Woman Owned Business

Aztech Environmental

TECHNOLOGIES

Periodic Review Report
for the
Baldwin Place Shopping Center
(now Somers Commons)

80 U.S. Route 6
Baldwin Place, Westchester County, New York

Covering the Time Period from
February 16, 2015 through February 15, 2016

NYSDEC Site No. 3-60-023

April 29, 2016

Prepared for:
NYSDEC – Central Office
625 Broadway
Albany, New York 12233-7020

REMEDIATION SOLUTIONS

ENVIRONMENTAL CONSULTING

DRILLING APPLICATIONS

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TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

LIST OF FIGURES

LIST OF TABLES

Enclosure 1
Engineering Controls – Standby Consultant/Contractor Certification Form

Site Details	Box 1	
Site No. 360023		
Site Name Baldwin Place Shopping Center (now Somers Commons)		
Site Address: 80 Route 6 Zip Code: 10505 City/Town: Baldwin Place County: Westchester Site Acreage: 28.0		
Reporting Period: February 16, 2015 to February 15, 2016		
	YES	**NO**
1. Is the information above correct? If NO, include handwritten above or on a separate sheet.	**X**	
2. To your knowledge has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period ?		**X**
3. To your knowledge has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d)) ?		**X**
4. To your knowledge have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period ?		**X**
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. To your knowledge is the site currently undergoing development ?		**X**

	Box 2	
	YES	**NO**
6. Is the current site use consistent with the use(s) listed below ? Restricted-Residential, Commercial, and Industrial	**X**	
7. Are all ICs/ECs in place and functioning as designed ?	**X**	

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

_____
Signature of Standby Consultant/Contractor Date

Site No. 360023 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
4.20-1-11	U.B. Somers, Inc. (c/o Urstadt Biddle Properties Inc., Greenwich, Ct.)	Monitoring Plan O & M Plan

A Long Term Monitoring and Operation and Maintenance Plan is in place.

Description of Engineering Controls **Box 4**

Parcel	Engineering Control
4.20-1-11	Groundwater Treatment System

One groundwater pump and treat system (Plant 1) is currently in operation in the former source area to address residual contamination/shallow plume containment. Long term groundwater monitoring is required. Vapor monitoring is required in Unit 6 (Home Goods Store).

Periodic Review Report (PRR) Certification Statements **Box 5**

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification, including data and material prepared by previous contractors for the certifying period, if any;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and complete.

YES	NO
X	

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   b) nothing has occurred that would impair the ability of such Control, to protect the public health and the environment;

   c) nothing has occurred that would constitute a failure to comply with the Site Management Plan, or equivalent if no Site Management Plan exists;

YES	NO
X	

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

_____ _____

Signature of Standby Consultant/Contractor Date

IC/EC CERTIFICATIONS

Box 6

Qualified Environmental Professional Signature

I certify that all information in Boxes 2 through 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Randolph H. Hoose at Aztech Technologies, Inc.
5 McCrea Hill Road
Ballston Spa, New York 12020

am certifying as a Qualified Environmental Professional.

Randy Hoose

Signature of Qualified Environmental Professional

04 - 29 - 2016
Date

1.0 INTRODUCTION

This document is required as an element of the remedial program at the former Baldwin Place Mall, located at 80 U.S. Route 6 in the Town of Somers, Westchester County, New York (hereinafter referred to as the "Site"). The Site is managed under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by New York State Department of Environmental Conservation (NYSDEC). The Site, which is currently known as Somers Commons, is listed by the NYSDEC as a Class 2 Inactive Hazardous Waste Site (ID No. 3-60-023). Class 2 sites are sites where hazardous waste disposal has been confirmed and, its presence presents a significant threat to public health and the environment.

Several investigative and remedial activities have been conducted at the Site in accordance with the 1995 Record of Decision (ROD), which was executed on November 4, 1995. The Site currently operates a groundwater pump and treat (GWP&T) remedial system (Plant 1) that is located near the source area and, has operated for over 10 years. A second GWP&T remedial system (Plant 2) formerly operated at the site but, is no longer in service.

Plant 2 was the former water supply system for the mall. This water supply system was later extended to provide potable water to the Meadow Park Road residential area located southeast of the site. This area was disconnected from Plant 2 when the municipal water system became available. Plant 2 continued to operate as a groundwater extraction and treatment system after it was disconnected from the Meadow Park Road residential area. Plant 2 ceased operation in January, 2011 and has been recommended for decommissioning after a September, 2014 remedial system optimization (RSO) completed by MACTEC Engineering and Consulting, P.C. of Portland Maine (MACTEC). Soil vapor intrusion (SVI) monitoring is also conducted in one retail establishment within the mall.

The NYSDEC has established the periodic review process in order to determine if a site is being managed in accordance with the remedies established for that site in its governing documents. The governing documents for completing this PRR, and all previous monitoring and reporting, has historically been the original (November, 1995) ROD and, the January, 2004 Plan for Routine Groundwater Monitoring for the Baldwin Place Mall (by Lawler, Matusky & Skelly Engineers, LLP). The November, 1995 ROD established remedial goals for the site; the January, 2004 Plan for Routine Groundwater Monitoring established procedures for sampling on-site groundwater monitoring wells; remedial pumping wells; off-site groundwater monitoring wells (Meadow Park Road monitoring wells); the Lake Baldwin Water District and, private water supply wells. NYSDEC, with the assistance of MACTEC, has recently approved a January 27, 2016 Site Management Plan (SMP) for the site. That document is now considered to be the governing document for the site and directs all future management of the site. However, the November, 1995 ROD and January, 2004 Plan for Routine Groundwater Monitoring are the documents that are directing site management during the time period reported herein.

The periodic review report (PRR) seeks to evaluate site-specific inspection, monitoring, and other related data, that will help to assess whether the remedies (engineering and/or institutional controls) for the site are being implemented properly. In particular, the PRR seeks to evaluate pertinent site-related data and evaluate whether the remedies established for the site remain protective of human health and the environment.

Aztech was issued a callout in April, 2009 (callout no. 117995) in which NYSDEC requested that they operate and maintain the two (2) water treatment systems at the site (Plant 1 and Plant 2). This included regular influent and effluent sampling and, routine maintenance of the two (2) treatment plants. As previously indicated, a recent RSO by MACTEC recommended that Plant 2 be decommissioned. A final determination regarding Plant 2 decommissioning would be made by NYSDEC and MACTEC after completion of the data gap investigation. Site monitoring was anticipated to be via an engineering services consultant.

2.0 SITE BACKGROUND AND HISTORY

The Site is a 28 acre parcel (consisting of parcel Nos. 4.20-1-11.2 through 4.20-1-11.9) in a mixed residential/commercial area within the Town of Somers, Westchester County, New York (**Figure 1**). The Site was a mostly vacant shopping center until the early 2000's, when it was demolished to make way for the current shopping center (Somers Commons) located on the property. The property is bounded by U.S. Route 6 to the northwest, a bike path (a former railroad embankment) to the east and, an east-west trending section of Route 118 to the north.

The Site was used for agricultural purposes (as an orchard) prior to its development into the Baldwin Place Shopping Center in 1965. A dry cleaning business is known to have operated on the premises since 1967. This business came under scrutiny in 1979 as a result of a county-wide investigation, by the Westchester County Department of Health (WCDOH), of sites vulnerable to the dry cleaning solvent tetrachloroethene (PCE). During this investigation, WCDOH identified PCE in the water supply wells associated with the shopping center but, no evidence of disposal (or source) was found. Subsequent sampling by WCDOH in 1984 confirmed that PCE was present in the shopping center water supply at concentrations that were less than the 50 part per billion (ppb) guidance value for drinking water at that time. Big V Supermarkets acquired the shopping center in 1986.

Topographically, the Site is situated in a relatively high location with drainage toward the northwest and southeast. The eastern portion of the site drains to a south flowing stream that lies between the Site and the residential properties on Meadow Park Road. This is a tributary to the nearby Muscoot River. The western portion of the Site drains to a north-flowing stream that empties into two ponds northwest of the property and Lake Baldwin prior to its confluence with the Muscoot River. The Muscoot River flows south and empties into the Amawalk Reservoir, approximately 1.5 miles south of the Site.

2.1 Previous Investigations

During the county-wide investigations conducted by WCDOH in 1979 (and subsequent investigations conducted through 1989), the presence of PCE in groundwater was confirmed. The purpose of this sampling program initiated by WCDOH was to assess potential drinking water problems in areas where present and past dry cleaning establishments had been located. The program started by collection of numerous samples from private water supply wells throughout the county. The results of that effort identified impacts to the shopping center water supply. However, no evidence of disposal by the dry-cleaning establishment was found. Nevertheless, based on confirmation of historical groundwater quality data, NYSDEC concluded that the dry-cleaner was the most likely source of the impacts identified. As such, the Site was listed on the Registry of Inactive Hazardous Waste Sites in New York State as a Class 2 site with the groundwater impacts determined to be a significant threat to public health.

A groundwater investigation was conducted in May, 1989 and, a Water Supply and Treatment Alternatives Study was conducted later that year in October, 1989. A Remedial

Investigation/Feasibility Study (RI/FS) was concluded in 1995 and led to issuance of a Record of Decision (ROD) for the Site. A site map depicting the Baldwin Place Shopping Center, prior to its raze and rebuild in the early 2000's, is presented as **Figure 2**.

2.1.1 Site Geology/Hydrogeology

The RI found that the Site and vicinity is underlain by glacial till, weathered bedrock, and bedrock. The till comprises the uppermost geologic and water bearing unit. The till is thin near the western/north-western site boundaries and thickens to the south-southeast. Below the glacial till is approximately 15 to 30 feet of weathered bedrock that grades from highly weathered to competent. The depth to competent bedrock ranges from 35 feet below grade (in the western part of the Site) to about 100 feet (in the east/southeastern part of the Site). The unweathered bedrock is characterized as biotite gneiss.

The weathered and unweathered bedrock is under "unconfined" conditions in the extreme western and northwestern portion of the Site. In this area, the overlying glacial till is thin and mostly unsaturated. The glacial till thickens and, becomes saturated throughout the main portion of the Site. The occurrence of shallow groundwater beneath the site generally ranges from 2.0 feet to 7.0 feet below grade. Regional groundwater flow in the off-site area to the northeast is generally in a southwesterly direction toward the Site. However, the historic presence of an apparent groundwater divide (trending in a south-southwesterly/north-northeasterly direction) beneath the southern portion of the Site diverts groundwater movement toward the south and southeast (in the area southeast of the divide) and, toward the northwest (in the area northwest of the divide). This divide persists under pumping conditions relating to "Plant 2", the former water supply for the shopping center. Within the deeper bedrock zone, regional groundwater flow also indicates a groundwater divide under static conditions with flow components toward the southeast on the southeast side of the divide, and toward the west/northwest on the northwest side of the divide. Additionally, where saturated glacial till overlies weathered/unweathered bedrock, a downward vertical gradient is evident between these two units.

2.1.2 Source Area

The RI included a test boring program that was conducted within an alleyway area behind the dry cleaning establishment. The analytical results of the soil sampling associated with this effort identified a 15 foot by 15 foot area of elevated PCE concentration within the unsaturated zone above the water table (approximately 3.0 feet below grade at this location). The maximum depth of the PCE impacted soil extended to approximately 15 feet below grade. Groundwater sampling within this area identified PCE concentrations as high as 24,000 micrograms per liter (ug/l). As such, this area (shown on Figure 2) was determined to be the source for the PCE concentrations identified in on-site and nearby off-site groundwater, and, within the water supply wells for the former shopping center.

2.1.3 Groundwater

The dry cleaning compound PCE and its related degradation by-products trichloroethene (TCE), and 1,2-dichloroethene (DCE) are the compounds of concern associated with the site. Groundwater within the source area has historically contained PCE concentrations as high as 24,000 ug/l. The location of the source area in relation to the aforementioned groundwater divide has caused site related compounds to migrate toward the southeast and, to the west. Historic PCE concentrations identified in on-site groundwater outside of the source area have been detected as high as 910 ug/l and, TCE and DCE have been identified as high as 190 ug/l and 61 ug/l, respectively.

Toward the southeast, where a strong downward vertical component of groundwater flow is present, the lateral distribution of site related compounds is limited. This is because groundwater flow is preferentially in a downward direction, ultimately recharging the underlying weathered and unweathered bedrock. Movement of site–related compounds within the weathered and unweathered bedrock has migrated toward an off-site residential area to the southwest. This area, which is approximately 1,200 feet from the source area, is known as the Meadow Park Road Area.

Toward the west and northwest, the downward vertical gradient between the glacial till and weathered bedrock/unweathered bedrock is not as strong. As such, the weaker vertical gradient allows impacted groundwater to move farther laterally, while also moving deeper vertically into the weathered/unweathered bedrock. This area, which is also approximately 1,200 feet from the source area, is a mixed commercial and residential area known as the Route 6 Area.

2.1.3.1 Former Water Supply Wells – Meadow Park Road Area

The Meadow Park Road Area is located southeast of the Site and extends as far as the southernmost intersection between Meadow Park Road and Tomahawk Street (Route 118). Several former water supply wells in this area have had detections of site-related VOCs (PCE, TCE and/or DCE) in excess of NYSDEC standards/guidance values for class GA groundwater as defined by NYSDEC in their Technical and Operational Guidance Series Memorandum (TOGS 1.1.1) of June, 1998. Seven (7) of these residential water supplies (when they were active) were equipped with point of entry treatment (POET) systems. The POET systems used granular activated carbon (GAC) as a media to remove site-related VOCs from the water supply prior to its use. Residences in this area are now connected to the regional municipal water system.

2.1.3.2 Water Supply Wells – Route 6 Area

The Route 6 Area is located west and northwest of the Site and extends as far to the west as Mahopac Avenue. Several former commercial and residential water supply wells in this area have had detections of site-related VOCs (PCE, TCE and/or DCE), as well as MtBE (methyl tertiary butyl ether - from a nearby gasoline release), in excess of the standards/guidance

values established by NYSDEC (TOGS 1.1.1). Three (3) water supplies for commercial businesses along US Route 6 were equipped with POET systems based on impacts with site-related VOCs (PCE/TCE/DCE) while POET systems were installed on five (5) commercial and residential water supplies on US Route 6 and Kennard Road to address gasoline-related MtBE impacts. The regional municipal water system now supplies these locations.

