

June 7, 2010

Mr. Henry Willems
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7013

**Subject: Remedial Investigation Work Plan Addendum
Offsite Property 381/539 Smith Street
Metropolitan former Manufactured Gas Plant (MGP) Site, Brooklyn, NY**

Dear Mr. Willems:

National Grid is submitting the following Remedial Investigation Work Plan Addendum for the Metropolitan former manufactured gas plant (MPG) site (the Site), located at 124 - 136 2nd Avenue in Brooklyn, New York. This addendum describes work to be performed at 381/539 Smith Street (Block 483, Lots 1 and 11) located off-site to the northwest of the former MGP (see Figure 1), which is currently occupied by Greco Brothers Ready Made Concrete. The former Metropolitan MGP was operated by The Brooklyn Union Gas Company (BUG), a predecessor company to National Grid, from the late 1880s until approximately 1938. The Remedial Investigation of the Site is being conducted by National Grid pursuant to a Multi-site Order on Consent and Administrative Settlement with the NYSDEC, Index # A2-0552-0606, executed on February 22, 2007 and modified on August 10, 2007, and in accordance with applicable guidelines of the New York State Department of Environmental Conservation (NYSDEC), the New York State Department of Health (NYSDOH), the United States Environmental Protection Agency (USEPA), and the National Contingency Plan (NCP). Specifics of the RI scope of work are presented in the NYSDEC approved work plan (Remedial Investigation Work Plan, Metropolitan Former MGP Works) produced by AECOM in May 2009.

The scope of work presented in this letter supplements the May 2009 NYSDEC-approved Remedial Investigation Work Plan (the RIWP). The goal of the RIWP Addendum at 381/539 Smith Street will be to determine the potential presence of and delineate (if applicable) MGP residuals to the northwest of the Site and canal. In addition, the investigation has been designed to comply with the goals of the Draft EPA Monitoring Well Installation Plan for the Gowanus Canal Super Fund Site. GEI Consultants, Inc. (GEI) performed The Remedial Investigation of the Gowanus Canal in 2005/2006 on behalf of National Grid (KeySpan) in response to NYSDEC order on consent and administrative settlement, Index # A2-0523-0705. Findings of the Remedial Investigation, presented by GEI (April 2007, Remedial Investigation Technical Report, Gowanus Canal, Brooklyn, New York), have been reviewed and incorporated into this Metropolitan Remedial Investigation Work Plan Addendum.

Background

The site setting, regional geology and hydrogeology, operational history of the Metropolitan MGP, historic structures, post MGP activities, previous MGP investigations and remedial actions are summarized in the RIWP.

On April 28, 2010, during the Metropolitan Remedial Investigation, soil boring SB-4 was installed along the northwestern site boundary and adjacent to the Gowanus Canal (see Figure 1). The boring log for SB-4 is included in Attachment 1. The boring was advanced by sonic drilling methods with continuous soil sampling to a completion depth of 60 feet below ground surface (ft bgs). Although a survey of the site has not yet been completed, the ground surface elevation at SB-4 has been estimated to be 10 ft above the North American Vertical Datum of 1988 (NAVD88) based on surveyed elevations of borings at 124-136 Second

Avenue as presented by AKRF Engineering in the July 10, 2001 Remedial Investigation Results report. The elevations of observations at SB-4 referenced to NAVD88 in the following discussion have been provided for comparison to GEI observations of Gowanus Canal sediments. Nevertheless, note that the SB-4 elevations provided are approximations.

Groundwater was encountered at approximately 5 ft bgs in urban fill material, which was encountered from 0 to 11 ft bgs (+10 to -1 ft NAVD88) and consisted of sand and silt with some gravel and some brick, ash, cinders and glass fragments. A one foot bed of silty sand was encountered below the fill and over an organic silt unit encountered from 12 to 21 ft bgs (-2 to -11 ft NAVD88) and containing some fine sand, organics, and shells. Interbedded sandy silt and silty sand layers (2 to 5 ft thick) were encountered from 21 to 36 ft bgs (-11 to -26 ft NAVD88) over silty sand from 36 ft bgs to below the bottom of the boring at 60 ft bgs (-26 to -50 ft NAVD88).

As shown on the boring log, tar blebs and moderate to heavy sheen with naphthalene-like odor were observed in the sands and silts from 21 to 31.5 ft bgs (-11 to -21.5 ft NAVD88) over a tar saturated silty sand unit from 31.5 to 34 ft bgs (-21.5 to -24 ft NAVD88). Naphthalene-like odors and photo-ionization meter measurements of total volatile organic compounds (VOCs) in headspace persisted to 43 ft bgs (-33 ft NAVD88) with no additional MGP impacts observed from 43 to 60 ft bgs. The boring was converted into the nested monitoring well pair MW-4S and MW-4I screened from 3 to 13 ft bgs and 25 to 35 ft bgs (+7 to -3 and -15 to -25 ft NAVD88), respectively.

GEI performed the scope of the Gowanus Canal RI from October 2005 to August 2006. Details of the Gowanus Canal RI are presented in the April 2007 GEI Remedial Investigation Technical Report, Gowanus Canal, Brooklyn, New York, and the April 2007 Gowanus Canal Investigation Executive Summary Report. Findings pertinent to the Metropolitan MGP are summarized here. The goal of the RI was to identify impacts on the canal from the operations of three former MGPs located in proximity to the canal: Fulton Municipal Works, Citizens Works, and Metropolitan Works. As part of the investigation, GEI collected sediment samples along several transects oriented roughly perpendicular to the flow axis of Gowanus Canal, including five sediment and native soil samples along two transects, Transect V and Transect BB, adjacent to the Metropolitan Site. The locations of the Transects V and BB, are presented on Figure 1. Sediment samples were collected by Vibracore to depths of up to 20 feet below the base of the canal (ft bbc). Samples were described for soil type, as well as for observations of anthropomorphic impacts and materials. Select samples were then submitted for laboratory analysis.

