115149

GEI Consultants

Geotechnical
Environmental and
Water Resources
Engineering

November 30, 2009
093020-1-1108

Mr. Herb Chaves, Esq.
116 John Street
New York, New York 10038

Re: Interim Data Results
Former Conklin Brass Property
270 Nevins Street
Fulton Municipal Works Manufactured Gas Plant (MGP) Site
Brooklyn, New York 11217
Index No. A2-055-0606
Site No. 224051

Dear Mr. Chaves:

On behalf of National Grid, GEI Consultants, Inc. (GEI) has prepared this letter to provide you with the remedial investigation (RI) testing results for groundwater samples collected on the Conklin Brass Property, 270 Nevins Street in Brooklyn, New York. This letter also provides the soil and ground water testing results for samples collected within the adjacent Nevins Street and Douglass Street rights-of-way (ROWs). As you are aware, National Grid is completing RI activities under a New York State Department of Conservation (NYSDEC)/ New York State Department of Health (NYSDOH)-approved *Final Remedial Investigation Work Plan for the Fulton Municipal Works Former MGP Site* dated March 2008. This interim data transmittal includes this summary letter, soil and groundwater analytical testing results summary tables, and a figure that summarizes the sample locations. National Grid previously provided you with the testing results for subsurface soils in a letter dated November 7, 2008 and the soil vapor intrusion air testing results were provided on October 27, 2009 and April 24, 2009.

The remainder of the letter provides a summary of the sampling activities, findings, and conclusions from the most recent investigation activities.

Summary of Sampling Activities

GEI conducted RI activities including soil boring/well installation and groundwater gauging and sampling of monitoring wells on and adjacent to the Former Conkling Brass Property between June 10, 2009 and September 17, 2009. The sample locations are shown in Figure 1. The investigation activities included:

GEI Consultants, Inc.
455 Winding Brook Drive, Suite 201, Glastonbury, Connecticut 06033
860.368.5300 fax: 860.368.5307

- Gauging monitoring wells on and immediately adjacent to your property on June 11, 2009 and sampling monitoring wells (FW-MW-01, FW-MW-02, and FW-MW-17) on June 15 and June 16, 2009.

- Installation of an additional monitoring well (FW-MW-03) within the sidewalk of Nevins Street between June 15 and 16, 2009.

- Gauging of monitoring wells on and immediately adjacent to your property on September 14, 2009 and sampling of FW-MW-03 on September 17, 2009.

Each monitoring well was gauged at high and low tide levels based upon in the adjacent Gowanus Canal. Each was also gauged for the presence of non-aqueous phase liquids (NAPLs) with an oil-water interface probe to determine if NAPL was present within the well. Evidence of light non-aqueous phase liquid (LNAPL) was observed on the water table within FW-MW-01R (Degraw Street sidewalk) and FW-MW-03R (Nevins Street sidewalk). With NYSDEC approval, groundwater samples were not collected from these wells because measureable LNAPL was observed at the groundwater surface during gauging activities. The groundwater samples were collected utilizing low flow sampling procedures in accordance with the NYSDEC/ NYSDOH-approved RI Work Plan. The water samples were submitted to TestAmerica, a NYSDOH-approved laboratory in Shelton, Connecticut for chemical analysis including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, pesticides/ polychlorinated biphenyls (PCBs), herbicides and cyanide. The groundwater testing results were reviewed by an independent data validator to assure that analysis was completed according to regulatory guidelines.

Monitoring well FW-MW-03 was re-located to the sidewalk along Nevins Street adjacent to your property because of potential subsurface utility concerns at its proposed location on the eastern side of Nevins Street ROW. The soil boring was installed to approximately 65 feet. The soil boring log (FW-MW-03) and monitoring well log (FW-MW-03A) that provide geologic information and observations of impacts are also attached. Three analytical samples were submitted from the boring. The soils were submitted to TestAmerica laboratory in Shelton, Connecticut for chemical analysis including VOCs, SVOCs, metals, pesticides, PCBs, herbicides and free cyanide in accordance with the NYSDEC/ NYSDOH-approved RI work plan. The subsurface soil testing results were reviewed by an independent data validator to assure that analysis was completed according to regulatory guidelines.

Monitoring well (FW-MW-03) was installed utilizing a hollow stem auger rig. The monitoring well was pumped to remove silt from the monitoring well. The monitoring well was gauged and sampled in September as part of RI groundwater monitoring activities.

Summary of Findings

A brief summary of the findings from the soil and groundwater sampling activities is presented below. This transmittal provides the validated laboratory testing results (detections only) for soils which are provided in Table 1 and groundwater which are provided in Table 2.

