TENEN ENVIRONMENTAL

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August 17, 2020

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, Section A
625 Broadway, 12th Floor
Albany, NY 12233-7016

Attn: Gerald Pratt

Re: Supplemental Remedial Investigation Work Plan
Peoples Works Former Manufactured Gas Plant Site
470 Kent Avenue – Brooklyn, NY
Block 2134, Portion of Lots 1 and 150 (Northern portion)
Site #224053

Dear Gerry:

This letter report discusses the scope of work proposed to supplement the New York State Department of Environmental Conservation (NYSDEC) conditionally-approved Remedial Investigation Work Plan (RIWP) dated October 2019. Specifically, this scope is proposed to further investigate the conditions at the Former Peoples Works manufactured gas plan (MGP) portion of the property in contemplation of entry into and remediation under the Brownfield Cleanup Program (BCP). Extensive testing has been completed but has focused on potential MGP impacts.

Tenen Environmental, LLC (Tenen) conducted remedial investigation (RI) activities at the southern portion of the property under the BCP (Site #C224053). The October 2019 RIWP details the results of the sampling completed to-date on the BCP Site as well as the additional sampling proposed to complete the Remedial Investigation (RI). Completed and proposed sampling on the entirety of the two Lots are included on the figures referenced in this Supplemental RIWP.

This Supplemental RIWP has been prepared to address the Department's requests for additional investigation in accordance with the NYSDEC Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10, May 3, 2010) at the MGP portion of the property. Quality assurance/quality control, health and safety (including community air monitoring) and citizen participation activities will be implemented in accordance with Tenen's NYSDEC-approved RIWP dated October 2019.

Background

The MGP portion of the property is located on the northern portion of 470 Kent Avenue in the Williamsburg neighborhood of Brooklyn, New York. The Site is identified by the New York City Department of Finance as Block 2134, portions of Lots 1 and 150. The Site is located on the east side of Kent Avenue southeast of the intersection with South 10th Street.

Between 2004 and 2016, several environmental investigations were conducted at the Site and are summarized in the following reports:

- *470 Kent Avenue, Subsurface (Phase II) Investigation. AKRF. October 2005*
- *Phase II Subsurface Investigation Report (REVISED), NYCOER Environmental Review Program, CEQR No. 08DCP056K, 462 Kent Avenue, Brooklyn, New York. Environmental Business Consultants (EBC). December 28, 2011*
- *Final Site Characterization Report (Final SCR), Peoples Works Former Manufactured Gas Plant Site. Tetra Tech, Inc. April 2018*

All historic sample locations are shown on Figures 1 and 2. The groundwater flow direction and contours are shown on Figure 12 of the Final SCR, which is included for reference in Attachment 1.

Purpose of Additional Investigation

In order to characterize this portion of the Site to meet the requirements of the BCP and inform the development of a Remedial Action Work Plan (RAWP), additional soil vapor, soil and groundwater investigation is proposed. All proposed sample locations are shown on Figures 1 and 3.

Soil Vapor, Indoor Air, Ambient Air
Limited soil vapor sampling has been completed, as part of the EBC 2011 investigation, which included two sub-slab soil vapor locations without co-located indoor air samples. While the detected concentrations were generally low, additional soil vapor sampling is proposed. Co-located indoor air samples are proposed for all locations in the cellar of the commercial building (indoor air samples are not proposed in the material storage building on the western portion of the Site).

A total of eight soil vapor samples, PWSV-01 through PWSV-08, are proposed. Samples PWSV-05 and PWSV-08 are proposed in areas where evidence of petroleum was detected in soil and/or groundwater. The remaining samples are proposed for general site coverage in the areas of future buildings. Sub-slab soil vapor samples PWSV-01 through PWSV-04 will be collected from within the cellar of the commercial building and co-located indoor air samples will be collected.

Soil
A total of 47 soil borings and eight test pits have previously been advanced on this portion of the Site. An additional six borings are proposed in order to horizontally and/or vertically delineate previously-detected impacts.

At former boring location PWSB-21, a boring will be advanced deeper in order to vertically delineate the concentrations of semivolatile organic compounds (SVOCs) in a soil sample collected from 9.5 to 10 feet below grade (ft-bg).

Boring PWSB-36 will be advanced to investigate the soil downgradient of evidence of petroleum detected in borings PWSB-22 and PWSB-30.

Borings PWSB-37 and PWSB-38 will be advanced to investigate the potential source of (or delineate to the east) the mothball-like odors in borings PWSB-13 and PWSB-14, respectively. Boring PWSB-38 will also be used to horizontally delineate SVOCs in test pit PWTP-2 (5-5.5 feet).

Boring PWSB-39 will be advanced to investigate the potential source of (or delineate to the east) the mothball-like odors in boring PWSB-32.

Boring PWSB-40 through PWSB-42 will be advanced to horizontally delineate, to the south and west, NAPL-coated material and SVOCs detected in borings PWSB-27 and PWSB-31.

