2/9/2007

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
PRAP/ROD ROUTING SLIP

TO: Sal Ervolina, Assistant Division Director

FROM: The attached is submitted for your approval by:

NAME	INITIAL	DATE
Project Manager: Ralph Keating	RK	2/9/07
Section Chief/RHWRE: James Quinn	JQ	2/9/7
Bureau Director: P. David Smith	PDS	2/9/7

DATE: 2/9/2007

RE: **Site Name** Former Bright Outdoors **Site Code** 704023
City Johnson City **County** Broome

☑ **PRAP** S 9914

- ☐ Draft PRAP
- ☑ Clean copy of the PRAP # 5
- 3 VERSIONS → ☑ Redline/Strikeout version of the PRAP
- ☑ Copies of edits to PRAP (Sal's/Dale's)
- ☑ Site Briefing Report
- ☑ NYSDOH concurrence letter
- ☐ USEPA concurrence letter

PRAP Release Approvals

Ass't Div Director: _____
Sal Ervolina 2/9/07

Division Director: _____
Dale Desnoyers

☐ **ROD**

- ☐ Draft ROD
- ☐ Signature-ready copy of the ROD
- ☐ Redline/Strikeout version of the ROD
- ☐ Copies of edits to ROD (Sal's/Dale's)
- ☐ Site Briefing Report
- ☐ NYSDOH concurrence letter
- ☐ USEPA concurrence letter

ROD Signoff

Ass't Div Director: _____
Sal Ervolina

☐ **BRIEFING**
Date:_____ **Time:**_____ **Room:**_____

c: Dale Desnoyers
Other reviewers who are invited to Briefing

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
Site Briefing Report

Site Code	704023	**Site Name**	Former Bright Outdoors		
Classification	02	**Address**	631 Field Street		
Region	7	**City**	Johnson City	**Zip**	13790-
Latitude	42:07:17.0	**Town**	Union	**Project Manager**	Ralph Keating
Longitude	75:58:30.0	**County**	Broome		
Site Type	Structure			**Estimated Size**	1.77

Site Description

The Former Bright Outdoors site is located at 631 Field Street in Johnson City, NY. The Site is bordered by NYS Route 17 to the south, a self storage building to the east, a Wegman's grocery store to the north and residential properties along Marie St. to the west. The area surrounding the site is a mixed commercial and residential neighborhood served by public water. The Site consists of 1.77 acres of commercial/industrial property that has been vacant since January 2006. Portions of the property are fenced. The site is situated over a USEPA designated sole-source aquifer known as the Clinton Street - Ballpark aquifer. The Camden St. Municipal Well Field of the Village of Johnson City is located approximately 0.6 mile south/southwest of this site. A remedial investigation was complete in 2005 and a feasibility study completed in July 2006.

Materials Disposed at Site	Quantity Disposed
1,1,1 TCA	unknown
TRICHLOROETHENE (TCE)	UNKNOWN
TOLUENE	UNKNOWN

Analytical Data Available for : Groundwater, Soil

Applicable Standards Exceeded for: Groundwater

Assessment of Environmental Problems

Contamination is present in the aquifer under the property of the Former Bright Outdoors site. The type of contamination present are chloinated solvents, mostly 1,1,1-TCA and TCE, that have been found to exceed groundwater standards. In recent sampling, the highest level detected for 1,1,1-TCA was 270 ppb and for TCE was 260 ppb and the standard for these compounds is 5 ppb. These contaminant levels have been found east and west of the site, respectively. Historically, the area of highest concentration of these compounds was found downgradient of the property.

The site is located over the USEPA designated sole-source aquifer known as the Clinton Street - Ballpark aquifer. In 1991, 1,1,1-TCA was detected in the Village of Johnson City's Camden St. Municipal Well Field located approximately 0.6 mile south of this site. The level found at that time was 12 ppb. This event promted the Village to install a water treatment system for the water supply. No other incidence of contamination above the groundwater standard has been found except once in August 1994.

A series of investigations started after the detection of 1,1,1-TCA in 1991 that eventually lead to the

Former Bright Outdoors property being listed as a suspected source of contamination.

Assessment of Health Problems

Abandoned drywells located on the site are suspected to be the source of the volatile organic compound (VOC) contamination, primarily trichloroethane and trichloroethene, in subsurface soil and groundwater. The site is covered by a building and pavement, therefore contact with contaminated soil is unlikely. The area is served by public water. Although groundwater contamination appears to be moving downgradient toward the Camden Street Wellfield, a groundwater treatment system currently treats drinking water before distibution to homes. Indoor air and sub-slab soil vapor samples have been collected at nearby homes and one commercial facility. Samples at one structure indicate the need for monitoring.

Remedy Description and Cost

Remedy Description for Operable Unit 01

The elements of the proposed remedy are as follows:

1. A remedial design program would be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. Implementation of a ground water monitoring program to determine trends in groundwater quality and observe the expected attenuation of residual ground water contamination. This program would allow the effectiveness of the remedy to be monitored and confirm or refute the existence of an upgradient source of groundwater contamination, which may require additional investigation or remediation.

3. Construction of a soil vapor extraction (SVE) treatment system in the area under the building where the highest concentration of VOCs were found.

4. Removal and off-site disposal of contaminated soils from below the floor drains of the building if they are found to be contaminated during installation of the SVE system.

5. Development of a site management plan which would include the following institutional and engineering controls: (a) continued evaluation of the potential for vapor intrusion in the remainder of the Bright Outdoors building should it be re-occupied and for any buildings developed on the site, including provision for mitigation of any impacts identified; (b) monitoring of groundwater; (c) sample one off-site home for potential soil vapor intrusion once per heating season and provide a mitigation system, if necessary. This monitoring program may be terminated or expanded to other structures based upon future sampling results; and (d) provisions for the continued proper operation and maintenance of the components of the remedy until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

6. Imposition of an institutional control in the form of an environmental easement that would require (a) compliance with the approved site management plan; (b) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; (c) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls; and (d) restricting the future of the property to a use no less restrictive than "restricted-residential use" as defined by 6NYCRR Part 375.

7. The responsible party or property owner would provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal would: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute

a violation or failure to comply with the site management plan unless otherwise approved by the Department.

8. The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

Total Cost	$389,000
Capital Cost	$127,000
OM&M Cost	$18,000

Issues / Recommendations

Three versions of the redline/strickout changes are included along with PRAP #5. This intent of these different versions is to clarify changes made by DEC management and recent changes by the DOH.

The first represents changes from the January 2, 2007 version per the meeting that was held on January 17, 2007. (This redline/strickout compares January 2 to January 22 versions.) These changes were due DEC management requests and do not include changes requested later by DOH.

On January 30, 2007, the DOH requested additional changes to the PRAP. These were mostly editorial and did not change the text significantly. Also included in this version of the PRAP were the public meeting date, time and location. This is the second redline/strickout document compare summary. (This version compares January 22 to January 30 versions.)

Further changes were requested by DOH this week. We had a conference call with DOH on 2/7/07 p.m. to discuss final wording changes. These changes were made on 2/8/07 a.m. (These changes are shown in the third redline/stickout text that compares the January 30 to February 9 versions.)

The DOH concurrence letter was received on 2/8/07 p.m. We recommend your approval to the February 9th version of the PRAP.

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Flanigan Square, 547 River Street, Troy, New York 12180-2216

February 8, 2007

Mr. Dale Desnoyers, Director
NYS Dept. of Environmental Conservation
Division of Environmental Remediation
625 Broadway – 12th Floor
Albany, NY 12233-7011

Re: **Proposed Remedial Action Plan**
Former Bright Outdoors
Site #704023
Johnson City, Broome County

Dear Mr. Desnoyers:

Staff reviewed the January 2007 Draft *Proposed Remedial Action Plan* for the above-referenced site. Based on that review, I understand that the proposed remedy for the Former Bright Outdoors site includes: (a) implementing a groundwater monitoring program to determine trends in groundwater quality and observe the expected attenuation of residual groundwater contamination, which would allow for the effectiveness of the remedy to be monitored and confirm or refute the existence of an upgradient groundwater source; (b) constructing a soil vapor extraction (SVE) treatment system in the area known as the plate welding room, where the highest concentration of volatile organic compounds were found; and (c) removing and disposing of off-site contaminated soils from below the floor drains of the building if they are found to be contaminated during installation of the SVE system.

In addition, a site management plan will be developed to include the following institutional and engineering controls: (a) continued evaluation of the potential for vapor intrusion in the remainder of the Bright Outdoors building should it be re-occupied and for any buildings developed on the site, including provision for mitigation of any impacts identified; (b) monitoring of groundwater; (c) sample one off-site home for potential soil vapor intrusion once per heating season and provide a mitigation system, if necessary. This monitoring program may be terminated or expanded to other structures based upon future sampling results; and (d) provisions for the continued proper operation and maintenance of the components of the remedy.

I further understand that institutional controls in the form of an environmental easement would be placed on the property that would require: (a) compliance with the approved site management plan; (b) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (c) the property owner to complete and submit a periodic certification that the institutional and engineering controls remain in place and continue to be effective; and (d) restricting the future of the property to a use no less restrictive than "restricted-residential use" as defined by 6NYCRR Part 375.

Based on this information, I believe the proposed remedy is protective of public health and concur with it. If you have any questions, please contact Mark VanValkenburg at (518) 402-7860.