The GEI observations are summarized by color and symbol codes on Figure 1, and GEI cross-sections for Transects V and BB from the RI Technical Report are included in Attachment B. In the upper three feet of sediment, petroleum sheens and odors were observed at GC-SED-64D, -66C, and -105. Consistent with observations at SB-4 (see above), MGP related observations included a tar saturated lens at GC-SED-65 (in the center of the canal) at 0.5 to 1.25 ft bbc or -18.1 to -18.85 feet NAVD88, and tar coated grains were observed at GC-SED-105 (in the center of the canal) at 2.5 to 3 ft bbc or -18.6 to -19 ft NAVD88. Below the sediments, areas of tar saturation were observed at GC-SED-66C (adjacent to the Site) from approximately -17.5 to -19 ft NAVD88 and -26 to -27 ft NAVD88 with tar blebs and thin lenses in-between (-19 to -26 ft NAVD88). Tar blebs, lenses and sheens were also observed at GC-SED-64D (adjacent to the north side of the canal) from -17 to -20 ft NAVD88 and approximately -28 to -28.5 ft NAVD88.

RIWP Addendum Scope of Work

Remedial investigation addendum activities proposed at 381/539 Smith Street have been developed based on the findings at SB-4 during the Metropolitan former MGP RI and The Gowanus Canal RI activities completed to date. The addendum activities and investigation rationale are summarized on Table 1. RI activities include the advancement of soil borings and monitoring wells to further delineate visible tar DNAPL and other MGP residuals, and to collect stratigraphic and hydrogeologic information necessary to further evaluate the fate and transport of dissolved phase constituents in groundwater on the northwestern side of

the canal and north of the SB-4/MW-4S/I location. The addendum activities will be performed in accordance with the RIWP, and will include the following:

- Advancement of soil borings SB-19 and SB-20 to approximately 70 ft (or to shallower depth if 10 ft of clean material is encountered below the impact depths observed beneath the canal).
- Collection of soil samples from each boring for laboratory analyses.
- Conversion of each boring to nested shallow and intermediate monitoring well pairs MW-19 (S/I) and MW-20 (S/I).
- Development of monitoring wells.
- Low flow purging and groundwater sample collection from each well for laboratory analyses.
- Surveying wells for location and elevation, and pertinent site features (surveys previously obtained by site owners will be used if available and with the site owner's permission).
- Management of investigation derived waste (IDW).

As shown on Figure 1, proposed borings/wells have been placed at 381/539 Smith Street at locations generally in line with the GEI sediment sample Transect V. Boring SB-19 is proposed near the southeastern side of the property (closest to the canal), while SB-20 is proposed adjacent to the northwestern property boundary as a step out location to be installed contingent on findings at SB-19. Locations of borings may be modified in the field to account for the operations of the concrete batching facility currently occupying the property, as well as access restrictions, such as utilities, permanent structures (fences, buildings, walls), and material storage areas sand and gravel.

Each boring location will be cleared for utilities following National Grid pre-clear protocols involving geophysical practices and low energy excavation techniques. Once cleared, soil borings will be advanced by sonic drilling techniques, which allows for greater drilling efficiencies and well installation options. However, direct-push rigs with hollow stem auger capabilities (GeoProbe[®]) will be used if and where site access is limited. Soil samples for observation and VOC screening by photo-ionization detector (PID) will be collected and logged continuously from the ground surface to boring completion. Up to two soil samples will be collected from each boring for laboratory analysis from the zone of worst case impacts and the first clean interval or base of the boring. If no impacts are encountered, this sample will be collected from the 1-foot interval immediately above the water table. Borings will be advanced to 70 ft bgs or ten feet into clean material if impacts are shallower to provide vertical delineation of MGP residuals.

To evaluate the presence of dissolved phase MGP residuals in groundwater and the effect of the canal on groundwater flow for fate and transport considerations, each boring will be converted to a shallow and intermediate nested well pair. Where sonic is used, the wells will be placed in the same boring with bentonite seals and grout placed in between the screened intervals. The shallow well will be screened across the water table (estimated screen interval of approximately 3 to 13 ft bgs), and the intermediate well will be screened to correspond to the interval in which tar was observed at SB-4 (approximately from 25 to 35 ft bgs). A decision to install deep monitoring wells (approximately 60 to 70 ft bgs) will be made in the field based on the subsurface conditions and in consultation with representative of the NYSDEC (such as presence of impacts below the intermediate depth interval or if another deep zone well is determined beneficial to compare with other deep wells on the opposite side of the canal). Wells will be constructed of schedule 40 PVC and will be completed as flush mount constructions. Screens will be 10 feet long and constructed of 0.020-inch slotted schedule 40 PVC pipe. Each well will also have a two foot sump placed below the screen. The wells will be developed, purged, and sampled in accordance with the RIWP.

Soil and groundwater samples will be submitted to a New York Certified laboratory for the following analyses:

- Volatile organic compounds (VOCs) by EPA Method 8260
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270

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- RCRA 8 Metals
- Free Cyanide (Soil only)
- Total Cyanide (Groundwater only)

Quality assurance and quality control (QA/QC) samples of soil and groundwater will be collected and submitted for analyses in accordance with the RIWP.

The borings and wells will be surveyed for location and elevation by a licensed surveyor. Prior to mobilizing to the field, any electronic drawings provided by the property owner will be reviewed, additional points/features to be surveyed will be identified, and then provided to the surveyor to use in the field. The survey will be combined with the on-site survey to create a comprehensive site plan.

The proposed scope is designed to address observations and data gaps arising from the observations at soil boring SB-4. Additional investigation or sampling may be required to obtain the requisite data set to complete the RI process.

Yours sincerely,



Donald Campbell

Cc: T. Bell (National Grid)
C. Doroski (NYSDOH)
P. Cox (AECOM)

Table 1
Proposed RI Addendum at 381/539 Smith Street, Sample Location, Rationale, and Analytical Sample Summary
Metropolitan Former MGP, 124-136 Second Avenue, Brooklyn, New York