Borings PWSB-43 through PWSB-45 will be advanced to investigate this portion of the Site, which is partially inaccessible. Boring PWSB-43 will be advanced at this time and the remaining borings will be completed following demolition of the Site buildings.

Groundwater
Groundwater from a total of 19 locations have previously been sampled on this portion of the Site. An additional two well locations are proposed. These wells and three existing wells will be sampled in order to horizontally delineate previously-detected impacts and investigate current conditions.

Well PWSB-36 will be sampled to more tightly delineate, in the downgradient direction, dissolved petroleum constituents in previous samples PWSB-22 and PWSB-30.

Well PWSB-39 will be sampled to investigate the groundwater conditions downgradient of boring PWSB-32, which contained mothball-like odors.

Three existing wells, MW-9, MW-11 and MW-12 will be sampled to confirm current conditions.

Scope of Work

The following scope of work is proposed to supplement/confirm the findings of the previous investigation, further delineate petroleum impacts and investigate soil vapor and indoor air conditions.

The following scope of work will be implemented:

- Install eight soil vapor sample points, PWSV-01 through PWSV-08, at the proposed development depth. Collect co-located indoor air samples at locations PWSV-01 through PWSV-04. Collect one ambient air sample per sampling event. All soil vapor, indoor air and ambient air samples will be analyzed for volatile organic compounds (VOCs);
- Advance one soil boring PWSB-21, to vertically delineate the extent of SVOCs detected at 9.5 to 10 ft-bg. Advance ten soil borings, PWSB-36 through PWSB-45, to investigate potential sources and/or delineate known soil impacts. All soil samples will be analyzed for VOCs, SVOCs and Target Analyte Metals (TAL) metals. All even-numbered borings will also be analyzed for perfluoroalkyl acids (PFAAs);
- Install two permanent groundwater monitoring wells (PWSB-36 and PWSB-40) to delineate previously identified impacts. Gauge and collect groundwater samples from newly-installed

groundwater wells and previously-installed wells MW-9, MW-11 and MW-12. All groundwater samples will be analyzed for VOCs and SVOCs; and,

- Survey newly installed monitoring wells; collect one round of depth-to-groundwater measurements from the entire well network (previously-installed wells MW-9, MW-11, MW-12 and PWMW-01 through PWMW-04 and newly-installed wells PWSB-36 and PWSB-40); and evaluate groundwater elevations and present updated groundwater contours.

Proposed sample locations are shown in the attached Figures 1 and 3.

Soil Vapor, Indoor Air and Ambient Air
Soil vapor, indoor air and ambient air samples will be collected in general accordance with Section 3.4 of the RIWP, as described below.

Soil vapor probes PWSV-01 through PWSV-08 will be installed approximately at the proposed development depth. Co-located indoor air samples will be collected at the locations of PWSV-01 through PWSV-04. One ambient air sample will be collected per event. All samples will be analyzed for TO-15 VOCs.

All soil vapor, indoor air and ambient air samples will be collected in accordance with the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, October 2006).

Soil
Soil samples will be collected in general accordance with Section 3.3 of the RIWP, as described below.

Soil cores from boring PWSB-21 will be collected and screened in five-foot intervals from grade to approximately 20 ft-bg. A soil sample will be collected from the first apparent clean interval below 10 ft-bg and analyzed for VOCs and SVOCs.

Soil cores from borings PWSB-36 through PWSB-45 will be collected and screened in five-foot intervals from grade to a minimum of 20 ft-bg or to the first apparent clean interval whichever is deeper. Soil samples will be collected from the interval of highest suspected contamination and the first interval with no apparent impacts and analyzed for Part 375 VOCs, SVOCs and TAL metals (including metals). In each even-numbered boring, the soil samples from the same intervals will be analyzed for PFAAs in accordance with the NYSDEC Guidelines for Sampling and Analysis of PFAS, January 2020.

The polyaromatic hydrocarbons (PAHs) included in the SVOC scan will be inclusive of those in Table 1 and includes the stand Target Compound List (TCL) and alkylated compounds.

Groundwater
Groundwater samples will be collected in general accordance with Section 3.5 of the RIWP as described below.

Two permanent monitoring wells, PWSB-36 and PWSB-40, will be screened across the groundwater interface. Groundwater samples will be collected from these wells and previously-installed wells MW-9, MW-11 and MW-12. Groundwater samples will be analyzed for Part 375 VOCs and SVOCs.

An updated survey will be completed and depth-to-water readings will be collected for the entire well network (previously-installed wells MW-9, MW-11, MW-12 and PWMW-01 through PWMW-04 and newly-installed wells PWSB-36 and PWSB-40) in order to calculate an updated groundwater flow direction. The condition of each well will be inspected and, if conditions indicate the well is potentially damaged and representativeness of water level is questionable, the well will be repaired and redeveloped.