Sincerely,

Steven M. Bates, Assistant Director
Bureau of Environmental Exposure Investigation

cc: G.A. Carlson, Ph.D. / A. Grey, Ph.D.
G. Litwin / M. VanValkenburg/ J. Cuastella/File
R. Heerkens – SRO
R. Brink – BC HD
S. Ervolina / D. Smith – DEC Central Office
M.J. Peachey – DEC Region 7 Office
G. Townsend – DEC Region 7 Office

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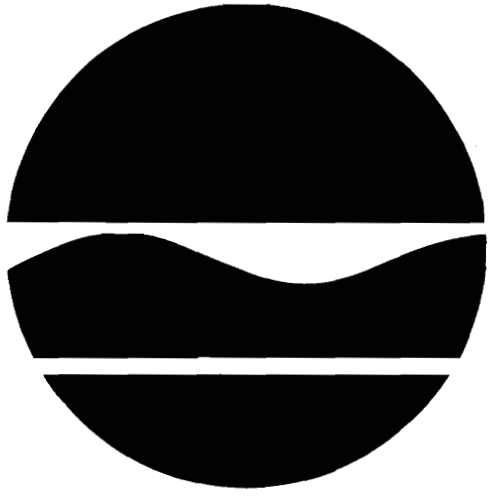
PROPOSED REMEDIAL ACTION PLAN

Former Bright Outdoors
Village of Johnson City, Broome County, New York
Site No. 7-04-023

February 2007



Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

PROPOSED REMEDIAL ACTION PLAN

Former Bright Outdoors
Village of Johnson City, Broome County, New York
Site No. 7-04-023
February 2007

SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the Former Bright Outdoors Site. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this proposed remedy. As more fully described in Sections 3 and 5 of this document, operations of businesses that used solvents and generated wastes in the process of manufacturing products have resulted in the disposal of hazardous wastes, including volatile organic compounds(VOCs) including (1,1,1-trichloroethane (TCA), trichloroethylene (TCE), and associated breakdown products of both chemicals). These wastes have contaminated the soil, soil vapor and groundwater at the site, and have resulted in:

- a significant threat to human health associated with current exposure to contaminated groundwater and the potential threat from exposure to contaminated indoor air due to impacts from soil vapor; and

- a significant environmental threat associated with the current impacts of contaminants to groundwater.

To eliminate or mitigate these threats, the Department proposes:

• construction of a soil-vapor extraction (SVE) treatment system beneath the Plate (Welding) Room where the highest concentration of VOCs were found in the soil vapor; and

• implementation of a groundwater monitoring program to monitor groundwater quality and the expected reduction in groundwater contamination leaving the site towards the Johnson City Well Field.

The proposed remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

This Proposed Remedial Action Plan (PRAP) identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for this preference. The Department will select a final remedy for the site only after careful consideration of all comments received during the public comment period.

The Department has issued this PRAP as a component of the Citizen Participation Plan developed pursuant to the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375. This document is a summary of the information that can be found in greater detail in the June 2005 Remedial Investigation (RI) Report, the July 2006 Feasibility Study (FS) report, and other relevant documents.

The public is encouraged to review the project documents, which are available at the following repositories:

Village of Johnson City
Mayor's Office
Municipal Offices
243 Main Street
Johnson City, NY 13790
(607) 798-7861
hours: M-F 9:00-5:00

Village of Johnson City Library
107 Main Street
Johnson City, NY 13790
Phone: (607) 797- 4816
hours: M-W 9:00-8:30; Th-Sat 9:00-5:00

New York State Department of Environmental Conservation - Central Office
625 Broadway, Floor 12
Albany, NY 12233-7015
Attn: Ralph Keating
(518) 402-9774
1-888-212-9586
hours: M-F 8:30-4:45

The Department seeks input from the community on all PRAPs. A public comment period has been set from February 14, 2007 to March 15, 2007 provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for February 28, 2007 at the Village of Johnson City Village Hall, Board Room beginning at 7:00 pm.

At the meeting, the results of the RI/FS will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP. Written comments may also be sent to Mr. Keating at the above address through March 15, 2007.

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP, based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Former Bright Outdoors site is located at 631 Field Street in the Village of Johnson City (Village), Broome County (Figure 1). The area around the site is a mix of commercial and residential properties. A small light manufacturing business that produces pharmaceutical automation systems is located immediately to the east and a storage mall and a grocery store are located to the north. Private residences are located immediately to the west. To the south of the site is NYS Route 17 near interchange number 70.

The site is zoned manufacturing and consists of 1.77 acres. The topography of the site is relatively flat. Within a mile to the north, the land rises sharply increasing in elevation by 600 feet. To the south, the ground slopes gently toward the Susquehanna River which is located approximately one half-mile away.

The aquifer that is situated in this valley is the source of drinking water for the Village and surrounding communities. This aquifer is a Sole Source Aquifer as designated by the US Environmental Protection Agency (USEPA) and is known as the Clinton Street-Ballpark Aquifer. This area has also been identified as a Primary Water Supply Aquifer by NYSDOH and the Department.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The former Bright Outdoors property at 631 Field Street was first improved in 1966. Since about 1966, the 1.77-acre property reportedly was either owned or owned and operated by the following entities:

- Operated by Royal Crown Bottling/7-Up Bottling Co./Hanyak Liquidating Corp. from 1966 to 1984 as a soft drink bottling plant.

- Owned by American Pipe & Plastics, Inc. (APPI), from 1984 to 2001.

- Operated by Bright Outdoors, Inc.(a wholly owned subsidiary of APPI), from 1984 to 1996 which assembled casual outdoor furniture from polyvinyl chloride (PVC) pipe and vinyl-coated polyester upholstery during the period 1984 to1990. From 1990 to 1996, Bright Outdoors manufactured consumer sporting goods from PVC pipe. Operations by Bright Outdoors used small quantities of various materials containing numerous chemical solvents. Several of the materials used contained TCA, 2-butanone, acetone, and toluene, which were detected in various environmental media sampled. From about 1991 to 1993, part of the facility was also leased by Royal Equipment, Inc. (separate business entity from APPI), a company that remanufactures heavy equipment: haul trucks, shovels, and loaders. This company also supplies new and used mining parts.

- Operated by Impact Sports Equipment, Inc. (separate business entity from APPI), from about 1996-2001 who rented from APPI. Impact Sports Equipment, Inc. manufactures plastic sporting equipment used in baseball, hockey, volleyball, and other sports.

- In 2001, the property was purchased by 631 Field Street, LP. SamScreen, Inc., which manufactured wire screening for use in mining and aggregate industry, operated on this site from 2001 to 2005.

- Since the beginning of 2006, the site has been vacant. Currently ownership is listed as the limited partnership know as 631 Field Street, LP.

3.2: Remedial History

In August 2002, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

Beginning in 1991, VOC contamination was first detected in Johnson City's municipal well field at Camden Street Well Field (Figure 5). The Johnson City Water Department operates up to five municipal supply wells that provide approximately 2.5 million gallons per day of water to users within the Village. The contamination of this municipal well field prompted a series of investigations that eventually lead to the listing of the Former Bright Outdoors site.

According to a Contaminant Source Investigation Report, TCA contamination was first detected above SCGs in a sample collected from the Johnson City Water Department well number 3 in June 1991 at 9 parts per billion (ppb). A sampling event in July 1991 again detected TCA in well number 3 at 8 and 12 ppb. Prior to 1991, TCA had been detected sporadically in various Johnson City Water Department wells at concentrations below the SCG of 5 ppb.

In 1991 a hydrogeologic assessment of the area surrounding the Camden Street Well Field, north to Main Street was performed in order to identify the source of the contamination and collect data required for an emergency remedial action that concluded in the construction of the VOC removal system known as an air stripper. The Contaminant Source Investigation identified TCA in several monitoring wells at concentrations similar to those detected in the municipal wells, and concluded that the source area appeared to lie to the north.

A subsequent report in 1992 for the Village of Johnson City included field analysis of water table samples collected using direct-push technology, installation and sampling of four additional monitoring wells, and re-sampling of the 10 original wells. A total of 58 groundwater samples from eight areas were collected from near the mouth of Little Choconut Creek northward to Azon Road. As a result of the investigation, two additional areas of significant TCA contamination were identified: along Main Street at the corner of Oakdale Road and around the north and south sides of the building at this location. At the Main Street location, 11 samples were collected with TCA present in seven samples ranging in concentrations of 1.6 to 5.1 ppb. Along Oakdale Road, 25 locations were sampled with TCA present in all samples at concentrations ranging from less than 0.5 to 68 ppb.

The Air Force Plant 59, located approximately 1,000 feet northeast of the well field (Figure 5), has also been identified as a source of TCA and other contaminants. Operations at the facility have generated a variety of wastes including cutting oils, lubricants, refrigerating fluids, degreasing agents, plating acids, caustics, chromium and cyanide solutions, and paint residues. Air Force Plant 59 was first investigated in 1984 as part of the Air Force Installation Restoration Program. Various metals and VOCs were detected in contravention of SCGs, including TCA and TCE at concentrations up to 9 and 11 ppb, respectively. In addition, cooling water discharged from site operations to Little Choconut Creek revealed methylene chloride, TCE, and TCA contamination up to 105, 120, and 2 ppb, respectively, when sampled in 1982 through 1984.

From 1991 to 1993, a supplemental site investigation was conducted at Air Force Plant 59. During this investigation seven deep and six shallow monitoring wells were installed. TCA was detected in most groundwater samples with a maximum concentration of 15 ppb. Additionally, 1,1-dichloroethane (DCA) and TCE were found above the SCGs.

In 1994, a remedial investigation was conducted at Air Force Plant 59 that verified the presence of VOCs in the groundwater beneath Air Force Plant 59 with maximum TCA and TCE concentrations of 20 and 370 ppb, respectively. In addition, the groundwater flow direction was shown to be directly toward the Camden Street Well Field in both shallow and deep wells.

In 1994 and 1995, the United States Geological Survey (USGS) conducted hydrogeologic studies to collect water level and water quality data in order to delineate areas that contribute groundwater to the Camden Street Well Field and to establish the areal extent of VOC contamination in the aquifer. The USGS installed additional wells and sampled numerous existing wells throughout the area. The USGS sampled along Field Street and of the 18 points sampled, TCA was detected in 13 points at concentrations ranging from 2 to 445 ppb. TCA concentrations above 100 ppb were detected along a line from Marie Street eastward to the area between the Former Bright Outdoors and Innovation Associates buildings (Figure 6). The USGS study concluded that the area contributing groundwater to the Camden Street Well Field is approximately 1.5 square miles and includes the area of the Former Bright Outdoors site and that the primary source area of TCA contamination in the Camden Street Well Field was an unknown location north of Field Street. Air Force Plant 59 was identified as a secondary contributor.

