

May 3, 2010

Mr. Scott Deyette
Project Manager
Remedial Action Bureau C, 11th Floor
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7014

Re: Ballston Spa Non-Owned Former MGP Site
Saratoga County
Ballston Spa, New York
NYSDEC Site No.: V000487
Remedial Investigation (RI)
Scope of Work (SOW)

Dear Mr. Deyette,

This letter presents National Grid's (Syracuse, New York) Scope of Work (SOW) for a Remedial Investigation (RI) of the Ballston Spa Non-Owned Former Manufactured Gas Plant (MGP) site in Ballston Spa, New York (Site).

This SOW was developed based on:

- The February 2007 Site Characterization Data Summary Package.
- Recent historical research conducted by GEI Consultants, Inc. (GEI).
- The site walk we had with John Ripp on April 6, 2010.

Proposed RI activities are intended to better define the nature and extent of impacts at the site and enhance characterization of potential source areas and subsurface soil and groundwater quality. In addition, the RI will include tasks typically required for RI work in New York State, for example, a Phase 1A Cultural Resources Evaluation.

The remainder of this letter provides the Site description, Site history, a summary of previous investigations, and our proposed field investigation. The methodology of each activity is also presented.

Site Description

The Site location is presented in Figure 1. Figure 2 presents the current Site conditions and sample location map.

The former MGP property boundaries are currently encompassed by 128 and 130 Milton Avenue in a light commercial/residential setting in Ballston Spa. The west portion of the Site consists of two buildings and an alleyway entrance. The east portion is a paved active parking lot.

North of the parking lot is a steep vegetated hill that drops approximately 10 feet down to a parking lot owned by the Village of Ballston Spa. Just beyond this parking lot (approximately 100 feet beyond the Site property line) is Gordon Creek. Commercial buildings occupy the space south of the Site. Residential property abuts the Site to the east. Retailers are on the opposite side of Milton Avenue to the west.

The paved parking lot at the Site is nearly flat and slopes approximately 4 feet down from the south to the north. The elevation of the parking lot in the vicinity of the former holder footprint is approximately 258 feet above mean sea level (MSL).

Site History

Research into the Site history was conducted by GEI. Research included file and document reviews as follow:

- State Archives, Albany New York (former gas works owners)
- City of Ballston Spa Engineers office (maps and engineering plans)
- City of Ballston Spa Public Library (historic maps, local histories and other documents)
- On-Line Newspaper Archives (<http://www.newspaperarchive.com>)
- Environmental Data Resources, Inc. (EDR)
 - Historic United States Geologic Survey topographic maps dated 1898, 1930, 1949.
 - Sanborn Fire Insurance (Sanborn) maps dated 1887, 1897, 1911.
 - Aerial drawing from historical calendar circa 1880.

The original manufactured gas plant on Milton Avenue was built in 1861 by the Rhode Island Steam and Gas Pipe Company. The original plant consisted of one building, and coal was used to produce gas. In 1873, the village was first lighted by gas. By 1887, the plant used naphtha, a light oil petroleum byproduct, as the fuel source to produce gas. Records indicate the plant was operating in 1899.

By 1907, the plant ceased production of gas. Electricity had replaced gas as the energy source to light the village. Based on the 1911 Sanborn map the building was used as a furniture warehouse. By 1924, the building was demolished and 20 years later the lot was vacant.

Previous Investigations

On behalf of National Grid, GEI conducted site characterization studies during the summer of 2005 and 2006 based on NYSDEC-approved work plans. Figure 2 shows the current site conditions and sample locations from these investigations. A summary of observations from each investigation is presented below.