Quality Assurance/Quality Control
Soil vapor, indoor air, ambient air, soil and groundwater samples will be collected in accordance with the Quality Assurance Project Plan (QAPP) included as Appendix A of the RIWP. The laboratory will report sample results on a five-day turn-around time. An independent sub-consultant will validate sample results and prepare a Data Usability Summary Report (DUSR).

Health and Safety
All work at the Site will be completed in accordance with the Health and Safety Plan (HASP) included in Appendix B of the RIWP.

Air Monitoring and Daily Reporting
The NYSDOH Generic Community Air Monitoring Plan (CAMP), included as Appendix 1A of DER-10 and Section 3.10 of the RIWP, will be implemented during all ground-intrusive sampling activities.

Daily reports will be sent to the NYSDOH and NYSDEC Project Manager via email. Daily reports will include a Site figure depicting Work Zones; activities; wind direction, in addition to CAMP monitor readings and CAMP station locations. Any exceedances of CAMP readings and corrective actions taken will be communicated to the NYSDEC and the NYSDOH Project Managers on the day of occurrence.

Investigation Derived Waste
Following the completion of sampling, in accordance with Section 3.11 of the RIWP, boreholes will be backfilled with clean cuttings or sand. If grossly-contaminated soil cuttings are encountered or if excess soil cuttings are generated, they will be placed in 55-gallon drums. Any purge water or other investigation-derived waste (IDW) will be containerized in 55-gallon drums. After the investigation is complete, the drum contents will be characterized for off-site disposal.

Reporting
The findings of the Supplemental RI will be incorporated into the RIR described in Section 3.13 of the RIWP and submitted to NYSDEC for approval.

Demolition
In order to support the proposed redevelopment, all existing structures will be demolished. Demolition permits are required by the New York City Department of Buildings (NYCDOB) prior to the demolition of the onsite buildings. An asbestos abatement permit is required by the New York City

Department of Environmental Protection (NYCDEP) prior the abatement of any asbestos-containing material (ACM). ACM abatement must be completed prior to demolition activities. The contractor will ensure that necessary permits are obtained before the commencement of IRM tasks and the appropriate agencies and departments will be contacted prior to commencement of ACM abatement. Demolition Plans will be provided under separate cover.

Construction and demolition debris will be disposed of in accordance with federal, state and city regulations, including 6NYCRR Part 360. All transport of materials will be performed by licensed haulers in accordance with appropriate local, state, and federal regulations, including 6NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

All trucks loaded with Site materials will exit the vicinity of the Site using only the most current New York City Department of Transportation (NYCDOT)-approved truck routes (currently the 2015 New York City Truck Route Map).

As part of the demolition, the existing slabs will be removed. The NYSDOH Generic CAMP will be implemented during removal of the slabs. Following the removal of the slabs, a temporary cap will be installed until the start of the remedial action.

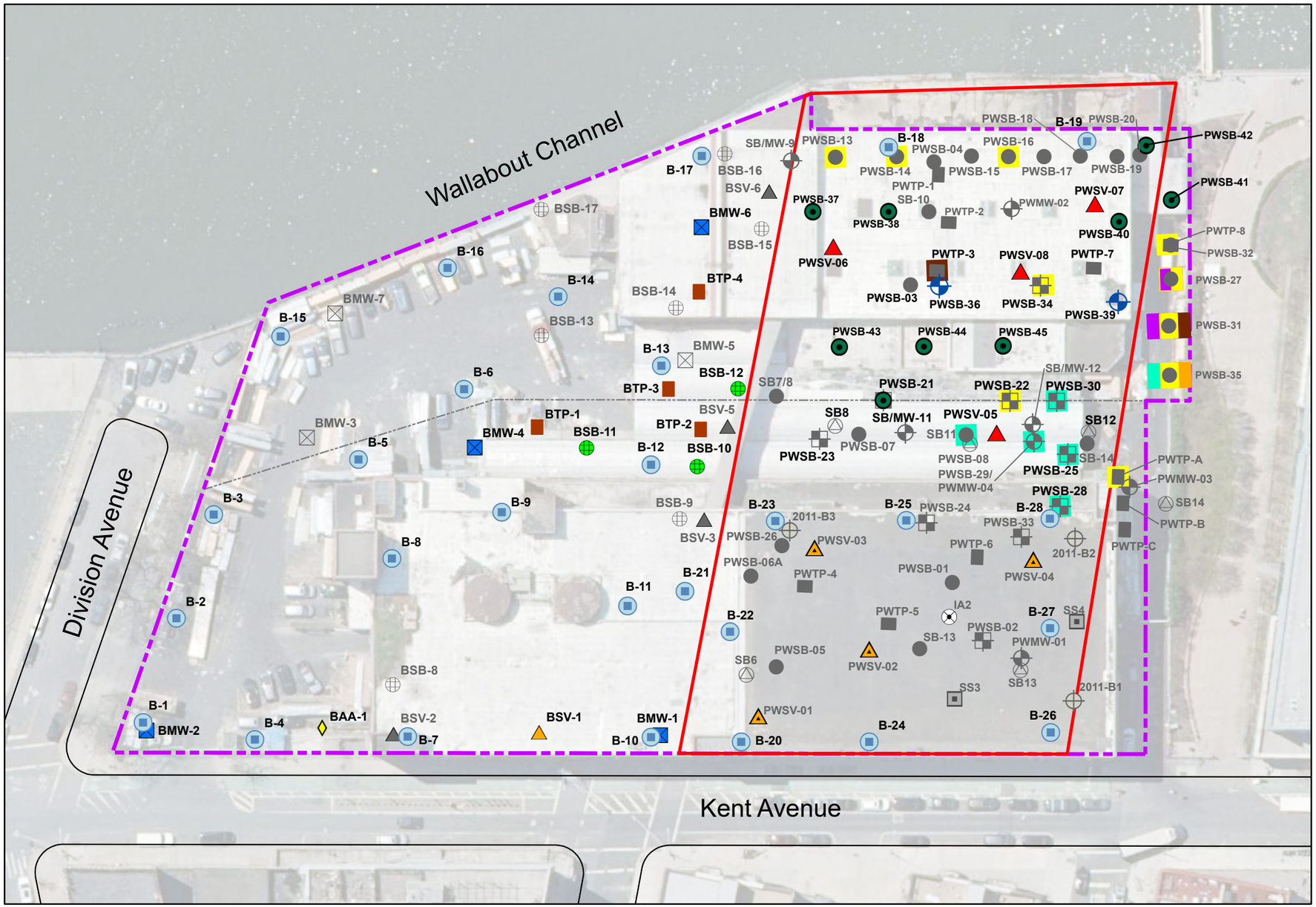
Please contact us if you need any additional information.

