SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN
RG&E EAST STATION FORMER MANUFACTURED GAS PLANT (MGP) SITE
ROCHESTER, NEW YORK
SITE NO. V00358-8

by

Haley & Aldrich of New York
Rochester, New York

for

Rochester Gas & Electric Corporation
Rochester, New York

File No. 36492-016
10 June 2012

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21 June 2012
File No. 36492-016

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway
Albany, New York 12233-7014

Attention: Keith Gronwald

Subject: Supplemental Remedial Investigation Work Plan
RG&E East Station Former Manufactured Gas Plant Site
Rochester, New York
Site No. V00358-8

Dear Mr. Gronwald:

Rochester Gas & Electric Corporation (RG&E) retained Haley & Aldrich of New York (Haley & Aldrich) to prepare an on-site Supplemental Remedial Investigation Work Plan (Supplemental RIWP) to address data gaps identified following the completion of the initial Remedial Investigation (RI) at the Former Manufactured Gas Plant (MGP) Site in Rochester, New York. The outcome of the initial Remedial Investigation was summarized in a Data Summary Package dated 29 December 2011 (RI Data Summary Package) and presented to New York State Department of Environmental Conservation (NYSDEC) on 13 March 2012.

This Supplemental RIWP describes work proposed to complete on-site delineation of MGP residuals in overburden soil and groundwater, and bedrock and bedrock groundwater. The Supplemental RIWP has been prepared in accordance with the requirements of the Voluntary Cleanup Agreement (Index #B-0535-98-07, 10 April 2003) between RG&E and the New York State Department of Environmental Conservation (NYSDEC).

Following the completion of the initial Remedial Investigation, the following data gaps were identified regarding the on-site distribution of MGP residuals in overburden soil and groundwater:

- Soil and groundwater conditions within a bedrock depression observed in the southwestern corner of the Site, identified during the overburden drilling at bedrock coring location BR-10-07 are not understood; and,

- The concentrations of MGP-related constituents in overburden groundwater in the southeastern portion of the Site along the southern property boundary are unknown because the existing monitoring well in that area (SW-5) is dry.

Likewise, the following data gaps were identified regarding the on-site distribution of NAPL in bedrock and bedrock groundwater:

- The distribution of NAPL in bedrock, typically observed as sheen or blebs while coring, is unknown at select locations and depth zones because those zones were isolated with permanent steel casing during bedrock coring to prevent downward migration of the NAPL; and,

- The horizontal extent of NAPL in the Reynales limestone observed while drilling BR-10-02 and measured in well DW-10-04R during groundwater monitoring, is not understood.

The data objectives and preliminary supplemental investigation locations were generally discussed with the NYSDEC on 13 March 2012 at the NYSDEC offices in Albany, New York during the review of the RI Data Summary Package.

SUPPLEMENTAL REMEDIAL INVESTIGATION WORK SCOPE

This section describes the field activities to be conducted during the Supplemental RI. Activities will be conducted in accordance with the methods described in the NYSDEC-approved Remedial Investigation Work Plan dated 19 July 2010. The following activities are intended to delineate the extent of MGP residuals at the Site:

Supplemental Overburden Investigation

Two soil borings are proposed along the southern property boundary. The proposed soil boring locations are summarized on Table I and shown on Figure 1 and include:

- SB-12-20 (completed as overburden or weathered bedrock monitoring well SW-12-20) in the southwest quadrant of the Site to investigate the extent of MGP residuals, if present, in the bedrock depression observed while drilling BR-10-07; and,

- SB-12-21 (completed as overburden monitoring well SW-12-21) located south of the former coal gas plant to evaluate the concentration of MGP residuals in groundwater along the southern property boundary.

Drilling methodology, soil sampling strategy, and monitoring well installation will follow Section 4.5.4 of the NYSDEC-approved RIWP dated 19 July 2010. Soil samples will be collected from the soil borings for laboratory chemical analysis for Target Compound List (TCL) Volatile Organic Compounds (VOCs), TCL Semi-Volatile Organic Compounds (SVOCs), Target Analyte List (TAL) metals and total cyanide.