Location ID	Fill Interval	Groundwater Saturation	Soils	Odor Intervals	Sheen Intervals	Analytical Sample Intervals	Total Depth
B/MW-101-05	0.0-4.0'	None	Silt/clay/ sand/gravel	None	None	7.0-8.0'	9.5'
B/MW-102-05	None	None	Silt/sand	4.5-12.6'	None	8.0-9.0'	18.0'
B/MW-103-05	0.0-5.0'	None	Silt/sand	None	None	9.0-10.0'	12.5'
B-104-05 (holder footprint)	0.0-7.0'	None	Silt/sand/ gravel	None	None	7.0-8.0'	13.0'
B/MW-101R-06	None	None	Silt/sand	None	None	None	20.6'
B-105-06	None	None	Silt/clay/ sand/gravel	7.5-14.0'	11.25-11.5'	11.25-11.5'	23.3'
B-106-06	None	None	Silt/clay	3.5-11.3'	6.5-11.3'	5.0-6.5'	11.3'
B-107-06 (retort footprint)	None	None	Silt/clay	None	None	11.75-13.8'	13.8'
B-108-06	None	None	Silt/clay	5.0-13.5'	5.0-11.0'	11.0-11.5'	18.4'

Based on the soil boring logs, figures, data results, and information summarized in the table above, a number of relevant observations can be made, as follows:

- Fill intervals at the Site ranged from 0.0 to 4.0 feet and 0.0 to 7.0 feet (within the holder footprint) below ground surface.
- Beneath the fill, native soils were alluvial in nature, consisting of silt, sand with gravel, and clay. In general, the subsurface soils appear to be quite permeable. A clay layer (approximately 5 feet thick) appears to run through the northeast corner of the Site.
- All borings were completed to refusal (assumed to have met bedrock). It is possible that B-104-05 was completed to the bottom of the holder 13.0 feet below ground.
- Groundwater flow direction appears to be from the southwest to northeast.
- No visual or olfactory impacts were observed in B-104-05 (within the holder footprint). PAH concentrations were above Commercial SCOs in a sample collected between 7.0 and 8.0 feet below ground.
- No visual or olfactory impacts were observed in soil borings upgradient of the holder (B/MW-101-05, B/MW-101R-06, and B-107-06). Benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) were either not detected or detected at low levels below Commercial SCOs.
- BTEX and PAHs were either not detected or detected at low levels below Commercial SCOs in soil samples collected from borings B/MW-102-05 from 8.0 to 9.0 feet (sheen observed) and B/MW-103-05 from 9.0 to 10.0 feet below ground.
- Sheen was observed in soil borings B-105-06, B-106-06, and B-108-06. Samples collected from soil borings B-105-06 and B-106-06 (containing sheen) contained PAH concentrations above Commercial SCOs. A sample collected from B-108-06 between 11.0 and 11.5 feet below ground contained benzo(a)pyrene above the Commercial SCO.
- B/MW-101-05 is screened between 4.5 and 9.5 feet below ground. Groundwater has not been present in this well in the past.

- Two groundwater samples collected from B/MW-102-05 in 2005 and 2006 contained BTEX concentrations above the NYSDEC Standards, Criteria, and Guidance values (SCGs); two groundwater samples collected from B/MW-103-05 in 2005 and 2006 contained PAH concentrations above the SCGs.
- A groundwater sample collected from B/MW-101R-06 in 2006 did not contain detectable BTEX or PAH concentrations.
- Soil and groundwater analytical results generated during 2005 and 2006 investigations demonstrated a general lack of metals, cyanide, pesticides, and polychlorinated biphenyls. Iron, magnesium, and sodium concentrations were elevated in groundwater, though these metals are frequently present as natural constituents.

Preliminary Conceptual Site Model

Based on site investigation to date, the subsurface at the Site consists of fill that is approximately 0.0 to 5.0 feet in thickness outside of the holder footprint and 0.0 to 7.0 feet in thickness within the holder footprint. The fill lies above native soils that consist primarily of silt, with some fine to medium sand, gravel, and traces of clay. Depth to refusal (assumed to be bedrock) ranges from 11.5 feet to 20.6 feet below ground at the Site.

Soil borings B/MW-101-05, B-107-06, and MW-101R-06 upgradient (to the south) of the former holder were “clean”. No physical impacts or odors were observed. BTEX and PAHs were either not detected or detected at low levels below Commercial SCOs from soil samples collected from these borings.