Sincerely,
Tenen Environmental, LLC

Matthew Carroll, P.E.
Principal / Environmental Engineer

Figure 1	Sample Location Map
Figure 2	Completed Sample Locations
Figure 3	Proposed Sample Locations
Table 1	Polyaromatic Hydrocarbons to be Analyzed in the Remedial Investigation
Attachment 1	Figure 12 of SCR (Groundwater Flow Direction and Contours)

Figures



Sources:
TETRA Tech Inc., Soil Boring, Test Pit and Monitoring Well Locations, Former Peoples Works Manufacturing Gas Plant Site, Brooklyn, NY, Proj. #194-4727, Fig. 8, 8/13/17.

Environmental Business Conultants (EBC), Sampling Locations, 464 Kent Avenue, Brooklyn, NY, Fig. 2.

Service Layer Credits: NYS ITS GIS Program Office,

- Petroleum Odors
- Moth Ball-Like Odors
- NAPL Coated Material
- NAPL Blebs and Sheen
- Solid NAPL

W E S N

0 30 60 120 Feet

MGP Samples

- Proposed Soil Boring Location
- Proposed Soil Boring/Groundwater Grab Sample Location
- Proposed Soil Vapor Sample Location
- Proposed Soil Vapor with Co-Located Indoor Air Sample
- Approximate Test Pit Location (TETRA Tech Inc.)
- Approximate Soil Boring and Groundwater Grab Location (TETRA Tech Inc.)
- Approximate Monitoring Well Location (TETRA Tech Inc.)
- Approximate Soil Boring Location (TETRA Tech Inc.)
- Approximate Monitoring Well Location from Previous Investigations (TETRA Tech Inc.)
- Approximate Soil Boring Location from Previous Investigation (TETRA Tech Inc.)
- Previous Boring (AKRF 2005)
- Soil Boring (EBC)
- Soil Gas Sample (EBC)
- Indoor or Outdoor Air Sample (EBC)
- Proposed Tenen BCP Boring
- Existing Tenen BCP Boring
- Proposed Groundwater Monitoring Well Location
- Existing Groundwater Monitoring Well Location, Previously Sampled
- Proposed Ambient (BAA) Air Sample
- Proposed BCP Soil Vapor Sample Location
- Existing Soil Vapor Sample Location
- Proposed BCP Test Pit
- Geotechnical Borings
- Lot Line
- Site Boundary
- Approximate Former MGP Boundary

