PROPOSED REMEDIAL ACTION PLAN
640 Trolley Boulevard Site
Town of Gates, Monroe County, New York
Site No. 8-28-108

February 2009

Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

PROPOSED REMEDIAL ACTION PLAN

640 Trolley Boulevard Site
Town of Gates, Monroe County, New York
Site No. 8-28-108
February 2009

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 640 Trolley Boulevard 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, past operations, including the use of a drywell/disposal pit have resulted in the disposal of hazardous wastes, including polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs). These wastes have contaminated the groundwater, soil, and surface water at the site, and have resulted in:

- a significant threat to human health associated with current and potential exposure to groundwater, soil, and surface water.
- a significant environmental threat associated with the current and potential impacts of contaminants to groundwater, soil, and surface water.

To eliminate or mitigate these threats, the Department proposes excavation and off-site disposal of PCB and VOC contaminated soil (presumptive remedy) combined with plume management monitoring to address VOCs in groundwater as the remedy for the 640 Trolley Boulevard site.

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 September 2008 Remedial Investigation (RI) Report, the January 2009 Feasibility Study (FS), and other relevant documents. The public is encouraged to review the project documents, which are available at the following repositories:

Gates Public Library
1605 Buffalo Road
Gates, N.Y. 14624
(585) 247-6446
Hours Mon - Fri 10:00 AM - 9:00 PM

By appointment only:
Jason Pelton, Project Manager
NYSDEC Central Office
625 Broadway
Albany, New York 12233-7013
(518) 402-9814
(888) 459-8667

Lisa Silvestri, Citizen Participation Specialist
NYSDEC Region 8 Office
6274 E. Avon-Lima Road
Avon, New York 14414
(585) 226-5350

The Department seeks input from the community on all PRAPs. A public comment period has been set from February 27, 2009 to March 28, 2009 to provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for March 16, 2009 at the Town of Gates Town Hall Meeting Room beginning at 7:00 P.M.

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. Jason Pelton at the above address through March 28, 2009.

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 640 Trolley Boulevard site is located on the north side of Trolley Boulevard, in the Town of Gates, Monroe County, New York (Figure 1). The property is approximately 1.12 acres in size and includes an approximate 12,300 square-foot block-building constructed slab-on-grade. Historically, the building has been divided and operated as separate businesses. The 640 Trolley Boulevard property and the adjacent property (630 Trolley Boulevard) is owned by Emerson Enterprises, LLC and is zoned by the Town of Gates as General Industrial.

Land use to the immediate north, west, and east of the 640 Trolley Boulevard property is mixed commercial and industrial. Further west on Trolley Boulevard (approximately 1,000-feet), the property use becomes residential. South of the site and Trolley Boulevard, the property use is predominantly residential with some commercial properties. Underground utilities are located along the front of the property near Trolley Boulevard. Between Trolley Boulevard and the residential area to the south, a former rail line, owned by CSX exists.

The Chemcore Site (HW# 8-28-086) is located approximately 1/2-mile southeast of the 640 Trolley Boulevard Site. The New York State Barge Canal is located approximately 700 feet north of the site (Figure 1).

The property is relatively flat, but generally slopes northward towards the New York State Barge Canal. The geology beneath the site directly influences the distribution and ability for contaminants to migrate at the site. Site geology consists of a mixture of fill material and gravelly glacial till overlying dolomite and minor amounts of dolomitic limestone and shale (bedrock beneath the site) of the Lockport Group. The overburden is generally poorly drained and remains ponded for prolonged periods.

The site investigation data suggest that the overburden is approximately three (3) to eight (8) feet thick and the bedrock surface slopes to the south-southeast. The bedrock surface combined with the presence of standing water in drainage ditches/swales appears to influence the local groundwater flow direction. Groundwater is present approximately nine (9) to thirteen (13) feet below the ground surface. Groundwater flow beneath the site is in a south-southwest direction and does not appear to be influenced by the New York State Barge Canal to the north of the site. Consistent with the groundwater flow direction, site contaminants have migrated in a south-southwest direction. The investigation data suggests that groundwater contamination is mostly localized to the area around the former drywell/disposal pit and the north-side of the 640 Trolley Boulevard building and has not migrated off-site.

SECTION 3: <u>SITE HISTORY</u>

3.1: <u>Operational/Disposal History</u>

Several commercial businesses have operated at the 640 Trolley Boulevard site since the building was constructed in approximately 1964. The Clarke Witbeck Company operated at the site from the 1960s until 1992; they reportedly distributed abrasives, cutting tools, fasteners, and other products. The Clarke Witbeck Company declared bankruptcy in 1992. Kenneth Crosby, Inc. reportedly purchased the Clarke Witbeck Company and also reportedly owned other businesses that operated at the site including T.T. Bearing Co., Inc., Rochester Tool Corp., and Jasco Tool.

In 1994, while Kenneth Crosby Inc. operated at the site, a spill was reported to the Department due to a leaking dumpster that contained cutting oils, waste latex, oil based paints, and possible solvents. The spill was contained and later closed. A drywell/disposal pit was discovered in October 2000 while the tenant (AAA Environmental Inc.) was removing trees in order to expand the parking area behind the building. The drywell/disposal pit was located approximately ten (10) feet from the northwest corner of the 640 Trolley Boulevard building.

As a result of the drywell discovery, a Preliminary Site Assessment (PSA) was completed in February 2002 by the Department to investigate the drywell area. The drywell was inspected and was found to contain a brown oily liquid. The drywell was an approximate four foot by four foot disposal pit that was constructed of cinder blocks and/or stone. Approximately 20 gallons of the brown oily liquid was removed from the drywell, pumped into drums, and tested. Analytical results of the liquid identified high concentrations of PCBs, 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA), and other chlorinated solvents.

Data collected as part of the RI suggest that PCBs and chlorinated solvents were historically disposed of in the drywell/disposal pit. Disposal in this area may have also impacted surface soil around the drywell. During various parking lot expansion and regrading activities, the surface soils north of 640 Trolley Boulevard were reworked with some contaminated soil being moved to the northwest portion of the parking area. This regrading likely created the “bermed” area north of the current parking lot.

Data collected during the RI did not provide information on when and for what duration PCB and solvent disposal actually occurred at the site. The data does generally show that PCB and solvent handling practices over a period of more than 35 years has contributed to the on-site PCB and solvent contamination.

3.2: Remedial History

In 2001, the Department first listed the site as a Class 2a site in the Registry of Inactive Hazardous Waste Disposal Sites in New York (the Registry). Class 2a was a temporary classification assigned to a site that had inadequate and/or insufficient data for inclusion in any of the other classifications.

Following listing as a Class 2a site, the Department completed a PSA between April 2001 and March 2002. The PSA included a direct push drilling program, installation of five (5) monitoring wells, excavation of a test trench, and the collection of soil, groundwater, sediment, and surface water for laboratory analysis. The PSA specifically identified PCB contamination in shallow soil north of the site building at concentrations ranging from 0.006 parts per million (ppm) to 200 ppm. The PSA also concluded that reworked soil stockpiled during parking lot expansion activities north of the site building was contaminated with PCBs. The exact limits of the PCB contamination were not identified during the PSA.

During the PSA, acetone and chlorinated volatile organic compounds (CVOCs), including 1,1,1-TCA, 1,1-DCA, and chloroethane were detected in groundwater at concentrations exceeding the groundwater quality standards. The highest concentrations were detected in groundwater samples collected from a monitoring well installed adjacent to the location of the former drywell/disposal pit.

To assess the subsurface conditions near the drywell/disposal pit, the PSA included the excavation of an approximate 14 foot long test trench. The test trench was excavated to the top of bedrock at a depth of approximately four (4) feet below ground surface. The soil immediately around the drywell/disposal pit was found to be grossly contaminated and contained PCBs at a maximum concentration of 1,400 ppm and 1,1,1-trichloroethane (1,1,1-TCA) at concentrations ranging from 120 ppm to 190 ppm. Approximately 19.5 tons of contaminated soil was removed during the drywell excavation, transported off-site, and disposed of at a licensed disposal facility. The PSA indicated that soil left in place around the drywell excavation contained residual PCB and VOC contamination.

Following the PSA and prior to the RI/FS, the Department completed an Interim Remedial Measure (IRM) to characterize and remove soil in an area where the site owner was preparing to install a paved parking lot. The IRM included the advancement of 33 shallow soil borings and the submittal of 58 soil samples for PCB analysis. Based on the results, approximately 278 tons of PCB contaminated soil was excavated and disposed of off-site at a licensed disposal facility.

The data collected as part of PSA led to the listing of the site as a Class 2 Inactive Hazardous Waste Disposal Site in 2002, the subsequent completion of the 640 Trolley Boulevard RI/FS, and the development of this PRAP.

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: Emerson Enterprises, LLC.

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 July 2006 and July 2008. The field activities and findings of the investigation are described in the RI report.

The RI included the following activities:

- Environmental samples were collected from the following media and submitted for laboratory analysis: soil vapor, indoor air, subsurface soil, groundwater, surface water, and drainage ditch soil;
- Direct push/Geoprobe drilling program where 80 shallow soil borings were advanced;
- Installation of six (6) groundwater monitoring wells; and
- Site survey.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil vapor, indoor air, subsurface soil, groundwater, surface water, and drainage ditch soil contains 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 compared to typical background levels of VOCs in indoor and outdoor air using the background levels provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. The background levels are not SCGs and are used only as a general tool to assist in data evaluation.

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

The PSA completed at the 640 Trolley Boulevard site in March 2002 included the collection and laboratory analysis of surface water, sediment, surface soil, subsurface soil, and groundwater samples for VOCs, SVOCs, PCBs, pesticides, and metals. The results of the PSA were used to focus the scope of the RI and determine what media required further evaluation and for what analytical parameters. The PSA identified that the primary contaminants of concern included PCBs and VOCs. The highest PCB and VOC concentrations were detected in soil and groundwater north of the 640 Trolley Boulevard building near the location of the former drywell/disposal pit. Although low concentrations of various metals, pesticides, and SVOCs were detected at the site, their overall presence and concentrations suggest that they may be attributed to the site being located in an urban and industrial setting.