Supplemental Bedrock Investigation

Four bedrock corings are proposed to further evaluate the horizontal extent of NAPL in bedrock. The proposed bedrock coring locations are summarized on Table II and shown on Figure 2 and include:

- BR-12-06, located adjacent to bedrock monitoring well cluster DW-10-02 along the northern property boundary, will be advanced to the base of the Maplewood Shale to investigate sheen or blebs observed in the Reynales Limestone and Maplewood Shale while coring BR-10-02;

- BR-12-07, located adjacent to bedrock monitoring well cluster DW-10-08 along the southern property boundary, will be advanced approximately 5 feet into the Reynales Limestone to investigate sheen observed at the Lower Sodus Shale and Reynales Limestone interface while coring BR-10-08;

- BR-12-08, located adjacent to bedrock monitoring well cluster DW-10-07 along the southern property boundary, will be advanced to the base of the Reynales Limestone to investigate sheen observed in the Reynales Limestone while coring BR-10-07; and,

- BR-12-09, located in the northwest quadrant of the Site, will be advanced to the base of the Reynales Limestone to investigate the horizontal extent of NAPL measured at bedrock monitoring well DW-10-04R (screened in the Reynales Limestone) and sheen observed in the Reynales Limestone while coring BR-10-02.

No overburden soil sampling is proposed because each of the four locations described above are immediately adjacent to exploration locations where soil samples were collected during the initial Remedial Investigation field work. Bedrock coring methodology, packer testing, geophysical logging, and monitoring well installation will follow Section 4.6.2 of the NYSDEC-approved RIWP.

Groundwater Monitoring

One round of groundwater sampling will be completed at a minimum of two weeks after completion of the monitoring well installations and development activities. Overburden and bedrock groundwater samples will be analyzed for TCL VOCs, TCL SVOCs, TAL metals, and total cyanide. Site-wide groundwater elevation and NAPL monitoring will be completed concurrently with groundwater sampling. Groundwater elevation monitoring and sampling procedures will follow those described in Section 4.7 of the NYSDEC-approved RIWP.

DATA EVALAUTION AND REPORTING

Field observations and analytical results from the Supplemental RI will be presented in a brief Data Summary Package following the conclusion of the field investigations and data evaluation. Results will also be included in the Former MGP Site Remedial Investigation Report (RIR) following the completion of off-site Supplemental Remedial Investigation activities proposed for the Bausch and Lomb property. The off-site work scope is described in an Off-Site Supplemental Remedial Investigation Work Plan dated 5 June 2012.

RG&E proposes to begin field investigation tasks immediately following NYSDEC approval of this work plan, subject to subcontractor availability. Approximately five to six weeks is anticipated to complete the Supplemental RI field work, with groundwater sampling completed a minimum of two weeks after monitoring well development. If you have any questions or require additional information, please contact Steve Mullin (RG&E) at 585-771-4556 or myself at 603-391-3320 or via email at DAllen@haleyaldrich.com.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK

Douglas C. Allen, P.G.
Senior Hydrogeologist

David J. Hagen
Senior Vice President

Enclosures:

Table I: Proposed On-Site Soil Boring and Overburden Monitoring Well Location Summary
Table II: Proposed On-Site Rock Coring and Bedrock Monitoring Well Location Summary
Figure 1: Proposed On-Site Soil Boring and Overburden Well Locations
Figure 2: Proposed On-Site Bedrock Coring and Bedrock Well Locations

C: Katherine Fish, Public Health Specialist Environmental Exposure Investigation
NYS Department of Health/Rochester Field Office

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REFERENCES

1. Phase 2 Data Summary Package – Assessment of MGP-Related NAPL Residual in Sediments in the Genesee River Project Area. GEI Consultants, Inc., March 2010.

2. Remedial Investigation Work Plan – RG&E East Station Former Manufactured Gas Plant (MGP) Site, Rochester, New York. Haley & Aldrich of New York, July 2010.

3. Health & Safety Plan for Remedial Investigation – RG&E East Station Former Manufactured Gas Plant (MGP) Site, Rochester, New York. Haley & Aldrich of New York, December August 2010.

4. Data Summary Package – RG&E East Station Former Manufactured Gas Plant (MGP) Site, Rochester, New York. Haley & Aldrich of New York, December 2011

TABLE I
Proposed On-Site Soil Boring and Overburden Monitoring Well Location and Sample Summary
East Station Former MGP
Rochester, New York