Site
470 Kent Avenue
Brooklyn, New York
Block 2134, Lots 1 & 150

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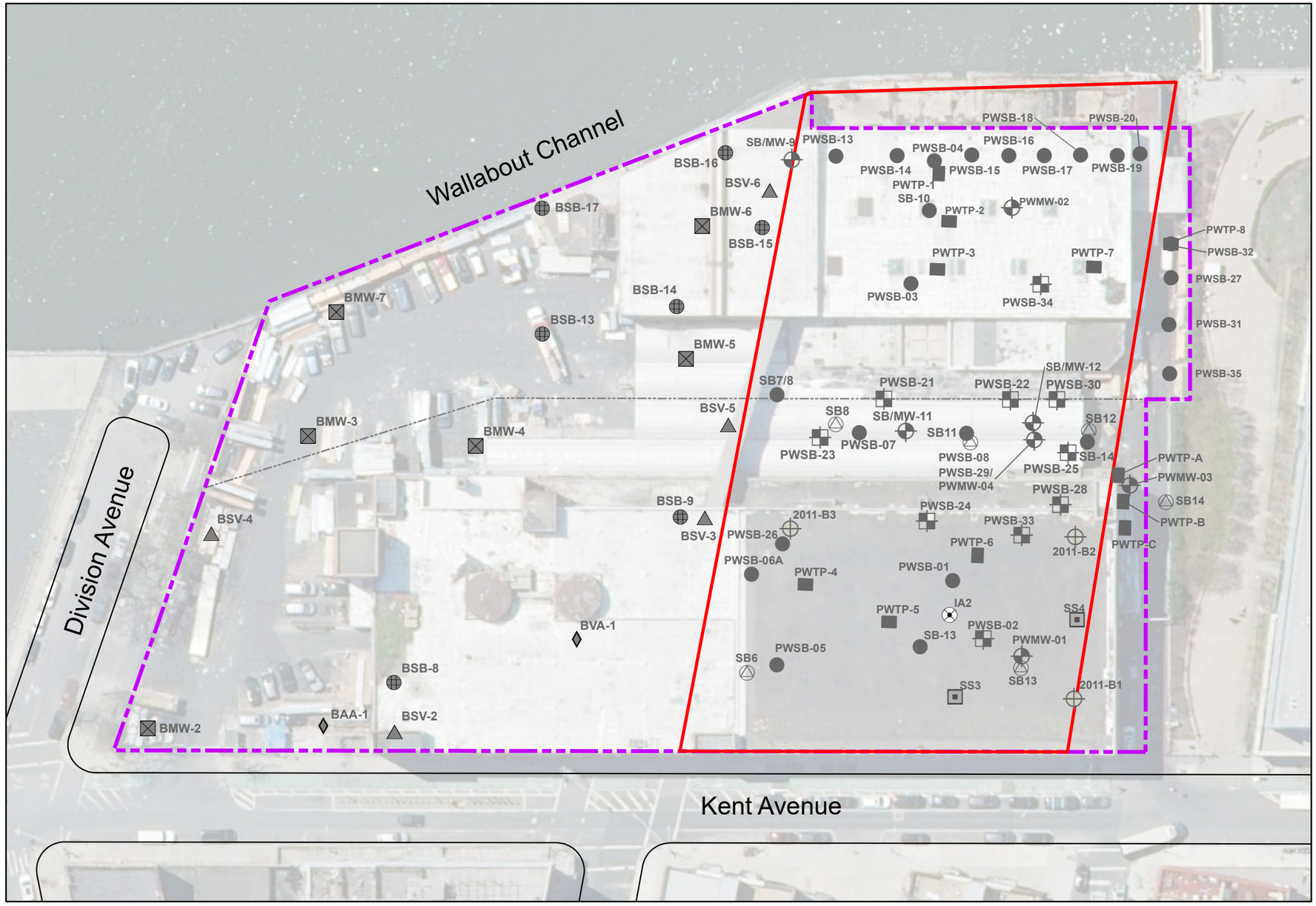
Drawn By	Checked By	Date	Scale
LM	MC	July 2020	As Noted

Drawing Title: **Sample Location Map**

Drawing No: **Figure 1**



Legend

- Approximate Test Pit Location (TETRA Tech Inc.)
- Approximate Soil Boring and Groundwater Grab Location (TETRA Tech Inc.)
- Approximate Monitoring Well Location (TETRA Tech Inc.)
- Approximate Soil Boring Location (TETRA Tech Inc.)
- Approximate Monitoring Well Location from Previous Investigations (TETRA Tech Inc.)
- Approximate Soil Boring Location from Previous Investigation (TETRA Tech Inc.)
- Previous Boring (AKRF 2005)
- Soil Boring (EBC)
- Soil Gas Sample (EBC)
- Indoor or Outdoor Air Sample (EBC)
- Soil Boring Sample Location
- Monitoring Well Location
- Soil Vapor Sample Location (BSV)
- Indoor (BVA) Air or Ambient (BAA) Air Sample Location
- Lot Line
- Site Boundary
- Approximate Former MGP Boundary

