

Work Plan Addendum

**Remedial Investigation – Additional
Borings
35 Kent Avenue
Williamsburg Works
Former Manufactured Gas Plant Site**

Brooklyn, New York
ACO Index No. A2-0552-0606
Site #: 224055

Submitted to:
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Table of Contents

1. Introduction	1
2. Scope of Work	2
2.1 Pre-Investigation Tasks	2
2.1.1 Site Access and Permits	2
2.1.2 Utility Clearance	2
2.2 Field Investigation Sampling and Analysis	3
2.2.1 Soil Borings	3
2.2.4 Temporary Groundwater Point Sampling	4
2.2.7 Air Monitoring	4
2.2.8 Decontamination and Investigation Derived Wastes	4
2.2.9 Waste Disposal Sampling	5
2.2.10 Survey	5
2.3 Quality Assurance/Quality Control and Data Validation	5
3. Reporting	6
4. Schedule	7

Table

- 1 Sample Descriptions, Rationale and Analysis

Plate

- 1 Proposed Sample Locations

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1. Introduction

National Grid requested that GEI Consultants, Inc. (GEI) provide this Work Plan Addendum to implement additional Remedial Investigation (RI) field activities at the 35 Kent Avenue property of the Williamsburg Works (Williamsburg) Manufactured Gas Plant (MGP) site in the Williamsburg Neighborhood in Brooklyn, New York. The RI Work Plan (*Final- Remedial Investigation Work Plan Williamsburg Works, Former Manufactured Gas Plant Site, Brooklyn, New York ACO Index No A2-0552-0606, Site # 224055*, dated May 2008) was approved by the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) in a letter dated June 23, 2008. This Work Plan Addendum includes related work in addition to that specified in the original Work Plan.

On October 27, 2008, National Grid met with Fleming Lee Shue Environmental Management and Consulting (FLS) to discuss property access and the scope of work at 35 Kent Avenue. FLS requested additional sample locations within and downgradient of the gas holders. National Grid agreed to add four boring locations: two within the large holder footprint, one within the small holder footprint, and one downgradient of the large holder. This Work Plan Addendum addresses only these additional sample locations.

35 Kent Avenue is located on the block bounded by Kent Avenue, N. 12th Street, N. 11th Street and Wythe Avenue. This property includes a privately owned building.

Plate 1 depicts the proposed additional soil borings and temporary groundwater points. **Table 1**, attached summarizes the proposed soil borings and temporary groundwater point samples locations and analyses being addressed by this Work Plan Addendum. The scope of work is outlined below.

2. Scope of Work

The scope of work addressed by this Work Plan Addendum is outlined in **Table 1** and in the text below. The proposed sampling program includes sampling of soils and groundwater at 35 Kent Avenue.

The scope of work includes the following tasks:

- Pre-Investigation Tasks
- Site Utility Survey
- Field Investigation Sampling and Analysis
- Survey
- QA/QC and Data Validation

Proposed field methods for the above tasks are as described in the May 2008 RI Work Plan. The sampling rationale is described in **Table 1**. Descriptions of each proposed work activity to be performed at the 35 Kent Street property are provided separately below.

2.1 Pre-Investigation Tasks

Upon approval of this Work Plan Addendum by NYSDEC, and the necessary access agreements, GEI will mobilize to the site to implement the sampling program. The field mobilization will include the following items to be completed prior to the commencement of this scope of work:

- Reconnaissance to confirm accessibility of boring locations
- Identify underground utilities
- Document existing conditions with digital video and still imagery

2.1.1 Site Access and Permits

National Grid, GEI, and our subcontractors will need site access granted by the current property owner to complete the proposed scope of work. GEI assumes that National Grid will negotiate access with current property owner.

2.1.2 Utility Clearance

The general location of the proposed sample locations are identified in **Figure 1**. Each actual boring and subsurface investigation location will be marked by GEI with white paint prior to intrusive activities. The drilling subcontractor will provide the boring locations to the utility clearance organization (New York City and Long Island One Call) to identify potential utility

conflicts at the Site. Prior to installation, each proposed sample location will also be cleared by a private utility mark-out company. GEI requests that the current property owner provide the utility plans for on-site utilities.

Each soil boring location will either be hand cleared to a depth of 5 feet below ground surface (bgs), or 1 foot below the estimated depth of any adjacent known utility.