In 1995, the Department and the NYSDOH began to investigate the two adjacent companies located along Field Street: Bright Outdoors (631 Field Street) and Innovation Associates (627 Field Street). Groundwater samples were collected along the northern boundary of both properties and one location near the east side of the Innovation Associates property (Figure 6). Groundwater samples collected from

along the northern boundary ranged from non-detect to 52 ppb for TCA, with the highest concentration detected near the loading dock of Innovation Associates. On the east side of Innovation Associates, TCA was detected from non-detectable to 270 ppb. TCE along the east side Innovation Associates was detected from non-detectable to 170 ppb. It is noted that during a subsequent investigation in 1996, the levels of TCA and TCE along the eastern border had dropped significantly to 12 ppb and 10 ppb, respectively.

In 1997, an Immediate Investigation Work Assignment was conducted by the Department as an attempted to identify other potential sources of groundwater contamination. Sampling was conducted at 23 locations along the south side of Field Street, north of Bright Outdoors, east of Innovation Associates, north and east of the Storage Mall, and on the property now occupied by the Hampton Inn (Figure 6). Sixteen soil samples were collected, but VOCs were not detected. Groundwater samples were collected at depths of 12 to 25 feet below ground surface (BGS), and chlorinated VOCs were detected at several locations with a maximum concentration of 260 ppb of TCA. The highest concentrations of TCA and TCE were present on the south side of Field Street, southwest of Bright Outdoors. However, low levels of both compounds were also detected south and east of Innovation Associates.

In 2000, a Phase 1 Environmental Site Assessment (ESA) was conducted at the subject property. The report concluded that "There were no readily apparent indications of environmental liabilities such as release of petroleum and/or hazardous substances," with the exception of a previously closed petroleum spill. The spill involved gasoline and was initially reported in August 1994 when a 4,000-gallon underground storage tank located between the current storage area and loading dock was removed. (The spill was closed by the Department on October 31, 1994 (Spill Number 9407388.))

In 2001 and 2002, a Preliminary Site Assessment (PSA) was conducted on behalf of the Department in order to determine if a site should be listed in the Field Street area. Vertical profile soil borings were drilled and groundwater samples were collected at various depths both upgradient and downgradient of both the Bright Outdoors and Innovation Associates buildings. Field screening for total volatile organic halides was conducted and results ranged from non-detect to 187 ppb (Figure 6). Laboratory analysis confirmed these results and identified a maximum TCA concentration of 160 ppb between the two buildings and a maximum TCE concentration of 91 ppb on the west side of the former Bright Outdoors building.

The PSA report concludes that a source area on the Former Bright Outdoors site, although not clearly identified, could be inferred to be somewhere within the footprint of the building. The PSA also points out that Innovation Associates may have been a source of contamination at one time. However, the presence of the highest concentrations of TCA and TCE in the soil boreholes immediately downgradient of the Former Bright Outdoors property suggested that this property was a likely source area. The PSA report also states that due to the relatively low levels of TCA and TCE detected at Field Street, as well as elsewhere throughout this aquifer, several other sources may have contributed or are contributing to contamination of this aquifer.

The information collected lead to the listing of the Former Bright Outdoors Site on the Registry of Inactive Hazardous Waste Disposal Sites as Class 2 in August 2002. A Class 2 site is where the disposal of a consequential quantity of hazardous waste has been confirmed and the presence of such hazardous waste or its components or breakdown products represent a significant threat to the environment or to human health.

In 2004 and 2005, a Remedial Investigation was conducted on behalf of the Department on the Former Bright Outdoors property. The details of this investigation are listed in Section 5. The Feasibility Study for the Former Bright Outdoors was completed in July 2006.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

1) Royal Crown Bottling/7-Up Bottling Co./Hanyak Liquidating Corp;

2) American Pipe & Plastics, Inc.;

3) Bright Outdoors; and

4) SamScreen, Inc.

The PRPs declined to implement the RI/FS at the site when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

SECTION 5: SITE CONTAMINATION

A remedial investigation/feasibility study (RI/FS) has been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between June 2004 and March 2005. The field activities and findings of the investigation are described in the RI report.

The RI tasks performed were done to supplement the data from previous investigations. The conclusion from the previous studies conducted for and around the Former Bright Outdoors site suggests that the site is a source of contamination. The focus of the RI conducted from June 2004 to March 2005 was undertaken to determine the nature and extent of TCA and TCE contamination at the Former Bright Outdoors site and determine the impact of contamination migration.

The tasks preformed during the investigation included: conducting an initial site reconnaissance; conducting a records search; performing off-site subslab air sampling, targeted facility sampling (subslab vapor, subslab soil, and drainline soil); performing monitoring well and borehole drilling, subsurface soil and groundwater sampling; and a site survey. Figures 2, 3 and 4 illustrate the extent of sampling performed during this RI.

The 2005 Remedial Investigation identified areas of contamination on the Former Bright Outdoors property. The detection of TCA in multiple media beneath the floor of the Welding (Plate) room and the presence of TCE in vadose-zone soil beneath the Storage Area indicates that these were areas where release of contaminants had occurred (Figures 2 and 3). It is noted that there was detection of TCA in the groundwater along the eastern fence line of the Former Bright Outdoors site, which may be emanating from beneath the Former Bright Outdoors building or an additional upgradient, off-site source.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil, groundwater, and soil vapor contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on the Department's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels" and 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives).

- Concentrations of VOCs in air were evaluated using the air guidelines provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated February 2005.

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report.

5.1.2: Nature and Extent of Contamination

This section describes the findings of the investigation for all environmental media that were investigated.

As described in the RI report, many soil, groundwater, and soil vapor samples were collected to characterize the nature and extent of contamination. As seen in Figures 2, 3, and 4 summarized in Table 1, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs). For comparison purposes, where applicable, SCGs are provided for each medium.

Chemical concentrations are reported in parts per billion (ppb) for water and parts per million (ppm) for waste, soil, and sediment. Air samples are reported in micrograms per cubic meter ($\mu g/m^3$).

Figure 2, 3, and 4 and Table 1 summarize the degree of contamination for the contaminants of concern in drainline wastes, subslab soils, subsurface soil, groundwater, and soil vapor (on-site and off-site) and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation. For each of the sections listed below, the media investigated through the RI/FS will be addressed in the remedy selection process.

Drainline Soil

Drainline soil samples were collected from six locations inside and outside the former Bright Outdoors building (Figure 3). The following summarizes the results:

- Sample SD05, collected from the loading dock central drain, did not contain any VOCs; the remaining five samples contained at least one VOC.

- TCA was detected in sample SD02 in the north end of the welding (plate) room floor drain, at a concentration of 0.038 ppm which was below the SCG. The subslab soil and vapor samples from the area of the same drain also contained TCA.

- Benzene, toluene, ethylbenzene, and/or xylenes (BTEX), which are petroleum-related products, were detected in four drainline soil samples (two outdoor drywells, floor drain in the production [wire] room, and floor drain in the main assembly area), with the highest total BTEX

concentration of approximately 2.00 ppm (1.90 ppm of toluene) detected in an outdoor drywell (sample location SD01). Toluene exceeded its SCG value of 1.5 ppm.

Subslab Soil

Thirteen soil samples were collected from beneath the concrete slab within the former Bright Outdoors building to identify potential source areas (Figure 3). The following summarizes the results:

- All but one of the samples contained at least one VOC including TCA, TCE, 1,1-dichloroethane (DCA), xylenes, 2-butanone, acetone, and eight tentatively identified aromatic hydrocarbons. None of the detected concentrations exceeded SCGs with the exception of acetone at one location.

- Acetone was detected at nine locations with a maximum concentration of 0.38 ppm near the north (drain) end of the trench floor drain in the welding room. Acetone, a common laboratory contaminant, was not detected in laboratory method or preparation blanks; therefore, it can be assumed that acetone is site related.

- TCA was detected at two locations below the drainline in the welding room where it was detected at a maximum concentration of 0.10 ppm.

- TCE was detected in two locations, one in the Wire Room and the other in the open storage area with a maximum concentration of 0.44 ppm.

Subsurface Soil

A total of 26 subsurface soil samples were collected from soil borings installed around the perimeter of the property, including vadose-zone samples from just above the water table and saturated-zone samples (Figure 3). The following summarizes the analytical results:

- Twelve of the 14 vadose-zone subsurface soil samples were free of VOC contamination. The only VOC detected in vadose-zone samples was acetone at a maximum concentration of 0.22 ppm.

- While none of the saturated zone samples evidenced contamination above soil SCGs, the data showed a higher relative level of TCE contamination on the east (downgradient) side of the property. This correlates with groundwater data which indicates a source of dissolved phase TCE contamination on the Former Bright Outdoors property.

Groundwater

Seven grab samples of groundwater from just below the water table were collected during borehole drilling (Figure 4). Groundwater samples were also collected from the six new monitoring wells and five existing off-site wells. Recent and historical groundwater analytical data for the Johnson City municipal supply wells were also acquired. The following summarizes the analytical results:

- Water-table samples from six of the seven boreholes contained at least two VOCs, including TCA and TCE. Contaminants detected at concentrations exceeding the SCGs were:
  - TCA at BH09 (18 ppb) and BH12 (6 ppb); and
  - TCE at BH08 (260 ppb) and BH09 (6 ppb).

  The only sample that did not contain VOCs was collected from boring BH07 at the northwest corner of the building.

The samples BH08, and BH09 are located downgradient of the site, BH12 is upgradient of the site, and BH07 is sidegradient to the site.

- Groundwater samples collected from approximately 30 to 50 feet BGS from the newly installed monitoring wells at the site each contained one or more of the following VOCs: TCA, TCE, 1,1-DCE, chlorobenzene, and 1,2-dichlorobenzene. Contaminants detected at concentrations exceeding the Department's Class GA groundwater standards were:

  - TCA in four wells (MW01, MW02, MW05, and MW06) at a maximum concentration of 270 ppb (MW05);
  - TCE in the same four wells at a maximum concentration of 28 ppb (MW05); and
  - 1,1-DCE in two samples (MW05, MW06) at a maximum concentration of 43 ppb (MW05).