0 30 60 120 Feet

Service Layer Credits: NYS ITS GIS Program Office,

470 Kent Avenue
Brooklyn, New York
Block 2134, Lots 1 & 150

Site

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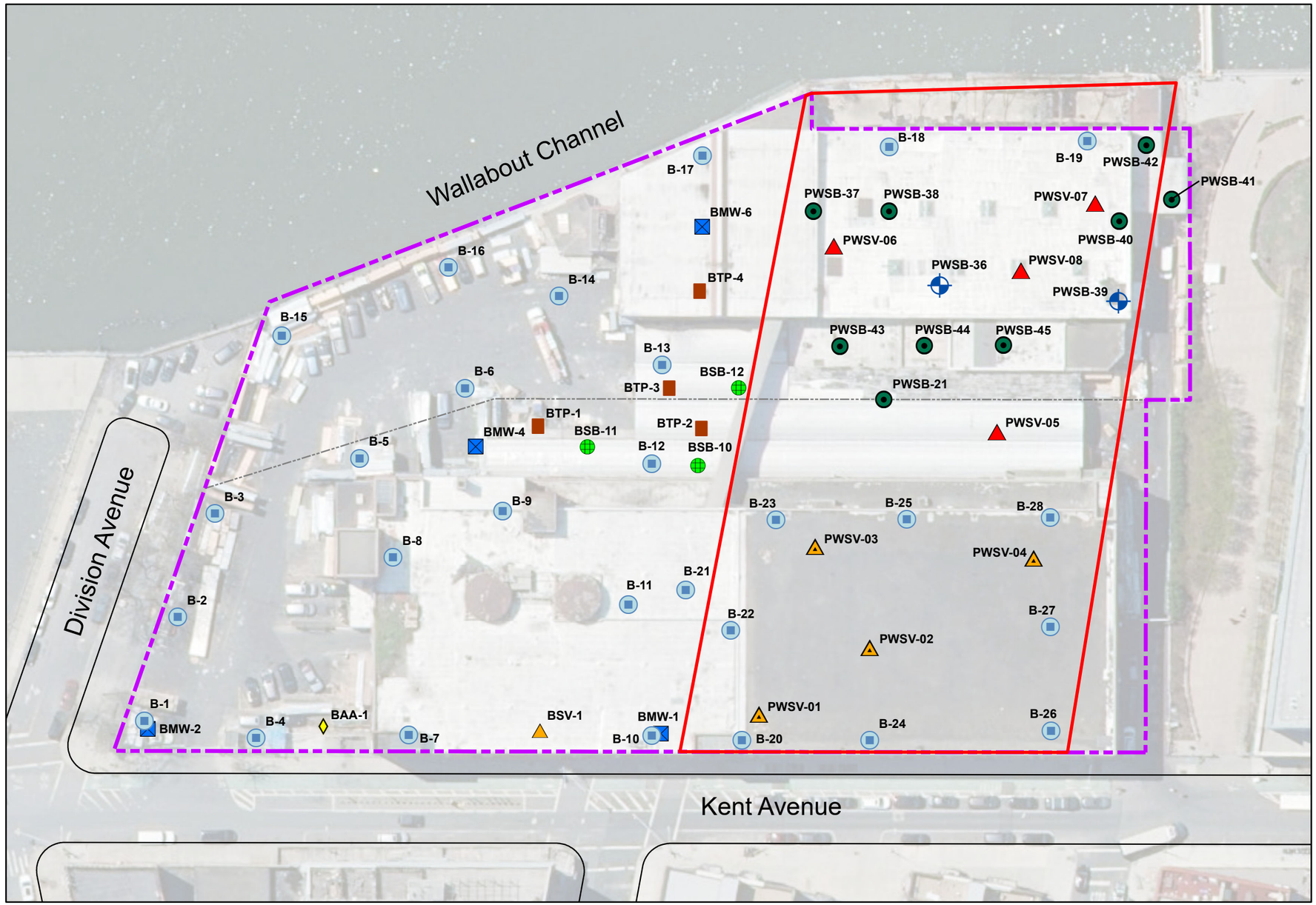
Drawn By	Checked By	Date	Scale
LM	MC	July 2020	As Noted

Drawing Title: **Completed Sample Locations**

Drawing No: **Figure 2**



MGP Samples

- Proposed Soil Boring Location
- Proposed Soil Boring/Groundwater Grab Sample Location
- Proposed Soil Vapor Sample Location
- Proposed Soil Vapor with Co-Located Indoor Air Sample
- Proposed Tenen BCP Boring
- Proposed Groundwater Monitoring Well Location
- Proposed Ambient (BAA) Air Sample
- Proposed BCP Soil Vapor Sample Location
- Proposed BCP Test Pit
- Geotechnical Borings
- Lot Line
- Site Boundary
- Approximate Former MGP Boundary

Feet
0 30 60 120

Service Layer Credits: NYS ITS GIS Program Office,

Site
470 Kent Avenue
Brooklyn, New York
Block 2134, Lots 1 & 150

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Drawn By	Checked By	Date	Scale
LM	MC	July 2020	As Noted