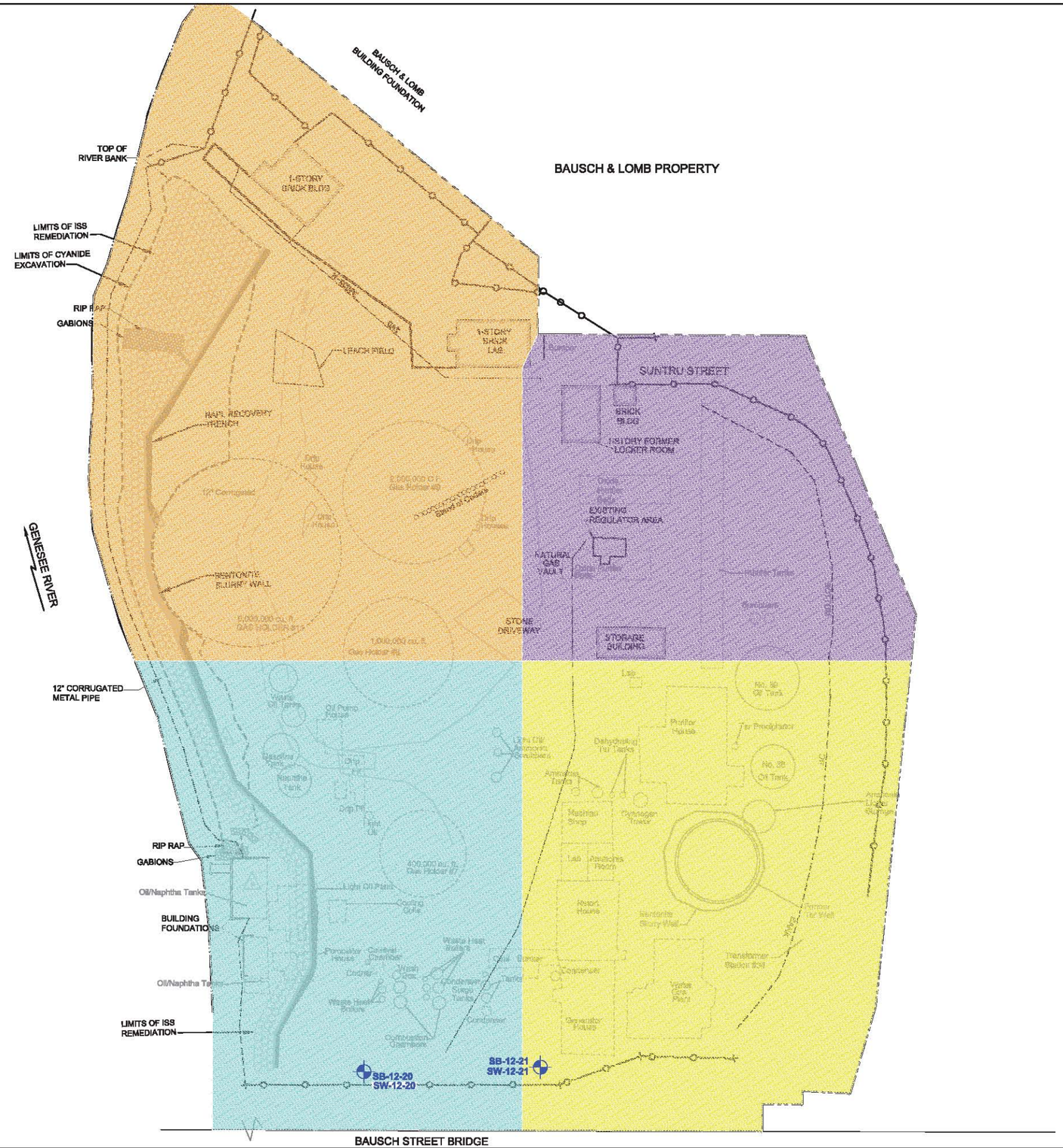
Boring ID	General Off-Site Location	Rationale	Target Depth	Well Completions**	Soil Laboratory Analysis & Sampling Frequency	Groundwater Laboratory Analyses
SB-12-20 SW-12-20	Southwest quadrant adjacent to BR-10-07	Investigate soil and overburden groundwater conditions within bedrock depression observed while drilling BR-10-07	Refusal* (base of bedrock depression, if practical)	Yes	Subsurface Soil: TCL VOCs TCL SVOCs TAL Metals Total Cyanide Anticipated Sampling Frequency: 2 Subsurface Soil Per Boring	Groundwater: TCL VOCs TCL SVOCs TAL Metals Total Cyanide Including Water Level Measurements
SB-12-21 SW-12-21	Southeast quadrant, south of former coal gas plant, along southern property boundary	Investigate overburden groundwater conditions in southeast corner of the Site, along southern property boundary	Refusal*	Yes		

Note:
1. "*" - Target depth of refusal will be competent bedrock.
2. "**" - Monitoring well locations will be determined based on observed field conditions.
3. "SB" indicates soil boring identification. "SW" indicates shallow (overburden) monitoring well identification.
4. Actual number and location of soil borings and monitoring wells may vary.