The soil results were compared against 6NYCRR Subpart 375 Unrestricted Use Soil Cleanup Objectives (SCOs), with exceedances highlighted in gray. The soil analytical results were also compared to the Restricted Commercial Use SCOs because the Site is zoned for manufacturing. Exceedances of the Restricted Commercial Use SCOs are highlighted in yellow.

The groundwater results were compared against New York Ambient Water Quality Standards, Criteria and Guidance Values (AWQSs), with exceedances highlighted in gray. The AWQSs are standards for drinking water consumption; however the property and the surrounding area are supplied with water by New York City.

Based on our preliminary review of the data, we have concluded the following:

Subsurface Soils

Subsurface soils beneath the sidewalk in the area of FW-MW-03, like the surrounding areas, represent fill imported for the construction of the Gowanus Canal bulkhead and filling of the former Gowanus Creek wetlands during the development of South Brooklyn. Fill materials were encountered in subsurface soils to depths of approximately 5 feet in FW-MW-03.

No visual impacts were observed in subsurface soils to 14 feet (FW-MW-03). All concentrations were either not detected or present well below the Unrestricted Use and Restricted Commercial Use SCOs within the soil sample collected beneath the sidewalk. Soils with staining that exhibited diesel type odors were encountered from 14 feet to approximately 32 feet. The soils exhibiting visual impacts had concentrations of VOCs (including benzene, toluene, toluene, xylenes [BTEX] and acetone), and polycyclic aromatic hydrocarbons (PAHs) present above the Unrestricted SCOs for soils. However, only two detections of PAHs were present at concentrations above the Restricted Commercial Use SCOs. The soils are isolated below 14 feet and beneath the paved sidewalk which significantly limits potential contact with the soils.

Groundwater

Groundwater was encountered between approximately six and eight feet below ground surface (bgs). The monitoring wells were screened between 6 and 18 feet bgs within soils that exhibited staining and/ or soils with diesel (petroleum)-like odor. Laboratory groundwater analytical data indicates BTEX, PAHs, pesticides, and metals were detected above the NYS AWQSs. Concentrations of metals in groundwater at the property are consistent with concentrations in groundwater in other monitoring wells the vicinity of the property and thus represent local groundwater conditions. Groundwater is not and cannot be used at the property and the property and surrounding area are supplied with drinking water by the City of New York.

Conclusions/Recommendations

The banks of the Gowanus Canal have been used for industrial purposes since it was developed approximately 150 years ago. With this long industrial land use, hydrocarbons of the type and concentration detected are not unexpected. The remedial investigations show that the observed impacts in groundwater and soils are isolated beneath paved areas and do not pose an immediate exposure concern. Groundwater is not used at the property and the area is supplied with potable water by the City of New York which precludes the consumption of groundwater. These findings will be incorporated into a comprehensive RI report once the remaining investigations have been completed.

Please contact Tracey Bell at National Grid if you have questions regarding this interim data transmittal. She can be contacted at 718-963-5645 or via e-mail at tracey.bell@us.ngrid.com.

Best regards,

Lynn Willey
Project Geologist

c: T. Bell-National Grid
D. Campbell-National Grid
F. Murphy-National Grid
H. Willems-NYSDEC
C. Doroski-NYSDOH
D. Terry-GEI
L. Liebs-GEI
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Table 1
Subsurface Soil Analytical Results Summary
Conkin Brass Property and Adjacent Areas
Fulton Municipal Works Former MGP Site
Brooklyn, New York

