Benzene	< 1.0	ug/L	SW 8021B	11/25/99
Toluene	< 1.0	ug/L	SW 8021B	11/25/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	11/25/99
Xylenes, Total	< 1.0	ug/L	SW 8021B	11/25/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	11/25/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	11/25/99
Naphthalene	< 1.0	ug/L	SW 8021B	11/25/99
UIP's	0.		SW 8021B	11/25/99
Surrogate 1	101.	%	SW 8021B	11/25/99



Ref. Number: 147416

Site: GMW-4

Date Sampled: November 11, 1999 Time: 3:57 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 1,000.	ug/L	SW 8021B	11/25/99
Benzene	< 100.	ug/L	SW 8021B	11/25/99
Toluene	< 100.	ug/L	SW 8021B	11/25/99
Ethylbenzene	237.	ug/L	SW 8021B	11/25/99
Xylenes, Total	227.	ug/L	SW 8021B	11/25/99
1,3,5 Trimethyl Benzene	1,280.	ug/L	SW 8021B	11/25/99
1,2,4 Trimethyl Benzene	2,950.	ug/L	SW 8021B	11/25/99
Naphthalene	578.	ug/L	SW 8021B	11/25/99
UIP's	> 10.		SW 8021B	11/25/99
Surrogate 1	102.	%	SW 8021B	11/25/99

Project Name: <b>SHOWCASE VIDEO</b>	Reporting Address: <b>GRIFFIN</b>	Billing Address: <b>GRIFFIN</b>
Site Location: <b>FAIR HAVEN VT.</b>		
Endyne Project Number: <b>4912</b>	Company: <b>GRIFFIN TC</b>	Sampler Name: <b>J. ROCKLIN</b>
	Contact Name/Phone #: <b>GRIFFIN TC</b>	Phone #: <b>J. ROCKLIN</b>

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
147408	TRIP BLANK	H <sub>2</sub> O	✓		11.11.99 0747	2	40ml		8021B	HCL	
147409	MW-2				1443						
147416	MW-3				1501						
147411	GMW-1				1509						
147412	GMW-2				1455						
147413	GMW-3				1542						
147414	MW-1				1548						
147415	DUPLICATE MW-1				1548						
147416	GMW-4	↓			1557	↓	↓		↓		
	GMW-2				1455	1	1L		TPH 8015		
	GMW-1				1509	1	1L		GRO		
	GMW-3	↓	↓		1542	1	1L		↓	↓	

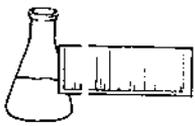
Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>Stacy Benjamin</i>	Date/Time 11/12/99 10:27 AM
Relinquished by: Signature <i>Stacy Benjamin</i>	Received by: Signature <i>Chadon Thout</i>	Date/Time 11/12 11:00

New York State Project: Yes  No  Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										







**ENDYNE, INC.**

**Laboratory Services**

32 James Brown Drive  
Williston, Vermont 05495  
(802) 879-4333  
FAX 879-7103

**LABORATORY REPORT**

CLIENT: Griffin International

ORDER ID: 4912

PROJECT: Showcase Video/#39941492

DATE RECEIVED: November 12, 1999

REPORT DATE: November 29, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director

enclosures



LABORATORY REPORT

CLIENT: Griffin International  
PROJECT: Showcase Video/#39941492  
REPORT DATE: November 29, 1999

ORDER ID: 4912  
DATE RECEIVED: November 12, 1999  
SAMPLER: JR  
ANALYST: 725

Ref. Number: 147411      Site: GMW-1      Date Sampled: November 11, 1999 Time: 3:09 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	3.8	mg/L	SW 8015B	11/25/99

Ref. Number: 147412      Site: GMW-2      Date Sampled: November 11, 1999 Time: 2:55 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	1.3	mg/L	SW 8015B	11/25/99

Ref. Number: 147413      Site: GMW-3      Date Sampled: November 11, 1999 Time: 3:42 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	< 0.1	mg/L	SW 8015B	11/25/99

Ref. Number: 147416      Site: GMW-4      Date Sampled: November 11, 1999 Time: 3:57 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	118.	mg/L	SW 8015B	11/25/99

Project Name: <b>SHOWCASE VIDEO</b>	Reporting Address: <b>GRIFFIN</b>	Billing Address: <b>GRIFFIN</b>
Site Location: <b>FAIRHAVEN VT.</b>		
Endyne Project Number: <b>4912</b>	Company: <b>GRIFFIN TC</b>	Sampler Name: <b>J. POOLIN</b>
	Contact Name/Phone #:	Phone #:

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
147408	TRIP BLANK	H <sub>2</sub> O	✓		11/11/99 0747	2	40 ml		80213	HCL	
147409	MW-2				1443						
147416	MW-3				1501						
147411	GMW-1				1509						
147412	GMW-2				1455						
147413	GMW-3				1542						
147414	MW-1				1548						
147415	DUPLICATE MW-1				1548						
147416	GMW-4	↓			1557	↓	↓				
	GMW-2				1455	1	1L				
	GMW-1				1509	1	1L				
	GMW-3	↓	↓		1542	1	1L				

Relinquished by: Signature <i>J. Poolin</i>	Received by: Signature <i>Stacy Benjamin</i>	Date/Time <i>11/12/99 10:27 AM</i>
Relinquished by: Signature <i>Stacy Benjamin</i>	Received by: Signature <i>Cherise Loutch</i>	Date/Time <i>11/12 11:00</i>

New York State Project: Yes  No

**Requested Analyses**

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										



Project Name: <u>CHOCURASE VIDEO</u>	Reporting Address: <u>GRIFFIN</u>	Billing Address: <u>GRIFFIN</u>
Site Location: <u>FAIR HAVEN VT.</u>		
Endyne Project Number:	Company: Contact Name/Phone #: <u>GRIFFIN TC</u>	Sampler Name: Phone #: <u>J. POOLIN</u>

Lab #	Sample Location	Matrix	GRA B	COMP	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
	TRIP BLANK	H <sub>2</sub> O	✓		11/11/99 0747	2	40 ml		80218	ACE	
	MW-2				1443						
	MW-3				1501						
	GMW-1				1509						
	GMW-2				1455						
	GMW-3				1542						
	MW-1				1548						
	DUPLICATE MW-1				1548						
	GMW-4	↓			1557	↓	↓		↓		
	GMW-2	↓			1455	1	1L		TPH 8018		
	GMW-1	↓			1509	1	1L		GRO		
	GMW-3	↓	↓		1542	1	1L		↓	↓	

Relinquished by: Signature <u>[Signature]</u>	Received by: Signature <u>[Signature]</u>	Date/Time <u>11/11/99</u>
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Relinquished by: Signature <u>[Signature]</u>	Received by: Signature <u>[Signature]</u>	Date/Time <u>11/11/99</u>
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 New York State Project: Yes  No 
**Requested Analyses**

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										