As described in the RI report, many soil, groundwater, sediment samples, surface water, soil vapor, and indoor air samples were collected to characterize the nature and extent of contamination. As shown in Figures 2, 3, and 4 and summarized in Table 1, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs). 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 soil and sediment. Air samples are reported in micrograms per cubic meter ($\mu g/m^3$).

Figure(s) 2, 3, and 4 and Table 1 summarize the degree of contamination for the contaminants of concern in surface soil, subsurface soil, and groundwater. The following are the media which were investigated and a summary of the findings of the investigation.

Surface Soil (approximately 0-1 foot)

To assess the distribution of the primary site contaminants (PCBs and VOCs) in surface soil at the 640 Trolley Boulevard site, a total of 87 surface soil samples were collected and analyzed for PCBs and fifteen (15) surface soil samples were analyzed for VOCs. The majority of surface soil samples were collected according to a grid pattern in the area of the former drywell/disposal pit and in areas further to the north where shallow site soil had been stockpiled and/or re-graded (Figures 2 and 3 illustrate the approximate location of the soil stockpile area). This corresponds to the area north of the 640 Trolley Boulevard building and along the western margin of the property. The results from these soil samples document PCB in surface soil at the site at concentrations ranging from 0.0873 ppm to 59.8 ppm and above the SCG of 0.1 ppm for unrestricted property use.

Specifically, PCBs were detected in 34 of the 87 surface soil samples at concentrations exceeding the SCG for unrestricted use (0.1 ppm). The highest PCB concentrations (4.72 ppm to 59.8 ppm on Figure 2) were consistently detected in surface soil samples collected from an approximate 40 foot by 40 foot area around the location of the former drywell/disposal pit and an approximate 50 foot by 60 foot area where soil was regraded and stockpiled during parking lot expansion activities. The majority of locations where PCBs were detected in surface soil samples collected outside of these two areas and above the unrestricted SCG of 0.1 ppm ranged from approximately 0.2 ppm to 2 ppm (Figure 2).

Figure 2 illustrates the RI surface soil sampling locations with corresponding PCB concentrations and Table 1 includes a summary of the surface soil sampling analytical results. Based on the presence and distribution of PCBs in surface soil, it is estimated that approximately 835 cubic yards of surface soil exceed the unrestricted SCG of 0.1 ppm.

As summarized in Table 1, VOCs were not detected in surface soil samples at concentrations above their respective SCGs. SVOCs were detected in two (2) of eight (8) surface soil samples at concentrations exceeding the unrestricted SCGs. Chrysene and benzo(b)fluoranthene were the two (2) SVOCs detected at the highest concentrations (15 and 18 ppm respectively). The SVOCs were only detected in surface soil samples at concentrations exceeding the unrestricted SCGs from the front of the site near 640 Trolley Boulevard and in a sample collected along the east-side of the property adjacent to the rear access road entering the site from Trolley Circle. Both of these surface sampling locations are adjacent to paved surfaces.

Inorganic compounds, including cadmium, lead, and mercury were each detected in 1 of the 9 surface soil samples and silver was detected in 2 of the 9 surface soil samples at concentrations exceeding the unrestricted SCGs. The highest concentrations of cadmium (lab estimated value of 3.5 ppm) and mercury (0.26 ppm) were detected in surface soil samples collected from the stockpiled soil area. Similar to the presence of SVOC's in surface soil, the detection of inorganic compounds, along with various pesticides, above the SCGs was restricted to surface soil samples collected from the front of the site near 640 Trolley Boulevard and in the area where soil was stockpiled during the parking lot expansion activities. Dieldrin was the pesticide detected at the highest concentration (lab estimated value of 2.2 ppm) in a surface soil sample collected from a grassy area along the front of the site.

Surface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Subsurface Soil (greater than 1 foot below ground surface)

Similar to the surface soil sampling, the majority of subsurface soil samples were collected according to a grid pattern in the area of the former drywell/disposal pit and in areas where soil had been re-graded and stockpiled behind the site building. A total of 52 subsurface soil samples were collected and analyzed for PCBs. Based on this sampling, PCBs were detected at concentrations exceeding the unrestricted SCG of 0.1 ppm in ten (10) of the 52 subsurface soil samples. The PCB concentrations ranged from 0.0787 ppm to 1,800 ppm.

As shown in Figure 3, PCBs were detected at concentrations exceeding the unrestricted SCG in the area of the former drywell and in the area where soil was historically regraded and stockpiled during parking lot expansion activities. Based on the subsurface soil sampling, it is estimated that a total of 415 cubic yards of soil at the site exceed the 0.1 ppm SCG.

A total of 18 subsurface soil samples were also collected for VOC analysis. Acetone and 1,1,1-TCA were the only VOCs detected in subsurface soil samples at concentrations exceeding the SCGs for unrestricted property use (Figure 3 and Table 1). With the exception of acetone being detected at a concentration of 0.082 ppm and slightly above the unrestricted SCG of 0.05 ppm in subsurface soil collected from soil boring SB-34 (Figure 3), acetone and 1,1,1-TCA were only detected above the SCGs in subsurface soil samples collected from the area near the former drywell/disposal pit. The presence of 1,1,1-TCA and acetone in soil from this area is consistent with the liquid waste removed from the former drywell/disposal pit containing 108 ppm of 1,1,1-TCA and 24 ppm of acetone. No other VOCs were detected in subsurface soil samples collected during the RI at concentrations exceeding the unrestricted SCGs.

Indeno[1,2,3-cd]pyrene was the only SVOC detected in nine (9) subsurface soil samples at a concentration above the unrestricted SCG. As with the presence of SVOCs in surface soil samples discussed above, the indeno[1,2,3-cd]pyrene was detected in a subsurface soil sample collected near the rear access road entering from Trolley Circle.

Lead and silver were each detected in 1 of the 9 subsurface soil samples at concentrations exceeding the unrestricted SCGs. Lead was detected at a concentration of 455 ppm and above the SCG of 63 ppm in a subsurface soil sample collected from the location of the former drywell/disposal pit and silver was detected at a laboratory estimated concentration of 4.1 ppm in a subsurface soil sample collected at an off-site location (700 Trolley Boulevard).

Pesticides, including Aldrin, Dieldrin, Endrin, 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT, were detected in up to five (5) of the nine (9) subsurface soil samples collected at the 640 Trolley Boulevard site. With the exception of Dieldrin, being detected at a laboratory estimated concentration of 0.0099 ppm from a subsurface soil sample collected from the grassy area along the front of the site, pesticides were only detected at concentrations exceeding the unrestricted SCGs from the area around the former drywell/disposal pit. Specifically, Aldrin, Endrin, 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT were detected in subsurface soil samples collected from the drywell/disposal pit area at concentrations up to 15 ppm.

Subsurface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Groundwater

As summarized in Table 1, a total of 31 groundwater samples were collected from a network of existing monitoring wells installed during the PSA and from monitoring wells installed as part of the 640 Trolley Boulevard RI during four separate sampling events. Figure 4 illustrates the VOC groundwater sampling results from the October 2006, March 2007, and November 2007 sampling events.

Six (6) VOCs (1,1,1-TCA, along with 1,1,1-TCA breakdown products (1,1-DCA, 1,2-DCA, and chloroethane), 1,1-DCE, and acetone) were detected in eight (8) of the bedrock monitoring wells at concentrations exceeding their respective SCGs (Figure 4). Consistent with the subsurface soil quality data, the presence and distribution of VOCs in site groundwater further indicates that waste disposal occurred in the area of the drywell/disposal pit. Each of the VOCs were detected at their highest concentrations in groundwater from monitoring well MW-04 (located near the former drywell/disposal pit). Chloroethane was the VOC detected at the highest concentration (1,160 ppb in MW-04). In groundwater collected from MW-04 during the RI, acetone was detected at concentrations ranging from 493 to 907 ppb and 1,1,1-TCA was detected at a maximum concentration of 452 ppb.

Downgradient from the former drywell/disposal pit, the VOC groundwater concentrations decrease to either below or slightly above the groundwater SCGs within approximately 180 feet. The groundwater data suggests that the VOCs have not migrated off of the 640 Trolley Boulevard site. The chloroethane groundwater concentrations decreased from 1,160 ppb in MW-04 (near the source area) to a maximum concentration of 2.57 ppb in the most downgradient monitoring well (MW-01 on Figure 4). As shown on Figure 4, MW-01 is located on the 640 Trolley Boulevard site and just under 100 feet from Trolley Boulevard. No VOCs were detected in groundwater in MW-01 at concentrations exceeding the groundwater standards.

Based on a comparison of groundwater quality data collected during the 2002 PSA relative to the recently collected RI data, the CVOCs appear to be attenuating naturally within the shallow bedrock groundwater system. Specifically, during the PSA, 1,1,1-TCA was the CVOC detected at the highest concentrations (240 ppb) in groundwater, while the RI groundwater data show that 1,1,1-TCA breakdown products (1,1-DCA and chloroethane) are the CVOCs detected at the highest concentrations in groundwater. Both 1,1-DCA and chloroethane are breakdown compounds of the reductive dechlorination process for 1,1,1-TCA. It is likely that the presence of acetone, at concentrations ranging from 493 ppb to 907 ppb in MW-04 is facilitating the natural degradation of 1,1,1-TCA through reductive dechlorination. Acetone was only detected in groundwater at concentrations exceeding the SCG of 50 ppb from monitoring well MW-04 (location of the former drywell/disposal pit).

Three (3) SVOCs were detected in groundwater at concentrations exceeding the SCGs. Specifically, benzo[b]fluoranthene was detected above the SCG in MW-07 during one (1) of the three (3) sampling events and bis[2-Ethylhexyl]phthalate was detected in MW-07 and MW-10 at concentrations of 5.3 ppb and 12 ppb respectively during one (1) of the three (3) sampling events. Phenol was detected during each sampling event at concentrations ranging from 6 ppb to 75 ppb, but only in groundwater collected from monitoring well MW-04 (in source area) at concentrations exceeding the SCG of 1 ppb. PCBs were detected above the SCG in groundwater collected from MW-04 at a concentration of 1.47 ppb during the October 2006 sampling event.