2.2 Record of Decision and Remedial Actions

Big V Supermarkets entered into an Order on Consent with NYSDEC in September, 1991 where they either installed new POET systems or, assumed maintenance and operation of existing POET systems for the water supplies of commercial and/or residential properties impacted with site-related VOCs. This was part of an Interim Remedial Measure undertaken prior to issuance of the November, 1995 Record of Decision (ROD).

2.2.1 Record of Decision

The Groundwater Investigation and Water Supply and Treatment Alternatives Studies conducted in 1989 and, the RI/FS concluded in 1994 led to issuance of the ROD in November, 1995. The goals of the ROD were to:

- Prevent exposure (via inhalation, ingestion, and dermal contact) to soils containing unacceptable levels of PCE and its breakdown products;
- Prevent continued degradation of groundwater quality through migration of PCE and its breakdown products from impacted soil to groundwater;
- Prevent exposure (via inhalation, ingestion, and dermal contact) to groundwater impacted with unacceptable concentrations of PCE and its breakdown products;
- Restore groundwater quality (impacted by PCE and its breakdown products) to acceptable concentrations within a reasonable time frame; and,
- Prevent migration and discharge of site-related VOCs in groundwater to adjacent surface water bodies.

Therefore, the following elements were included in the ROD in order to satisfy its goals:

- Source removal via excavation of source area soil;
- Supply potable water to 19 residences on Meadow Park Road. This would be accomplished either by developing a new water district that derives its water supply via the two (2) water supply wells associated with the shopping center and treating that water via granular activated carbon (GAC) prior to distribution to the 19 residences or; continue maintenance and operation of the 19 individual POET systems on Meadow Park Road until such time that the Town of Somers extends the regional municipal water system into that area. Under the former option, Big V would operate the shopping center wells as a pump and treat groundwater remedial system;
- Maintain POET systems along US Route 6. This would be accomplished by continuing maintenance and operation of individual POET systems installed on commercial and/or residential properties located along US Route 6. Use of these POET systems would

continue until groundwater quality is restored to drinking water standards or, an alternate source of water supply becomes available. Additionally, any future wells along Route 6 that became impacted by site-related VOCs in excess of drinking water standards would be equipped with a POET system;

- Connection to alternate water supply. Each of the residences and/or commercial establishments equipped with POET systems would be connected to the regional municipal system when it became available; and,
- Groundwater treatment in the source area. A groundwater pump and treat system (Plant-1) would be installed in proximity to the source area in order to capture vertical and horizontal flow from within and around the source area as well as to capture vertical leakage from the glacial till into the bedrock. Groundwater captured via this system would be treated via a separate treatment system and, be discharged to a nearby stream.

2.2.2 Remedial Actions

Big V Supermarkets assumed responsibility for implementing remedial actions required by the ROD until August 6, 2003, when liquidation of their assets under a bankruptcy proceeding terminated their funding of remedial efforts. NYSDEC has assumed direct responsibility for the continued implementation of the ROD since that time.

2.2.2.1 Source Removal

The purpose of this step was to remove approximately 135 cubic yards of source area soil from the area located behind (east) of the former dry cleaning operation. Note that the strip mall building that was the location of the former dry cleaning operation has since been razed. The former source area (shown on **Figure 3**), is located on the current site map for the Somers Commons shopping center. The excavation, which was completed in February 1997, entailed removal of the shallow soil above the footers of the former building foundation. Sheet piling was installed to form the walls of the remainder of the excavation. Altogether, 236 tons of impacted soil was removed. The former source area is currently presented as a lawn area on the north side of the Home Goods store.

2.2.2.2 Potable Water Supply - Meadow Park Road

The community water supply system was constructed in 1998 and started up during February 1999. This system delivered treated water obtained via the shopping center water supply to 17 of the 19 residences located on Meadow Park Road. These 17 residences in the Meadow Park Road Area have since been connected to the regional municipal water system when it became available in November, 2001. As such, the connection between the Site's former water supply and Meadow Park Road has since been terminated. The Sites former water supply wells continued operation as a groundwater pump and treat system (Plant 2). Plant 2 was recommended for decommissioning in a recent RSO conducted by MACTEC for the NYSDEC.

The individual supply wells serving the two (2) residences that were not connected into the municipal water system in November, 2001 were sampled quarterly until 2003, with annual sampling in 2004, 2006, and 2007. Analytical results indicate that these wells have not been impacted by VOCs related to the Site, and those wells are no longer routinely sampled.

2.2.2.3 Maintain POET Systems Along US Route 6

Big V maintained the POET systems at these residential and/or commercial properties until they were connected to the municipal system. In November 2001, several residences on Mahopac Avenue that had POET systems (and one additional residence that did not have a POET system) were connected by Big V to the municipal system. During May and June 2002, commercial properties that had POET systems on US Route 6 were connected by Big V to the municipal system. Additional connections to the municipal system continued through 2003.

2.2.2.4 Connection to Alternate Water Supply

As indicated in Section 8.4 of the ROD, both Big V Supermarkets and the NYSDEC agreed that connection to a permanent regional water supply system (when available) would be the selected water supply option in the long term. As such, connections to the municipal system in the area have been ongoing.

2.3 Engineering/Institutional Controls

Institutional Controls (ICs) were established via a deed restriction in order to ensure continued operation of the Engineering Controls (ECs) associated with the site, to control use and development of the site and, to restrict the future use of groundwater. The ECs for the site historically have included operation and maintenance of POET systems on residential and commercial water supply wells and/or development of a new water district (using the supply wells for the shopping center) until the regional municipal system would be available in the area. Currently, the ECs for the site include groundwater extraction and treatment via a groundwater extraction and treatment (GWE&T) system (Plant 1), the network of groundwater monitoring wells and, soil vapor intrusion monitoring points.

2.3.1 Institutional Controls

Under the terms of the deed restriction, the property owner (or agents) is obligated to the following:

- The property owner will not allow construction, use, or occupancy of the Property that results in disturbance or excavation of the Property (resulting in unacceptable human exposure to impacted soils or threatening the integrity of the ECs) unless prior written approval by the NYSDEC is first obtained.
- The property owner will require that the potential for soil vapor intrusion be evaluated prior to construction of buildings within the area encompassed by the IC. The site owner will ensure that any adverse impacts identified via that evaluation will be monitored and/or mitigated.

- The property owner will not disturb, remove, or otherwise interfere with the installation, use, operation, and maintenance of any ECs unless in each instance the owner first obtains a written waiver of such prohibition from the NYSDEC.
- The property owner will provide agents, employees or other representatives of NYSDEC, access to the site in order to verify compliance with the Deed Restriction and to perform operation, monitoring and maintenance of the ECs. NYSDEC will provide reasonable prior notice to the property owner.
- The property owner will prohibit the Property from ever being used for purposes other than those specified in the Deed Restriction without first obtaining a written waiver of such prohibition from the NYSDEC.
- The property owner will prohibit the use of the groundwater underlying the Property, without prior treatment to render it safe for human consumption (or industrial purposes), unless the user first obtains permission to do so from the NYSDEC.
- The property owner will provide a periodic certification (on request) to the NYSDEC that will verify that the ICs put in place are unchanged from the previous certification; that the owner has complied with the provisions of the Deed Restriction (including compliance with the SMP); that there has been no change in use of the property (unless the NYSDEC has been properly notified), and; that the ECs have not been impaired.
- The property owner will maintain the ICs required for continuing the remedy to be in full force and effect unless permission is first obtained from the NYSDEC to discontinue such ICs.

Under the terms of the deed restriction, the NYSDEC (or, its agent) is obligated to the following:

- All ECs must be operated and maintained as specified in the SMP;
- All ECs must be inspected at a frequency and in a manner specified in the SMP;
- Groundwater and other environmental or public health monitoring must be performed as specified in the SMP;
- Data and information collected under the authority of the SMP must be reported at a frequency (and in a manner) consistent with the SMP;
- Monitoring to evaluate the performance and effectiveness of the remedy must be performed as specified in the SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as specified in the SMP.

2.3.2 Engineering Controls

The ECs for the site include the GWE&T system (Plant 1), groundwater monitoring (via various monitoring wells, former off-site water supply wells and current water supply wells) and soil vapor intrusion (SVI) monitoring of Building 6 (the Home Goods store) associated with the Somers Commons shopping center.

2.3.2.1 Groundwater Extraction and Treatment

GWE&T at the site has historically been via two (2) separate remedial systems. Plant 1 is located in proximity to the former source area and its purpose is to capture groundwater that becomes impacted with site related compounds via residual source area soil. Plant 2 historically has treated impacted groundwater captured by the water supply wells for the former shopping center. Plant 2 is currently not operating and has not operated during the time period reported herein.

Plant 1

The former source area was located in the area that is currently adjacent to and north of Building 6 of the Somers Commons Shopping Center (Home Goods store). Excavation of the former source area was completed in 1997. This former source area is currently presented as a grassy lawn/landscaped area. Plant-1 was constructed and brought on-line in 1998.

Groundwater extraction is via one (1) shallow well (RW-1S), which draws impacted groundwater from the shallow portion of the glacial till overburden, and one (1) deeper well (RW-2D) that draws impacted groundwater from bedrock. The purpose of these pumping wells is to extract impacted groundwater before it can migrate off-site. These wells are completed at depths of 49-feet and 83-feet below grade, respectively.

Both of the 4.0-inch inside diameter (ID) wells are equipped with electric submersible pumps that convey groundwater from the subsurface to the Plant 1 treatment building. The design flow rate for the wells is approximately a ½ gallon per minute (gpm) from well RW-1S and 3.0 gpm from well RW-2D. Each well is equipped with a totalizing flow meter. Water conveyed to Plant 1 is sequentially filtered via 50 micron and 5 micron bag filters to remove particulate then passed through two (2) adsorption units (connected in series) that each contain 165 pounds of granular activated carbon (GAC). After filtration, discharge is to an unnamed tributary on the east side of the Site that eventually discharges to the Muscoot River.

The March, 1998 Operation and Maintenance Manual for the Baldwin Place Mall Plant 1 Groundwater Pump & Treat System (prepared by Lawler, Matusky & Skelly Engineers, LLP) provides details regarding operation and maintenance procedures to be employed for this treatment facility.

Plant 2

Plant 2 originally served as the water supply source for the Baldwin Place Shopping Center. Groundwater supply was via two (2) wells. Well P-1 is a 6.0-inch diameter well that is 260 feet deep with 140 feet of steel casing. Well P-2 is also 6.0-inches in diameter but is 400 feet deep. The length of casing is unknown. Safe well yields were determined to be 45 gpm and 30 gpm, respectively. The system typically operated via well P-1, with well P-2 serving as a backup when needed.

During the period between January 1999 and November 2001, Plant 2 served the dual objective of supplying the residences along Meadow Park Road with potable water and withdrawing additional groundwater for the remediation of the Site. After November 2001, the residences along Meadow Park Road were connected to the newly extended municipal water system. As such, the connection between Plant 2 and those residences was terminated. After terminating the connection to the Meadow Park Road residences, Plant 2 would subsequently serve only as a secondary remedial system to augment groundwater extraction.

Both of the 6.0-inch ID wells are equipped with 5.0 horsepower submersible pumps that convey groundwater from the subsurface to the Plant-2 treatment building. Water conveyed to the treatment plant is first filtered via 5 micron filters to remove particulate then passed through two (2) adsorption units (connected in series) that each contain 1,600 pounds of GAC. After filtration, discharge is to an unnamed tributary on the east side of the Site that eventually discharges to the Muscoot River.

Plant 2 has not been operational during the time period reported herein (February, 2015 through February, 2016) and, was recommended for decommissioning in a recent RSO conducted on behalf of NYSDEC by MACTEC.

2.3.3 Environmental Media Monitoring

Various environmental media have historically been monitored under the ROD and associated governing documents for the site. These environmental media include:

- On-site groundwater monitoring wells;
- Remedial pumping wells;
- Meadow Park Road monitoring wells;
- The Lake Baldwin Water district;
- Private potable wells, and;
- Soil Vapor Intrusion Sampling

Monitoring of these environmental media has been in accordance with the January, 2004 Plan for Routine Groundwater Monitoring (Monitoring Plan) prepared by Lawler, Matusky & Skelly Engineers, LLP of Pearl River, New York. These documents are the governing documents that were in force for most of the time period reported herein. However, NYSDEC has recently approved a January 27, 2016 SMP for the site. That document is now the governing document that directs all future management of the site.

2.3.3.1 On-Site Groundwater

The January, 2004 Monitoring Plan calls for quarterly monitoring of groundwater samples from wells MW-5S, MW-7D and MW-12S. Wells MW-5S and MW-12S are both located in proximity to the former source area adjacent to the north side of Building 6; well MW-7D is located in the paved parking area west of Building 6. The Monitoring Plan also calls for annual sampling of wells MW-4S and MW-4D (located near the northern entrance of the shopping center north of

Building 5), well MW-8S (located near the northeast entrance of the shopping center), and, wells MW-9S and MW-9D (located in the paved area adjacent to Building 2 on the west side of the shopping center). The January, 2016 SMP for the site will adjust the groundwater monitoring program to include sampling of 10 on-site monitoring wells (MW-4S, MW-4D, MW-5S, MW-7S, MW-7D, MW-8S, MW-9S, MW-9D, MW-12S and MW-101M) every five quarters (5/4 sampling).

Under both sampling schedules, purge water from wells MW-4S, MW-4D, MW-5S, MW-8S and MW-9D is to be directed to adjacent grassy areas whereas purge water from all of the other on-site wells is to be treated via Plant 1 prior to discharge. Samples collected under the 2004 Monitoring Plan are analyzed for the full list of VOCs via EPA analytical methods 601/602; samples collected under the January, 2016 SMP will be analyzed for the full list of VOCs via EPA analytical method 8260.

2.3.3.2 Remedial Pumping Wells

The January, 2004 Monitoring Plan calls for quarterly sampling of remedial wells RW-1S and RW-2D with analysis for the full list of VOCs via EPA analytical methods 601/602. The January, 2016 SMP will also call for quarterly sampling of remedial wells RW-1S and RW-2D with analysis of the full list of VOCs via EPA analytical method 8260.