Sample Name: **Sample Interval (feet):** **Sample Date:**	6 NYCRR 375 SCO UNRESTRICTED USE	6 NYCRR 375 SCO RESTRICTED USE COMMERCIAL	FW-MW-03 0-2 6/10/2009	FW-MW-03 (dup) 0-2 6/10/2009	FW-MW-03 17.25-20 6/15/2009	FW-MW-03 64-65 6/16/2009
Benzene	0.06	44	0.0053 U	0.0054 U	**0.071 J**	0.0056 U
Toluene	0.7	500	0.0053 U	0.0054 U	**0.38 J**	0.0056 U
Ethylbenzene	1	390	0.0053 U	0.0054 U	**1.9 J**	0.0056 U
Xylene, total	0.26	500	0.0053 U	0.0054 U	**2.3 J**	0.0056 U
Total BTEX	NE	NE	ND	ND	**4.651**	ND
Other VOCs (mg/kg)						
Acetone	0.05	500	0.021 U	**0.022 J**	**0.24 J**	**0.056 J**
PAHs (mg/kg)						
Acenaphthene	20	500	0.29 U	0.29 U	**9.5**	0.3 U
Acenaphthylene	100	500	0.29 U	0.29 U	**8.7**	0.3 U
Anthracene	100	500	0.29 U	0.29 U	**7**	0.3 U
Benzo[g,h,i]perylene	100	500	0.29 U	0.29 U	**3.8**	0.3 U
Fluoranthene	100	500	0.29 U	0.29 U	**7.7**	0.3 U
Fluorene	30	500	0.29 U	0.29 U	**9.5**	0.3 U
Methylnaphthalene,2-	NE	NE	0.29 U	0.29 U	**17**	0.3 U
Naphthalene	12	500	0.29 U	0.29 U	**2**	**0.024 J**
Phenanthrene	100	500	0.29 U	0.29 U	**26**	0.3 U
Pyrene	100	500	0.29 U	0.29 U	**14**	**0.037 J**
Benz[a]anthracene	1	5.6	0.29 U	0.29 U	**4**	0.3 U
Benzo[a]pyrene	1	1	0.29 U	0.29 U	**4.4**	0.3 U
Benzo[b]fluoranthene	1	5.6	0.29 U	0.29 U	**2.3**	0.3 U
Benzo[k]fluoranthene	0.8	56	0.29 U	0.29 U	**0.74 J**	0.3 U
Chrysene	1	56	0.29 U	0.29 U	**4.1**	0.3 U
Dibenz[a,h]anthracene	0.33	0.56	0.29 U	0.29 U	**0.99 J**	0.3 U
Indeno[1,2,3-cd]pyrene	0.5	5.6	0.29 U	**0.051 J**	**2.7**	0.3 U
Total PAHs	NE	NE	ND	**0.051**	**124.43**	**0.061**
Other SVOCs (mg/kg)						
Carbazole	NE	NE	0.29 U	0.29 U	**0.38 J**	0.3 U
Dibenzofuran	7	350	0.29 U	0.29 U	**1.1 J**	0.3 U
PCBs (mg/kg)						
PCBs	NE	NE	ND	ND	NA	NA
Pesticides (mg/kg)						
Pesticides	NE	NE	ND	ND	NA	NA
Herbicides (mg/kg)						
Herbicides	NE	NE	ND	ND	NA	NA
Metals (mg/kg)						
Aluminum	NE	NE	**7120**	**7150**	**3020**	**2510**
Arsenic	13	16	**2.9 J**	5.4 UJ	6.7 UJ	**2.2 J**
Barium	350	400	**24.1**	**25.4**	**22.4**	**17.5**
Beryllium	7.2	590	**0.49 J**	**0.53 J**	**0.33 J**	**0.27 J**
Cadmium	2.5	9.3	1.3 U	1.3 U	1.6 U	1.4 U
Calcium	NE	NE	**935 J**	**670 J**	**658 J**	**4580 J**
Chromium	NE	NE	**12.4 J**	**13.4 J**	**7.7 J**	**5.5 J**
Cobalt	NE	NE	**5.1**	**5.1**	**5**	**3**
Copper	50	270	**12.9**	**12**	**10.3**	**8**
Iron	NE	NE	**9690**	**9860**	**5650**	**5160**
Lead	63	1000	**8.6**	**14.7**	**3.7**	**1.5 J**
Magnesium	NE	NE	**2170**	**2160**	**1720**	**3790**
Manganese	1600	10,000	**167**	**179**	**77.8**	**229**
Mercury	0.18	2.8	**0.0069 J**	**0.0048 J**	0.066 U	0.056 U
Nickel	30	310	**20.2**	**19.1**	**23.8**	**21**
Potassium	NE	NE	**512 J**	**545 J**	**569 J**	**538 J**
Sodium	NE	NE	171 U	173 U	**42.6 J**	**113**
Thallium	NE	NE	3.9 U	3.9 U	4.8 U	**1.4 J**
Vanadium	NE	NE	**14**	**14.2**	**7.3**	**6.3**
Zinc	109	10,000	**21.3**	**21.5**	**15.1**	**12.4**
Cyanides (mg/kg)						
Free Cyanide	NE	NE	0.211 U	0.215 U	0.262 U	0.222 U

Table 1
Subsurface Soil Analytical Results Summary
Conkin Brass Property and Adjacent Areas
Fulton Municipal Works Former MGP Site
Brooklyn, New York

Notes:

mg/kg - milligrams/kilogram or parts per million (ppm)
BTEX - benzene, toluene, ethylbenzene, and xylenes
VOCs - volatile organic compounds
PAHs - polycyclic aromatic hydrocarbons
SVOCs - semivolatile organic compounds
PCBs - polychlorinated biphenyls
Total BTEX and Total PAHs were calculated using detects only.

