nationalgrid

Steven P. Stucker, C.P.G.
Lead Engineer
Environmental Department

February 11, 2010

Mr. Charles Post
Engineering Geologist
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway
Albany, NY 12233-7014

Re: Sediment and Seep Sampling Report
Watertown (Anthony St.) Non-Owned Former MGP
Site # V004736
Watertown, Jefferson County

Dear Mr. Post:

This letter presents the results of additional work conducted to support the Remedial Investigation (RI) at National Grid's Anthony Street Non-Owned Former Manufactured Gas Plant (MGP) site located on J.B. Place in Watertown, New York. The additional work was completed by ARCADIS on behalf of National Grid in general accordance with the following communications and correspondence:

- June 17, 2009 site meeting between the New York State Department of Environmental Conservation (NYSDEC), National Grid, and ARCADIS;
- National Grid's June 29, 2009 letter to the NYSDEC which provided a Proposed Sediment and Seep Sampling Work Plan; and
- Discussions between the NYSDEC, National Grid and ARCADIS at the site during the first day of field activities on September 14, 2009.

The above correspondence collectively represents the Work Plan for the activities discussed in this letter. A discussion of the scope and results of the work is provided below.

Purpose and Scope of Activities

General

The activities consisted of the following three components:

1. Evaluating the presence and construction of the sewer lines located between the site and the Black River;

2. Collecting sediment samples along the southern edge of the Black River riverbank; and

3. Collecting ground water seep samples from the Black River riverbank.

These work activities are discussed separately below.

Sewer Line Construction

As proposed in the work plan ARCADIS collected information regarding sewer line invert elevations and compared them to bedrock elevations at the site. The purpose of this evaluation was to evaluate whether bedrock may have been removed during the installation of the sewer lines, thus creating a depression where potential non aqueous phase liquid (NAPL) from the site could collect. Sewer lines located between the site and the Black River were targeted for the investigation. Sewer lines identified in this area include:

- a storm and sanitary line located in the parking lot to the north and east of the Empsall Plaza building;

- a sanitary line located below City Center Drive; and

- a sanitary line located below Veterans Memorial Parkway (located between City Center Drive and the Black River).

Figure 1 shows the locations and invert elevations for storm and sanitary sewer lines located in the parking lot and beneath City Center Drive. Figure 1 also shows the approximate bedrock elevations for borings and test pits completed during the Site Characterization (SC) and RI activities. The majority of the elevation data presented on Figure 1 are based on surveys completed during the SC and RI fieldwork. The exception are the invert elevations for the sanitary line located beneath City Center Drive – these invert elevations are based on utility drawings obtained from the City of Watertown Engineering Department.

Information regarding the construction of sewer lines below Veteran's Memorial Parkway was not available at the City of Watertown Engineering Department; however, ARCADIS conducted a reconnaissance of the area during the field activities. The reconnaissance revealed six sanitary manholes and two storm drain manholes along Veteran's Memorial Parkway, from the Adirondack River Outfitters (ARO) building to approximately 700 feet west of this building. Sewer pipe invert depths were measured at each manhole. Invert depths of the sanitary manholes ranged between 6.7 feet and 11.8 feet below ground surface (bgs) and the invert depths for the of the two storm drains were 1.6 feet and 6.1 feet bgs.

Sediment Sampling

On September 14 and 15, 2009, ARCADIS collected three sediment samples (SED-1 through SED-3) and one sample from material resembling roofing shingles (Shingle-1). The samples were collected along the south shore of the Black River adjacent and downstream from the site. The approximate location of the samples is shown on Figure 2.