TABLE II
Proposed On-Site Rock Coring and Bedrock Monitoring Well Location and Sample Summary
East Station Former MGP
Rochester, New York

Boring ID	General On-Site Location	Rationale	Target Depth	Well Completions*	Soil Sampling Anticipated?	Soil Laboratory Analysis & Sampling Frequency	Bedrock Groundwater Laboratory Analyses
BR-12-06 DW-12-06	Northwest quadrant adjacent to existing bedrock monitoring well cluster DW-10-02 located north of laboratory building	Investigate soil and overburden groundwater conditions within bedrock depression observed while drilling BR-10-07	Maplewood Shale/Kodak Sandstone interface (approximately 91 ft bgs)	Reynales Limestone Maplewood Shale	No (Adjacent to BR-10-02)	N/A	<u>Groundwater:</u> TCL VOCs TCL SVOCs TAL Metals Total Cyanide Including Water Level Measurements
BR-12-07 DW-12-07	Southeast quadrant adjacent to existing bedrock monitoring well cluster DW-10-08	Investigate sheen observed near Lower Sodus Shale/Reynales Limestone interface at BR-10-08, possibly related to top of bedrock depression observed at BR-10-07	Approximately 5 feet into the top of the Reynales Limestone (approximately 93 ft bgs)	Lower Sodus Shale	No (Adjacent to BR-10-08)	N/A	
BR-12-08 DW-12-08	Southwest quadrant adjacent to existing bedrock monitoring well cluster DW-10-07	Investigate sheen observed in the Reynales Limestone, possibly related to top of bedrock depression observed at BR-10-07	Reynales Limestone/Maplewood Shale Interface (approximately 95 ft bgs)	Reynales Limestone	No (Adjacent to BR-10-07)	N/A	
BR-12-09 DW-12-09	Northwest quadrant southeast of former gas holder #9	Investigate extent of DNAPL observed at DW-10-04R and blebs observed during drilling of BR-10-02. Evaluate bedrock column conditions between BR-10-02 and BR-10-05	Reynales Limestone/Maplewood Shale Interface (approximately 90 ft bgs)	Reynales Limestone Others TBD	No (Near TP-10-04 and TG-10-08C)	N/A	

Note:
1. "*" - Monitoring well depth intervals will be determined based on observed field conditions.
2. "BR" indicates bedrock coring location identification. "DW" indicates deep (bedrock) monitoring well identification.
3. Actual number and location of bedrock corings and monitoring wells may vary.



LEGEND:

- CURRENT STRUCTURES
- FENCE LINE
- FORMER MGP STRUCTURE
- LIMITS OF CYANIDE EXCAVATION
- NAPL RECOVERY TRENCH
- CEMENT BENTONITE SLURRY WALL
- ISS COLUMN AREA
- SW-1 EXISTING OVERBURDEN GROUNDWATER MONITORING WELL
- DW-1R EXISTING BEDROCK GROUNDWATER MONITORING WELL
- PZ-13 EXISTING PIEZOMETER LOCATION
- RW-1 EXISTING NAPL RECOVERY/MONITORING WELL

2010 AND 2011 REMEDIAL INVESTIGATION EXPLORATION LOCATIONS:

- TEST PIT LOCATION
- TARGOST® EXPLORATION LOCATION
- TARGOST® WITH CONFIRMATORY SOIL BORING LOCATION
- SOIL BORING LOCATION
  SB = SOIL BORING
- SOIL BORING/ OVERBURDEN MONITORING WELL LOCATION
  SW = SHALLOW (OVERBURDEN) WELL
- COMPLETED BEDROCK MONITORING WELL LOCATION
  BR = BEDROCK CORING; DW = DEEP (BEDROCK) WELL
- SURFACE SOIL SAMPLE LOCATION
- PROPOSED ON-SITE SOIL BORING/OVERBURDEN MONITORING WELL LOCATION

NOTES:

1. PLAN NORTHING AND EASTING COORDINATES HEREIN ARE FROM AUTOCAD FILE PROPERTY34-11.DWG, PROVIDED BY RG&E.
2. FORMER SITE EXPLORATIONS (GRAY) AND HISTORICAL STRUCTURES FROM SURVEYSITEMAP.DWG AND MULTIPLE OTHER SOURCES.
3. SURFACE AND SUBSURFACE EXPLORATION LOCATIONS COMPLETED DURING 2010 AND 2011 BY HALEY & ALDRICH OF NEW YORK WERE LOCATED BY SURVEY PERFORMED BY RG&E ON SEVERAL OCCASIONS, LAST COMPLETED ON 25 AUGUST 2011.