6 NYCRR - New York State Register and Official Compilation of Codes, Rules and Regulations of the State of New York
6 NYCRR 375 SCO UNRESTRICTED USE - regulatory comparison against NYCRR, Chapter IV, Part 375-6 Unrestricted Use Soil Cleanup Objectives
6 NYCRR 375 SCO RESTRICTED USE COMMERCIAL - regulatory comparison against NYCRR, Chapter IV, Part 375-6 Restricted Use Commercial Soil Cleanup Objectives

NE - not established
NA - not analyzed
ND - not detected

Bolding indicates a detected concentration
Yellow shading and bolding indicates that the detected result value exceeds established 6 NYCRR SCO UNRESTRICTED USE and 6 NYCRR SCO RESTRICTED USE COMMERCIAL
Gray shading and bolding indicates that the detected result value exceeds established 6 NYCRR SCO UNRESTRICTED USE

Validation Qualifiers:
J - estimated value
U - indicates not detected at or above the reporting limit shown.
UJ - not detected at or above the reporting limit shown and the reporting limit is estimated
JN - analyte is presumptively present at an approximated quantity

Table 2
Groundwater Analytical Results Summary
Conkin Brass Property and Adjacent Areas
Fulton Municipal Works Former MGP Site
Brooklyn, New York

Sample Name: **Sample Date:**	NYS AWQS	FW-MW-01 6/15/2009	FW-MW-02 6/15/2009	FW-MW-03 9/17/2009	FW-MW-17 6/16/2009	FW-MW-17 (dup) 6/16/2009
BTEX (ug/L)						
Benzene	1	**670**	**290**	**21**	**160**	**160**
Toluene	5	25 U	**5.3 J**	**8.3**	5 U	5 U
Ethylbenzene	5	**160**	**180**	**29**	5 U	5 U
Xylene, total	5	**50**	**50**	**70**	5 U	5 U
Total BTEX	NE	**880**	**525.3**	**128.3**	**160**	**160**
Other VOCs (ug/L)						
Methylene chloride	5	**10 J**	**8.7 J**	5 U	5 U	5 U
PAHs (ug/L)						
Acenaphthene	20*	**270 J**	**130 J**	**28**	**14**	**12**
Acenaphthylene	NE	40 U	200 U	8.9 U	**1.6 J**	**0.89 J**
Anthracene	50*	**11 J**	200 U	**1.3 J**	**2.6 J**	**2.3 J**
Fluoranthene	50*	**5.3 J**	200 U	**0.76 J**	**1.5 J**	**0.92 J**
Fluorene	50*	**16 J**	**33 J**	**5.9 J**	**1.5 J**	**1.4 J**
Methylnaphthalene,2-	NE	40 U	**56 J**	**150**	4 U	4 U
Naphthalene	10*	**580 J**	**1800**	**15**	**2.6 J**	**1.8 J**
Phenanthrene	50*	**53**	**64 J**	**6.1 J**	**6.9**	**6.9**
Pyrene	50*	**8.9 J**	200 U	**1.7 J**	**3.2 J**	**1.7 J**
Benz[a]anthracene	0.002*	40 U	200 U	8.9 U	**0.58 J**	4 U
Benzo[a]pyrene	ND	40 U	200 UJ	8.9 U	**0.5 J**	4 U
Chrysene	0.002*	40 U	200 U	8.9 U	**0.6 J**	4 U
Total PAHs	NE	**944.2**	**2083**	**208.76**	**35.58**	**27.91**
Other SVOCs (ug/L)						
Carbazole	NE	40 U	200 U	**7.1 J**	4 U	4 U
Dibenzofuran	NE	40 U	200 U	**1.3 J**	**0.86 J**	**0.86 J**
Pesticides (ug/L)						
Beta-BHC	0.04	0.05 UJ	0.05 UJ	**0.13 J**	0.05 UJ	0.05 UJ
Chlordane, trans- or gamma-	NE	0.05 UJ	**0.028 J**	**0.0092 J**	0.05 UJ	0.05 UJ
DDT,4,4-	0.2	0.1 UJ	**0.11 J**	**0.027 J**	**0.037 J**	**0.043 J**
Delta-BHC	0.04	**0.015 J**	**0.11 J**	**0.073 J**	0.05 UJ	0.05 UJ
Dieldrin	0.004	0.1 UJ	**0.038 J**	0.11 U	0.1 UJ	0.1 UJ
Endosulfan I	NE	**0.0055 J**	0.05 UJ	0.054 U	0.05 UJ	0.05 UJ
Endosulfan II	NE	0.1 UJ	0.1 UJ	**0.019 J**	0.1 UJ	0.1 UJ
Endrin aldehyde	NE	**0.016 J**	0.1 UJ	0.11 U	0.1 UJ	0.1 UJ
Heptachlor epoxide	0.03	0.05 UJ	0.05 UJ	**0.032 J**	0.05 UJ	0.05 UJ
PCBs (ug/L)						
Total PCBs	NE	ND	ND	NA	ND	ND
Herbicides (ug/L)						
Total Herbicides	NE	ND	ND	ND	ND	ND
Total Metals (ug/L)						
Aluminum	NE	250 U	250 U	**153 J**	250 U	250 U
Arsenic	25	15 U	15 U	15 U	**6.7 J**	**5.2 J**
Barium	1000	**131**	**204**	**98.1**	**153**	**154**
Calcium	NE	**97300**	**99100**	**109000**	**61200**	**61600**
Chromium	50	5 U	5 U	**0.64 J**	**0.92 J**	**1.3 J**
Copper	200	10 U	10 U	10 U	**4.2 J**	**3.1 J**
Iron	300	125 U	**694**	**1300**	**5000**	**5130**
Magnesium	35000*	**55200**	**57600**	**55600**	**62400**	**62700**
Manganese	300	**663**	**1570**	**955**	**1300**	**1310**
Nickel	100	5 U	**1.5 J**	5 U	5 U	5 U
Potassium	NE	**8230**	**7070**	**10100**	**38500**	**38700**
Sodium	20000	**124000**	**97100**	**82800**	**232000**	**236000**
Vanadium	NE	**1.5 J**	**2.7 J**	5 U	**3.9 J**	**3.8 J**
Cyanides (ug/L)						
Cyanide, Total	200	10 UJ	10 UJ	10 U	10 UJ	10 UJ