Sediment probing was conducted prior to sampling along the waters edge from approximately 75 feet downstream from the rafting building to the first set of downstream rapids (approximately 500 feet downstream from the ARO building). The purpose of the probing was to determine locations of soft sediment that could be targeted for sampling. The results of the probing suggest that the river in this area runs on bedrock and the river bottom is void of substantial "sampleable" sediment. The findings of the sediment probing were discussed in the field with the NYSDEC, and the NYSDEC agreed to sample the first downstream depositional area along the south shore of the river. A sand, gravel, and cobble deposit located along the south shore of the river approximately 1,000 feet downstream from the ARO building, and immediately downstream from the "beer caves", was identified by the NYSDEC and ARCADIS as the first depositional area downstream from the site (seen in the photo to the right). The depositional area extended approximately 150 feet along the rivers edge and extended into the river approximately 40 feet at its widest point. Sediment samples were collected from this depositional area, as follows:

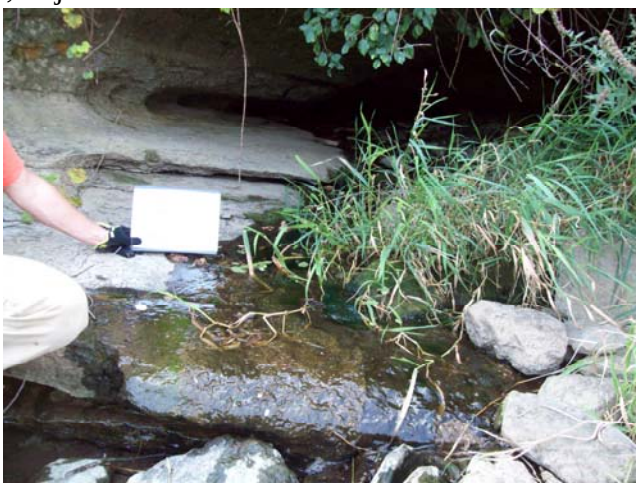
- SED-1 - upstream edge, coinciding with the location of a seep (where SEEP-1 was collected as discussed later);
- SED-2 – downstream edge of depositional area; and
- SED-3 - midpoint of depositional area.

Sediment samples were collected using stainless steel trowels as heavy gravel and cobble armoring prevented the use of core or dredge type samplers.

As requested by the NYSDEC, one sample of material resembling roofing shingles (Shingle-1) was collected on the southern riverbank approximately 100 feet downstream from the ARO building.

Seep Sampling

On September 14 and October 20, 2009, ARCADIS collected four seep samples (SEEP-1 through SEEP-4) from the south bank of the Black River, adjacent to and downstream from the site. The locations of the seep samples are shown on Figure 2.



Due to the relatively dry period on the first day of sampling, only one seep sample (SEEP-1) was collected on September 14, 2009 (shown in the photo to the right). As previously mentioned SEEP-1 was located at the upstream edge of the sediment depositional area and in the general vicinity of the beer caves. The seep appeared to be flowing from a solution widened horizontal fracture at the base of the rock face, just above the water's edge. The seep flow rate was estimated to be approximately 1 to 2 liters per minute. The seep sample was collected using a peristaltic pump and disposable polyethylene tubing.

NYSDEC, National Grid and ARCADIS agreed to return to the site following a "soaking" rain event in an attempt to collect additional seep samples along the river's edge. On October 20, 2009, following a significant rainfall event, ARCADIS returned to the site and identified two additional seeps [SEEP-2 (seen in the photo to the left) and SEEP-3] along the Black River rock face adjacent the site. The locations of these seep samples are shown on Figure 2. Only a small amount of water was observed to flow from both of these seep locations. As such, ARCADIS used disposable, laboratory-grade syringes to collect the samples from water puddling on the rock surface.

One additional seep sample (SEEP-4) was collected near the ARO building by digging a hole in the sand and gravel overburden material located as the base of the bedrock face and allowing the hole to fill up with water. Water in the hole was then sampled using a peristaltic pump and disposable polyethylene tubing.