Drawing Title: **Proposed Sample Locations**

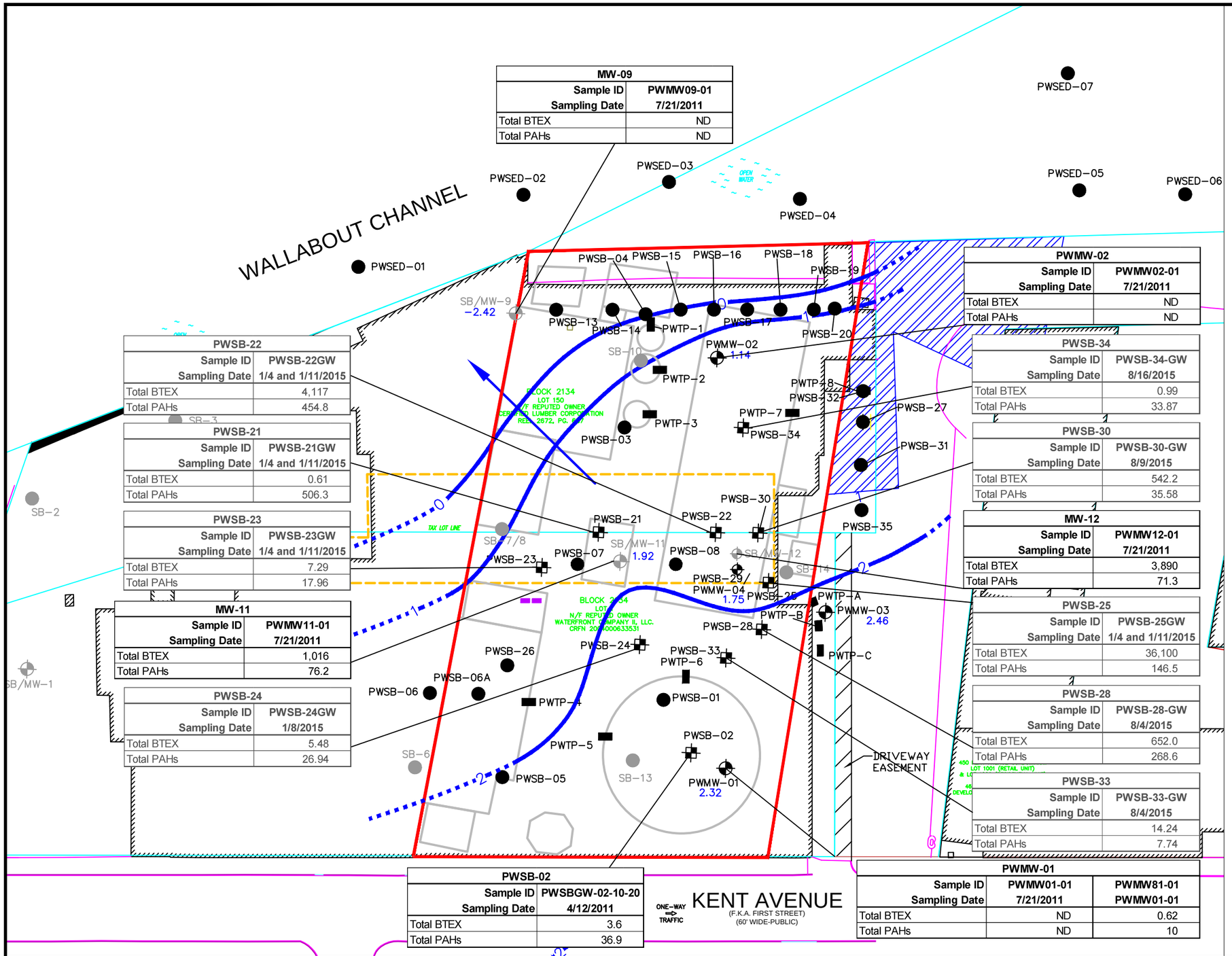
Drawing No: **Figure 3**

Tables

Table 1 - Polyaromatic Hydrocarbons to be Analyzed in the Remedial Investigation
470 Kent Avenue - Brooklyn, NY
DEC Site No 224053

2-Methylnaphthalene
1-Methylnaphthalene
Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)anthracene
C1-Benzo(a)anthracenes/Chrysenes
C2-Benzo(a)anthracenes/Chrysenes
C3-Benzo(a)anthracenes/Chrysenes
C4-Benzo(a)anthracenes/Chrysenes
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(e)pyrene
Benzo(g,h,i)perylene
Benzo(j/k)fluoranthene
Chrysene/triphenylene
Dibenzo(a,h)anthracene
Dibenzofuran
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Indeno(1,2,3-cd)pyrene
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Phenanthrene
C1-Phenanthrenes/Anthracene
C2-Phenanthrenes/Anthracene
C3-Phenanthrenes/Anthracene
C4-Phenanthrenes/Anthracene
Perylene
Pyrene

Attachment 1



MW-09	
Sample ID	PWMW09-01
Sampling Date	7/21/2011
Total BTEX	ND
Total PAHs	ND

PWMW-02	
Sample ID	PWMW02-01
Sampling Date	7/21/2011
Total BTEX	ND
Total PAHs	ND

PWSB-22	
Sample ID	PWSB-22GW
Sampling Date	1/4 and 1/11/2015
Total BTEX	4,117
Total PAHs	454.8

PWSB-34	
Sample ID	PWSB-34-GW
Sampling Date	8/16/2015
Total BTEX	0.99
Total PAHs	33.87

