NOV 0 3 1995

GRIFFIN INTERNATIONAL INC.

November 1, 1995

Mr. Carl Ruprecht
S B Collins, Inc.
54 Lower Weldon Street
Saint Albans, VT 05478

RE: Report on the Investigation of Subsurface Petroleum Contamination at Simon's Down Town Quick Stop, Burlington, Vermont (VTDEC Site # 95-1877)

Dear Mr. Ruprecht:

Enclosed, please find the report on the Investigation of Subsurface Petroleum Contamination at the above referenced site.

Griffin is pleased to have conducted this work for you If you have any questions regarding the report or if we can be of assistance to you, please call me at (802) 865 - 4288.

Sincerely,

Laurie T. Reed

Laurie T. Reed,
Project Geologist

c. Jason Feingold, VT DEC

REPORT ON THE INVESTIGATION OF SUBSURFACE PETROLEUM CONTAMINATION

AT

SIMON'S DOWN TOWN QUICK STOP
93 SOUTH WINOOSKI AVENUE
BURLINGTON, VERMONT

VTDEC SITE #95-1877

October, 1995

PREPARED FOR:

S. B. Collins, Inc.
54 Lower Weldon Street
Saint Albans, Vermont 05478

Griffin International Inc.
PO Box 943 / 19 Commerce Street
Williston, VT 05495
(802) 865-4288

Griffin Project #9954742

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I. INTRODUCTION

This report describes the investigation of subsurface petroleum contamination at Simon's Down Town Quick Stop (Simon's) located at 93 South Winooski Avenue in the City of Burlington, Vermont. This investigation was conducted by Griffin International Inc. (Griffin) for S. B. Collins, Inc. of Saint Albans, Vermont, owner of the underground storage tank (UST) system at the site. The property is owned by Simon Handy of Burlington, Vermont.

This investigation was initiated after subsurface petroleum contamination was discovered at the site via in-ground vapor sensors. Free product was subsequently detected in two, preexisting, on-site monitoring wells (MW-1 and MW-2). The locations of these wells and the three USTs at the site are indicated on the attached Site Map, Appendix A.

Extensive UST and piping leak detection tests were conducted on the system. This included tracer and pressure testing. No leaks were detected. The tops of the USTs were then excavated. A poor connection in a vent line to the northern most UST was identified. The vent line was repaired and new overfill containment systems were installed on the three UST fill ports. No other irregularities or leaks were identified during tank and piping testing.

Griffin conducted site inspections during the period from September 6 to October 6, 1995. Seven monitoring wells were present at the site prior to this investigation. These wells had been installed as leak detection for the on-site USTs. Hydrogeologic data was collected from the wells on nine occasions, and a total of approximately 1 liter of free product was recovered from MW1 an MW2 by bailing. Data obtained during these initial site visits demonstrated that the seven existing wells were not deep enough to use in a thorough site assessment.

This investigation was initiated by S. B. Collins, Inc. through the Site Investigation Expressway Program.. An Expressway Notification was submitted to the Vermont Department of Environmental Conservation (VTDEC) on September 18, 1995 along with a status report containing data collected to date. Site investigation work began at Simon's on September 18, 1995 and was completed on October 6, 1995.

II. SITE DESCRIPTION

The site is located in a commercial area on South Winooski Avenue in the City of Burlington, Vermont (See Site Location Map in Appendix A.). A filling station has been located at the site for at least twenty years. Gasoline is currently stored in three USTs at the site.

The site gently slopes towards the south and is at an approximate elevation of 220 feet above sea level. Surface runoff at the site drains to storm sewers on South Winooski Avenue and Bank Street. All storm drains in the area feed into the Burlington Ravine sewer, which occupies a buried ravine that runs from northeast to southwest, approximately 400 feet southeast of the site. The ravine sewer reportedly drains directly into Lake Champlain.

The site is abutted to the north by Bank Street. Across Bank Street is Handy's Down Town Texaco (VTDEC Site #94-1676). The site is abutted to the south by a paved parking lot. Commercial businesses are located immediately south of the parking lot. The site is abutted to the east by South Winooski Avenue. A parking lot is located directly east of the site across South Winooski Avenue. The former Burlington Police, Nickelodeon Cinemas, and Smith, Bell, and Thompson are located southeast of the site across South Winooski Avenue. The site is abutted to the west by Center Street. A vacant commercial building, two retail shops, and the Daily Planet Restaurant are located west of the site across Center Street. Nearby buildings are indicated on the Area Map, Appendix A.

All properties in the area are served by the municipal water system which obtains water from Lake Champlain. All properties in the area are also served by the municipal sewer system. The site is also served by natural gas. These utilities connect to mains west of the building, beneath Center Street.

III. INVESTIGATIVE PROCEDURES

A. Monitoring Well Installation/Soil Screening

To better define the extent of subsurface petroleum contamination at the site, four additional groundwater monitoring wells were installed. MW8, MW9, and MW11 were installed on September 28, 1995; MW10 was installed on September 29, 1995. The wells were installed by Tri State Drilling and Boring of West Burke, Vermont under the direct supervision of a Griffin geologist. The wells were installed using a truck mounted 4 1/4" hollow stem auger. The wells are constructed of 2" diameter, 0.010" slot, PVC well screen and attached solid PVC riser. The annulus between the borehole wall and the screened section of each well is filled with sand pack to filter fine sediments in groundwater from entering the well. Approximately one foot above the screened section of each well, the annulus between the borehole wall and the riser is filled with a bentonite clay seal to prevent surface water and perched groundwater from entering the screened section of the borehole. A bentonite clay seal was also placed in the annular space of the borehole approximately one foot below grade to prevent surface water from entering the boring. Each well is protected at the surface by a flush mounted steel well head man-hole with a bolt down cover. Well construction details are listed on the well logs in Appendix B.

Undisturbed soil samples were collected at five foot intervals from the borings using a split spoon sampling device. Samples were logged and screened for VOCs using an HNU Model PI-101 PID equipped with a 10.2 electron volt lamp. Prior to screening, the PID was calibrated with isobutylene with reference made to benzene. Soil Samples were logged by the supervising Geologist. Detailed soil descriptions and VOC concentrations are listed on the well logs in Appendix B. The locations of these wells are indicated on the Site Map in Appendix A.

Subsurface materials at this site from grade to approximately 6 feet below grade generally consist of dry, medium and fine quartz sand. Generally, from approximately six feet below grade to 32 feet below grade, materials consist of horizontally interbedded silts, silts and fine sands, and

silts with clay and fine sands. Each of these portions of this interbedded formation contain 1 to 5 centimeter thick fine sand interbeds which generally occur at 1 to 3 feet intervals. A few 1 to 5 centimeter clay interbeds also occur. The clay interbeds are generally wet because they have retarded the vertical migration of surface water.

MW8 is located in the center of the side walk adjacent to Bank Street, approximately 15 feet north of and up-gradient from the on-site UST field. This well was installed to assess background water quality conditions at the site. Low VOC concentrations (0.1 to 12.9 ppm) were detected in soil samples collected from MW8. VOC concentrations peeked just above the water table.

MW9 is located approximately 25 feet down-gradient of the UST field, approximately 70 feet down-gradient from MW8, and approximately 30 feet west of the pump island. VOC concentrations detected in soil samples collected from MW9 ranged from 80 to 200 ppm in the vadose zone and from 3.0 to 25 ppm in the phreatic zone. VOC concentrations detected in the soil sample collected from the base of the boring at 30 to 32 feet from grade were 3.0 ppm.