Eleven (11) groundwater samples were collected and analyzed for inorganic compounds during two separate sampling events. Beryllium was detected above the SCG of 5 ppb at a laboratory estimated concentration of 310 ppb in one groundwater sample collected from MW-7 and both chromium and lead were detected at concentrations slightly above the SCGs in a groundwater sample collected from MW-10. These three inorganic compounds were not detected in groundwater from the area immediately north of the site building and their presence in site groundwater is not likely to be associated with disposal in the former drywell/disposal pit.

Groundwater contamination identified during the RI/FS will be addressed in the remedy selection process.

Standing Water in Drainage Ditch

To manage stormwater runoff originating from parking lots and adjacent roadways, the site contains surface water drainage ditches north of the building (Figure 1). Surface water samples were collected to evaluate the quality of water in these drainage ditches. PCBs (Aroclor 1254) were detected at one (1) location at a laboratory estimated concentration of 0.438 ppb and above the SCG for total PCBs of 0.09 ppb. This surface water sample (SW-01) was collected in the immediate vicinity of the former drywell/disposal pit. Surface water in this area is stagnant and accumulates following rain events. The presence of PCBs in surface water in this area is likely due to residual PCBs in the underlying surface soil containing PCBs at concentrations up to 59.8 ppm.

No VOCs, SVOCs, and no pesticides were detected in surface water collected from the drainage ditch north of the site at concentrations exceeding SCGs. Iron and aluminum at concentrations of 524 ppb and 444 ppb respectively, were the only inorganic compounds detected at concentrations exceeding the respective SCGs in the drainage ditch surface water samples.

Surface water contamination identified during the RI/FS will be addressed in the remedy selection process.

Drainage Ditch Soils

PCBs were detected in seven (7) of 16 drainage ditch soil samples at concentrations exceeding the unrestricted use SCG of 0.1 ppm. The locations of the drainage ditches north of the 640 Trolley Boulevard building are shown on Figure 1. The highest PCB concentrations (2.6 ppm to 99.7 ppm) were detected in three (3) drainage ditch samples collected adjacent to the location of the former drywell/disposal pit and soil stockpile area. PCBs were also detected at lower concentrations (0.154 to 0.42 ppm) and slightly above the unrestricted SCG in four (4) samples collected from the drainage ditch further to the north and off-site.

Pesticides, inorganic compounds, and SVOCs were detected in drainage ditch soil samples at concentrations exceeding the unrestricted SCGs. The highest concentrations were detected in a sample collected from an off-site and upgradient sampling point adjacent to Trolley Circle. Each of the drainage ditch sampling locations are immediately adjacent to, and receive runoff from, Trolley Circle and the parking lot north of the site building.

Drainage ditch soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Soil Vapor/Sub-Slab Soil Vapor/Indoor Air

To evaluate the potential migration of volatile contaminants known to exist in site groundwater into the overlying buildings, a vapor intrusion sampling program was completed during the RI. As shown on Figure 5, vapor intrusion sampling was completed at four (4) locations within both 630 and 640 Trolley Boulevard. The vapor intrusion sampling included the collection of sub-slab soil vapor, indoor air, and ambient air samples. Based on this vapor intrusion sampling, there was no evidence of vapor intrusion that would require further action.

Tetrachloroethene (PCE) was detected at an indoor air concentration of 2,400 ug/m3 and above the SCG of 100 ug/m3 at the 630 Trolley Boulevard building. Since PCE is not a site contaminant, was detected in the sub-slab vapor sample at a concentration considerably lower than the indoor air concentration, and was present in a product stored and used in the 630 Trolley Boulevard building, it was determined that the PCE indoor air concentration was not associated with vapor intrusion. The indoor air concentration of PCE was below the Occupational Safety and Health Administration workplace air standard of 100 ppm (approximately 689,000 ug/m3)

No site-related soil vapor and/or indoor air contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for this medium.

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.

As mentioned in Section 3.2, two IRMs including the combined excavation and off-site disposal of nearly 300 tons of contaminated soil were completed prior to the start of the RI. Approximately 19.5 tons of PCB and VOC contaminated soil was removed from the drywell/disposal pit area and approximately 278 tons of PCB contaminated soil was excavated from the area north of the site building.

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 5.0 of the RI report which is available at the document repositories established for this site. 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.

No completed exposure pathways have been identified at this site. The surrounding area is served by public water and the site is completely paved or covered by the on-site structure and a portion of the site is fenced; therefore, exposures to drinking contaminated groundwater or exposures to contaminated sub-surface soil are not likely. The potential for exposures related to soil vapor intrusion has been evaluated in the on-site and adjacent off-site structure and it was determined that no further actions are necessary at this time.

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.

Investigation activities completed at the 640 Trolley Boulevard site document that past operations, including the use of a drywell/disposal pit have resulted in the disposal of hazardous wastes, including polychlorinated biphenyls (PCBs) volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). Site data suggests that these wastes were disposed of in a shallow drywell/disposal pit. Disposal in this drywell combined with subsequent grading during parking lot expansion activities ultimately resulted in these contaminants being present in surface soil, subsurface soil, drainage ditch soil, surface water, and groundwater at the site.

The Fish and Wildlife Impact Analysis, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

The site and surroundings have been heavily developed, filled in, and are located within a mixed commercial and industrial area. Surface water drainage ditches at the site are used to manage stormwater runoff originating from surrounding parking lots and roadways. With these characteristics, the 640 Trolley Boulevard site has little value to wildlife.

Although investigation results document groundwater contamination at the 640 Trolley Boulevard site, the site contaminants are not expected to impact plants and burrowing animals due to the depth to groundwater and its presence in fractured bedrock.

The highest concentrations of PCBs in drainage ditch soil and surface water samples were collected from the area directly adjacent to the location of the former drywell/disposal pit. In the drainage ditches further to the north of the site only low levels of PCBs were detected. These low levels of PCBs are not expected to impact plants or animals in the area of the on-site and off-site surface water drainages. Similarly, the presence of PCBs and VOCs in surface and subsurface soil at the site are not expected to impact fauna in the area surrounding the site. The contaminated surface soil, subsurface soil, and drainage ditch soil near the former drywell/disposal pit and in the area where soil was historically stockpiled would be addressed in the proposed remedy.

Site contamination has impacted the groundwater resource in the shallow bedrock groundwater unit. Data collected during the RI indicates that groundwater contamination in the shallow bedrock is generally restricted to the area around the location of the former drywell/disposal pit and the north-side of the site building. Site groundwater is not used and the area is served by municipal water and sewer. The data suggests that the groundwater plume has not migrated off-site and the groundwater does not discharge to surface water bodies. The contaminated groundwater would be addressed in the proposed remedy.

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 PCBs and VOCs in soil and groundwater;
- environmental exposures of flora or fauna to PCBs in drainage ditch soil and surface water;
- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards;

- the release of contaminants from site soil into surface water through storm water erosion; and

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

- ambient groundwater and surface water quality standards and
- the soil cleanup objectives included in 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives and the Technical and Administrative Guidance Memorandum [TAGM] 4046 and;

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 640 Trolley Boulevard site were identified, screened and evaluated in the FS report; which is available at the document repositories established for this site.

The feasibility study focused on presumptive remedies, or remedial alternatives proven effective at addressing polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs) in soil and VOCs in groundwater. To address PCBs and VOCs in soil, three (3) presumptive remedies were considered. These included in-situ thermal desorption, excavation and on-site incineration, and excavation with off-site disposal. Since in-situ thermal desorption would not address PCB and VOC contamination in soil at depths greater than three (3) feet and this technique would have a large energy requirement and excavation with on-site incineration is generally only cost effective when off-site disposal costs are high, these two presumptive remedies for PCBs and VOCs in site soil are not carried through to the development of the remedial action alternatives evaluation. To address PCB and VOC contaminated soil, excavation with off-site disposal is the most appropriate presumptive remedy and is included in the evaluation of remedial alternatives for the site.

To address VOCs in site groundwater, the following presumptive remedies were included in the evaluation of remedial alternatives: ex-situ groundwater extraction and treatment, monitored natural attenuation, in-situ chemical reduction, in-situ thermal treatment, and in-situ bioremediation.

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 30 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 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

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

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.

The no further action alternative consists of long-term groundwater quality monitoring, environmental easements, and five-year reviews. Environmental easements would be used to restrict the use of groundwater at the site.

Present Worth: *$202,000*
Capital Cost: *$94,000*
Annual Costs:
(Years 1-2): *$20,000*
(Years 3-30): *$6,000*

Alternative 2: Excavation and Off-Site Disposal of VOC and PCB Contaminated Soil to Achieve Pre-Disposal Conditions Combined with Natural Attenuation

Alternative 2 was developed to restore the 640 Trolley Boulevard site soil to pre-disposal conditions. To achieve pre-disposal conditions at the site, Alternative 2 would rely on excavation and off-site disposal to remove PCBs and VOCs in site soil at concentrations that exceed the unrestricted SCGs. A monitored natural attenuation program would be implemented under this alternative to address residual VOCs in site groundwater at concentrations exceeding the SCGs.

Alternative 2 would include the excavation and off-site disposal of approximately 1,250 cubic yards of soil at the site where PCB and VOC contamination was identified at concentrations exceeding the unrestricted SCGs. Investigation data indicate that the contaminated soil is predominantly located in the area of the former drywell/disposal pit and in the area where soil was historically stockpiled during parking lot expansion activities. Approximately 835 cubic yards of surface soil would require excavation from the zero (0) to one (1) foot depth interval. There are also isolated areas where the PCB and VOC contamination extends below the surface soil to the top of bedrock and would require the excavation of contaminated soil to an approximate depth of six (6) feet below ground surface. Under Alternative 2, a total of 415 cubic yards of subsurface soil would be excavated. The contaminated soil would be transported and disposed of off-site at a licensed facility. Following removal of the approximate 1,250 cubic yards of soil, the excavation would be backfilled with clean fill from an approved source.