  It is noted that the highest concentrations of groundwater contamination in the newly installed wells were located in MW05, which is on the upgradient edge of the Former Bright Outdoors property. Groundwater contamination in this well and along the eastern (upgradient) property line of the site may be the result of an upgradient source, as discussed in Section 3 of this document.

- Only two of the off-site wells sampled contained VOCs. MW-3D and MW-10S both contained TCE at concentrations below the Department's groundwater standard. Both of these wells are located downgradient of the site (Figure 5).

- TCA and TCE continue to be sporadically detected in Johnson City municipal supply wells 2 and 3. However, TCA concentrations have historically not exceeded MCLs except in June through September 1991 and once in August 1994 (data for 1996 to 2000 were not acquired; however, communication with the Johnson City Water Department Assistant Superintendent indicated that no other MCL exceedances have occurred).

Soil Vapor/Subslab Vapor/Air

On-site Subslab Soil Vapor

Soil vapor samples were collected beneath the ground floor concrete slab at 11 locations within the Former Bright Outdoors building and at four locations surrounding a portion of the building to identify potential source areas (Figure 2). The following summarizes the results:

Nine VOCs were detected at one location (SA01) beneath a floor trench drain near the northeast corner of the building (welding room). Of these, the detected concentrations of TCA, DCA, 1,1-DCE, PCE, methylene chloride, and vinyl chloride were significantly above typical background concentrations. TCA was detected at the highest concentration beneath the welding room (115,000 $\mu g/m^3$), but was present in subslab vapor samples throughout the facility. This level alone warrants mitigative measures.

TCE was detected at a level that warrants mitigative measures at one location beneath the floor drain in the welding room. The highest concentration of TCE detected was 810 $\mu g/m^3$. At another location, TCE was detected in a deep soil vapor sample at 190 $\mu g/m^3$.

It is noteworthy that the levels of these VOCs, detected in both soil samples and subslab vapor samples, were present in the vapor phase at levels significantly higher than what would be expected based upon the levels detected in soil samples. The elevated soil vapor contamination indicates the presence of contamination in site soil at higher levels than what was discovered during the soil sampling program.

Section 8 of the RI report summarizes the potential source areas (drain line soils and subsurface soils) and the relationship to the detection of VOCs in the soil vapor and the probable impact to groundwater. The distribution of VOCs detected in the drainline soils, sub slab vapor, and low levels in subslab soil

samples suggests that the floor trench drains are a source of contamination to the groundwater. The discharge of VOCs into the drains was the likely point of entry into the subsurface as indicated by the high VOC levels detected in soil vapors in these locations. At sample location SA01 (sample taken under the slab) and at a deeper depth at the same location SA01D, the VOC levels were much greater near the surface indicating that the release occurred at just below the slab in this drainline. The presence of TCA in groundwater along the western and southern boundaries of the site suggest that TCA migrated downward from the drain and into the groundwater.

Off-site Subslab Soil Vapor

Vapor samples were collected beneath the ground floor or basement concrete slabs of four houses and one commercial property adjacent to the site during the Remedial Investigation. Follow-up sampling was conducted during the heating season at the four residential locations along with indoor air quality sampling during this sampling event from these same locations. The following summarizes the results:

- TCA was detected at four locations in subslab soil vapor with a maximum concentration of 22.6 micrograms per cubic meter ($\mu g/m^3$). However, it was only detected in one basement air sample (2.1 $\mu g/m^3$) and in one first-floor air samples. TCA is a primary contaminant of concern detected in other environmental media at the site.

- 1,1-DCE was initially present at two locations in subslab soil vapor (both below 6 $\mu g/m^3$); however, it was not detected during the supplemental investigation. 1,1-DCE appears to be site related because it was detected in both soil and soil vapor samples collected at the site.

- Chloromethane was detected at one location at a low concentration (1.36 $\mu g/m^3$). Chloromethane does not appear to be site-related because it was not detected in other media at the site except for two subslab vapor samples beneath the building at similarly low concentrations.

- Tetrachloroethylene (PCE) was detected only during the supplemental investigation in one subslab vapor sample (1.2 $\mu g/m^3$). It was not detected in indoor air samples.

- TCE was detected only during the supplemental investigation in one subslab vapor sample (150 $\mu g/m^3$). It was also present, but at much lower concentrations in the associated basement and first-floor indoor air samples at the same location (both less than 2 $\mu g/m^3$). TCE is considered to be site-related due to its presence in several other environmental media at the site; however, the distribution of data also suggests that alternative off-site sources of TCE may be present.

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. There were no IRMs performed at this site during the RI/FS.

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 7 of the RI report. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

There are potential exposure pathways associated with contaminated soil vapor and groundwater from this site.

The area is served by a public water supply which is frequently tested to ensure that the water distributed to consumers complies with drinking water standards. No private supply wells have been identified in the vicinity of the site; therefore, exposure to contaminated groundwater is not expected. Exposures could potentially occur if someone were to install a private supply well; however, a permit would be required from the Village of Johnson City.

Soil vapor is contaminated with volatile organic compounds under the Former Bright Outdoors building. 1,1,1-TCA was detected in the sub-slab soil vapors under the building. No detectable levels of any contaminant were found in the indoor air of this building, but a completed exposure pathway through the inhalation of contaminated indoor air from the sub-slab air may exist on-site in the future should this vacant building be re-occupied.

Should the building be re-occupied, the potential for vapor intrusion will need to be re-evaluated prior to building occupancy. The potential for soil vapor intrusion off-site in the surrounding neighborhood has also been evaluated and determined to be low. Exposure to contaminated soil is unlikely since most contaminant levels in soils were found to be below applicable SCGs and the floor of the building is covered with 12 inches or more of concrete.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

Site contamination has impacted the groundwater resource in the overburden aquifer. Since this area is part of a Sole Source Aquifer, the Clinton Street-Ballpark Aquifer, and has also been identified as a Primary Water Supply Aquifer by NYSDOH and the Department, the resource is considered a highly protected resource for water supply.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to contaminated subsurface soils or contaminated soil vapors that may be released if excavation or other construction is undertaken below the building;
- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards; and
- the release of contaminants from beneath the building into indoor air through a process called soil vapor intrusion.

Further, the remediation goals for the site include attaining to the extent practicable:

- ambient groundwater quality standards; and
- a minimization of the potential for soil vapor intrusion to occur.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Former Bright Outdoors site were identified, screened and evaluated in the FS report which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 15 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 15 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated soils, soil vapor and groundwater at the site.

- Alternative 1: No action;
- Alternative 2: Groundwater Monitoring with Institutional Controls;
- Alternative 3: Soil Vapor Extraction and Groundwater Monitoring with Institutional Controls;
- Alternative 4: Soil Vapor Extraction and Groundwater Collection and Monitoring with Institutional Controls; and
- Alternative 5: Soil Vapor Extraction and In-situ Treatment of Groundwater and Monitoring with Institutional Controls.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative 2: Groundwater Monitoring with Institutional Controls

Present Worth: *$248,000*
Capital Cost: *$30,000*
Annual Costs:
(Years 0-15): *$18,000*

Long-term monitoring of the groundwater would demonstrate whether the levels of contamination continue to exceed SCGs. Groundwater wells would be monitored for two purposes: 1) to monitor the migration of contamination from the site toward potential receptors and 2) to determine if the concentration trends continue to diminish.

There are no known users of groundwater in the immediate vicinity of the site with the exception of the Village of Johnson City municipal supply wells. This remedy would be a benefit to the Village of Johnson City by providing them with groundwater quality data upgradient of the intake wells of the community's water supply.

By monitoring the groundwater contaminant concentration trends over time, decisions could be made regarding the need for additional action. If trends continue to decline, then this may indicate that the plume is diminishing and could eventually be within SCGs. If trends in concentrations are steady or increasing, then the need for additional investigations may be warranted.

Efforts will be made to monitor an off-site residence for potential soil vapor intrusion. As explained in section 5.1.2, one of the off-site residences sampled had a detection of TCE in the subslab soil vapor of 150 $\mu g/m^3$. Since this level warrants monitoring, soil vapor and indoor air sampling would be performed at this house as part of this proposal. In accordance with the State's guidance for evaluating soil vapor intrusion, future sampling would determine whether mitigation measures would be ultimately necessary, whether the monitoring program should continue or be expanded, or whether monitoring is no longer necessary.

A site management plan would need to be developed that details the groundwater monitoring program, including sampling techniques, required sampling frequency, reporting requirements, and other site activities.

Imposition of an institutional control in the form of an environmental easement that would require (a) compliance with the approved site management plan; (b) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (c) the property owner to complete and submit to the Department a periodic certification of institutional controls;

For cost analysis it is assumed that implementation of the remedy, including environmental monitoring, would continue for 15 years. However, the actual duration of remedy implementation would depend on data gathered through the post-ROD monitoring program.

Alternative 3: Soil Vapor Extraction and Groundwater Monitoring with Institutional Controls

Present Worth: *$389,000*
Capital Cost: *$127,000*
Annual Costs:
(Years 0-1): *$64,000*
(Years 1-15): *$18,000*

Under Alternative 3, the remedy would include institutional controls and groundwater monitoring as detailed in Alternative 2.

In addition, a soil vapor extraction (SVE) system would be installed in the Plate (Welding) Room with a radius of influence of approximately 80 feet. This radius of influence will capture all the areas of VOCs in soil vapor that were found to be above SCGs. With the SVE system, VOCs would be removed with the use of a vacuum at the extraction well(s). This allows volatile contaminants to evaporate, while drawing soil vapors to the extraction wells, where they can be properly treated, if necessary. The SVE system would be expected to run for approximately one year until no further contamination is being withdrawn from the site indicating SCGs have been met.

During the construction of the SVE system, if soils below floor drains of the building are found to be contaminated, then they would be removed and properly disposed of off-site. For estimating purposes, approximately 112 cubic yards of soil removal is assumed.