MW10 is located approximately 90 feet down-gradient from the UST field and 35 feet down-gradient from the pump island. VOC concentrations detected in soil samples collected from MW10 raged from 4.0 to >200 ppm in the vadose zone and from 130 to 150 ppm in the phreatic zone. The highest VOC concentrations were detected in the vadose zone from 10 to 22 feet below grade.

MW11 is located approximately 25 feet east of and cross-gradient from the UST field and approximately 20 feet north of and up-gradient from the pump island. VOC concentrations detected in soil samples collected from MW11 raged from 17 ppm to 150 ppm in the vadose zone and from 1.0 to 3.0 ppm in the phreatic zone. The highest VOC concentrations were detected in the vadose zone from 10 to 12 feet below grade.

B. Water Table Measurements And Groundwater Flow

The water table elevations in all accessible on-site monitoring wells were measured on October 6, 1995. Water table elevations are plotted on the Groundwater Contour Map in Appendix A. The map indicates that groundwater in the vicinity of the site flows south-southeast. The average hydraulic gradient at the site is calculated to be approximately 1.3 percent.

A perched water table is apparent at between 10 and 12 feet below grade in MW2, frequently in MW3, and was detected once in MW7. It is not apparent if this water represents a "true" perched aquifer or is indicative of surface water entering the boreholes. The presence of water in MW7 very likely occurred from surface water entering the well at the well collar. Water was gauged in this well one day after a recent significant rainfall. The regional water table at the site is approximately 25 feet below grade.

No free product was detected in any of the monitoring wells on October 6, 1995 except MW1. Free product has been present in MW1 for nine consecutive site visits starting on September 6, 1995. A total of 0.9 liters of free product has been removed from the well by bailing from September 6, 1995 through September 28, 1995. The thickness of free product measured in MW1 has decreased from 0.43 feet on September 6, 1995 to 0.24 feet on October 6, 1995. The free product measurements for MW1 are from the bottom of or just above the bottom of the well. On September 6, 1995, 0.40 feet of free product was measured in MW2. By September 12, 1995, bailing of approximately 0.15 liters had resulted in the complete removal of free product from the well. This was confirmed by four subsequent measurements recorded between September 15, 1995 and October 6, 1995. All groundwater level data collected on October 6, 1995 are recorded on the Liquid Level Table in Appendix C. Previously obtained hydrologic data is also tabulated in Appendix C.

C. Groundwater Sampling and Analysis

On October 6, 1995, Griffin collected groundwater samples from the newly installed on-site monitoring wells. Laboratory results are summarized below in Table 1 and plotted and contoured on the Contaminant Distribution Map in Appendix A. Laboratory report forms are presented in Appendix D. All collected samples were analyzed according to EPA Method 602 which tests for the presence of some petroleum related VOCs including the petroleum compounds benzene, toluene, ethyl benzene, xylenes (collectively referred to as BTEX), and methyl tertiary butyl ether (MTBE) which is an octane boosting additive. All samples were collected according to Griffin's Sampling Protocol. Duplicate, trip blank, and equipment blank samples collected during the sampling indicate that adequate quality assurance/quality control was maintained during sample collection and analysis, with the exception of traces of VOCs detected in the equipment blank.

Analysis of the groundwater sample collected from MW8, up-gradient from the UST field, indicates the presence of benzene and MTBE in concentrations exceeding the Vermont Groundwater Enforcement Standard (VGES) or Health Advisory Levels (HALS) for the compounds.

Analysis of the groundwater sample collected from MW9 located directly down-gradient from the UST field, indicates the presence of relatively high concentrations of benzene, toluene, ethyl benzene, and MTBE detected in concentrations above the HALs for the compounds.

Analysis of the groundwater sample collected from MW10, located down-gradient from the former tank field and pump island and just north of the property boundary, indicates the presence of benzene, toluene and ethyl-benzene detected in concentrations above the HALs for the compounds. MTBE is also likely present, but it was not indicated in concentration above the method detection limit of the analysis of 1,000 ppb for the compound.

Analysis of the groundwater sample collected from MW11, located cross-gradient from the tank field and up-gradient from the pump island, indicates benzene and toluene in

TABLE 1.

Groundwater Quality Summary
Simon's Down Town Quick Stop
Burlington, Vermont

Monitoring Date: 6/1/95

All Values Reported in ug/L (ppb)

PARAMETER	MW8	MW9	MW10	MW11	Enforcement Standard
Benzene	**54.3**	**20,100.**	**6,420.**	**2,620.**	5.0*
Chlorobenzene	ND>1	ND>200	ND>100	ND>20	100**
1,2-DCB	ND>1	ND>200	ND>100	ND>20	600*
1,3-DCB	ND>1	ND>200	ND>100	ND>20	600**
1,4-DCB	ND>1	ND>200	ND>100	ND>20	75*
Ethylbenzene	**TBQ<1**	**2,210.**	**1,030.**	**177.**	700**
Toluene	**4.1**	**24,200.**	**12,100.**	**1,290.**	1,000**
Xylenes	**16.1**	**9,710.**	**4,850.**	**861.**	10,000**
Total BTEX	**75.**	**56,220.**	**24,400.**	**4,948.**	-
MTBE	**47.1**	**2,780.**	ND>1000	ND>200	40**
BTEX+MTBE	**122.**	**59,000.**	**24,400.**	**4,948.**	-

* - EPA Maximum Contaminant Level

** - VT Health Advisory Level

ANALYSIS BY EPA METHOD 602

ND> - None detected above stated limits

TBQ - Trace, below statated quantitation limits

concentrations exceeding VGES and/or HALs for the compounds. Ethyl benzene and xylenes were detected in concentrations below the applicable groundwater enforcement standards for the compounds.

IV. RECEPTOR SURVEY AND RISK ASSESSMENT

Griffin conducted a visual survey of the site to identify local potential receptors of subsurface petroleum contaminants.

The Simon's Down Town Quick Stop building is constructed on a concrete slab and is not likely to be impacted by petroleum vapors from the subsurface. Nearby commercial buildings with basements, located cross-gradient and down-gradient from the site were screened for the presence of VOCs with a PID on October 6, 1995. The following buildings were screened: Army Navy, Daily Planet, Golf Shop, Smith, Bell and Thompson, and Nan Patrick. The Nickelodeon Cinemas building is of slab-on-grade construction so ambient air in the ground floor was screened. Prior to entry into each building, outdoor ambient air was screened to obtain a background concentration. Ambient air was screened in each building in the basement (breathing zone), and along the footings on the wall closest to the site. Air in a sump in the basement of the Army Navy Store was also screened. No elevated PID responses were recorded in any of the buildings. Given the above data, the proximity of the buildings from the groundwater contaminant plume, and given the depth of the water table in the vicinity of the site, there does not appear to be any significant risk of impact to the buildings from petroleum contamination originating from the site.

Municipal water and sewer serves the area including the subject property. The water source, Lake Champlain, is not at risk of impact from subsurface petroleum contamination at the subject property. No supply wells were identified in the vicinity of the site. There is not likely any potential for pubic utilities to act a preferential pathways for dispersion of contaminated groundwater, given the depth of the water table in the area.

No other potential receptors of petroleum contamination were identified.

V. CONCLUSIONS

On the basis of this investigation, Griffin has concluded the following:

1) There have been releases of petroleum products at this site. The amounts and durations of the release are unknown.

2) The sources of the current releases were likely related to UST overfills and from a faulty vent piping connection. All USTs and ancillary equipment have recently been tested; no system leaks were identified with the exception of the vent line connection. New overfill protection was installed on the fill pipes of all three USTs.