B-104-05 is the only soil boring installed within the footprint of the holder and contained no visual or olfactory evidence of MGP-related impacts. However, PAHs were detected above Commercial SCOs in an analytical sample collected between 7.0 and 8.0 feet below ground. Depth to refusal was 13.0 feet below ground. It is unclear whether the boring was completed to the top of bedrock or the bottom of the holder. Test pits and additional borings will enhance characterization of soils and holder construction details.

PAH concentrations were detected above Commercial SCOs in two off-site soil borings, B-106-06 on Village of Ballston Spa property and B-105-06 on residential property. Benzo(a)pyrene was detected above the Commercial SCO in B-108-06 just outside of the holder to the northeast. To complete the delineation of these impacts additional borings are necessary to identify “clean” soils downgradient of the Site on Village of Ballston Spa property and cross-gradient of the holder on residential property.

Groundwater apparently flows from the southwest to northeast toward Gordon Creek. Groundwater north of the holder contains elevated levels of PAHs; groundwater east of the holder contains elevated levels of BTEX. Additional wells downgradient and cross-gradient will provide for better characterization of these dissolved impacts in groundwater.

Data Gaps

This section provides a brief summary of data gaps or uncertainties that should be filled or clarified during the RI.

- The former holder location and contents should be confirmed by locating and exposing evidence of the holder foundation wall. Test pits will be excavated to determine the location of the holder and document its depth and condition.
- B-104-05 is the only boring installed within the footprint of the holder. Impacts were expected to be more significant. Along with the test pits, additional soil borings and samples will better define the nature and magnitude of impacts inside the holder.
- MGP-related impacts in soil are not fully defined. Additional soil borings will be installed and samples will be collected outside the holder, and downgradient and cross-gradient of the Site.
- Additional monitoring wells installed downgradient and cross-gradient of the holder will provide for better understanding of groundwater flow direction (likely toward Gordon Creek) and enhance characterization of dissolved impacts in groundwater. Screened intervals will be carefully selected to capture the most likely depth of dissolved impacts.
- Survey of Gordon Creek banks for MGP-related seeps.

Proposed Scope of Work (SOW)

Health and Safety Plan

A site-specific Health and Safety Plan (HASP) will be developed for field activities. The HASP will be consistent with National Grid requirements and guidance. The HASP will be approved by National Grid and NYSDEC.

Utility Clearance

Dig Safely New York (East Syracuse, New York) will conduct a public utility mark-out prior to the field work. Enviroprobe Service Incorporated (Moorestown, New Jersey) will conduct real-time Electromagnetic Induction (EM) and Ground Penetrating Radar (GPR) above the proposed soil boring and test pit areas to identify private utilities and underground structures. Each location will be cleared to a five foot depth using a hand-auger or soil knife and vac truck prior to intrusive work.

Community Air Monitoring Plan

In accordance with NYSDOH requirements for a Community Air Monitoring Plan (CAMP), a perimeter air-monitoring plan will be developed and implemented at the Site during intrusive field activities. Air quality monitoring will be performed for total VOCs, benzene, and dust as outlined below.

Two perimeter locations will be established each day at one upwind site perimeter location and one downwind perimeter location. An air monitoring technician will check the instrumentation at each of these locations periodically during the investigation. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. Field personnel will be prepared to monitor multiple locations in the event that there is little wind or if the wind direction changes frequently.

The monitoring instruments will be calibrated at the start of each work day, and again during the day if the performance of an instrument is in question.

VOC monitoring will be performed using three field photoionization detectors (PIDs) (RAE Systems MiniRAE or equivalent). The monitoring instruments will be checked periodically by a technician, and the real-time measurements recorded.

If real-time measurements of total VOCs indicate that the action level is exceeded, then the benzene concentration will also be determined at that location using benzene-specific colorimetric tubes.