Laboratory Analysis

Sediment (including the shingle sample) and seep samples selected for chemical analysis were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semi-VOCs, and total cyanide using United States Environmental Protection Agency (USEPA) SW-846 Methods as referenced in the NYSDEC Analytical Services Protocol (ASP). Category B analytical laboratory reports were provided by the laboratory under a standard turn-around time. The samples (including quality assurance/quality control [QA/QC] samples) were collected, packaged, handled, and shipped in general accordance with the QA/QC protocols and the soil sampling protocols presented in the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP) attached as supporting appendices to the NYSDEC-approved *Generic Site Characterization/IRM Work Plan for Site Investigations at Non-Owned Former MGP Sites,* dated November 2002.

ARCADIS completed a Data Usability Summary Report (DUSR) of the laboratory analytical results. The results of the DUSR have been incorporated into the data tables attached to this letter.

Results

Sewer Line Construction

Sewer invert elevations and bedrock surface elevations at and near the site is shown on Figure 1. A review of this figure demonstrates that sewer invert elevations in the vicinity of the site (including City Center Drive) are consistently higher than bedrock elevations in nearby borings/test pits. This comparison indicates that sewer lines near the site were likely installed on top of bedrock or above the bedrock-overburden interface and that the bedrock was not likely removed during the installation of these utilities. As such, it does not appear that the sewer lines (and associated bedding material) in the vicinity of the site would provide a collection point for potential NAPL associated with the former MGP site.

Sediment Sampling

Table 1 summarizes the VOCs, SVOCs, and total cyanide detected in sediment samples SED-1 through SED-3 and the apparent shingle sample (Shingle-1). As shown in Table 1, VOCs and cyanide were not detected in any sediment sample and only a trace amount of SVOCs (1.2 to 3.6 parts per million [ppm] of total PAHs) were detected in each sample. The levels of PAHs detected in these samples are comparable to or less then levels that are expected given the urban setting. As such, it does not appear that the PAHs detected in the sediment samples are attributable to the former MGP site.

The sample from the apparent shingle material (Shingle-1) contained trace amounts of acetone, chrysene, and total cyanide. Chrysene and total cyanide are known MGP-related constituents; however, both of the constituents are also known to be present in materials produced using a combustion process. In addition, the lack of detectable benzene, toluene, ethlybenzene, xylenes,

and other PAHs that are typically associated with MGP wastes suggest that the apparent shingle sample is not related to the former MGP site.

NAPLs, sheens, or odors were not observed during any of the sediment sampling activities.

Seep Sampling

Table 2 summarizes the VOCs, SVOCs, and total cyanide detected is seep samples SEEP-1 through SEEP-4. As shown in Table 2, constituents were not detected in seep samples SEEP-2, SEEP-3, and SEEP-4 and only trace amounts of VOCs were detected in seep sample SEEP-1. None of the VOCs detected in SEEP-1 are known to be related to MGP sites. As such, it does not appear that the MGP is affecting the quality of groundwater seeping from the riverbank adjacent to the site.

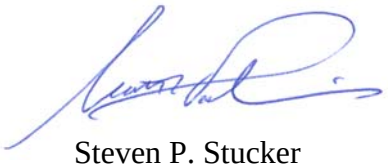
NAPLs, sheens, or odors were not observed during any of the seep sampling activities.

Closing

Based on the information presented in this letter, it does not appear that sewer lines near the site could be collection areas for potential NAPL associated with the former MGP. In addition, it does not appear that the MGP has affected sediment or groundwater seep quality along the southern riverbank adjacent to the site. As such, National Grid concludes that the Remedial Investigation fieldwork is completed and recommends that a Remedial Investigation Report be prepared and submitted to the NYSDEC.

Please contact me by phone at 315.428.5652 or by email at Steven.Stucker@us.ngrid.com if you have any questions. We will await your written concurrence and approval to prepare the Remedial Investigation Report.