0 60 120 180 240

SCALE IN FEET

HALEY & ALDRICH

SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN
EAST STATION FORMER MGP
ROCHESTER, NEW YORK

PROPOSED ON-SITE SOIL BORINGS AND OVERBURDEN WELL LOCATIONS

SCALE: AS SHOWN
JUNE 2012

FIGURE 1

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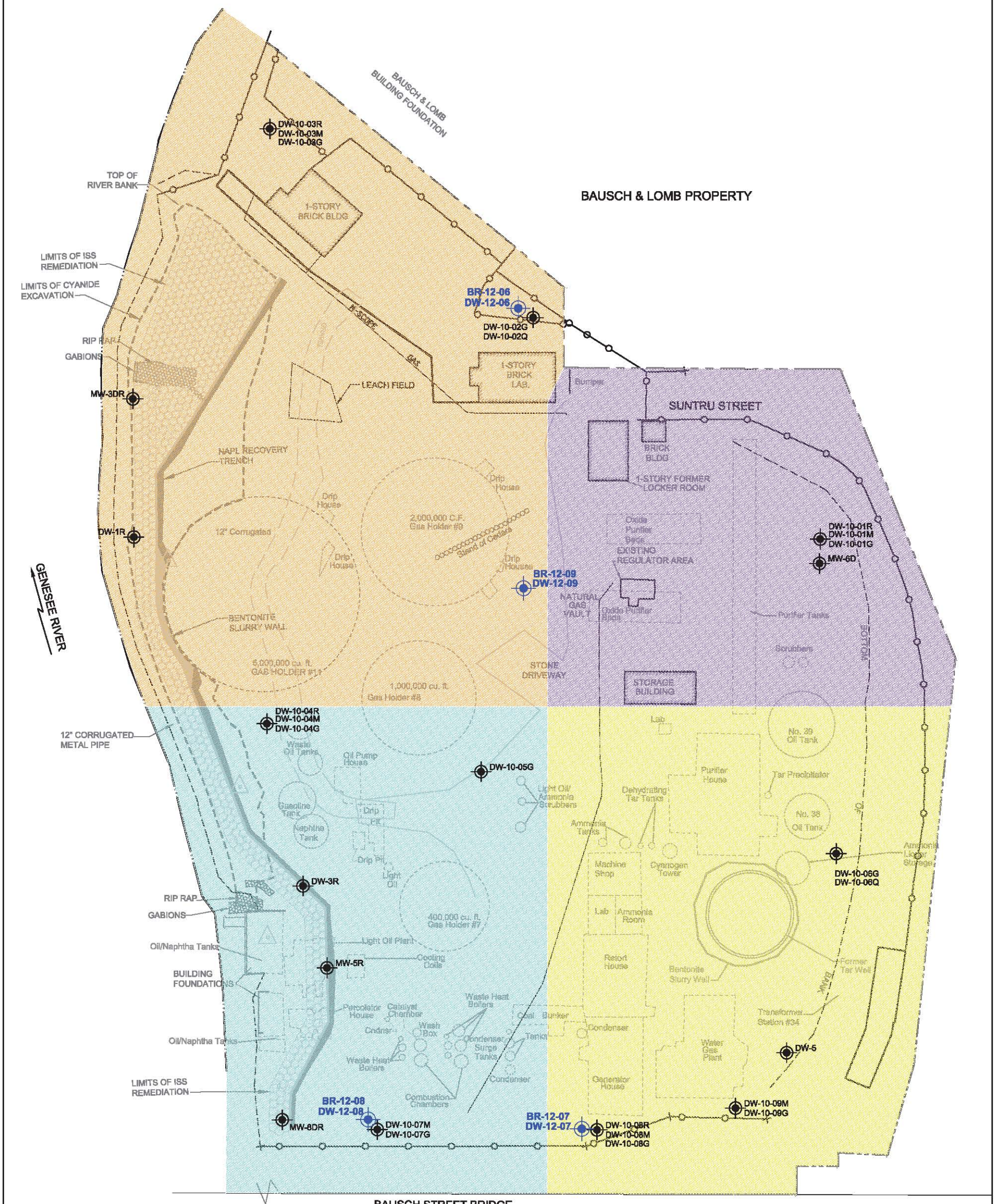
G:\36492_EAST_STATION\GLOBAL\CAD\DRAWINGS\36492-016-028B-PROP ONSITE BEDR LOCS [2012-0530].DWG



LEGEND:

- BEDROCK GROUNDWATER MONITORING WELL
- PROPOSED BEDROCK CORING AND MONITORING WELL LOCATION

N W E S

0 100 200

SCALE IN FEET

HALEY & ALDRICH

SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN
EAST STATION FORMER MGP
ROCHESTER, NEW YORK

PROPOSED ON-SITE BEDROCK CORING AND BEDROCK WELL LOCATIONS

SCALE: AS SHOWN
JUNE 2012

FIGURE 2