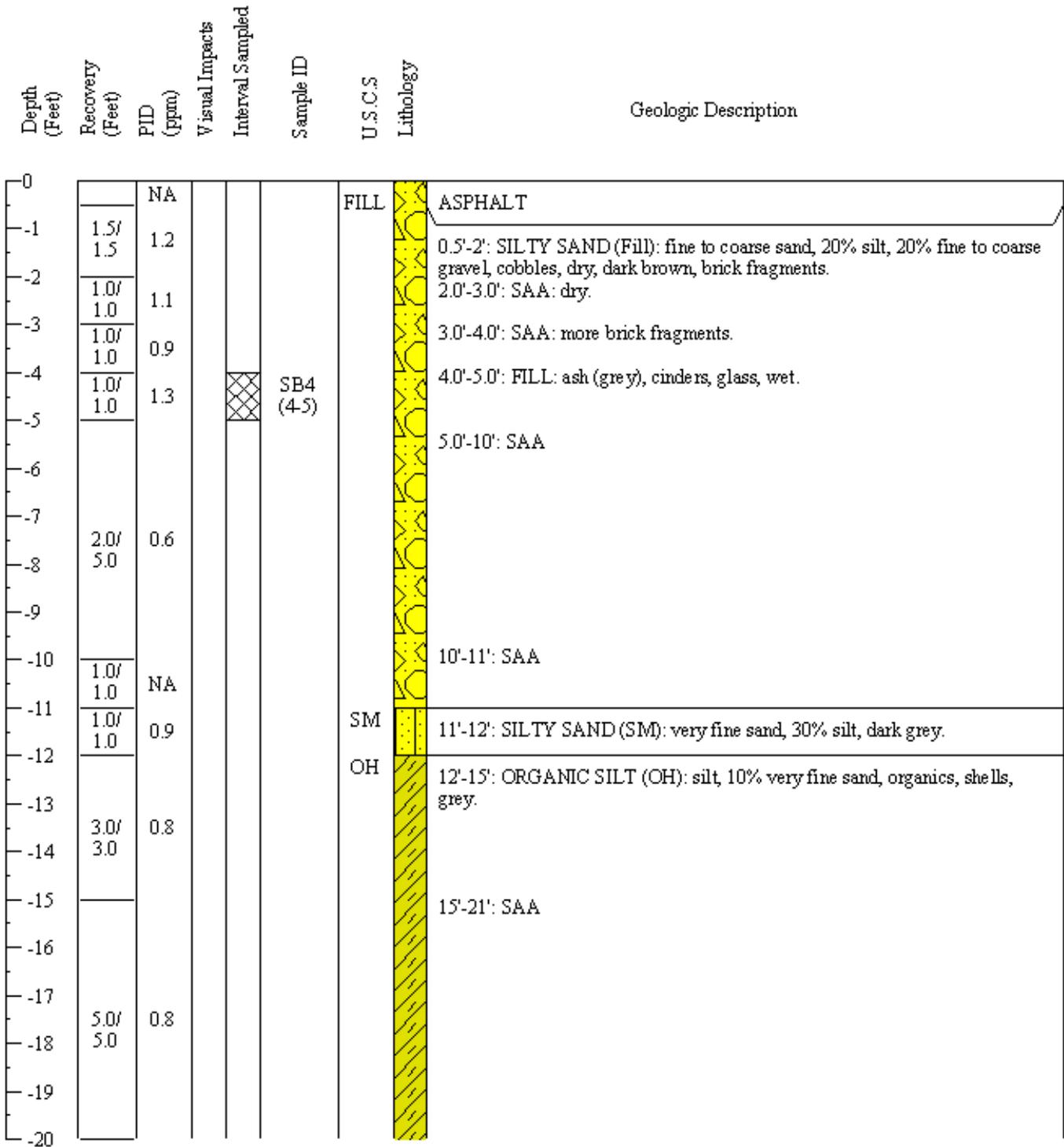
Location ID	Sample ID	Completion Depth*	Sample Depth	No. of Samples	Analyses	Rationale
Surface Soil/Subsurface Soil						
SB-19	SB-19 (depth)	Est. 70 feet max	Zone of worst-case impacts, and first clean or bottom	2	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate off-site soil to the north of the Gowanus Canal and SB-4. Located approximately along GEI Transect V where tar, tar-like odors, and petroleum-like odors were observed in the sediments and soils beneath the Gowanus Canal.
SB-20	SB-20 (depth)	Est. 70 feet max	Zone of worst-case impacts, and first clean or bottom	2	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate off-site soil to the north of the Gowanus Canal and SB-4. Boring is a step-back location to SB-19, and is located near the northwestern property boundary of Greco Brothers approximately along GEI Transect V where tar, tar-like odors, and petroleum-like odors were observed in the sediments and
Groundwater						
MW-19	MW-19S/I/D (date)	S-est. 15 ft, I est. 35 ft, D est. 70 ft	S ~ 3-13 ft., I ~ 25-35 ft.	2	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate the presence of dissolved phase MGP residuals in groundwater offsite to the northwest of the site, evaluate the effect of the Canal on groundwater flow direction and gradients.
MW-20	MW-20S/I (date)	S-est. 15 ft, I est. 35 ft	S ~ 3-13 ft., I ~ 25-35 ft.	2	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate the presence of dissolved phase MGP residuals in groundwater offsite to the northwest of the site, evaluate the effect of the Canal on groundwater flow direction and gradients. The wells are step-back locations to MW-19 S/I.

Notes

- | | |
|--|---|
| 1. No. - number | 5. VOCs - volatile organic compounds |
| 2. ID - identification | 6. SVOCs - semi-volatile organic compounds |
| 3. SB - Soil Boring (Subsurface Soil) | 7. CN - cyanide |
| 4. MW - Monitoring Well (Groundwater Sample) | 8. * - Depths may be adjusted shallower if 10 feet into clean achieved. |