Design and construction of the SVE system would take approximately six months, depending on the complexity of the system, and it is estimated to operate for a 1-year period. As in Alternative 2, for cost analysis it is assumed that implementation of the remedy, including environmental monitoring, would continue for 15 years. However, the actual duration of remedy implementation, including system operation and monitoring, would depend on data gathered through the post-ROD monitoring program.

Alternative 4: Soil Vapor Extraction and Groundwater Collection and Monitoring with Institutional Controls

Present Worth: *$683,000*
Capital Cost: *$205,000*
Annual Costs:
(Years 0-1): *$111,000*
(Years 1-5): *$47,000*

(Years 5-15): *$18,000*

This alternative would include the same remedial approach and actions detailed in Alternative 3. In addition, groundwater treatment would be included in this alternative. A groundwater collection trench (about 3-feet wide by 250-feet long) would be excavated downgradient of the building to a depth of approximately 20 feet using conventional excavation equipment (Figure 7.) Perforated pipe would be placed within the trench to collect the groundwater. Backfilling of the trench would consist of compacted, open graded clean stone.

The collection trench would be operated for long-term groundwater control by extracting the groundwater and pumping from the collection trench to an above ground treatment system consisting of air strippers and granulated activated carbon. The clean water would be reinjected into the ground down-gradient of the collection trench. Groundwater would also be monitored to determine the effect of this remedy on the contamination levels.

Design and construction of the SVE system would take approximately six months depending on the complexity of the system and it is estimated to operate for a 1-year period. The design and construction of the groundwater collection system would also be approximately 6 months and the operation would be for a 5-year period. As discussed above, the remedial cost analysis assumes a 15-year monitoring period, but actual duration of remedy implementation would depend on data gathered through the post-ROD monitoring program..

Alternative 5: Soil Vapor Extraction with In-situ Treatment of Groundwater and Monitoring with Institutional Controls

Present Worth: *$498,000*
Capital Cost: *$236,000*
Annual Costs:
(Years 0-1): *$64,000*
(Years 1-15): *$18,000*

This alternative would again include the SVE system as well as institutional controls and groundwater monitoring. Similar to Alternative 4, active groundwater treatment would also be performed. Under this alternative, treatment would be in-situ using chemical oxidant injection

Chemical oxidant injection is a process that requires the injection of an oxidant, typically ozone, hydrogen peroxide, hypochlorites, chlorine, chlorine dioxide, potassium permanganate or Fenton's reagent (hydrogen peroxide and iron). Through oxidation, these oxidants have been found to cause the rapid and complete chemical destruction of the types of COCs found at the site.

The capital cost for this alternative would include all the costs for the monitoring well installations for both the long-term monitoring well and the chemical oxidant injection wells in additional to the SVE system installation. It would also include the cost for the injection of the chemical oxidant.

Design and construction of the SVE system would take approximately six months depending on the complexity of the system and it is estimated to operate for a 1-year period. The time to plan and inject the chemical oxidant would be approximately 3 months. As in the other alternatives, the remedial cost analysis assumes a 15-year monitoring period, but actual duration of remedy implementation would depend on data gathered through the post-ROD monitoring program.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected

remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectivness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

SECTION 8: SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 3, Soil Vapor Extraction and Groundwater Monitoring with Institutional Controls as the remedy for this site. The elements of this remedy are described at the end of this section. The proposed remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

Alternative 3 would be protective of human health by preventing exposure to contamination in the groundwater and vapor phase contamination within the facility through the installation and operation of a soil vapor extraction system. This SVE system would remove contamination from beneath the building. By remediating this source area, the groundwater quality would improve.

This alternative, as with each alternative, would require evaluation of the groundwater to determine the trends in groundwater concentrations to examine the possibility of an off-site source being present, as discussed in Section 3 and Section 5. If the groundwater trends decrease, then source removal through SVE and natural attenuation would appear to be effective in reaching the SCGs. If the groundwater levels do not decrease, then an upgradient source may exist, and additional investigation may be necessary.

Alternatives 4 and 5 may remediate site groundwater more quickly than Alternative 3; however, both would include active groundwater treatment remedies that include an additional cost. Also, the possible presence of an upgradient source of groundwater contamination reduces our confidence that Alternative 4 or Alternative 5 would obtain more rapid achievement of groundwater standards.

Alternative 3 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It would achieve

the remediation goals for the site by removing the contaminated soil vapor and areas of contaminated soils that creates the most significant threat to public health from the site; it would eliminate or reduce the source of contamination to groundwater; and it would create the conditions needed to restore groundwater quality to the extent practicable. Alternatives 4 and 5 would also comply with the threshold selection criteria. Alternative 2 does not remove the contaminated soil vapors, offers no protection from the potential for vapor intrusion, and no protection to the groundwater so it does not meet the threshold criteria.

Because Alternatives 3, 4, and 5 satisfy the threshold criteria, the five balancing criteria are particularly important in selecting a final remedy for the site.

Alternative 3 (Soil Vapor Extraction and Groundwater Monitoring with Institutional Controls), Alternative 4 (Soil Vapor Extraction and Groundwater Collection and Monitoring with Institutional Controls), and Alternative 5 (Soil Vapor Extraction and In-situ Treatment of Groundwater and Monitoring with Institutional Controls) all would have short-term impacts which can easily be controlled. Alternative 4 would have the most impact on an active business at this location since it would require digging up the parking lot to install the trench. The time needed to achieve the remediation goals would be similar for Alternatives 4, and 5, although Alternative 3 may take somewhat longer. Alternative 3 would have the least disruption to the on-site business after the SVE system is constructed.

Achieving long-term effectiveness would be accomplished equally by Alternatives 3, 4 and 5 since each of these alternatives capture the source areas of contamination under the building with the SVE system. Alternative 4 and 5 might achieve groundwater SCGs somewhat more quickly; however, Alternative 3 would be equally effective in the long term as natural attenuation occurs.

Alternatives 3, 4, and 5 would be equally effective in reducing the volume of wastes present beneath the building since they all include the construction of the SVE system. Alternatives 4 and 5 offer some additional benefit in reducing contaminant volume since they also attempt to actively treat groundwater.

Alternative 3 is favorable in that it would be readily implementable. Alternatives 4 and 5 are also implementable; however, they would take longer to implement since these alternatives include an additional construction element. Alterntives 3, 4, and 5 would have the same design and implementation considerations for the SVE system construction.

The cost of the alternatives varies somewhat. Alternative 3, 4, and 5 would each include a cost for the SVE construction and operation. Alternatives 4 and 5 would also include an expense to treat contaminated groundwater that is not included in Alternative 3, with Alternative 4 being the most expensive of all the alternatives due to significantly higher operation and maintenance costs.

The estimated present worth cost to implement the remedy is $ 389,000. The cost to construct the remedy is estimated to be $ 127,000 and the estimated average annual costs are: $ 64,000 for the first year and $18,000 per year from year 1 through 15. The first year operation costs includes running the SVE system and monitoring groundwater whereas subsequent years costs include only groundwater sampling.

The elements of the proposed remedy are as follows:

1. A remedial design program would be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. Implementation of a ground water monitoring program to determine trends in groundwater quality and observe the expected attenuation of residual ground water contamination. This program would allow

the effectiveness of the remedy to be monitored and confirm or refute the existence of an upgradient source of groundwater contamination, which may require additional investigation or remediation.

3. Construction of a soil vapor extraction (SVE) treatment system in the area under the building where the highest concentration of VOCs were found (Figure 7).

4. Removal and off-site disposal of contaminated soils from below the floor drains of the building if they are found to be contaminated during installation of the SVE system.

5. Development of a site management plan which would include the following institutional and engineering controls: (a) continued evaluation of the potential for vapor intrusion in the remainder of the Bright Outdoors building should it be re-occupied and for any buildings developed on the site, including provision for mitigation of any impacts identified; (b) monitoring of groundwater; (c) sample one off-site home for potential soil vapor intrusion once per heating season and provide a mitigation system, if necessary. This monitoring program may be terminated or expanded to other structures based upon future sampling results; and (d) provisions for the continued proper operation and maintenance of the components of the remedy until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

6. Imposition of an institutional control in the form of an environmental easement that would require (a) compliance with the approved site management plan; (b) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; (c) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls; and (d) restricting the future of the property to a use no less restrictive than "restricted-residential use" as defined by 6NYCRR Part 375.

7. The responsible party or property owner would provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal would: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

8. The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

TABLE 1
Nature and Extent of Contamination
June 2004 - March 2005

DRAINLINE SOILS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	TCA	ND - 0.04	0.8	0 of 6
	toluene	ND - 1.90	1.5	1 of 6

Subslab SOILS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	TCA	ND - 0.11	0.8	0 of 13
	acetone	ND - 0.38	0.2	1 of 13

SUBSURFACE SOILS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic	TCA	ND - 0.03	0.8	0 of 26

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	TCA	ND - 270	5	6 of 18
	TCE	ND - 260	5	6 of 18
	DCE	ND - 43	5	2 of 18
	MTBE	ND - 14	10	1 of 18

SOIL VAPOR / Subslab VAPOR	Contaminants of Concern	Concentration Range Detected ($\mu g/m^3$)[a]	SCG[b] ($\mu g/m^3$)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	TCA	ND - 115,000	n/a	7 of 15
	DCA	ND - 4,700	n/a	1 of 15
	TCE	ND - 810	n/a	1 of 15
	DCE	ND - 13,000	n/a	1 of 15

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
ug/m^3 = micrograms per cubic meter
ND = not detected

[b] SCG = standards, criteria, and guidance values;

Contaminant Identification:

TCA - 1,1,1-Trichloroethane
DCA - 1,1-Dichloroethane
TCE - Trichloroethene
DCE - 1,1-Dichloroethene