Plant 2 has been inoperative for the full time period reported herein (February, 2015 thru February, 2016). Plant 2 has also been recommended for decommissioning in the September, 2014 RSO completed by MACTEC for the NYSDEC. As such, sampling associated with Plant 2 is not required under the January, 2016 SMP.

2.3.3.3 Meadow Park Road Monitoring Wells

The January, 2004 Monitoring Plan specifies four (4) off-site monitoring wells located in the residential area southeast of the Site on Meadow Park Road for annual sampling with analysis for the full list of VOCs via EPA analytical methods 601/602. These wells were originally used as water supplies for residences that have since been connected to the municipal water system. The wells range in depth from 190 feet below grade to 245 feet below grade and, are located at the following residences:

- #6 Meadow Park Road (Sorensen Residence);
- #12 Meadow Park Road (Mathews Residence);
- #13 Meadow Park Road (Pepi Residence), and;
- #21 Meadow Park Road (Hale Residence).

The January, 2016 SMP indicates that sampling at these locations will be on a 5/4 frequency with analysis for the full list of VOCs via EPA analytical method 8260. Purge water associated with sampling at these locations will be treated via Plant 1 prior to disposal in accordance with the SMP.

2.3.3.4 Lake Baldwin Water District

The Lake Baldwin Water District (LBWD) was removed from further routine monitoring requirements in a July 9, 2009 letter from Ms. Janet Brown, P.E. (NYSDEC Division of Environmental Remediation - Region 3) to the Carmel Town Engineer (Mr. Jack Karrell). This is because site related compounds (PCE, TCE and DCE) had not been identified in the LBWD wells for five (5) consecutive years preceding July, 2009.

2.3.3.5 Private Potable Wells

The January, 2004 Monitoring Plan identified 16 residential and/or commercial water supply wells located in proximity to the site on Mahopac Avenue, US Route 6, County Line Drive and Meadow Park Road to be included in a quarterly monitoring program. Under the January, 2004 Monitoring Plan, the NYSDEC could modify the sampling program at any particular location based on the historic analytical results. Additionally, residences/establishments were to be eliminated from the sampling program as they connected to the municipal water supply.

A communication with the Town of Somers Water Department confirms that 15 of the original 16 residences and/or businesses in this area have been connected to the regional municipal water system. One residence, located at 264 Mahopac Avenue, has elected to remain disconnected from the municipal system (which is available to this location). The January, 2016 SMP does not include a monitoring schedule for this well.

2.3.3.6 Soil Vapor Intrusion Monitoring

Soil Vapor Intrusion (SVI) monitoring has been governed by a June 2008 report entitled “Report on Sub-Slab Vapor Investigation” by Henningson, Durham & Richardson Architecture and Engineering, P.C. (HDR – f.k.a. Lawler, Matusky and Skelly, LLC) of Pearl River, New York. This monitoring program was preceded by a site-wide soil gas investigation in 2007 that identified two buildings on the property (Building 5 and Building 6) where a subsequent SVI study was warranted. The subsequent SVI study (which included sub-slab vapor, indoor air and outdoor air sampling locations in proximity to the former source area) recommended annual SVI sampling at the “Home Goods” store located in Building 6.

The SVI monitoring program governing the site during the time period reported herein required annual sampling of sub-slab vapor and indoor air associated with the Home Goods store only. The January, 2016 SMP modifies the SVI monitoring schedule to once every three (3) years with sampling conducted during the heating season. SVI samples will be via two (2) sub-slab and two (2) indoor air sample locations within the “Home Goods” store which occupies Building 6 of the shopping center. SVI sampling will also include a concurrent outdoor ambient air sample.

3.0 REMEDY COMPLIANCE, PERFORMANCE, EFFECTIVENESS AND PROTECTIVENESS

The Site is located at 80 US Route 6 in the Town of Somers, Westchester County, New York. The site is currently known as the Somers Commons Shopping Plaza and consists of approximately 28 acres (Town of Somers Tax Parcel 4.20-1-11) in postal zone 10589. The property is owned by UB Somers, Inc. of Greenwich, Connecticut. A conversation with the Town of Somers Building Department on March 1, 2016 indicates that the only building permits issued for the site during the reporting period herein (February 16, 2015 through February 15, 2016) were for internal remodeling only; no earth-breaking construction activities have taken place on the site. Additionally, the property on which the site is situated was not sold, subdivided, merged nor did it undergo a tax map amendment. The site was not issued any federal, state, and/or other local permits.

The monitoring program for the site during the time period reported herein is governed by the November, 1995 ROD and January, 2004 Monitoring Plan. The January, 2016 SMP will govern all future site monitoring. Both monitoring programs are summarized in **Table 1** below.

Table 1
Monitoring Program

Monitoring Program	1995 ROD & 2004 Monitoring Plan			January, 2016 SMP		
	Frequency*	**Matrix**	**Analysis**	**Frequency***	**Matrix**	**Analysis**
GWP&T – Plant 1	Monthly	Groundwater (Influent/Mid-Carbon/Effluent)	VOCs (Full List) via 601/602	Quarterly	Groundwater (Mid-Carbon/Effluent)	VOCs (Full List) via 8260
GWP&T – Plant 2	Monthly	Groundwater (Influent/Mid-Carbon/Effluent)	NA	NA	NA	NA
Remedial Pumping Wells	Quarterly	Groundwater (RW-1S & RW-2D)	VOCs (Full List) via 601/602	Quarterly	Groundwater (RW-1S & RW-2D)	VOCs (Full List) via 8260
	Quarterly	Groundwater (MW-5S, MW-7D & MW-12S)	VOCs (Full List) via 601/602	5/4	Groundwater (MW-5S, MW-7D & MW-12S)	VOCs (Full List) via 8260
On-Site Groundwater	Annual	Groundwater (MW-4S, MW-4D, MW-8S, MW-9S & MW-9D)	VOCs (Full List) via 601/602	5/4	Groundwater (MW-4S, MW-4D, MW-8S, MW-9S & MW-9D)	VOCs (Full List) via 8260
	Not Included	Groundwater (MW-2S, MW-2D, MW-3D, MW-3DD, MW-7S & MW-10D)	VOCs (Full List) via 601/602	5/4	Groundwater (MW-7S & MW-101M)	VOCs (Full List) via 8260
Meadow Park Road Monitoring Wells	Annual	Groundwater · #6 MPR (Sorensen); · #12 MPR Matthews); · #13 MPR (Pepi); · #21 MPR (Hale)	VOCs (Full List) via 601/602	5/4	Groundwater · #6 MPR (Sorensen); · #12 MPR Matthews); · #13 MPR (Pepi); · #21 MPR (Hale)	VOCs (Full List) via 8260
Private Potable Wells	Quarterly	Groundwater · #264 Mahopac Ave	VOCs (Full List) via 601/602	NA	NA	NA
Soil Vapor Intrusion	Annual	Soil Vapor/Air (Sub-Slab Vapor, Indoor Air, Outdoor Air – Home Goods @ Building #6)	VOCs (Full List) via TO-15	Every 3 Years	Soil Vapor/Air (Sub-Slab Vapor, Indoor Air, Outdoor Air – Home Goods @ Building #6)	VOCs (Full List) via TO-15

Notes:
* The frequency of events will be conducted as specified until otherwise approved by NYSDEC.

This PRR will evaluate each component of the monitoring program as directed by the 1995 ROD and 2004 Monitoring Plan (outlined above in Table 1) in terms of its compliance, performance and, effectiveness and protectiveness with respect to the goals of the ROD. This is because those documents were the documents governing site management during the time period reported herein.

3.1 Groundwater Extraction and Treatment Systems – Plant 1

One of the goals of the ROD is to prevent continued degradation of groundwater quality through transfer of PCE and its breakdown products from impacted soil to groundwater. This was partially accomplished via a limited excavation of source area soil. Subsequent to completing the source area excavation, Plant 1 was installed in order to capture vertical and horizontal flow from within and around the source area as well as to capture vertical leakage from the glacial till before it enters the bedrock.

Only Plant 1 was operating during the time period reported herein (February, 2015 through February, 2016). Plant 2 was not operational during this time period and, was recommended for decommissioning in a September, 2014 RSO by MACTEC. Electrical service to Plant 2 has been disconnected.

3.1.1 Compliance

The monitoring schedule for Plant 1 during the time period reported herein included monthly operation and maintenance (O&M) visits to check its operation and, to perform routine maintenance tasks (such as changing filters, making minor adjustments, etc.) as necessary. The monthly visits also included sampling of the system effluent to ensure that the treated groundwater meets the quality standards established for the site. Additional samples of extracted groundwater (system influent) and between carbon are collected on a monthly basis in order to evaluate the effectiveness of the GAC units.

During the time period reported herein, monthly site visits to Plant 1 were routinely conducted with sampling and routine O&M completed. Additionally, the analytical results of the system effluent samples collected through January 4, 2016 indicate that VOCs were consistently “not detected” in the treated water discharged from the system.

A changeout of the GAC in the primary carbon unit was initiated in late January, 2016 and completed on February 2, 2016. Piping and valving were also added to allow flow adjustment so that either carbon vessel could be operated as the primary or secondary unit without physically changing the position of the carbon vessels in the treatment shed. System sampling (combined influent, mid-carbon and system effluent) was conducted on February 3, 2016. The analytical results from that set of system samples (included in the attached Summary of Treatment System Analytical Results) indicates that total VOC concentrations in the system effluent sample (218 ug/l) were higher than the total VOC concentration in the mid-carbon

sample (1.1 ug/l). After discussing the situation with the technician that collected the samples Aztech believes that the mid-carbon and system effluent samples may have inadvertently been mis-labeled (i.e. switched). However, the February 3, 2016 system effluent sample (as identified) indicates that the discharge from Plant 1 on that date is out of compliance with the quality standards established for the site and, the operation of Plant 1 is not in compliance with the ROD.

3.1.2 Performance

Monthly site visits have been conducted during the period between February, 2015 and February, 2016 for Plant 1. These monthly site visits include visual inspection of the remedial system shed & components, condition/cleanliness of the shed and surrounding area, routine maintenance and, sampling of the system. Operational data collected from the system (which is included in the attached table summarizing Plant 1 Operational Data) indicates that the GWE&T system has collectively removed and treated 341,420 gallons of impacted groundwater via wells RW-1S and RW-2D from the overburden and bedrock beneath the site during the time period reported herein.

3.1.3 Effectiveness and Protectiveness

An evaluation of the analytical results obtained via analysis of the system influent, mid-carbon and effluent samples collected from Plant 1 during the period through January 4, 2016 indicates that the treatment and discharge of groundwater captured by Plant 1 has been effective and protective of human health and the environment. This is because the GAC treatment effectively removed the site-related VOCs present in the groundwater extracted via wells RW-1S and RW-2D prior to its discharge into the unnamed stream adjacent to the eastern side of the Site. However, the system effluent sample collected on February 3, 2016 (after a recently completed changeout of GAC in the primary carbon vessel) indicated total VOC concentrations that were out of compliance with the quality standards established for the site.

3.2 On-Site Groundwater & Remedial Pumping Wells

The on-site groundwater monitoring program (as directed by the 1995 ROD and 2004 Monitoring Plan) includes quarterly sampling from monitoring wells MW-5S, MW-7D and MW-12S and, remedial pumping wells RW-1S and RW-2D. Monitoring wells MW-4S, MW-4D, MW-8S, MW-9S and MW-9D are sampled annually. As noted in Table 1 above, the monitoring frequency for wells RW-1S and RW-2D will continue to be quarterly, and wells MW-4S, MW-4D, MW-5S, MW-7S, MW-7D, MW-8S, MW-9S, MW-9D, MW-12S and MW-101M will be sampled every five (5) quarters (5/4 sampling).

3.2.1 Compliance

During the time period reported herein, regular, routine groundwater sampling of on-site monitoring wells was not conducted. Rather, monthly samples were obtained from wells RW-1S and RW-2D during the six (6) month period between July and December, 2015. Additionally,

groundwater sampling was conducted from several on-site monitoring wells in June, 2015 as part of a data gap investigation conducted by MACTEC on behalf of the NYSDEC. Groundwater samples were also collected from several additional new wells that were installed as part of the data gap investigation. **Table 2** below summarizes the on-site groundwater sampling events conducted during the time period reported herein. As indicated, the site is not currently in compliance with the monitoring schedule outlined in Table 1.

Table 2
Summary of Sampling Events - 2015
On-Site Monitoring Wells

Sampling Frequency*	Well ID	Number of Sampling Events+	Sampling Dates
Quarterly	RW-1S	6	7-9; 8-12; 9-2; 10-14; 11-3 & 12-2
	RW-2D	7	6-29; 7-9; 8-12; 9-2; 10-14; 11-3 & 12-2
	MW-5S	1	6-29
	MW-7D	1	6-29
	MW-12S	1	6-29
Annual	MW-4S	0	Not Sampled
	MW-4D	0	Not Sampled
	MW-8S	0	Not Sampled
	MW-9S	1	6-29
	MW-9D	1	6-29
Not Included in 2004 Monitoring Plan	MW-10D	1	6-29
	MW-7M1	1	6-29
	MW-7M2	1	6-29
	MW-12S1	1	6-29
	MW-12S2	1	6-29
	MW-101M	1	6-29
	MW-101D	1	6-29
	MW-101DD	1	6-29

Note:
* Sampling frequency as directed by the November, 1995 ROD and 2004 Monitoring Plan
+ Number of sampling events conducted between February, 2015 and February, 2016

3.2.2 Performance

The most complete and recent groundwater monitoring event that included the on-site monitoring wells was conducted in June, 2015. That sampling event included six (6) the 10 wells included in the monitoring schedule for the site and eight (8) additional wells installed as part of the data gap investigation. The groundwater sampling event was conducted by MACTEC on June 29, 2015.

Depth to water measurements collected during that sampling event were used in conjunction with top of well casing elevations in order to determine the groundwater elevation for each well. Based on their completion depth and specification, groundwater elevations for wells completed in the shallow zone (MW-2S, MW-4S, MW-5S, MW-7S, MW-8S, MW-9S, MW-12S and new well MW-101M) and deep zone (MW-2D, MW-3D, MW-4D, MW-7D, MW-9D and MW-10D) were established and used to prepare the groundwater contour maps presented in **Figure 4A** and **Figure 4B** for the shallow and deep zones, respectively.