ATTACHMENT A

Project Name: Metropolitan Former MGP Project Number: 60137361-400 Client: National Grid Date Pre-Cleared: April 28, 2010 Date Started/Completed: Apr. 28, 2010	Drilling Company: Boart Longyear Drilling Method: Sonic Sampling Method: Plastic Liner Boring Diameter: Logged By: Stephen Wright	Water Level: ~5 ft bgs Total Depth: 60 ft bgs Ground Elevation: TBD Converted To Well (Y/N): Yes Well ID: MW-4I
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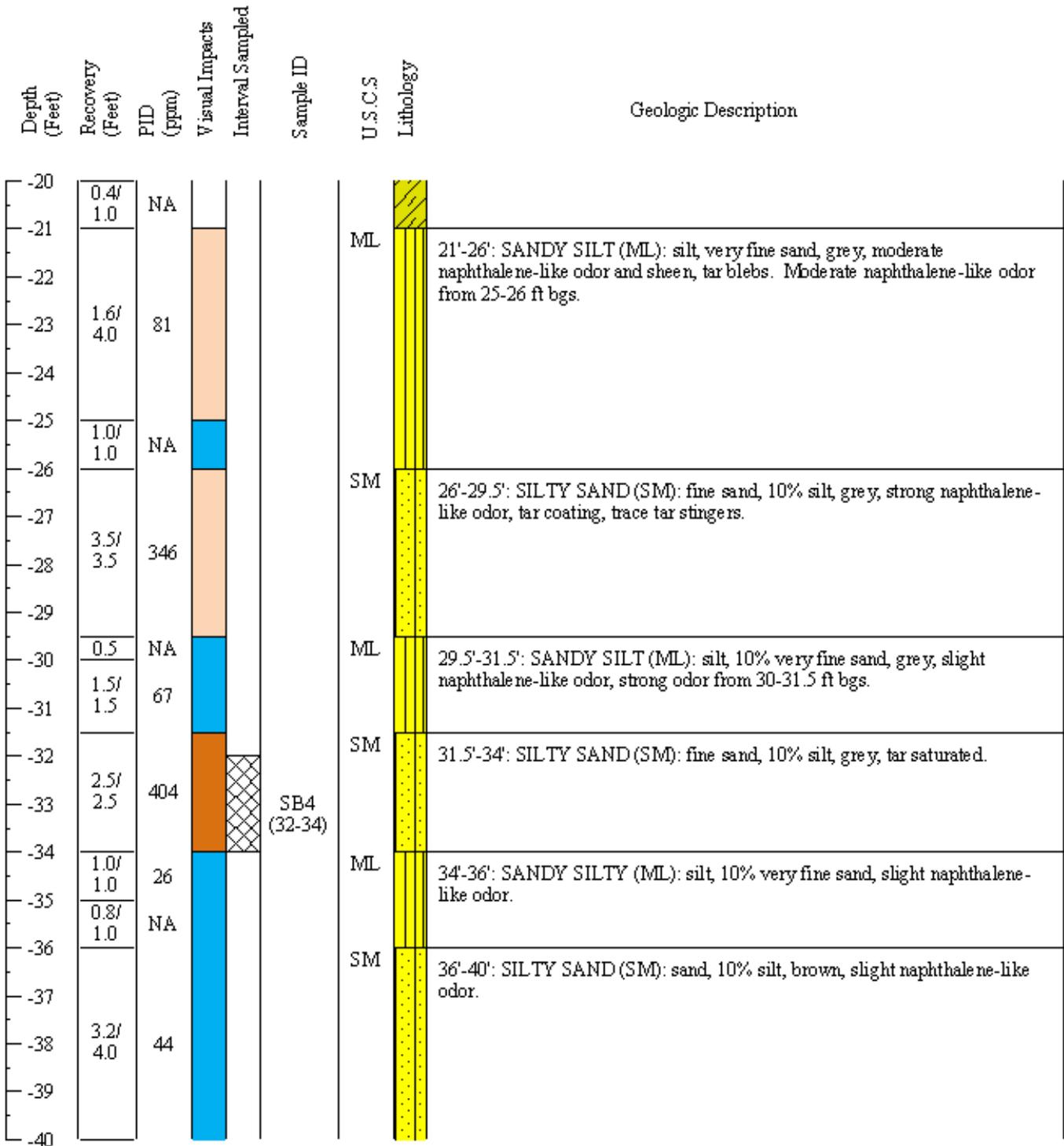


Comments: Boring was converted to nested well pair MW-4I and MW-4S screened from 25 - 35 ft bgs and 3 - 13 ft bgs, respectively.

Project Name: Metropolitan Former MGP
Project Number: 60137361-400
Client: National Grid
Date Pre-Cleared: April 28, 2010
Date Started/Completed: Apr. 28, 2010

Drilling Company:Boart Longyear
Drilling Method: Sonic
Sampling Method: Plastic Liner
Boring Diameter:
Logged By: Stephen Wright

Water Level: ~5 ft bgs
Total Depth: 60 ft bgs
Ground Elevation: TBD
Converted To Well (Y/N): Yes
Well ID: MW-4I