Table 2
Groundwater Analytical Results Summary
Conkin Brass Property and Adjacent Areas
Fulton Municipal Works Former MGP Site
Brooklyn, New York

Notes:

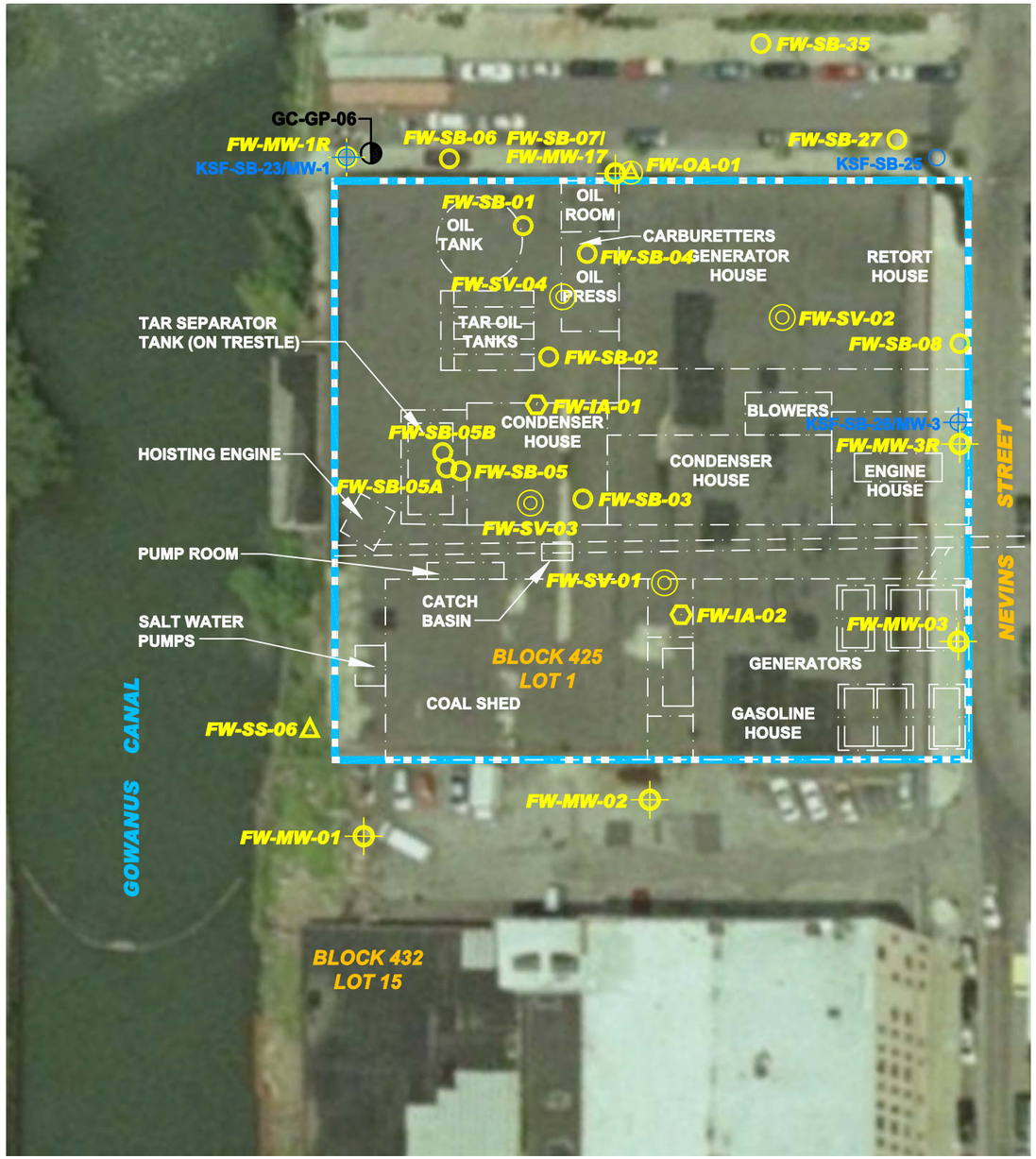
ug/L - micrograms per liter
BTEX - benzene, toluene, ethylbenzene, and xylenes
VOCs - volatile organic compounds
PAHs - polycyclic aromatic hydrocarbons
SVOCs - semivolatile organic compounds
PCBs - polychlorinated biphenyls
Total BTEX and Total PAHs were calculated using detects only.