Particulate (dust) monitoring will be performed during intrusive activities at the Site. Two particulate monitors (TSI DustTrak or equivalent) will be used for continuous real-time dust monitoring. The monitoring instruments will be checked by a technician periodically, and the real-time measurements recorded. In addition, fugitive dust migration will be visually assessed during all work activities, and the observations recorded.

The following levels should not be exceeded for more than 15 consecutive minutes at the downwind perimeter of the site:

- | | |
|--------------|---|
| ▪ Benzene | 1 part per million (ppm) |
| ▪ Total VOCs | 5 ppm |
| ▪ Dust | 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) |

The action levels cited here are above (in addition to) the background ambient (upwind) concentration.

Potential dust migration will be visually assessed during all work activities. If the downwind dust level is $150 \mu\text{g}/\text{m}^3$ greater than the background level for a 15-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed.

Work may continue with dust suppression techniques provided that downwind dust levels do not exceed $150 \mu\text{g}/\text{m}^3$ above the background level and provided that no visible dust is migrating from the work area.

Typical emission control measures may include:

- Apply water for dust suppression.
- Relocate operations, if applicable.
- Reassess the existing control measures.

Sample Analysis

In 2005, a soil and groundwater sample were collected and analyzed for a “full” suite of compounds that included the following: Target Compound List (TCL) VOCs [United States Environmental Protection Agency (EPA) Method 8260B], TCL SVOCs (EPA Method 8270C), polychlorinated biphenyls (EPA Method 8082), pesticides (EPA Method 8082), Target Analyte List (TAL) metals (Method 6000/7000 series), and cyanide (Method 9012). Concentrations of these constituents were either not detected or detected at low or background levels. As such, the constituent list for samples proposed in this Work Plan is limited to BTEX and PAHs.

Proposed Test Pits

Two test pits will be excavated in the locations shown in Figure 3. TP-1-10 and TP-2-10 will be excavated to confirm the location of the holder and attempt to expose foundation walls.

Test pits will be excavated using a rubber-tired mini excavator (to ensure access through the alleyway) to better assess and document the location, depth, and condition of the former gas holder foundation. The test pits will be excavated as deeply as possible (shallow water or caving of the test pit may either impede progress or prevent deeper excavation). A GEI scientist will supervise, observe, and document the test pit activities with field notes and digital photographs.

During test pitting operations, excavated soils will be placed on a waterproof tarp. The shallower soils, expected to contain the least potential impacts, will be used as a “bed” for deeper soils. When the test pits are back-filled, the deeper soils will be placed back in the pit first, and compacted, to ensure that all remaining soils can be returned to the pit.

Pavement will be saw-cut before excavations begin. When the test pits are completed, the locations will be restored with new pavement. Pavement removed will be recycled if possible. Otherwise the pavement will be disposed of as construction debris at an appropriate landfill.

At least one analytical sample will be collected from the most impacted soils within the holder. The purpose will be to establish and document the magnitude of potential impacts. These samples will be analyzed for the most prevalent MGP compounds of BTEX and PAHs.

BTEX will be analyzed using EPA Method 8260B. PAHs will be analyzed using EPA Method 8270C.

Samples will be analyzed by Test America (TA), in Shelton, Connecticut. TA Connecticut is accredited by the NYSDOH Environmental Laboratory Approval Program (ELAP) for analysis of non potable water, potable water, and solid and hazardous waste.

Surface Soil

Three surface soil samples will be collected – one north of the holder at the edge of the parking lot, one east of the Site on residential property, and one at the base of the slope on Village of Ballston Spa property, as shown in Figure 3. A sample rationale table for surface soil samples is presented below.

Surface Soil Location Sample ID	Location Rationale
SS-1-10	On-site characterization of impacts in surface soil.
SS-2-10	Off-site characterization of impacts in surface soil.
SS-3-10	Off-site characterization of impacts in surface soil.