3) The subsurface materials at this site consist of approximately six feet of fine and medium grained sands underlain by horizontally interbedded silt, silts with fine sand, and silt with clay. Some fine sand and few small clay interbeds are also present in the formation. The groundwater flows towards the south-southeast at a gradient of 1.8 percent.

4) The releases of petroleum product at this site have apparently resulted in adsorbed phase contamination of soils beneath the site, above and below the water table. The releases have also resulted in dissolved and free phase groundwater contamination. Groundwater in the vicinity of and down-gradient from the tank field is impacted by petroleum compounds in concentrations above applicable groundwater enforcement standards. The groundwater contaminant plume extends down-gradient from the tank fields to the south-southeast, closely following groundwater flow. Petroleum contamination extends vertically to a depth of at least 32 feet in the area directly down-gradient and cross-gradient from the UST field. Petroleum contamination at the down-gradient end of the site is limited to the water table.

5) No sensitive receptors other than soil and groundwater were found to have been impacted from subsurface contamination at the site.

6) If no additional releases occur, dissolved petroleum compounds in groundwater and absorbed petroleum compounds in soil will be gradually reduced by the natural processes of dispersion, dilution and bio-degradation

VI. RECOMMENDATIONS

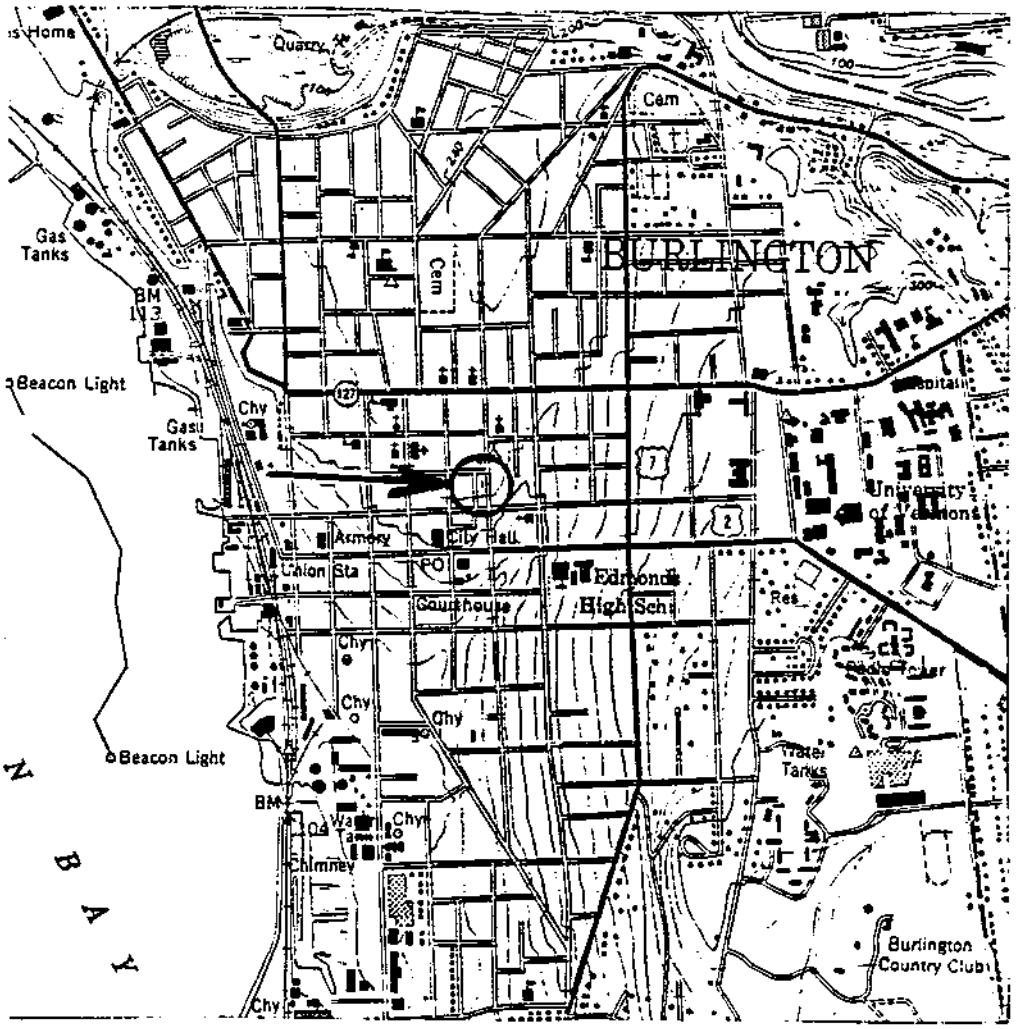
On the basis of the above conclusions, Griffin recommends the following:

1) Since no sensitive receptors (except groundwater) appear to be impacted, and since there does not appear to be any significant risk to human health or the environment from the subsurface petroleum contamination at Simon's Down Town Quick Stop, active remediation is not currently recommended at the site.

2) Because of the presence of petroleum compounds which exceed applicable groundwater enforcement standards in monitoring wells at the site, the monitoring wells should be sampled on a quarterly basis, for a period of one year, to establish a trend of groundwater quality improvement at the site. If groundwater quality does remains stable or improves after a period of one year, monitoring frequency should be reduced to annually until contamination concentrations are reduced to acceptable levels.