NY AWQS - New York Ambient Water Quality Standards Criteria and Guidance
* indicates the value is a guidance value and not a standard

NA - not analyzed
NE - not established
ND - not detected

Bolding indicates a detected result concentration
Shading and bolding indicates that the detected concentration is above the NY AWQS guidance it was compared to

Validation Qualifiers:
J - estimated value
U - indicates not detected to the reporting limit for organic analysis and the method detection limit for inorganic analysis
UJ - not detected at or above the reporting limit shown and the reporting limit is estimated



LEGEND

APPROXIMATE CURRENT PROPERTY BOUNDARY

APPROXIMATE BOUNDARY OF FORMER MANUFACTURED GAS PLANT (MGP) SITE

HISTORIC STRUCTURE

PREVIOUS SAMPLES

KSF-SB-24 — NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) SITE CHARACTERIZATION (SC) BORING LOCATION

KSF-SB-23/MW-1 — NYSDEC SC MONITORING WELL LOCATION

GC-GP-06 — KEYSPAN GOWANUS CANAL INVESTIGATION BORING LOCATION

REMEDIAL INVESTIGATION LOCATIONS

FW-MW-01 — REMEDIAL INVESTIGATION (RI) MONITORING WELL LOCATION

FW-SB-01 — RI SOIL BORING LOCATION

FW-SB-20 — RI SOIL BORING WITH TEMPORARY GROUNDWATER SAMPLE LOCATION

FW-SS-06 — RI SURFACE SOIL SAMPLE LOCATION

FW-SV-10 — RI SOIL VAPOR POINT

FW-IA-01 — RI INDOOR AIR SAMPLE LOCATION

FW-OA-01 — RI OUTDOOR AIR SAMPLE LOCATION

SOURCES:

1. PHOTOGRAPH OBTAINED FROM BLUE SKY INTERNATIONAL LTD. ALL RIGHTS RESERVED. COPYRIGHT 2006.
2. SANBORN FIRE INSURANCE MAPS (1886 THROUGH 1996).
3. SITE CHARACTERIZATION REPORT, FULTON FORMER MANUFACTURED GAS PLANT, BROOKLYN (II), KING'S COUNTY, NEW YORK, SITE No. 2-24-051, SEPTEMBER 2007, PREPARED BY NYSDEC REMEDIAL BUREAU C., DIVISION OF ENVIRONMENTAL REMEDIATION.
4. NEW YORK CITY OPEN ACCESSIBLE SPACE INFORMATION SYSTEM http://www.oasisnyc.net, ACCESSED JANUARY 2008.
5. SURVEY OF EXISTING CONDITIONS AND SAMPLE LOCATIONS CONDUCTED BY GEI CONSULTANTS, INC. ON 08/05/08 AND 08/28/08. SURVEY BY NEW YORK STATE LICENSED LAND SURVEYOR NUMBER 050146. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM (NAD)83). VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD) 88.

NOTE:

1. THE LOCATION OF THE PREVIOUS NYSDEC SC BORINGS AND MONITORING WELLS HAVE NOT BEEN SURVEYED AND SHOULD BE CONSIDERED APPROXIMATE.