The samples will be collected from 0.0 to 2.0 inches below the turf. Analytical samples will be analyzed for BTEX (EPA Method 8260B) and PAHs (EPA Method 8270C). Appropriate Quality Assurance/Quality Control (QA/QC) samples (blind duplicate, rinsate blank, Matrix Spike/Matrix Spike Duplicate) will be collected. Laboratory analytical results will be independently validated.

Subsurface Soil Borings

At least fifteen soil borings will be installed at the locations shown in Figure 3. In general, soil boring locations have been proposed downgradient from impacts observed in previous soil borings. The soil boring location rationale is provided in the table below.

Soil Boring Location Sample ID	Location Rationale
B-109-10	Confirm holder location, depth, and potential impacts.
B-110-10	Confirm holder location, depth, and potential impacts.
B-111-10 – B-114-10	Enhance characterization of impacts outside the holder.
B-115-10 – B-123-10	Enhance characterization of impacts downgradient of holder, install 3 monitoring wells.

Soil borings will be sampled using a truck-mounted Geoprobe[®] sampler. On-site borings will be advanced to refusal (expected to be either the holder floor or bedrock depending on location). Off-site borings will be advanced to a confining unit or a maximum of 35 feet below ground, to ensure that adequate depth is attained to investigate impacts.

Each soil boring sample will be continuously logged, screened with an organic vapor meter, and photographed. If visual or olfactory impacts are apparent in any of the proposed boring locations, additional borings will be installed at “step-out” locations to refine delineation of subsurface impacts.

At least one subsurface soil analytical sample will be collected from each boring to document subsurface soil quality. If a boring is free of physical or olfactory evidence of MGP impacts, an analytical sample will be collected from the soil at the apparent water table.

If impacts are apparent, at least one analytical sample will be collected from the most impacted interval. Samples will be analyzed for BTEX (EPA Method 8260B) and PAHs (EPA Method 8270C).

Appropriate quality assurance/quality control (QA/QC) samples will be collected and analyzed. Samples will be analyzed by Test America, in Shelton, Connecticut.

Monitoring Wells

A many as four monitoring wells will be installed at the approximate locations shown in Figure 3. B/MW-115-10, B/MW-119-10, B/MW-121-10, and B/MW-123-10 have been proposed to provide better determination of groundwater flow direction and enhance characterization of impacts. The number and actual well locations will depend on field conditions.

Monitoring wells will be installed with a truck-mounted hollow-stem auger rig to provide access to groundwater samples and assist in completing delineation of groundwater impacts. The wells will be constructed with 2-inch diameter, 10-foot long, polyvinyl chloride (PVC) pipe with 10 slot screens (0.01-inch slot size). The sand pack will consist of #1 Morie sand extending to at least 1 foot above the screen (2 feet maximum). A 1- to 2-foot bentonite seal will be placed above the sand pack, and it will be hydrated before the remaining annulus is tremie-grouted to ground surface. The wells will be installed so that the well screen straddles the water table. Well construction will be finished with flush-mount locking well covers. If sampling observations reveal the presence of non-aqueous phase liquid (NAPL) at the well location, a 2-foot “sump” will be attached to the base of the well to capture potentially flowable NAPL.

The wells will be developed using the surge and pump method. Pumping will continue until the groundwater turbidity is 50 Nephelometric Turbidity Units (NTUs) or a minimum of 10 well volumes have been removed. If excessive NAPL is present, the well will not be developed to avoid generation of liquid NAPL and contamination of all media that development liquids would contact. Groundwater samples are not typically collected at NAPL containing wells in any case, because elevated impacts to groundwater are assumed.

All drill cuttings will be containerized in steel drums until proper disposal is arranged. Wastewater will be stored on-site in a bermed poly tank until it can be properly disposed of.

Groundwater and Groundwater Sampling

Prior to groundwater sample collection, a complete round of groundwater level measurements will be recorded. Wells will also be screened for the presence of NAPL. If NAPL is present, an oil/water interface probe will be used to determine the NAPL column thickness.

Groundwater samples will be collected at all wells a minimum of two weeks after well development of newly installed wells. A second round of samples will be collected approximately six months later.