For the on-site VOC contamination in groundwater, Alternative 2 would rely on natural attenuation mechanisms to achieve the groundwater remedial action objectives. Data collected as part of the remedial investigation have shown that breakdown products of 1,1,1-TCA exist in the plume and that attenuation is occurring. Natural attenuation monitoring would consist of groundwater sampling and analysis at representative wells for natural attenuation parameters. Additionally, this alternative would include groundwater quality monitoring to assess variations in VOC concentrations in site groundwater over time to assess any further threat to human health and the environment.

The components of Alternative 2 are readily implementable and reliable technologies. Costs are based on soil excavation and long-term groundwater quality monitoring for VOCs and natural attenuation parameters.

Present Worth: *$730,000*
Capital Cost: *$550,000*
Annual Costs:
(Years 1-2): *$35,000*
(Years 3-30): *$4,000*

Alternative 3: Excavation and Off-Site Disposal of VOC and PCB Contaminated Soil (Presumptive Remedy) Combined with In-Situ Chemical Reduction

Consistent with the Department's and the EPA's presumptive remedy recommendations, Alternative 3 includes excavation and off-site disposal for soil contaminated with VOCs and PCBs along with in-situ chemical reduction to address on-site groundwater contaminated with VOCs.

Alternative 3 would include the excavation and off-site disposal of approximately 715 cubic yards of soil at the site where VOC contamination was identified at concentrations exceeding the protection of groundwater standard and where PCBs were detected above the soil cleanup objectives of 1 ppm for surface soil (0-1 foot depth interval) and 10 ppm for subsurface soil (greater than 1 foot below ground surface). The excavation of contaminated soil would occur in the area of the former drywell/disposal pit and in the area where soil was historically stockpiled during parking lot expansion activities. Just over half (410 cubic yards) of the soil requiring excavation is from the zero (0) to one (1) foot depth interval. There are three isolated areas where the PCB contamination extends to the top of bedrock and would require the excavation of PCB contaminated soil to an approximate depth of six (6) feet below ground surface. Following removal of the approximate 715 cubic yards of soil, the excavation would be backfilled with clean fill from an approved source. Prior to placement of the backfill into the excavation, a fabric would be placed in the excavation to serve as a demarcation between soil left in place and the material used as backfill.

To address VOCs in site groundwater at concentrations above the SCGs, Alternative 3 would rely on in-situ chemical reduction. The reductant would be injected into the shallow bedrock through a series of borings advanced to an approximate depth of 30 feet below ground surface. It is estimated that approximately 70 injection points would be established in an approximate 100 foot by 170 foot area immediately north of the 640 Trolley Boulevard site building. Following injection, groundwater quality monitoring would occur to evaluate the effectiveness of the reductant injection. If necessary, additional reductant would be injected to address remaining VOC groundwater contamination.

Present Worth: *$1,010,000*
Capital Cost: *$900,000*
Annual Costs:
(Years 1-2): *$20,000*
(Years 3-30): *$2,500*

Alternative 4: Excavation and Off-Site Disposal of PCB Contaminated Soil (Presumptive Remedy) Combined with Ex-Situ Groundwater Extraction and Treatment

Similar to Alternative 3, approximately 715 cubic yards of VOC and PCB contaminated soil would be excavated from the area of the former drywell/disposal pit and the area where soil was historically stockpiled during parking lot expansion activities and disposed of off-site at a licensed facility under Alternative 4. Soil would be excavated at locations where VOCs are present at concentrations exceeding the protection of groundwater standard and where PCBs were detected above the soil cleanup objectives of 1 ppm for surface soil (0-1 foot depth interval) and 10 ppm for subsurface soil (greater than 1 foot below ground surface). To address the presence of VOCs in site groundwater, Alternative 4 would rely on a series of seven (7) groundwater extraction wells with ex-situ treatment to accelerate the attainment of the remedial action objectives for VOCs in groundwater. The extraction wells would be installed to depths up to 30 feet below ground surface in order to contain and recover the existing on-site plume. Following withdrawal, the treatment of contaminated groundwater would consist of air stripping and disposal of the treated water to the municipal sanitary sewer system. Under this alternative, effluent off-gas would be treated using granulated activated carbon.

Alternative 4 would include groundwater quality monitoring to evaluate the effectiveness of the extraction system and determine if the remedy is attaining the SCGs.

As with Alternative 3, the remedial technologies outlined in Alternative 4 are reliable and implementable. Costs are based on soil excavation, installation and operation of the groundwater extraction and treatment system, and long-term groundwater quality monitoring.

Present Worth: *$2,500,000*
Capital Cost: *$600,000*
Annual Costs:
(Years 1-2): *$105,000*
(Years 3-30): *$61,000*

Alternative 5: Excavation and Off-Site Disposal of PCB Contaminated Soil (Presumptive Remedy) Combined with In-Situ Thermal Treatment

Similar to Alternatives 3 and 4, approximately 715 cubic yards of VOC and PCB contaminated soil would be excavated from the area of the former drywell/disposal pit and the area where soil was historically stockpiled during parking lot expansion activities and disposed of off-site at a licensed facility under Alternative 5. Soil would be excavated at locations where VOCs are present at concentrations exceeding the protection of groundwater standard and where PCBs were detected above the soil cleanup objectives of 1 ppm for surface soil (0-1 foot depth interval) and 10 ppm for subsurface soil (greater than 1 foot below ground surface).

For the on-site VOC contamination in groundwater, Alternative 5 would involve in-situ thermal treatment to achieve the groundwater remedial action objectives. Specifically, the in-situ thermal treatment would include the use of electrical resistive heating (ERH) for heating and steam stripping of the subsurface contamination. With this technique, the preferential heating creates steam which acts as a carrier gas, transporting the contaminants to vapor or multi-phase extraction wells screened in known fracture zones. Alternative 5 would include the installation of 18 co-located electrode and vapor recovery wells. Each well would be installed to a depth of approximately 30 feet below ground surface in the area of the groundwater plume.

As with the other alternatives, Alternative 5 would include groundwater quality monitoring to assess variations in VOC concentrations in site groundwater over time to assess any further threat to human health and the environment.

The components of Alternative 5 are readily implementable and reliable technologies, but the use of ERH has limited case studies in bedrock settings. Costs are based on soil excavation, installation and operation of the thermal treatment system, and long-term groundwater quality monitoring.

Present Worth: *$2,110,000*
Capital Cost: *$2,000,000*
Annual Costs:
(Years 1-2): *$20,000*
(Years 3-30): *$2,500*

Alternative 6: Excavation and Off-Site Disposal of PCB Contaminated Soil (Presumptive Remedy) Combined with In-Situ Enhanced Bioremediation

Similar to Alternatives 3 through 5, approximately 715 cubic yards of VOC and PCB contaminated soil would be excavated from the area of the former drywell/disposal pit and the area where soil was historically stockpiled during parking lot expansion activities and disposed of off-site at a licensed facility under Alternative 6. Soil would be excavated at locations where VOCs are present at concentrations exceeding the protection of groundwater standard and where PCBs were detected above the soil cleanup objectives of 1 ppm for surface soil (0-1 foot depth interval) and 10 ppm for subsurface soil (greater than 1 foot below ground surface).

For the on-site VOC contamination in groundwater, Alternative 6 would rely on in-situ enhanced bioremediation to achieve the groundwater remedial action objectives. Bioremediation would rely on either naturally occurring or introduced microorganisms to breakdown site contaminants to less toxic or nontoxic compounds. Prior to implementing a bioremediation program, this alternative would include the collection of site data to evaluate the effectiveness of in-situ bioremediation treatment and the amount of biostimulant or bacteria required for treatment. Under this alternative, the existing monitoring wells would be used to introduce the biostimulant and/or the microorganisms in order to enhance the natural biodegradation of CVOCs in site groundwater. If needed based on follow-up groundwater quality monitoring, Alternative 6 would include additional injections of the biostimulant and/or microorganisms.

As with the other alternatives, Alternative 6 would include groundwater quality monitoring to assess variations in VOC concentrations in site groundwater over time to assess any further threat to human health and the environment.

The components of Alternative 6 are readily implementable and reliable technologies. The success of enhanced bioremediation would be highly dependent on the ability to effectively distribute the biostimulant and/or microorganisms into the treatment area. Costs are based on soil excavation, design of the bioremediation program, introduction of the biostimulants and/or microorganisms, and long-term groundwater quality monitoring.

Present Worth: $1,660,000
Capital Cost: $1,550,000
Annual Costs:
(Years 1-2): $20,000
(Years 3-30): $2,500

Alternative 7: Excavation and Off-Site Disposal of VOC and PCB Contaminated Soil (Presumptive Remedy) Combined with Plume Management Monitoring

Similar to Alternatives 3 through 6, approximately 715 cubic yards of VOC and PCB contaminated soil would be excavated from the area of the former drywell/disposal pit and the area where soil was historically stockpiled during parking lot expansion activities and disposed of off-site at a licensed facility under Alternative 7. Soil would be excavated at locations where VOCs are present at concentrations exceeding the protection of groundwater standard and where PCBs were detected above the soil cleanup objectives of 1 ppm for surface soil (0-1 foot depth interval) and 10 ppm for subsurface soil (greater than 1 foot below ground surface).

For the on-site VOC contamination in groundwater, Alternative 7 would rely on plume management monitoring to achieve the groundwater remedial action objectives. Data collected as part of the remedial investigation have shown that breakdown products of 1,1,1-TCA exist in the plume and that attenuation is occurring. Plume management monitoring would consist of routine groundwater sampling and analysis at representative wells for VOCs and periodically for PCBs. This groundwater quality monitoring would be completed to assess variations in VOC concentrations in site groundwater over time to assess any further threat to human health and the environment.