0 50 100

SCALE, FEET

FORMER CONKLIN BRASS PROPERTY
270 NEVINS STREET
REMEDIAL INVESTIGATION
FULTON MUNICIPAL WORKS FORMER MGP
BOROUGH OF BROOKLYN, NEW YORK

nationalgrid

GEI Consultants

EXISTING CONDITIONS AND SAMPLE LOCATIONS

Project 093020-1-1108 | November 2009 | Figure 1

I:\GEI\National Grid\Fulton\Conklin Brass\ Fulton MGP Conklin 10-09.dwg \Nov 12, 2009

GEI Consultants, Inc.
455 Winding Brook Road
Glastonbury, CT 06033
(860) 368-5300

CLIENT: National Grid
PROJECT: Fulton Municipal Works MGP
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093020

BORING LOG

FW-MW-03

GROUND SURFACE ELEVATION (FT): 12.17
LOCATION: Nevins Street ROW- Sidewalk
NORTHING: 673010.38 **EASTING:** 634428.79
TOTAL DEPTH (FT): 65.00
DRILLED BY: ADT / Jiri Kamenicek
DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone
LOGGED BY: Bree Carlson
DATE START / END: 6/15/2009 - 6/16/2009
DRILLING DETAILS: Direct Push / Geoprobe 6620DT
WATER LEVEL DEPTHS (FT): ∇ 10.00

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0				0.2				FW-MW-03 (0.5-2.0)	(0'- 0.5') CONCRETE. (0.5'- 5') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel; max. size 1 in., brown to gray, FILL, brick fragments, HAND CLEARED.
5	S1	5.0	38	NM 5.3					(5'- 5.3') ASPHALT; FILL. (5.3'- 8.9') WELL GRADED SAND (SW); ~100% sand, fine to coarse; brown.
				8.4			PLO		(8.9'- 10') WELL GRADED SAND (SW); ~100% sand, fine to coarse; slight petroleum-like odor, gray.
10	S2	5.0	38	12.1					(10'- 14.1') WELL GRADED SAND (SW); ~100% sand, fine to coarse; wet, brown.
				154			PLO		(14.1'- 15') WELL GRADED SAND (SW); ~100% sand, fine to coarse; moderate petroleum-like odor, wet, black, staining.
15	S3	5.0	60	17.7					(15'- 17.3') WELL GRADED SAND (SW); ~100% sand, fine to coarse; wet, brown.
				299			PLO	FW-MW-03 (17.25-20)	(17.3'- 20') WELL GRADED SAND (SW); ~100% sand, fine to coarse; moderate petroleum-like odor, wet, black, moderate petroleum-like odor, staining.
20									

NOTES:

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC = RECOVERY LENGTH OF SAMPLE
PID = PHOTOIONIZATION DETECTOR READING (JAR HEADSPACE)

ppm = PARTS PER MILLION
IN. = INCHES
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR
PLO = PETROLEUM LIKE ODOR
TLO = TAR LIKE ODOR
CLO = CHEMICAL LIKE ODOR
ALO = ASPHALT LIKE ODOR

CrLO= CREOSOTE LIKE ODOR
OLO = ORGANIC LIKE ODOR
SLO = SULFUR LIKE ODOR
MLO = MUSTY LIKE ODOR

ENVIRONMENTAL BORING LOG FULTON RI BORING LOGS_WITH KSF BORINGS_10-8-09.GPJ GEI CONSULTANTS.GDT 10/11/09

GEI Consultants

GEI Consultants, Inc.
455 Winding Brook Road
Glastonbury, CT 06033
(860) 368-5300

CLIENT: National Grid
PROJECT: Fulton Municipal Works MGP
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093020

BORING LOG

FW-MW-03

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S4	5.0	60	276			PLO		(20'- 25') WELL GRADED SAND (SW); ~100% sand, fine to coarse; moderate petroleum-like odor, wet, black, moderate petroleum-like odor, staining.
25	S5	5.0	45	290					(25'- 29.3') POORLY GRADED GRAVEL WITH SAND (GP); ~75% gravel, fine, subrounded, ~25% sand, fine to coarse; max. size 0.75 in., wet, black, sheen.
				282					(29.3'- 30') WELL GRADED SAND (SW); ~100% sand, fine to coarse; wet, black.
30	S6	5.0	24	214			PLO		(30'- 31.5') WELL GRADED SAND (SW); ~100% sand, fine to coarse; slight petroleum-like odor, wet, black, staining.
				90.4			PLO		(31.5'- 35') WELL GRADED SAND (SW); ~100% sand, fine to coarse; slight petroleum-like odor, wet, brown.
35	S7	5.0	24	66.2			PLO		(35'- 40') WELL GRADED SAND (SW); ~100% sand, fine to coarse; slight petroleum-like odor, wet, brown, (recovery estimated).
40	S8	5.0	50	41.0			PLO		(40'- 45') WELL GRADED SAND (SW); ~95% sand, fine to coarse, ~5% gravel, subrounded; max. size 1 in., slight petroleum-like odor, wet, brown.