The groundwater elevations established for the June 29, 2015 sampling event represent conditions while well RW-2D is actively pumping from the deep (i.e. bedrock) zone; well RW-1S (in the shallow zone) was not operational on that date. As shown on Figure 4A, the overall direction of groundwater flow within the shallow zone (and in proximity to the former source area) is generally toward the southwest and west. The influence of pumping in the deep zone via well RW-2D is suggested by the closed and hachured 595-foot groundwater elevation contour line approximately centered about well RW-1S. Additionally, a northerly component of groundwater flow within the shallow zone is also noted via a relatively high groundwater elevation recorded in well MW-2S, located in the southern portion of the site.

Within the deep (i.e. bedrock) zone (Figure 4B), groundwater flow beneath most of the shopping center is generally toward the south and west. The influence of groundwater extraction via well RW-2D is noted by the closed and hachured 585-foot groundwater elevation contour centered about that well and, the deflection in the 590-foot groundwater elevation contour. A northerly component of groundwater flow within the bedrock is also noted via a relatively high groundwater elevation recorded in well MW-2D, located in the southern portion of the site. The groundwater elevations associated with the June 29, 2015 sampling event are presented in **Table 3**.

Table 3
Groundwater Elevations
June 29, 2015

Well ID	Zone	TOC Elevation	DTW	GW Elevation
MW-2S	Shallow	604.05	3.33	600.72
MW-4S	Shallow	611.64	5.67	605.97
MW-5S	Shallow	605.47	7.81	597.66
MW-7S	Shallow	602.23	11.35	590.88
MW-8S	Shallow	618.02	6.12	611.90
MW-9S	Shallow	595.99	7.74	588.25
MW-12S	Shallow	606.35	13.83	592.52
MW-101M	Shallow	603.43	13.93	589.50
MW-2D	Deep	603.41	11.23	592.18
MW-3D	Deep	604.23	12.50	591.73
MW-4D	Deep	611.84	9.77	602.07
MW-7D	Deep	602.31	12.94	589.37
MW-9D	Deep	595.68	8.11	587.57
MW-10D	Deep	600.22	12.74	587.48

Notes:
TOC elevations & DTW measurements from MACTEC January, 2016 SMP

After completing the depth to water measurements, MACTEC commenced with low flow sampling that was conducted in accordance with USEPA low-flow guidelines. Groundwater samples were collected subsequent to purging and were transferred into appropriately preserved laboratory supplied containers and stored on ice. Samples were subsequently delivered to Pace Analytical Services, where they were analyzed for the full list of VOCs via EPA analytical method 8260.

The analytical results indicate that detectable concentrations of site-related VOCs were identified in six (6) of the seven (7) wells included in the 2004 Monitoring Plan (RW-1S, RW-2D, MW-5S, MW-9S, MW-12S and MW-7D). Methyl tertiary butyl ether (MtBE) was identified in one (1) well (MW-9D) at a concentration of 2.0 ug/l. MtBE is not considered a site-related compound. Site-related VOCs were also identified in five (5) of the eight (8) additional wells (MW-7S, MW-7M1, MW-12S1, MW-101M and MW-101D) sampled as part of the data gap investigation. PCE was the compound identified in the highest concentration (up to 5,100 ug/l). Lower concentrations of TCE (less than 100 ug/l) and the isomers of DCE were also identified at concentrations that were less than 25 ug/l. PCE, TCE and/or DCE concentrations were in excess of the 5.0 ug/l standard for Class GA groundwater in 11 of the 15 wells sampled. A summary of the groundwater analytical results for the June 29, 2015 sampling event is presented below in **Table 4**.

Table 4
Summary of Groundwater Analytical Results
June 29, 2015

Well ID	Zone	PCE	TCE	DCE	Total VOCs
	GW Standard	5.0	5.0	5.0	
Wells included in 2004 Monitoring Plan:					
RW-1S*	Shallow	**890**	**18**	**22**	930
RW-2D	Shallow	**5,100**	**81**	**15**	5,198
MW-4S	Shallow	Not Sampled			
MW-5S	Shallow	**13**	2.0	-	15
MW-8S	Shallow	Not Sampled			
MW-9S	Shallow	**5.0**	2.0	2.0	9.0
MW-12S	Shallow	**2,900**	**13**	**6.0**	2,919
MW-4D	Deep	Not Sampled			
MW-7D	Deep	3.0	**8.0**	3.0	14
MW-9D	Deep	-	-	-	2.0
Additional Wells:					
MW-7S	Shallow	-	-	**6.0**	6.0
MW-7M1	Shallow	-	-	**6.0**	-
MW-12S1	Shallow	**99**	4.0	4.0	107
MW-101M	Shallow	**24**	1.0	**6.0**	31
MW-7M2	Intermediate**	-	-	-	-
MW-12M	Intermediate**	-	-	-	24
MW-101D	Intermediate**	**6.0**	-	**8.0**	16
MW-10D	Deep	-	-	-	-

NOTES:
Concentrations in micrograms per liter (ug/l)
Groundwater Standard from NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1
* Analytical results for well RW-1S are from a sample collected July 9, 2015.
** Wells completed at base of glacial till or within weathered bedrock
- Indicates that compound was not detected
Concentrations in Bold exceed Groundwater Standard

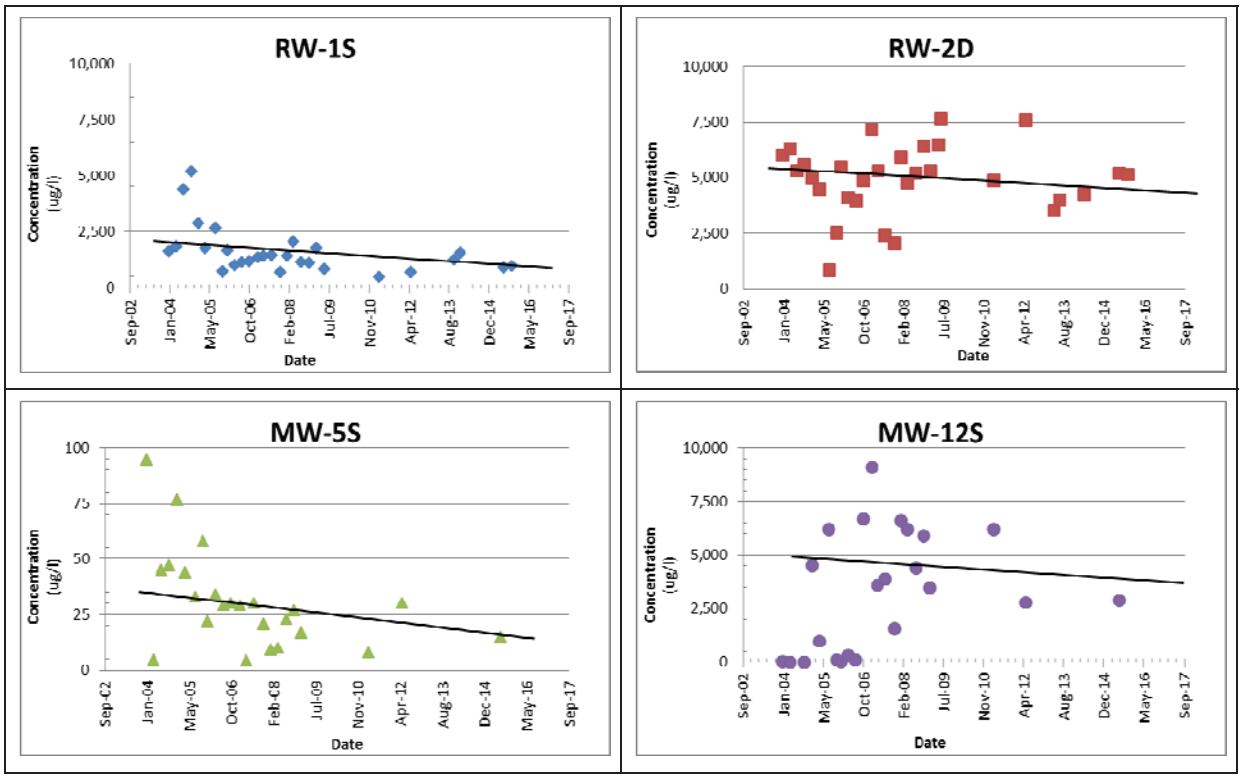
PCE = Tetrachloroethene
TCE = Trichloroethene
DCE = Dichloroethene

The distribution of PCE, TCE and isomers of DCE within both the shallow and deep zones during the June 29, 2015 sampling event is shown in **Figure 5A** and **Figure 5B**, respectively.

3.2.3 Effectiveness and Protectiveness

The goal of the November, 1995 ROD is to establish a remedial approach for the site that is protective of human health and the environment. Ultimately, the goal for the groundwater at the site would be for groundwater quality to satisfy the standards, criteria and guidance for Class GA groundwater as defined by NYSDEC (TOGS 1.1.1).

A review of the groundwater analytical results obtained from sampling events conducted since 2004 indicates that, in general, total VOC concentrations are following an overall declining trend in groundwater. This overall declining trend in total VOC concentrations is shown in the charts below for groundwater extraction wells RW-1S and RW-2D and on-site monitoring wells MW-5S and MW-12S. Each of these wells is located in proximity to the former source area.



Based on the declines noted, the concentrations of the VOCs identified in groundwater are continuing to trend toward the remedial goals for the site. However, the most recent concentrations of PCE in groundwater are currently in excess of the standards, criteria and guidance for Class GA groundwater (TOGS 1.1.1).

3.3 Meadow Park Road Monitoring Wells

The Meadow Park Road (MPR) monitoring wells include four (4) former residential water supply wells that are no longer used for water supply purposes. This is because these residences have been connected into the municipal water system. The completion depths for these former water supply wells are summarized in **Table 5** below.

Table 5
Meadow Park Road Monitoring Well Specifications

Well ID	Total Depth
# 6 MPR (Sorensen)	190
# 12 MPR (Matthews)	205
# 13 (Pepi)	245
# 21 (Hale)	220

Notes:
Depths given in feet
Wells are 6.0" diameter former residential water supply wells. MPR = Meadow Park Road

3.3.1 Compliance

As indicated previously (Table 1), the MPR monitoring wells were scheduled for sampling on an annual basis during the time period reported herein. The most recent sampling event that included the MPR monitoring wells was conducted during July, 2008. That sampling event was conducted outside of the time period covered by this PRR. In the absence of any previous recommendations or documentation that modifies the requirement for annual sampling from these locations, it appears that sampling of the MPR monitoring wells was not in compliance with the monitoring schedule in effect for the time period reported herein.

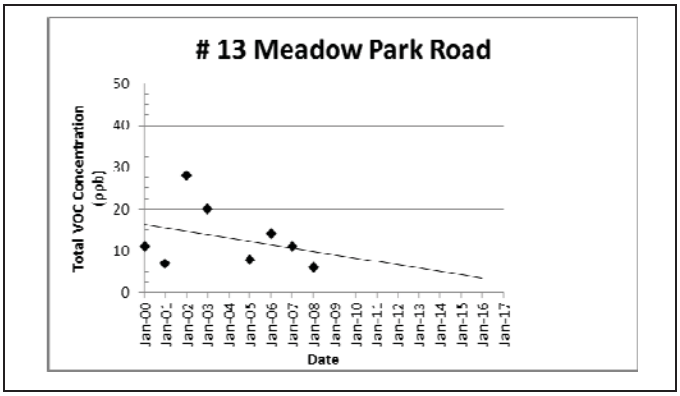
3.3.2 Performance

The most recent groundwater monitoring event for the Meadow Park Road monitoring wells was conducted in July, 2008. A review of the analytical results for that sampling event indicates that concentrations of VOCs are not detected in three (3) of the four (4) locations sampled. At one location (# 13 Meadow Park Road), PCE was identified at a concentration of 6.1 ug/l. This concentration is in excess of the 5.0 ug/l standard for Class GA groundwater (TOGS 1.1.1). No sampling events involving the MPR monitoring wells were conducted during the time period covered by this PRR.

3.3.3 Effectiveness and Protectiveness

The goal of the November, 1995 ROD is to establish a remedial approach for the site that is protective of human health and the environment. Ultimately, the goal for the groundwater at the site would be for groundwater quality to satisfy the standards, criteria and guidance for Class GA groundwater as defined by NYSDEC (TOGS 1.1.1).

A review of the groundwater analytical results obtained from the sampling events that have included the MPR monitoring wells since June, 2000 indicates that concentrations of site-related VOCs in three (3) of the four (4) MPR Monitoring wells have not exceeded their respective standards established by NYSDEC for Class GA groundwater (TOGS 1.1.1) since June, 2001. PCE concentrations in the former water supply well at 13 Meadow Park Road have typically been in excess of the NYSDEC standard (5.0 ug/l). The chart below demonstrates the declining trend in total VOC concentration at this location during the sampling events conducted between June, 2000 and July, 2008. Extension of this trend suggests that the concentration anticipated for a sample collected in 2015 would have been at (or below) the 5.0 ug/l standard.



Based on the fact that total VOC concentrations in three (3) of the four (4) MPR monitoring wells have been below NYSDEC standards for class GA groundwater since June, 2001 and, the noted declines in the former water supply well located at 13 Meadow Park Road, the concentrations of the VOCs identified in off-site groundwater are trending toward the remedial goals for the site.

3.4 Private Water Supply Well – 264 Mahopac Avenue

The January, 2004 Monitoring Plan identified 16 residential and/or commercial water supply wells located in proximity to the site on Mahopac Avenue, US Route 6, County Line Drive and Meadow Park Road that were included in a quarterly monitoring program. Under the January, 2004 Monitoring Plan, the NYSDEC could eliminate these residences/establishments from the sampling program based on historic analytical results or, as they were connected to the municipal water supply. The Town of Somers Water Department confirms that 15 of these original 16 residences and/or businesses have been connected to the regional municipal water system. One residence (located at 264 Mahopac Avenue) elected to remain disconnected from the municipal system (which is available to this location). As such, the current sampling program for nearby private water supply wells includes 264 Mahopac Avenue only.