Sincerely,

 , for

Steven P. Stucker
Environmental Department

Attachments

cc w/att.: Scott Powlin-ARCADIS

Environmental Department, 300 Erie Boulevard West, Syracuse, New York 13202
T: (315) 428-5652 ■ F: (315) 460-8805 ■ steven.stucker@us.ngrid.com ■ www.nationalgrid.com

TABLE 1
SEDIMENT ANALYTICAL RESULTS - DETECTED CONSTITUENTS

NATIONAL GRID
RIVERBANK INVESTIGATION
WATERTOWN (ANTHONY STREET) FORMER MGP SITE
WATERTOWN, NEW YORK

Location ID: Date Collected:	Units	SED-1 09/14/09	SED-2 09/14/09	SED-3 09/14/09	Shingle-1 09/15/09
Detected Volatile Organics					
Acetone	mg/kg	0.013 U	0.011 U	0.011 U [0.011 U]	1.3 J
Detected Semivolatile Organics					
Acenaphthene	mg/kg	0.42 U	0.055 J	0.36 U [0.36 U]	3.7 UJ
Anthracene	mg/kg	0.42 U	0.19 J	0.36 U [0.36 U]	3.7 UJ
Benzo(a)anthracene	mg/kg	0.092	0.30	0.028 J [0.11 J]	0.37 UJ
Benzo(a)pyrene	mg/kg	0.092	0.21	0.031 J [0.13 J]	0.37 UJ
Benzo(b)fluoranthene	mg/kg	0.13	0.30	0.059 J [0.20 J]	0.37 UJ
Benzo(g,h,i)perylene	mg/kg	0.059 J	0.10 J	0.36 U [0.098 J]	3.7 UJ
Benzo(k)fluoranthene	mg/kg	0.037 J	0.10	0.036 U [0.078]	0.37 UJ
Carbazole	mg/kg	0.42 U	0.066 J	0.36 U [0.36 U]	3.7 UJ
Chrysene	mg/kg	0.12 J	0.28 J	0.36 U [0.16 J]	1.9 J
Dibenzo(a,h)anthracene	mg/kg	0.042 U	0.045	0.036 U [0.036 U]	0.37 UJ
Fluoranthene	mg/kg	0.26 J	0.59	0.36 U [0.22 J]	3.7 UJ
Fluorene	mg/kg	0.42 U	0.098 J	0.36 U [0.36 U]	3.7 UJ
Indeno(1,2,3-cd)pyrene	mg/kg	0.069	0.14	0.036 U [0.089]	0.37 UJ
Phenanthrene	mg/kg	0.15 J	0.73	0.064 J [0.10 J]	3.7 UJ
Pyrene	mg/kg	0.20 J	0.50	0.36 U [0.24 J]	3.7 UJ
Total PAHs	mg/kg	1.2 J	3.6 J	0.18 J [1.4 J]	1.9 J
Detected Miscellaneous					
Total Cyanide	mg/kg	0.64 U	0.55 U	0.55 U [0.55 U]	1.7