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IN. = INCHES
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR
PLO = PETROLEUM LIKE ODOR
TLO = TAR LIKE ODOR
CLO = CHEMICAL LIKE ODOR
ALO = ASPHALT LIKE ODOR

CrLO= CREOSOTE LIKE ODOR
OLO = ORGANIC LIKE ODOR
SLO = SULFUR LIKE ODOR
MLO = MUSTY LIKE ODOR

ENVIRONMENTAL BORING LOG FULTON RI BORING LOGS_WITH KSF BORINGS_10-8-09.GPJ GEI CONSULTANTS.GDT 10/11/09

GEI Consultants

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							PLO		
45	S9	5.0	52	61.1			PLO		(45'- 50') WELL GRADED SAND (SW); ~100% sand, fine to coarse; slight petroleum-like odor, wet, brown.
50	S10	5.0	60	88.6			PLO		(50'- 55') WELL GRADED SAND (SW); ~100% sand, fine to coarse; slight petroleum-like odor, wet, brown.
55	S11	5.0	24	67.3			PLO		(55'- 60') WELL GRADED SAND (SW); ~100% sand, fine to coarse; slight petroleum-like odor, wet, brown, (recovery estimated).
60	S12	5.0	60	45.1			PLO		(60'- 64') WELL GRADED SAND WITH GRAVEL (SW); ~85% sand, fine to coarse, ~15% gravel; max. size 0.5 in., slight petroleum-like odor, wet, brown.
				32.1			PLO	FW-MW-03 (64-65)	(64'- 65') WELL GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; slight petroleum-like odor, wet, brown.
65									Bottom of borehole at 65.0 feet.

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BORING LOG

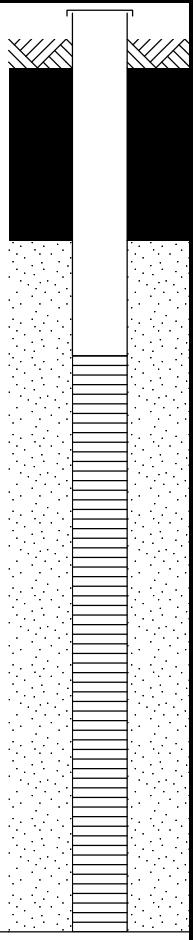
FW-MW-03A

GROUND SURFACE ELEVATION (FT): 12.17
LOCATION: Nevins Street ROW- Sidewalk
NORTHING: 673010.38 **EASTING:** 634428.79
TOTAL DEPTH (FT): 16.00
DRILLED BY: ADT / Tony Palomegue
DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone
LOGGED BY: Bree Carlson
DATE START / END: 6/22/2009 - 6/22/2009
DRILLING DETAILS: Hollow Stem Auger
WATER LEVEL DEPTHS (FT): ∇ 8.00

DEPTH FT.	SAMPLE INFORMATION TYPE and NO.	PEN FT.	REC FT.	Blows (/6 in.)	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	SOIL / BEDROCK DESCRIPTION
0									(0'- 5') See FW-MW-03 for soil description; HAND CLEARED.
5	S1	2.0	10	1-1-1-2	0.1				(5'- 7') POORLY GRADED SAND (SP); ~100% sand, fine to medium; damp, orange brown, bottom 2" damp.
∇	S2	2.0	24	2-2-2-3	2.1			PLO	(7'- 8') POORLY GRADED SAND (SP); ~100% sand, fine to medium; damp, orange brown. (8'- 9') WELL GRADED SAND (SW); ~100% sand, fine to medium; slight petroleum-like odor, damp, gray. (9'- 10') Augered to 10 feet bgs.
10	S3	2.0	16	3-3-4-4	62.7			PLO	(10'- 10.3') POORLY GRADED SAND (SP); ~100% sand, fine to medium; slight petroleum-like odor, wet, orange brown. (10.3'- 11.8') WELL GRADED SAND (SW); ~100% sand, fine to medium; slight petroleum-like odor, wet, gray. (11.8'- 12') POORLY GRADED SAND (SP); ~100% sand, fine to medium; slight petroleum-like odor, wet, gray. (12'- 14') Augered to 14 feet bgs.
15	S4	2.0	17	4-4-2-4	158			PLO	(14'- 16') WELL GRADED SAND (SW); ~90% sand, fine to medium, ~10% gravel, fine, subrounded; max. size 0.25 in., moderate petroleum-like odor, wet, gray brown.

Bottom of borehole at 16.0 feet.

WELL CONSTRUCTION DETAILS



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