2.2 Field Investigation Sampling and Analysis

Table 1 presents the general rationale and proposed sampling and analysis for the soil borings and temporary groundwater grab sample points. In addition, community air monitoring and surveying will be performed as specified in the RI Work Plan. Sampling procedures and methods are presented in the May 2008 RI Work Plan. In addition to the suite of analyses listed in the RI work plan, the soil samples will be analyzed for ammonia by Environmental Protection Agency (EPA) method 350.1 as requested by FLS.

2.2.1 Soil Borings

A total of four soil borings are proposed as part of the additional scope of work. The proposed soil boring locations are shown on **Plate 1**. **Table 1** provides sample description, rationale, and analysis.

Soil samples will be collected and logged continuously from each boring. We anticipate that drilling will proceed approximately 10 feet into soils that are visually un-impacted by MGP-related materials. If no apparent MGP-related impacts are observed at a particular on-site boring location, the boring will terminate at the top of the clay layer as described in the May 2008 RI Work Plan.

Any deep drilling through impacted zones will minimize the vertical communication of DNAPL caused by the drilling. Drilling methods and procedures are provided in the Field Sampling Plan (FSP), which was appended to the May 2008 RI Work Plan. Actual drilling locations will be determined based on the building configuration and other on-site constraints.

Drilling equipment (i.e., drilling rods, auger, casing, and/or macro-core sampler) will be decontaminated between each sample location. Soil cuttings and decontamination fluids will be contained and disposed of as described in Section 2.2.8.

Three soil samples per boring will be selected for chemical analysis as summarized in **Table 1**. The RI Work Plan details the targeted intervals from which these samples will be collected.

Following the collection of subsurface soil samples, each soil boring will be abandoned by tremie grouting the boring from the bottom of the boring to the top in accordance with the FSP.

Each sampling implement will be decontaminated in accordance with decontamination procedures described in the FSP, which is appended to the RI Work Plan.

2.2.4 Temporary Groundwater Point Sampling

A total of three temporary groundwater sampling points are proposed as part of the additional scope of work. The proposed locations are shown on **Plate 1. Table 1** provides sample description, rationale, and analysis. The temporary groundwater points will be constructed of a PVC screen and riser, or a stainless steel groundwater sampler, as specified in the RI Work Plan. The temporary groundwater points will be screened in the uppermost portion of the water table aquifer and sampled in accordance with the RI Work Plan. To the extent feasible, we will allow water levels to equilibrate in the temporary sampling points to measure the water table elevation relative to ground or slab elevation and confirm flow direction. The temporary sampling point will be installed and sampled during soil boring advancement, when the depth of the boring is approximately five feet below the estimated water table. After sampling, each temporary groundwater point will be removed, and borehole advancement will continue to the proposed depth. The boring will then be tremie grouted from the bottom of the boring to the top.

2.2.7 Air Monitoring

A Community Air Monitoring Program (CAMP) will be implemented at the site during intrusive field activities. The CAMP will meet the requirements of the NYSDOH's Generic CAMP contained in Appendix 1 of NYSDEC's Draft DER-10 Technical Guidance For Site Investigation and Remediation dated December 25, 2002. Air will be monitored in the vicinity of each soil boring location. VOCs and respirable particulates (PM-10) will be monitored up-wind and downwind of the active work locations on a continuous basis. Wind direction will be determined using a wind sock(s) and/or flagging poles installed on site.

VOCs will be monitored using a PID. Particulate dust will be monitored using a DataRAM™ particulate meter or equivalent. The equipment will be calibrated at least daily or in accordance with manufacturers' recommendations. The CAMP is presented in **Appendix C** of the RI Work Plan.

2.2.8 Decontamination and Investigation Derived Wastes

Drilling equipment will be decontaminated at the established temporary decontamination pad between each sample in accordance with the FSP in **Appendix D** of the RI Work Plan. Sampling equipment used for sample collection (e.g., stainless steel split spoons, sample spoons, and hand trowels) will be decontaminated prior to use and reuse or disposable sampling equipment will be used.

Soil cuttings and wastewaters produced during decontamination will be collected and contained within 55-gallon USDOT drums, roll-off or frac tank. The investigation derived waste (IDW) will be stored in a storage area.

2.2.9 Waste Disposal Sampling

National Grid will arrange for the disposal of the IDW at the completion of the field program.

2.2.10 Survey

Each of the completed RI sample locations including soil borings and temporary groundwater points will be surveyed by a licensed New York State Licensed Land Surveyor. The elevation of each sampling location will be determined to ± 0.01 foot and will be tied into the site benchmark. All locations and elevations will be referenced to the New York State Plane Eastern Zone (3104) North American Datum 1983 (NAD) and North American Vertical Datum (NAVD 88).