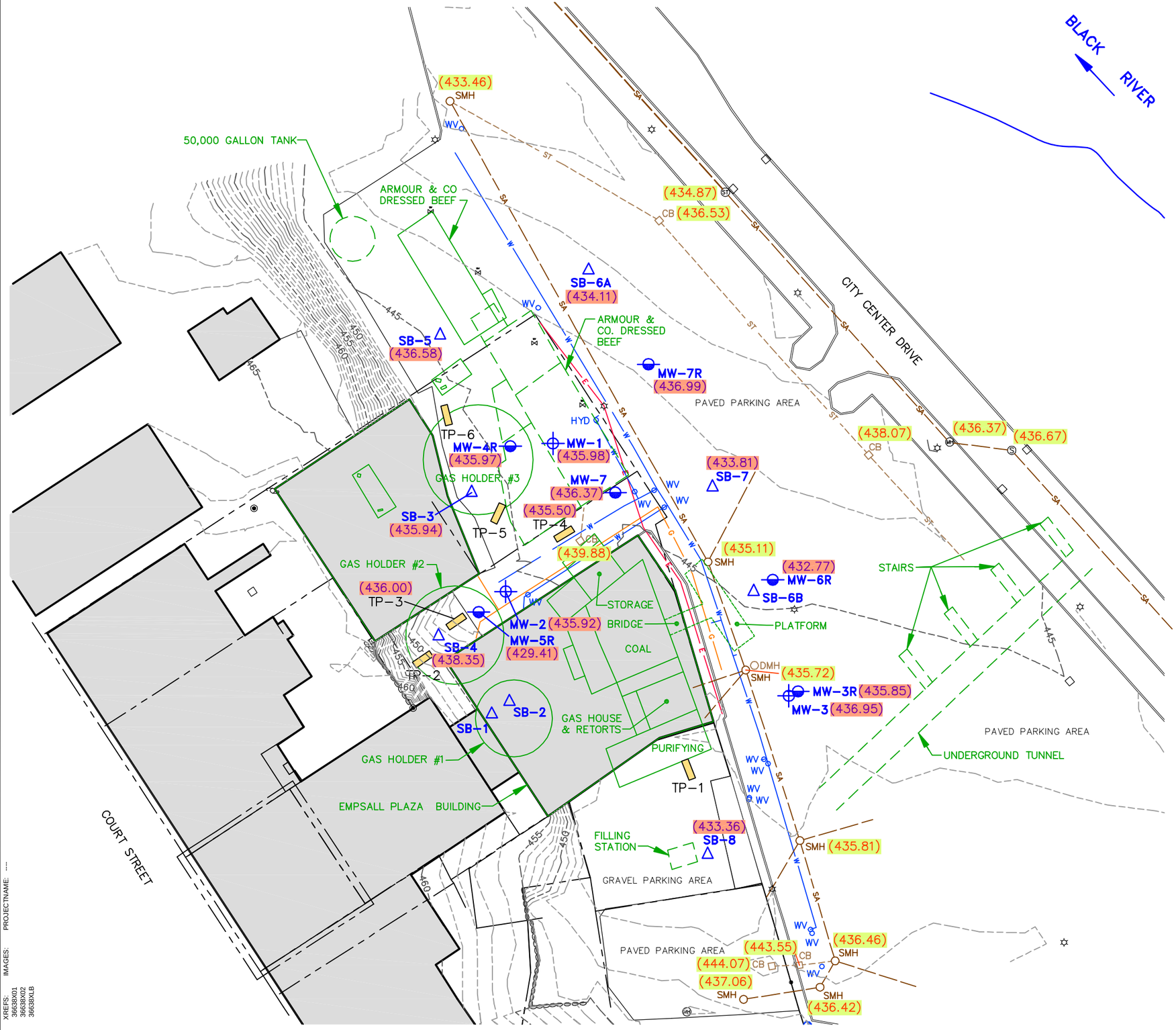
Notes:
J - Indicates an estimated value.
ND - None detected.
U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

TABLE 2
GROUNDWATER SEEP ANALYTICAL RESULTS - DETECTED CONSTITUENTS

NATIONAL GRID
RIVERBANK INVESTIGATION
WATERTOWN (ANTHONY STREET) FORMER MGP SITE
WATERTOWN, NEW YORK

Location ID: Date Collected:	Units	SEEP-1 09/14/09	SEEP-2 10/20/09	SEEP-3 10/20/09	SEEP-4 10/20/09
Detected Volatile Organics					
Bromodichloromethane	ug/L	0.11 J	1.0 U	1.0 U [1.0 U]	1.0 U
Chloroform	ug/L	4.2	1.0 U	1.0 U [1.0 U]	1.0 U
Tetrachloroethene	ug/L	0.83 J	1.0 U	1.0 U [1.0 U]	1.0 U
Detected Semivolatile Organics					
None Detected	- -	- -	- -	- - [- -]	- -
Detected Cyanide					
None Detected	- -	- -	- -	- - [- -]	- -

Notes:
J - Indicates an estimated value.
U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.