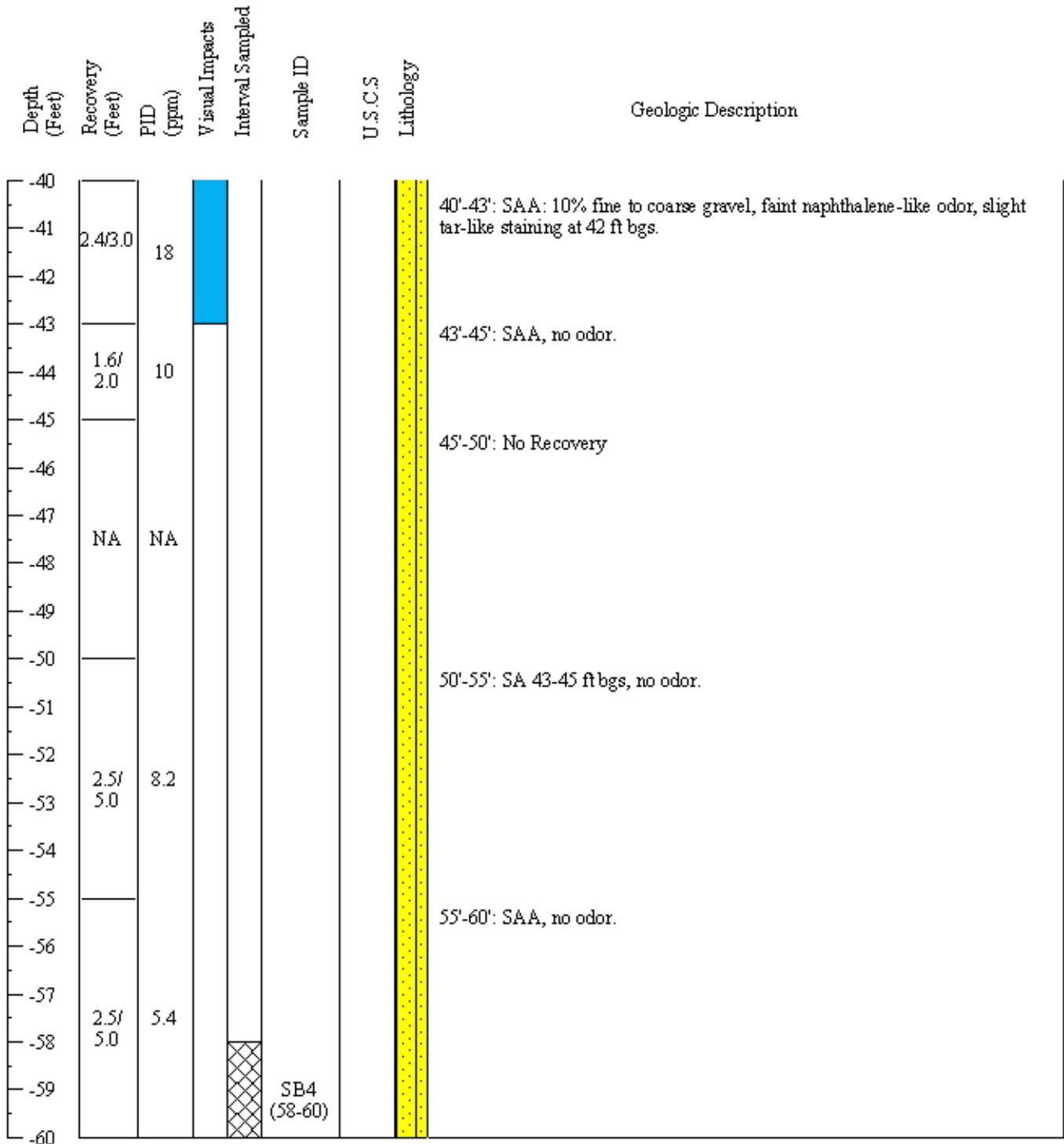


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Drilling Method: Sonic
Sampling Method: Plastic Liner
Boring Diameter:
Logged By: Stephen Wright

Water Level: ~5 ft bgs
Total Depth: 60 ft bgs
Ground Elevation: TBD
Converted To Well (Y/N): Yes
Well ID: MW-4I



Comments: Boring was converted to nested well pair MW-4I and MW-4S screened from 25 - 35 ft bgs and 3 - 13 ft bgs, respectively.

ATTACHMENT B



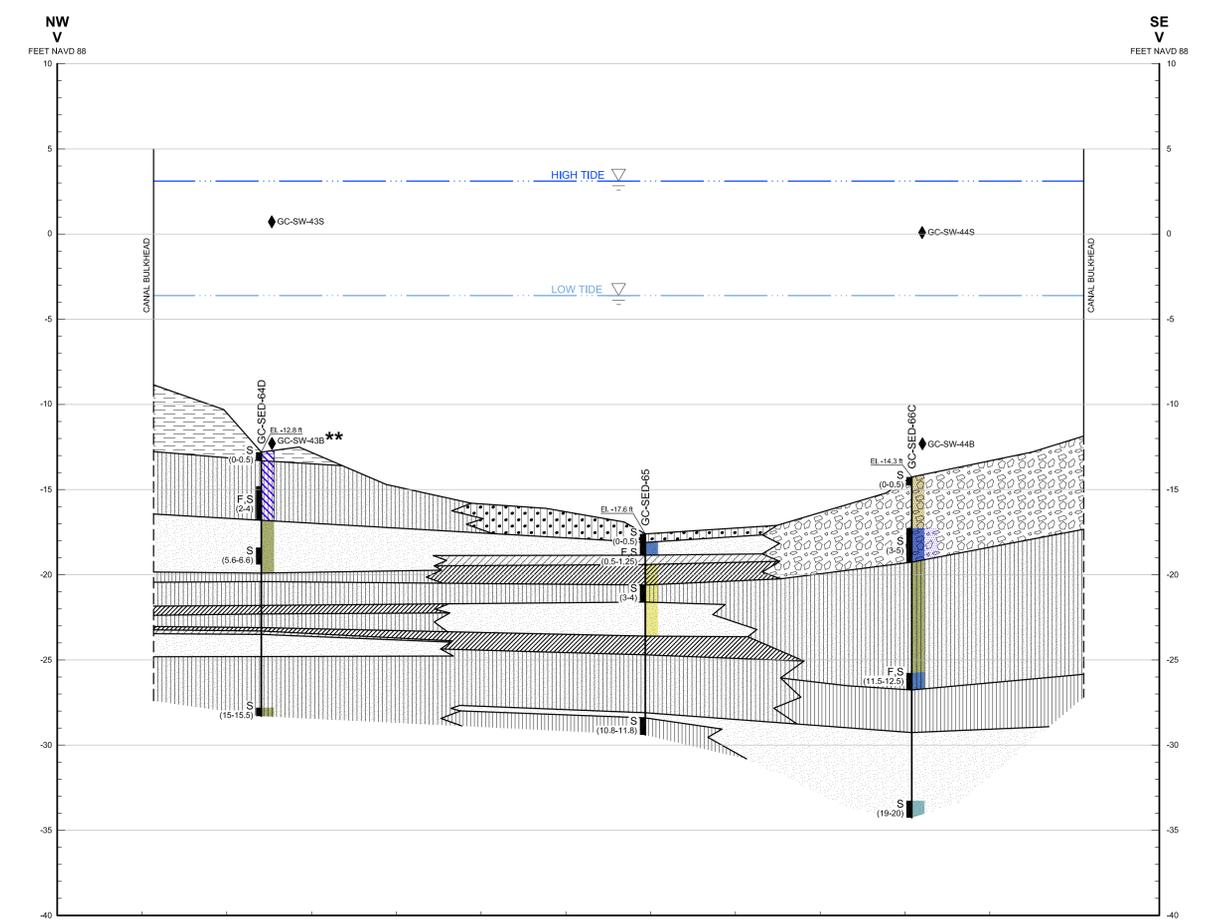
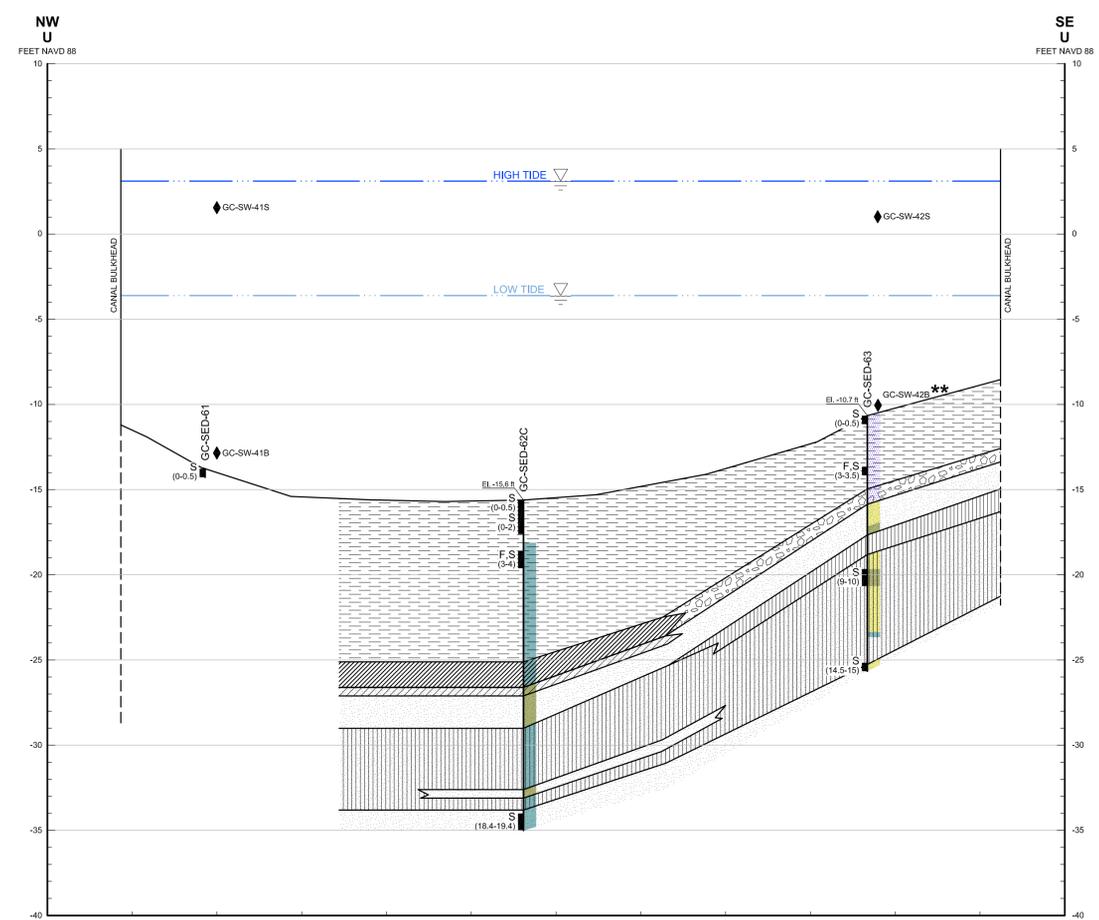
TRANSECT LOCATION MAP