3.4.1 Compliance

The most recent data available for sampling events associated with 264 Mahopac Avenue is from April, 2016. This sampling date is outside of the time period covered by this PRR. As such, in the absence of any previous recommendations or documentation that modifies the sampling schedule for this location, it appears that the sampling of the private water supply well at 264 Mahopac Avenue is not currently in compliance with the monitoring schedule for the time period reported herein.

3.4.2 Performance

The most recent monitoring event for the private water supply well at 264 Mahopac Avenue was conducted in April, 2016. A review of the analytical results from that sample indicates that concentrations of VOCs were not detected on that date. Similarly, historic analytical results for the previous sampling event (April, 2009) from that location indicate that concentrations of VOCs are not detected on that date.

3.4.3 Effectiveness and Protectiveness

The goal of the November, 1995 ROD is to establish a remedial approach for the site that is protective of human health and the environment. Ultimately, the goal for the groundwater at the site would be for groundwater quality to satisfy the standards, criteria and guidance for Class GA groundwater as defined by NYSDEC (TOGS 1.1.1).

A review of the groundwater analytical results obtained from 52 sampling events (dating back to March, 2000) from the private water supply well located at 264 Mahopac Avenue indicate that PCE concentrations, when detected, have ranged from a low concentration of 0.5 ug/l to a high concentration of 1.8 ug/l. PCE was "not detected" in 44 of 52 sampling events, including the most recent sampling event on April 15, 2016. The historic water supply samples collected from 264 Mahopac Avenue have not exceeded the NYSDEC standards for class GA groundwater dating back to March, 2000 and, as such, are meeting the remedial goals established by the November, 1995 ROD.

3.5 Soil Vapor Intrusion Monitoring

The SVI monitoring was governed by the June 2008 Report on Sub-Slab Vapor Investigation by HDR (f.k.a. Lawler, Matusky and Skelly, LLC) of Pearl River, New York for the time period reported herein. This includes annual SVI sampling of sub-slab vapor, indoor air and outdoor air associated with the "Home Goods" store (Building 6). This location is adjacent to (and south of) the former source area.

3.5.1 Compliance

As indicated previously in Table 1, the SVI monitoring program includes annual sampling (to be conducted during the heating season) via two (2) sub-slab locations (SS-03 & SS-04), two (2) indoor air locations (IA-03 & IA-04) and, one (1) outdoor air location (OA-01). The SVI sampling locations for the sub-slab and indoor air samples are within Building 6 of the shopping center at the "Home Goods" store (see Figure 3); the outdoor air sample is collected from within the fenced compound associated with Plant 1.

SVI monitoring was not conducted during the time period reported herein. As such, it appears that the site was out of compliance with the SVI monitoring schedule for 2015.

3.5.2 Performance

The most recent set of SVI samples were collected on January 19, 2014. The sub-slab samples were collected from two (2) previously installed sub-slab sampling points that are located in the hallway leading to the rest rooms in the northeast corner of the Home Goods store (sample SS-03 – located due south of the former source area) and, within the storage room of the Home Goods store at a location that is positioned approximately midway (and adjacent to) the eastern wall of Building 6 (SS-04). Corresponding indoor air samples (IA-03 and IA-04, respectively) were also collected at each location. An outdoor air sample (OA-1) was also

collected from within the fenced area associated with Plant 1.

The analytical results of the January 19, 2014 SVI sampling event were evaluated via the decision matrices provided in the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October, 2006). Decision Matrix No. 1 of that document suggested that "no further action" is an appropriate response to the concentrations of carbon tetrachloride and TCE identified and, Decision Matrix No. 2 suggested that "no further action" was an appropriate response to 1,1,1-trichloroethane (TCA). Conversely, Decision Matrix No. 2 suggested that continued monitoring is the appropriate course of action with respect to the concentrations of PCE identified in the January, 2014 SVI samples.

3.5.3 Effectiveness and Protectiveness

The goal of the November, 1995 ROD is to establish a remedial approach for the site that is protective of human health and the environment. As part of that remedial approach, the goal for the SVI monitoring would be to meet the criteria established via decision matrices no. 1 and no. 2 with respect to protection of indoor air quality.

A review of the most recent set of SVI monitoring data indicates that the results are consistent with the historic SVI sampling. Based on the fact that the decision matrices have not historically indicated "mitigation" as an appropriate course of action, the current SVI monitoring program for the site is consistent with NYSDOH guidance and, therefore, is protective of human health and the environment. As such, the current SVI monitoring program is meeting the goals of the November, 1995 ROD.

4.0 EVALUATION OF COSTS

The cost evaluation included herein summarizes NYSDEC expenditures over the 12 month period beginning approximately February 1, 2015 and ending approximately January 31, 2016. The costs are broken down into four (4) categories. These include:

- System Operation and Maintenance. This includes routine monthly site visits, non-routine maintenance visits, analytical costs via Adirondack Environmental Services, Inc. (Adirondack) and reporting. The costs indicated under this category are associated with operation of Plant 1.
- Utilities. This includes electrical costs for operation of Plant 1.
- Periodic Review Reporting. This includes labor associated with compiling, reviewing and evaluating system operation and maintenance, groundwater analytical and any other site-related data collected during the appropriate time period.
- Other. This includes labor costs for unforeseen site visits, reporting and/or meetings.

Costs for groundwater monitoring and SVI monitoring are not included herein as these tasks were not completed by Aztech during the time period reported herein.

Additional costs included herein are associated with efforts undertaken by MACTEC during the time period between February, 2015 and February, 2016. These are sub-divided into three (3) categories:

- Remedial Site Optimization;
- Data Gap Investigation, and;
- Site Management Plan Preparation.

4.1 Approximate Costs: February, 2015 through January, 2016

The approximate costs associated with the time period between February, 2015 and January, 2016 are presented in **Table 6** below.

Table 6
Approximate Costs: February, 2015 through January, 2016

Task	Approximate Cost
Tasks Completed by Aztech:	
System Operation & Maintenance	$16,500.00
Periodic Review Report	$2,300.00
Utilities	$2,250.00
Other	$500.00
Aztech Total:	$21,550.00
Tasks Completed by MACTEC:	
Data Gap Investigation	$98,250.00
Remedial Site Optimization	$1,300.00
Site Management Plan	$0.00
MACTEC Total:	$99,550.00

Notes:
Approximate costs for MACTEC are estimates based on invoicing provided by NYSDEC for the time period between February, 2015 and January, 2016.

4.2 Anticipated Costs: O & M and Environmental Monitoring for Next Reporting Period

The costs anticipated for the next reporting period (February 16, 2016 through February 15,

2017) are based on the environmental monitoring outlined in the January 27, 2016 SMP. The various elements of the environmental monitoring plan for the site are as follows:

- GWE&T System – Plant 1: Routine operation and maintenance site visits. The January 27, 2016 SMP requires bi-weekly site visits to check flow rates and water levels in both extraction wells and pressure differential across the bag filters and GAC units. Sampling of both extraction wells (RW-1S and RW-2D) and the mid-carbon and system effluent is required on a quarterly basis.
- 5/4 Groundwater Monitoring: The January 27, 2016 SMP requires sampling of 10 on-site monitoring wells and four (4) off site monitoring wells every five (5) quarters. For the purposes of estimating the anticipated costs for the upcoming year, the 5/4 groundwater monitoring is scheduled for the 3rd quarter (July/August/September) of 2016 via low flow methods.
- SVI Monitoring: The January 27, 2016 SMP requires sampling of sub-slab vapor and indoor air at two (2) locations within Building 6 (Home Goods store) of the Somers Common shopping center and, outdoor air at one (1) location every three (3) years. For the purposes of estimating the anticipated costs for the upcoming year, the next SVI monitoring event is scheduled for the 1st quarter, 2017 during the heating season.

The estimated costs associated with continuing operation and maintenance of Plant 1 and, the environmental monitoring program for the next reporting period (February 16, 2016 through February 15, 2017) are summarized below in **Table 7**.

Table 7
Estimated Costs – Operation & Maintenance and Environmental Monitoring
February 16, 2016 through February 15, 2017

Task	Estimated Cost (per month/event)	Estimated Cost – Next Reporting Period
GWE&T System O&M – Plant 1		
Labor	$1,550.00	
Equipment/Materials	$925.00	$34,500.00
Utilities	$225.00	
Analytical	$175.00	
GWE&T System – Plant 1 Total:	$2,875.00 (per month)	(12 months)
5/4 GW Monitoring – On-Site Wells + Off-Site (MPR) Wells		
Labor	$4,325.00	
Equipment/Materials	$5,850.00	$10,850.00
Analytical	$675.00	
5/4 GW Monitoring – On-Site Wells Total:	$10,850.00 (per event)	(1 event)
SVI Monitoring – Home Goods Store – Every 3 Years		
Labor	$785.00	
Equipment/Materials	$650.00	$2,685.00
Analytical+	$1,250.00	
SVI Monitoring – Home Goods Store :	$2,685.00 (per event)	(1 Event)
Reporting:		
Monthly Report	$775.00 (per report)	$9,300.00
Periodic Review Report (Annual)	$2,650.00 (per report)	$2,650.00

Note:
+ Estimated costs – Actual costs are direct billed to NYSDEC via Test America.

Based on the costs and assumptions presented herein, the estimated cost for the upcoming reporting period (February 16, 2016 through February 15, 2017) is $59,985.00 (using the existing contract rates for 2016 under contract no. C100904). This cost does not include any currently unforeseen tasks associated with non-routine maintenance and/or repairs to GWE&T Plant 1, or decommissioning of Plant 2.

5.0 SUMMARY/CONCLUSIONS

The periodic review process is undertaken in order to determine if a site is being managed in accordance with the remedies established in its governing documents. In particular, the periodic review report seeks to evaluate pertinent site-specific inspection, monitoring, and other related data, that will help to assess whether the remedies (engineering and/or institutional controls) for a site are being implemented properly and, if those remedies remain protective of human health and the environment.

- The November, 1995 ROD imposed Engineering Controls for the site that initially included operation and maintenance of POET systems on residential and commercial water supply wells and/or development of a new water district (using the supply wells for the shopping center) until the regional municipal system would be available in the area. Engineering controls also included groundwater extraction and treatment via two (2) separate GWE&T remedial systems (Plant 1 and Plant 2).
- Institutional controls imposed by the November, 1995 ROD include groundwater monitoring via various monitoring wells, former off-site water supply wells and current water supply wells.
- Annual SVI monitoring at a commercial establishment in proximity to the former source area (Home Goods store) would be a requirement added to the monitoring program for the site in 2008.
- The ROD and monitoring program for the site do not place any restrictions on the current or future use of the property. However, the NYSDEC is currently preparing a deed restriction that limits future use of the property.
- During the years since the effective date of the ROD, operation and maintenance of individual POET systems has ceased. This is because one of the long term goals of the ROD was the connection of nearby residences and commercial establishments to the regional municipal system once it became available.
- The ROD identified PCE and its degradation by-products as the primary site-related compounds of concern.
- A source area excavation conducted at the site in February, 1997 included removal of approximately 135 cubic yards of source area soil from the area located behind (east) of the former dry cleaning operation. Altogether, 236 tons of impacted soil was removed. The former source area is currently presented as a lawn area on the north side of the Home Goods store.
- The monitoring program for the site during the time period reported herein is governed by the January, 2004 Plan for Routine Groundwater Monitoring prepared by Lawler, Matusky & Skelly Engineers, LLP of Pearl River, New York; SVI monitoring is governed by

a June 2008 report entitled Report on Sub-Slab Vapor Investigation by HDR (f.k.a. Lawler, Matusky and Skelly, LLC).

- This PRR compares the monitoring performed during the time period reported herein to the monitoring program outlined in the January, 2004 Plan for Routine Groundwater Monitoring and June 2008 report entitled Report on Sub-Slab Vapor Investigation in terms of its compliance, performance, effectiveness and protectiveness with respect to the goals of the ROD.
- Institutional Controls for the site were established via a deed restriction in order to ensure continued operation of the Engineering Controls ECs associated with the site; to control use and development of the site, and; to restrict the future use of groundwater.
- The deed restriction establishes the January 27, 2016 Site Management Plan was the governing document directing all future site management activities associated with the site.
- Engineering Controls for the site include GWE&T via two (2) treatment facilities. Plant 1 addresses impacted groundwater in proximity to the former source area and Plant 2 was the original water supply for the former Baldwin Place Mall. Plant 2 was recommended for decommissioning in a September, 2014 RSO prepared for the NYSDEC by MACTEC; it is not currently operating.
- An evaluation of the analytical results obtained via analysis of the system influent, mid-carbon and effluent samples indicates that the treated groundwater discharged from Plant 1 during 11 of the 12 month time period reported herein was in compliance with the quality standards established for the site; protective of human health and the environment and, as such, the operation of Plant 1 was in compliance with the ROD.
- An evaluation of the analytical results obtained via analysis of the system influent, mid-carbon and effluent samples indicates that the treated groundwater discharged from Plant 1 during February, 2016 may not have been in compliance with the quality standards established for the site. Aztech believes that this is because the mid-carbon and system effluent samples may have inadvertently been mis-labeled (i.e. switched). However, the analytical results of that sample set, as labeled, indicates that operation of Plant 1 was in compliance with the ROD during February, 2016.
- The monitoring program for the site during the time period reported herein includes routine sampling of various media. This includes: quarterly sampling of three (3) on-site monitoring wells (MW-5S, MW-7D, MW-12S) and two (2) active groundwater recovery wells (RW-1S and RW-2D); annual sampling of five (5) on-site monitoring wells (MW-4S, MW-4D, MW-8S, MW-9S & MW-9D); annual sampling of four (4) off-site monitoring wells in the Meadow Park Road area; annual sampling of one (1) private water supply well (264 Mahopac Avenue) and annual soil vapor intrusion monitoring in Building 6 (Home Goods store) of the current Somers Commons shopping center.