LEGEND:

- SOIL BORING
- OVERBURDEN MONITORING WELL
- BEDROCK MONITORING WELL
- (000.00) MANHOLE INVERT ELEVATIONS
- (000.00) TOP OF BEDROCK ELEVATIONS
- TEST PIT LOCATION
- CATCH BASIN
- MANHOLE (MAY BE SANITARY OR STORM)
- MANHOLE (STORM)
- MANHOLE (SANITARY)
- WATER VALVE
- LIGHT POLE
- FOUND IRON PIPE
- FIRE HYDRANT
- PROPERTY LINE
- STRUCTURES FROM 1902 AND 1949 SANBORN MAPS ALL LOCATIONS ARE APPROXIMATE
- E — ELECTRIC LINE
- G — GAS LINE
- W — WATER LINE
- ST — STORM SEWER LINE
- SA — SANITARY SEWER LINE

NOTES:

1. ALL HISTORICAL FEATURES ARE FROM SANBORN MAPS PROVIDED BY THE SANBORN LIBRARY, LLC PRODUCED BY ENVIRONMENTAL DATA RESOURCES, INC. (EDR).
2. BASE MAP IS FROM A SURVEY DONE BY WCT SURVEYORS, P.C., CANTON, NEW YORK ON APRIL 5, 2004, FILE # 103-218. UPDATED WITH SURVEY DONE BY C.T.MALE ON 11/12/08.
3. ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM AS DETERMINED FROM STATIC GPS OBSERVATIONS AS PROCESSED BY THE NATIONAL GEODETIC SURVEY OPUS PROGRAM.
4. LOCATIONS OF ALL HISTORICAL FEATURES ARE APPROXIMATE.

0 60' 120'

GRAPHIC SCALE

NATIONAL GRID
WATERTOWN (ANTHONY STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