The samples will be collected using low-flow sampling methods and purge water will be continuously monitored for pH, dissolved oxygen (DO), temperature, conductivity, and turbidity, in compliance with the most recent EPA guidance. When the purge parameters have stabilized to +/- 10%, samples will be collected by directly filling clean and appropriately preserved sample containers provided by the laboratory. Samples will be stored with ice until they are packed with fresh ice for overnight shipping to the laboratory.

Soil Vapor Sampling

Collection of soil vapor samples has not been proposed at the Site. However, when field work is complete and all data are reduced and interpreted, it is possible that soil vapor sampling may be required by NYSDEC. If so, it will be addressed during supplemental field investigation.

Surveying

All new sample points will be surveyed by a New York State-licensed surveyor to document the locations and elevations. The base map will be extended to north of the Site to include the building north of the Ballston Spa parking lot and features of Gordon Creek.

Cultural Resources Evaluation

As required for RI work in New York State, a Phase 1A Cultural Resources Evaluation will be completed for the Site. Hartgen Archeological Associates will perform the survey.

Human Health Exposure Assessment

A qualitative human health exposure assessment will be conducted at the Site to evaluate potential exposures.

Ecological Exposure Assessment

Habitat adjacent to the Site does not appear to provide significant resources. Gordon Creek runs west to east downgradient of the Site. A survey of the creek bank will be conducted to look for MGP-related seeps. Based on current knowledge and NYSDEC's Division of Environmental Remediation, *Draft DER-10 Technical Guidance for Site Investigation and Remediation* (November 2009, Section 3.10), a screening level ecological investigation appears to be necessary for the Site.

Access

Access will be negotiated by National Grid with the City of Ballston Spa and the owners of affected properties.

Three Dimensional Modeling and Reporting

When field work is completed (including the first round groundwater sampling), the resulting analytical data will be validated and the site physical information will be reduced. A three-dimensional model will be generated to display surface features, geology, groundwater, and potential impacts. The model will be presented/provided to NYSDEC for review, along with a data summary report.

If NYSDEC determines that additional investigation work is necessary (for example, soil vapor sampling) and National Grid agrees, the supplemental work will be conducted before developing a Remedial Investigation report.

Once NYSDEC has determined that remedial investigation is complete, a Remedial Investigation report will be generated. The report will provide:

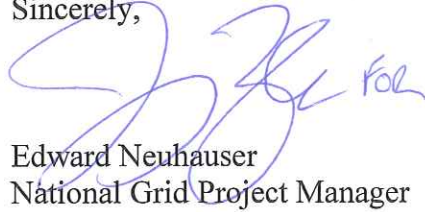
- Executive Summary.
- Methods and equipment used to generate new information.
- Updated and expanded physical and chemical site characterization.
- Cultural Resources Evaluation.
- Qualitative human health and ecological screening level exposure assessment.
- Conceptual Site Model.
- Conclusions and recommendations.

The data and information with a discussion of their significance will be compiled with figures and tables, as appropriate, and presented to NYSDEC for comment. GEI will revise the report based on NYSDEC comments. The revised report will include appendices that contain copies of relevant documents such as Sanborn maps, groundwater measurements and elevations, and Data Usability Summary reports.

Mr. Scott Deyette
New York State Department of Environmental Conservation
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Please call me (315-428-3355) or Jerry Zak (860-368-5404) if you have any questions or require additional information.