APPENDIX A

SITE LOCATION MAP
AREA MAP
SITE MAP
GROUNDWATER CONTOUR MAP
GROUNDWATER CONTAMINANT DISTRIBUTION MAP



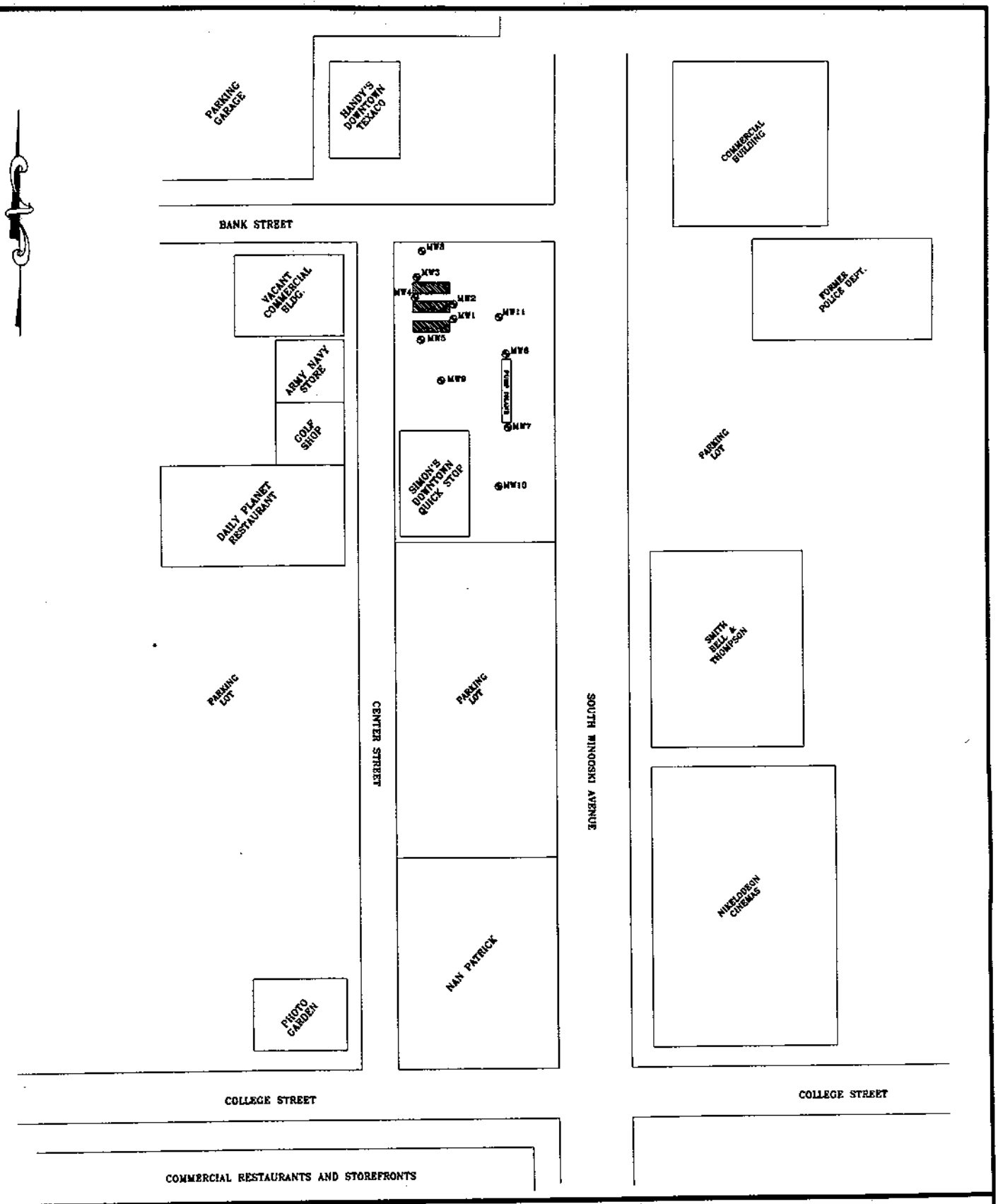
JOB #: 9954742
SOURCE: USGS- BURLINGTON, VERMONT QUADRANGLE

GRIFFIN INTERNATIONAL INC

SIMON'S
DOWNTOWN QUICK STOP
BURLINGTON, VERMONT

SITE LOCATION MAP

DATE: 9/18/95	DWG.#:1	SCALE: 1:24000	DRN.:SB	APP.:LR



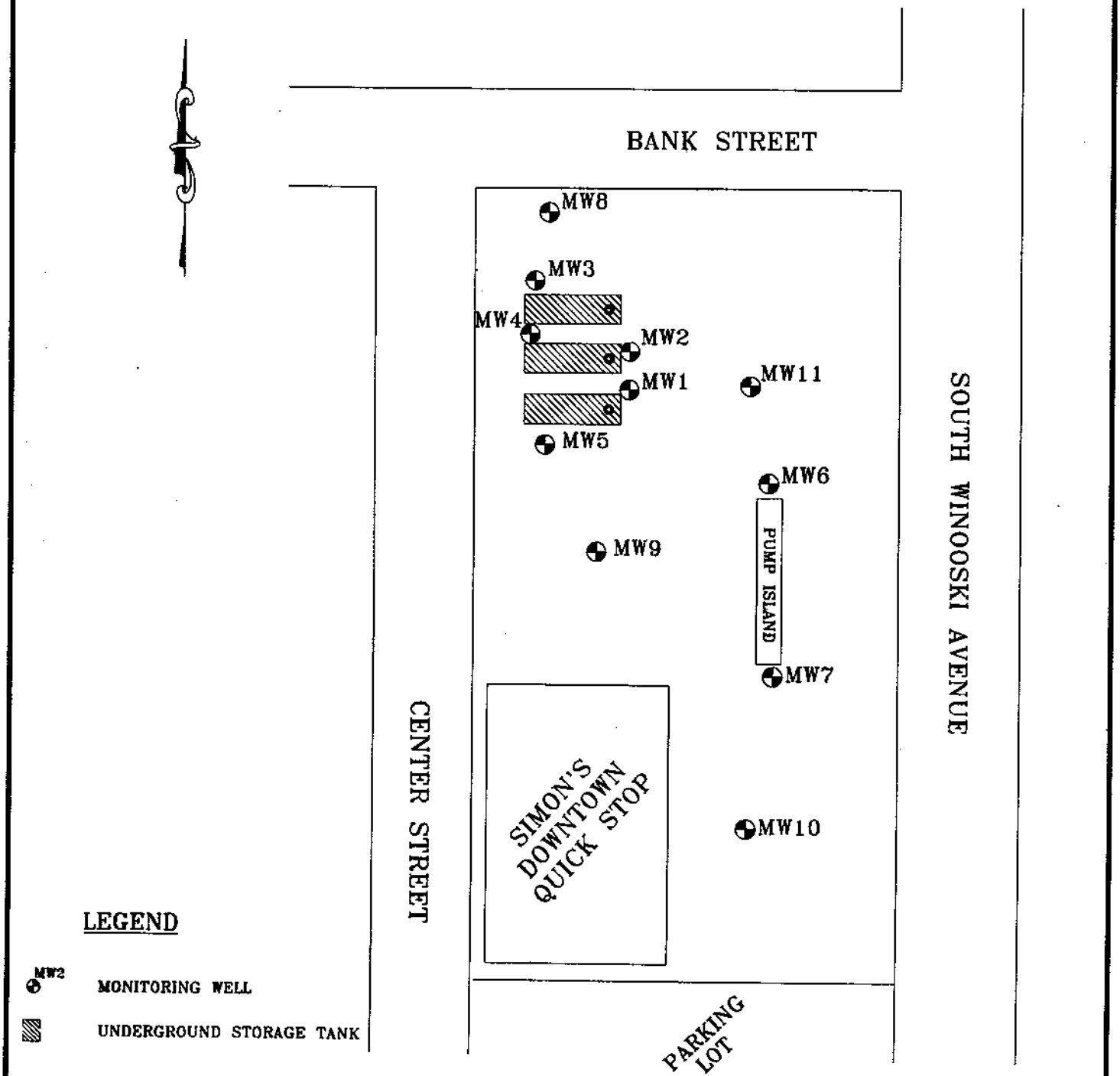
JOB #: 9954742

GRIFFIN INTERNATIONAL INC

SIMON'S
DOWNTOWN QUICK STOP
BURLINGTON, VERMONT

AREA MAP

DATE: 10/23/95	DWG.#: 2	SCALE: NONE	DRN.:SB	APP.:LR



JOB #: 9954742
REVISED 10/20/95: ADDED MW8, MW9, MW10 AND MW11 TO SITE MAP.