The components of Alternative 7 are readily implementable and reliable technologies. Costs are based on soil excavation and long-term groundwater quality monitoring for VOCs and PCBs.

Present Worth: *$550,000*
Capital Cost: *$400,000*
Annual Costs:
(Years 1-2): *$30,000*
(Years 3-30): *$3,500*

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-Effectiveness. 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 7, Excavation and Off-Site Disposal of PCB and VOC Contaminated Soil (Presumptive Remedy) Combined with Plume Management Monitoring to address VOCs in groundwater 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. The proposed remedy includes the excavation of soil containing VOCs above the protection of groundwater standard. Additionally, the proposed remedy would include the excavation of PCBs above 1 ppm in surface soil and 10 ppm in subsurface soil. The capital cost to excavate soil under Alternative 7 is approximately $400,000. The estimated capital cost to excavate soil to the pre-disposal conditions (Alternative 2) is $550,000. The excavation of contaminated soil under Alternative 7 allows for continued use of the property for commercial use and would also allow industrial use; which is consistent with the site currently being zoned general industrial. With the excavation of VOC and PCB contaminated soil under Alternative 7 and the use of environmental easements to address residual contamination, Alternative 7 is protective of human health and the environment and there is no need to expend additional funds to excavate soil to the unrestricted SCGs, especially considering the property use and zoning is industrial and the surrounding properties are also used commercially and/or industrially.

Under the proposed remedy, soil would be excavated from two areas north of the 640 Trolley Boulevard Building; approximately 280 cubic yards of soil in the area of the former drywell/disposal pit and approximately 435 cubic yards of soil further to the north in the area where soil was stockpiled during past parking lot expansion activities. With the persistent presence of VOCs in groundwater at concentrations above the SCGs in the area centered around the former drywell/disposal pit, excavation at the site would remove soil containing VOCs exceeding the protection of groundwater standards. Removal of the contaminated soil representing a source for groundwater contamination in the saturated soils complements the component of the proposed remedy to address residual groundwater contamination through a plume monitoring program. Data collected during the RI document that VOCs in groundwater are degrading under natural site conditions and are predominantly restricted to an area around the location of the former drywell/disposal pit and the north-side of the site building. The proposed alternative would rely on environmental easements to impose both land use restrictions and groundwater use restrictions at the site. Figure 6 illustrates the areas where surface and subsurface soil would be excavated under Alternative 7.

Alternative 7 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 site soil that contains PCBs and VOCs at concentrations exceeding the SCGs and that create the most significant threat to public health and the environment, it would remove the source of VOC contamination to site groundwater, and it would monitor the subsequent restoration of groundwater quality to the extent practicable. Similar to Alternative 7, Alternative 2 would also include the excavation of soil at the site. Alternative 2 however, would restore the site soil to pre-disposal conditions by excavating soil containing PCBs at concentrations greater than 0.1 ppm. Alternative 2 would not restore groundwater quality to pre-disposal conditions. Alternatives 3, 4, 5, and 6 would involve active approaches to address the VOC contamination in groundwater and would also comply with the threshold selection criteria. The no further action alternative would not address PCB contamination in shallow soil and would not be protective of human health and the environment.

Because Alternatives 2, 3, 4, 5, 6, and 7 satisfy the threshold criteria, the five balancing criteria are particularly important in selecting a final remedy for the 640 Trolley Boulevard site. The excavation with off-site disposal of contaminated soil, along with environmental easements, are common elements of Alternatives 3, 4, 5, 6, and 7. The difference between these five (5) alternatives is the method used to address residual VOCs in site groundwater at concentrations exceeding the SCGs. Alternative 2 also involves the excavation and off-site disposal of contaminated soil, but under this alternative, excavation would be completed to achieve pre-disposal conditions for soil at the 640 Trolley Boulevard site.

Since each of the alternatives include established technologies that are commonly applied during cleanup programs, possible short-term impacts on the community, workers, and the environment can easily be controlled during the implementation of the alternatives. Alternatives 3 (in-situ chemical reduction), 4 (ex-situ groundwater extraction and treatment), 5 (in-situ thermal treatment), and 6 (in-situ enhanced bioremediation) all include active approaches to address the VOCs present in bedrock groundwater at the site. With the contamination being present in fractured bedrock, it is not anticipated that these alternatives would achieve the NYS Class GA groundwater standards in the foreseeable future even with the use of active remedial approaches. Site data suggests that VOCs in groundwater are degrading naturally; therefore Alternatives 3 (In-situ chemical reduction) and 6 (in-situ enhanced bioremediation) are likely to meet the SCGs more rapidly and with a higher degree of certainty than the other active alternatives. It would however be expected that Alternatives 3, 4, 5, and 6 would achieve the groundwater SCGs before they would be met under naturally occurring conditions (Alternative 2 and Alternative 7).

Achieving long-term effectiveness is best accomplished by excavation and removal of the contaminated overburden soil. As previously mentioned, this is a common component of Alternatives 2 through 7. The differences between five (5) of these alternatives (3, 4, 5, 6, and 7) is in the method used to address residual VOC groundwater contamination. Alternative 4 would be effective in the long-term, provided that the extraction and treatment system is operated continuously and the environmental easement is enforced. The environmental easement restricting groundwater usage combined with monitoring for natural degradation of VOCs (Alternative 7), or expediting contaminant degradation through the injection of chemical or biological solutions (Alternatives 3 and 6) provide effective long-term mechanisms to protect human health and the environment. To be effective over the long-term, alternatives 3 and 6 may require multiple injections to successfully meet the groundwater SCGs. Alternative 5 provides treatment of COPCs in groundwater which would increase protectiveness, but there is some uncertainty on the use of thermal treatment in fractured bedrock settings. Alternative 2 would provide slightly more long-term protection to human health and the environment than Alternative 7 by excavating soil at the site to achieve pre-disposal conditions.

As previously mentioned, each of the technologies under consideration is established and their applications are well documented. Alternatives 2 through 7 are readily implemented using standard construction means and methods. It is expected that Alternative 5 (Soil Excavation with In-Situ Thermal

Treatment) would be the most difficult alternative to implement based on limited bedrock applications along with the need for construction of a treatment building, power control unit, installation of utility poles, transformers, and electrical drops. Since Alternatives 2 and 7 would not rely on active approaches to address VOCs in site groundwater, but instead rely on monitoring of natural attenuation parameters or VOC groundwater quality monitoring respectively, these alternative would be the easiest to implement.

Reduction in toxicity, mobility, and volume through excavation and disposal of soil would be achieved in Alternatives 2 through 7, though the excavated material would be relocated to a controlled landfill location. Following injections, Alternatives 3 and 6 would also achieve reduction of toxicity, mobility, and volume through degradation of the contaminants in site groundwater. Alternatives 2 and 7 would also achieve reduction of toxicity, mobility, and volume of site contaminants through natural attenuation following source removal, but at a slower rate than Alternatives 3 and 6. Alternatives 4 and 5 reduce toxicity, mobility, and volume through active treatment processes, although both alternatives would produce waste streams that would need proper disposal.

Alternative 7, including excavation and off-site disposal of contaminated soil combined with subsequent plume management monitoring, has the overall lowest cost. Since this alternative does not include an active approach to address residual groundwater contamination, this alternative requires increased costs associated with long-term groundwater quality monitoring to assess the natural degradation of site contaminants. Alternative 3 (in-situ chemical reduction) is slightly more expensive than alternative 2 (MNA), however if the pilot study or follow-up groundwater quality monitoring reveals that the initial injections are ineffective or if multiple applications would be necessary, then costs for Alternative 3 would increase considerably. Similarly, although costs for Alternatives 4 (groundwater extraction with treatment) and 6 (enhanced bioremediation) are relatively similar, if multiple bioremediation injections are necessary, then the costs associated with Alternative 6 would increase considerably. Alternative 5, including thermal treatment, has the highest capital costs and its implementability and overall effectiveness in fractured bedrock are uncertain. Alternative 7 is favorable, because even with higher cost active remedial approaches (Alternatives 3, 4, 5, and 6), considerable uncertainty on the time frame for achieving SCGs in site groundwater remains. A remedial approach that would remove source material and include a groundwater monitoring program is consistent with data collected at the site indicating that groundwater contaminants are naturally breaking down. The cost for excavating soil to pre-release conditions (Alternative 2) is approximately $200,000 greater than excavating soil to the cleanup objectives that would be consistent with current and anticipated future uses and included in Alternative 7.

The estimated present worth cost to implement the remedy is $555,000. The cost to construct and implement the remedy is estimated to be $400,000 and the estimated average annual costs for 30 years is $5,200.

Based on this evaluation and as previously mentioned, the Department is proposing Alternative 7, Excavation and Off-Site Disposal of VOC and PCB Contaminated Soil (Presumptive Remedy) Combined with Plume Management Monitoring to address VOCs in groundwater as the remedy for the 640 Trolley Boulevard site. The elements of the proposed remedy are as follows:

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

2. Excavation of contaminated soil would occur in two separate areas north of the 640 Trolley Boulevard Building (Figure 6). Excavation would remove approximately 410 cubic yards of soil exhibiting concentrations of PCBs greater than the 1 ppm soil cleanup objective for surface soil and approximately 305 cubic yards of soil containing PCBs at concentrations exceeding the subsurface soil cleanup objective of 10 ppm. The excavation of 305 cubic yards of subsurface soil would also remove soil containing VOCs at concentrations exceeding the protection of

groundwater standard. The excavation of surface soil in the area of the former drywell/disposal pit would also remove drainage ditch soil containing PCBs exceeding the SCGs. The soil would be excavated from the area around the former drywell/disposal pit and from the area where regrading occurred and soil was historically stockpiled during past parking lot expansion activities. As shown on Figure 6, 280 cubic yards of VOC and PCB contaminated soil would be excavated from the former drywell/disposal pit area and approximately 435 cubic yards would be excavated further to the north in the area where soil was historically stockpiled. Following the combined removal of the approximate 715 cubic yards of soil from the two excavation areas, the excavations would be backfilled with fill from an approved source per the allowable constituent levels for imported fill or soil found in Appendix 5A of NYSDEC DER-10. Prior to placement of the backfill into the excavations, a fabric would be placed in the excavations to serve as a demarcation between soil left in place and the material used as backfill.