- Groundwater monitoring conducted during the time period reported herein was conducted as part of a data gap investigation conducted by MACTEC in June, 2015.
- Sampling of off-site groundwater was not conducted during the time period reported herein. However, it should be noted that the historic analytical results for these locations indicate that concentrations of the VOCs identified in off-site groundwater are trending toward the remedial goals for the site.
- Sampling of the private water supply well at 264 Mahopac Avenue was not conducted during the time period reported herein. However, a sample was collected from this location on April 15, 2016 and indicated that concentrations of VOCs were "not detected" in that sample. It is important to note that the analytical results of samples historically collected from this location have not exceeded the NYSDEC standards for class GA groundwater dating back to March, 2000 and, as such, are meeting the remedial goals established by the November, 1995 ROD.
- SVI monitoring was not conducted at the site during the time period reported herein. However, the decision matrices have not historically indicated "mitigation" as an appropriate course of action.

6.0 RECOMMENDATIONS

- GWE&T Plant 1 should continue to be operated for the purpose of capturing groundwater flowing through (and impacted by) residual source area soil before it can enter deeper into the glacial till and bedrock systems. Routine maintenance site visits should continue until operation of Plant 1 is no longer necessary.

- The SMP requires that bi-weekly site visits be conducted in order to monitor flow rates and water levels within the active recovery wells (RW-1S and RW-2D) and pressure differential across the bag filter and GAC units. Aztech recommends that a cost/benefit analysis be conducted comparing the costs associated with conducting bi-weekly site maintenance visits with the costs associated with installation of remote monitoring components (cellular modem, pressure transducers & flow meters).

- The SMP requires quarterly monitoring of the GWE&T system via sampling of wells RW-1S and RW-2D, mid-carbon and system effluent. Aztech is recommending that monthly grab samples be collected from RW-1S and RW-2D as well as from the mid-carbon and system effluent.

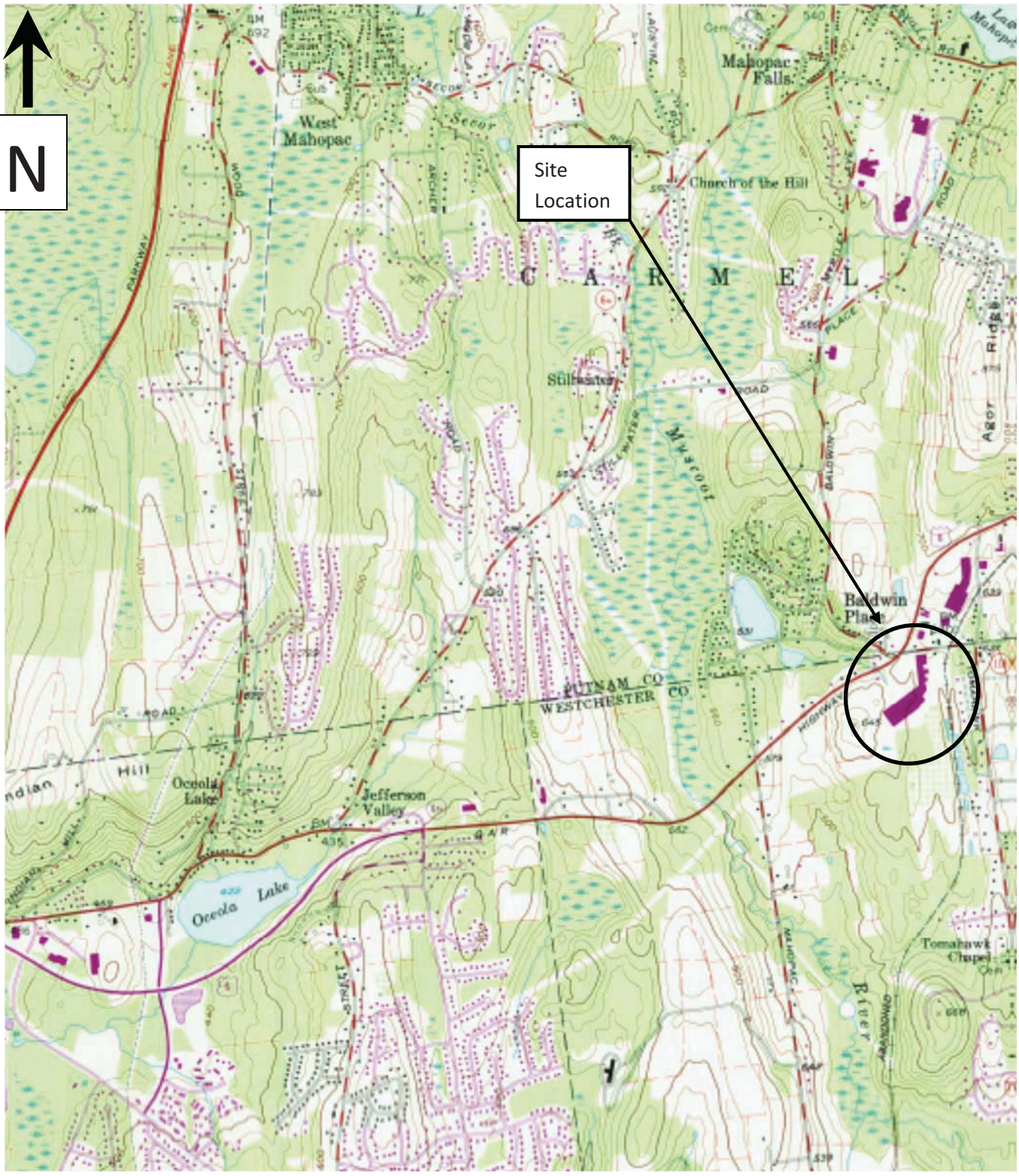
- A September, 2014 RSO conducted by MACTEC recommends that Plant 2 be decommissioned. Aztech concurs with that recommendation.

- The monitoring program for on-site and off-site groundwater, as outlined in the SMP, includes quarterly sampling of on-site remedial wells RW-1S and RW-2D; sampling of on-site monitoring wells MW-4S, MW-4D, MW-5S, MW-7S, MW-7D, MW-8S, MW-9S, MW-9D, MW-12S & MW-101M and off-site monitoring wells #6, #12, #13 and #21 in the Meadow Park Road area every five (5) quarters (5/4 sampling). Aztech recommends that the next round of groundwater monitoring be conducted during the 3rd quarter, 2016.

- Aztech is recommending that on-site monitoring wells MW-2S, MW-2D, MW-3D, MW-3DD and MW-10D be added to the list of wells to be sampled during the 3rd quarter, 2016 sampling event.

- The SVI monitoring program for the site, as outlined in the pending SMP, includes sub-slab and indoor air samples collected at two locations within Building 6 (Home Goods store) of the Somers Common shopping center and, one outdoor air location every three (3) years. Aztech recommends that the next SVI monitoring event for the site be conducted during the 1st quarter, 2017.

FIGURES



USGS Topographic Quadrangle Map – Mohegan Lake

Approximate Scale 1:31,000

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SITE: NYSDEC – Site # 3-60-023
Baldwin Place Shopping Center
(now Somers Commons)
Somers, New York

FIGURE 1

Site Location Map

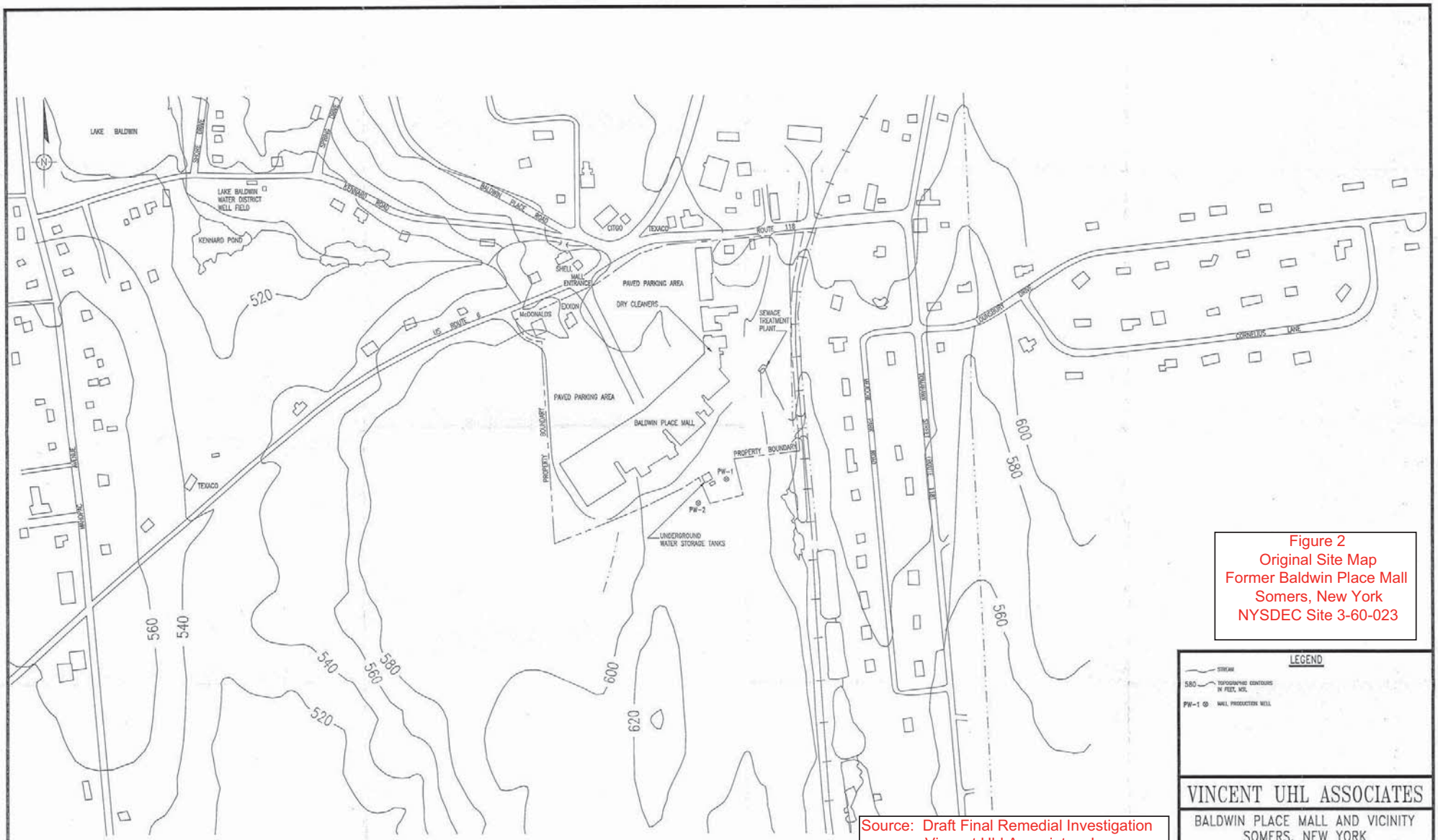
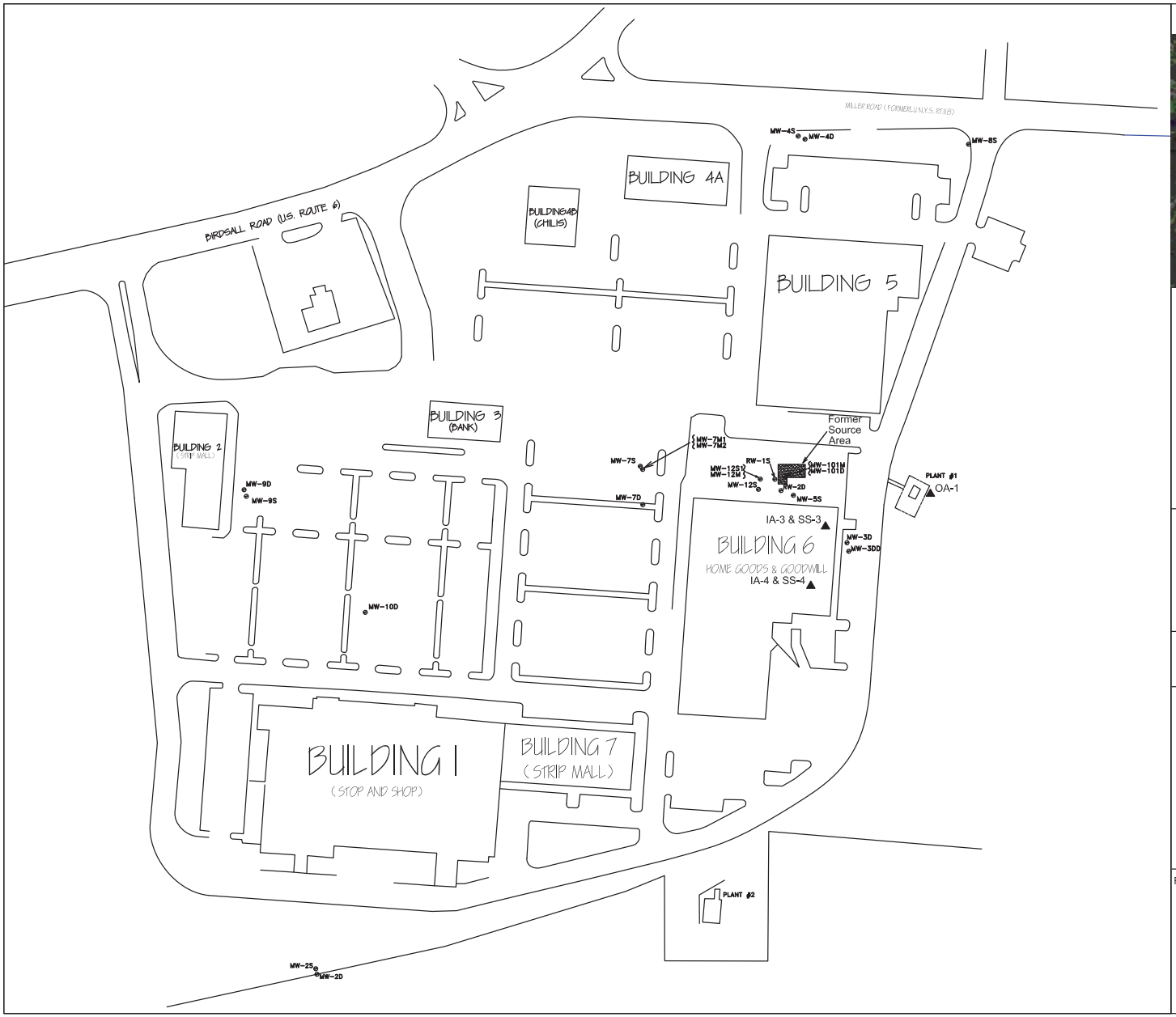