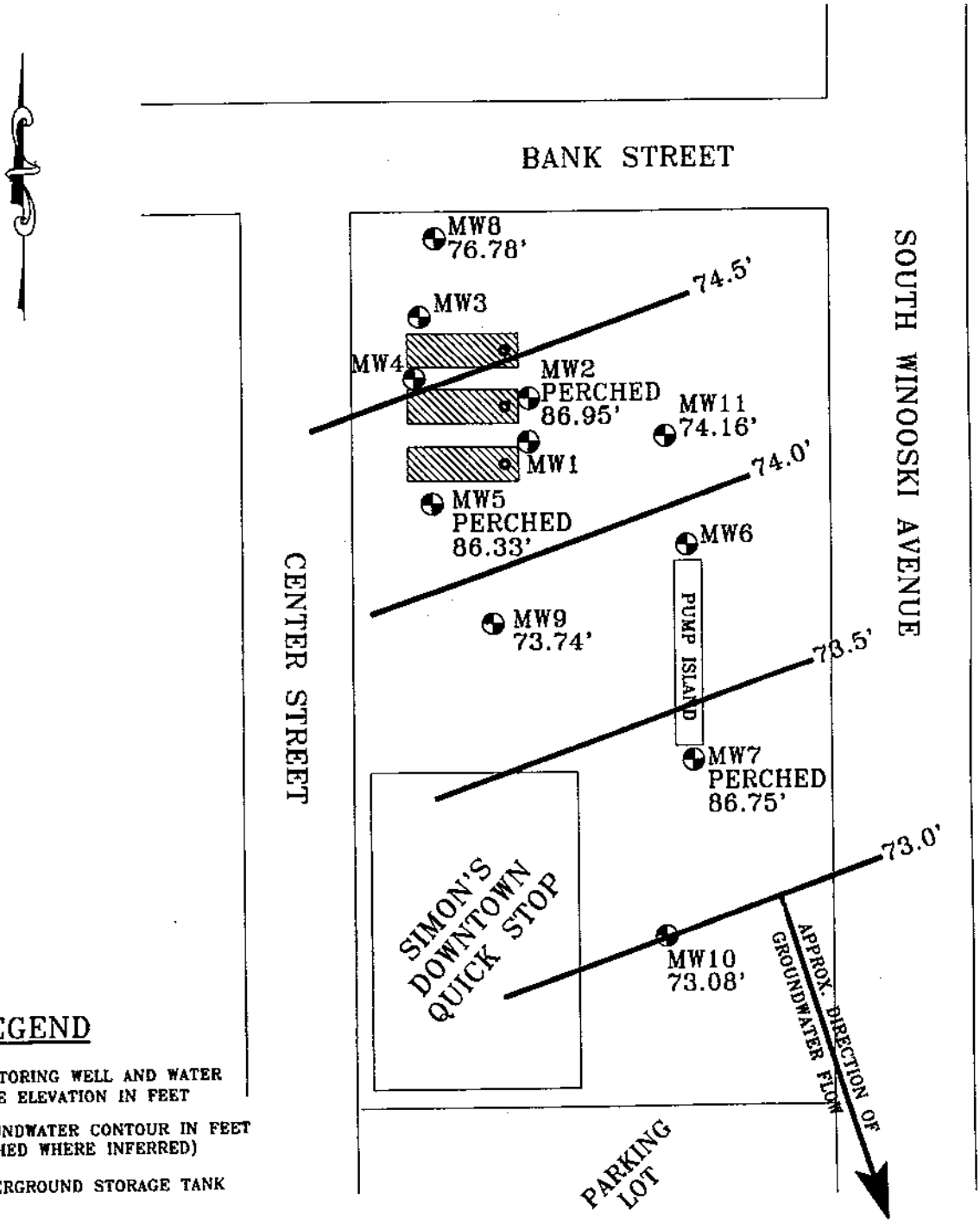
GRIFFIN INTERNATIONAL INC.

SIMON'S DOWNTOWN QUICK STOP

BURLINGTON, VERMONT

SITE SKETCH

DATE: 9/18/95	DWG.#: 3	SCALE: 1"=30'	DRN.:SB	APP.:LR



LEGEND

- MW1 74.16' — MONITORING WELL AND WATER TABLE ELEVATION IN FEET
- 74.0' — GROUNDWATER CONTOUR IN FEET (DASHED WHERE INFERRED)
- UNDERGROUND STORAGE TANK

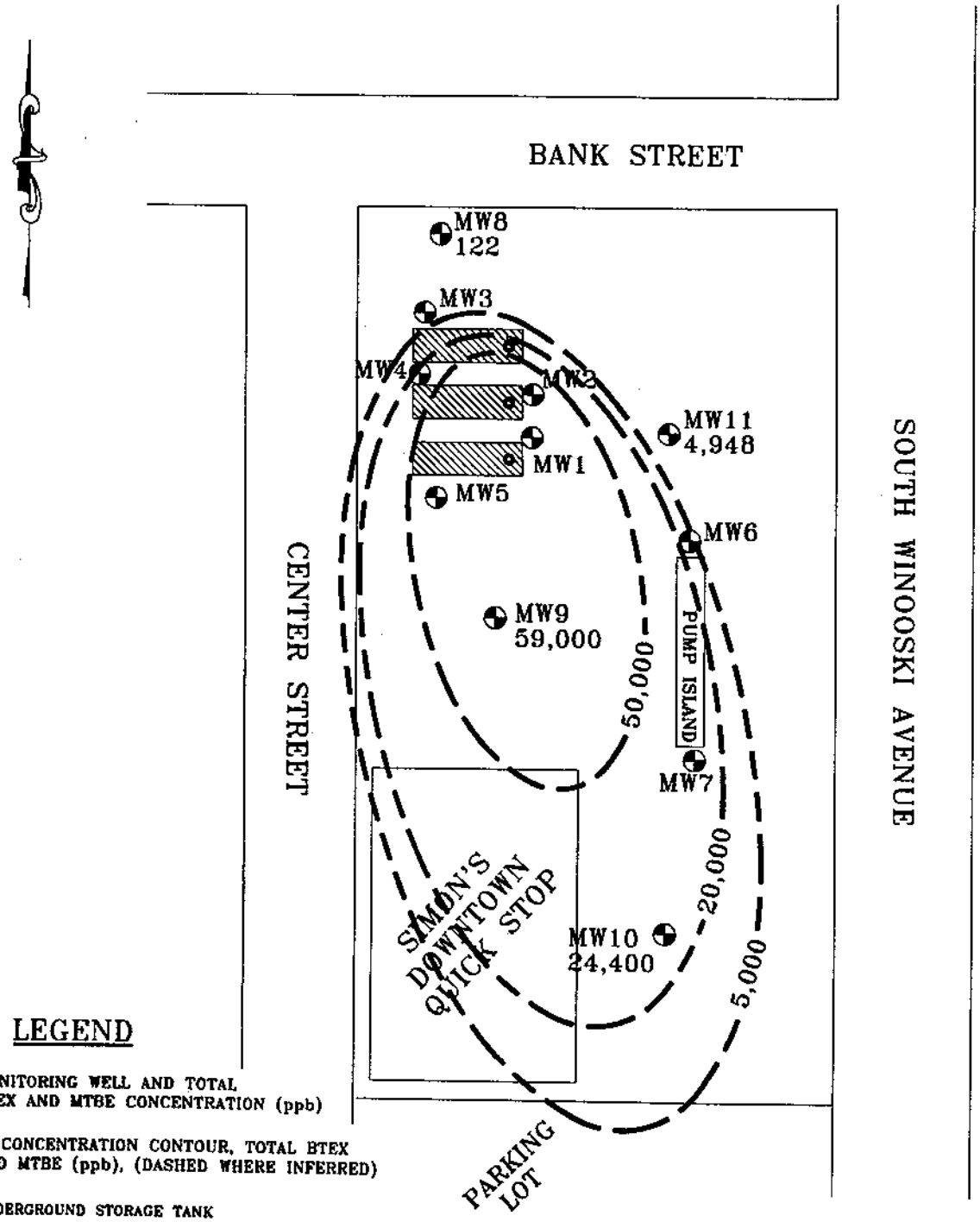
JOB #: 9954742
MEASUREMENT DATE: 10/6/95
REVISED 10/20/95: ADDED MW8, MW9, MW10 AND MW11 TO SITE MAP.