3. Imposition of an institutional control in the form of an environmental easement that would require: (a) limiting the use and development of the property to commercial use which would also allow industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable water; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

4. Development of a site management plan which would include the following institutional and engineering controls: (a) management of site excavation activities to ensure that excavated soil would be properly handled to protect the health and safety of workers and the nearby community, and would be properly managed in a manner acceptable to the Department; (b) monitoring of site groundwater; and (c) identification of any use restrictions on the site.

5. The 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.

6. Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program would be instituted. The monitoring program would include sampling of a series of existing groundwater monitoring wells for laboratory analysis. The samples would be analyzed for volatile organic compounds and periodically for PCBs. This program would allow the effectiveness of the soil excavation along with the natural breakdown of site contaminants to be monitored and would be a component of the long-term management for the site.

TABLE 1
Nature and Extent of Contamination
November 2001 - November 2007

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Acetone	0.0026 - 0.036j	0.05	0 of 16
	Ethylbenzene	ND - 0.032j	1	0 of 16
	1,2,4-Trimethylbenzene	ND - 0.00098	3.6	0 of 16
	1,3,5-Trimethylbenzene	ND - 0.00082	8.4	0 of 16
	Tetrachloroethene	ND - 0.0099	1.3	0 of 16
	Toluene	ND - 0.0092	0.7	0 of 16
Semivolatile Organic Compounds (SVOCs)	Benzo[b]flouranthene	0.13j - 18	1	2 of 8
	Benzo[a]anthracene	0.16j - 13	1	2 of 8
	Benzo[a]pyrene	0.16j - 14	1	2 of 8
	Benzo[k]flouranthene	0.15j - 14	0.8	2 of 8
	Chrysene	0.2j - 15	1	2 of 8
	Dibenz[a,h]anthracene	0.93j - 3.4j	0.33	2 of 8
	Indeno[1,2,3-cd]pyrene	0.14j - 6.2	0.5	2 of 8
PCB/Pesticides	Aldrin	0.011j - 0.014	0.005	2 of 8
	Dieldrin	ND - 2.2j	0.005	1 of 8
	Endrin	0.0049j - 0.3	0.014	2 of 8
	4,4'-DDT	0.008j - 0.510j	0.0033	3 of 8
	alpha-Chlordane	0.0041j - 0.48	0.094	1 of 8
	PCBs	0.006j - 59.8	0.1	34 of 87
Inorganic Compounds	Cadmium	0.24j - 3.5j	2.5	1 of 8
	Lead	11.2j - 179	63	1 of 8
	Mercury	0.056j - 0.26	0.18	1 of 8
	Silver	0.23j - 2.8	2	2 of 8

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Acetone	0.055 - 7	0.05	8 of 18
	1,1-Dichloroethane	0.0051 - 0.150j	0.27	0 of 18
	1,1-Dichloroethene	ND - 0.022j	0.33	0 of 18
	Ethylbenzene	ND - 0.002j	1	0 of 18
	1,1,1-Trichloroethane	0.074 - 11	0.68	1 of 18
	Xylenes (Total)	0.0006 - 0.018	0.26	0 of 18
Semivolatile Organic Compounds (SVOCs)	Benzo[b]flouranthene	0.15j - 0.46	1	0 of 9
	Chrysene	0.23j - 0.81	1	0 of 9
	Indeno[1,2,3-cd]pyrene	0.13j - 0.81	0.5	1 of 9
	Phenol	0.11j - 0.12j	0.33	0 of 9
PCB/Pesticides	PCBs	0.0787 - 1,800j	0.1	10 of 52
	Aldrin	0.0011j - 0.035j	0.005	2 of 9
	Dieldrin	ND - 0.0099j	0.005	1 of 9
	4,4'-DDE	0.00056j - 2j	0.0033	2 of 9
	Endrin	0.00082j - 15j	0.0145	5 of 9
	4,4'-DDD	0.00068j - 0.086j	0.0033	2 of 9
	4,4'-DDT	0.0025j - 13j	0.0033	5 of 9
Inorganic Compounds	Lead	4.4 - 455	63	1 of 9
	Silver	1.0j - 4.1j	2	1 of 9
	Zinc	15.4j - 76.7j	109	0 of 9

DRAINAGE DITCH SOILS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Semivolatile Organic Compounds (SVOCs)	Anthracene	0.05j - 89	100	0 of 5
	Benzo[b]flouranthene	0.350j - 20	1	4 of 5
	Benzo[a]anthracene	0.22j - 31	1	1 of 5
	Benzo[a]pyrene	0.380j - 34	1	1 of 5
	Benzo[k]flouranthene	0.450j - 25	0.8	1 of 5
	Chrysene	0.420j - 28	1	1 of 5

DRAINAGE DITCH SOILS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Semivolatile Organic Compounds (SVOCs)	Fluorene	ND - 2.2j	30	0 of 5
	Indeno[1,2,3-cd]pyrene	0.220j - 30	0.5	2 of 5
PCB/Pesticides	PCBs	0.154 - 99.7	0.1	7 of 16
	gamma-BHC	ND - 0.0099j	NS	NA
	Heptachlor Epoxide	0.0064j - 0.29j	0.042	1 of 5
	Dieldrin	0.00009j - 0.014j	0.005	1 of 5
	4,4'-DDT	0.0025j - 0.066j	0.0033	3 of 5
	gamma-Chlordane	0.0087 - 0.099j	NS	NA
Inorganic Compounds	Antimony	2j - 3.3j	2	4 of 5
	Arsenic	8 - 16.9	13	1 of 5
	Cadmium	0.32j - 4.8	2.5	1 of 5
	Copper	10.2 - 63	50	1 of 5
	Lead	14.7 - 196	63	2 of 5
	Mercury	0.11j - 0.21	0.18	1 of 5
	Silver	1.6j - 5.6	2	3 of 5
	Zinc	40.5j - 424j	109	3 of 5

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Acetone	1.01 - 907	50	4 of 31
	Chloroethane	0.35 - 1,160	5	14 of 31
	1,1-Dichloroethane	0.79 - 745	5	18 of 31
	1,2-Dichloroethane	ND - 3.4	0.6	5 of 31
	1,1-Dichloroethene	ND - 17.4	5	6 of 31
	1,1,1-Trichloroethane	0.28 - 452	5	9 of 31
Semivolatile Organic Compounds (SVOCs)	Benzo[b]flouranthene	ND - 1.1	0.002	1 of 31
	bis(2-Ethylhexyl)Phthalate	1j - 12	5	3 of 31
	Phenol	6j - 75	1	4 of 31
PCB/Pesticides	PCBs	ND - 1.47	0.09	1 of 15

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Inorganic Compounds	Beryllium	1.1 - 310	3	1 of 11
	Chromium	3.2j - 71	50	1 of 11
	Lead	1.9j - 65	25	1 of 11

STANDING WATER IN DRAINAGE DITCH	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Semivolatile Organic Compounds (SVOCs)	Benzo[b]flouranthene	ND - 4j	0.002	1 of 2
	Benzo[a]anthracene	ND - 2j	0.002	1 of 2
	Benzo[a]pyrene	ND - 3j	0.002	1 of 2
	Benzo[k]flouranthene	ND - 4j	0.002	1 of 2
	Chrysene	ND - 5j	0.002	1 of 2
	Indeno[1,2,3-cd]pyrene	ND - 4j	0.002	1 of 2
PCB/Pesticides	PCBs	ND - 0.438	0.09	1 of 6
	Dieldrin	ND - 0.13j	0.24	0 of 2
	Endrin	0.056j - 0.067j	0.086	0 of 2
Inorganic Compounds	Aluminum	444 - 2,840j	100	2 of 2
	Iron	524 - 3,300	300	2 of 2

SOIL 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)	Acetone	17 - 69	NS	NA
	Chloroethane	ND	NS	NA
	1,1-Dichloroethane	ND	NS	NA
	1,2-Dichloroethane	ND	NS	NA
	1,1-Dichloroethene	ND	NS	NA
	Tetrachloroethene	9 - 44	NS	NA
	1,1,1-Trichloroethane	0.59 - 37	NS	NA
	Trichloroethene	0.39 - 0.48	NS	NA

AIR	Contaminants of Concern	Concentration Range Detected (µg/m³)[a]	SCG[b] (µg/m³)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Acetone	16 - 49	NS	NA
	Chloroethane	ND		
	1,1-Dichloroethane	ND	NS	NA
	1,2-Dichloroethane	ND	NS	NA
	1,1-Dichloroethene	ND	NS	NA
	Tetrachloroethene	8.2 - 2,400	100	1 of 5
	1,1,1-Trichloroethane	0.59 - 0.88	NS	NA
	Trichloroethene	0.29 - 0.63	5	0 of 5

[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/m³ = micrograms per cubic meter