PWSB-21	
Sample ID	PWSB-21GW
Sampling Date	1/4 and 1/11/2015
Total BTEX	0.61
Total PAHs	506.3

PWSB-30	
Sample ID	PWSB-30-GW
Sampling Date	8/9/2015
Total BTEX	542.2
Total PAHs	35.58

PWSB-23	
Sample ID	PWSB-23GW
Sampling Date	1/4 and 1/11/2015
Total BTEX	7.29
Total PAHs	17.96

MW-12	
Sample ID	PWMW12-01
Sampling Date	7/21/2011
Total BTEX	3,890
Total PAHs	71.3

MW-11	
Sample ID	PWMW11-01
Sampling Date	7/21/2011
Total BTEX	1,016
Total PAHs	76.2

PWSB-25	
Sample ID	PWSB-25GW
Sampling Date	1/4 and 1/11/2015
Total BTEX	36,100
Total PAHs	146.5

PWSB-24	
Sample ID	PWSB-24GW
Sampling Date	1/8/2015
Total BTEX	5.48
Total PAHs	26.94

PWSB-28	
Sample ID	PWSB-28-GW
Sampling Date	8/4/2015
Total BTEX	652.0
Total PAHs	268.6

PWSB-33	
Sample ID	PWSB-33-GW
Sampling Date	8/4/2015
Total BTEX	14.24
Total PAHs	7.74

PWSB-02	
Sample ID	PWSBGW-02-10-20
Sampling Date	4/12/2011
Total BTEX	3.6
Total PAHs	36.9

PWMW-01		
Sample ID	PWMW01-01	PWMW81-01
Sampling Date	7/21/2011	PWMW01-01
Total BTEX	ND	0.62
Total PAHs	ND	10

LEGEND

- APPROXIMATE FORMER MGP BOUNDARY
- CURRENT BUILDING
- PAVEMENT
- LOT BOUNDARY
- FORMER MGP-RELATED STRUCTURES
- COVERED AREA
- PWSB-02 — APPROXIMATE SOIL BORING AND GROUNDWATER GRAB LOCATION
- PWSB/PWMW-04 1.75 — APPROXIMATE MONITORING WELL LOCATION; APPROXIMATE GROUNDWATER ELEVATION
- APPROXIMATE GROUNDWATER ELEVATION CONTOUR, DASHED WHERE INFERRED
- PWSB-01 — APPROXIMATE SOIL BORING LOCATION
- PWTP-A / PWTP-1 — APPROXIMATE TEST PIT LOCATION
- PWSED-01 — SEDIMENT SAMPLE LOCATION
- SB/MW-09 — APPROXIMATE MONITORING WELL LOCATION FROM PREVIOUS INVESTIGATIONS
- SB-3 — APPROXIMATE SOIL BORING LOCATION FROM PREVIOUS INVESTIGATIONS
- APPROXIMATE MAXIMUM EXTENT OF EMBAYMENT (BROMLEY, 1880)
- APPROXIMATE LOCATION OF ABOVE GROUND TANKS

ALL UNITS ARE IN MICROGRAMS PER LITER (UG/L).

BTEX = BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES
ND = NOT DETECTED
PAH = POLYCYCLIC AROMATIC HYDROCARBONS

TOTAL PAHS IS THE SUM OF THE DETECTED CONCENTRATIONS OF THE FOLLOWING COMPOUNDS:

2-METHYLNAPHTHALENE, ACENAPHTHENE, ACENAPHTHYLENE, ANTHRACENE, BENZO(A)ANTHRACENE, BENZO(A)PYRENE, BENZO(B)FLUORANTHENE, BENZO(G,H,I)PERYLENE, BENZO(K)FLUORANTHENE, CHRYSENE, DIBENZ(A,H)ANTHRACENE, FLUORANTHENE, FLUORENE, INDENO(1,2,3-CD)PYRENE, NAPHTHALENE, PHENANTHRENE, PYRENE

SOURCES:
BOUNDARY AND SURVEY, NATIONAL GRID – FORMER PEOPLES WORKSITE, BROOKLYN, NEW YORK, PREPARED BY BORBAS SURVEYING & MAPPING, LLC, CONTROL POINT ASSOCIATES, INC, DRAWING NO. 110905_2011-10-24, NOVEMBER 1, 2011, ORIGINAL ISSUE.

SANBORN FIRE INSURANCE MAP, DATED 1887.

0 30 60
FEET

TETRA TECH INC.

TITLE:
MONITORING WELL LOCATIONS, GROUNDWATER ELEVATIONS AND ANALYTICAL RESULTS
FORMER PEOPLES WORKS MANUFACTURED GAS PLANT SITE
BROOKLYN, KINGS COUNTY, NEW YORK

DWN.: EO	DATE: 8/3/17	PROJECT NO.: 194-4727	
CHKD: RCC	REV.: 2	FIGURE NO.: 12	
DES.: EO	APPD: RCC		