Table 2
Remedial Alternative Costs

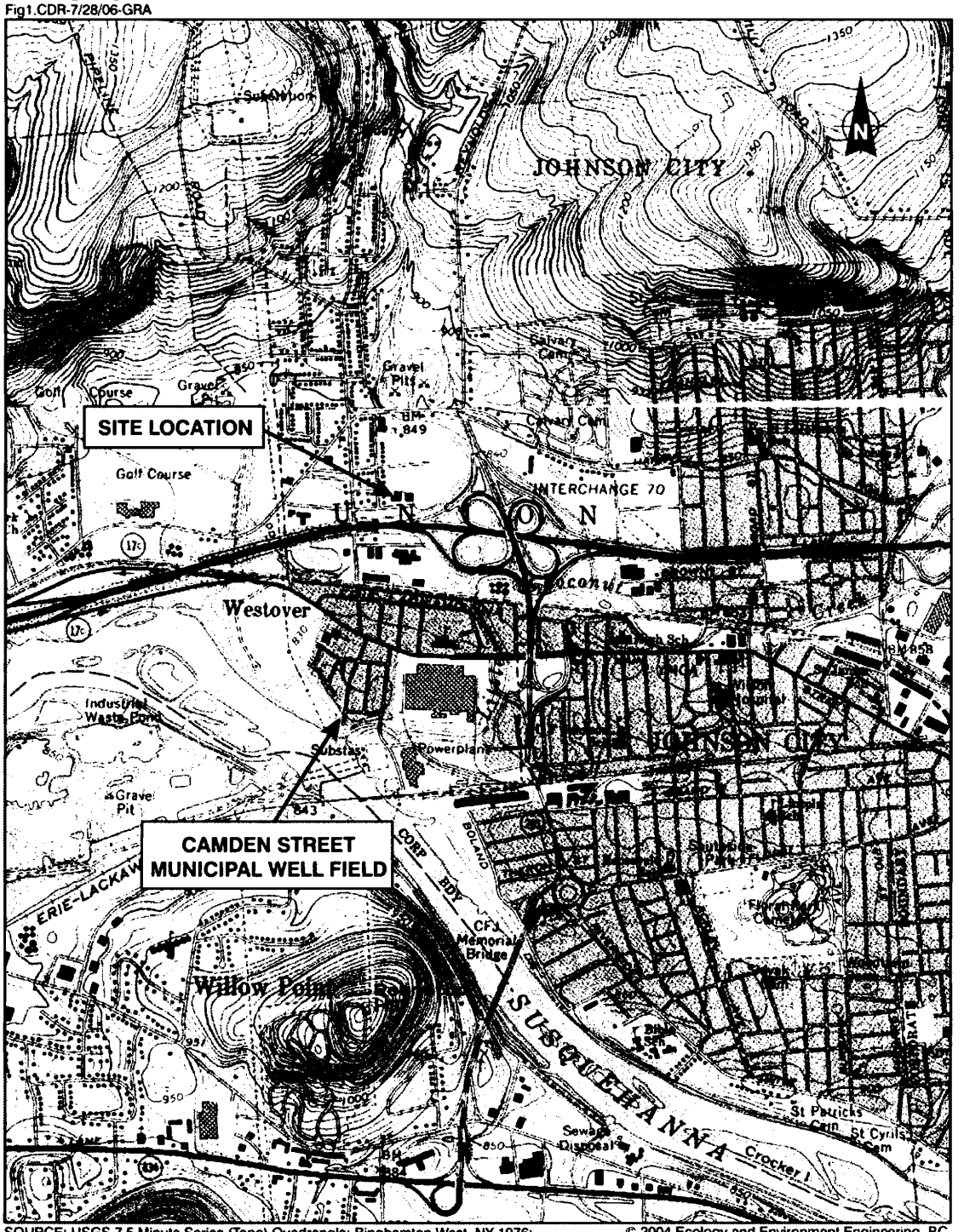
Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
No Action			
2) Groundwater Monitoring with Institutional Controls	$30,000	$18,000 (yr. 0-15)	$248,000
3) Soil Vapor Extraction and Groundwater Monitoring with Institutional Controls	$127,000	$64,000 (yr. 0-1) $18,000 (yr. 1-15)	$389,000
4) Soil Vapor Extraction and Groundwater Collection and Monitoring with Institutional Controls	$205,000	$111,000 (yr. 0-1) $47,000 (yr. 1-5) $18,000 (yr. 5-15)	$683,000
5) Soil Vapor Extraction and In-situ Treatment of Groundwater and Monitoring with Institutional Controls	$236,000	$64,000 (yr. 0-1) $18,000 (yr. 1-15)	$498,000

Notes:

1. For alternatives 2, 3, 4, and 5, part of the Capital Cost includes $16,500 for groundwater monitoring well installation along the western side of the site as part of the monitoring program.

2. For alternatives 3, 4, and 5, part of the Capital Cost includes $18,000 for potentially contaminated soil removal. This cost will not be necessary if these soils are found to be not contaminated after screening.

02:000699_NV15_03-B1478
Fig1.CDR-7/28/06-GRA



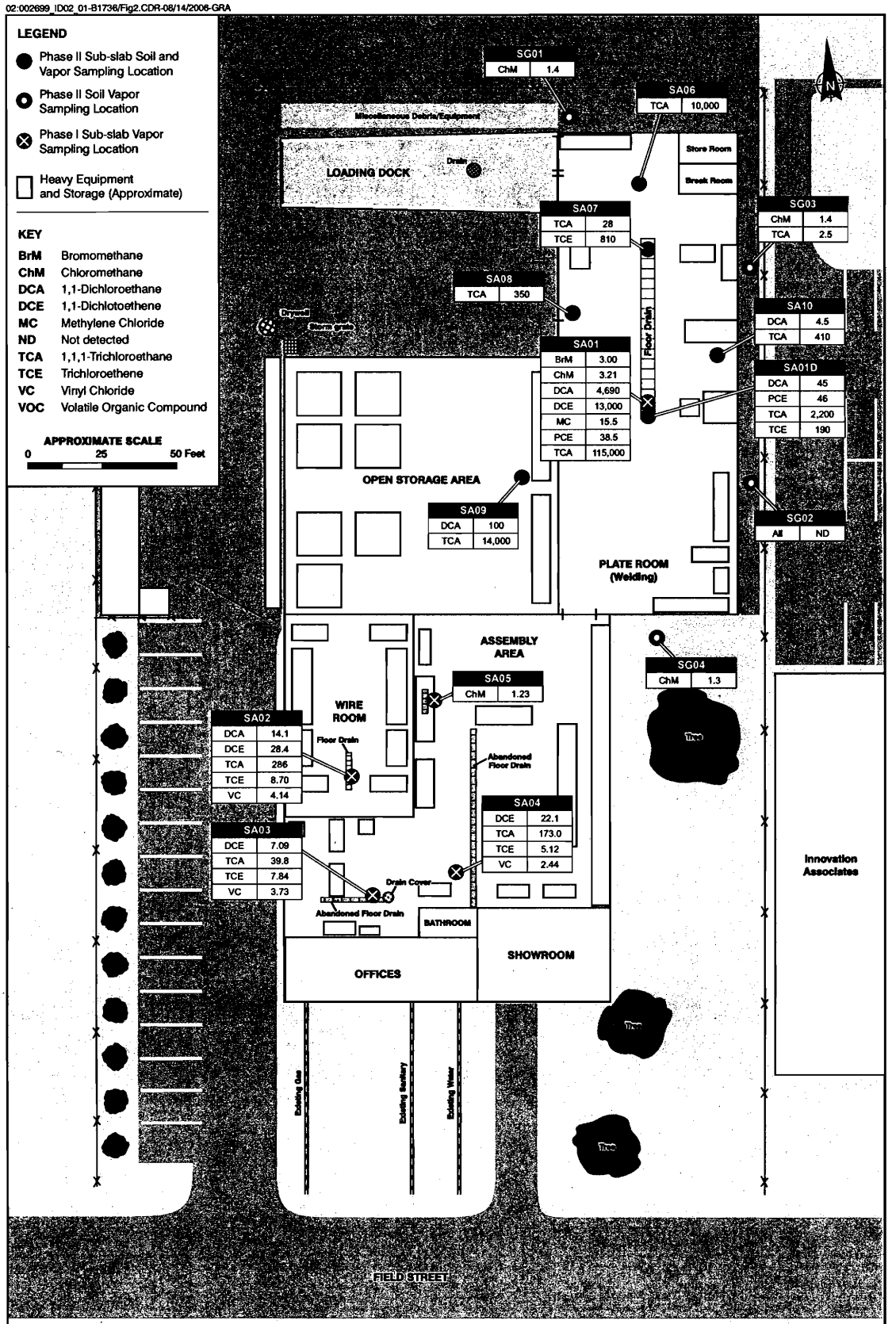
SOURCE: USGS 7.5 Minute Series (Topo) Quadrangle: Binghamton West, NY 1976;
USGS 7.5 Minute Series (Topo) Quadrangle: Castle Creek, NY 1976.