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

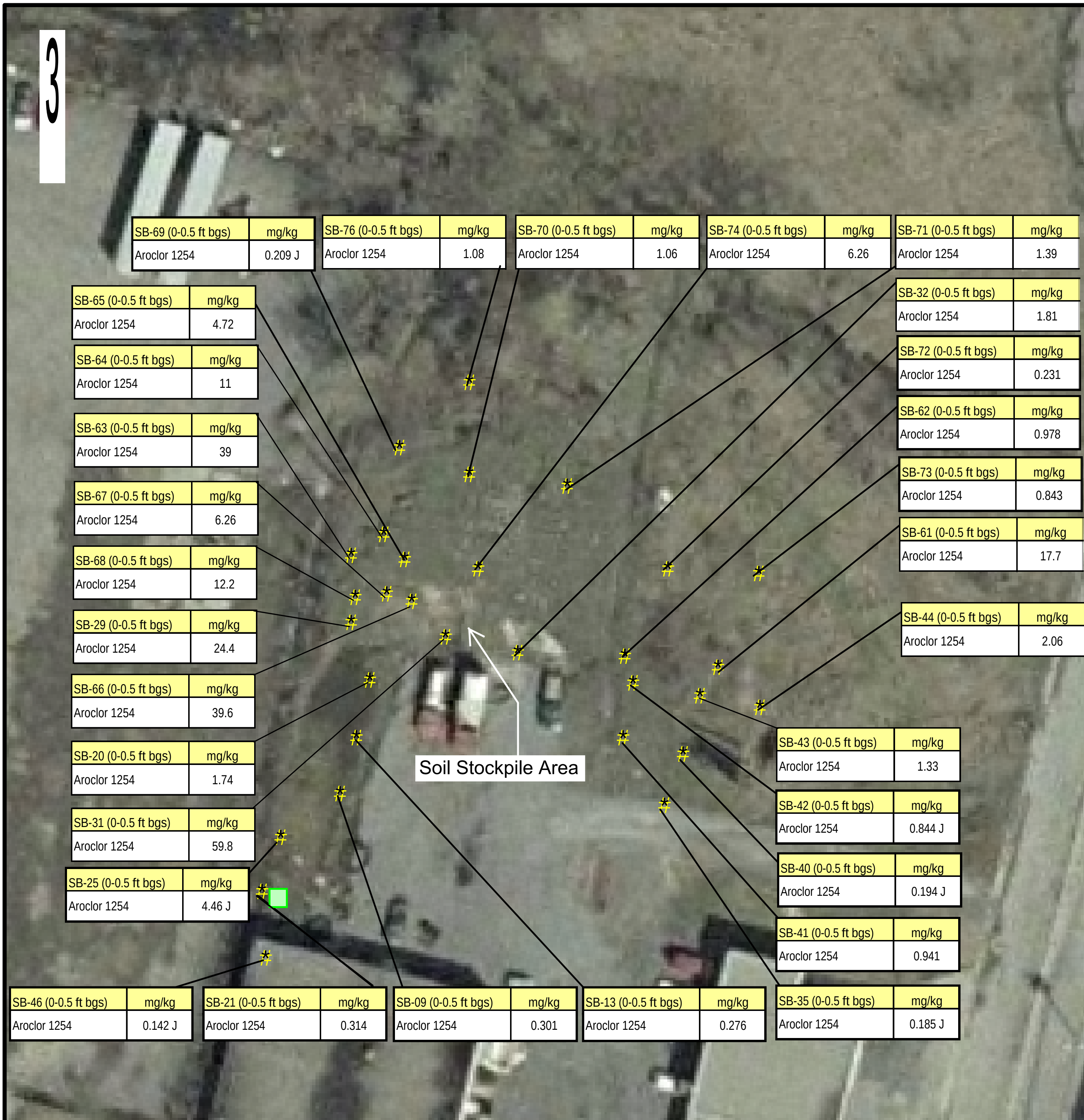
1. Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.
2. Soil SCGs are based on the Department's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels.") and 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives.
3. 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 October 2006. Specifically, the sub-slab soil vapor and indoor air data were compared to Soil Vapor/Indoor Air Matrix 1 for TCE, carbon tetrachloride, and vinyl chloride and Soil Vapor/Indoor Air Matrix 2 for PCE, 1,1-dichloroethene, cis-1,2-DCE, and 1,1,1-trichloroethane.
4. Concentrations of VOCs in air were compared to typical background levels of VOCs in indoor and outdoor air using the background levels provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. The background levels are not SCGs and are used only as a general tool to assist in data evaluation.

ND = Compound Not Detected
NS = SCG Not Specified for this compound
NA = Not Applicable
SB = Site Background

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1: No Action	$94,000	$110,000	$202,000
Alternative 2: Excavation and Off-Site Disposal of PCB and VOC Contaminated Soil to Achieve Pre-Disposal Conditions Combined with Monitored Natural Attenuation	$550,000	$180,000	$730,000
Alternative 3: Excavation and Off-Site Disposal of PCB and VOC Contaminated Soil (Presumptive Remedy) Combined with In-Situ Chemical Reduction	$900,000	$110,000	$1,010,000
Alternative 4: Excavation and Off-Site Disposal of PCB and VOC Contaminated Soil (Presumptive Remedy) Combined with Ex-Situ Groundwater Extraction and Treatment	$600,000	$1,900,000	$2,500,000
Alternative 5: Excavation and Off-Site Disposal of PCB and VOC Contaminated Soil (Presumptive Remedy) Combined with In-Situ Thermal Treatment	$2,000,000	$110,000	$2,110,000
Alternative 6: Excavation and Off-Site Disposal of PCB and VOC Contaminated Soil (Presumptive Remedy) Combined with In-Situ Enhanced Bioremediation	$1,550,000	$110,000	$1,660,000
Alternative 7: Excavation and Off-Site Disposal of PCB and VOC Contaminated Soil (Presumptive Remedy) Combined with Plume Management Monitoring	$400,000	$155,000	$555,000

FIGURE 1
Site Location Map



Legend

Surface Soil Sample Location

Feet: 0, 15, 30, 60, 90, 120

Note: 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objective - 0.1 ppm (mg/kg) for total polychlorinated biphenyls (PCBs).
mg/kg = ppm
SB = Soil Boring

Former Drywell/Disposal Pit

Source: Monroe County Division of GIS Services, USGS EROS 2005

640 TROLLEY BOULEVARD SITE (8-28-108)
REMEDIAL INVESTIGATION REPORT
GATES, NEW YORK

Figure 2
PCBs Exceeding 6 NYCRR Part 375 in Surface Soil Samples (ppm)

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
DWE	CJS	CJS	RSC	AS SHOWN	MAY 2008	14368.02	...GIS/PROJECTS/ FIGURE4-1.MXD

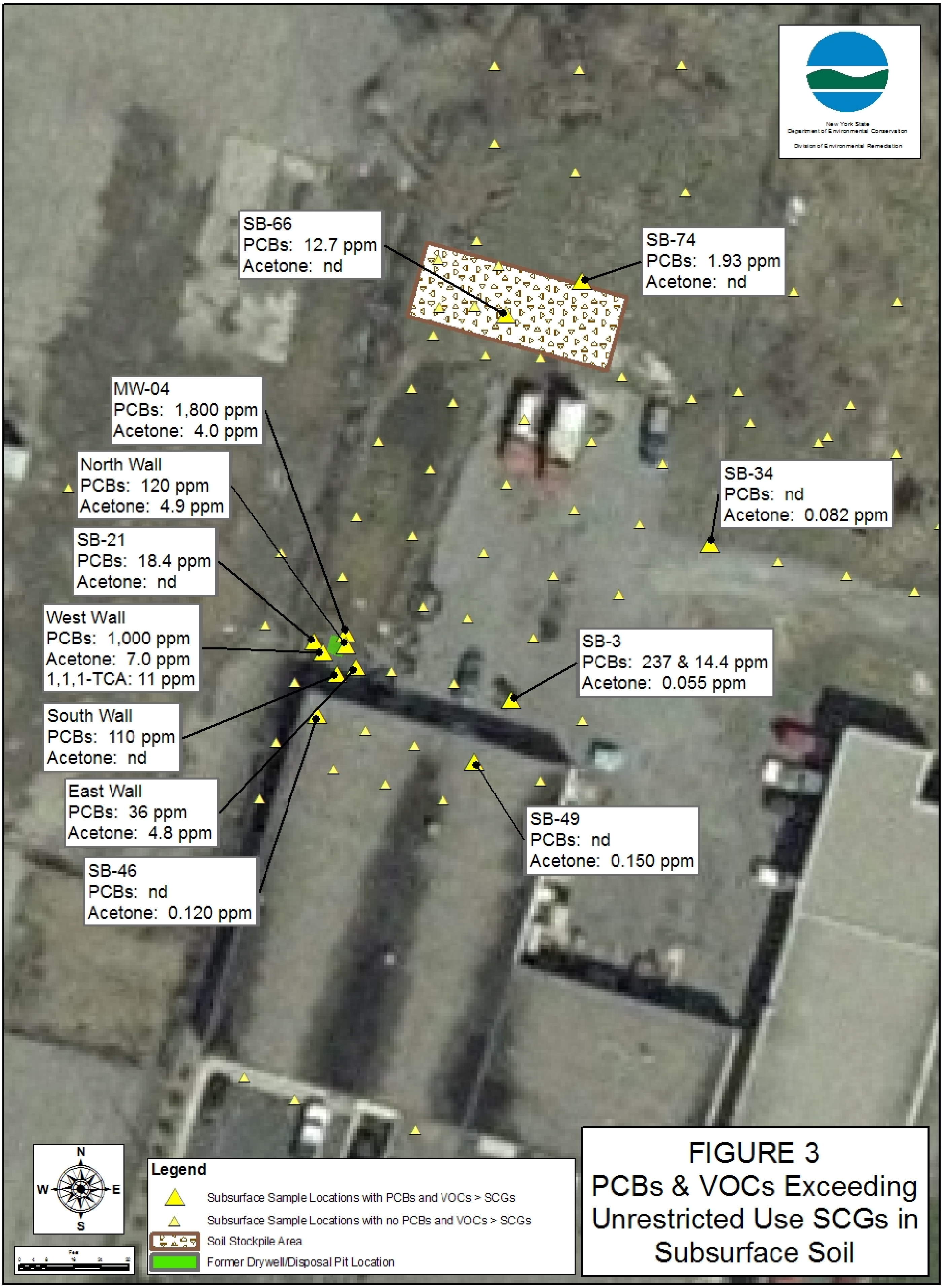


FIGURE 3
PCBs & VOCs Exceeding Unrestricted Use SCGs in Subsurface Soil

MW-05	October 2006 µg/L	March 2007 µg/L
1,1-Dichloroethane	16.2	10.1

MW-04	October 2006 µg/L	March 2007 µg/L	November 2007 µg/L
Acetone	493 J	830	907
Chloroethane	788	530	1,160
1,1-Dichloroethane	228	537 J	745
1,2-Dichloroethane	ND	2.80 J	3.4 J
1,1-Dichloroethene	5.4 J	11	17.4
1,1,1-Trichloroethane	10.4	452	85.2