GRIFFIN INTERNATIONAL INC

SIMON'S
DOWNTOWN QUICK STOP
BURLINGTON, VERMONT

GROUNDWATER CONTOUR MAP

DATE: 10/23/95	DWG.#: 4	SCALE: 1"=30'	DRN.:SB	APP.:LR



JOB #: 9954742
SAMPLE DATE: 10/6/95
REVISED 10/20/95: ADDED MW8, MW9, MW10 AND MW11 TO SITE MAP.

GRIFFIN INTERNATIONAL INC

SIMON'S DOWNTOWN QUICK STOP
BURLINGTON, VERMONT

CONTAMINANT CONCENTRATION MAP

DATE: 10/23/95	DWG.#: 5	SCALE: 1"=30'	DRN.:SB	APP.:LR

APPENDIX B

DRILLING LOGS

PROJECT SIMON'S DOWNTOWN QUICK STOP

LOCATION BURLINGTON, VERMONT

DATE DRILLED 9/28/95 TOTAL DEPTH OF HOLE 32'

DIAMETER 4.25"

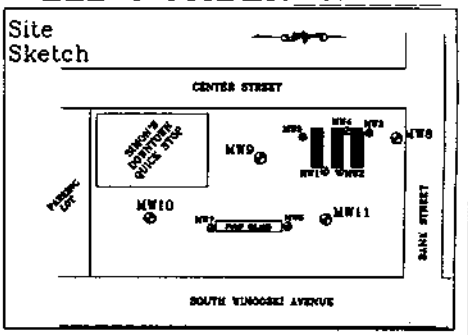
SCREEN DIA. 2" LENGTH 20' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 9.5' TYPE sch 40 pvc

DRILLING CO. TRI-STATE DRILLING METHOD HSA

DRILLER BOB LOG BY L. REED

WELL NUMBER MW8



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX LOCKING WELL CAP CONCRETE		Concrete	0
2		BENTONITE	@ 3' 0.1 ppm	Brown, dry, very fine SAND with some silt.	2
4		NATIVE BACKFILL			4
6		WELL RISER	5'-7'- 7/8/8/9 18" recovery 0.1 ppm	Light brown very fine SAND with moist brown silt, interbedded ~ 10 cm. thick.	6
8		BENTONITE		Damp SILT	8
10			10'-12'- 6/7/7/7 12" Recovery 1.5 ppm	Gray and brown, moist, SILT with some fine sand.	10
12					12
14		SAND PACK			14
16			15'-17'- 1/3/4/5 18" Recovery 0.1 ppm	Gray, moist, SILT with some fine sand.	16
18					18
20			20'-22'- 1/4/3/6 20" Recovery 12.9 ppm	Gray, moist, SILT with some fine sand.	20
22		WELL SCREEN			22
24				25.0' WATER TABLE	24
26			25'-27'- 3/4/4/5 20" Recovery 6.5 ppm	Gray, moist to wet, SILT with 8 cm. brown fine sand interbedded.	26
28		BOTTOM CAP			28
30			30'-32'- 7/8/9/9 18" Recovery 3.5 ppm	Gray, moist to wet, SILT and fine SAND interbedded.	30
32		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 29.85' END OF EXPLORATION AT 32'	32
34					34
36					36
38					38
40					40
42					42
44					44
46					46
48					48
50					50

PROJECT SIMON'S DOWNTOWN QUICK STOP

LOCATION BURLINGTON, VERMONT

DATE DRILLED 9/28/95 TOTAL DEPTH OF HOLE 32'

DIAMETER 4.25"

SCREEN DIA. 2" LENGTH 20' SLOT SIZE 0.010"

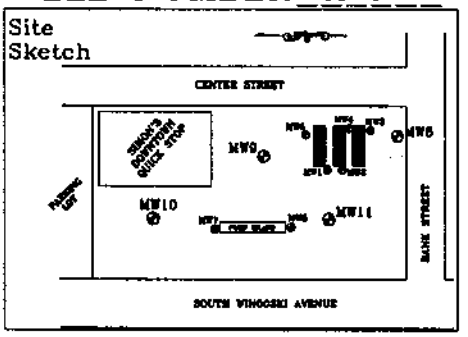
CASING DIA. 2" LENGTH 9.5' TYPE sch 40 pvc

DRILLING CO. TRI-STATE DRILLING METHOD HSA

DRILLER BOB LOG BY L. REED

WELL NUMBER MW9

Site Sketch



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX LOCKING WELL CAP CONCRETE		Concrete	0
2			@ 3' 80 ppm	Dark brown, dry, SAND and GRAVEL FILL, old petroleum odor.	2
4		NATIVE BACKFILL			4
6		WELL RISER	5'-7'- 4/3/2/2 No Recovery	No Recovery	6
8		BENTONITE			8
10			10'-12'- 4/6/6/8 18" Recovery 200 ppm	Light brown, dry SILT with very fine SAND with dry brown fine SAND interbedded ~ 10 cm.	10
12					12
14					14
16		SAND PACK	15'-17'- 3/4/5/5 6" Recovery 160 ppm	Brown, damp, SILT, petroleum odor.	16
18					18
20			20'-22'- 4/4/4/4 8" Recovery 110 ppm	Brown/gray SILT, alternating wet to moist interbedded ~ 8 cm. each.	20
22					22
24				25.0' WATER TABLE ▼	24
26			25'-27'- 2/2/4/2 22" Recovery 25 ppm	Gray, wet, SILT.	26
28		BOTTOM CAP			28
30			30'-32'- 4/4/5/6 24" Recovery 3.0 ppm	Gray, wet, SILT with 8 cm. fine SAND interbedded.	30
32		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 30.0' END OF EXPLORATION AT 32'	32
34					34
36					36
38					38
40					40
42					42
44					44
46					46
48					48
50					50

PROJECT SIMON'S DOWNTOWN QUICK STOP

LOCATION BURLINGTON, VERMONT

DATE DRILLED 9/29/95 TOTAL DEPTH OF HOLE 32'

DIAMETER 4.25"

SCREEN DIA. 2" LENGTH 15' SLOT SIZE 0.010"

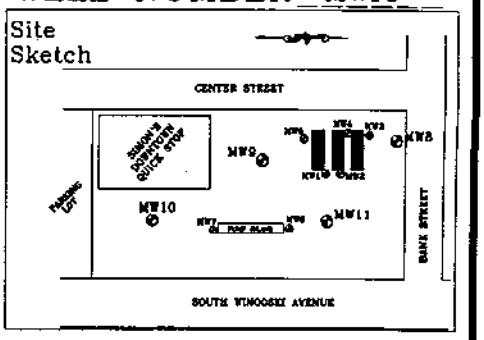
CASING DIA. 2" LENGTH 14.5' TYPE sch 40 pvc