MANHOLE INVERT AND BEDROCK ELEVATIONS

ARCADIS

FIGURE 1

CITY:SYRACUSE, N.Y. DIV/GROUP:ENVCAD-141 DB:MTK, GMS, R.ALLEN LD:(Opt) PIC:(Opt) PM: S.Powlin TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0036380000\00030\DWG\36638B02.DWG LAYOUT: 1 SAVED: 2/9/2010 3:47 PM ACADVER: 17.0S (LMS TECH) PAGESETUP: ---
XREFS: IMAGES: PROJECTNAME: ---
36638X01
36638X02
36638XLB
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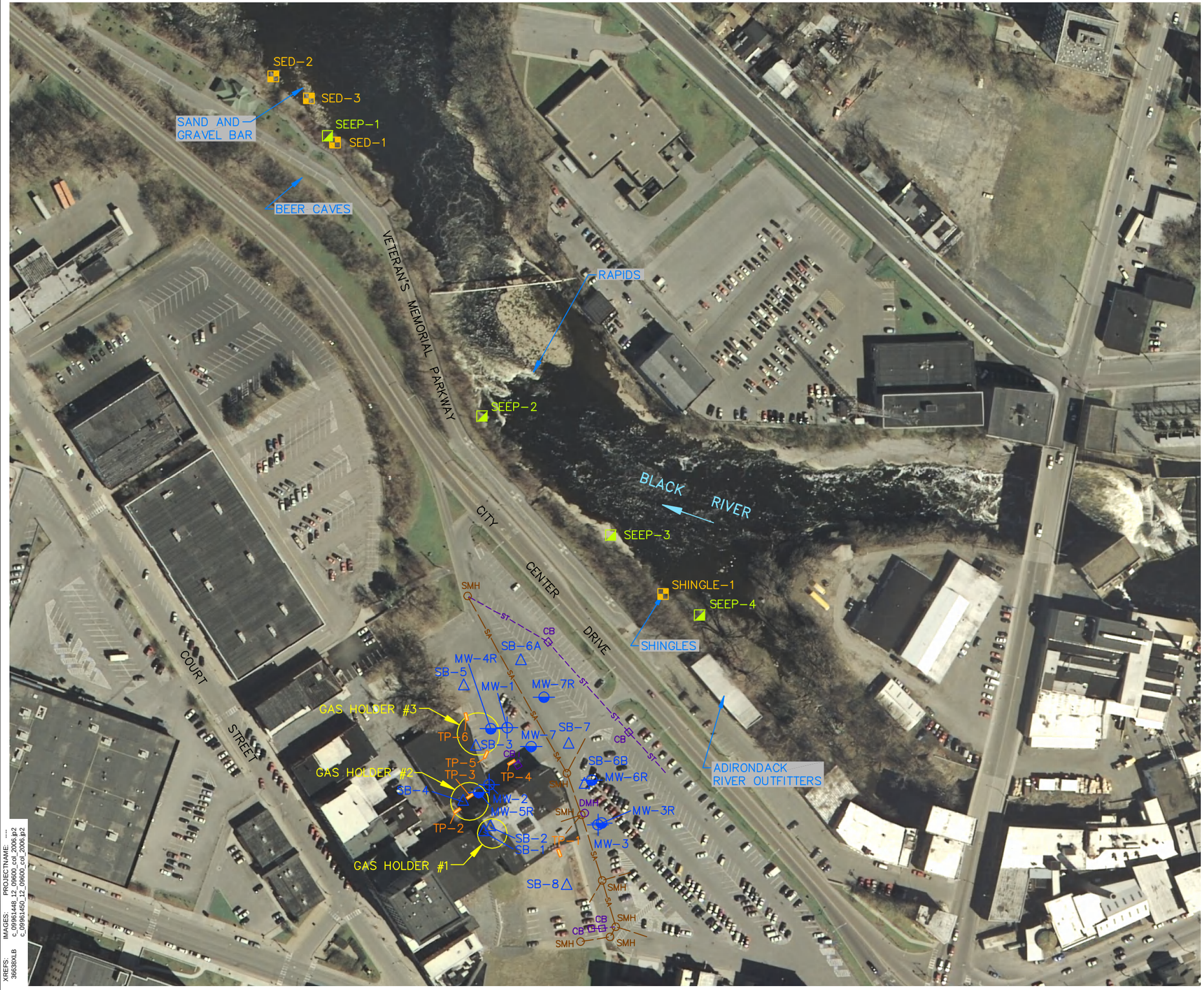

LEGEND:

- SOIL BORING
- OVERBURDEN MONITORING WELL
- BEDROCK MONITORING WELL
- TEST PIT LOCATION
- SEDIMENT/SHINGLE SAMPLE
- SEEP SAMPLE
- SANITARY SEWER LINE (SA)
- STORM SEWER LINE (ST)

NOTES:

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3. ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM AS DETERMINED FROM STATIC GPS OBSERVATIONS AS PROCESSED BY THE NATIONAL GEODETIC SURVEY OPUS PROGRAM.
4. LOCATIONS OF ALL HISTORICAL FEATURES ARE APPROXIMATE.
5. AERIAL DOWNLOADED FROM THE "GIS CLEARINGHOUSE SITE", IN STATE PLANE NAD 83 COORDINATE SYSTEM ON 6/24/09.
6. ALL SAMPLING LOCATIONS ARE APPROXIMATE.

0 150' 300'

GRAPHIC SCALE

NATIONAL GRID
WATERTOWN (ANTHONY STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

SEDIMENT AND SEEP SAMPLING LOCATIONS

ARCADIS

FIGURE 2

CITY:SYRACUSE, N.Y. DIV/GROUP:ENVCAD-141 DB:MTK GMS, R.ALLEN LD:(Opt) PIC:(Opt) PM: S.POWLIN TM: S.POWLIN LYR:(Opt)ON=*;OFF=*REF*
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XREFS: IMAGES: PROJECTNAME: ----
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c_09961450_12_09600_col_2006.jp2