MW-03	October 2006 µg/L	March 2007 µg/L
1,1-Dichloroethane	ND	7.01 J

MW-06	October 2006 µg/L	March 2007 µg/L	November 2007 µg/L
Chloroethane	24.8 J	28.3	33.7
1,1-Dichloroethane	71.9	97.8 J	113
1,1-Dichloroethene	4.5	8.55	7.4
1,1,1-Trichloroethane	6.8	13.9 J	12

MW-10	October 2006 µg/L	March 2007 µg/L	November 2007 µg/L
Chloroethane	5.38 J	37.5	90.1 D
1,1-Dichloroethane	6.59	33 J	132 D
1,2-Dichloroethane	ND	ND	0.59
1,1-Dichloroethene	ND	ND	6.51
1,1,1-Trichloroethane	ND	ND	9.95

MW-08	October 2006 µg/L	March 2007 µg/L	November 2007 µg/L
Chloroethane	ND	13.4	38
1,1-Dichloroethane	3.06	14.6 J	48.2 D
1,2-Dichloroethane	1.16	2.73 J	0.98
1,1,1-Trichloroethane	ND	ND	1.6

MW-07	October 2006 µg/L	March 2007 µg/L	November 2007 µg/L
Chloroethane	4.09 J	2.24	5.47
1,1-Dichloroethane	3.25 J	4.48 J	6.98

MW-09	October 2006 µg/L	March 2007 µg/L
Chloroethane	0.36 J	5.05
1,1-Dichloroethane	0.79	5.36 J

Legend

Groundwater Monitoring Well

Former Drywell/Disposal Pit

0 25 50 100 150 200 Feet

Values shown in RED are above the NYSDEC AWQS for Class GA.

Source: Monroe County Division of GIS Services, USGS EROS 2005

640 TROLLEY BOULEVARD SITE (8-28-108)
REMEDIAL INVESTIGATION REPORT
GATES, NEW YORK

Figure 4
VOCs Exceeding NYSDEC AWQS for Class GA Waters in Groundwater Samples

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
DWE	CJS	CJS	RSC	AS SHOWN	MAY 2008	14368.02	...GIS/PROJECTS/ FIGURE3-9.MXD

3

640 Trolley Blvd. (west)	SS-01 µg/m³	FF-01 µg/m³
Carbon Tertrachloride	0.68	0.62 J
cis-1,2-Dichloroethene	(<0.36 U)	(<0.36 U)
Tetrachloroethene	9	8.2 J
1,1,1- Trichloroethane	37 J	0.88 J
Trichloroethene	(<0.25 U)	0.63 J
Vinyl Chloride	(<0.27 U)	(<0.27 U)

640 Trolley Blvd. (west)	SS-02 µg/m³	FF-02 µg/m³
Carbon Tertrachloride	0.68	0.62
cis-1,2-Dichloroethene	(<0.36 U)	(<0.36 U)
Tetrachloroethene	14	15
1,1,1- Trichloroethane	6.5 J	0.59 J
Trichloroethene	0.48	0.29
Vinyl Chloride	(<0.27 U)	(<0.27 U)

630 Trolley Blvd.	SS-04 µg/m³	FF-04 µg/m³
Carbon Tertrachloride	(<0.54 U)	0.62
cis-1,2-Dichloroethene	(<0.36 U)	(<0.36 U)
Tetrachloroethene	44 J	2,400
1,1,1- Trichloroethane	0.59 J	(<0.45 UJ)
Trichloroethene	0.44 J	(<0.25 U)
Vinyl Chloride	(<0.27 U)	(<0.27 U)

Outdoor Air	OA µg/m³
Carbon Tertrachloride	0.62
cis-1,2-Dichloroethene	(<0.36 U)
Tetrachloroethene	(<0.45 U)
1,1,1- Trichloroethane	(<0.45 UJ)
Trichloroethene	0.53
Vinyl Chloride	(<0.27 U)

640 Trolley Blvd. (east)	SS-03 µg/m³	FF-03 µg/m³
Carbon Tertrachloride	(<0.54 U)	0.62
cis-1,2-Dichloroethene	(<0.36 U)	(<0.36 U)
Tetrachloroethene	16	21
1,1,1- Trichloroethane	(<0.45 UJ)	(<0.45 UJ)
Trichloroethene	0.39	(<0.25 U)
Vinyl Chloride	(<0.27 U)	(<0.27 U)

Legend

Air/Vapor Sampling Location

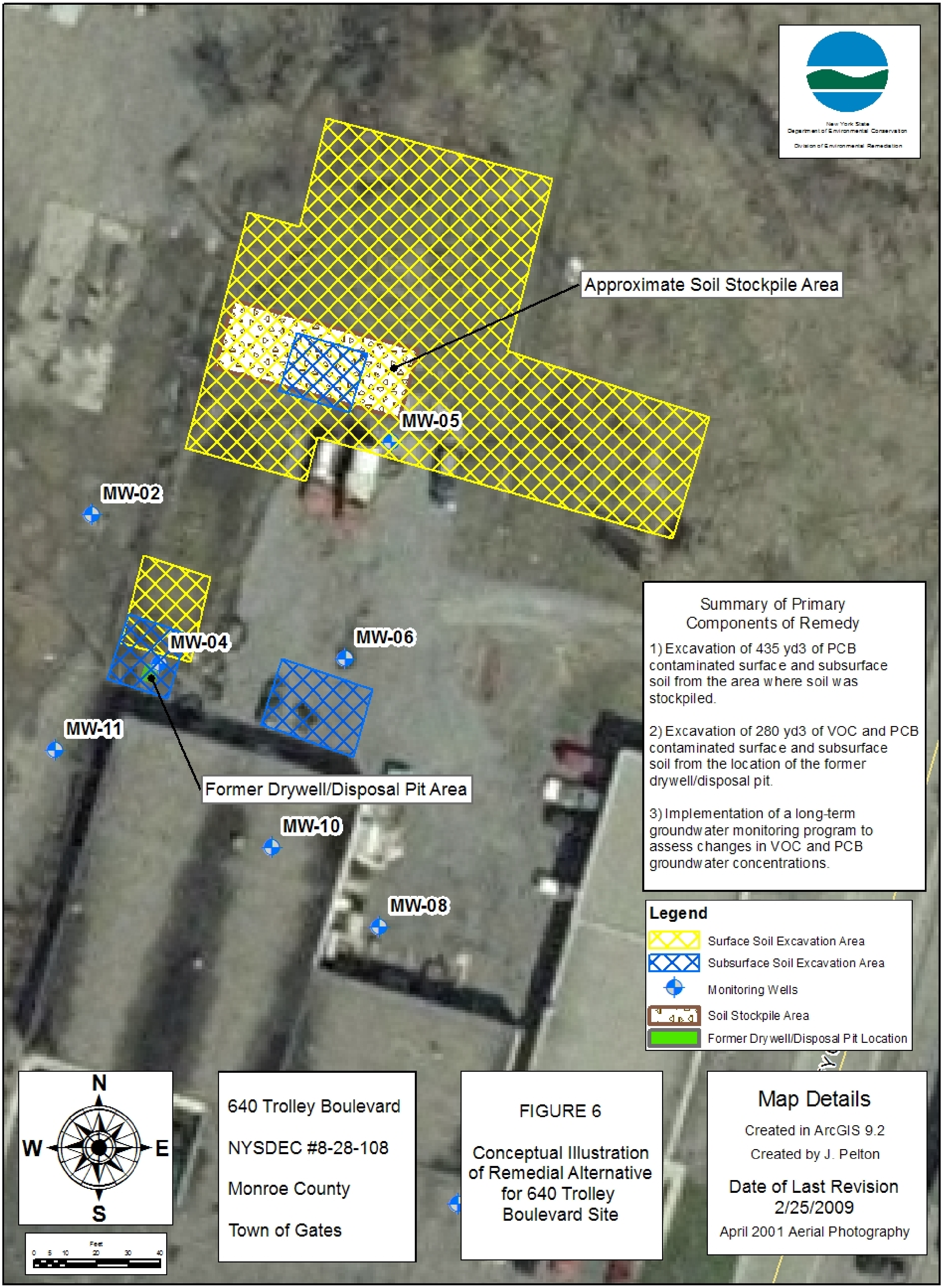
0 20 40 80 120 160 Feet

Source: Monroe County Division of GIS Services, USGS EROS 2005

640 TROLLEY BOULEVARD SITE (8-28-108)
REMEDIAL INVESTIGATION REPORT
GATES, NEW YORK

Figure 5
Vapor Intrusion Evaluation Results
October 2006

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
DWE	CJS	CJS	RSC	AS SHOWN	AUGUST 2008	14368.02	...GIS/PROJECTS/ FIGURE3-17.MXD


Approximate Soil Stockpile Area
MW-05
MW-02
MW-04
MW-06
MW-11
Former Drywell/Disposal Pit Area
MW-10
MW-08
Summary of Primary Components of Remedy
1) Excavation of 435 yd3 of PCB contaminated surface and subsurface soil from the area where soil was stockpiled.
2) Excavation of 280 yd3 of VOC and PCB contaminated surface and subsurface soil from the location of the former drywell/disposal pit.
3) Implementation of a long-term groundwater monitoring program to assess changes in VOC and PCB groundwater concentrations.
Legend
Surface Soil Excavation Area
Subsurface Soil Excavation Area
Monitoring Wells
Soil Stockpile Area
Former Drywell/Disposal Pit Location
N
W
E
S
Feet
640 Trolley Boulevard
NYSDEC #8-28-108
Monroe County
Town of Gates
FIGURE 6
Conceptual Illustration of Remedial Alternative for 640 Trolley Boulevard Site
Map Details
Created in ArcGIS 9.2
Created by J. Pelton
Date of Last Revision
2/25/2009
April 2001 Aerial Photography