Figure 2
Original Site Map
Former Baldwin Place Mall
Somers, New York
NYSDEC Site 3-60-023

Source: Draft Final Remedial Investigation
Vincent Uhl Associates, Inc.
Washington Crossing, Pa
August, 1994



AREA MAP

LEGEND:

- Groundwater Monitoring Well
- SVI Sample Location

BALDWIN PLACE SHOPPING CENTER
(now SOMERS COMMONS)
80 ROUTE 6 BALDWIN PLACE
WESTCHESTER COUNTY, NEW YORK
NYSDEC SPILL NO. 360023

SITE MAP

FIGURE 3

N W E S

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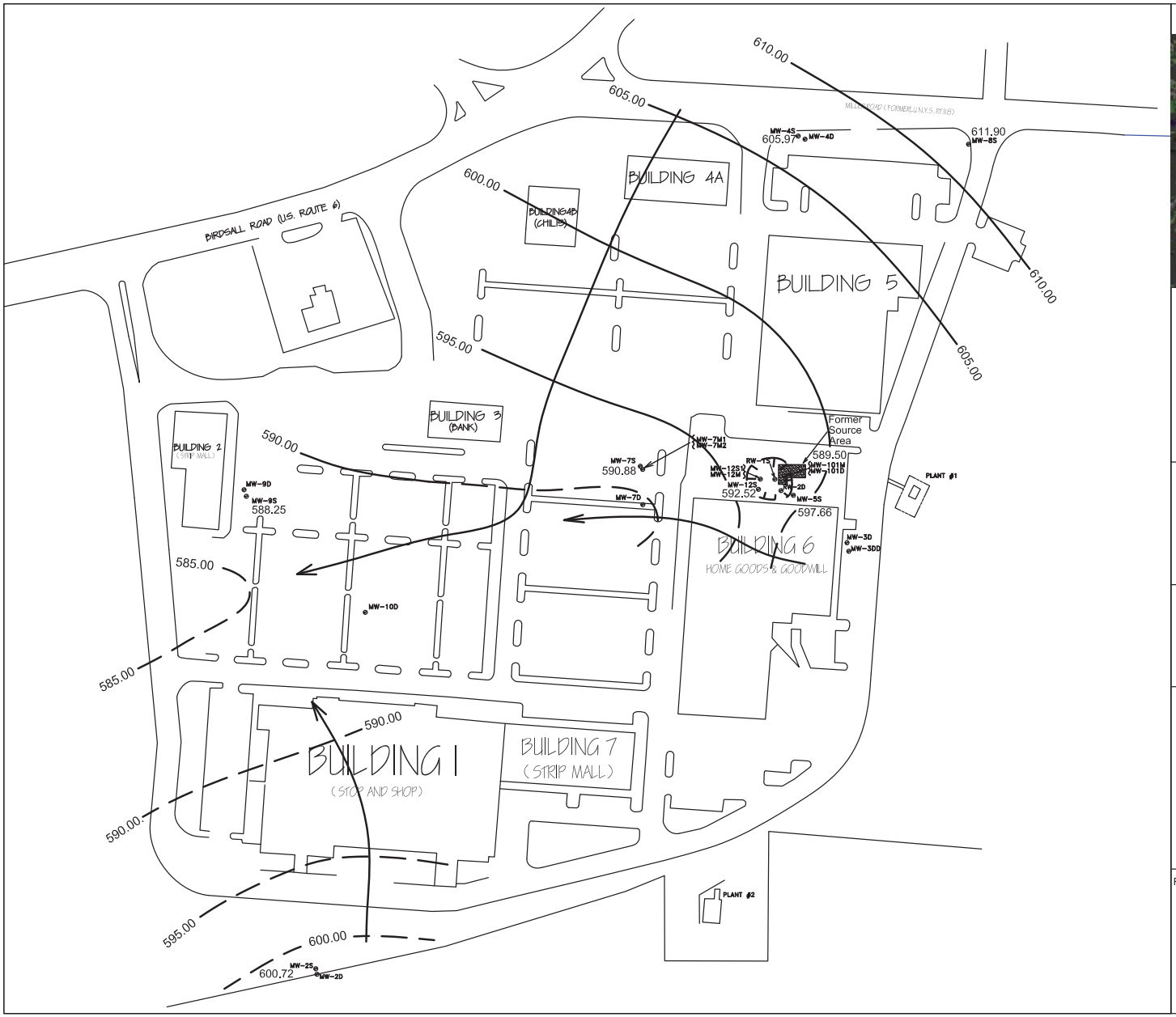

AREA MAP

LEGEND:

Groundwater Monitoring Well

Groundwater Elevation Contours Dashed Where Inferred

BALDWIN PLACE SHOPPING CENTER
(now SOMERS COMMONS)
80 ROUTE 6 BALDWIN PLACE
WESTCHESTER COUNTY, NEW YORK
NYSDEC SPILL NO. 360023

Groundwater Contour Map
Shallow Zone

N
W
E
S

Figure 4A

June 29,2015

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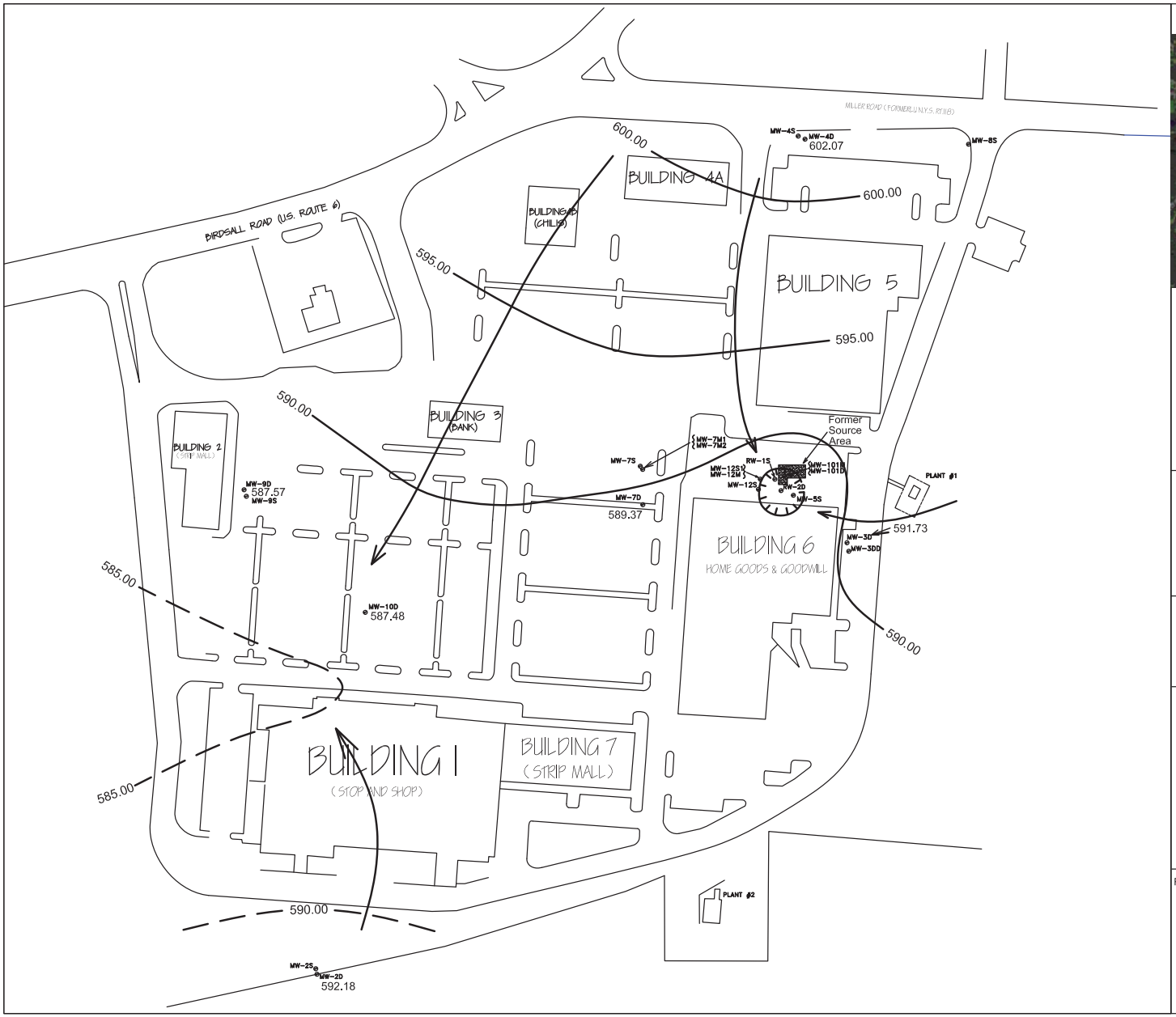

AREA MAP

LEGEND:

- Groundwater Monitoring Well
- Groundwater Elevation Contours Dashed Where Inferred

BALDWIN PLACE SHOPPING CENTER
(now SOMERS COMMONS)
80 ROUTE 6 BALDWIN PLACE
WESTCHESTER COUNTY, NEW YORK
NYSDEC SPILL NO. 360023

Groundwater Contour Map
Deep Zone

N
W E
S

Figure 4B

June 29, 2015

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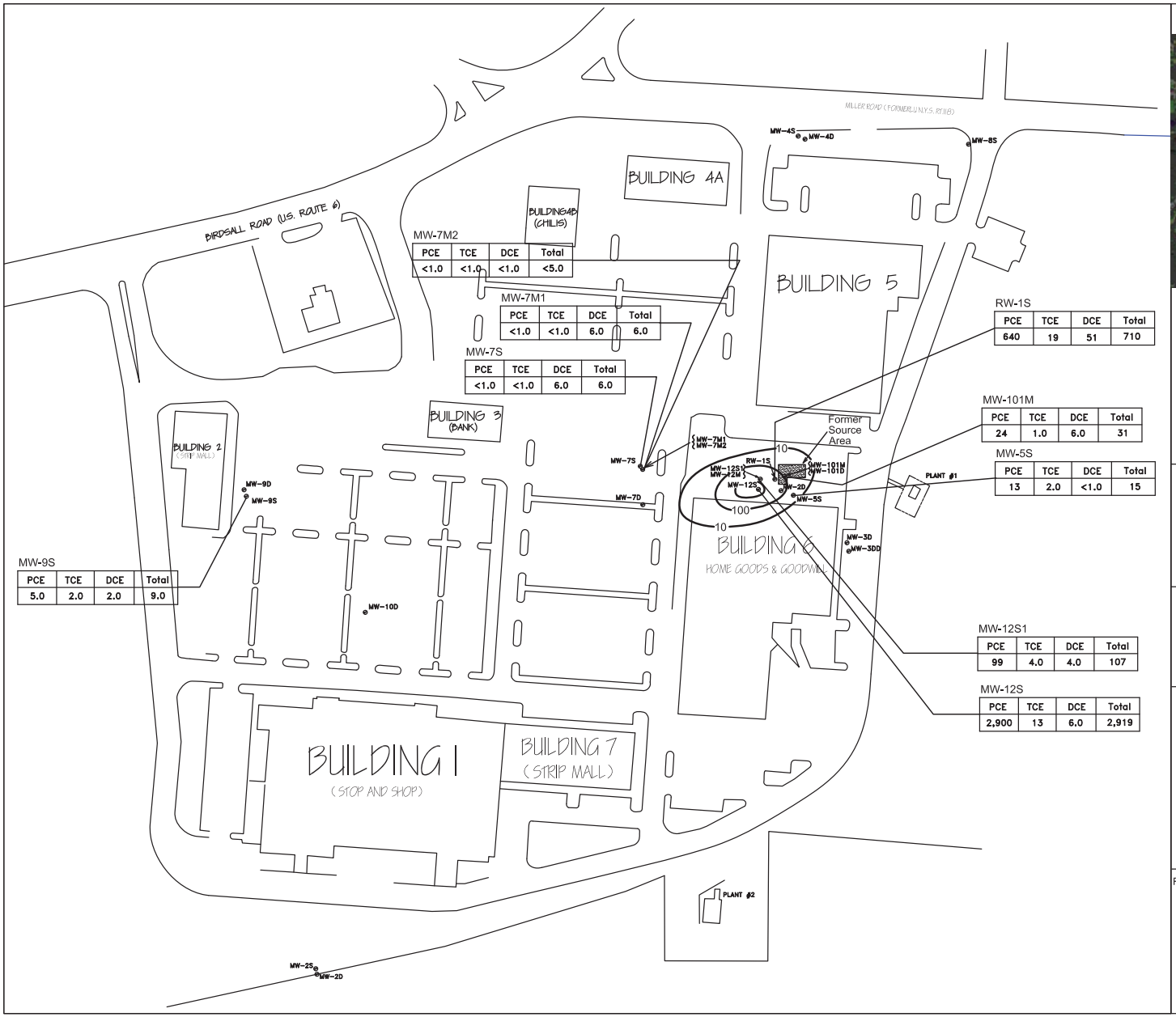

MW-7M2

PCE	TCE	DCE	Total
<1.0	<1.0	<1.0	<5.0

MW-7M1

PCE	TCE	DCE	Total
<1.0	<1.0	6.0	6.0

MW-7S

PCE	TCE	DCE	Total
<1.0	<1.0	6.0	6.0

MW-9S

PCE	TCE	DCE	Total
5.0	2.0	2.0	9.0

RW-1S

PCE	TCE	DCE	Total
640	19	51	710

MW-101M

PCE	TCE	DCE	Total
24	1.0	6.0	31

MW-5S

PCE	TCE	DCE	Total
13	2.0	<1.0	15

MW-12S1

PCE	TCE	DCE	Total
99	4.0	4.0	107

MW-12S

PCE	TCE	DCE	Total
2,900	13	6.0	2,919

AREA MAP

LEGEND:

Groundwater Monitoring Well

Concentrations in micrograms per liter (ug/l)

BALDWIN PLACE SHOPPING CENTER
(now SOMERS COMMONS)
80 ROUTE 6 BALDWIN PLACE
WESTCHESTER COUNTY, NEW YORK
NYSDEC SPILL NO. 360023