2.3 Quality Assurance/Quality Control and Data Validation

An approved NYSDOH environmental laboratory approval program (ELAP) laboratory will provide New York State Category B data deliverables. The data will be validated in accordance with New York State Analytical Service Protocols (NYSASP). The data will be validated and a data usability summary report (DUSR) will be prepared documenting the adequacy of the analytical data obtained from the laboratory and discussing any pertinent data excursions or limitations on the use of the data. The DUSR will be used in preparing the RI report, and will be submitted as part of the RI report.

3. Reporting

A RI report, including QHHEA and FWRIA components, is required for submittal to the NYSDEC and NYSDOH at the conclusion of the full RI. This RI report is described in the May 2008 work plan.

4. Schedule

GEI will begin field activities once this Work Plan Addendum is approved, the notice to proceed is received, and access to 35 Kent Avenue is obtained.

Table

**Table 1
Sample Descriptions, Rationale and Analysis
Williamsburg Works MGP Site
Brooklyn, New York**

Sample I.D.	Sample Location	Sample Rationale	Sample Depth	Number of Samples		VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide ²	Herbicides (EPA 8151A)	PCBs (EPA 8082)	Pesticides (EPA 8081A)	Ammonia (EPA 350.1)
				Soil	Groundwater								
Subsurface Soil Borings and Temporary Groundwater Monitoring Points													
WW-SB-19	Block 2288, Lot 1, within the footprint of the former gas holder	Evaluate soil and groundwater quality within the footprint of the former gas holder	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	X	X	X	X	X ¹	X ¹	X ¹	X
WW-SB-20	Block 2288, Lot 1, within the footprint of the former gas holder	Evaluate soil quality within the footprint of the former gas holder	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	X	X	X	X	X ¹	X ¹	X ¹	X
WW-SB-21	Block 2288, Lot 1, within the footprint of the former gas holder	Evaluate soil and groundwater quality within the footprint of the former gas holder	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	X	X	X	X	X ¹	X ¹	X ¹	X
WW-SB-22	Block 2288, Lot 1, downgradient of the former gas holders	Evaluate soil and groundwater quality downgradient of the footprint of the former gas holders	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	X	X	X	X	X ¹	X ¹	X ¹	X

Notes:

Chemical analysis test methods specified are from U.S. EPA SW-846 test methods

EPA - Environmental Protection Agency

VOC - volatile organic compounds

SVOC - semivolatle organic compounds

TAL - target analyte list

PCBs - polychlorinated biphenyls

bgs - below ground surface

¹-One sample from within the fill in each soil boring

²-Soils will be analyzed by Free Cyanide [extraction by EPA Method 9013A and analysis by Microdiffusion American Society for Testing and Materials (ASTM)]

Prepared by: MJF

Figure



LEGEND

- APPROXIMATE CURRENT PROPERTY BOUNDARY
- APPROXIMATE BOUNDARY OF FORMER MANUFACTURED GAS PLANT (MGP) SITE
- HISTORIC STRUCTURE
- PROPOSED SAMPLES**
- WW-MW-05 PROPOSED REMEDIAL INVESTIGATION (RI) MONITORING WELL LOCATION
- WW-SB-01 PROPOSED RI SOIL BORING LOCATION
- WW-SB-03 PROPOSED SOIL BORING WITH TEMPORARY GROUNDWATER SAMPLE LOCATION
- WW-SS-01 PROPOSED SURFACE SOIL SAMPLE LOCATION
- WW-SV-01 PROPOSED SOIL VAPOR POINT
- WW-TP-01 PROPOSED TEST PIT LOCATION
- WW-IA-01 PROPOSED INDOOR AIR SAMPLE LOCATION
- WW-OD-01 PROPOSED OUTDOOR AIR SAMPLE LOCATION
- WW-SED-01 PROPOSED SEDIMENT SAMPLE LOCATION
- POTENTIAL SAMPLE OFFSET LOCATION



SOURCES:

1. PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, IMAGE © DIGITALGLOBE 2008.
2. SANBORN FIRE INSURANCE MAPS (1887 THROUGH 1996).
3. NEW YORK CITY OPEN ACCESSIBLE SPACE INFORMATION SYSTEM <http://www.oasisnyc.net>, ACCESSED JANUARY 2008.

REMEDIAL INVESTIGATION WORK PLAN
 WILLIAMSBURG WORKS FORMER MGP SITE
 BOROUGH OF BROOKLYN, NEW YORK

nationalgrid

PROJECT 080090-1002



PROPOSED SAMPLE LOCATIONS

November 2008 Plate 1