DRILLING CO. TRI-STATE DRILLING METHOD HSA

DRILLER NEIL LOG BY L. REED

WELL NUMBER MW10

Site Sketch



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX LOCKING WELL CAP CONCRETE		Asphalt	0
2		BENTONITE	@ 3' 4.0 ppm	Brown, dry, fine and medium SAND.	2
4		NATIVE BACKFILL			4
6		WELL RISER	5'-7'- 2/2/1/2 9" recovery ND	Gray, dry, SILT with 3 cm. thick brown dry fine SAND, interbedded.	6
8				8.5' cobble	8
10			10'-12'- 3/4/5/5 24" Recovery >200 ppm	Brown, moist, SILT with clay with 5 cm. thick fine SAND interbedded.	10
12		BENTONITE			12
14					14
16			15'-17'- 4/4/4/4 20" Recovery >200 ppm	Moist SILT with 2-4 cm. thick fine SAND interbedded, gasoline odor.	16
18		SAND PACK			18
20			20'-22'- 1/2/2/2 23" Recovery 200 ppm	Brown/gray, moist to wet SILT with some clay, < 1 cm. thick fine sand interbedded.	20
22		WELL SCREEN			22
24				25.0' WATER TABLE ▼	24
26			25'-27'- 2/2/3/5 20" Recovery 130 ppm	Wet SILT with little clay, brown/gray with 1 cm. thick silty fine sand interbedded.	26
28		BOTTOM CAP			28
30			30'-32'- 4/4/4/4 20" Recovery 150 ppm	Brown to gray, wet, SILT with silt and clay interbedded.	30
32		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 30.0' END OF EXPLORATION AT 32'	32
34					34
36					36
38					38
40					40
42					42
44					44
46					46
48					48
50					50

PROJECT SIMON'S DOWNTOWN QUICK STOP

LOCATION BURLINGTON, VERMONT

DATE DRILLED 9/28/95 TOTAL DEPTH OF HOLE 32'

DIAMETER 4.25"

SCREEN DIA. 2" LENGTH 20' SLOT SIZE 0.010"

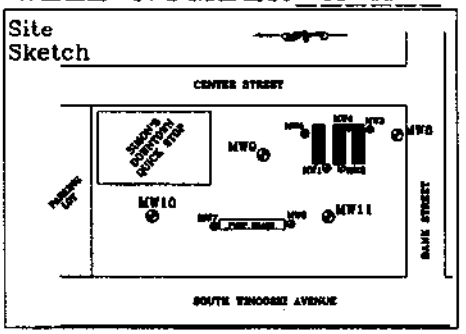
CASING DIA. 2" LENGTH 9.5' TYPE sch 40 pvc

DRILLING CO. TRI-STATE DRILLING METHOD HSA

DRILLER BOB LOG BY L. REED

WELL NUMBER MW11

Site Sketch



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX LOCKING WELL CAP CONCRETE BENTONITE		Asphalt	0
2			@ 3' 17 ppm	Dark brown, dry, medium and fine SAND, slight odor.	2
4		NATIVE BACKFILL			4
6		WELL RISER	5'-7'- 1/1/1/9 6" recovery 28 ppm	Dark brown, dry, fine and medium SAND, stained, odor.	6
8		BENTONITE			8
10			10'-12'- 3/3/3/6 20" Recovery 150 ppm	Dark brown and gray SILT with fine SAND interbedded, 2-4 cm. thick.	10
12					12
14		SAND PACK			14
16			15'-17'- 2/2/4/2 50 ppm	Gray, wet to moist, SILT with fine sand interbedded.	16
18					18
20			20'-22'- 2/2/3/3 20 ppm	Gray, wet to moist, SILT with fine sand interbedded.	20
22		WELL SCREEN			22
24				25.0' WATER TABLE ▼	24
26			25'-27'- 1/2/3/2 18" Recovery 1 ppm	Gray, moist to wet, SILT.	26
28		BOTTOM CAP			28
30			30'-32'- 2/2/3/4 16" Recovery 3 ppm	Gray, moist to wet, SILT with fine sand interbedded.	30
32				BASE OF WELL AT 29.55' END OF EXPLORATION AT 32'	32
34		UNDISTURBED NATIVE SOIL			34
36					36
38					38
40					40
42					42
44					44
46					46
48					48
50					50

APPENDIX C

WATER LEVEL DATA

Monitoring Well Gauging Data
Simon's Down Town Quick Stop
Burlington, Vermont

MW7
Bottom of Well = 12.60

DATE	DEPTH TO PRODUCT (FT	DEPTH TO WATER (FT)	PRODUCT THICKNESS (FT)	AMOUNT BAILED (ML)
9/6/95	-	dry	0	0
9/8/95	-	dry	0	0
9/11/95	-	dry	0	0
9/12/95	-	dry	0	0
9/13/95	-	dry	0	0
9/15/95	-	dry	0	0
9/18/95	-	dry	0	0
10/6/95	-	10.49	0	0
			TOTAL:	0

Monitoring Well Gauging Data
Simon's Down Town Quick Stop
Burlington, Vermont

MW4
Bottom of Well = 12.03

DATE	DEPTH TO PRODUCT (FT	DEPTH TO WATER (FT)	PRODUCT THICKNESS (FT)	AMOUNT BAILED (ML)
9/6/95	-	dry	0	0
9/8/95	-	dry	0	0
9/11/95	-	dry	0	0
9/12/95	-	dry	0	0
9/13/95	-	dry	0	0
9/15/95	-	dry	0	0
9/18/95	-	dry	0	0
10/6/95	-	dry	0	0
			TOTAL:	0

MW5
Bottom of Well = 13.50

DATE	DEPTH TO PRODUCT (FT	DEPTH TO WATER (FT)	PRODUCT THICKNESS (FT)	AMOUNT BAILED (ML)
9/6/95	-	12.40	0	0
9/8/95	-	no data	0	0
9/11/95	-	dry	0	0
9/12/95	-	dry	0	0
9/13/95	-	12.47	0	0
9/15/95	-	no data	0	0
9/18/95	-	no data	0	0
10/6/95	-	12.82	0	0
			TOTAL:	0

MW6
Bottom of Well = 12.70

DATE	DEPTH TO PRODUCT (FT	DEPTH TO WATER (FT)	PRODUCT THICKNESS (FT)	AMOUNT BAILED (ML)
9/6/95	-	dry	0	0
9/8/95	-	dry	0	0
9/11/95	-	dry	0	0
9/12/95	-	dry	0	0
9/13/95	-	dry	0	0
9/15/95	-	dry	0	0
9/18/95	-	dry	0	0
10/6/95	-	dry	0	0
			TOTAL:	0

Monitoring Well Gauging Data
Simon's Down Town Quick Stop
Burlington, Vermont

MW1
Bottom of Well = 12.52

DATE	DEPTH TO PRODUCT (FT	DEPTH TO WATER(FT)	PRODUCT THICKNESS (FT)	AMOUNT BAILED (ML)
9/6/95	11.88	12.31	0.43	200
9/8/95	-	11.93	0	0
9/11/95	11.96	12.29	0.33	200
9/12/95	12.10	12.44	0.34	200
9/13/95	12.12	12.38	0.26	100
9/15/95	12.21	12.45	0.24	100
9/18/95	12.17	12.49	0.32	75
9/28/95	12.19	12.48	0.29	50
10/6/95	12.28	12.52	0.24	0
			TOTAL:	925

MW2
Bottom of Well = 13.33

DATE	DEPTH TO PRODUCT (FT	DEPTH TO WATER (FT)	PRODUCT THICKNESS (FT)	AMOUNT BAILED (ML)
9/6/95	12.34	12.74	0.40	100
9/8/95	-	12.48	0.00	0
9/11/95	12.47	12.50	0.03	50
9/12/95	12.50	12.52	0.02	0
9/13/95	-	12.26	0.00	0
9/15/95	-	12.49	0.00	0
9/18/95	-	12.55	0.00	0
9/28/95	-	12.73	0.00	0
10/6/95	-	12.55	0	0
			TOTAL:	150