LEGEND

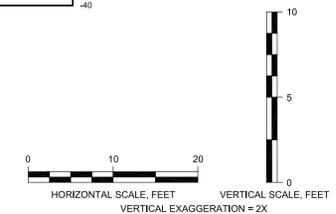
	FILL MATERIAL		NATIVE MATERIAL		TAR SATURATED
	ACCUMULATED SEDIMENT		PEAT		LENSES WITH TAR SATURATION AND TAR/NAPHTHALENE ODORS
	ORGANIC SILTS AND CLAYS		CLAY		BLEDS, GLOBES, LENSES, COATINGS AND TARY NAPHTHALENE ODORS
			SILT		TAR STAINING, SHEEN, AND TAR/NAPHTHALENE ODORS
			CLAYEY SAND		TAR/NAPHTHALENE-LIKE ODORS
			SAND		PETROLEUM SHEEN/STAINING ODORS
			CLAYEY GRAVEL		PETROLEUM ODORS
			SILTY GRAVEL		
			GRAVEL		

PHYSICAL OBSERVATIONS

- SOIL/SEDIMENT SAMPLE LOCATION (DEPTH IN FEET)
- FORENSIC SOIL/SEDIMENT SAMPLE LOCATION (DEPTH IN FEET)
- SURFACE WATER SAMPLE LOCATION
- HIGH TIDE CANAL WATER ELEVATION AT HIGH TIDE ON 1/29/06
- LOW TIDE CANAL WATER ELEVATION AT LOW TIDE ON 1/29/06



- NOTES:**
- TIDE MEASUREMENTS ARE FROM THE BATTERY, NY STATION ON JANUARY 29, 2006 AT 1:36 AM AND 7:42 AM (<http://tidessurroundments.noaa.gov/>).
 - SEDIMENT SURFACE ELEVATIONS OBTAINED DURING REMOTE SENSING SURVEY CONDUCTED IN OCTOBER 2005. SEDIMENT CORE LOCATIONS OBTAINED DURING CORING ACTIVITIES CONDUCTED IN DECEMBER 2005 AND JANUARY 2006.
 - GOWANUS CANAL BULKHEAD LOCATION BASED ON AERIAL PHOTOGRAPH OBTAINED FROM BLUE SKY INTERNATIONAL LTD. ALL RIGHTS RESERVED. COPYRIGHT 2006. SURFACE ELEVATIONS AND DEPTHS OF CANAL BULKHEAD ARE UNKNOWN.
 - HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM (NAD83), VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD) 88.
 - ** WATER SAMPLE ELEVATION DEPICTED IS APPROXIMATE.
 - PHYSICAL OBSERVATIONS AND GEOLOGIC INFORMATION PRESENTED ARE BASED UPON FIELD CONDITIONS OF SUBSURFACE MATERIALS ENCOUNTERED BY GEI DURING REMEDIAL INVESTIGATION ACTIVITIES.
 - LABORATORY ANALYTICAL RESULTS ARE SUMMARIZED IN TABLES 3 THROUGH 12 IN THE REMEDIAL INVESTIGATION TECHNICAL REPORT.
 - SEDIMENT SAMPLE DEPTH IS REFERENCED TO FEET BELOW THE BOTTOM OF THE GOWANUS CANAL. SUBSURFACE SOIL BORING SAMPLE DEPTH INFORMATION IS REFERENCED TO FEET BELOW GROUND SURFACE.



- SOURCES:**
- SANBORN MAPS (1888 THROUGH 1996)
 - PHOTOGRAPH OBTAINED FROM BLUE SKY INTERNATIONAL LTD. ALL RIGHTS RESERVED. COPYRIGHT 2006.
 - OCEAN SURVEYS, INCORPORATED. REMOTE SENSING SURVEY FOR UTILITY CROSSINGS GOWANUS CANAL, BROOKLYN, NEW YORK (OSI REPORT #05E3051) DATED DECEMBER 13, 2005.
 - OCEAN SURVEYS, INCORPORATED. FINAL REPORT GOWANUS CANAL CORING OPERATIONS BROOKLYN, NEW YORK DATED FEBRUARY 18, 2006.