SCALE 1:24,000

0 ½ 1 Mile

0 .5 1 Kilometer

Figure 1 **Site Location Map**
Former Bright Outdoors Site
Johnson City, New York



Notes:
1. Contaminant concentrations are in $\mu g/m^3$
2. Data qualifiers not included (see Table 5-2)
3. See Table 5-2 for sample collection dates

Figure 2 **Positive Analytical Results for Sub-slab Vapor and Soil Vapor Samples**
Former Bright Outdoors Site, Johnson City, New York

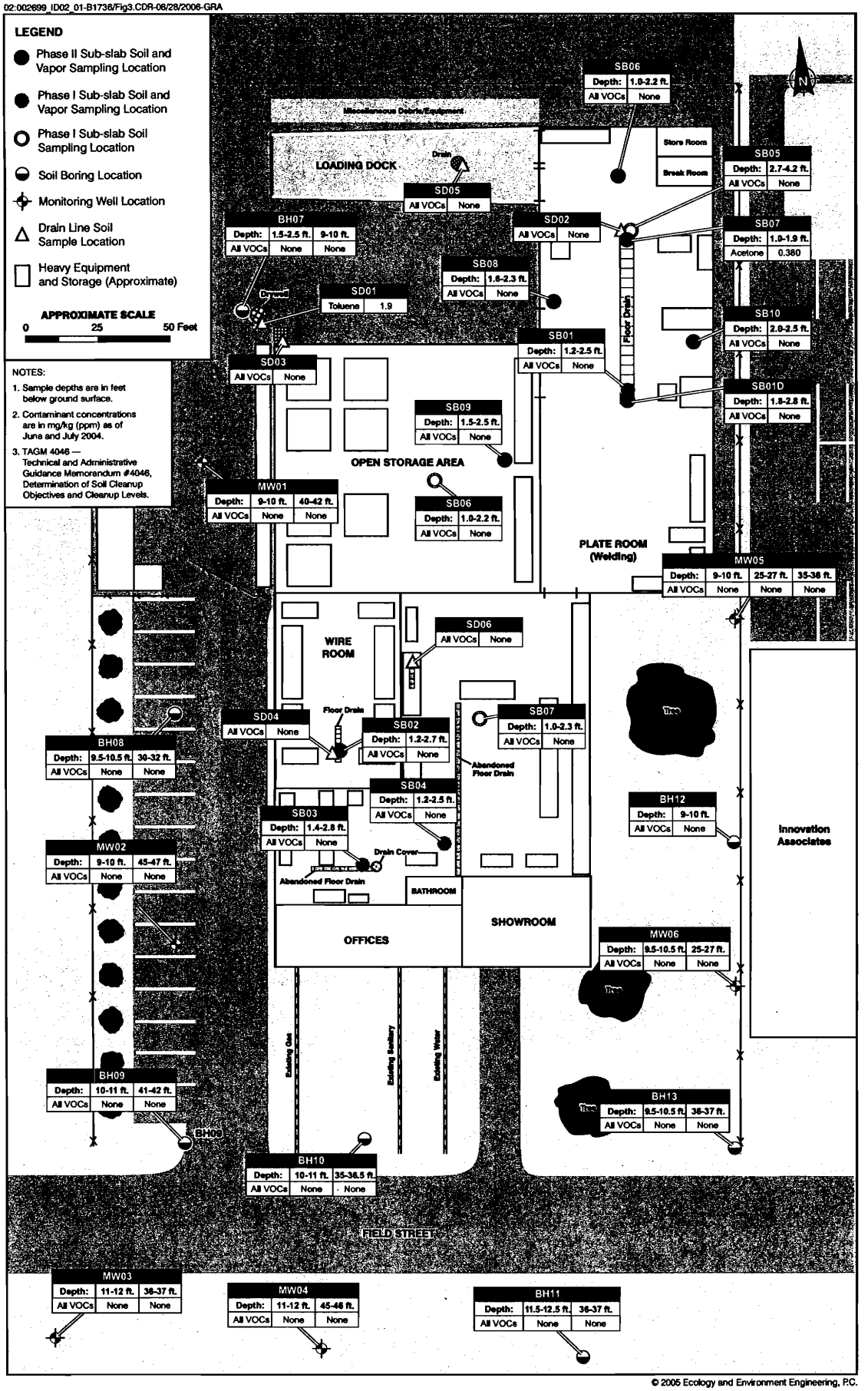
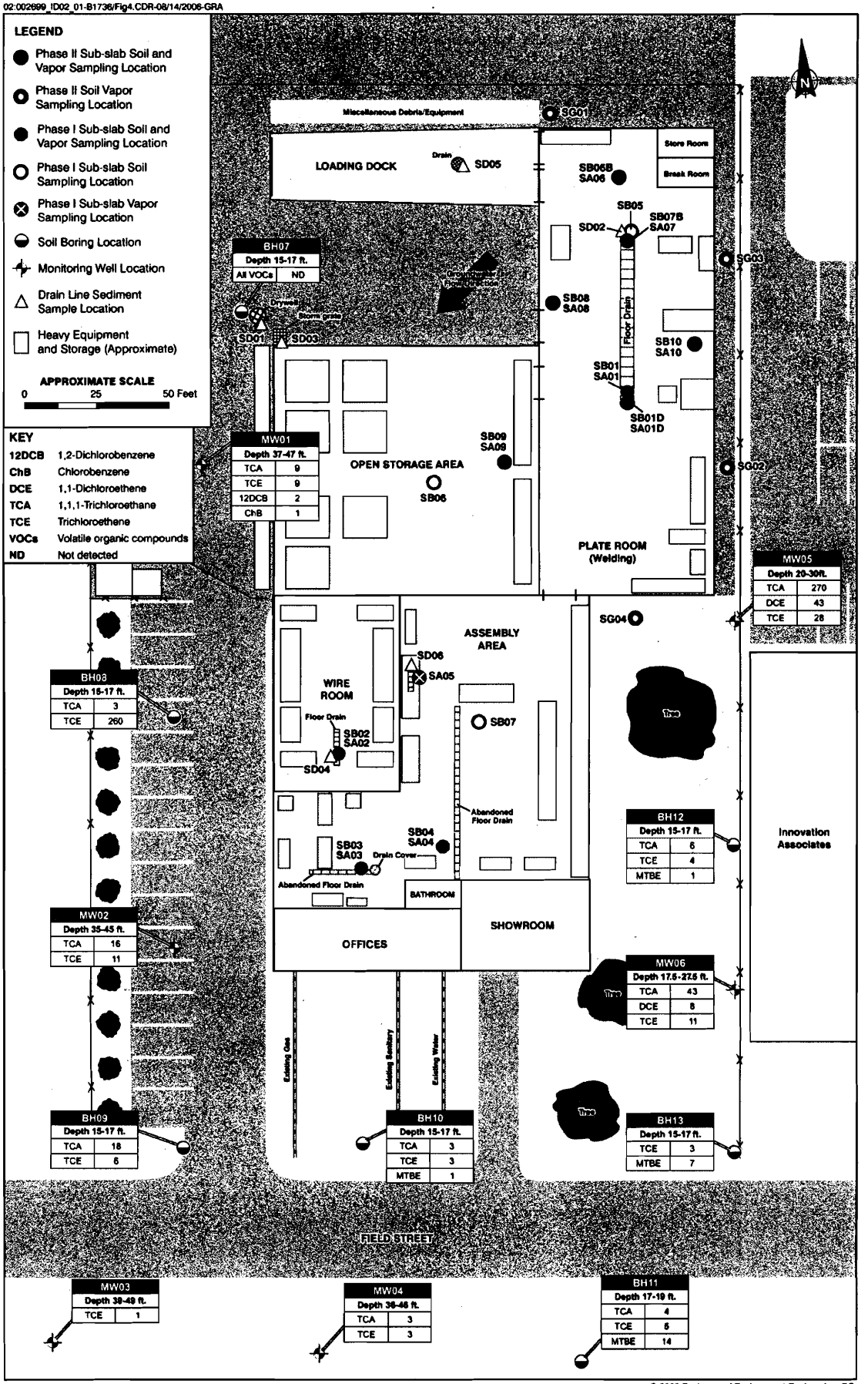


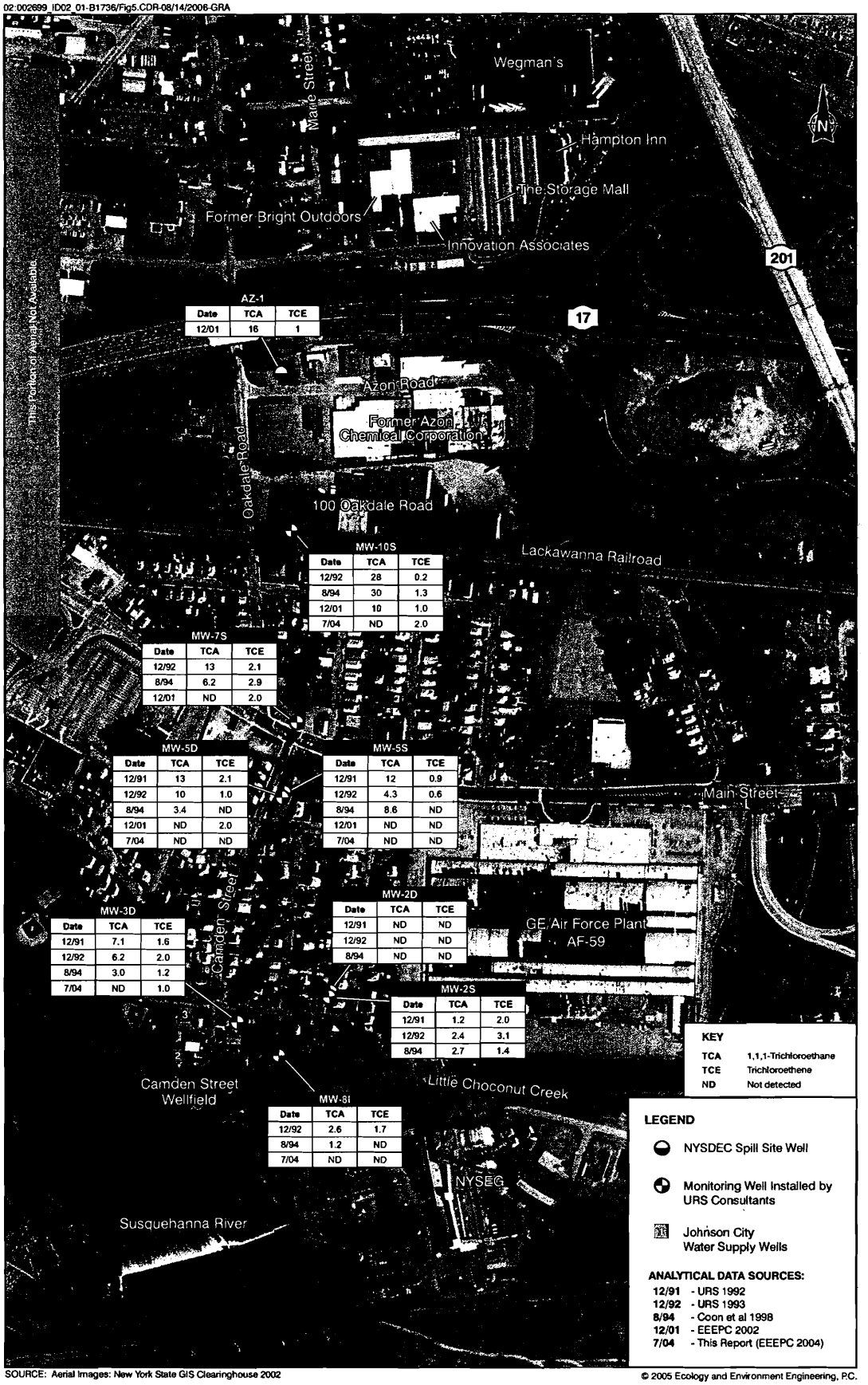
Figure 3 **Analytical Results for Drainline Soils, Sub-slab Surface Soils, and Subsurface Soil Samples Exceeding TAGM 4046 Levels, Former Bright Outdoors Site, Johnson City, New York**



NOTES: 1.Sample depths are in feet below ground surface.
2.Contaminant concentrations are in µg/L as of June and July 2004.
3.Concentration qualifiers not included (see Table 5-6).