MW3
Bottom of Well = 12.97

DATE	DEPTH TO PRODUCT (FT	DEPTH TO WATER (FT)	PRODUCT THICKNESS (FT)	AMOUNT BAILED (ML)
9/6/95	-	dry	0	0
9/8/95	-	dry	0	0
9/11/95	-	dry	0	0
9/12/95	-	dry	0	0
9/13/95	-	dry	0	0
9/15/95	-	dry	0	0
9/18/95	-	dry	0	0
10/6/95	-	dry	0	0
			TOTAL:	0

Liquid Level Monitoring Data
Simon's Down Town Quick Stop
Burlington, Vermont

Monitoring Date: 10/6/95

Well I.D.	Well Depth	Top of Casing Elevation	Depth To Product	Depth To Water	Product Thickness	Corrected Water Table Elevation
MW-1	12.52	99.05	12.28	-	0.24	-
MW-2	13.33	99.50	-	12.55	-	86.95
MW-3	12.97	na	-	dry	-	-
MW-4	12.03	na	-	dry	-	-
MW-5	13.50	99.15	-	12.82	-	86.33
MW-6	12.70	98.20	-	dry	-	-
MW-7	12.60	97.24	-	10.49	-	86.75
MW-8	29.20	100.00	-	23.22	-	76.78
MW-9	28.95	98.07	-	24.33	-	73.74
MW-10	29.30	96.47	-	23.39	-	73.08
MW-11	29.20	98.98	-	24.82	-	74.16

NOTES:
- ALL MEASUREMENTS IN FEET.
- Elevations Based on Arbitrary Datum with Top of Casing of MW8 Set at 100 ft.

APPENDIX D

LABORATORY RESULTS

ENDYNE, INC.

Laboratory Services

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

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: Downtown Quick Stop
REPORT DATE: October 17, 1995
DATE SAMPLED: October 6, 1995

PROJECT CODE: GIDQ1516
REF.#: 80,943 - 80,949

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated samples were preserved with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times. All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method. 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.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Downtown Quick Stop
REPORT DATE: October 17, 1995
DATE SAMPLED: October 6, 1995
DATE RECEIVED: October 9, 1995
DATE ANALYZED: October 13, 1995

PROJECT CODE: GIDQ1516
REF.#: 80,943
STATION: MW8
TIME SAMPLED: 14:42
SAMPLER: L. Reed

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Benzene	1	54.3
Chlorobenzene	1	ND[1]
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	TBQ[2]
Toluene	1	4.1
Xylenes	1	16.1
MTBE	10	47.1

Bromobenzene Surrogate Recovery: 104%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

NOTES:

1 None detected

2 Trace below quantitation limit

ENDYNE, INC.

Laboratory Services

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FAX 879-7103

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Downtown Quick Stop
REPORT DATE: October 17, 1995
DATE SAMPLED: October 6, 1995
DATE RECEIVED: October 9, 1995
DATE ANALYZED: October 16, 1995

PROJECT CODE: GIDQ1516
REF.#: 80,944
STATION: MW9
TIME SAMPLED: 14:59
SAMPLER: L. Reed

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	200	20,100.
Chlorobenzene	200	ND[2]
1,2-Dichlorobenzene	200	ND
1,3-Dichlorobenzene	200	ND
1,4-Dichlorobenzene	200	ND
Ethylbenzene	200	2,210.
Toluene	200	24,200.
Xylenes	200	9,710.
MTBE	2,000	2,780.

Bromobenzene Surrogate Recovery: 103%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 0.5% dilution.

2 None detected

ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Downtown Quick Stop
REPORT DATE: October 17, 1995
DATE SAMPLED: October 6, 1995
DATE RECEIVED: October 9, 1995
DATE ANALYZED: October 16, 1995

PROJECT CODE: GIDQ1516
REF.#: 80,945
STATION: MW10
TIME SAMPLED: 15:34
SAMPLER: L. Reed

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	100	6,420.
Chlorobenzene	100	ND[2]
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	100	1,030.
Toluene	100	12,100.
Xylenes	100	4,850.
MTBE	1,000	ND

Bromobenzene Surrogate Recovery: 100%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 10

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 1% dilution.

2 None detected

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
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FAX 879-7103

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Downtown Quick Stop
REPORT DATE: October 17, 1995
DATE SAMPLED: October 6, 1995
DATE RECEIVED: October 9, 1995
DATE ANALYZED: October 13, 1995

PROJECT CODE: GIDQ1516
REF.#: 80,946
STATION: MW11
TIME SAMPLED: 15:16
SAMPLER: L. Reed

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	20	2,620.
Chlorobenzene	20	ND[2]
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	20	177.
Toluene	20	1,290.
Xylenes	20	861.
MTBE	200	ND

Bromobenzene Surrogate Recovery: 106%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 5% dilution.

2 None detected

ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Downtown Quick Stop
REPORT DATE: October 17, 1995
DATE SAMPLED: October 6, 1995
DATE RECEIVED: October 9, 1995
DATE ANALYZED: October 16, 1995

PROJECT CODE: GIDQ1516
REF.#: 80,947
STATION: Duplicate to MW10
TIME SAMPLED: 15:34
SAMPLER: L. Reed

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	100	6,860.
Chlorobenzene	100	ND[2]
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	100	1,130.
Toluene	100	13,100.
Xylenes	100	5,350.
MTBE	1,000	ND

Bromobenzene Surrogate Recovery: 101%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 10

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 1% dilution.
2 None detected

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
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FAX 879-7103

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Downtown Quick Stop
REPORT DATE: October 17, 1995
DATE SAMPLED: October 6, 1995
DATE RECEIVED: October 9, 1995
DATE ANALYZED: October 16, 1995

PROJECT CODE: GIDQ1516
REF.#: 80,948
STATION: Trip Blank
TIME SAMPLED: 12:30
SAMPLER: L. Reed

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Benzene	1	ND[1]
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	10	ND

Bromobenzene Surrogate Recovery: 99%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:
1 None detected

ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Downtown Quick Stop
REPORT DATE: October 17, 1995
DATE SAMPLED: October 6, 1995
DATE RECEIVED: October 9, 1995
DATE ANALYZED: October 17, 1995

PROJECT CODE: GIDQ1516
REF.#: 80,949
STATION: Equipment Blank
TIME SAMPLED: 15:40
SAMPLER: L. Reed

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Benzene	1	ND[1]
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	1.2
Xylenes	1	TBQ[2]
MTBE	10	ND

Bromobenzene Surrogate Recovery: 101%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

2 Trace below quantitation limit

ENDYNE, INC.

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

CHAIN-OF-CUSTODY RECORD

~~9954741~~ 9954742

15485

Project Name: Down Town Quick Stop Site Location:	Reporting Address: St. Albans	Billing Address: SB, Collins, INC 64 Lower Weldon, ST, ST. Albans, VT
Endyne Project Number: GIDQ1516	Company: Contact Name/Phone #: Laurie Reed / 865-4288	Sampler Name: Phone #: L. Reed

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time 10-6-95	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
80,943	MW8	Ground water	X		14:42	2	40ml glass		20	HCl	
80,944	MW9				14:59						
80,945	MW10				15:34						
80,946	MW11				15:16						
80,947	Duplicate to MW10				15:34						
80,948	Trip Blank	DI water			12:30						
80,949	Equipment Blank				15:40						

Relinquished by: Signature Laurie C. Reed	Received by: Signature Beth Ward	Date/Time 10-9-95 9:35
Relinquished by: Signature Beth Ward	Received by: Signature Ken Rew	Date/Time 10/9/95 9:55 AM.

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_5	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):										