REMEDIAL INVESTIGATION TECHNICAL REPORT
GOWANUS CANAL
BOROUGH OF BROOKLYN, NEW YORK

KEYSPAN CORPORATION

PROJECT NO.: 061140-3-1205

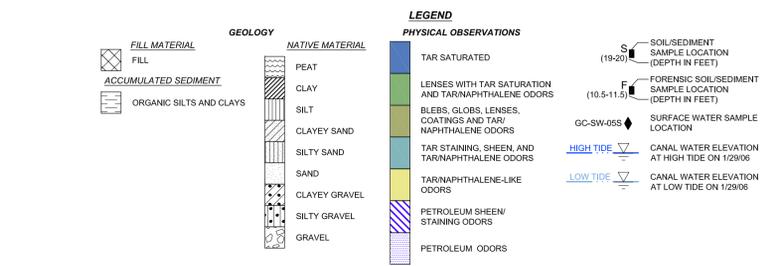
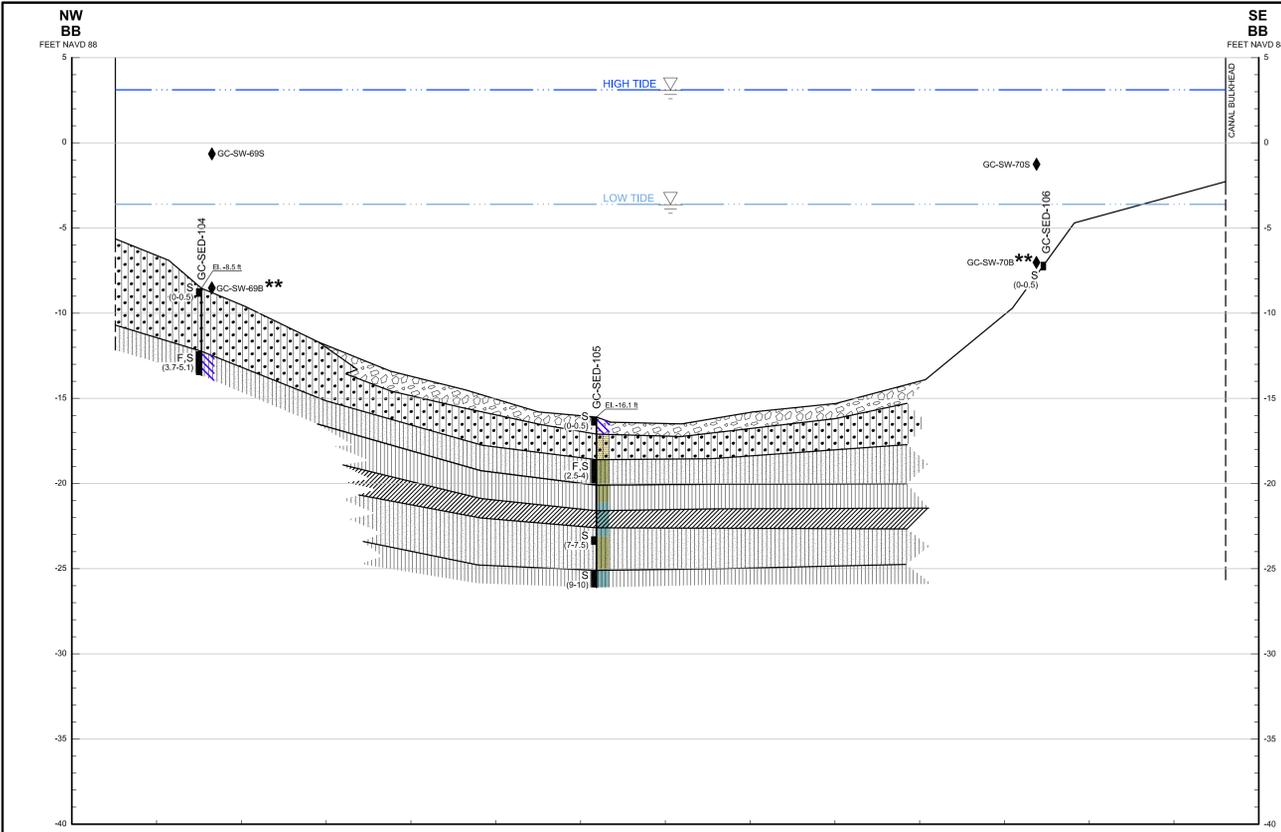