Sincerely,

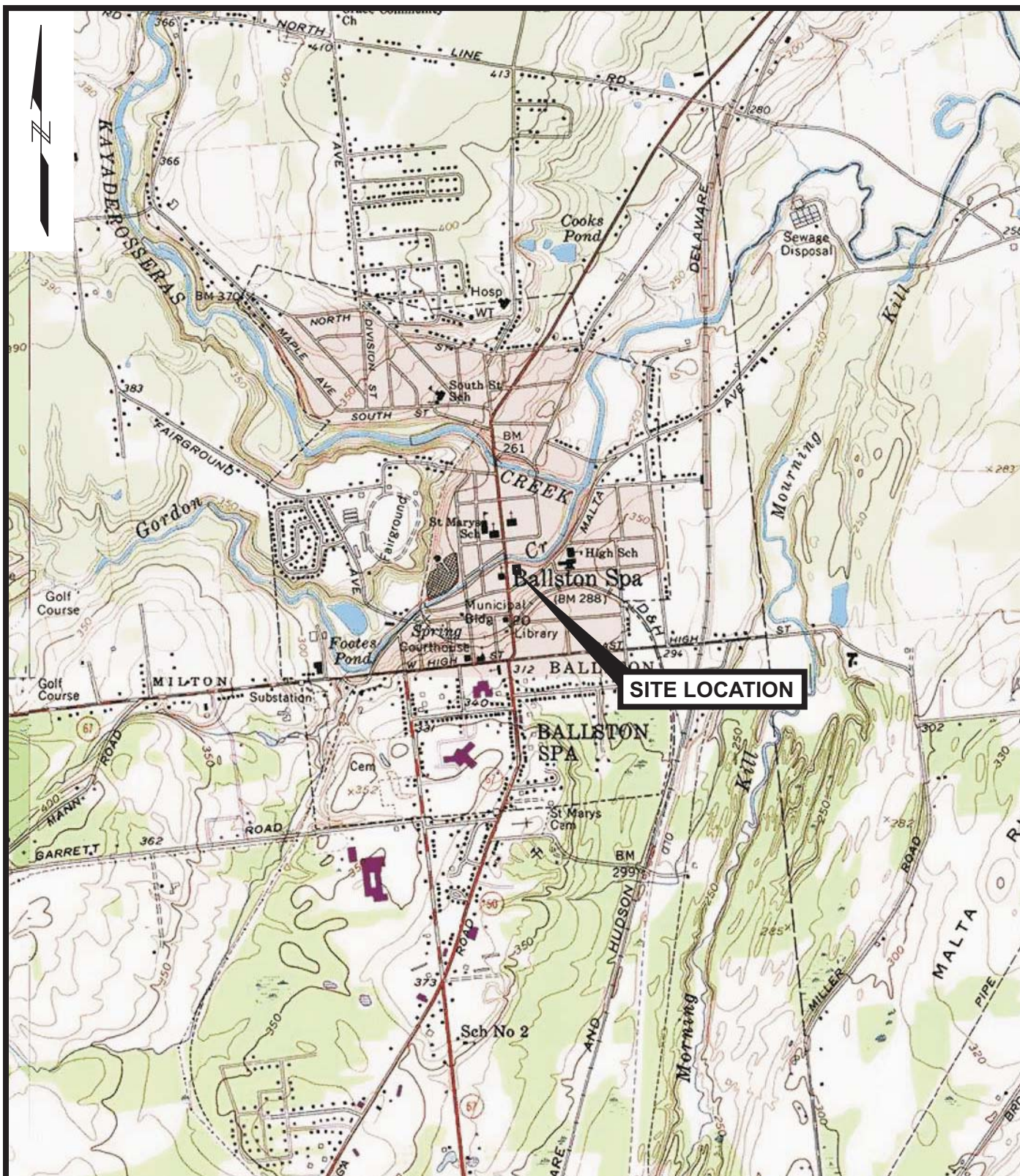


Edward Neuhauser
National Grid Project Manager

Enclosures

c: Ms. Wendy Kuehner, New York State Department of Health, Troy, New York
J. Zak, GEI
J. Ripp, GEI
D. Blicharz, GEI

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SOURCE: Map created with TOPO! © 2001 National Geographic
(www.nationalgeographic.com/topo)"



**REMEDIAL INVESTIGATION WORK PLAN
BALLSTON SPA NON-OWNED FORMER MGP SITE
BALLSTON SPA, NEW YORK**

nationalgrid



Project 045400

SITE LOCATION MAP

May 2010

Figure 1