Figure 4 **Positive Analytical Results for On-site Groundwater Samples**
Former Bright Outdoors Site, Johnson City, New York

02:002699_ID02_01-B1736/Fig5.CDR-08/14/2006-GRA



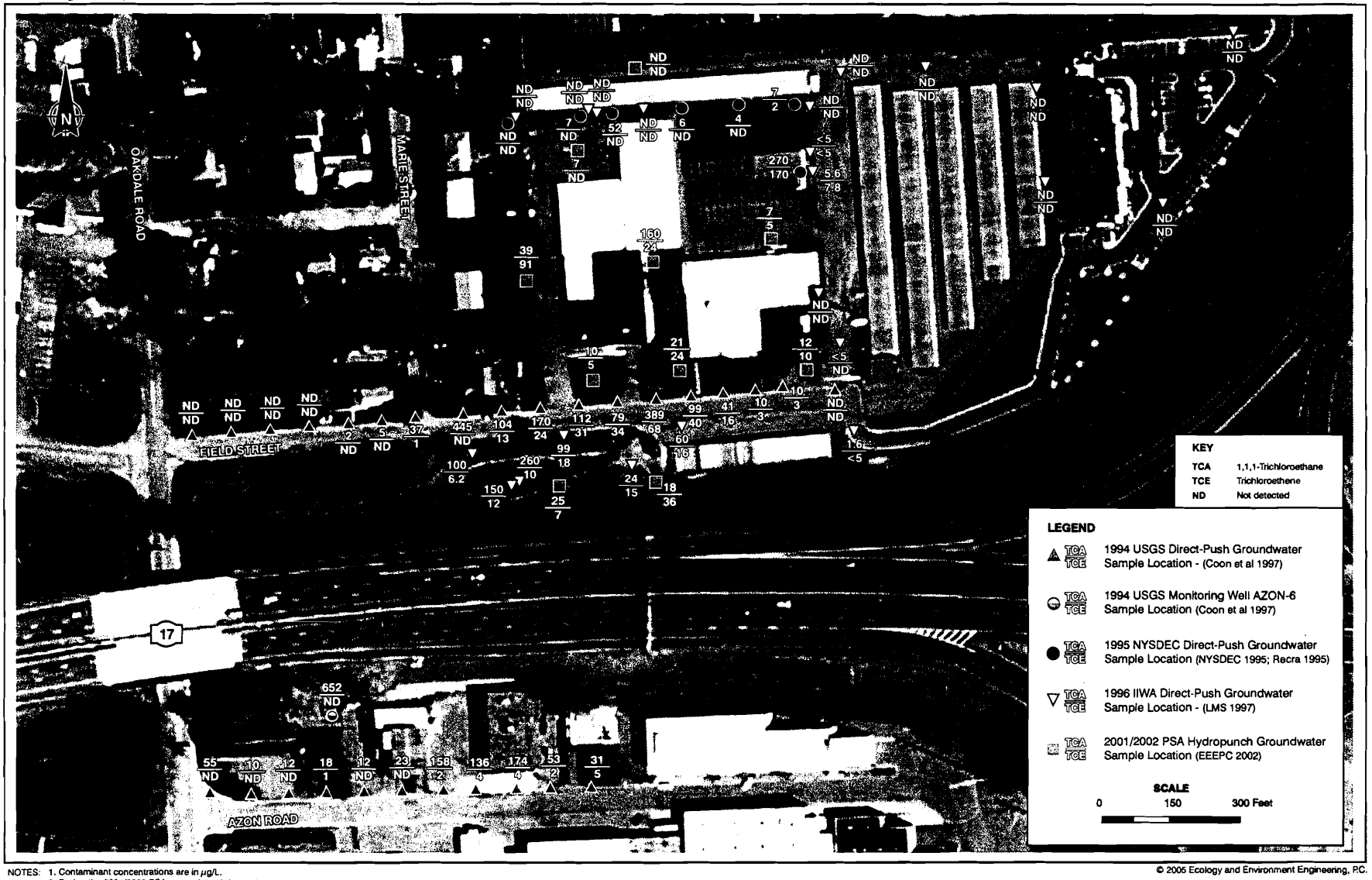
SOURCE: Aerial Images: New York State GIS Clearinghouse 2002

NOTES: Only TCA and TCE results presented. Contaminant concentrations are in µg/L.

SCALE
0 500 1,000 Feet

Figure 5 **Historic and Current Off-site Monitoring Well Results**
Former Bright Outdoors Site, Johnson City, New York

02:002699.ID02_01-B1736/Fig6.CDR-8/15/2006-GRA



NOTES: 1. Contaminant concentrations are in µg/L.
2. During the 2001/2002 PSA, several depth intervals were sampled at each location. The results shown are from lab analysis of the depth interval with the highest field screening results.

Figure 6 **Historic Groundwater Analytical Results**
Former Bright Outdoors Site
Johnson City, New York

02:002699_ID02_01-B1736/Fig7_LTR.CDR-01/23/2007-GRA

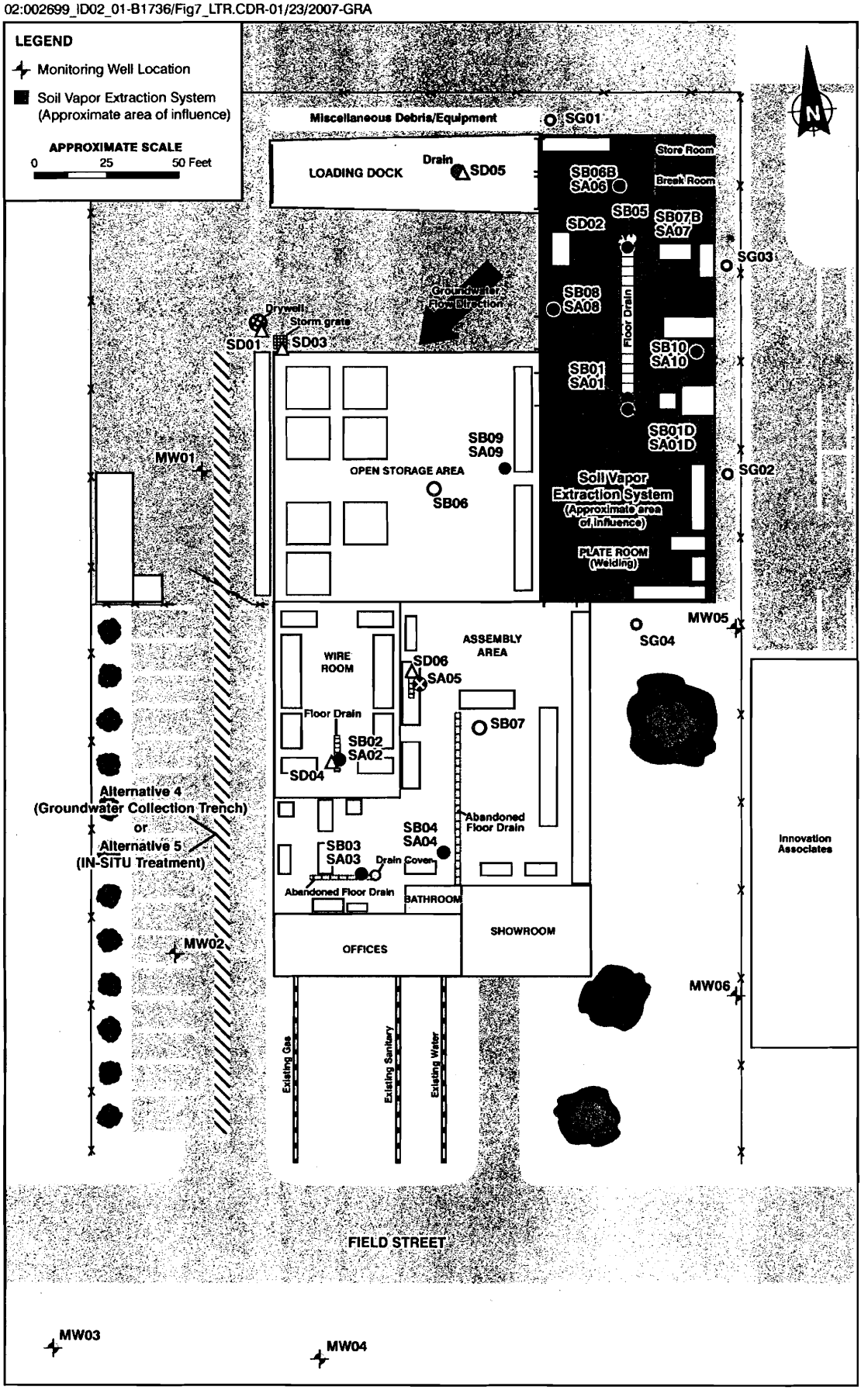


Figure 7 **Identification of Alternatives 3 through 5**
Former Bright Outdoors Site, Johnson City, New York