Total VOC Distribution Shallow Zone

N W E S

Figure 5A

June 29, 2015

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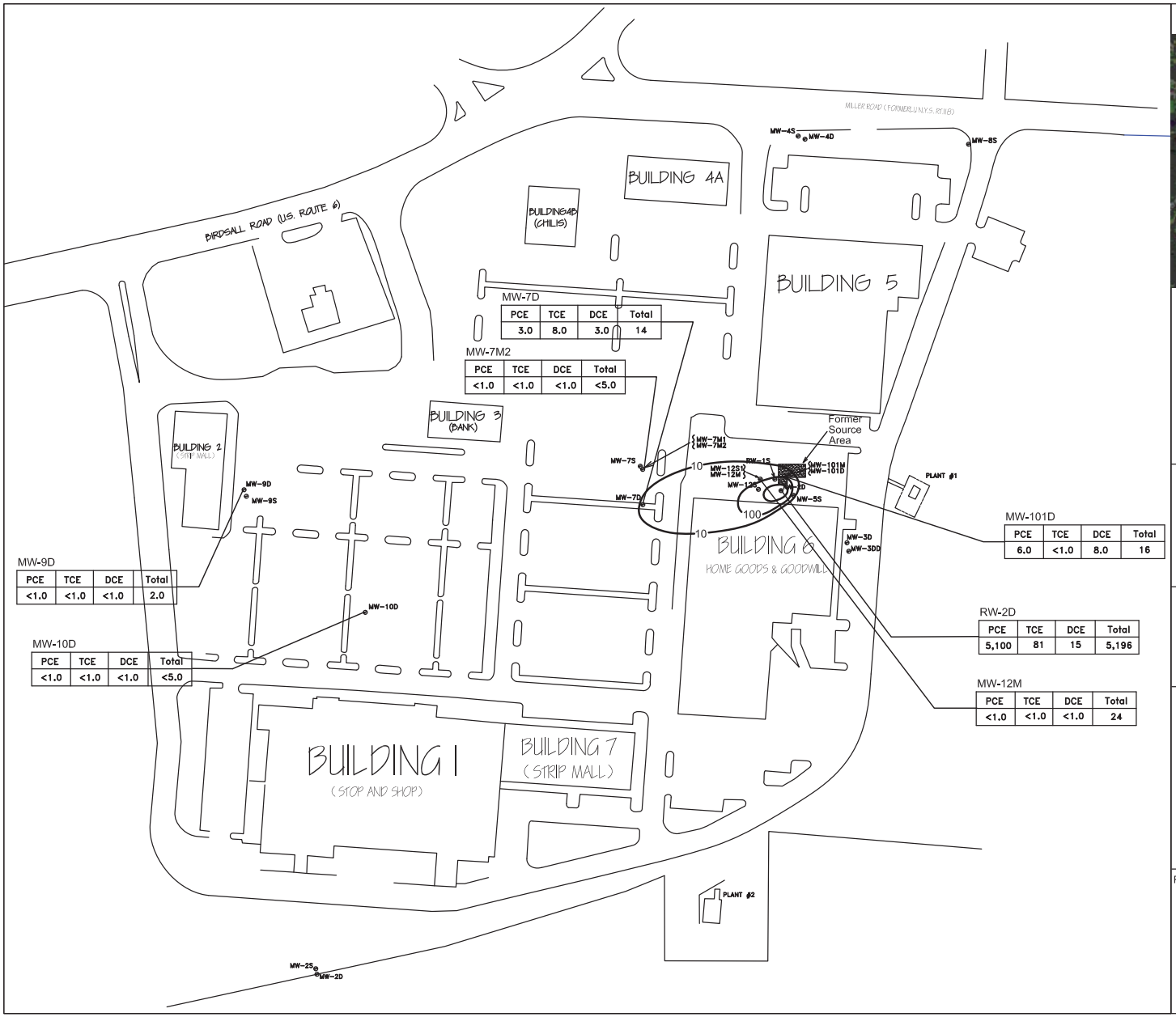

MW-7D

PCE	TCE	DCE	Total
3.0	8.0	3.0	14

MW-7M2

PCE	TCE	DCE	Total
<1.0	<1.0	<1.0	<5.0

MW-9D

PCE	TCE	DCE	Total
<1.0	<1.0	<1.0	2.0

MW-10D

PCE	TCE	DCE	Total
<1.0	<1.0	<1.0	<5.0

MW-101D

PCE	TCE	DCE	Total
6.0	<1.0	8.0	16

RW-2D

PCE	TCE	DCE	Total
5,100	81	15	5,196

MW-12M

PCE	TCE	DCE	Total
<1.0	<1.0	<1.0	24

AREA MAP

LEGEND:

Groundwater Monitoring Well

Concentrations in micrograms per liter (ug/l)

BALDWIN PLACE SHOPPING CENTER
(now SOMERS COMMONS)
80 ROUTE 6 BALDWIN PLACE
WESTCHESTER COUNTY, NEW YORK
NYSDEC SPILL NO. 360023

Total VOC Distribution Deep Zone

N W E S

Figure 5B

June 29, 2015

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SUMMARY TABLES

Plant-1 Operational Data
February, 2015 - February, 2016
Baldwin Place Shopping Center (now Somers Commons)
Somers, New York
NYSDEC Site No. 3-60-023

WELL RW-1S

Date	Days Elapsed	Water Meter	Total Gallons Treated	Run Time		Gallons/ Minute	Influent VOC/MtBE Concentration	VOCs/MtBE Recovered	
				Total Hours	Hours This Time period		(ug/l)	(g)	(lbs)
2/5/15	0	1,364,600	0	24,730.90	0.00	0.00	3,036	0.0	0.000
3/3/15	26	1,370,890	6,290	24,774.00	43.10	2.43	2,931	69.8	0.154
4/10/15	38	1,381,537	10,647	24,848.70	74.70	2.38	3,972	160.1	0.353
5/7/15	27	1,389,079	7,542	24,901.70	53.00	2.37	1,936	55.3	0.122
6/3/15	27	1,396,140	7,061	NR	NR	NR	5,162	138.0	0.304
7/9/15	36	1,399,041	2,901	24,968.40	66.70	2.49	930	10.2	0.023
8/12/15	34	1,399,052	11	24,968.40	0.00	0.00	971	0.0	0.000
9/2/15	21	1,400,355	1,303	24,975.50	7.10	3.06	591	2.9	0.006
10/14/15	42	1,409,120	8,765	25,023.50	48.00	3.04	1,004	33.3	0.073
11/3/15	20	1,413,325	4,205	25,047.40	23.90	2.93	1,600	25.5	0.056
12/2/15	29	1,420,029	6,704	25,085.30	37.90	2.95	1,180	29.9	0.066
1/4/16	33	1,420,070	41	25,085.50	0.20	3.42	1,180	0.2	0.000
2/3/16	30	1,426,430	6,360	25,120.90	35.40	2.99	1,180	28.4	0.063

Total Days Elapsed:	**363**	**days**
Total Treated:	**61,830**	**gallons**
Total Hours Operational:	**390.00**	**hours**
Average Flow Rate When Operating:	**2.64**	**gpm**
Total Mass Removed:	**1.22**	**pounds**

WELL RW-2D

Date	Days Elapsed	Water Meter	Total Gallons Treated	Run Time		Gallons/ Minute	Influent VOC/MtBE Concentration	VOCs/MtBE Recovered	
				Total Hours	Hours This Time period		(ppb)	(g)	(lbs)
2/5/15	0	4,994,620	0	15,109.10	0.00	0.00	3,036	0.0	0.000
3/3/15	26	5,015,240	20,620	15,205.00	95.90	3.58	2,931	228.8	0.504
4/10/15	38	5,047,351	32,111	15,518.00	313.00	1.71	3,972	482.8	1.064
5/7/15	27	5,069,435	22,084	15,700.60	182.60	2.02	1,936	161.8	0.357
6/3/15	27	5,090,960	21,525	NR	NR	NR	5,162	420.6	0.927
7/9/15	36	5,120,340	29,380	16,134.50	433.90	1.96	4,600	511.5	1.128
8/12/15	34	5,147,508	27,168	16,386.40	251.90	1.80	4,653	478.5	1.055
9/2/15	21	5,163,776	16,268	16,537.40	151.00	1.80	4,117	253.5	0.559
10/14/15	42	5,194,760	30,984	16,838.20	300.80	1.72	5,124	600.9	1.325
11/3/15	20	5,209,331	14,571	17,008.00	169.80	1.43	5,380	296.7	0.654
12/2/15	29	5,230,850	21,519	17,304.20	296.20	1.21	4,521	368.2	0.812
1/4/16	33	5,257,280	26,430	17,848.00	543.80	0.81	4,521	452.3	0.997
2/3/16	30	5,274,210	16,930	18,280.40	432.40	0.65	4,521	289.7	0.639

Total Days Elapsed:	**363**	**days**
Total Treated:	**279,590**	**gallons**
Total Hours Operational:	**3,171.30**	**hours**
Average Flow Rate When Operating:	**1.47**	**gpm**
Total Mass Removed:	**10.02**	**pounds**

Combined - Plant 1:

Total Days Elapsed:	**363**	**days**
Total Treated:	**341,420**	**gallons**
Total Hours Operational:	**3,561.30**	**hours**
Average Flow Rate When Operating:	**1.60**	**gpm**
Total Mass Removed:	**11.24**	**pounds**

Summary of Treatment System Analytical Results

Plant-1

Baldwin Place Shopping Center (now Somers Commons)

Somers, Ney York

NYSDEC Site No. 3-60-023

Date	Compound				Total VOC	Note
	DCE	TCE	PCE	Other		
Influent						
2/5/2015	< 25	26	2,900	110	3,036	Combined Influent
3/3/2015	< 25	31	2,900	< 25	2,931	Combined Influent
4/10/2015	< 25	42	3,900	30	3,972	Combined Influent
5/7/2015	< 25	36	1,900	< 25	1,936	Combined Influent
6/3/2015	< 25	62	5,100	< 25	5,162	Combined Influent
7/9/2015	< 25	44	2,200	300	2,544	Combined Influent
8/12/2015	< 25	48	4,500	143	4,691	RW-2D Only
9/2/2015	< 25	50	4,200	79	4,329	Combined Influent
10/14/2015	< 25	47	4,700	206	4,953	Combined Influent
11/3/2015	< 25	35	1,200	193	1,428	Combined Influent
12/2/2015	< 25	42	3,400	60	3,502	Combined Influent
1/4/2016	< 25	48	5,200	92	5,340	Combined Influent
2/3/2016	< 25	56	4,200	86	4,342	Combined Influent
Mid-Carbon						
2/5/2015	3.9	< 1.0	1.3	< 1.0	5.2	
3/3/2015	3.6	1.9	< 1.0	< 1.0	5.5	
4/10/2015	4.2	3.8	3.2	< 1.0	11	
5/7/2015	4.2	4.6	1.8	< 1.0	11	
6/3/2015	5.2	5.2	3.6	< 1.0	14	
7/9/2015	4.1	5.9	80	< 1.0	90	
8/12/2015	4.2	4.2	47	< 1.0	55	
9/2/2015	2.8	3.8	39	< 1.0	46	
10/14/2015	3.7	4.9	50	< 1.0	59	
11/3/2015	4.5	4.7	86	< 1.0	95	
12/2/2015	6.6	5.4	140	< 1.0	152	
1/4/2016	5.9	4.9	150	< 1.0	161	
2/3/2016	< 1.0	< 1.0	1.1	< 1.0	1.1	
Effluent						
2/5/2015	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
3/3/2015	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
4/10/2015	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
5/7/2015	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
6/3/2015	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
7/9/2015	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
8/12/2015	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
9/2/2015	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
10/14/2015	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
11/3/2015	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
12/2/2015	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
1/4/2016	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
2/3/2016	9.9	7.6	200	< 1.0	218	

Notes:

Concentrations in micrograms per liter (ug/l)

DCE = Dichloroethene = sum of all DCE isomers

TCE = Trichloroethene

PCE = Tetrachloroethene

Total VOC = Sum of all compounds detected

Summary of Groundwater Analytical Results
Recovery Wells RW-1S and RW-2D
Baldwin Place Shopping Center (now Somers Commons)
Somers, New York
NYSDEC Site No. 3-60-023

Date	Compound				Total VOC
	DCE	TCE	PCE	Other	
GW Stnd*	**5.0**	**5.0**	**5.0**		
RW-1S					
Jan-15	---------- Sampled as Combined Influent Only ----------				
Feb-15	---------- Sampled as Combined Influent Only ----------				
Mar-15	---------- Sampled as Combined Influent Only ----------				
Apr-15	---------- Sampled as Combined Influent Only ----------				
May-15	---------- Sampled as Combined Influent Only ----------				
Jun-15	---------- Sampled as Combined Influent Only ----------				
Jul-15	22	18	890	< 10	930
Aug-15	18	23	930	< 10	971
Sep-15	41	19	520	11	591
Oct-15	33	22	920	29	1,004
Nov-15	30	28	1,500	42	1,600
Dec-15	34	21	1,100	25	1,180
Jan-16	---------- Sampled as Combined Influent Only ----------				
Feb-16					0
RW-2D					
Jan-15	---------- Sampled as Combined Influent Only ----------				
Feb-15	---------- Sampled as Combined Influent Only ----------				
Mar-15	---------- Sampled as Combined Influent Only ----------				
Apr-15	---------- Sampled as Combined Influent Only ----------				
May-15	---------- Sampled as Combined Influent Only ----------				
Jun-15	---------- Sampled as Combined Influent Only ----------				
6/29/15	15	81	5,100	2.0	5,198
7/9/2015	< 50	< 50	4,600	< 50	4,600
8/12/2015	< 50	< 50	4,600	53	4,653
9/2/2015	< 25	44	4,000	73	4,117
10/14/2015	< 25	52	4,900	172	5,124
11/3/2015	< 50	61	5,200	119	5,380
12/2/2015	< 25	57	4,400	64	4,521
1/4/2016	---------- Sampled as Combined Influent Only ----------				
2/3/2016					0

Notes:

Concentrations in micrograms per liter (ug.l)

GW Standard = TOGS 1.1.1

DCE = Diclhoroethene - Total of individual isomers