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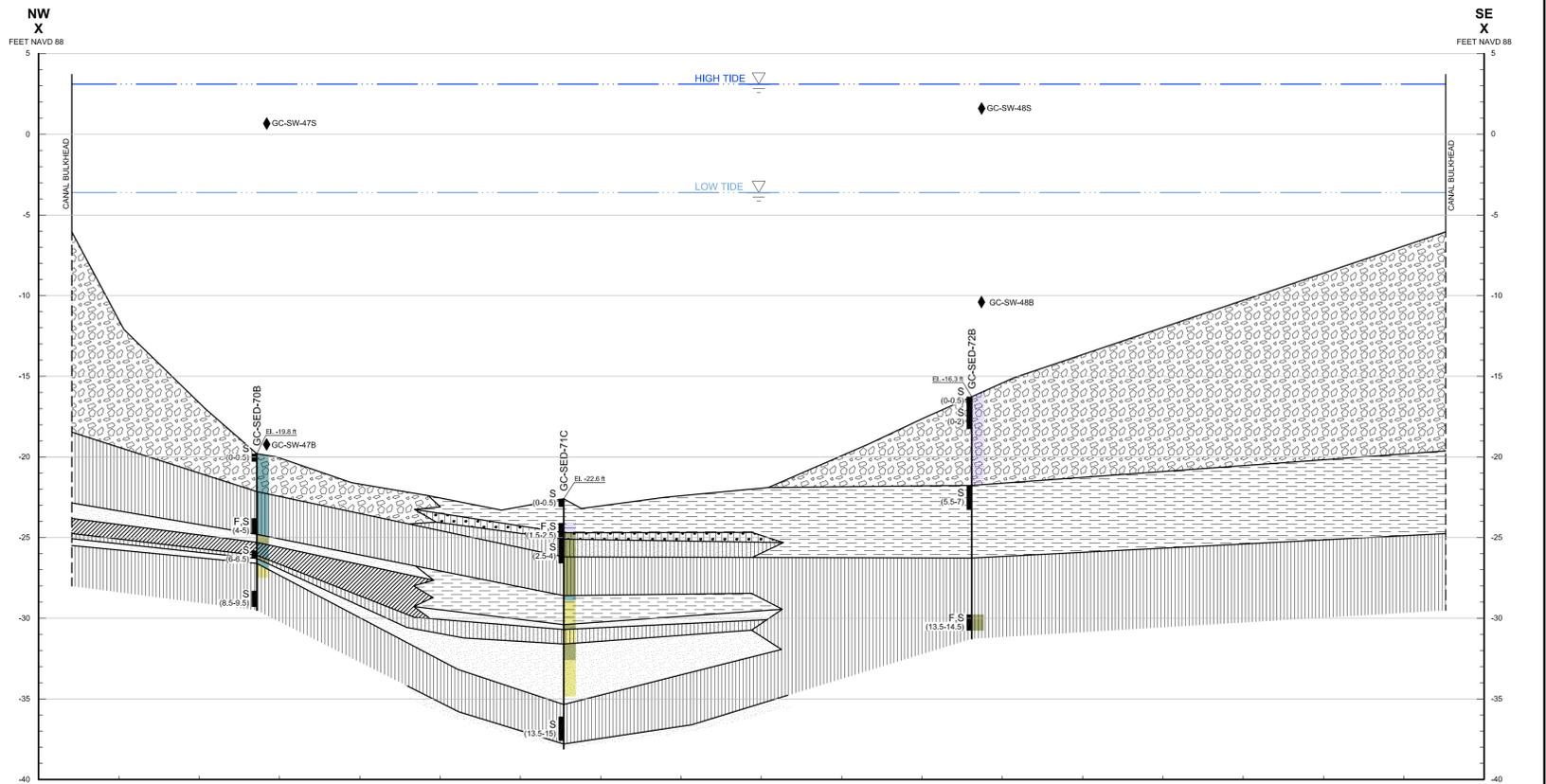
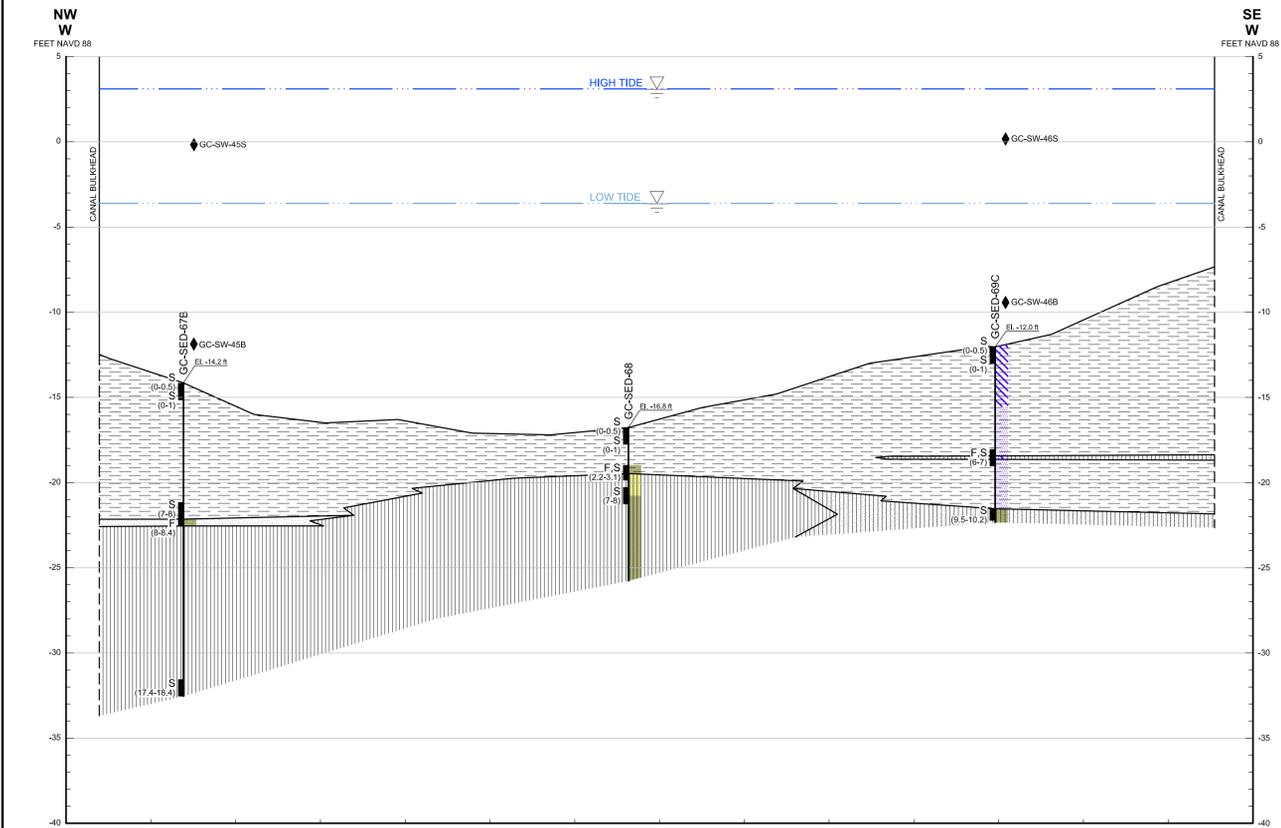
GOWANUS CANAL: MIDDLE REACH
CROSS SECTION OF
TRANSECTS U AND V

March 2007

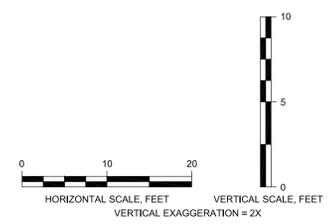
Plate 15



TRANSECT LOCATION MAP



NOTES:
 1. TIDE MEASUREMENTS ARE FROM THE BATTERY, NY STATION ON JANUARY 29, 2006 AT 1:36 AM AND 7:42 AM (102/78484SURVEYS/0308.DWG).
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REMEDIAL INVESTIGATION TECHNICAL REPORT
 GOWANUS CANAL
 BOROUGH OF BROOKLYN, NEW YORK
 KEYSpan CORPORATION
 PROJECT NO.: 061140-3-1205



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 GOWANUS CANAL:
 MIDDLE AND LOWER REACH
 CROSS SECTION OF
 TRANSECTS BB, W AND X
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